

Draft Island Planning Strategy Habitat Regulations Assessment report

November 2018

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Draft

Executive summary

Background

This report presents the findings and recommendations of the draft Habitats Regulations Assessment (HRA) for the council's draft Island Planning Strategy. The strategy sets out visions for spatial development and levels of growth for the Island up to 2035. The draft strategy is available for public consultation from 3rd December 2018 to 28th January 2019 allowing people comment on what the council are proposing.

This draft HRA follows a HRA Background Report which detailed baseline information and the proposed methodology for conducting this assessment. Natural England, the Environment Agency and Marine Management Organisation were consulted, and comments received have been taken into consideration when drafting this draft HRA report.

The potential for likely significant effect on the following 12 designated nature conservation sites have been assessed:

Special Areas of Conservation (SACs)	Special Protection Areas (SPAs)	Ramsar sites
Bridlesford Copses	Chichester & Langstone Harbours	Chichester & Langstone Harbours
Isle of Wight Downs	Dorset Heathlands	Dorset Heathlands
New Forest	New Forest	New Forest
River Itchen		
Solent & Isle of Wight Lagoons	Portsmouth Harbour	Portsmouth Harbour
Solent Maritime	Solent & Southampton Water	Solent & Southampton Water
South Wight Maritime	Potential Solent and Dorset Coast	

Detailed screening of the draft Island Planning Strategy looked at the effects of policies and the conservation objectives of the European and Ramsar sites (including presumed conservation objectives where these are not known). Each of the draft policies that could not be screened out as having no effect on designated sites were then examined in more detail. A high-level assessment on impacts associated with residential, employment, retail and transport policies was completed where the following threats and vulnerabilities have been identified:

- Habitat loss and direct harm to species
- Habitat fragmentation/ loss of supporting habitat
- Direct harm to species
- Urbanisation
- Coastal squeeze
- Increased recreational pressure
- Water quality
- Water abstraction
- Air quality

Findings and recommendations

A detailed assessment of each potential development site put forward through the Strategic Housing Land Availability Assessment (SHLAA) was conducted to identify any likely significant effects on the designated sites and, where necessary, any mitigation requirements. This assessment has informed plans for housing growth and where sites have been allocated, specific policy has been drafted to include any of the mitigation requirements.

Research shows that new visitor and residential development is causing an adverse impact on the Solent and Southampton Water SPA. This has led to a partnership approach across the Solent to ensure development mitigates the impacts. The Isle of Wight Council is a member of the Solent Recreation Mitigation Partnership and is signed up to the approach set out within the partnership's Bird Aware Solent strategy. The approach includes a series of management measures which actively encourage all coastal visitors to enjoy their visits in a responsible manner.

The strategy also recognises that well designed Suitable Alternative Natural Greenspaces (SANGs) that are integral to a development and integrated with accessible networks are important for mitigating impacts caused by recreational activity. Therefore, to mitigate larger scale developments the council has identified through draft policy that SANGs should also be provided for development of 75 dwellings or more.

Policy DHWN4 'Planning for New Garden Communities' creates particular challenges. Because the scale, proximity and location of any new settlement or settlements have not yet been determined they will require separate environmental assessment in due course and on that basis, Policy DHWN4 has been screened out from further assessment.

This HRA also considers the loss of supporting habitat for mobile species outside of designated sites. The Isle of Wight Council has contributed to the updated Solent Waders and Brent Goose Study work and are in receipt of regular outputs and guidance as this materialises. This work will inform any planning decisions as and when they are applicable. The interim guidance for mitigation and off-setting requirements sets out that proposals will need to consider the ecological function of the network and cases will be determined by the LPA and Natural England. The guidance provides criteria for determining impact and the mitigation and offsetting requirements for these.

Developments near to the coast will also utilise outputs from the Shoreline Management Plan (SMP), coastal strategies and studies and ongoing work through the Southern Regional Habitat Creation Programme. The draft Island Planning Strategy will not require additional coastal defences however two policies within the draft Plan consider development within vulnerable coastal areas. The proposed policies set out how development will not result in coastal squeeze where designated sensitive habitats are present which is in line with the SMP.

Natural England highlighted that new development in-combination has the potential to cause adverse impacts to water quality for marine sites. The draft Island Planning Strategy ensures that where new development at the coast or close to watercourses is proposed good practice and, where required, appropriate planning conditions applied to address any issues. Through such measures as installing sustainable urban drainage systems (SuDS) or alternative attenuation / filtration technology impacts associated with construction activity and operational runoff can be mitigated.

Natural England also raised concerns about impacts to the River Itchen SAC (a chalk river habitat) where water is abstracted and imported to the Island. Water abstraction regimes are regularly monitored and managed by the Environment Agency and partnership working across the Partnership for Urban South Hampshire area ensures catchment scale management is in place. It is therefore possible to conclude that planned development on the Island is unlikely to result in an adverse effect on the River Itchen SAC, however safeguarding measures will be implemented to reduce potential for future adverse impacts.

Finally, this HRA also considers air borne pollutants that may arise as a result of increased car use associated with planned development and growth. An Air Quality Impact Assessment (AQIA) for the island is being undertaken by consultants Ricardo. It models pollutants against traffic scenarios related to planned development and preliminary screening results show that for four designated sites more detailed analysis is required. This work has been programmed and it is likely that national incentives for modal shifts in transport will mitigate the effects. Specific onsite measures such as landscaping and design may also be required in some instances.

Conclusion

There are a suite of proposed policies in the draft Island Planning Strategy that independently and together work to ensure that protected sites are adequately considered. The draft strategy ensures that development will be located away from designated sites and that proposals must demonstrate that the integrity of European sites is protected. There are other plans and strategies that influence development to ensure mitigation is effectively delivered. These have also been taken into account when drafting the draft Island Planning Strategy. There remains uncertainty over any impacts associated with air quality however it is likely that providing there is appropriate mitigation the draft Island Planning Strategy will not lead to an adverse impact to the designated sites.

1. Introduction

Background and purpose of this report

- 1.1 The Isle of Wight Council (the council) undertook a review of its Core Strategy the 'Island Plan'. This review, combined with the work undertaken on draft area action plans (for the Medina Valley, Ryde and The Bay), has resulted in a document, the draft Island Planning Strategy (IPS), which is being published for public consultation.
- 1.2 The review of the core strategy and development of the new plan requires the necessary accompanying environmental assessment, including Habitats Regulations Assessment (HRA). This document forms a part of this HRA process, through the preparation of a compliant¹ assessment.
- 1.3 This report has therefore been produced by the council for the purpose of informing an assessment of the Island Planning Strategy against the requirements of The Conservation of Habitats and Species Regulations 2017 (or 'the Habitats Regulations 2017').
- 1.4 These regulations require that the relevant competent authority (i.e. the council) must, prior to the publication of a land use plan, assess its potential effects upon Special Areas of Conservation (SACs), possible SACs (pSACs), Sites of Community Importance (SCIs), and Special Protection Area (SPAs). UK policy extends this requirement to include potential SPAs (pSPAs) and sites that are listed under The Convention on Wetlands of International Importance, called the Ramsar Convention (these sites are known as Ramsar sites).
- 1.5 The assessment as a whole is referred to in this report as a Habitats Regulations Assessment or HRA.
- 1.6 A draft HRA background report was submitted to Natural England to ascertain if the proposed methodology to carry out HRA screening of the strategic objectives and policies that will be contained in the Island Plan review. The contents of that report are set out below in chapters 2-4. The report identified all of the European and Ramsar sites that could be significantly affected by the policies and proposals (including allocations) in the local plan, and all relevant threats to the integrity of these sites.
- 1.7 Through review of the Island Plan it became clear that a new plan was required and the draft Island Planning Strategy was compiled. Building on the HRA background report all policies of the draft strategy were screened following the proposed methodology.
- 1.8 This report presents the HRA methodology and results of the screening exercise.

¹ With the Conservation of Habitats and Species Regulations 2010 and the Habitats Directive 92/43/EEC.

The Habitats Directive and Regulations

- 1.9 In 1992 the European Community adopted the Habitats Directive² “to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of ...Member States” (see Article 2[1]). One of the Directive’s requirements is that Member States protect habitats and species of European importance through the establishment and conservation of an EU-wide network of European Sites comprising SACs and SPAs³.
- 1.10 The Habitats Directive is transposed into law in England and Wales by the Habitats Regulations. The relevant extract from the regulations which deals with assessing the implications of a land use plan on European Sites is shown in Figure 1.1 overleaf.
- 1.11 Regulation 105 of the Habitats Regulations requires land use plans to go through an assessment to ascertain whether it is likely to have a significant effect on a European or Ramsar site in Great Britain or a European offshore marine site (either alone or in combination with other plans or projects).
- 1.12 The HRA methodology for the Island planning Strategy follows the guidance set out in the DTA Publications Handbook. This sets out that first it is necessary to undertake a ‘screening’ exercise and any plan components or policies that are unlikely to have a significant effect are screened out. Following the *People Over Wind* case in the European Court of Justice the reliance of mitigation at the screening stage is precluded.
- 1.13 If the HRA shows that any of the policies are likely to have significant effects on a European or Ramsar site, it will be necessary to carry out an appropriate assessment of the implications for the site in view of that site’s conservation objectives. At this stage any mitigation measures are considered. An interpretation of these requirements is shown in Figure 1.2 (also overleaf).

² Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

³ SPAs are designated under Council Directive 79/409/EEC on the Conservation of Wild Birds.

Figure 1.1: Habitats Regulations extract

105.—(1) Where a land use plan—

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

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

the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives.

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

(3) The plan-making authority must also, if it considers it appropriate, take the opinion of the general public, and if it does so, it must take such steps for that purpose as it considers appropriate.

(4) In the light of the conclusions of the assessment, and subject to regulation 107, the plan-making authority must give effect to the land use plan only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

(5) A plan-making authority must provide such information as the appropriate authority may reasonably require for the purposes of the discharge by the appropriate authority of its obligations under this Chapter.

(6) This regulation does not apply in relation to a site which is—

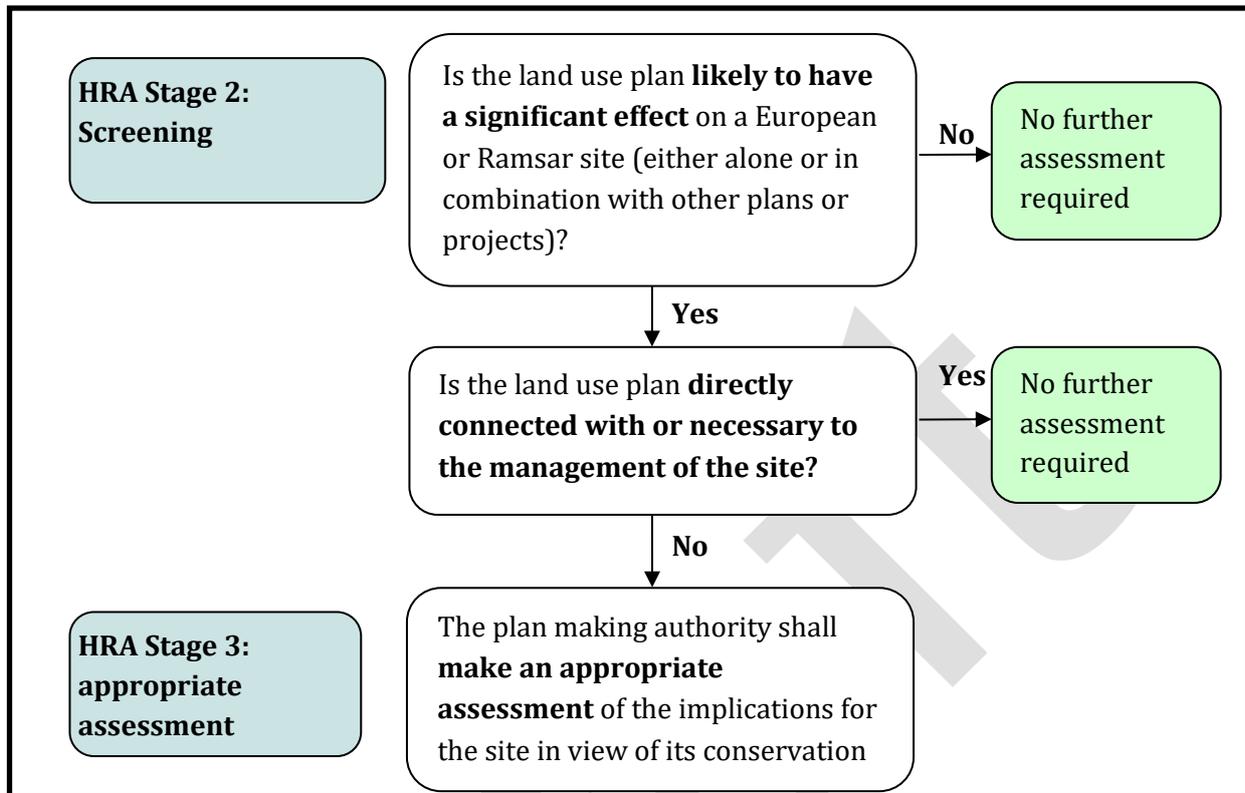
(a) a European site by reason of regulation 8(1)(c), or

(b) a European offshore marine site by reason of regulation 18(c) of the Offshore Marine Conservation Regulations (site protected in accordance with Article 5(4) of the Habitats Directive).

* A European offshore marine site is a site that is designated under the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2017 which transposed the Habitats Directive and the Wild Birds Directive beyond territorial waters (beyond 12 nautical miles). No European offshore marine sites were assessed for this report.

1.11 A flow chart summarising whether AA is required is shown in Figure 1.2.

Figure 1.2: Requirements for appropriate assessment



2. Approach to HRA screening

2.1 The approach that the council used to conduct the HRA Screening of the draft Island Planning Strategy is based on previous experience in HRA, building on draft advice written by Defra⁴. The methodology has been adapted from the approach to HRA Screening undertaken for the core strategy, and is based on the following steps:

- Baseline information gathering;
- Policy screening;
- Policy iteration;
- Further detailed policy screening.

Each of these steps is explored in more detail below.

⁴ English Nature (1999) Habitats regulations guidance note 3: The Determination of Likely Significant Effect under The Conservation (Natural England) AND DEFRA (2012,) The Habitats and Wild Birds Directives in England and its seas: Core guidance for developers, regulators and land/marine managers. draft for public consultation

Baseline information gathering

- 2.2 The first step in the HRA screening of a plan is to ascertain what European and Ramsar sites could be significantly affected. Natural England's advice⁵ has generally been that potentially affected sites will be within 10km of a plan area boundary, but that consideration should also be given to the potential for sites beyond this distance to be affected. The latter could apply, for example, to sites designated for a species that is very mobile or for a habitat that is hydrologically connected to the plan area. Site information such as qualifying features, threats and vulnerabilities are gathered during this part of the HRA process.
- 2.3 In the case of the Island Planning Strategy it has been possible to draw on the information that was previously gathered for the Island Plan core strategy and the draft AAPs. Information has also been gathered from the Joint Nature Conservation Council website and from HRAs of plans and programmes in the surrounding areas.

Core policy objectives screening

- 2.4 A Core Strategy needs to include a set of objectives that provide the overall framework for what the strategy is seeking to achieve. Objectives are generally broad-based and will not usually lead to development in themselves but instead rely on the policies in the Core Strategy to achieve them. As these policies will themselves be subject to HRA, there is no need to carry out further HRA on the objectives. If, however, there are objectives that will not be delivered through policies in the Core Strategy, these objectives will need to be subject to HRA as outlined in the remainder of this methodology section.

Policy Screening

- 2.5 The HRA process requires that a plan should be examined for likely significant effects on European and Ramsar sites. This is generally accomplished by referring to relevant European and Ramsar sites' conservation objectives (as determined by Natural England) and determining whether the plan is likely to have a significant adverse effect on these objectives. This assessment should take into consideration both the direct and indirect impacts of each policy in isolation, along with the 'in combination' effects with either other policies in the Core Strategy or separate plans, projects or strategies that are in development, in delivery, or recently concluded. This information will support a decision of either (a) 'no likely significant effect' where the impacts (singly or in combination) are deemed to have no, or extremely limited, effect or (b) a decision of 'likely significant effect'.

⁵ David Tyldesley and Associates (2009). *Revised Draft Guidance: The Habitats Regulations Assessment of Local Development Documents* Unpublished report to Natural England

- 2.6 This assessment is based on our understanding of the potential effects of the policies and the conservation objectives of the European and Ramsar sites (including presumed conservation objectives where these are not known). The assessment draws upon the identified threats and vulnerabilities for each relevant European and Ramsar site. This assessment involves determining whether the policy could contribute to these vulnerabilities such that there could be a significant negative effect on a site. Information to aid this process, including Natural England's advice for European Marine Sites provided under Regulation 37 of the Habitat Regulations 2017 can be found on Natural England's Designated Sites View (<https://designatedsites.naturalengland.org.uk/>)
- 2.7 The draft Island Planning Strategy will set the broad development requirements on the Island as well as identify the precise locations for delivery. The screening stage of this HRA will take a precautionary approach but will only seek to identify the impacts that are at risk of adverse impact on the integrity of the European site features as a result of the draft Island Planning Strategy policies.

Policy iteration

- 2.8 Policies will be examined to ascertain whether plan-level mitigation measures can be employed such that Likely Significant Effects can be avoided. Examples of such plan-level mitigation could include the provision of green infrastructure to mitigate the effects of recreational disturbance on breeding birds, the avoidance of development within the close vicinity of a European or Ramsar site without a project level HRA being conducted and standard development procedures to protect the environment which can be expected to be required at the project level (e.g. water pollution standards enforced by the Environment Agency).
- 2.9 The assessment process will be used iteratively as part of the options generation and appraisal process for each policy identified as having a likely significant effect. This will provide the HRA with the opportunity to inform each plan's emerging options and apply a hierarchical approach of avoidance and then mitigation as early as possible. This increases the likely number of options for avoiding potential significant impacts and thereby reduces both the number of options that will require further assessment and thereby reducing the need for mitigation measures.
- 2.10 Where it can be demonstrated that plan-level mitigation will enable the policies to avoid Likely Significant Effects, the policy, or supporting text where appropriate, should, wherever possible, be amended by the council to reflect this.
- 2.11 Recommendations that are made to mitigate likely significant effects on European and Ramsar sites will avoid, where possible, blanket protection policies and will be made specific to particular European Sites.
- 2.12 A reassessment of each modification should then allow an individual determination of 'no likely significant effect' to be found. At this time, a reassessment of the 'in combination' effects should also be made to ensure a similar conclusion can be drawn. On this basis, the requirement for an appropriate assessment can then be screened out.

Further detailed policy screening

- 2.13 After the policy iteration has been carried out by the council in light of the previous HRA Screening step findings, the policies will undergo a further detailed screening (taking into account the new wording) to ascertain whether they will have Likely Significant Effects on European/Ramsar sites. If, at this point, all policies can be screened out on the basis that they will not have Likely Significant Effects on a European or Ramsar site, there will be no requirement for Appropriate Assessment or other HRA work in relation to the review. However, if for the policy reviews it cannot be concluded that there will not be Likely Significant Effects, the council will be required to undertake the next stage of HRA.

3. Stage one – baseline information gathering

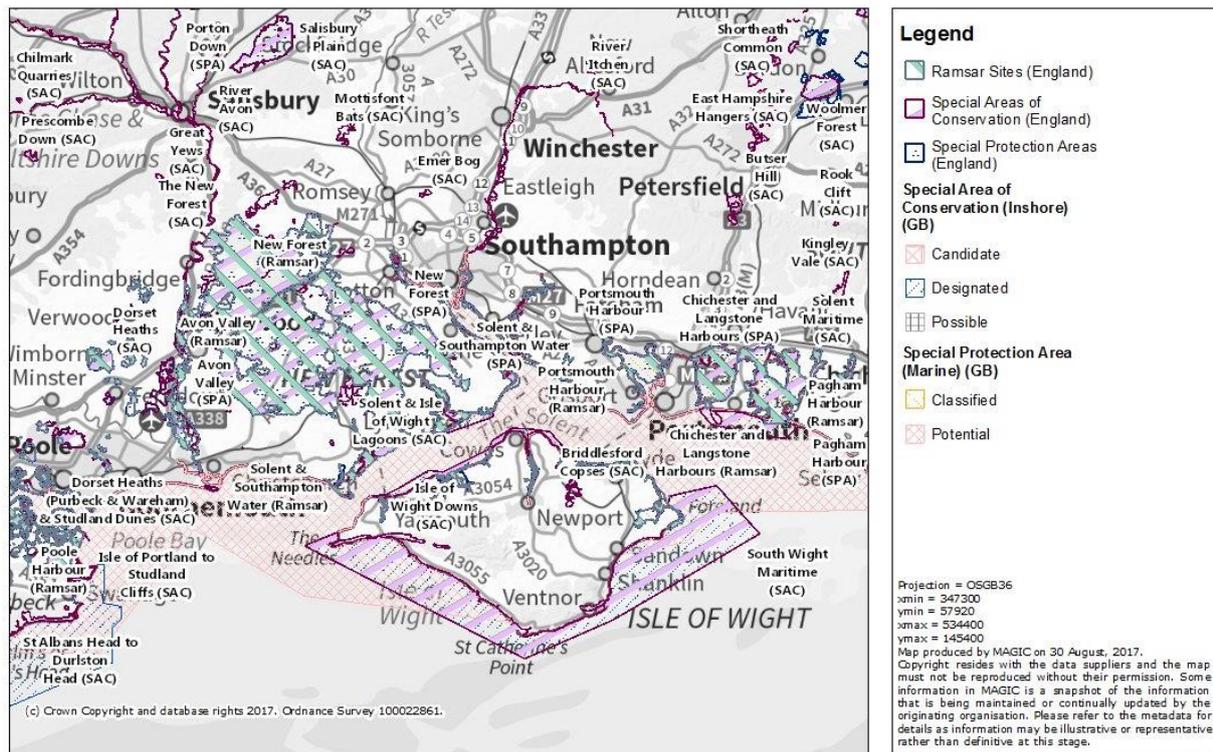
European and Ramsar site information

- 3.1 When considering which European and Ramsar sites to include in an HRA it is necessary to look at both the reasons for the designation of the sites and the type of activity or development that could be promoted by a land use plan.
- 3.2 Using these criteria, the council has identified sites that need to be considered within the HRA Screening of the Island Plan review (see table 3.1).

Table 3.1: European and Ramsar sites included in this assessment

Special Areas of Conservation (SACs)	Special Protection Areas (SPAs)	Ramsar sites
Bridlesford Copses	Chichester & Langstone Harbours	Chichester & Langstone Harbours
Isle of Wight Downs	Dorset Heathlands	Dorset Heathlands
New Forest	New Forest	New Forest
River Itchen		
Solent & Isle of Wight Lagoons	Portsmouth Harbour	Portsmouth Harbour
Solent Maritime	Solent & Southampton Water	Solent & Southampton Water
South Wight Maritime	Potential Solent and Dorset Coast	

Figure 3.1: Location of European and Ramsar Sites



Site information

- 3.4 Information on each of the European and Ramsar sites relating to the reason for their designation, and potential threats and vulnerabilities to their interest features is shown in Table 3.4 (overleaf).
- 3.5 Screening of each policy requires an assessment to be made of the effects on the interest features and conservation objectives of European and Ramsar sites that are likely to result from implementation of the policies. In general, the conservation objectives relate to maintaining in favourable conditions those habitats and species for which a site has been designated. Where the conservation objectives for a site refer to “*maintaining in favourable condition*”, Natural England’s HRA guidance states that, if a feature is not currently in a favourable condition, the objective should be taken as incorporating restoration of the feature’s favourable condition.
- 3.6 Natural England is in the process of setting out conservation objectives for all SACs and SPAs and some sites in the selected area have been completed, and progress towards these objectives can be taken as an indicator of favourable conservation status at a site. Ramsar sites do not have agreed conservation objectives, but in most instances overlap with SPA site boundaries. However, it should be noted that Ramsar qualifying features often include a range of habitats and non-bird species common to SAC designations, as well as bird species and assemblages and their supporting habitats, which are common to SPAs.

- 3.7 In addition to the broad conservation objectives, Natural England has published some supplementary advice on certain European sites, providing specific examples of attributes which contribute towards the stated conservation objectives of the site and ascribing targets (qualitative and quantitative) which can be measured so as to assess progress towards each conservation objective.
- 3.8 Natural England has also published a series of Site Improvement Plans (SIPs) for European sites. Each plan provides a 'high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features'.

Table 3.4 European and Ramsar Site Summary Information

Site	Type	Qualifying Features	Identified threats and vulnerabilities ⁶
Bridlesford Copses	SAC	Bechstein's bat	Offsite habitat availability/management Forestry and woodland management Change in land management Air pollution: risk of atmospheric nitrogen deposition
Chichester and Langstone Harbours	SPA and Ramsar	Dark-bellied brent goose; Common shelduck; Eurasian wigeon; Eurasian teal; Northern pintail; Northern shoveler; Red-breasted merganser; Ringed plover; Grey plover; Sanderling; Dunlin; Bar-tailed godwit; Eurasian curlew; Common redshank; Ruddy turnstone; Sandwich tern; Common tern; Little tern ; Waterfowl assemblage.	Recreational pressures Coastal squeeze Fisheries: commercial marine and estuarine Water pollution Changes in species distributions Climate change Change to site conditions Invasive species Direct land take from development Biological resource use Change in land management Inappropriate pest control Air pollution: impact of atmospheric

⁶ Information taken from Site Improvement Plans published for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 Sites (IPENS).

Site	Type	Qualifying Features	Identified threats and vulnerabilities ⁶
			<p>nitrogen desposition</p> <p>Hydrological changes</p> <p>Direct impact from 3rd party</p> <p>Extraction: non-living resources</p> <p>Consider boundary change to include habitats outside of existing boundaries</p>
Dorset Heathlands	SPA and Ramsar	<p>Northern Atlantic wet heaths with Erica tetralix</p> <p>European dry heaths</p> <p>Depressions on peat substrates of the Rhynchosporion</p> <p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinia caerulea)</p> <p>Calcareous fens with Cladium mariscus and species of the Caricion davalliana * Priority feature</p> <p>Alkaline fens</p> <p>Old acidophilous oak woods with Quercus robur on sandy plains</p> <p>Southern damselfly Coenagrion mercurial</p> <p>Great crested newt Triturus cristatus</p>	<p>Inappropriate scrub control</p> <p>Recreational pressures</p> <p>Undergrazing</p> <p>Forestry and woodland management</p> <p>Drainage</p> <p>Water pollution</p> <p>Invasive species</p> <p>Habitat fragmentation</p> <p>Conflicting conservation objectives</p> <p>Wildfire/arson</p> <p>Air pollution: impact of atmospheric nitrogen deposition</p> <p>Deer</p>
Isle of Wight	SAC	Vegetated sea cliffs of	Recreational pressures

Site	Type	Qualifying Features	Identified threats and vulnerabilities ⁶
Downs		<p>the Atlantic and Baltic Coasts</p> <p>European dry heaths</p> <p>Semi-natural dry grasslands and scrubland facies on calcareous substrates</p> <p>Early gentian</p>	<p>Inappropriate management of the protected site and neighbouring land</p> <p>Air pollution: risk of atmospheric nitrogen deposition</p> <p>Encroachment by residential development (shading, extending gardens)</p>
New Forest	SAC	<p>Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>); Nutrient-poor shallow waters with aquatic vegetation on sandy plains</p> <p>Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>;</p> <p>Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i>; Wet heathland with cross-leaved heath</p> <p>European dry heaths</p> <p><i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>);</p> <p>Purple moor-grass meadows</p> <p>Transition mires and quaking bogs; Very wet mires often identified by an unstable `quaking` surface</p> <p>Depressions on peat substrates of the</p>	<p>Drainage</p> <p>Inappropriate scrub control</p> <p>Fish stocking</p> <p>Deer</p> <p>Air pollution: risk of atmospheric nitrogen deposition</p> <p>Recreational pressure</p> <p>Change in land management</p> <p>Vehicles</p> <p>Inappropriate cutting/mowing</p> <p>Direct impact from 3rd party</p>

Site	Type	Qualifying Features	Identified threats and vulnerabilities ⁶
		<p><i>Rhynchosporion</i></p> <p>Alkaline fens; Calcium-rich spring water-fed fens Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrub layer (<i>Quercion robori-petraeae</i> or <i>Ilici-Fagenion</i>); Beech forests on acid soils <i>Asperulo-Fagetum</i> beech forests; Beech forests on neutral to rich soils Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains Bog woodland Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion</i>) Alder woodland on floodplains Southern damselfly <i>Coenagrion mercuriale</i> Stag beetle <i>Lucanus cervus</i> Great crested newt <i>Triturus cristatus</i></p>	
New Forest	SPA and Ramsar	<p>European honey-buzzard <i>Pernis apivorus</i> (Breeding) Hen harrier <i>Circus cyaneus</i> (Non-breeding) Eurasian hobby <i>Falco subbuteo</i> (Breeding) European nightjar <i>Caprimulgus europaeus</i> (Breeding) Woodlark <i>Lullula arborea</i> (Breeding) Dartford warbler <i>Sylvia undata</i> (Breeding)</p>	<p>Drainage Inappropriate scrub control Fish stocking Deer Air pollution: risk of atmospheric nitrogen deposition Recreational pressure Change in land management Vehicles</p>

Site	Type	Qualifying Features	Identified threats and vulnerabilities ⁶
		Wood warbler <i>Phylloscopus sibilatrix</i> (Breeding)	Inappropriate cutting/mowing Direct impact from 3 rd party
Portsmouth Harbour	SPA and Ramsar	Dark-bellied brent goose; Red-breasted merganser; Dunlin; Black-tailed godwit.	Recreational pressure Coastal squeeze Fisheries: commercial marine and estuarine Water pollution Changes in species distributions Climate change Change to site conditions Invasive species Direct land take from development Biological resource use Change in land management Inappropriate pest control Air pollution: impact of atmospheric nitrogen deposition Hydrological changes Direct impact from 3 rd party
River Itchen	SAC	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation Southern damselfly Bullhead White-clawed (or Atlantic stream) crayfish	Water pollution Physical modification Siltation Overgrazing Water abstraction Inappropriate weed control Hydrological changes Inappropriate water levels

Site	Type	Qualifying Features	Identified threats and vulnerabilities ⁶
		Brook lamprey Atlantic salmon Otter	Change in land management Inappropriate cutting/mowing Invasive species Undergrazing Inappropriate ditch management Inappropriate scrub control Forestry and woodland management
Solent & Isle of Wight Lagoons	SAC	Coastal lagoons	Hydrological changes Inappropriate weed control Coastal squeeze Invasive species Air pollution: risk of atmospheric nitrogen deposition Inappropriate management of neighbouring land (agriculture and commercial)
Solent and Dorset Coast	pSPA	Protects important foraging areas at sea used by the following qualifying interest features: Common tern Sandwich tern Little tern	<ul style="list-style-type: none"> <i>Any activity which might result in the significant reduction of prey availability. I am not aware of any activity, other than commercial fishing which might cause this effect but even that is unlikely to occur at a scale to make this happen.</i> <p><i>In our view there are relatively few activities which could take place which would have such effects. We believe therefore that most projects should be able to be screened out very easily.</i></p> <p>In terms of vulnerabilities of this designation Natural England have previously stated⁷ that they “believe that most of the activities which happen in the Medina and around the</p>

⁷ Letter from Natural England to the Isle of Wight Council dated 13th May 2016, subject; IOWC response to the consultation on the Solent and Dorset Coast potential Special Protection Area (pSPA).

Site	Type	Qualifying Features	Identified threats and vulnerabilities ⁶
			<p><i>Isle of Wight coast will have little impact on foraging terns and can therefore either be screened out entirely or would require only minor consideration. ... As a general guide we think that terns are vulnerable to projects which might result in:</i></p> <p><i>A loss of habitat (eg areas of coastal waters which terns might hunt for fish in such as land reclamation).</i></p> <p><i>Impacts on prey availability (eg barriers to fish migration and other features important to a healthy fish population).</i></p>
Solent and Southampton Water	SPA and Ramsar	Dark-bellied brent goose; Eurasian teal; Ringed plover; Black-tailed godwit; Mediterranean gull; Sandwich tern; Roseate tern; Common tern; Little tern; Waterfowl assemblage.	Recreational pressure Coastal squeeze Fisheries: commercial marine and estuarine Water pollution Changes in species distributions Climate change Change to site conditions Invasive species Direct land take from development Biological resource use Change in land management Inappropriate pest control Air pollution: impact of atmospheric nitrogen deposition Hydrological changes Direct impact from 3 rd party Consider boundary change to include habitats outside of existing boundaries

Site	Type	Qualifying Features	Identified threats and vulnerabilities ⁶
Solent Maritime	SAC	Atlantic salt meadows; Cord-grass swards; Estuaries; Intertidal mudflats and sandflats; Desmoulin's whorl snail; Shifting dunes with marram; Coastal shingle vegetation outside the reach of waves; Lagoons; Subtidal sandbanks; Glasswort and other annuals colonising mud and sand; Annual vegetation of drift lines.	Recreational pressure Coastal squeeze Fisheries: commercial marine and estuarine Water pollution Changes in species distributions Climate change Dredging Large watercraft activities (ferries) Air pollution
South Wight Maritime	SAC	Vegetated sea cliffs; Reefs; Sea caves.	Invasive species Inappropriate coastal management Recreational pressure Physical modification Fisheries: commercial marine and estuarine Air pollution

4. Other plans or projects that may have a likely significant effect in-combination

- 4.1 Regulation 105 of the Habitats Regulations 2017 requires an 'Appropriate Assessment' where "a land use plan—
(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and
(b) is not directly connected with or necessary to the management of the site",

Therefore, as well as considering the likely effects of the draft Island Planning Strategy on European sites, it was necessary to consider whether there may be significant effects in combination with other plans or projects.

4.2 The first stage in identifying potential in combination effects involves identifying which other plans and projects, in addition to the draft Island Planning Strategy, may affect the European sites. Other plans and projects that have the potential to cause cumulative impacts upon the sites and thus fall within the scope of the HRA have been screened. Plans have been identified where there is a link between the Island, the designated site and its identified threats and vulnerabilities.

4.3 Case law and guidance suggest that a plan or project at any of the following stages may be relevant to the in combination assessment:

- Applications lodged but not yet determined;
- Projects subject to periodic review e.g. annual licences, during the time that their renewal is under consideration;
- Refusals subject to appeal procedures not yet determined;
- Projects with consent but not yet started;
- Projects started but not yet completed;
- Known projects that do not need consent;
- Proposals in adopted plans;
- Proposals in finalised draft plans formally published or submitted for final consultation or adoption.

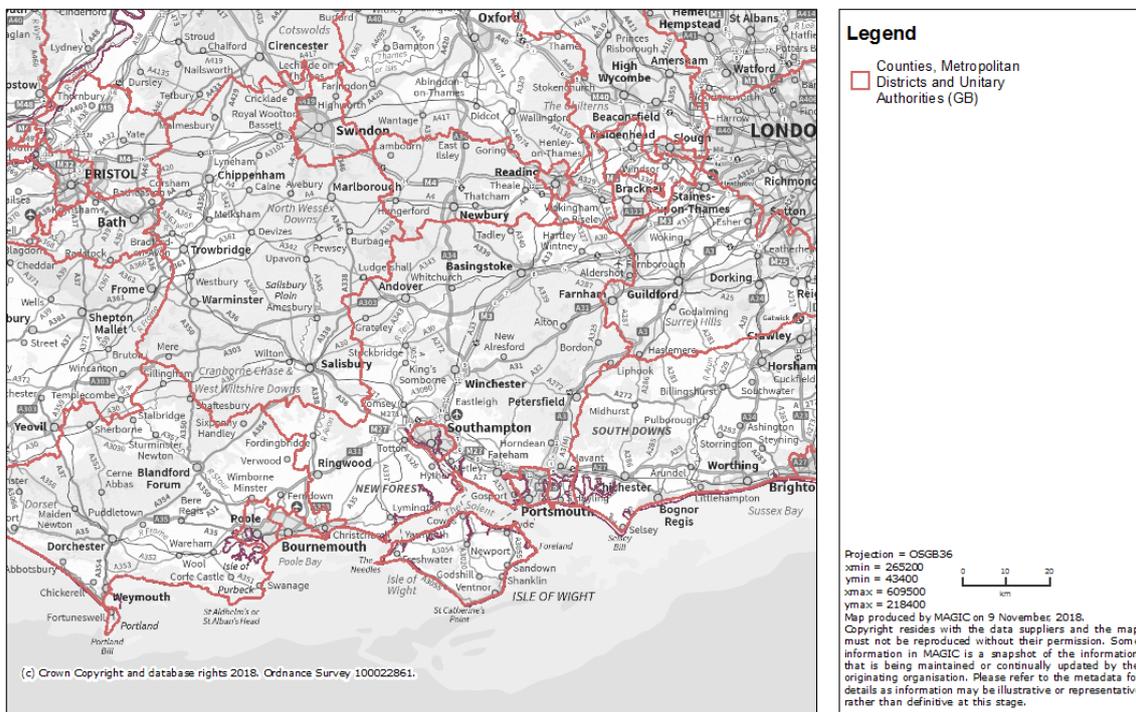
4.4 The review of other plans focussed on Local Plans for authorities within the Solent area and adjacent to the Isle of Wight as well as Minerals Local Plans, Waste Local Plans and Local Transport Plans. The Isle of Wight is physically separated from other local authorities however in-combination effects may arise where the interest features of designated sites are susceptible to cumulative impacts, such as recreational pressure. Other pathways of impact described in more detail in Chapter 3 include air quality, and pressure on water resources and quality. Whilst these are also strongly related to housing provision, the actual geographic impact must also be considered within the context of relevant infrastructure (e.g. transport networks and water supply catchments).

The following map shows the relationship between local authority boundaries in the Solent area with the designated sites.

Figure 4:1 Administrative boundaries in the Solent area

MAGiC

IoW administrative boundaries



- 4.5 A review of projects was carried out and planning permission for several sites has been granted for proposals that were subject to appropriate assessment through the Habitat Regulations. Without mitigation these sites have the potential to cause an adverse impact on the designated site alone and so are included in the in-combination assessment. Where any of these are proposed for allocation they will be assessed independently and in-combination with other plans or projects. No other projects of a significant scale⁸ that could result in in combination effects with the Local Plan were identified.
- 4.6 The following lists plans or projects which are considered to have the potential to act in combination with policies in the draft Island Planning Strategy to cause significant adverse effects on European and Ramsar sites:

- Chichester District Council
- East Hampshire District Council
- Eastleigh Borough Council
- Fareham Borough Council
- Gosport Borough Council
- Havant Borough Council
- New Forest District Council
- New Forest National Park Authority
- Portsmouth City Council
- Southampton City Council
- South Downs National Park Authority
- Test Valley Borough Council

⁸ review of the National Infrastructure Planning website, November 2018

Winchester City Council
 Isle of Wight AONB Management Plan (2014 - 2019 and draft 2019 - 2014)
 PUSH Spatial Position Statement (2016)
 Planning permission at Kingston Marine Park
 Planning permission at Medina Yard
 Planning permission at The Folly Works
 Planning permission at Harcourt Sands
 Planning permission at Brading Marshes
 Planning permission at Bembridge Harbour

4.7 This HRA report presents the initial screening results for each policy and site allocation individually, which is consistent with current guidance. The screening assessment considers the potential for the effects of each draft Island Planning Strategy component to become significant in combination with other Local Plans or with other plans and projects.

5. Policies that could lead to Likely Significant Effects

5.1 Table 4.1 (below) sets out policy types and potential effects that could lead to Likely Significant Effects on European and Ramsar sites. The land use plan will not contribute to all the identified threats and vulnerabilities shown in table 3.4 (above). For example a change to woodland management is a threat to the conservation status of Briddlesford Copse and would not be influenced by the draft Island planning Strategy. However, it should be noted that this list is not exhaustive and all policies will be examined during the HRA Screening for potential Likely Significant Effects.

5.2 It should be noted that while all the policy types identified are either in relation to allocations or transport, not all allocations or transport policies will lead to a Likely Significant Effect. For example the safeguarding of existing greenspace or the allocation of open space may provide positive effects, while certain approaches to transport policy (such as exploring more sustainable alternatives to the private motor car) may potentially lead to lesser or neutral impacts.

5.3 Therefore some of the policies that will come under the broad definitions set out in Table 4.1 will be screened out relatively early, despite this classification. At this early pre-assessment stage Table 4.1 should be viewed as indicative rather than a set rule.

Table 5.1: Description of potential effects that could result from core strategy policies

Type of policy that could result in LSE	Potential effect	Description of effect
All development allocation policies.	Direct loss of or damage to sites	A policy that directs development to a European or Ramsar site could lead to a Likely Significant Effect
Residential allocation policies.	Direct harm to species	There is potential for policies to lead to Likely Significant Effects on species for which sites have been designated through means such

Type of policy that could result in LSE	Potential effect	Description of effect
		as cat predation and damage from wind turbine blades.
All development allocation policies.	Loss of supporting habitat outside site important to qualifying species (e.g. for foraging)	A policy that directs development to an area that is utilised by species for which a European or Ramsar site is designated could lead to a Likely Significant Effect. This is most likely to occur in relation to foraging sites for bird and bat species.
Residential allocation policies. Employment allocation policies. Transport policies Tourism policies Economic growth policies	Urbanisation	A variety of different types of effect are associated with increased human populations close to sensitive European sites (e.g. noise pollution, light pollution, increased numbers of predators such as foxes and crows, increased incidence of fires, etc.).
All development allocation policies near coast.	Coastal squeeze	A policy that directs development to areas near to the coast could result in a hard boundary or change in biological/geomorphological dynamics which will prevent coastal habitats vertically and laterally 'migrating' up and inland as a result of climate change or natural processes.
Residential allocation policies. Tourism policies	Increased recreational pressure	Increased recreational pressures can result in potential effects to habitats through trampling and other damage, and in disturbance to species resulting in an adverse effect on individuals and populations.
All development allocation policies near to the coast.	Water quality	Nutrients in the Island's coastal waters are considered to be driving some designated features into unfavourable condition. These nutrients are stemming from diffuse water pollution sources, waste water discharges and sewage effluent. The council needs to consider the current condition of the relevant features and consider what additional

Type of policy that could result in LSE	Potential effect	Description of effect
		<p>contributions increased development pressures will have on these nutrient loads and their associated impacts. New development in close proximity to designated sites has the potential to increase nutrient loads through construction activities. These should be addressed by implementing good practice and, where required, through imposing appropriate planning conditions. Impacts associated with waste water and sewerage effluent discharge are unlikely to arise as result of planned development growth as they are considered under separate consenting regimes outside of the planning jurisdiction. However as a precautionary approach impacts will be considered at the appropriate assessment stage.</p>
<p>Residential allocation policies.</p> <p>Employment allocation policies.</p>	<p>Water abstraction</p>	<p>Policies which promote development that will increase the demand on water supplies could result in Likely Significant Effects on internationally designated sites. Note that this potential effect is not necessarily restricted to the immediate spatial locations of an allocation but could have wider effects depending on where water resources will be sourced from.</p>
<p>Employment allocation policies</p> <p>Residential allocation policies</p> <p>Transport policies</p>	<p>Air quality</p>	<p>Policies that increase the production of airborne pollutants could result in effects on habitats and species that are sensitive to air pollution. In particular the production of nitrous oxides, resulting from increased traffic movements (e.g. from transport or new residential policies) is the key atmospheric pollutant in terms of harm to European Sites.</p> <p>The council has commissioned a piece of work to assess the impacts associated with air quality as a result of planned growth. Modelling and analysis will determine whether there is a Likely Significant Effect on the designated habitats.</p>

6. Stage two – screening

- 6.1 The next stage of the HRA is to undertake a screening assessment to identify whether components of the draft Island Planning Strategy has the potential to result in likely significant effects on European sites. Mitigation provided by other policies or regulatory mechanisms is not considered at this stage and any components deemed to have a likely significant impact, alone and in-combination, will be assessed again at the appropriate assessment stage.
- 6.2 The effects associated with the policies can be sorted into one of twelve screening categories, which are listed below in Table 6. These categories are taken from Part F6.3 of The HRA Handbook (DTA Publications, 2018), and help to screen which, if any, elements of the draft Island Planning Strategy would be likely to have a significant effect on any interest feature of any European site, alone or in combination with other projects and plans, directly or indirectly.

Figure 6.1 The Habitat Regulations Handbook screening categories⁹

The list of screening categories is as follows:

- A. General statement of policy / general aspiration (screened out). F.6.3.1
 - B. Policy listing general criteria for testing the acceptability / sustainability of proposals (screened out). F.6.3.2
 - C. Proposal referred to but not proposed by the plan (screened out). F.6.3.3
 - D. Environmental protection / site safeguarding policy (screened out).F.6.3.4
 - E. Policies or proposals which steer change in such a way as to protect European sites from adverse effects (screened out). F.6.3.5
 - F. Policy that cannot lead to development or other change (screened out). F.6.3.6
 - G. Policy or proposal that could not have any conceivable effect on a site (screened out). F.6.3.7
 - H. Policy or proposal the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects) (screened out). F.6.3.8
 - I. Policy or proposal with a likely significant effect on a site alone (screened in) F.6.3.9
 - J. Policy or proposal with an effect on a site but not likely to be significant alone, so need to check for likely significant effects in combination F.6.3.10
 - K. Policy or proposal not likely to have a significant effect either alone or in combination (screened out after the in combination test). F.6.3.11
 - L. Policy or proposal likely to have a significant effect in combination (screened in after the in combination test). F.6.3.11
- 6.3 The vulnerabilities for each site have been identified and shown in table 3.4 (above). A number of the identified threats and vulnerabilities for certain sites would clearly not be affected by the draft Island Planning Strategy. The Island is geographically separated from the mainland and as such direct threats such habitat loss or public disturbance will not occur as a result of the Strategy. Some identified threats are associated with land management and again would not occur as a result of the IPS. The vulnerabilities not affected (and the sites for which they were identified) are:

⁹ Section 6.3, The Habitat Regulations Handbook (DTA Publications, 2018)

- Woodland management at Briddlesford Copse SAC
- Direct threats to Chichester and Langstone Harbour SPA/Ramsar, such as coastal squeeze, public access or change in management.
- All threats to Dorset Heathlands SPA/Ramsar.
- Direct threats to the New Forest SAC, SPA/Ramsar, such as changes in management, public access or deer.
- Changes in management and land take at Portsmouth Harbour SPA/Ramsar.
- Changes in management and physical modification on the River Itchen SAC.
- Inappropriate weed control on the Solent and Isle of Wight Lagoons SAC.
- Changes in management of the Solent and Southampton Water SPA/Ramsar.
- Fisheries operation in the Solent Maritime SAC.
- Fisheries operation and invasive species in the South Wight Maritime SAC.

Draft Island Planning Strategy policy screening

6.4 The Draft Local Plan contains sections of introductory or administrative text as well as broad statements on 'vision' (Chapters 1, 2 and 3). It includes a set of core objectives that provides the overall framework for planning delivery on the Island. These are:

1. *The environment and unique island characteristics are celebrated*
2. *Outstanding digital and transport connectivity*
3. *The Isle of Wight is a leading UK visitor destination*
4. *Businesses have the confidence to invest*
5. *All young people will have the best start in life so that they can fill their potential*
6. *A well educated and skilled community*
7. *Community needs are met by the best public services possible*
8. *The community feels safe and is the Island is resilient*
9. *People take responsibility for their own health and wellbeing*
10. *People have a place to call home and can live with independence*
11. *Vulnerable people are supported and protected*

6.5 Chapter 3 of the draft Island planning Strategy sets out area-based regeneration based on the council's separate draft Regeneration Strategy. This identified five areas across the Island and statements for each of these sets out what the council expects it to look like by 2035 (the end of the plan period). These Area Statements direct the council's planning policies.

6.6 The core objectives and statements will not lead to development in themselves; rather the policies within the draft Island Planning Strategy will be the mechanism to achieve these. Each policy will be subject to HRA and so there is no need to carry out further HRA on these overall objectives. For the purposes of this screening assessment these are excluded (screened out) from the assessment as there is no

conceivable effect that could result from them. The remaining policies and proposals are taken forward for screening.

Initial Policy screening

6.7 Table 5 (below) shows the results of the initial HRA screening exercise (the screening matrix) for the policies and proposals detailed in the draft Local Plan. For each policy or proposal its potential for likely significant effect on each of the designated sites and the impact pathways resulting from each policy where applicable is considered.

Table key:

	policies shown in dark green have been screened in and require further assessment
	policies shown in light green have been screened out and are unlikely to have a significant effect upon the designated sites
justification column	screening categories identified by a letter which are from the HRA Handbook (DTA Publications, 2018)

Table 6.2 Draft Island Planning Strategy HRA screening matrix

Policy or proposal	Policy aim	Justification	Impact pathways
PSDG 1. Our Approach Towards Sustainable Development and Growth	The policy sets out the council's overarching approach towards sustainable development and growth.	I	Direct loss or damage to sites Loss of supporting habitat Direct harm to species Coastal squeeze Urbanisation Construction activity
PSDG2. Presumption in Favour of Sustainable Development	This is a generic policy that sets out the approach to a presumption in favour of sustainable development.	A	N/A
PSGD 3. Priority Locations for Development and Growth	This policy prioritises areas for growth. It sets out the settlement hierarchy where development should be located and identifies criteria for non-allocated sites.	B	N/A
PSDG4. Developer Contributions	This policy seeks to ensure development contributes appropriately to the Island's infrastructure.	B	N/A
PSDG 5. Managing Viability	This policy sets out the council's expectations when assessing the viability of a project.	B	N/A

PSDG 6. Ensuring planning permissions are delivered	This policy aims to ensure new development is delivered by setting considerations for renewal applications	C	N/A
DHWN 1. Planning for housing delivery	Facilitates housing delivery and sets out how it will be undertaken.	I/L	Habitat loss Coastal squeeze Urbanisation Recreational pressure Water quality Water resource Air quality
DHWN 2. Sites allocated for housing	Allocates sites to deliver the Island's housing requirement each year.	I/L	Habitat loss Coastal squeeze Urbanisation Recreational pressure Water quality Water resource Air quality
DHWN 3. Housing allocations general requirements	This policy seeks to ensure those sites that have been allocated in Policy H2 are delivered as sustainable high quality developments.	B/C	N/A
DHWN 4. Planning for new garden communities	Provides a framework for locating one or two new settlements on the Island.	I/L	Urbanisation Recreational pressure Water resource Water pollution Air quality
DHWN 5. Maximising infill opportunities	This policy supports housing development in already built up areas but outside and not immediately adjacent to settlement boundaries.	L	Recreational pressure Water resources Water pollution Air quality
DHWN 6. Delivering affordable housing	This policy aims to provide the level of affordable housing required within new development	B	N/A
DHWN 7. Rural exception sites	This policy aims to increase the provision of affordable housing across the island by allowing development in rural areas	I	Habitat loss Construction activities Coastal squeeze
DHWN 8. Ensuring the right mix of housing	This policy seeks to ensure development provides an appropriate	B	N/A

	mix of housing types and densities.		
DHWN 9. Self and custom build	This policy requires that developments with a net gain of 25 dwellings and above should include plots for self and custom builds	B	N/A
DHWN 10. Planning for Gypsy, Traveller and Travelling Showpeople provision	This policy seeks to enable homes for the travelling community in sustainable locations that are appropriate for use and accessible to facilities and services.	I/L	Habitat loss Coastal squeeze Urbanisation Water quality Water resource Air quality
SGOE 1. Supporting and growing our economy	This policy allocates 7 employment sites across the Island.	L	Urbanisation Water quality Water resource Air quality
EA 1. Employment allocation land to the east of Pan Lane	This policy details the development requirements for the land to east of Pan Lane allocation site.	L	Water quality Water resource Air quality
EA 2. Employment allocation at Nicholson Road, Ryde	This policy details the development requirements for the land at Nicholson Road, Ryde allocation site.	L	Water quality Water resource Air quality
EA 3. Employment allocation at Somerton Farm, Cowes	This policy details the development requirements for the land at Somerton Farm, Cowes allocation site.	L	Water quality Water resource Air quality
EA4. Employment allocation at Kingston Marine Park, East Cowes	This policy details the development requirements for the land at Kingston Marine Park, East Cowes allocation site.	I/L	Habitat loss Coastal squeeze Urbanisation Water quality Water resource Air quality
EA5. Employment allocation at Lowtherville, Ventnor	This policy details the development requirements for the land at the Lowtherville, Ventnor allocation site.	L	Water quality Water resource Air quality
EA6. Employment allocation at Sandown Airport	This policy details the development requirements for the land at Sandown Airport.	L	Water quality Water resource Air quality
EOA 1. Employment opportunity area at	This area is identified on the Policy Map and is	H	N/A

Golden Hill Fort, Freshwater	where employment use already exists and future development for this use will be supported.		
EOA 2. Employment opportunity area at Afton Road, Freshwater	This area is identified on the Policy Map and is where employment use already exists and future development for this use will be supported.	H	N/A
EOA 3. Employment opportunity area at Cowes industrial Estates	This area is identified on the Policy Map and is where employment use already exists and future development for this use will be supported.	H	N/A
EOA 4. Employment opportunity area at College Close, Sandown	This area is identified on the Policy Map and is where employment use already exists and future development for this use will be supported.	H	N/A
SGOE 1. Sustainable economic development	This policy supports development that will maintain and grow the economy.	A	N/A
SGOE 2. Upskilling the Island	This policy requires completion of an Employment and Skills Plan for developments of 25+ dwellings or 1000m2 of non-residential floor space.	F	N/A
SGOE 3. Supporting the rural economy	This policy supports development of rural business.	I/L	Habitat loss Urbanisation Construction activities Coastal squeeze Water quality Water resource Air quality
SGOE 4. Maintaining employment sites with water access	Using a suitability criteria approach this policy seeks to retain employment sites with waterfront access.	B	N/A
SGOE 5. Future proofing digital infrastructure	This policy aims to ensure provisions for digital connectivity is included within new development.	G	N/A
SGOE 6. Supporting and improving our town	This policy aims to invigorate town centres by allowing retail	I/L	Habitat loss Coastal squeeze Urbanisation

centres	development.		Water quality Water resource Air quality
SGOE 7. Supporting the evening economy	This policy supports development that contributes to the evening economy.	A	N/A
SGOE 8. Supporting high quality tourism	This policy aims to ensure that tourism accommodation in certain locations is not lost and that new proposals across the island relating to tourism are high quality.	F	N/A
SGOE 9. The Bay Tourism Opportunity Area	This policy identifies an area within The Bay where tourism development is supported.	H	N/A
SGOE 10. Ryde tourism opportunity zones	This policy identifies an area in Ryde where tourism development is supported.	H	N/A
BCI 1. A Better Connected Island	This policy seeks to provide high quality transport travel connections within and to/from the Island.	C	N/A
BCI 2. Supporting Sustainable Travel	The policy will help to ensure that there is the widest possible range of sustainable transport choices available to Island residents.	E	N/A
BCI 3. Cross-Solent transport	The policy seeks to support the optimal and efficient use of existing cross-Solent passenger and vehicular terminals.	I/L	Habitat loss Coastal squeeze Urbanisation
BCI 4. Supporting our railway network	This policy sets out aspirations to maintain and improve the current rail network on the Island. This includes potential track upgrades as well as linking the steam railway at Havenstreet to Ryde.	L	Habitat degradation loss/ Air quality
BCI 5. Electric vehicle charging points	This policy helps to ensure that the right infrastructure is in place for electric vehicle use	E	N/A

	and thus increasing its popularity.		
BCI 6. Parking provision in new development	Addresses a balanced approach to parking provision within new development	L	Air quality
CSSHC 1. High quality design for new development	This policy ensures any new development respects the character of existing built environments.	B	N/A
CSSHC 2. Improving our public realm	This policy seeks to ensure good quality design and provision of green infrastructure and incorporated within major and out of town developments.	G	N/A
CSSHC 3. Improving our health and wellbeing	This policy seeks to ensure communities have access to outside sport and recreational facilities.	L	Recreational pressure
CSSHC 4. Health hub at St Mary's hospital	This policy sets out development aspirations for facilities at St Mary's Hospital	L	Recreational pressure Water resource Air quality
CSSHC 5. Facilitating independent living	This policy expects new development to consider designing residential properties so that they are adaptable over time. It also sets out that age friendly environments should be created.	B	N/A
CSSHC 6. Providing annexe accommodation	This policy sets out criteria for support of new annexe accommodation.	H	N/A
CSSHC 7. Delivering locality hubs	This policy allocates sites for the provision of 'Locality Hubs', centres which bring together health and wellbeing services.	C	N/A
CSSHC 8. Facilitating a Blue light hub	This policy supports the delivery of a suitably located Blue Light Hub in the Newport area.	C	N/A
CSSHC 9. Supporting renewable energy and low carbon technologies	This policy provides a framework for appropriate renewable energy and low carbon technologies to facilitate opportunities to achieve	E	N/A

	the ambition of becoming self-sufficient in renewable electricity production.		
CSSHC 10. Lowering carbon and energy consumption in new development	This policy seeks to ensure that new development contributes to national targets to reduce carbon dioxide emissions from energy use.	E	N/A
CSSHC 11. Utility infrastructure requirements for new development	This policy sets out the requirement for new development to evidence that there is capacity within existing infrastructure to accommodate it. Proposals for improvements to the Island's provision will be supported.	B	N/A
CSSHC 12. Maintaining key utility infrastructure	This policy ensures that existing water provision and waste water treatment facilities are maintained and improved and that their future operation is not relied upon for new development.	E	N/A
CSSHC 13. Providing social and community infrastructure	This policy sets out support for development proposals that improve community facilities.	B	N/A
CSSHC 14. Community-led planning	This policy requires new development to contribute to key issues and actions identified in place and master plans endorsed by the council.	F	N/A
HQE 6. Conserving and enhancing our historic environment	This policy seeks to conserve and enhance the character of historic and built environments.	G	N/A
HQE 1. Ecological assets and opportunities for improvement	This policy seeks to protect and enhance biodiversity.	D/E	N/A
HQE 5. Trees, woodland and hedgerows	This policy sets out requirements for the protection of important trees, woodlands and	D	N/A

	hedgerows		
HQE.. Protecting and providing green and open spaces	This policy ensures the protection and enhancement of publically accessible open space	D/E	N/A
HQE 8. Local Green Spaces	Sites of local significance are designated and policy ensures there is no development in these locations.	D	N/A
HQE 2. Protecting our seascapes and landscapes	This policy seeks to protect and enhance landscape and seascapes.	D	N/A
HQE 4. Preserving settlement identity	Policy seeks to maintain identities of communities by avoiding increasing settlement coalescence.	F	N/A
HQE 3. Isle of Wight AONB	This policy ensures the protection and conservation of the Isle of Wight AONB.	D	N/A
HQE 7. Dark skies	This policy supports the creation of a Dark Skies Park on the Island and requires new development to incorporate reduced lighting.	D	N/A
HQE 9. Managing our water resources	This policy sets out the requirements for improved management of water resources on the Island	D	N/A
HQE 10. Managing flood risk in new development	This policy ensures that new development at risk of flooding is avoided and where development is necessary it is made safe.	F	N/A
HQE 11. Monktonmead catchment area	This is an area specific policy that seeks to reduce flood risk within the Monktonmead catchment.	D	N/A
HQE 12 Managing our coast	This policy ensures that developments in coastal change areas are protected.	F	N/A
HQE 13. Facilitating relocation from coastal change management areas	This policy facilitates the relocation of existing development away from Coastal Change	F	N/A

	Management Areas.		
HQE 14. Improving resilience from coastal flooding	This policy seeks to ensure that new development contributes to suitable coastal protection schemes.	C	N/A
HQE 15. Managing ground instability in new development	This policy sets out considerations for development in areas at risk of ground stability.	C	N/A

6.8 Not all policies could be screened out and will require further assessment. The proposed policies and associated development is discussed in the next section, the appropriate assessment, and each likely significant effect upon designated sites assessed in turn.

7. Stage three – appropriate assessment

- 7.1 This chapter looks in more detail at those policies that could not be screened out and that could potentially have an effect on European and Ramsar sites. Each identified threat and vulnerability is looked at in turn and the potential for policy impacts is considered. Where policy is likely to have an impact the use of mitigation measures is discussed. This assessment draws upon the baseline information gathered in previous stages, best practice guidance and professional judgement.
- 7.2 The identified threats and vulnerabilities for designated sites are:
- Habitat loss and direct harm to species
 - Habitat fragmentation/ loss of supporting habitat
 - Direct harm to species
 - Urbanisation
 - Coastal squeeze
 - Increased recreational pressure
 - Water quality
 - Water abstraction
 - Air quality
- 7.3 On the 7th November 2018 a European Court of Justice ruling (Holohan v An Bord Pleanala) determined that an appropriate assessment must identify and examine species and habitats integral to the conservation of a designation, even where these are not listed as a designated feature. Given the recent nature of this ruling it may be that further analysis is required in this respect. However it is worth noting that the draft Plan is a strategic document and therefore impacts and necessary mitigation measures will also be strategic in nature.
- 7.4 The assessment of potential policy effects draws upon the site vulnerabilities and policy types. The initial screening exercise, section 6 (above) identified that residential, tourism, employment, business, parking and transport policies may have the potential to cause an adverse effect. Potential for adverse effects are likely where development in-combination has the potential to cause an impact. Where sites have been allocated a detailed assessment of the environmental capacity for development has been considered. This means that the integrity of a site, including non protected features, have been considered
- 7.5 An example where the integrity of a designated feature and it's function has been considered is for Bechstein bats. It's roost and forage habitat has been considered even where these are outside of the designated boundary. Best practice guidance advises a foraging range of 3km for this species and as such any connecting hedgerows, foraging areas and roosting sites within this zone have been considered within this draft HRA. Habitats (hedgerows and trees) and species (invertebrate prey species) not protected but essential to the survival of the designated feature have been assessed. This is discussed in more detail in section 9.
- 7.6 The Holohan v An Bord Pleanala case was determined recently and practice guidance on the best approach has yet to materialise. This draft HRA considers the identified threats and vulnerabilities associated with the designated sites. However if Natural England hold any additional evidence on the habitats and species that are at

threat and essential to the survival of the features of interest this should be highlighted at this stage of the consultation process.

- 7.7 There are many uncertainties associated with assessing the potential for particular types of development to affect European and Ramsar sites. To provide consistency and transparency, where assumptions are made these are set out. At this stage any mitigation requirements are included within the assessment.

8. Detailed policy assessment

Policy iteration and rescreening

- 8.1 The following policies have been identified as having potential to cause an adverse effect upon the designated sites alone. As such the policies have been reviewed and where applicable amended to ensure an adverse effect is avoided. The policies are reassessed to determine whether there is an impact in-combination with other plans or projects. Table 8.1 (below) sets this out:

Table 8.1 showing results of policy iteration and rescreening

Policy	Possible impact	Policy iteration	Result of rescreening
DHWN 4	The broad area of search for new garden communities on the west of the island is within close proximity to Newtown Harbour which is Solent Maritime SAC, Solent and Southampton Water SPA/ Ramsar and the Solent and Dorset Coast pSPA. This presents considerable challenges if further work demonstrates appropriate development can be accommodated to avoid adverse effects on the integrity of the designations.	Area of search moved west to reduce proximity to Newtown Nature Reserve.	I/L – alone and in-combination
DHWN 7 Rural exception sites	An impact alone has been identified where nature conservation policies are not considered. There is potential for impacts associated with	Wording has changed and reads “To help contribute to meeting the objectively assessed housing need for affordable housing	L – in-combination

	habitat loss and construction activity in and close to designated sites.	across the Island, the council will support the principle of affordable housing in perpetuity on rural exception sites”.	
CSSHC 3 Improving our health and wellbeing	Need to ensure the enhancement of travel networks doesn't increase recreational pressure on the coast and that sensitive sites are appropriately protected.	Wording has changed and reads “... providing or enhancing active travel networks in appropriate locations. ”	H - Screened out
EA 4 Employment allocation at Kingston Marine Park	Potential to result in direct habitat loss.	The requirement for water front access has been removed and the site boundary has changed to remove the intertidal habitat within the protected site.	L – in-combination

The following table (8.2) sets out all those policies that have been identified as requiring further assessment.

Table 8.2 Policies identified as requiring further assessment

Policy or proposal	Policy aim	Justification	Impact pathways
PSDG 1 Our Strategy for sustainable development and growth	The policy sets out the council's overarching approach towards sustainable development and growth.	I	Direct loss or damage to sites Loss of supporting habitat Direct harm to species Coastal squeeze Urbanisation Construction activity
PSGD 2 Priority locations for development and growth	Policy defines areas for development.	I/L	Habitat loss Coastal squeeze Urbanisation Recreational pressure Water quality Water resource Air quality
DHWN 1 Planning for housing delivery	Facilitates housing delivery and sets out how it will be undertaken.	I/L	Habitat loss Coastal squeeze Urbanisation Recreational pressure Water quality Water resource

			Air quality
DHWN 2 Sites allocated for housing	Allocates sites to deliver the Island's housing requirement each year.	I/L	Habitat loss Coastal squeeze Urbanisation Recreational pressure Water quality Water resource Air quality
DHWN 4 Planning for new settlements	Provides a framework for locating one or two new settlements on the Island.	I/L	Urbanisation Recreational pressure Water resource Water pollution Air quality
DHWN 5 Maximising infill opportunities	This policy supports housing development in already built up areas but outside and not immediately adjacent to settlement boundaries.	L	Recreational pressure Water resources Water pollution Air quality
DHWN 7 Rural exception sites	This policy aims to increase the provision of affordable housing across the island by allowing development in rural areas.	I	Habitat loss Construction activities Coastal squeeze
DHWN 10 Gypsies, Travellers and Travelling Showpeople	This policy seeks to enable homes for the travelling community in sustainable locations that are appropriate for use and accessible to facilities and services.	I/L	Habitat loss Coastal squeeze Urbanisation Water quality Water resource Air quality
SGOE 1 Supporting and growing our economy	This policy allocates 7 employment sites across the Island.	L	Urbanisation Water quality Water resource Air quality
EA 1 Employment allocation land to the east of Pan Lane	This policy details the development requirements for the land to east of Pan Lane allocation site.	I/L	Air quality Water resource Water quality
EA 2 Employment allocation at Nicholson Road, Ryde	This policy details the development requirements for the land at Nicholson Road, Ryde allocation site.	L	Air quality Water resource Water quality
EA 3 Employment allocation at Somerton Farm, Cowes	This policy details the development requirements for the land at Somerton Farm, Cowes allocation site.	L	Air quality Water resource Water quality
EA4 Employment allocation at Kingston Marine Park, East Cowes	This policy details the development requirements for the land at Kingston Marine Park, East Cowes allocation site.	I/L	Habitat loss Coastal squeeze Urbanisation Water quality Water resource Air quality
EA5 Employment allocation	This policy details the development requirements for	L	Water quality Water resource

at Lowtherville, Ventnor	the land at the Lowtherville, Ventnor allocation site.		Air quality
EA6 Employment allocation at Sandown Airport	This policy details the development requirements for the land at Sandown Airport.	L	Water quality Water resource Air quality
SGOE 3 Supporting the rural economy	This policy supports development of rural business.	I/L	Habitat loss Urbanisation Construction activities Coastal squeeze Water quality Water resource Air quality
SGOE 6 Supporting and improving our town centres	This policy aims to invigorate town centres by allowing retail development.	I/L	Habitat loss Coastal squeeze Urbanisation Water quality Water resource Air quality
BCI 3 Cross-Solent transport	The policy seeks to support the optimal and efficient use of existing cross-Solent passenger and vehicular terminals.	I/L	Habitat loss Coastal squeeze Urbanisation
BCI 4 Supporting our railway network	This policy sets out aspirations to maintain and improve the current rail network on the Island. This includes potential track upgrades as well as linking the steam railway at Havenstreet to Ryde.	I/L	Habitat loss/ degradation Air quality
BCI 6 Parking provision in new development	Addresses a balanced approach to parking provision within new development	L	Air quality
CSSHC 4 Health hub at St Mary's hospital	This policy sets out development aspirations for facilities at St Mary's Hospital	L	Recreational pressure Water quality Water resource Air quality

General assessment of policy effects

8.2 The screening exercise identified policies that may have an impact on the European designated sites either alone or in-combination. The types of policy that are likely to give rise to an adverse impact can be categorised into 3 types: residential development, economic development and travel connections. This section of the assessment sets out how the draft Island Planning Strategy plans for development growth on the island and identifies the potential adverse impacts to the designated sites associated with this. The potential adverse effects and impacts associated with development are assessed in more detail in sections 9 to 14 of this HRA.

The level and distribution of residential development

- 8.3 The draft Island Planning Strategy sets out the quantum of development across the plan period. Policy DHWN1 'Planning for Housing Delivery' details the overall number of dwellings required and advocates a stepped approach to ensure delivery of the council's objectively assessed needs. The policy seeks to facilitate and provide certainty for housing delivery across the island by setting out how it will be undertaken.
- 8.4 The council has calculated its objectively assessed housing need figure using the nationally prescribed standard methodology and the 2016 national household projections. This figure was tested through the sustainability appraisal process, and reflecting the council's ambitions for well-managed growth a housing requirement for 641 dwellings per year over the plan period was established.
- 8.5 A key part of the council's delivery strategy is to 'step' this requirement over the plan period, to enable a range of planning and non-planning interventions to come into effect that will facilitate this uplift and to ensure that the Island's development sector and housing market can deliver and accommodate this increase over the historic delivery rates.
- 8.6 Because of this stepped approach the 5-year housing land supply will be calculated on the basis of the relevant requirement for the period in accordance with the above. Subject to any review of the draft Island Planning Strategy, any shortfall in delivery from the start of the plan period will be addressed by applying the 'Liverpool Approach', with the shortfall being delivered over the remaining years of the Plan period. This is necessary to ensure that the draft Island Planning Strategy's policies for a significant uplift in the supply of housing in the 5-year period following adoption, as part of the council's wider sustainable, long term growth strategy, are not undermined by setting of unrealistic housing targets in the short term.
- 8.7 Each site put forward through the council's call for sites through the Strategic Housing Land Availability Assessment (SHLAA) was assessed to determine how the level of development would be accommodated to the point where an adverse effect on integrity of designated sites would not occur. The SHLAA methodology is available online¹⁰ and appendix A shows the assessment of each SHLAA site associated with this HRA.
- 8.8 A number of potential development sites (in the SHLAA) have been identified which, by virtue of their size and location, could lead to likely significant effects if they are developed in isolation. These comprise of:

Table 8.3 Sites identified through the SHLAA process that could lead to likely significant effects alone

Site	Location	Proximity to nearest European site	Site size (ha)	Mitigation required?	Appropriate to take forward?
IPS111	Werrar Farm, Werrar Lane, Newport	Adjacent to Solent Maritime SAC and Solent and	110	Direct impacts need assessment	No

¹⁰ www.iow.gov.uk/shlaa

		Southampton Water SPA/ Ramsar			
IPS138a	Land south of Buckbury Lane, Newport	1.2km to Solent and Dorset Coast pSPA	1.5	No, site provides mitigation for previous development under the Habs Regs	No
IPS140	Former sewage works adjoining Kingston Copse, East Cowes	245m to Solent Maritime SAC and Solent and Southampton Water SPA/ Ramsar	1.5	No, site provides mitigation for previous development under the Habs Regs	No
IPS149	Land to west of St Mildreds Church, off Beatrice Avenue, East Cowes	Partly within Solent Maritime SAC and Solent and Southampton Water SPA/ Ramsar	12.5	Direct impacts need assessment.	No
IPS153	Folly Works, Folly Lane, Whippingham	Partly within Solent Maritime SAC and Solent, Southampton Water SPA/ Ramsar and Solent and Dorset Coast pSPA	14.5	Direct impacts need assessment.	Yes, discussed in the Assessment of identified threats and vulnerabilities, page 50
IPS163	Chawton Farm, Chawton Lane, Cowes	12m to Solent Maritime SAC and Solent and Southampton Water SPA/ Ramsar	70	Direct impacts need assessment.	No
IPS170	Land between St Martins and Dundas West, Afton Down, Freshwater	Adjacent to the Isle of Wight Downs SAC	0.2	Direct impacts need assessment.	No
IPS371	Newport Harbour	Adjacent to Solent and Dorset Coast pSPA	2.5	There will be direct impacts that will need assessment.	Yes, discussed in the Assessment of identified threats and vulnerabilities, page 50
IPS394	Medina Yard, Cowes	Partly within Solent and Dorset Coast pSPA and adjacent to Solent Maritime SAC	5.8	There will be direct impacts that will need assessment.	Yes, discussed in the Assessment of identified threats and vulnerabilities, page 50

IPS404	Island Harbour	Adjacent to Solent Maritime SAC and Solent and Southampton Water SPA/ Ramsar. Also within 2010 Brent goose use mapping area	10	There will be direct impacts that will need assessment.	No
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8.9 Not all SHLAA sites are appropriate for development and not all sites will contribute to the housing delivery required for the Island. Larger scale housing development will be identified in the draft Island Planning Strategy under Policy DHWN2 'Sites Allocated for Housing' which sets out the sites that are allocated. The council proposes 113 sites for allocation and these are expected to deliver the primary quantum of development required for the Island.

8.10 Policy DHWN3 'Housing Allocations General Requirements' details the requirements for allocations with no specific site constraint/ feature or requirement and Appendix 1 and 2 sets out the specific policy requirements for other allocated sites.

8.11 The following table (8.4) sets out housing allocation sites that have been identified as requiring further assessment:

Table 8.4 Proposed housing allocation sites requiring further assessment because of alone and or in-combination effects

Regeneration Area	Site	Housing Allocation Reference Number	Specific or Generic Policy requirement	Indicative Yield	Proximity to EU site (m)
West Wight	Land to the east of Football Club, Camp Road, Freshwater	HA005	Specific	150	865
	Heathfield Campsite, Freshwater	HA006	Specific	90	450
	Regina Field, Copse Lane, Freshwater	HA007	Specific	90	525
West Medina	Medina Yard	HA019	Specific	535	Partly within Solent and Dorset Coast pSPA
Cowes	Former Somerton Reservoir, Cowes	HA020	Specific	146	550
	Somerton Farm, Cowes	HA022	Specific	80	500
Newport	Land adjacent to Carisbrooke College, Newport	HA031	Specific	175	1725
	Land at Horsebridge Hill, Newport	HA032	Specific	375	300

	Land west of Sylvan Drive, Newport	HA033	Generic	200	950
	Land south of Noke Common, Newport	HA036	Specific	180	950
	Land off Broadwood Lane, Newport	HA038	Specific	150	2400
	Former HMP site, Newport	HA039	Specific	1000	1000
	Land at New Fairlee Farm, Newport	HA040	Specific	780	550
	Newport Harbour	HA044	Specific	250	Adjacent to Solent and Dorset Coast pSPA
	Morey's Timber Yard, Trafalgar Road, Newport	HA110	Specific	100	780
East Medina	Crossway, East Cowes	HA046	Generic	75	600
	Folly Works	HA111	Specific	99	Partly within
	Red Funnel	HA113			Partly within Solent and Dorset Coast pSPA and adjacent to Solent Maritime SAC
Wootton	Land adjoining Lushington Hill and hunters Way, Wootton	HA053	Specific	75	1000
Ryde	Land to the west of Upton Road, Ryde	HA059	Specific	80	2100
	Westridge Cross Dairy and land to north of Bullen Road, Ryde	HA060	Specific	475	370
	Harcourt Sands, Ryde	HA112	Specific	128	Adjacent to Solent and Southampton Water SPA/ Ramsar
Bembridge	Land north of Mill Road and east of high Street, Bembridge	HA064	Generic	100	470
	Land east of Mill Road and south of Steyne Road, Bembridge	HA065	Generic	100	890
St Helens	Guildford Park, Caravan site, St Helens	HA076	Specific	100	290
The Bay	Former Sandham Middle School,	HA080	Specific	84	840

	Sandown				
	Land adjacent to Perowne Way, Sandown	HA083	Specific	125	940

- 8.12 Part of the strategy for the required housing delivery will be one or two new garden communities. Policy DHWN 4 'Planning for New Garden Communities' sets out the general policy framework for identifying their requirements and specific location(s) and broad areas of search are identified on the Policy Map. The policy sets out the general parameters for these including locational aspects, what principles should be considered when identifying or considering land for the new settlement as well as the type and scale of development.
- 8.13 The broad area of search for new garden communities on the west of the island is within close proximity to Newtown Harbour which is Solent Maritime SAC, Solent and Southampton Water SPA/ Ramsar and the Solent and Dorset Coast pSPA. This presents considerable challenges if further work demonstrates appropriate development can be accommodated to avoid adverse effects on the integrity of the designations.
- 8.14 To the south of the area of search is also the Isle of Wight Downs SAC protected for its mosaic of grassland habitats.
- 8.15 Policy DHWN 4 provides the framework for locating one or two new garden communities and the council will produce a Development Plan Document which investigates and plans for this. When developing the plan due consideration to the designated sites will be required and there is a greater potential for impact when the scale and proximity of development is greater. Therefore a flexible approach in terms of location and scale will be required.
- 8.16 Newtown is already a desirable location for recreation (walking, kayaking etc.) and activities here are picked up through the annual Solent European Marine Sites monitoring. The threats and vulnerabilities identified for the SAC designation also include recreational pressures and is particularly susceptible to trampling. The impacts associated with both of these sites will need mitigating and the developer will be required to work with the National Trust, MOD and other relevant parties to produce and implement a Visitor Management Plan. The strategy will need to be produced prior to any development and the plan measures fully funded and secured in-perpetuity.
- 8.17 Sections 12 and 14 of this HRA discusses in detail the impacts associated new development on water and air quality. One or two new settlements may require additional mitigation and can be secured through appropriate landscaping measures.
- 8.18 The scale, proximity and location of any new settlement or settlements have not yet been determined and will require separate environmental assessment when it is planned. The mitigation measures set out above and as set out within other draft IPS policies (such as the provision of SANGs) will be required and assessed in detail when plans are brought forward. On that basis policy DHWN4 is screened out from further assessment.

8.19 The assessment of potential housing delivery as proposed through the draft Island Planning Strategy has the potential to cause an adverse effect in-combination with other plans and projects. Each identified threat and vulnerability associated with residential development will be considered further. This will include residential developments within 5.6km of the Solent and identified sites and within 3km of Bridesford Copse SAC. All residential developments have the potential to contribute to in-combination effects associated with water quality, water resource and air quality. Some allocated sites currently have planning permission and without mitigation are likely to have a significant effect alone. Sections 12 to 14 look at all these effects in detail.

Economy and growth

8.20 The draft Island Planning Strategy sets out the Council's approach to supporting economic growth on the Island. Policies aim to provide job opportunities through allocations for employment use, support for intensification and expansion of existing industrial estates and by facilitating home working. Policy seeks to strengthen the role of town centres and the provision of appropriately located retail floorspace will be supported.

8.21 Policy SGOE 1 'Supporting and growing our economy' sets out the preferred location for development relating to economic growth and allocates several sites. A total of 30ha employment land is allocated through the plan and a further 57ha is identified for growth. However allocations are not provided for all types of development, for example retail. Developments will need to be assessed on a case by case basis and where applicable identified through HRA process. The policy approach set out in HQE2 ensures that where applicable development takes account of adverse effects on the designated sites.

8.22 The HRA screening exercise identified the following policies that may have an adverse effect:

Table 8.5 Draft Island Planning Strategy policies relating to economy screened into the assessment

Policy or proposal	Policy aim	Justification	Impact pathways
SGOE 1. Supporting and growing our economy	This policy allocates 6 employment sites across the Island.	L	Urbanisation Water quality Water resource Air quality
EA 1. Employment allocation land to the east of Pan Lane	This policy details the development requirements for the land to east of Pan Lane allocation site.	L	Water quality Water resource Air quality
EA 2. Employment allocation at Nicholson Road, Ryde	This policy details the development requirements for the land at Nicholson Road, Ryde allocation site.	L	Water quality Water resource Air quality
EA 3. Employment allocation at Somerton Farm, Cowes	This policy details the development requirements for the land at Somerton Farm, Cowes allocation site.	L	Water quality Water resource Air quality
EA4. Employment	This policy details the	I/L	Coastal squeeze

allocation at Kingston Marine Park, East Cowes	development requirements for the land at Kingston Marine Park, East Cowes allocation site.		Urbanisation Water quality Water resource Air quality
EA5. Employment allocation at Lowtherville, Ventnor	This policy details the development requirements for the land at the Lowtherville, Ventnor allocation site.	L	Water quality Water resource Air quality
EA6. Employment allocation at Sandown Airport	This policy details the development requirements for the land at Sandown Airport.	L	Water quality Water resource Air quality
SGOE 3. Supporting the rural economy	This policy supports development of rural business.	I/L	Habitat loss Urbanisation Construction activities Coastal squeeze Water quality Water resource Air quality
SGOE 6. Supporting and improving our town centres	This policy aims to invigorate town centres by allowing retail development.	L	Coastal squeeze Urbanisation Water quality Water resource Air quality

8.23 Policy SGOE1, the overarching economic development policy, sets out that proposals for new retail development will be expected to be located within the mapped Town Centre Boundaries. It goes on to state that “*For Newport Town Centre, new retail development should firstly be located in the Primary Shopping Area (as shown on the Policies Map), before Town Centre, edge-of-centre and then out-of-centre sites are considered. Any proposal for retail development which falls outside of the identified Primary Shopping Area or town centre boundaries will be assessed on a sequential basis as outlined in national policy*”.

8.24 The following table (8.6) sets out the distances between each Town Centre Boundary to the designated sites connected to the Island.

Table 8.6 Distance (km) between settlement boundaries and the nearest European designated site/s

Town	Designated site						
	Briddlesford Copse SAC	Isle of Wight Downs SAC	Solent and Isle of Wight Lagoons SAC	Solent Maritime SAC	Solent and Southampton Water SPA/Ramsar	South Wight Maritime SAC	Potential Solent and Dorset Coast SPA
Freshwater	20 km	1.3 km	30 km	1.2km	1.2km	1.8 km	1 km
Newport	4.5 km	9 km	14 km	0.5 km	0.5 km	11 km	0 km
Cowes	7 km	14 km	16 km	0 km	1.8 km	16 km	0 km
East Cowes	6.5 km	14 km	15 km	0.1 km	1.3 km	16 km	0.1 km
Ryde	3 km	13.5 km	6 km	5 km	0.4 km	7.5 km	0.4 km
Sandown	7 km	5.5 km	4.5 km	11 km	2.5 km	0.1 km	0.1 km

Shanklin	8 km	2.5 km	8 km	12 km	12 km	0.4 km	0.4 km
Ventnor	11 km	0.4 km	12 km	14 km	14 km	0.14 km	0.8 km

- 8.25 Several of the Island's key towns are located within close proximity to the designated sites and subsequently some sites allocated for employment use are also close.
- 8.26 Policy 'SGOE 1' identifies six sites for employment allocation and four existing sites for expansion and growth. All employment allocations are subject to separate policies and have been screened into the assessment. Each policy and site has been considered in terms of its relation to the designated sites. These are described in detail, below.

EA1 East of Pan Lane

The 2.8ha allocation is for a range of B1 and B2 employment uses. It is 1.3km from the Solent and Southampton Water Ramsar site, 1.3km from the Solent and Maritime SAC and Solent and Southampton Water SPA, and 3.3km from Briddlesford Copses SAC. Other European and Ramsar sites are located 10km or more from the allocation.

EA2 South of Nicholson Road

The allocation of 14.7ha of land for employment use to the south of Nicholson Road, Ryde, is located 1.4km from the Solent and Southampton Water Ramsar and SPA, 4.3km from the Solent and Isle of Wight Lagoons SAC, 4.8km from the South Wight Maritime SAC and Solent and Southampton Water SPA, and 3.4km from Briddlesford Copses SAC. Other European and Ramsar sites are located 10km or more from the allocation.

EA3 Somerton Farm, Cowes

The 2ha allocation is for a range of B1, B2 and B8 uses. It is 580m from the Solent Maritime SAC and Solent and Dorset Coast pSPA and is 800m from the Solent and Southampton Water SPA/ Ramsar. Briddlesford Copse SAC lies within almost 6km of the allocation site and all other designations are more than 10km away.

EA4 Kingston, East Cowes

Kingston Marine Park is proposed for 6.1ha employment allocation and lies immediately adjacent to the Solent Maritime SAC, Solent and Southampton Water SPA/ Ramsar and is 120m from the Solent and Dorset Coast pSPA. Briddlesford Copse SAC lies within 4.5km of the allocation site and all other designations are more than 10km away.

In 2012 an application for development of employment use was granted and in 2016 planning permission was granted for site layout changes. Both applications were subject to an appropriate assessment through the Habitat Regulations. The appropriate assessments concluded that providing adequate mitigation is provided and appropriate planning conditions applied that the overall impacts would be de minimus (not significant).

Since approval was granted case law relating to Habitat Regulations Assessment has changed. Specifically the Briels case¹¹ ruled that creation of new habitat does not mitigate for the loss of protected habitat. This means that proposals resulting in the loss of designated habitat will be subject to the Imperative Reasons of Overriding

¹¹ T.C. Briels and others v Minister van Infrastructuur en Milieu (2014)

Public Interest (IROPI) test. In light of this the proposed allocation will ensure that there will be no loss of designated site and the site boundary has been amended.

EA5 Lowtherville, Ventnor

The 0.7ha allocation is for a range of B1, B2 and B8 uses. It is 50m from the Isle of Wight Downs SAC. The site also lies within 950m of the South Wight Maritime SAC and 7km of the Solent and Dorset Coast pSPA. Other European and Ramsar sites are located 10km or more from the allocation.

EA6 Sandown Airport

The 3ha allocation is for a range of B1 and B2 uses. It is 1.5km from South Wight Maritime SAC and 2.2km from the Solent and Dorset Coast pSPA. The allocation site also lies within 7.7km of the Solent and Isle of Wight Lagoons SAC. Other European and Ramsar sites are located 10km or more from the allocation.

- 8.27 Developments near to the designated sites may contribute to urbanisation and coastal squeeze and pathways and impacts associated with these are discussed in sections 9 and 10. All of these policies are likely to contribute cumulatively to in-combination effects associated with water quality, resource and air quality. Pathways and impacts associated with these are discussed further in sections 12 to 14.

Travel connections

- 8.28 Policy BCI 3 'Cross-Solent transport' sets out that the council will support proposals that maintain the current choice of routes and methods of crossing the Solent and improve key interchange areas that link the Island to the mainland. Three car ferry ports on the northern coast of the Island currently link to the mainland and these fall within the marine environment protected by European designations. These are: the Solent Maritime SAC, Solent and Southampton Water SPA/ Ramsar and the Solent and Dorset Coast pSPA. Natural England have identified that large watercraft activities (including ferries)¹² are causing threat to the integrity of the Solent Maritime SAC.
- 8.29 The policy does not prescribe locations for any improvements to key interchange areas. It does however recognise the sensitive marine locations in which the ferry ports are located and sets out that "the environmental and economic effects of the proposed development will be considered and, in particular, the scale of proposals will be required to reflect the capacity and sensitivity of the character of the area surrounding the terminal and the wider landscape and biodiversity of the Island". The operation of ferries is regulated under separate jurisdictions¹³. For these reasons the policy has been scoped out of further assessment through this HRA.
- 8.30 Policy BCI 4 'Supporting our railway network' sets out the council's aspirations to maintain and improve the current rail network on the island. This includes potential track upgrades and linking the steam railway at Havenstreet to Ryde. The steam hauled railway currently travels between Wootton and Smallbrook and operates as a tourist attraction. Whilst the draft Island Planning Strategy does not plan for the works it does identify that the council will support proposals.

¹² Email to Isle of Wight dated 19th October 2018

¹³ The Marine and Coastal Access Act 2009

- 8.31 Bringing the steam railway back into Ryde St Johns Station was proposed through the Ryde AAP discussion document and associated HRA published in 2015 where no adverse effect was identified. However steam haulage has the potential to cause adverse impacts to air quality because of Sulphur Dioxide (SO₂) particle emission associated with burning coal. If the upgrades require planning permission then a full assessment of the works and planned operation will be required at that stage. It is not possible to determine whether there will be any adverse impact on the European designations associated with any upgrades and impacts associated with air quality are discussed further in section 14. Impacts associated with habitat loss are discussed in section 9.
- 8.32 On 12th January 2017 the council's 'Guidelines for Parking Provision as Part of New Development SPD' came into force. This sets out the council's expectations for vehicle and cycle provision associated with new development. Policy BCI 6 'Parking provision in new development' explains expectations relating to parking provision and details that a flexible approach that assesses each case individually but in-line with the adopted SPD is required.
- 8.33 Parking provision associated with new development means that there are likely to be more cars using the road network and this may contribute to impacts associated with air quality. This is discussed further in section 14.

Assessment of identified threats and vulnerabilities

9. Proximity of development to European sites and their features of interest

- 9.1 This section addresses the direct harm to designated habitats and species resulting from the policies in the draft Island Planning Strategy. Functional loss can occur without direct physical impacts (e.g. through proximity of built development rendering a site unattractive to qualifying species). The impact will result in total or partial displacement of species. The loss of supporting habitat for mobile species outside of designated sites, including for birds and bats, is also considered within this assessment.
- 9.2 Species loss can occur through direct loss in footprint area and through indirect impacts. A variety of different types of effect are associated with urbanisation particularly where there are increased human populations close to sensitive European sites (e.g. noise pollution, light pollution, increased numbers of predators such as foxes and crows, increased incidence of fires, etc.). Construction activities associated with new development may result in detrimental levels of noise, human presence, pollution and obscured flight and sight – lines.
- 9.3 It should be noted that direct harm to habitats associated with operational activities of a development, including recreational disturbance, coastal squeeze and pollution, are discussed in sections 10 to 14 of this HRA.
- 9.4 Habitat loss/damage and adverse impacts upon designated species are considered in relation to the European sites that are within the draft Island Planning Strategy area or that protect mobile species supported by suitable habitat on the island.

- 9.5 European sites scoped into the assessment that are vulnerable to physical and functional harm are:
- Briddlesford Copse SAC
 - Isle of Wight Downs SAC
 - Solent and Southampton Water SPA/Ramsar
 - Solent Maritime SAC
 - South Wight Maritime SAC
 - Solent and Dorset Coast pSPA

Source

- 9.6 The direct loss of habitat would occur where development is allowed to proceed within the boundaries of a designated site. The DTA Handbook sets out the principles of HRA and states that “unless a particular loss of habitat can be in the circumstances of a case be regarded as trivial, it is at least capable of being a significant effect and may also be an adverse effect on the integrity of the site”.
- 9.7 Contamination events can have profound impacts on designated sites and/or their supporting habitat e.g. pollution of aquatic habitats, damage to terrestrial vegetation, harm to wildlife) and can operate at the site-scale and over broader geographic areas. Construction activities can result in the mobilisation of airborne and waterborne contaminants, either through novel introductions (e.g. a spillage, fumes/smoke, litter) or through the disturbance of existing contaminant sources.
- 9.8 Briddlesford Copse SAC supports important breeding populations of Annex 2 species Bechstein bat (*Myotis bechsteinii*). The bats use holes and crevices in mature trees for roosting and the interconnecting woodlands for feeding. Bechstein’s bats forage in woodland within 3km of their roost site, generally in closed canopy although they are occasionally observed foraging along hedgerows, streams and grazed pastures¹⁴. Bats are nocturnal and Bechsteins are particularly susceptible to impacts associated with lighting and to disruption of their flight corridors. Therefore urbanisation of sites close to Bechstein habitat is considered in this assessment. Development that results in the loss of features used by Bechstein bats will cause an adverse effect.
- 9.9 Brent Geese, ducks and wading birds are species of international importance protected under European legislation and specially protected within the Solent SPAs. However birds are mobile species and are also dependent on sites outside of formal designations. They rely on the availability of a network of feeding and roosting resources (including terrestrial sites) over the winter period. The Solent Waders and Brent Goose Strategy (SWBGS) was initiated in 1997 and published in 2002 and seeks to highlight sites, primarily terrestrial located outside of the designated areas, used by over-wintering waterfowl and address the potential conflicts between human activities (particularly built development and recreation) in and around the Solent and the distribution and population status of these qualifying features.
- 9.8 The strategy was updated in 2010 and maps show sites outside of the designated area that are frequently used by birds. In 2017 funding was sought to update the strategy and work on this is ongoing. The aim of the update is to gather evidence through survey work to establish key sites within the ecological network. The updated work looks at the network of sites used by the birds and the interaction between these to allow better conservation. For example there may be bottlenecks where birds heavily use sites in order to extend into the network. Impacts to these sites

¹⁴ Bat Survey Guidelines (Bat Conservation Trust, 2016)

would have a greater impact on the conservation objectives of the European designation. Therefore sites are classified according to their importance which has reduced the level of uncertainty across the network. The SWBGS Steering Group has set out a suggested approach to ensure the long term protection and enhancement of key sites, whilst recognising the future growth planned for the Solent.

- 9.9 Overwintering surveys for the Island are planned for 18/19 and so results of this work are not yet available. However an interim report for year one of the project has been produced and general mitigation measures recommended¹⁵. The report identifies the preferred approach which is for development to be located outside the network of sites. However it also outlines the mitigation and off-setting requirements to protect the network should sites come forward for development. For all site classifications the prescriptions for habitat offsetting are set out and proposals will be assessed on a case by case basis. The strategy sets out the considerations for offsetting including management in perpetuity for qualifying features as well as monitoring.
- 9.10 Research carried out in relation to the Solent Waders & Brent Goose Strategy¹⁶ highlights that the most-favoured sites used by dark-bellied brent geese are generally several hundred metres from obvious obstructions such as buildings. In some urbanised locations birds appear to be accustomed to foraging and resting within very close proximity to buildings and human activity. Therefore the potential impacts of flight- and sight-line obstructions should be viewed in a local context.
- 9.11 Research into the potential disturbance from construction activities is sparse, although evidence collected for the Solent Disturbance Mitigation Project (SDMP)¹⁷ does provide evidence that human-induced disturbance (although not construction-related) can occur from 0-300m depending on species.
- 9.12 There are various studies into the birds' reactions to novel noise disturbance and impacts are likely to be species-specific. Some species are more or less tolerant than others and there are likely to be differences in tolerance at different geographic locations. Research (e.g. Cutts et al. (2008); Wright et al. (2010)) has shown that noise levels approaching 70 decibels (dB) result in the most profound responses from bird species (i.e. site abandonment), whereas general background construction noise below c.55dB is unlikely to result in disturbance. It appears that irregular yet frequent loud noise exceeding 70dB is the most likely to result in effects, and that impacts can be observed for distances up to 300m in some species.

Policy impact

- 9.13 Policies that result in new development have the potential to impact on designated sites especially where activity is in close proximity. Each site put forward through the SHLAA was subject to a staged assessment and it was determined that not all sites are appropriate for development. Stage A of the SHLAA methodology includes removal of all or part of a site within and including a 5m buffer of a designated area. A couple of sites proposed for allocation fall outside of the SHLAA process but they are the exception rather than the rule. Therefore for most development the SHLAA methodology should remove any adverse impacts.

¹⁵ Interim Guidance on Mitigation and Off-setting Requirements (SWBGS Steering Group, March 2018)

¹⁶ Solent Waders and Brent Goose Project Steering Group, 2010

¹⁷ Stillman et al, 2012

- 9.14 Any development proposed by the draft Island Planning Strategy within the boundary of a European site or within proximity of a designated site and its qualifying features can be assumed to give rise to a likely significant effect.
- 9.15 The following policies have been screened in that have potential to cause habitat loss:

Table 9.1 Policies identified as having potential adverse impact due to habitat loss

PSDG 1	Our Strategy for sustainable development and growth
PSGD 2	Priority locations for development and growth
DHWN 2	Sites allocated for housing
DHWN 7	Rural exception sites
DHWN 10	Gypsies, Travellers and Travelling Showpeople
EA4	Employment allocation at Kingston Marine Park, East Cowes
SGOE 3	Supporting the rural economy
SGOE 6	Supporting and improving our town centres
BCI 3	Cross-Solent transport
BCI 4	Supporting our railway network

- 9.16 Policy PSDG 1 ‘Our Strategy for sustainable development and growth’ sets out the council’s overarching approach. The policy does not specify the location for development but does describe intentions to investigate a bridge over the Medina estuary. The estuary is afforded multiple European designations for the habitats and species it supports; namely: the Solent and Southampton Water SPA/Ramsar, Solent Maritime SAC and Solent and Dorset Coast pSPA. The draft Island Planning Strategy does not plan for the construction of a bridge and project details have not yet been defined. Any project coming forward will be subject to its own HRA and for these reasons this policy is scoped out from further assessment.
- 9.17 Policy PSDG2 ‘Priority locations for development and growth’ sets out that growth is based on prioritising development within the settlement hierarchy. Primary settlements Newport, Cowes, East Cowes, Ryde and Sandown are close to European designations. The likelihood of significant effects will diminish, in most cases, with the distance from development and it is likely that effects can be mitigated by measures, although this is dependent on the development and the mitigation put in place. Where it is demonstrated that development projects are likely to cause an adverse effect on the integrity of a designated site these will be refused, in accordance with Policy HQE2 Ecological Assets and Opportunities for Enhancement of the draft Island Planning Strategy.
- 9.18 Policies relating to housing have been screened in where there is potential for development in close proximity to designated sites. The SHLAA methodology included removing all sites within and including a 5m buffer of designated areas. All SHLAA sites were assessed with regards to the HRA (appendix A) and it was determined that for two sites taken forward for allocation further assessment is required because of proximity to designated sites or harm to species and/ or loss of functional habitat.
- 9.19 The two sites are Newport Harbour and Folly Works. Proposals for Folly Works already benefit from planning permission, as do some other allocated sites not submitted through SHLAA, including Medina Yard, Red Funnel and Harcourt Sands. All these proposals have been assessed through the Habitat Regulations and providing mitigation is secured no adverse impact was concluded. Schemes put forward through policy allocation will also need to demonstrate no adverse impact.

Newport Harbour was flagged through the SHLAA process and does not already have planning permission. It lies immediately adjacent to the Solent and Dorset Coast pSPA which protects foraging terns. Natural England have stated “*most of the activities which happen in the Medina and around the Isle of Wight coast will have little impact on foraging terns and can therefore either be screened out entirely or would require only minor consideration. ... As a general guide we think that terns are vulnerable to projects which might result in:*

A loss of habitat: eg areas of coastal waters which terns might hunt for fish in such as land reclamation

Impacts on prey availability (water pollution, barriers to fish migration, other features important to a healthy fish population)”.

- 9.20 These issues will need consideration when developing the scheme and can be avoided and or/ mitigated through sensitive design.
- 9.21 Policies DHWN 7 ‘Rural exception sites’ and SGOE 3 ‘Supporting the rural economy’ both aim to increase provision of rural housing and business. There is potential for urbanising effects associated with new development to impact on the designated sites outside of the Island’s urban settlements. Both policies focus on the development of existing structures and premises and any impacts can be mitigated through planning conditions (e.g. implementation of an approved lighting plan, having seasonal or time restrictions to construction activities).
- 9.22 No employment allocations are within designated sites. Kingston Marine Park is adjacent to the Solent Maritime SAC, Solent and Southampton Water SPA/ Ramsar and policy EA4 states that “development proposals should: Avoid both direct and indirect adverse effects upon the integrity of designated sites and, if necessary, provide appropriate mitigation measures”.
- 9.23 Policy SGOE 6 ‘Supporting and improving our town centres’ sets out the quantum of retail development expected and that this should be located within or adjacent to the Town Centre Boundaries. Table 8.6 (above) shows that some of the Island’s defined Town Centre Boundaries are adjacent to European sites (namely the Solent Maritime SAC, South Wight Maritime SAC, Solent and Southampton Water SPA/ Ramsar and the Solent and Dorset Coast pSPA). The policy does not set out that development must occur adjacent to or in close proximity to those European and Ramsar sites, but instead states that development will be supported ‘*on land within or immediately adjacent the defined settlement boundaries*’. Satisfactory resolution of the impacts is dependent upon the overall scale, location, timing and nature of potential developments.
- 9.24 Policy BCI 3 ‘Cross-Solent transport’ sets out that the council will support proposals that maintain the current choice of routes and methods of crossing the Solent and improve key interchange areas that link the Island to the mainland. Three car ferry ports on the northern coast of the Island currently link to the mainland and these fall within the marine environment protected by European designations. Natural England have identified that large watercraft activities (including ferries)¹⁸ are causing threat to the integrity of the Solent Maritime SAC.
- 9.25 The policy does not prescribe locations for any improvements to key interchange areas but does recognise the sensitive marine locations in which the ferry ports are located. It therefore sets out that “the environmental and economic effects of the

¹⁸ Email to Isle of Wight Council dated 19th October 2018

proposed development will be considered and, in particular, the scale of proposals will be required to reflect the capacity and sensitivity of the character of the area surrounding the terminal and the wider landscape and biodiversity of the Island”.

- 9.26 Policy BCI 4 ‘Supporting our railway network’ supports potential track upgrades linking the steam railway at Havenstreet to Ryde. Parts of the track lie within 3km of Briddlesford SAC which supports breeding populations of Bechstein bat. However the track is already in place and upgrades could be achieved whilst maintaining habitat suitable for bats. For this reason impacts to Bechstein bats are scoped out of this assessment.

Mitigation and precautionary measures

- 9.27 Policy HQE2 ‘Ecological Assets and Opportunities for Enhancement’ states that “*Development should be located away from the most sensitive locations in accordance with the following hierarchy of nature conservation designations (as shown on the Policies Map):*

International

National

Local

Development proposals will only be permitted if it can be clearly demonstrated that the integrity of European sites will not be adversely affected, other than in exceptional circumstances relating to overriding public interest.”

- 9.28 This policy applies to all development and where a development proposal comes forward that is likely to cause a likely significant impact this will be assessed on its own merits. Developments in close proximity to designated sites are likely to require their own habitats assessment and production of a Biodiversity Mitigation Plan will include details to avoid any ecological impacts that could arise through pollution or increased human presence, for example.
- 9.29 The draft Island Planning Strategy ensures that development will be located away from designated sites and that proposals must demonstrate that the integrity of European sites is protected. Where allocated sites are considered to potentially cause a likely significant effect policy specifies that avoidance and mitigation will be required. Therefore specific mitigation measures as a result of the plan are not required.
- 9.30 The Isle of Wight Council have contributed to the updated SWBGS work and are in receipt of regular outputs and guidance as this materialises. This work will inform any planning decisions as and when they are applicable. The interim guidance for mitigation and off-setting requirements sets out that proposals will need to consider the ecological function of the network and cases will be determined by the LPA and Natural England. The guidance provides criteria for determining impact and the mitigation and offsetting requirements for these.

10. Coastal squeeze

- 10.1 Rising sea levels can cause intertidal habitats (principally saltmarsh, sand dunes, intertidal mudflats, coastal grazing marsh and freshwater habitats) to migrate landwards. However, in built-up areas, landward retreat is often impossible due the presence of sea walls and other flood defences. In addition, where development takes place immediately behind the sea wall, flood defences cannot be moved landwards to accommodate managed retreat of threatened habitats. The net result is that the quantity of intertidal habitat adjacent to built-up areas will progressively decrease as sea levels rise. This process is known as 'coastal squeeze'. In areas where sediment availability is reduced, the 'squeeze' also includes an increasingly steep beach profile and foreshortening of the seaward zones.
- 10.2 Defra's current national assessment is that the creation of an annual average of at least 100 ha of intertidal habitat associated with European sites in England that are subject to coastal squeeze, together with any more specifically identified measures to replace losses of terrestrial and supra-tidal habitats, is likely to be required to protect the overall coherence of the Natura 2000 network. This assessment takes account of intertidal habitat loss from European sites in England that is caused by a combination of all flood risk management structures and sea level rise. The assessment will be kept under review taking account of the certainty of any adverse effects and monitoring of the actual impacts of plans and projects¹⁹.
- 10.3 European sites scoped into the assessment that are vulnerable to coastal squeeze are:
- Solent & Isle of Wight Lagoons SAC
 - Solent and Southampton Water SPA/Ramsar
 - Solent Maritime SAC
 - South Wight Maritime SAC
- Source**
- 10.4 The Isle of Wight has 168km of coastline including estuaries, some of which is hard engineered to protect dwellings, industry and other infrastructure. Responsibility for management of the Island's coastal defences against erosion and sea flooding is shared between the Isle of Wight Council and the Environment Agency.
- 10.5 Predictions for future sea level rises require a strategic-level approach to managing coastal defences and the Isle of Wight Shoreline Management Plan (SMP, 2010) sets out the preferred way to look after the coast in a sustainable way for the next 100 years. It was prepared using guidelines set down by Defra, the Government Department with responsibility for setting national policy for flood and coastal erosion risk management (FCERM). The Shoreline Management Plan includes the following policies: 'hold the line', 'managed realignment' and 'no active intervention'.
- 10.6 The Isle of Wight SMP was itself subject to HRA and concluded that there may be adverse effects on the Solent and Southampton Water SPA/ Ramsar. Therefore a Regional Habitat Creation Programme (RHCP) was required which has three phases for delivery. Phase A is the identification of future loses and where habitat has to be created to compensate for it, phase B is finding and securing habitat and phase C is

¹⁹ Defra. 2005. Coastal Squeeze – Implications for Flood Management, available from: <http://www.defra.gov.uk/enviro/fcd/policy/csqueeze.pdf>

the creation of that habitat. The Isle of Wight SMP passed through article 6(4) of the Habitats Directive which allows plans or projects which may have an adverse effect on the integrity of a European site to go ahead on grounds of “imperative reasons of overriding public interest” (IROPI) and is a part of the Southern RHCP. A total of 472ha new habitat (combination of saltmarsh, coastal grazing marsh and freshwater habitat) is required as part of the Southern RHCP programme. The total amount required to offset habitat loss on the Island is 31 hectares of coastal grazing marsh due to managed realignment at Thorley Brook. It is currently in phase B where habitats are being sought and secured for creation. So far 204 ha of intertidal habitat and 69 ha of coastal grazing marsh have been offset.

Policy impact

- 10.7 The draft Island Planning Strategy plans for development and growth. New residential and commercial development can exacerbate problems associated with coastal squeeze by providing impetus to maintain or enhance hard sea defences, and thereby removing the possibility of ameliorating coastal squeeze through managed retreat and with the potential to directly impact designated sites and their supporting habitat.
- 10.8 The loss of intertidal habitats through the process of coastal squeeze may result in increased frequency of bird species using non-designated land, with further potential for conflicts between nature conservation and other land use objectives.
- 10.9 Policies that have been scoped into this assessment are:

Table 10.1 Policies identified as having potential adverse impact due to coastal squeeze

PSDG 1	Our Strategy for sustainable development and growth
DHWN 1	Planning for housing delivery
DHWN 2	Sites allocated for housing
DHWN 7	Rural exception sites
DHWN 10	Planning for Gypsy, Traveller and Travelling Showpeople provision
EA4	Employment allocation at Kingston Marine Park, East Cowes
SGOE 3	Supporting the rural economy
SGOE 6	Supporting and improving our town centres
BCI 3	Cross-Solent transport

Mitigation and precautionary measures

- 10.10 Coastal squeeze and inappropriate coastal management are being addressed in England through shoreline management plans, coastal and estuary strategies and through other mechanisms such as high level biodiversity targets within the Environment Agency²⁰. The draft Island Planning Strategy will utilise outputs from the Shoreline Management Plan, Coastal Strategies and Studies, and ongoing work through the Southern Regional Habitat Creation Programme. Development proposed will not require additional coastal defences and policies within the draft Plan take into account vulnerable coastal areas.
- 10.11 Policy HQE 13 ‘Managing our Coast’ of the draft Island Planning Strategy sets out the Council’s requirements to avoid inappropriate and/or vulnerable development

²⁰ Williams, J.M., ed. 2006. Common Standards Monitoring for Designated Sites: First Six Year Report. Peterborough, JNCC.

within mapped Coastal Change Management Areas. New development in these areas will be expected to demonstrate how coastal vulnerability has been taken into account through appropriate assessment work. By ensuring any new development in sensitive areas is appropriately considered, including through the use of time-limited consents, the need for new coastal defences can be prevented.

- 10.12 Policy HQE 15 'Improving Resilience from Coastal Flooding' sets out that "new development located on waterfronts with a 'Hold the Line' policy in the Shoreline Management Plan should provide and maintain coastal defences or, where appropriate, land raising, to a height consistent with predicted sea level rise over the lifetime of the development". It goes on to state that "proposals for new or replacement coastal defence schemes will only be permitted where it can be demonstrated that the works are consistent with the management approach for the frontage presented in the most up to date Shoreline Management Plan and Coastal Strategy and Studies, and there will be no material adverse impact on the environment".

11. Recreational pressure

- 11.1 Development of new residential properties and tourism accommodation can lead to an increase the recreational use of the coast. This has the potential to cause detrimental impacts on internationally protected bird assemblages which are protected features of the Solent and Southampton Water SPA. Recreational disturbance can cause important habitat to be unavailable for use by birds (the habitat is effectively lost, either permanently or for a defined period, such that negative effects are caused). Birds can be disturbed by human recreational activities and use valuable resources in finding suitable areas in which to rest and feed undisturbed.
- 11.2 The intertidal mudflats and associated estuarine habitats of the harbours contain the primary feeding resource for the key SPA bird species. For some species (e.g. dark-bellied brent geese, some waders) terrestrial grasslands (including within developed areas) and arable farmland are additional important feeding/resting areas. With respect to disturbance of birds (SPA/ Ramsar site features), breeding water birds are not a feature of the Island's coastline (apart from the Newtown Estuary and Brading Marshes). Recreational disturbance is principally an issue with respect to passage and wintering birds.
- 11.3 Increased recreational pressures can result in potential adverse effects to habitats through trampling and other damage, such as fires. The designated SACs are vulnerable to localised impacts associated with recreational pressure. European sites scoped into the assessment that are vulnerable to recreational pressure are:
- Solent and Southampton Water SPA/Ramsar
 - Solent Maritime SAC
 - South Wight Maritime SAC
 - Isle of Wight Downs SAC

Source

- 11.4 The Solent Disturbance and Mitigation Project (SDMP)²¹ has established that 75% of visitors to the Solent and Southampton Water SPA come from within a distance of 5.6 km from the coast. The research predicted a 13% increase in visitor numbers as a result of planned new housing. The same research also highlighted that dogs off lead were a cause of 47% of all 'major flights' i.e. bird(s) flying more than 50 metres to escape disturbance. Understanding the needs of dog walkers and proactively working with them is a priority for the Partnership.
- 11.5 This highlights that the planned new housing will mean a large increase in coastal visits with a likely impact on the birds. Therefore a suite of avoidance and mitigation measures were recommended and are sought for residential and visitor accommodation development within this zone of impact²².
- 11.6 The SAC designated sites do not protect birds and are therefore not susceptible to the same recreational pressure. The Solent Maritime SAC protects coastal habitats and is included within the Solent site improvement plan and the South Wight Maritime SACs protect marine habitats. Both site improvement plans have identified measures to reduce the threat and include raising public awareness. The site improvement plan for Isle of Wight Downs SAC has identified that locally there are high levels of pedestrian visits that causes damage to the chalk grassland habitat.

Policy impact

- 11.7 It is clear that policies resulting in increased visitors, of the draft Island Planning Strategy will lead to significant impacts upon designated sites, unless further avoidance and mitigation measures are built in to remove or reduce recreational disturbance.
- 11.8 An interim mitigation strategy²³ was produced and adopted by the Solent authorities, including the Isle of Wight Council, in 2014. This requires developer contributions to fund practical measures to encourage sustainable visitor use. From here, the Partnership developed a comprehensive mitigation strategy that was endorsed by Natural England and PUSH for implementation in 2018²⁴. This means that all new applicable development within 5.6km of the Solent and Southampton Water SPA will provide mitigation through either:
- a) A financial contribution in accordance with the Bird Aware Solent Strategy; or
 - b) A developer-led mitigation scheme that achieves the requirements of the Bird Aware Solent Strategy; or
 - c) A combination of the above.
- 11.9 An assessment of all potential sites identified through the SHLAA was carried out to determine the environmental capacity of the Island and whether the quantum of proposed housing could be accommodated. For each site it was considered whether there was likely to be a significant impact upon the European sites and whether this could be mitigated. The assessment included consideration to likely significant impacts in combination.

²¹ Phase 2 report, Solent Disturbance and Mitigation Project Phase II: Predicting the impact of human disturbance on overwintering birds in the Solent, (Footprint Ecology, February 2012) Available here: http://www.solentems.org.uk/natural_environment_group/SRMP/SDMP/

²² Solent Disturbance and Mitigation Project (SDMP) Briefing Note, Solent Forum / SDMP Project Group, 2013.

²³ Interim Solent Recreation Mitigation Strategy (SRMP, 2014) and the Solent Supplementary Planning Document (Isle of Wight Council, 2014)

²⁴ Solent Recreation Mitigation Strategy (2017)

11.10 The assessment shows that developments within the 5.6km zone and of 75 dwellings or more will need to provide appropriate onsite natural greenspace. This is due to the degree of pressure related to the number of people likely to be living within the development that may result in a likely significant effect on the protected European sites. A key focus of Bird Aware is dog initiatives to positively influence dog walker behaviour. Therefore appropriately located SANGs close to residential development is likely to result in less trips to the coast. The Isle of Wight has a set of unique characteristics with less scope to visit other places and subsequently results in potentially greater impacts on local places.

11.11 Some sites have been proposed for housing allocation in the draft Island Planning Strategy and of these the following have been identified as requiring additional mitigation associated with recreational disturbance:

Table 11.1 Proposed allocation sites identified as requiring additional mitigation associated with recreational disturbance

Regeneration Area	Settlement	Housing Allocation Reference Number	Specific Generic requirement or Policy	Indicative Yield
West Wight	Freshwater	HA005	Specific	150
	Freshwater	HA006	Specific	90
	Freshwater	HA007	Specific	90
West Medina	Cowes	HA019	Specific	535
	Cowes	HA020	Specific	146
	Cowes	HA022	Specific	80
Newport	Newport	HA031	Specific	175
	Newport	HA032	Specific	375
	Newport	HA033	Generic	200
	Newport	HA036	Specific	180
	Newport	HA038	Specific	150
	Newport	HA039	Specific	1000
	Newport	HA040	Specific	780
	Newport	HA044	Specific	250
	Newport	HA110	Specific	100
East Medina	East Cowes	HA046	Generic	75
	East Cowes	HA111	Specific	99
	Wootton	HA053	Specific	75
Ryde	Ryde	HA059	Specific	80
	Ryde	HA060	Specific	475
	Ryde	HA112	Specific	128
	Bembridge	HA064	Generic	100
	Bembridge	HA065	Generic	100
	St Helens	HA076	Specific	100
The Bay	Sandown	HA080	Specific	84
	Sandown	HA083	Specific	125

- 11.12 The allocation process did not identify any suitable larger sites to accommodate more than 74 dwellings outside of the 5.6km zone and there are no large scale developments proposed within close proximity to the Downs SAC.
- 11.13 The likelihood of significant effects upon the Downs SACs will diminish with the distance from development. No allocations are located within or immediately adjacent to these SAC site boundaries and will not result in a direct loss or damage to the site or habitat fragmentation. Proposals for new development will need to demonstrate that there will be no harm to the designated sites and will be subject to their own HRA. Therefore impacts associated with localised recreational pressure on SAC habitats should not result from the policies contained within the draft Island Planning Strategy.
- 11.14 The amount of new tourism accommodation to be provided over the plan period is not specified in the draft Island Planning Strategy and it is not possible at this stage to estimate how much recreational mitigation will be required. However, this type of development could lead to as much recreation on the designated sites as new dwellings. Therefore mitigation measures are considered, see paragraph 11.15 (below).

Mitigation and precautionary measures

- 11.15 The Isle of Wight Council is a member of the Solent Recreation Mitigation Partnership and is signed up to the approach set out within the strategy. The approach includes a series of management measures which actively encourage all coastal visitors to enjoy their visits in a responsible manner, by:
- employing a team of 5-7 coastal rangers to advise people on how to avoid bird disturbance, liaise with landowners, host school visits, etc.;
 - developing communications, marketing and education initiatives and an officer to implement them;
 - developing initiatives to encourage responsible dog walking and an officer to implement them;
 - preparation of codes of conduct for a variety of coastal activities;
 - securing site-specific projects to better manage visitors and provide secure habitats for the birds;
 - providing new/enhanced greenspaces as an alternative to visiting the coast;
 - employing a partnership manager to coordinate and manage all the above.
- 11.16 Suitable Alternative Natural Greenspaces (SANGs) can play a role in providing mitigation if they are closely linked to management at the coast, are targeted in the right locations, and are accompanied by active promotion of their existence. This could result in less coastal visits by recreational users for at least some of their trips, instead choosing to use alternative greenspaces. This would help moderate the predicted increase in visitors at the coast and thus the potential for bird disturbance.
- 11.17 The Solent Recreation Mitigation Strategy sets out criteria for the provision of new strategic SANGs, as well as measures to enhance existing strategic sites. These criteria should form the basis for local on-site provision. It sets out the priorities for new facilities to be provided and the improvements to be made to the layout and features/ facilities which would be attractive to people seeking places for recreation. Any provision should be designed to attract visitors, especially dog walkers by providing an enjoyable natural environment for recreation.
- 11.18 It is important that provision of greenspace effectively alleviates recreational pressure on designated sites. Therefore the council recognises that well designed SANGs that

are integral to a development and integrated with accessible networks are more important than delivering large unattractive greenspaces.

- 11.19 To mitigate larger scale developments SANGs should also be provided. Research²⁵ has shown that alternative natural greenspaces can function as suitable substitutes to reduce visitor pressure on the Solent SPAs.
- 11.20 The council's Infrastructure Delivery Plan highlighted the potential need for additional open space provision. As a result the council is commissioning additional evidence to understand the exact need, requirements and where pressures may be. However, Policy HQE 4 'Protecting and Providing Green and Open Spaces' includes the requirement to avoid any loss and to make onsite and offsite provision where required. This should ensure that any need is adequately met.
- 11.21 Other policies within the draft Island Planning Strategy set out the criteria for design and ecological enhancements and will ensure that new open space is attractive and effective mitigation.
- 11.22 Policy HQE 2 'Ecological Assets and Opportunities for Enhancement' of the draft Island Planning Strategy states that: *"Development proposals located within 5.6km of the Solent SPAs and that meets the relevant criteria should provide mitigation through either:*
- a) *A financial contribution in accordance with the Bird Aware Solent Strategy; or*
 - b) *A developer-led mitigation scheme that achieves the requirements of the Bird Aware Solent Strategy; or*
 - c) *A combination of the above.*
- If appropriate mitigation is not proposed the application will be refused."*
- 11.23 Policy HQE 4 'Protecting and Providing Green and Open Spaces' includes the requirement for developments of 75 units or more to provide onsite SANGs. The requirement is also referred to in DHWN3 'Housing Allocations General Requirements'.
- 11.24 Such land can be provided and managed by developers (or development management companies). This is to mitigate potentially significant effects that may arise as a result of the occupants of new development using nearby European and Ramsar sites for recreational activity, which could cause disturbance to species that are interest features of the sites or physical damage to habitat interest features.
- 11.25 The need for recreation mitigation contribution is also required for new tourism accommodation within 5.6km of the Solent SPA. This is identified within the Solent Mitigation Recreation Strategy and as such contributions based on net increase in rooms or camping pitches will be sought.
- 11.26 There are a suite of policies in the draft Island Planning Strategy that independently and together work to ensure that protected sites are adequately considered. On this basis it is concluded that the in-combination impacts associated with new accommodation provision on the Island can be mitigated and thus a likely significant effect is ruled out.

²⁵ Alver Valley SANG study (Footprint Ecology, June 2015)

12. Water quality

12.1 Natural England have recently completed condition assessments on the Solent European Marine Sites and have identified that mudflats and sandflats (not covered by seawater at low tide), Estuaries, and Sandbanks (which are slightly covered by sea water all the time), are all in unfavourable condition due to reduced water quality. Pollutants and nutrients in the Island's coastal waters are considered to be driving these designated features into unfavourable condition.

European sites scoped into the assessment that are vulnerable to water pollution are:

- Chichester and Langstone Harbours SPA and Ramsar
- Portsmouth Harbour SPA and Ramsar
- Solent and Southampton Water SPA and Ramsar
- Solent Maritime SAC
- River Itchen SAC

Source

12.2 Poor water quality is a result of increased nitrogen levels which at high levels can cause Eutrophication. Eutrophication leads to the growth of green macroalgal mats which smother the existing vegetation and causes deterioration of functioning habitat.²⁶

12.3 Nitrogen enters the water from a range of sources and some of these are caused by anthropogenic activity. There is also a risk that increased nutrient loading in the water column can cause Dissolved Oxygen (DO) levels to drop which can be fatal to fish, infaunal and epifaunal communities.

12.4 The majority of nitrogen entering the water is from agricultural diffuse runoff. Other diffuse sources include groundwater reserves, tidal flow and background levels entering the Solent from the Rivers Avon and Stour. A small proportion²⁷ (ref water background paper) is from urban point sources such as sewerage outfalls.

Policy Impact

12.5 Policies that plan for new development and growth have the potential to increase nutrient loads where waste water and sewerage effluent are discharged. New development in close proximity to designated sites also has the potential to increase nutrient loads through construction activities. The following policies have been scoped into this assessment:

²⁶ Solent and Harbours Diffuse Water Pollution Plan, Environment Agency and Natural England (October 2017)

²⁷ Water Environment Background Evidence Paper for the draft Island Planning Strategy, Planning Services – Isle of Wight Council (November 2018)

Table 12.1 Policies identified as having potential adverse impact due to water quality

PSGD 2	Priority locations for development and growth
DHWN 1	Planning for housing delivery
DHWN 2	Sites allocated for housing
DHWN 4	Planning for new settlements
SGOE 1	Supporting and growing our economy
SGOE 3	Supporting the rural economy
SGOE 6	Supporting and improving our town centres
BCI 3	Cross-Solent transport

- 12.6 Policies supporting housing and economic growth will require waste water and sewerage infrastructure to support it. Where existing facilities are at or near capacity there is potential for contribution to diffuse nutrient loading on protected sites. However the operation of waste water and sewage treatment works are regulated under separate consenting regimes outside of the planning jurisdiction. Overloading would not be permitted due to adverse effects on the integrity of sites. For these reasons it is unlikely that the policies within the draft plan will cause a likely significant effect. Policies protecting key infrastructure within the draft plan further ensure consideration of the environment when planning for new growth and this is discussed in section 8.2.
- 12.7 The Solent European Marine Sites recorded 'high' under the Water Framework Directive in relation to DO levels. Whilst this impact will continue to be monitored by the Environment Agency 'high' means that designated features are in a good condition and/or currently un-impacted by anthropogenic activities²⁸. Therefore impacts have been scoped out of this HRA.
- 12.8 Policies associated with transport and cross Solent travel have the potential to impact water quality through incidental pollution from shipping and run-off from roads. Pollution to water is regulated by the Environment Agency and the requirements of the Water Framework Directive (and implementing regulations) will mean that development will need to take account of the potential for water pollution in planning applications. Operation of ferries is regulated by Defra through Marine and Coastal Access Act 2009 which sets out provisions for more coherent planning in the marine environment in terms of issuing consents and permits for activities.
- 12.9 Policy BCI3 'Cross-Solent transport' sets out that improvements to key interchange areas that link the Island to the mainland will be supported where proposals demonstrate economic and environmental benefits. Both of these policies have been screened out of the HRA because they include environmental protection measures. In light of the above reasoning impacts associated with diffuse transport pollution considered unlikely to have a significant effect on European and Ramsar sites.

Mitigation and precautionary measures

- 12.10 Natural England and the Environment Agency have been working in partnership to identify measures to improve water quality in designated sites. Since 2009 many regulatory measures have been implemented to ensure water quality is improved, however it is also recognised that voluntary measures can significantly help. It has

²⁸ Solent and Harbours Diffuse Water Pollution Plan, Environment Agency and Natural England (October 2017)

been identified that raising public awareness of the issues is a key initiative. This is outside of the planning remit however policies within the draft plan seek to ensure watercourses are protected from pollution and that the Island's water consumption is sustainable as well as protection of waste water treatment works are delivered.

- 12.11 Policy HQE 11 'Managing Our Water Resources' recognises that water is a precious resource and seeks to conserve it. It recognises the importance of our watercourses and seeks to ensure proposals demonstrate there will be no impact upon them. The policy also ensures that all development proposals consider the most sustainable options for the handling of water and sets out ways to achieve this. By reducing consumption demand on the treatment works will also reduce and thus minimising the potential for levels of water pollution.
- 12.12 Policy CSSHC 11 'Maintaining Key Utility Infrastructure' of the draft Planning Strategy seeks to ensure that key facilities, including the two identified Waste Water Treatment Works in Sandown, are maintained and/or improved. The Sandown waste water treatment works (WWTW) is the largest WWTW facility on the Island and is an essential infrastructure facility because it serves a large percentage of the Island's population. This facility does not discharge directly into a designated site however may contribute to diffuse water pollution. Therefore the policy identifies that "development proposals in the surrounding areas should adequately take into account the existing facilities and should not prejudice their future operation and/ or expansion". This policy will therefore ensure that development growth does not exceed existing capacity at the Waste Water Treatment Works.
- 12.13 Where new development at the coast or close to watercourses is proposed these should be addressed by implementing good practice and, where required, through imposing appropriate planning conditions. Through such measures as installing SUDS or alternative attenuation / filtration technology impacts associated with construction activity and runoff can be mitigated. Proposals should ensure no net increase in surface water run-off, compared with the pre-development rate and, where relevant, reduce run-off rates to below the greenfield run-off rates²⁹. Therefore it is considered that policies within the draft Island Planning Strategy supporting development on the coast are unlikely to cause a likely significant impact on the designated features.

13. Water resources

- 13.1 This section looks at harmful changes to water levels or flows at European sites as result of the planned development and growth. The Island is dependent for a significant part of its drinking water supply from the mainland (up to 30% of the total) which is directed via a sub-Solent water main. Some of the Island's supply comes from the South East River Basin including the river Itchen which is afforded SAC protection. The River Itchen SAC is a chalk stream habitat that supports several annex 2 species³⁰.
- 13.2 The requirement for regeneration and the provision of new homes to meet the Islands needs will put additional demands on water supply. There is potential for adverse impacts on the designated habitat where abstraction levels put pressure on its ecological function. Natural flow regimes are determined by the climate, run-off,

²⁹ Correspondence between Isle of Wight Council and Southern Water, 12th November 2018

³⁰ Details of all European designated sites are available from Defra and are accessible online.

catchment size and geomorphology as well as the impacts of dams, weirs, extraction and river management.

- 13.3 Water resources are managed over broad geographic areas (catchments) and are best addressed in a strategic manner. For rivers in England, the Environment Agency uses the 'Environmental Flow Indicator' (EFI) to indicate where abstraction, or flow regulation, may start to have an undesirable impact on river habitats and species. The Environment Agency interprets surface water bodies with flow greater than the EFI as supporting Good Ecological Status under the EU Water Framework Directive (WFD).
- 13.4 Both Natural England and the Environment Agency were consulted on the scope of the environmental assessments accompanying the draft Island Planning Strategy, including this HRA, and issues in relation to water were raised. Issues regarding water quality are assessed in section 12 (above). However from these responses and the existing evidence it is clear that water efficiency to minimise increase in demand is required.
- 13.5 European sites scoped into the assessment that are vulnerable to water abstraction are:

River Itchen SAC

Source

- 13.6 Changes in climate are affecting the amount of water available and the South East River Basin is becoming more stressed. Globally and nationally shorter, more intense periods of rainfall³¹ are making it more difficult for aquifers to recharge and increase the likelihood of water quality issues in rivers and streams. Longer periods of dry weather combined with increased temperatures contribute to putting further demands on water supply.
- 13.7 As a result water companies have come under increasing scrutiny in terms of their ability to meet their requirements to supply water. In March 2018 a Public Inquiry was instigated following Southern Water's challenge to the Environment Agency's proposed variations to a number of abstraction licences in the Western area. Southern Water's concerns were that, particularly during times of drought, the conditions were such that they had the potential to impede their ability to meet statutory duties to supply public water.
- 13.8 During the course of the Inquiry an s20 Agreement was finalised and an outline package of monitoring, mitigation and Habitats Regulations compensation measures prepared. The s20 Agreement was signed and presented to the Inquiry at its closure on 29th March 2018. The determination of the Secretary of State on the Inquiry is awaited (as at the time of publication of the draft Island Planning Strategy).

³¹River Basin Management Plan South East River Basin District, Annex H: Adapting to climate change, December 2009

Policy impact

- 13.9 Water companies (including Southern Water whom are responsible for the Island's supply of water) are subject to the Environment Agency's licensing regime which regulates the amount of water that can be abstracted in order to protect the environment. This is done via the Catchment Abstraction Management Strategy process and associated review of existing abstraction licences and granting of new ones. The ongoing operation of these controls, as highlighted through the Inquiry outlined above, helps to ensure that water abstractions do not have a detrimental impact on European sites.
- 13.10 There is increasing pressure on both water companies as suppliers and local authorities as enablers of growth through development, to reduce impacts associated with water resource. The requirement for regeneration and the provision of new homes to meet the Islands needs will put additional demands on water. It is therefore important to take measures to ensure new development does not adversely impact the European site.
- 13.11 In light of this the screening exercise highlighted that policies relating to housing and economic development growth may have an adverse impact in-combination with other plans and projects. These are:

Table 13.1 Policies identified as having potential adverse impact due to water resource

PSGD 2	Priority locations for development and growth
DHWN 1	Planning for housing delivery
DHWN 2	Sites allocated for housing
DHWN 4	Planning for new settlements
DHWN 5	Maximising infill opportunities
DHWN 10	Gypsies, Travellers and Travelling Showpeople
SGOE 1	Supporting and growing our economy
EA 1	Employment allocation land to the east of Pan Lane
EA 2	Employment allocation at Nicholson Road, Ryde
EA 3	Employment allocation at Somerton Farm, Cowes
EA 4	Employment allocation at Kingston Marine Park, East Cowes
EA 5	Employment allocation at Lowtherville, Ventnor
EA 6	Employment allocation at Sandown Airport
EA 7	land at Sandown Industrial area, off College Close
SGOE 3	Supporting the rural economy
SGOE 6	Supporting and improving our town centres
BCI 3	Cross-Solent transport
CSSHC 4	Health hub at St Mary's hospital

- 13.12 Local plans that are adding to the stress on the South East River Basin catchment and where development growth also depends on the resource will have an impact in-combination. On the island growth magnifies the consumption issues and individual projects will have an adverse effect in-combination with each other.

Mitigation and precautionary measures

- 13.13 The Partnership for Urban South Hampshire (PUSH), Natural England and Environment Agency are working together to develop an Integrated Water Management Strategy (IWMS). The purpose of the IWMS is to examine the potential for the PUSH region to accommodate future housing growth without having a

detrimental effect upon the water environment (both in terms of water quality and quantity). The IWMS contains an Action Plan³² for how to take forward recommended actions and includes:

- Water efficiency to minimise increase in demand
- Protection and enhancement of watercourses
- Ensuring sufficient capacity for the treatment of wastewater

13.14 This section deals with the first recommendation and the latter 2 are dealt with in section 12 above looking at water quality issues.

13.15 Through development of the draft Island Planning Strategy the council have sought to take account of these recommendations. In addition to the ongoing engagement with both the Environment Agency and Natural England, the council has been working in partnership with Southern Water to ensure synergy between the water company's Water Resource Management Plan and the draft Island Planning Strategy and deal with any potential conflicts as early as possible. Both organisations realise the water environment is bigger than either of their respective roles and that so much more can be achieved by working in partnership. The partnership working has led the council to consider a series of projects focussed on the following themes;

- Target 100
- Catchment First
- Drainage 2030
- Plastics / Refill scheme

13.15 As a result Policy HQE 10 'Managing Our Water Resources' sets out ways the council expect new development to conserve and manage water resources. Measures include:

1. Implementing measures to restrict predicted internal potable water consumption to 100 litres per person per day.
2. Providing on-site recycling measures, where appropriate, to include, but not limited to, rainwater harvesting, greywater recycling and the use of flood mitigation measures such as attenuation to augment supply.
3. Ensuring no negative impact upon the Island's watercourses and providing environmental enhancements wherever relevant.
4. Ensuring no negative impact upon the Island's aquifers, including through the appropriate provision of sustainable drainage systems.
5. Ensuring no net increase in surface water run-off, compared with the pre-development rate and, where relevant, reduce run-off rates to below the greenfield run-off rates by at least 20%.
6. Ensuring drainage systems meet the drainage needs of the development in full over the lifetime of the development and do not increase flood risk elsewhere.
7. Connecting to the sewer system, where relevant, is made at the nearest point of adequate capacity, as advised by the relevant statutory provider.
8. Taking into account the existing sewerage infrastructure, to safeguard future access for maintenance and upsizing purposes.

13.16 Water abstraction regimes are regularly monitored and managed by the Environment Agency and partnership working across the PUSH area ensures catchment scale management is in place. It is therefore possible to conclude that planned development and growth on the island as a result of the draft Island Planning

³² Section 5 Action Plan, from the PUSH Integrated Water Management Study, May 2018

Strategy is unlikely to have an adverse effect upon the River Itchen SAC and that safeguarding measures will be implemented to reduce potential adverse impacts.

14. Air quality

- 14.1 Concentrations of oxides of nitrogen (NO_x) and ammonia (NH₃), as well as annual depositions of nutrient nitrogen and acid can affect air quality. Nitrogen occurs naturally in the environment however anthropogenic sources of these pollutants can cause detrimental impacts. Nitrogen oxides can react with airborne water to form nitric acids which then result in impacts to vegetation through contact. Atmospheric pollution can also result in the deposition of NO_x in soils and water, affecting vegetation. This means there is potential for adverse impacts to designated sites where qualifying features are sensitive to these pollutants.
- 14.2 An Air Quality Impact Assessment (AQIA)³³ that models concentrations of these pollutants against three road traffic scenarios has been completed for the island. The AQIA is included within Appendix B. The study used a sub-regional air dispersion model (RapidAir) to predict air quality impacts as a result of changes in traffic flow associated with planned development in the draft Island Planning Strategy. The following three scenarios were modelled:
- 2015 Reference Case: This model was designed to replicate 2015 traffic conditions within the Isle of Wight. It is used to verify the performance of the air dispersion model and investigate baseline air quality conditions within the study area.
 - 2036 Baseline Scenario: This scenario includes committed development allocations and transport interventions up to 2036 but does not include development associated with the new local plan. This provides a baseline in order to assess the effects of the new local plan against a future development scenario without the local plan.
 - 2036 Do Minimum (2036 DM) Scenario: This model scenario includes committed development allocations and transport interventions up to 2036, as well as development associated with the new local plan.
- 14.3 The assessment examined impacts to European and SSSI designated sites and was carried out in a stepwise process, designed to comply with Natural England's emerging requirements and good practice for evaluation of the impacts of air pollution on nature conservation sites. It included a screening exercise to identify all designated sites susceptible to impacts associated with air quality and sets out the methodology for assessment.
- 14.4 Recent guidance from Natural England, developed following the requirements of the Wealden Judgment, advises that screening thresholds should be applied with consideration to impacts from individual proposed developments and with consideration to in-combination effects. Therefore the assessment also looked at vehicle movement associated with ferry links to and from the mainland.

³³ Isle of Wight Local Plan: Air Quality Impact Assessment, Ricardo Energy and Environment, November 2018

Source

- 14.5 There are currently no Air Quality Management Areas (AQMAs) on the Island and nitrogen dioxide modelling results produced by Defra indicate that air quality standards are not expected to be exceeded on the Isle of Wight. However new planned development has the potential to affect road traffic movement on the Island.
- 14.6 The AQIA includes dispersion modelling of emissions from all roads with modelled traffic flows within the study area. All potentially relevant designated sites located within 300m of the study area boundary were included in the screening assessment and established guidance from Natural England and Highways England indicates that protected sites falling within 200 metres of the edge of a road affected by a plan or project need to be considered in detail.
- 14.7 The difference in predicted vehicle movements between the 2036 Do Minimum and 2036 Baseline scenarios, for each of the ferry links, is not anticipated to exceed the vehicle screening thresholds set for the assessment of impacts on designated sites. Therefore designated sites more than 300m from the boundary of the Isle of Wight have been scoped out from further assessment. The European sites scoped into the assessment that are vulnerable to air quality are:

Briddlesford Copse SAC
Isle of Wight Downs SAC
Solent and Dorset Coast pSPA
Solent and Isle of Wight Lagoons SAC
Solent and Southampton Water SPA/ Ramsar
Solent Maritime SAC
South Wight Maritime SAC

Impact

- 14.8 The draft Island Planning Strategy plans for new development and growth and impacts associated with air quality can arise/be exacerbated through increases/changes in the distribution of vehicular movements (to and from residential and commercial development) and/or the location of significant point-source emissions (e.g. new factories). Therefore policies that are likely to result in changes to traffic movements on the island have been screened into this assessment.
- 14.9 This assessment also considers potential impacts associated steam haulage at Havenstreet Railway where policy BCI 4 supports proposals that “improve connections with the Isle of Wight Steam Railway and maximise the opportunity to achieve steam-hauled access into Ryde”.
- 14.10 The following table shows the draft policies scoped into this assessment.

Table 14.1 Policies identified as having potential adverse impact due to air quality

DHWN 1	Planning for housing delivery
DHWN 2	Sites allocated for housing
DHWN 4	Planning for new garden communities
DHWN 5	Maximising infill opportunities
DHWN 7	Rural exception sites
DHWN 10	Planning for Gypsy, Traveller and Travelling Showpeople provision
SGOE1	Supporting and growing our economy
EA 1	Employment allocation land to the east of Pan Lane
EA 2	Employment allocation at Nicholson Road, Ryde
EA 3	Employment allocation at Somerton Farm, Cowes
EA 4	Employment allocation at Kingston Marine Park, East Cowes
EA 5	Employment allocation at Lowtherville, Ventnor
EA6	Employment allocation at Sandown Airport
SGOE 3	Supporting the rural economy
SGOE 6	Supporting and improving our town centres
BCI 4	Supporting our railway network
BCI 6	Parking provision in new development
CSSHC 4	Health hub at St Mary's hospital

- 14.11 Guidance published by Defra and the Environment Agency³⁴, a position statement published by the Institute of Air Quality Management (IAQM)³⁵, and recent guidance received from Natural England³⁶ support a screening approach of a 1% Critical Load or Critical Level threshold for each pollutant/ habitat combination. Levels refer to the concentration of atmospheric pollutants above which harmful effects are considered likely. Load refers to the deposition rate of nutrients below which effects are considered unlikely to occur.
- 14.12 Initial screening has identified that for three of the designated sites critical load thresholds are triggered. Based on the 'do minimum' scenario nitrogen and acid deposition may exceed the 1% screening threshold at Briddlesford Copse SAC and Solent and Southampton Water SPA. It is possible that acid deposition can be screened out following an assessment of the vegetation types for this site. Acid deposition may exceed the 1% screening threshold for the Solent Maritime SAC. Detailed spatial analysis is required and an approach will be agreed with Natural England for completing this. This work has been programmed however won't be available until the end of 2018.
- 14.13 Operations based on steam power have the potential to cause adverse impacts through the emission of Sulphur dioxide particles (Developments near to the designated sites may contribute to urbanisation and coastal squeeze and pathways and impacts associated with these are discussed in sections 9 and 10. All of these policies are likely to contribute cumulatively to in-combination effects associated with water quality, resource and air quality.). Where policy BCI 4 supports this mode of

³⁴ Department for Environment, Food and Rural Affairs and Environment Agency, "Air emissions risk assessment for your environmental permit", February 2016.

³⁵ Institute for Air Quality Management, "Position Statement: Effect of Air Quality Impacts on Sensitive Habitats," January 2016

³⁶ Isle of Wight Local Plan: Air Quality Impact Assessment, Ricardo Energy and Environment, November 2018

transport it is assessed in detail. National guidance³⁷ on air quality management indicates that emissions from steam engines are only a concern in relation to short-term exposure if there are locations where members of the public could be present for periods of 15 minutes or more, within 30 metres of stationary locomotives. The guidance highlights that impacts on health are only a concern in the immediate vicinity of stationary locomotives however impacts to habitats would be long term and not 15 minute mean impacts.

- 14.14 It is estimated³⁸ that one locomotive would result in SO₂ emissions of about 3 g/kWhour. This is similar to the amount of NO_x emitted by just 10 HGVs operating to Euro V standards (2008-2013). While SO₂ is different to NO_x, the impacts on habitat sites are of similar orders of magnitude. The level of emissions will depend on train movements. Havenstreet Steam Railway currently operates a tourist attraction and linking the railway is unlikely to affect the level of operation. Further, the quality of coal will also influence emission of pollutants and improving this may contribute towards mitigating any impacts. However, operation of the railway falls outside of the Planning jurisdiction. On this basis potential for adverse impacts to the designated sites as a result of policy BCI 4 are ruled out and guidance indicates that impacts to designated sites are unlikely to be significant.

Mitigation and precautionary measures

- 14.15 Detailed assessment of the AQIA modelling work has not yet been completed. There is currently uncertainty over the potential level of impact to designated sites and the specific mitigation requirements. The initial modelling exercise has triggered the 1% screening threshold for four of the designated sites however in most cases, there is not a trigger of more than 2%.
- 14.6 An approach to carrying out an appropriate assessment on air quality impacts needs agreeing with Natural England. For some sites it is possible that further analysis will screen out any impact. This may be because spatial analysis shows relevant features of the designated sites are not near any roads, or that the types of vegetation sensitive to low levels of air pollution contaminants are not within the designated site.
- 14.7 At this stage the precise level of impact and specific mitigation requirements are unknown. However, the draft Island Planning Strategy does set out policies that aim to contribute towards a modal shift in transport use. National and area wide changes are also likely to contribute towards improving air quality standards and includes a rise in the use of electric and ultra-low emission cars; improving standards for cars/lorries/buses; and phasing out of older vehicles. This may mitigate for any adverse impacts if they are identified through detailed analysis. In addition, there will be an assessment of opportunities to avoid or reduce impacts through site-specific measures as part of development such as building design or landscaping and/or planning obligations to provide improved habitats within European sites.
- 14.8 A complete report on the detailed analysis of sites is expected prior to submission of the draft Plan and any mitigation requirements will be considered in due course.

³⁷ Part IV of the Environment Act 1995, Local Air Quality Management Guidance (PG16), April 2016

³⁸ Email to Isle of Wight Council from Ricardo Energy and Environment, November 2018

15. Summary and conclusions

15.1 This report presents the draft Habitats Regulations Assessment of the draft Island Planning Strategy. The assessment established the nature and severity of effects on the ecological integrity of the European sites of nature conservation interest. The draft Strategy contains a number of policies or proposals which are subject to appropriate caveats to address residual uncertainties at the strategic level. These should help remove identified effects, further supported by a series of mitigation measures to ensure there are no adverse effects upon any European site.

15.2 The following table (15.1, below) summarises the findings of the HRA and recommendations for policies to avoid or mitigate for any adverse effects.

Table 15.1: HRA findings and recommendations

Effect	HRA finding	Recommendations
Proximity of development to European sites and their features of interest	Likely significant effects ruled out.	Policy HQE2 'Ecological Assets and Opportunities for Enhancement' to steer development away from designated sites using the hierarchy approach to nature conservation.
Coastal squeeze	Likely significant effects ruled out.	Policy HQE 15 'Improving Resilience from Coastal Flooding' to ensure developments comply with the latest SMP.
Recreational pressure	Residential developments within 5.6km of the Solent and Southampton Water SPA are likely to cause an adverse effect as a result of recreational pressure. The Isle of Wight Council is a member of the Solent Recreation Mitigation Partnership and is signed up to a strategic approach to ensure management actively encourages all coastal visitors to enjoy their visits in a responsible manner. The assessment shows that developments within the 5.6km zone and of 75 dwellings or more will need to provide appropriate onsite natural greenspace.	Policy HQE 2 'Ecological Assets and Opportunities for Enhancement' to include the following: <i>"Development proposals located within 5.6km of the Solent SPAs and that meets the relevant criteria should provide mitigation through either:</i> a) <i>A financial contribution in accordance with the Bird Aware Solent Strategy; or</i> b) <i>A developer-led mitigation scheme that achieves the requirements of the Bird Aware Solent Strategy; or</i> c) <i>A combination of the above. If appropriate mitigation is not proposed the application will be refused."</i> Policy HQE 4 'Protecting and Providing Green and Open Spaces' to include the requirement for

		developments of 75 units or more to provide onsite SANGs.
Water quality	Likely significant effects ruled out.	Policy CSSHC 11 'Maintaining Key Utility Infrastructure' to ensure that key facilities, including the two identified Waste Water Treatment Works in Sandown, are maintained and/or improved.
Water resource	Likely significant effects ruled out.	Policy HQE 11 'Managing Our Water Resources' to ensure water resources are conserved by setting water usage targets in new development.
Air quality	Uncertainty over potential for likely significant effect.	Completion of the AQIA where any necessary mitigation measures will be recommended.

- 15.3 It is concluded that the draft Island Planning Strategy will not adversely affect the integrity of any European site, either alone or in combination with other plans and projects where effects have been considered. There remain uncertainties on effects associated with air quality and a separate assessment of potential impacts has been programmed. At the time of writing, these documents had not yet been finalised, but emerging results indicate national incentives for modal shifts in transport will mitigate the effects.

Appendix A – assessment of potential development sites
identified through the SHLAA process

Draft

Sites are considered as falling into one of the following categories:

- Category A - No potential impacts whatsoever on a European and Ramsar site.
- Category B - Potential impacts may occur but provided there is on-site mitigation such as appropriate green space provision there would be no likely significant effects on a European and Ramsar site, either alone or in combination.
- Category C - Likely significant effects on a European and Ramsar site, alone. Under the current system it is unlikely that any site proceeding to stage B would fall into this category.
- Category D - Likely significant effects on a European and Ramsar site, in combination with other plans or projects. This will pick up on all sites within 5.6km of the SPA boundary under the Bird Aware Solent Strategy.

Site reference	Site address	Town	Size ha	Category of impact	Is it likely the impacts can be mitigated	Comments
IPS001	Bartlett's Service Station	Newchurch	2.2	D	Yes, through Solent Bird Aware.	None
IPS002	Park Farm, Park Road,	Wootton	15.37	D	Yes, through Solent Bird Aware and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS003	Windmill Farm, Upton Cross	Ryde	3.43	D	Yes, through Solent Bird Aware	None
IPS004	Oakdene Nurseries, Packsfield Lane	Wootton	5.89	D	Yes, through Solent Bird Aware. Pollution control measures to ensure watercourse on site	Provided adequate buffer for designated sites on south west boundary.

					that links to designated site is protected.	
IPS005	The Paddock, Mews Lane	Newport	1.8	D	Yes, through Solent Bird Aware.	None
IPS006	Newfield, Copse Lane	Freshwater	0.8	D	Yes, through Solent Bird Aware	None
IPS007	Church Field, Copse Lane, Freshwater, Isle of Wight, PO40 9TL	Freshwater	1.83	D	Yes, through Solent Bird Aware. Maintain hedgerow screening.	Potential brent goose site adjacent to the east. Prow alongside and so disturbance unlikely to increase. Hedgerow screening either side of row.
IPS008	Charlie Brown Field	Freshwater	1.69	D	Yes, through Solent Bird Aware	None
IPS009	School ground, Copse Lane	Freshwater	5.17	D	Yes, through Solent Bird Aware	None
IPS010	Regina Field, Copse Lane, Freshwater, Isle of Wight, PO40 9DL	Freshwater	6.94	D	Yes, through Solent Bird Aware.	None
IPS011	Land on the east side of Uplands Road	Totland	0.24	D	Yes, through Solent Bird Aware	None
IPS012	Land rear of Quintons, Southford Lane	Whitwell	1.59	A	No	None
IPS013	Land to rear of 394-402 North Fairlee Road	Newport	0.33	D	Yes, through Solent Bird Aware.	None
IPS014	80 Church Road, Wootton Bridge, Isle of Wight PO33 4NH	Wootton	0.5	D	Yes, through Solent Bird Aware.	None
IPS015	The Crest, Blythe Shute, Chale	Chale	0.16	A	No	None
IPS016	Land opposite Hillside, Buckbury Lane	Newport	0.6	D	Yes, through Solent Bird Aware.	None
IPS018	Land at Sports Field, Niton	Niton	7.1	A	No	None
IPS019	Land at Castleworks, known as the Bacon Factory	Wroxall	0.39	A	No	None

IPS020	Nettlecombe Farm, Nettlecombe Lane	Whitwell	8.5	A	No	None
IPS021	Land rear of 34 High Street, Oakfield	Ryde	0.17	D	Yes, through Solent Bird Aware.	None
IPS022	Mountfield, Norton Green	Freshwater	1.07	D	Yes, through Solent Bird Aware.	None
IPS023	Bullen Mead, Bullen Road	Ryde	0.69	D	Yes, through Solent Bird Aware.	None
IPS024	7 Green Street	Newport	0.03	D	Yes, through Solent Bird Aware	None
IPS025	Winchester House, Sandown Road	Shanklin	0.76	D	Yes, through Solent Bird Aware	None
IPS026	Lower Yard Farm, Newport Road	Godshill	0.3	A	No	None
IPS027	Former Flamingo Park, Oakfield	Seaview	6.3	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	None
IPS028	Fort Mews	Shanklin	0.12	D	Yes, through Solent Bird Aware	None
IPS029	339 Newport Road	Cowes	0.27	D	Yes, through Solent Bird Aware.	None
IPS030	Highwood Nursery, Main Road	Rookley	1.25	A	No	None
IPS031	The Barn, Cothey Butts	Fishbourne	0.07	D	Yes, through Solent Bird Aware.	None
IPS032	Dean Farm, Whitwell Road	Whitwell	0.7	A	No	None
IPS033	The Plough and Barleycorn, North Road	Shanklin	0.07	A	No	None
IPS034	Old Hosiden Besson site, Binstead Road	Ryde	0.64	D	Yes, through Solent Bird Aware.	None
IPS035	Green Gate Industrial Estate, Thetis Road	Cowes	0.15	D	Yes, through Solent Bird Aware.	None

IPS036	Bowcombe Business Park	Bowcombe	0.8	D	Yes, through Solent Bird Aware.	None
IPS037	Brookfield	Yafford	1.29	A	No	None
IPS038	Bungalow and land at 187 Baring Road	Cowes	7.42	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS039	Dukes Farm, Rew Street	Gurnard	0.7	D	Yes, through Solent Bird Aware.	None
IPS040	Westbrook Yard, Main Road, Ningwood	Shalfleet	0.9	D	Yes, through Solent Bird Aware.	None
IPS041	Former industrial building and land on the east side of Main Road	Rookley	2.8	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS042	Somerton resevoir	Cowes	1.85	D	Yes, through Solent Bird Aware.	None
IPS043	Land at Moor Farm	Godshill	6.4	A	No	None
IPS044	Macketts Farm, Macketts Lane, Hale Common	Arreton	1	A	No	None
IPS045	East Afton Farm buildings, East Afton	Freshwater	3.8	D	Yes, through Solent Bird Aware.	None
IPS049	Old Park Hotel, Old Park	St Lawrence	8.2	A	No	None
IPS050	Rear of Albert Cottage	East Cowes	0.3	D	Yes, through Solent Bird Aware.	None
IPS051	Land adjacent to Castle Works	Wroxall	0.22	A	No	None
IPS053	117 Medina Avenue	Newport	0.4	D	Yes, through Solent Bird Aware.	None
IPS054	9-11 George Street, Ryde	Ryde	0.03	D	Yes, through Solent Bird Aware.	None

IPS055	6-8 George Street, Ryde	Ryde	0.09	D	Yes, through Solent Bird Aware.	None
IPS056	Buildings at Dodnor Farm, Dodnor Lane	Newport	0.66	D	Yes, through Solent Bird Aware.	None
IPS057	Merlin's lane, Elm Lane	Calbourne	1.16	D	Yes, through Solent Bird Aware	None
IPS058	Hale Manor Farm, Hale Common	Arreton	0.83	A	No	None
IPS059	The Hollands, Hale Common	Arreton	3.9	A	No	None
IPS060	Coppid Hall Farm, Main Road	Havenstreet	2	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS061	Walpan Farm, Military Road	Chale	1.25	A	No	None
IPS061	Land at Aldermoor Farm, Upton Road	Ryde	1.25	D	Yes, through Solent Bird Aware	None
IPS062	Kenneth House, eddington Road	Nettlestone	11.5	D	Yes, through Solent Bird Aware.	None
IPS063	Land at Priory Drive	Seaview	1	D	Yes, through Solent Bird Aware.	None
IPS064	Land at Seven Sisters Road	Ventnor	1.7	A	No	None
IPS065	Former learning Centre, Berry Hill	Lake	1.4	D	Yes, through Solent Bird Aware.	None
IPS066	Barton School site, Green Street, Royal Exchange	Newport	1.02	D	Yes, through Solent Bird Aware	None
IPS067	Depot site, Lowtherville Road	Ventnor	0.7	A	No	None
IPS068	Spa Hotel, Shanklin Esplanade	Shaklin	0.6	A	No	None
IPS070	Land at Sandown Airport, Scotchells Brook Lane	Sandown	1.2	D	Yes, through Solent Bird Aware	None
IPS071	Heathfield campsite, Heathfield	Freshwater	3.5	D	Yes, through Solent	None

	Road				Bird Aware	
IPS072	Car sales area, Havenstreet Garage	Havenstreet	0.3	D	Yes, through Solent Bird Aware	None
IPS073	Former Worsley Inn, High Street	Wroxall	0.3	A	No	None
IPS074	23, Carter Street, Sandown	Sandown	0.19	D	Yes, through Solent Bird Aware.	None
IPS075a	Land at Cheeks Farm, Merston Lane	Merston	6	D	Yes, through Solent Bird Aware.	None
IPS075b	Land at Cheeks Farm, Merston Lane	Merston	19	D	Yes, through Solent Bird Aware.	None
IPS076	Ryde Youth Centre, 97 high Street	Ryde	0.08	D	Yes, through Solent Bird Aware.	None
IPS077	Former Sandham Middle School site, Perone Way	Sandown	2.29	D	Yes, through Solent Bird Aware.	None
IPS078	Test Centre site, 23 Medina Avenue	Newport	0.1	D	Yes, through Solent Bird Aware.	None
IPS079	Ventnor Youth Club, Victoria Street	Ventnor	0.03	A	No	None
IPS080	St Thomas' Street car park	Ryde	0.45	D	Yes, through Solent Bird Aware. Need to raise awareness of SPA issues because so close to beach.	None
IPS081	Sandown Town Hall, Grafton Street	Sandown	0.15	D	Yes, through Solent Bird Aware.	None
IPS082a	School building at Western Primary School, Western Road	Totland	8.34	D	Yes, through Solent Bird Aware.	None
IPS082b	School building at Western Primary School, Western Road	Totland	4.13	D	Yes, through Solent Bird Aware.	None
IPS083	Lower Rowborough, Beaper Shute	Brading	0.22	D	Yes, through Solent Bird Aware.	None
IPS084	Beaper Farm, Brading Road	Ryde	30	B	Yes, through Solent	None

					Bird Aware. Requires onsite recreational greenspace.	
IPS085a	Land adjacent to Reynolds and Reed	Binstead	4	D	Yes, through Solent Bird Aware	None
IPS085b	Land adjacent to Reynolds and Reed	Binstead	3.5	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS086	Land between grassmere avenue and Thornton Close, Appley	Ryde	3.39	D	Yes, through Solent Bird Aware	None
IPS087	Agricultural Showground	Cowes	1.83	D	Yes, through Solent Bird Aware	None
IPS088	Land at rear of Fowlsdown Farm, Canteen Road, Whiteley Bank	Whiteley Bank	1.1	A	No	None
IPS089	Land at Main Road, adjacent to Chapel Cottage	Chillerton	0.29	A	No	None
IPS090	Land to the north west of Regina Road, Freshwater, Isle of Wight, PO40	Freshwater	0.84	D	Yes, through Solent Bird Aware.	None
IPS091	Land off Ventnor Road	Apse Heath	2.7	A	No	None
IPS092	Land off Newport Road	Apse Heath	1.29	D	Yes, through Solent Bird Aware.	None
IPS093	Land off Alvington Manor View	Newport	1.47	D	Yes, through Solent Bird Aware.	None
IPS094	Land off Alvington Road	Newport		D	Yes, through Solent Bird Aware.	None

IPS095	Land at Merstone (proposed new town)	Merstone	365.69	B	Yes, through Solent Bird Aware. Require onsite recreational greenspace.	None
IPS096	Land at Main Road	Wellow	1.77	D	Yes, through Solent Bird Aware.	None
IPS097	Land at the junction of Old East Cowes and Whippingham Road	Whippingham	2	D	Yes, through Solent Bird Aware.	None
IPS098	Brocks Copse Road, Wootton Bridge, Isle of Wight, PO33 4NP	Wootton	13.7	D	Yes, through Solent Bird Aware.	Previously ldf 324- a larger site and so any impacts have now been reduced as such no impact to estuary.
IPS099	Land off Place Road	Cowes	4.25	D	Yes, through Solent Bird Aware.	None
IPS100	Land to the north western side of Seaview Lane	Seaview	4.94	D	Yes, through Solent Bird Aware.	None
IPS101	Land adjacent to Rose Cottage, Hale Common	Arreton	0.05	A	No	None
IPS102	Land Near Brading Roman Villa / Land off Morton Road Brading	Brading	2.24	D	Yes, through Solent Bird Aware.	None
IPS103	Ryde House, Ryde House Drive, Binstead Road Ryde Po33 3NF	Ryde	2	D	Yes, through Solent Bird Aware and by ensuring access to beach is not provided through new development.	None
IPS104	Land off Solent View Road	Seaview	0.95	D	Yes, through Solent Bird Aware.	None
IPS105	Land adjoining Puckpool Hill	Puckpool	1.8	D	Yes, through Solent	None

					Bird Aware	
IPS106	Land adjoining Ash Lane, Gunville	Newport	6.92	D	Yes, through Solent Bird Aware.	None
IPS107	Land at Blackwater (to the west of Mole Country Stores)	Newport	3.3	D	Yes, through Solent Bird Aware	None
IPS108	Land at Shalfleet Manor Farm, Shalfleet Manor	Shalfleet	0.8	D	Yes, through Solent Bird Aware.	None
IPS109	Land to the south and west of 71 Lushington Hill	Wootton Bridge	1.4	D	Yes, through Solent Bird Aware and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS110	Land between Fort Warden and Hurst Point View	Totland	4.89	D	Yes, through Solent Bird Aware.	Conserve SINC.
IPS111	Werrar Farm, Werrar Lane	Newport	110.3	C	Yes, through Solent Bird Aware.	Direct impacts need assessment.
IPS112	Land off Stroud Road, at rear of Co-op shop, Freshwater	Freshwater	1	D	Yes, through Solent Bird Aware.	None
IPS113	Bungalow and rear of 31 St Johns Wood Road	Ryde	1.39	D	Yes, through Solent Bird Aware	None
IPS114	Land off Chatfield Road (East)	Niton	4.5	A	No	None
IPS115	Land east of Alverstone Road	Apse Heath	4.9	D	Yes, through Solent Bird Aware.	None
IPS116	Land behind numbers 33 to 47, Watergate Road	Newport	0.3	D	Yes, through Solent Bird Aware.	None
IPS117	Land rear of High Street, Whitwell	Whitwell	5.76	A	None	On the periphery of a development and a significant distance from any European site.
IPS118	Land at Merston Lane, Merston	Merston	0.9	A	No	None
IPS119	Ashey Vineyrd, Ashey Road	Ryde	4.4	B	Yes, through Solent Bird Aware. Requires onsite	None

					recreational greenspace.	
IPS120	Land rear of Wishing Well Public House	Ryde	1.1	D	Yes, through Solent Bird Aware.	None
IPS121	Bouldnor Mead	Yarmouth	4	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS122	Cockleton Farm, Place Road, Tuttons Hill	Cowes	9.9	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS123	Land at Porchfield	Porchfield	9	D	Yes, through Solent Bird Aware.	None
IPS124	Land to south of Forest Road	Newport	3.76	D	Yes, through Solent Bird Aware.	None
IPS125	Land at Seagrove Farm Road	Seaview	1	D	Yes, through Solent Bird Aware.	None
IPS126	Taylor Road, Carisbrooke	Newport	1.07	D	Yes, through Solent Bird Aware.	None
IPS127	Land west of Edington Road	Nettlestone	3.9	D	Yes, through Solent Bird Aware.	None
IPS128	Land north of 7 Hollis Drive	Brighstone	1.3	A	No	None
IPS129	Land south of Forest Road (2)	Newport	1.3	D	Yes, through Solent Bird Aware	None
IPS130	Land to the west of Upton Road	Ryde	3.45	D	Yes, through Solent Bird Aware. Require onsite recreational greenspace and sensitive lighting.	Lies within 3km of Briddlesford Copse SAC.

IPS131	Baring Road, Cowes	Cowes	5.12	D	Yes, through Solent Bird Aware.	None
IPS132	Ex council depot, Victoria Crescent	Ryde	0.28	D	Yes, through Solent Bird Aware.	None
IPS133	Land at Morton Common, east of Morton Road	Brading	1.14	D	Yes, through Solent Bird Aware.	None
IPS134	Adjacent to 358 Fairlee Road	Newport	0.4	D	Yes, through Solent Bird Aware.	None
IPS135	Land north of Perowne Way and west of Brook Close, Sandown, Isle of Wight.	Sandown	3.20	D	Yes, through Solent Bird Aware.	None
IPS136	Land south east of Fairlee Road, Fairlee Road	Newport	1	D	Yes, through Solent Bird Aware.	None
IPS137	Land at Lower Bramstone Farm	Chale	1.5	A	No	None
IPS138a	Land south of Buckbury Lane	Newport	1.4	C	No	Site provides mitigation for previous development under the Habs Regs
IPS138b	Land south west of Buckbury Lane	Newport	1	D	Yes, through Solent Bird Aware.	None
IPS139	Fields north of Mountbatten Drive	Newport	8.5	D	Yes, through Solent Bird Aware.	None
IPS140	Former sewage works adjoining Kingston Copse	East Cowes	1.3	C	No	Site provides mitigation for previous development under the Habs Regs
IPS141	Land at rear of GKN Aerospace Osborne Works	East Cowes	3.2	D	Yes, through Solent Bird Aware.	None
IPS142	Land north of Arreton Primary School	Arreton	1.51	D	Yes, through Solent Bird Aware.	None
IPS143	Land rear of Old Rectory, off Pitts Lane	Binstead	0.8	D	Yes, through Solent Bird Aware. Pollution control measures to ensure watercourse on site	None

					that links to designated site is protected.	
IPS144	Land adjacent Football Ground, Vicarage Lane	Brading	0.15	D	Yes, through Solent Bird Aware.	None
IPS145a	Land north of Quay Lane	Brading	2.73	D	Yes, through Solent Bird Aware.	None
IPS145b	Land north of Quay Lane (site 2 east of railway)	Brading	3.94	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace and screening to Ramsar to the south.	None
IPS146	Land north of Quay Lane	Brading	0.14	D	Yes, through Solent Bird Aware.	None
IPS147	Land east of Chale Street	Chale	5.29	A	No	None
IPS148	Land to the west of Luccombe Road	Shanklin	5.9	A	No	None
IPS149	Land to west of St Mildreds Church, off Beatrice Avenue	East Cowes	10.8	C	Yes, through Solent Bird Aware.	Direct impacts need assessment.
IPS150	Westridge Cross Lane and land to the north of Bullen Road	Ryde	33	B	Yes, through Solent Bird Aware. Requires onsite recreational space	None
IPS153	Folly Works, Folly Lane, Whippingham	East Cowes	14.53	C	Yes, through Solent Bird Aware	Direct impacts will need assessment.
IPS154	Land west of Newport Road	Northwood	2.1	D	Yes, through Solent Bird Aware	None
IPS155	Land rear of the Laurells, High Street	Newchurch	0.21	D	Yes, through Solent Bird Aware	None
IPS156	Land adjacent to Wheatsheaf Inn, High Street	Brading	0.32	D	Yes, through Solent Bird Aware.	None
IPS157	Land between The Spinney and The	Wootton	0.5	D	Yes, through Solent	None

	Linhay, Park Road				Bird Aware.	
IPS158	Land north of Kemming Road	Whitwell	0.8	A	No	None
IPS159	233 Fairlee Road	Newport	0.31	D	Yes, through Solent Bird Aware.	None
IPS160	The Bay House Hotel, 8 Chine Avenue	Shanklin	0.14	A	No	None
IPS161	Land between 156 – 162, Gunville Road	Newport	0.27	D	Yes, through Solent Bird Aware.	None
IPS162	Merston Valley Nurseries, Merstone Lane	Merstone	1.3	D	Yes, through Solent Bird Aware.	None
IPS163	Chawton Farm, Chawton Lane	Cowes	70	C	Yes, through Solent Bird Aware.	Direct impacts need assessment.
IPS164	Lily Grove, Brighstone		1.13	A	No	None
IPS165	Land north of Carisbrooke Priory, Whitcombe Road	Carisbrooke	1	D	Yes, through Solent Bird Aware	None
IPS166	Rolls Hill	Gurnard	1.02	D	Yes, through Solent Bird Aware.	None
IPS167	Land at Hillisgate Road	Gurnard	4.5	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS168	Great Pan Farm, Pan Lane	Newport	1.2	D	Yes, through Solent Bird Aware.	None
IPS169	Land at Rosemary Lane	Ryde	0.81	D	Yes, through Solent Bird Aware.	None
IPS170	Land between St Martins and Dundas West, Afton Down	Freshwater	0.2	C	No	Direct impacts need assessment.
IPS171	Land adjacent 99 Station Road	Wootton	0.16	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to	None

					Briddlesford Copse SAC.	
IPS172	Land rear of 139, 141 and 143 Staplers Road	Newport	0.5	D	Yes, through Solent Bird Aware.	None
IPS173	Norman Court, Quarry View	Newport		D	Yes, through Solent Bird Aware	None
IPS174	Site of former Briddlesford Farm Cottages, Littleton Lane	Wootton	0.31	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS175	Land at Farm Lane Cottage, Farm Lane off Palmers Cottage	Wootton	0.31	D	Yes, through Solent Bird Aware.	
IPS176	Isle of Wight Pet Centre, Watergate Road	Newport	2.1	D	Yes, through Solent Bird Aware.	None
IPS177	Chester Lodge Hotel, 7 Beachfield Road	Sandown	0.08	D	Yes, through Solent Bird Aware	None
IPS178	Building land at Carpenters Farm, Carpenters Road	St Helens	0.7	D	Yes, through Solent Bird Aware. Provided adequate buffer for designated sites on south west boundary. Pollution control measures to ensure watercourse on site that links to designated site is protected.	None

IPS179	Land at Kite Hill Farm, Firestone Copse Road, Kite Hill	Wootton	0.24	D	Yes, through Solent Bird Aware.	None
IPS180a	Land at Woodfords Dairy (1)	Havenstreet	0.2	D	Yes, through Solent Bird Aware and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS180b	Land at Woodfords Dairy (2)	Havenstreet	2.78	D	Yes, through Solent Bird Aware and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS180c	Land at Woodfords Dairy (3)	Havenstreet	1.35	D	Yes, through Solent Bird Aware and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS181	Brambles Farm, Brambles Lane	Freshwater	2.5	D	Yes, through Solent Bird Aware.	None
IPS182	Land at Littletown Lane	Wootton	0.4	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS183	Land north of Mill Road and east of High Street	Bembridge	6.14	D	Yes, through Solent Bird Aware.	None
IPS184	Land east of Hillway Road and south	Bembridge	4.93	D	Yes, through Solent	None

	of Steyne Road				Bird Aware.	
IPS185	5 Warren Point	Cowes	0.15	D	Yes, through Solent Bird Aware.	None
IPS186	Land north east of Newport, off Fairlee Road	Newport	1.2	D	Yes, through Solent Bird Aware.	None
IPS187	Land to the east of Station Road and adjacent to Packsfield Lane	Wootton	1.83	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS188	Land off Carpenters Road	St Helens	0.7	D	Yes, through Solent Bird Aware.	None
IPS189	Land to the east of Football Club, Camp Road, Freshwater.	Freshwater	6	D	Yes, through Solent Bird Aware.	Previously Idf056 - a larger site and so any impacts have now been reduced as such no impact to estuary.
IPS190	Land at Westwood, Brocks Copse Road	Wootton	2.69	D	Yes, through Solent Bird Aware.	None
IPS191	Pallance Road	Cowes	1.02	D	Yes, through Solent Bird Aware.	None
IPS192	Land south of Clayton Road	Freshwater	2.5	D	Yes, through Solent Bird Aware	None
IPS193	Land between Court Road and Spinfish Lane	Freshwater	7.7	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	None
IPS194	Land between Spinfish Lane and Locksley Close / Queens Close	Freshwater	3	D	Yes, through Solent Bird Aware	None
IPS195	East of Locksley Close and south of	Freshwater	1	D	Yes, through Solent	None

	Camp Road/Queens Road				Bird Aware	
IPS196	Land at Puckwell Farm, adjacent to Niton Primary School, Niton	Niton	0.3	A	No	None
IPS197	Land at Chatfield Road	Niton	1.7	A	No	None
IPS198	Land at eastern end Allotment Lane	Niton	0.3	A	No	None
IPS199	Land rear of 84 Wyatts Lane	Northwood	5.44	D	Yes, through Solent Bird Aware.	None
IPS200	Acorn Farm, Horsebridge Hill	Newport	4.88	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	
IPS201	Land at The Meadows, Priory Drive	Seaview	0.7	D	Yes, through Solent Bird Aware.	None
IPS202	Edvale The Shute	Newchurch	0.06	D	Yes, through Solent Bird Aware	None
IPS203	Land at Haylands Manor, Corbett Road	Ryde	2.09	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	None
IPS204	12 Wyatts Lane	Northwood		D	Yes, through Solent Bird Aware	None
IPS205	Land rear of 37 Pallance Lane	Northwood	0.19	D	Yes, through Solent Bird Aware	None
IPS206	Land south of Dodnor Farm, Dodnor Lane	Newport	2.9	B	Yes, through Solent Bird Aware. Access to designated site not possible, however appropriate mitigation required.	None
IPS207	Land south west side, West Lane	Brading	0.9	D	Yes, through Solent	None

					Bird Aware.	
IPS208	Land to south and south west of Lower Calbourne Mill	Newbridge	0.88	D	Yes, through Solent Bird Aware.	None
IPS209	Stockbridge Nuttery, land off Slay Lane	Whitwell	0.64	A	No	None
IPS210	Land at St Helens	St Helens	6.8	D	Yes, through Solent Bird Aware.	None
IPS211	Land south of Attrills Lane	St Helens	21.36	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS212	Land rear of The Copse, Eddington Road	Seaview	0.56	D	Yes, through Solent Bird Aware.	None
IPS213	Wrax Farm, New Road	Brading	1	D	Yes, through Solent Bird Aware.	None
IPS214	Marchwood, Lushington Hill	Wootton	0.46	D	Yes, through Solent Bird Aware	None
IPS215	Manor Farm (West Field), Top Road	Wellow	1.25	D	Yes, through Solent Bird Aware.	None
IPS216	Manor Farm (East Field), Top Road	Wellow	14.4	D	Yes, through Solent Bird Aware.	None
IPS217	Land adjacent Perowne Way, Sandown	Sandown	6.84	D	Yes, through Solent Bird Aware.	
IPS218	Land north of Culver Way	Yaverland	8.26	D	Yes, through Solent Bird Aware	None
IPS219	Land adjacent to Dodnor Farm, Dodnor Lane	Newport	7.49	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS220	Land at Lower Bramstone Farm (2)	Chale	7.57	A	No	None
IPS221	Land to the rear of Place Farm	Chale	2.16	A	No	None

IPS222	Land at Tithe Barn Farm	Chale	1.52	A	no	None
IPS223	Land at Upper House Lane	Chale	0.3	A	No	None
IPS224	Budbridge Bursery, Budbridge Lane	Merstone	0.4	A	No	None
IPS225	Holme Farm, Church Road	Shanklin	0.9	A	No	None
IPS226	Westmeanth, Land at Whyte Dymes, Main Road	Newchurch	1.3	D	Yes, through Solent Bird Aware.	None
IPS227	Land to the south and west of Rew Valley Sports Centre, Rew Lane		7.59	A	No	None
IPS228	Land between Buckbury Lane and Long Lane	Newport	2.17	D	Yes, through Solent Bird Aware	None
IPS229	Land to south west of Buckbury Lane	Newport	1.15	D	Yes, through Solent Bird Aware.	None
IPS230	Land to east of Gunville Road	Newport	3.58	D	Yes, through Solent Bird Aware.	None
IPS231	Land west of Sylvan Drive	Newport	6.51	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	None
IPS233	Land east of Gunville road and east of playing fields	Newport	3.34	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	None
IPS234	Rear of Gunville Road	Newport	2.44	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	None
IPS237	Land adjoining Scotland Farm and Tresselwood Care Village, Scotland Corner	Godshill	1.88	A	No	None
IPS239	Land south and west of Godshill	Godshill	11.29	A	No	None

IPS240	Land at Bartletts green Farm, Brading Road	Ryde	1.37	D	Yes, through Solent Bird Aware.	None
IPS241	Land off Gasworks Lane	Yarmouth	0.66	D	Yes, through Solent Bird Aware. Pollution control measures to ensure watercourse on site that links to designated site is protected.	None
IPS243	Whiteland Farm, Bowcombe Road	Newport	0.43	D	Yes, through Solent Bird Aware.	None
IPS244	Hill Farm	Gatcombe	0.5	D	Yes, through Solent Bird Aware	None
IPS245	Land adjacent 29 Church Road	Shanklin	0.02	A	No	None
IPS246	Land south west of Westhill Road	Shanklin	0.7	A	No	None
IPS247	Land opposite Holme Farm, Church Road	Shanklin	0.5	A	No	None
IPS248	Land at Main Road	Arreton	2.33		Site partially within SPA zone of influence and therefore contributions maybe required.	Lies within 3km of Briddlesford Copse SAC but impacts judged to be minimal.
IPS249	Land at Binstead, Ryde	Ryde	9.02	D	Yes, through Solent Bird Aware.	None
IPS250	Pope's Farm, High Street	Newchurch	1.56	D	Yes, through Solent Bird Aware.	None
IPS252	Land opposite Trotters Riding Stables, Ashey	Ryde	20.69	B	Yes, through Solent Bird Aware. Require onsite recreational	Lies within 3km of Briddlesford Copse SAC and so mitigation required

					greenspace. Sensitive lighting	
IPS253	Land to south of Fernhill	Wootton	0.27	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	Lies within 3km of Briddlesford Copse SAC and so mitigation required
IPS254	Land at Coppid Hall Farm, Main Road	Havenstreet	1.1	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	Lies within 3km of Briddlesford Copse SAC and so mitigation required
IPS255	Land south of Coppid Hall Farm	Havenstreet	3.68	B	Yes, through Solent Bird Aware.	Lies within 3km of Briddlesford Copse SAC and so mitigation required
IPS256	Land off Forest Road	Newport	42.5	D	Yes, through Solent Bird Aware.	None
IPS257	Land adjacent to New Road	Brighstone	0.07	A	No	None
IPS258	Land adjacent to New Road (2)	Brighstone	0.7	A	No	None
IPS263	Land off Chatfield Road and Allotment Road	Niton		A	No	None
IPS264	Former water reservoir, Church Road	Shanklin	0.6	A	No	None
IPS265	Old Marl Pit, Watergate Road	Newport	0.6	D	Yes, through Solent Bird Aware.	None
IPS266	Chessell Cross, Chessell	Yarmouth	23	B	Yes, through Solent Bird Aware. Requires onsite recreational	None

					greenspace.	
IPS269	Land north of Vicarage Lane	Brading	0.43	D	Yes, through Solent Bird Aware.	None
IPS270	North of 150a-165, Staplers Road	Newport	0.99	D	Yes, through Solent Bird Aware.	Lies within 3km of Briddlesford Copse SAC but impacts judged to be minimal
IPS271	Land off Quarry Road, Ryde	Ryde	1.68	D	Yes, through Solent Bird Aware.	
IPS272	Land at Comforts Farm, Pallance Road	Northwood	1.85	D	Yes, through Solent Bird Aware	None
IPS273	Buildings at Cheverton Chalk Quarry	Shorwell	0.8	A	No	None
IPS274	Land at Cheverton Gravel Pit	Shorwell	4.8	A	No	None
IPS275	Land at Cheverton Chalk Quarry	Shorwell	8	A	No	None
IPS276	Land and buildings at Cheverton Chalk Quarry	Shorwell	11.2	A	No	None
IPS277	Land at 6 North View Harbors Lake Lane	Newchurch	0.4	A	No	None
IPS278	Land adjacent 80 Watergate Road	Newport	0.6	D	Yes, through Solent Bird Aware.	None
IPS279	Sommerville, (next to 'Moorfield') Blackwater Road	Newport	0.93	D	Yes, through Solent Bird Aware.	None
IPS280	Land north of Brambles, Rew Street	Gurnard	1.81	D	Yes, through Solent Bird Aware	None
IPS281	Gibb Well Field, off Seaview Lane	Nettlestone	1.87	D	Yes, through Solent Bird Aware	None
IPS282	Land west of Nettlestone and south of Nettlestone Hill	Nettlestone	6.9	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS283	Land off 31 Ventnor Road, Apse Heath	Akse Heath	0.75	A	No	None

IPS284	Land adjacent to Church Road	Shanklin	4.9	A	No	None
IPS285	Land off Alum Bay, New Road	Totland	0.74	D	Yes, through Solent Bird Aware	None
IPS286	Site of former Southview Cottage, Niton Road	Rookley	0.29	A	No	None
IPS287	Land at Palmers Road	Wootton	2.37	D	Yes, through Solent Bird Aware	None
IPS289	Land adjacent to Bank Cottage, Dodnor Lane	Newport	1.3	D	Yes, through Solent Bird Aware.	None
IPS290	Crossway, East Cowes, PO32 6HY	East Cowes	4.75	D	Yes, through Solent Bird Aware.	None
IPS291	Land off Gunville Road	Newport	1.8	D	Yes, through Solent Bird Aware.	None
IPS292	Land at Black Pan Farm	Sandown	5.51	D	Yes, through Solent Bird Aware.	None
IPS293	Land formerly part of Peartree Farm, Canteen Road	Whiteley Bank	0.08	A	No	None
IPS294	Little Fairlee Farm	Newport	28.6	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS295	Land at Puckpool Hill, Ryde	Ryde	3.17	D	Yes, through Solent Bird Aware.	None
IPS296	Land off Packsfield Lane	Wootton	0.7	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS297	Land at St John's Road	Wroxall	3.71	A	No	None
IPS299	Land west of North View	Thorley	2.2	D	Yes, through Solent	None

					Bird Aware.	
IPS300	Land fronting Thorley Street (2)	Thorley	3.2	D	Yes, through Solent Bird Aware.	None
IPS301	Land south of Wellow, Top Road	Wellow	1.98	D	Yes, through Solent Bird Aware.	None
IPS302	Culver Parade	Sandown	5.69	D	Yes, through Solent Bird Aware. Hydrological issues would need addressing to ensure no adverse impact on adjacent SAC	None
IPS303	Merrie Gardens and Black Pan, off Newport Road	Sandown	10	D	Yes, through Solent Bird Aware.	None
IPS304	Land at Worsley Road	Newport	6.7	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	None
IPS305	Land at Moor Lane (1)	Brighstone	0.25	A	No	None
IPS306	Land at Moor Lane (2)	Brighstone	0.37	A	No	None
IPS307	Land south of 45 Noke Common	Newport	7	D	Yes, through Solent Bird Aware.	None
IPS308	Land known as 'Seaview Meadows', on south side of Priory Drive/Gully Road	Seaview	2.68	D	Yes, through Solent Bird Aware.	None
IPS309	Part of OS parcel 5627 off Pan Lane, east of St Georges Way	Newport	1.7	D	Yes, through Solent Bird Aware.	None
IPS310	Land at Hunter's Way (1), off Staplers Road	Newport	3.75	D	Yes, through Solent Bird Aware.	None
IPS311	Land at Hunter's Way (2), off Staplers Road	Newport	1.19	D	Yes, through Solent Bird Aware.	None

IPS312	Reynards Cattery, Palmers Road, Wootton	Wootton	0.8	D	Yes, through Solent Bird Aware.	None
IPS313	The Coach House, Nettlecombe Lane	Whitwell	0.69	A	No	None
IPS314	Land off Clarence Road	Wroxall	1.07	A	No	None
IPS315	Medham Farm, Medham Farm Lane	Northwood	3.2	D	Yes, through Solent Bird Aware.	None
IPS316	Medham Farm, Medham Farm Lane (2)	Northwood	1.22	D	Yes, through Solent Bird Aware.	None
IPS317	Land rear of Harry Cheek Gardens	Northwood	2.09	D	Yes, through Solent Bird Aware	None
IPS318	Land at Lushington Hill	Wootton	15.51	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS319	The builders Yard, Yarbridge	Brading	0.48	D	Yes, through Solent Bird Aware.	None
IPS320	Land known as 'Rewbank'	Ventnor	5	A	No	None
IPS321	Woodlands, Quarr Road, Binstead	Ryde	0.21	D	Yes, through Solent Bird Aware.	None
IPS322	Land at Elm lane	Calbourne	0.5	D	Yes, through Solent Bird Aware	None
IPS323	Somerton Farm, Newport Road	Cowes	42.14	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS324	Land at Landscape Lane	Newport	0.46	D	Yes, through Solent Bird Aware.	Lies within 3km of Briddlesford Copse SAC but impacts judged to

						be minimal
IPS325	Land at Staplers Heath, off Staplers Road	Newport	4.94	D	Yes, through Solent Bird Aware.	None
IPS326	Land adjacent to "Hideaway", Playstreet Lane, Ryde	Ryde	0.36	D	Yes, through Solent Bird Aware.	None
IPS327	Land adjacent Greystones, Upper Green Road	St Helens	0.06	D	Yes, through Solent Bird Aware.	None
IPS328	Land off Carpenters Road	St Helens	4.2	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace and screening to Ramsar to the south.	None
IPS329	Ladyacre Farm, Pan Lane	Niton	3.9	A	No	None
IPS330	Land east of Stone Cottge, Pitts Lane	Binstead	1.51	D	Yes, through Solent Bird Aware. Pollution control measures to ensure watercourse on site that links to designated site is protected.	None
IPS331	Guildford Park, Caravan site	St Helens	1.9	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS332	Part Wayts Court Farm, Broad Lane	Brighstone	0.36	A	No	None
IPS333	Part Waytes Court Farm, Broad Lane (2)	Brighstone	0.436	A	No	None
IPS334	Land adjacent to Long Lane Farmhouse, Long Lane	Newport	0.14	D	Yes, through Solent Bird Aware.	None

IPS335	Long lane Farm, Long Lane	Newport	4.37	D	Yes, through Solent Bird Aware (SPA) and sensitive lighting to avoid impacts to Briddlesford Copse SAC.	None
IPS336	The Apple Farm, Newport Road	Freshwater	2.68	D	Yes, through Solent Bird Aware.	None
IPS337	Luton Farm (east of Wyatts Lane)	Northwood	1.4	D	Yes, through Solent Bird Aware.	None
IPS338	Land adjacent to the south of Cherrywood View	Arreton	2.49	D	No	Lies within 3km of Briddlesford Copse SAC but impacts judged to be minimal
IPS339	123 Victoria Grove	East Cowes	0.09	D	Yes, through Solent Bird Aware.	None
IPS340	Land at Deacons Nursery	Godshill	6.5	A	No	None
IPS342	Land off Gunville Road	Newport	1.84	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	
IPS343	Number 1 Brookfield Gardens	Ryde	0.06	D	Yes, through Solent Bird Aware.	None
IPS344	Land adjacent Heytesbury Farm, Worsley Road	Newport	6.81	D	Yes, through Solent Bird Aware.	None
IPS345	Northwood Business Park, 290 Newport Road	Cowes	0.8	D	Yes, through Solent Bird Aware.	None
IPS346	Land off Staplers Road and Mayfield Drive	Newport	1.53	D	Yes, through Solent Bird Aware.	None
IPS347	Fakenham Farm, Eddington Road	St Helens	5.51	D	Yes, through Solent Bird Aware.	None
IPS348	Linderfield Stables, Calthorpe Road	Ryde	0.6	D	Yes, through Solent	None

					Bird Aware	
IPS349	Land to east of at Rooklet Green on east side of Niton Road	Rookley	10.81	A	No	None
IPS350	Buildings at Lee Farm	Wellow	0.6	D	Yes, through Solent Bird Aware.	None
IPS351	Land at Brambles Farm, Brambles Lane	Freshwater	1.1	D	Yes, through Solent Bird Aware.	None
IPS352	187 Baring Road	Cowes	3.95	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	None
IPS353	Copse Lane Barn	Freshwater	0.2	D	Yes, through Solent Bird Aware	None
IPS354	Hill Farm, Hill Lane, Norton Green	Freshwater	0.2	D	Yes, through Solent Bird Aware	None
IPS355	Barnsfield Stables, Willmingham Lane	Thorley	0.25	D	Yes, through Solent Bird Aware	None
IPS356	Havenstreet Recreation Ground	Havenstreet	1.3	D	Yes, through Solent Bird Aware	None
IPS357	Yard at 45 Noke Common	Newport	0.46	D	Yes, through Solent Bird Aware.	None
IPS358	Land south of Noke Common	Newport	8.5	D	Yes, through Solent Bird Aware.	None
IPS359	Land at New Fairlee Farm	Newport	34.85	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS360	Northwood Camp	Cowes	5.89	D	Yes, through Solent Bird Aware.	None
IPS361	Land at Aldermoor Farm, Upton Road	Ryde	6.87	B	Yes, through Solent Bird Aware.	Lies within 3km of Briddlesford Copse SAC

					Require onsite recreational greenspace and sensitive lighting	
IPS362	Land at Aldermoor Farm, Upton Road	Ryde	6.87	B	Yes, through Solent Bird Aware Require onsite recreational greenspace and sensitive lighting.	Lies within 3km of Briddlesford Copse SAC
IPS367	Parklands Centre, Park Road	Cowes	0.2	D	Yes, through Solent Bird Aware	None
IPS368	Land off Chestnut Drive/Willow Close	Ventnor	0.38	A	No	None
IPS369	Land at Vectis Playing Field	Newport	3.24	D	Yes, through Solent Bird Aware	None
IPS370	Carpark, St Martins Road	Wroxall	0.13	A	No	None
IPS371	Newport Harbour	Newport	1.9	C	Yes, through Solent Bird Aware	There will be direct impacts that will need assessment.
IPS372	Land at Lake Cemetery (Extension to Shanklin)	Shanklin	1.49	D	Yes, through Solent Bird Aware	None
IPS373	Shanklin Esplanade car park	Shanklin	0.21	D	Yes, through Solent Bird Aware	None
IPS374	Pier View car, Seaview		0.17	D	Yes, through Solent Bird Aware	None
IPS376	Land at Fairlee Road, Hillside	Newport	0.2	D	Yes, through Solent Bird Aware	None
IPS378	Land off Jeals Lane	Sandown	0.49	D	Yes, through Solent Bird Aware	None
IPS379	Thomson House, Sandy Lane	Newport	0.96	D	Yes, through Solent Bird Aware	None
IPS382	Land adjacent to Carisbrooke College	Newport	3.7	D	Yes, through Solent Bird Aware	None

IPS383	Former Library headquatres, land adjacent to St Marys Hospital	Newport	1.07	D	Yes, through Solent Bird Aware	None
IPS386	Land off Broadwood Lane	Newport	6.4	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace	None
IPS387	Kingswell Dairy, Newport Road	Northwood	3	D	Yes, through Solent Bird Aware.	None
IPS388	Land south of Kemming Road	Whitwell	1.56	A	No	None
IPS389	Heathfield Meadows	Freshwater	0.9	D	Yes, through Solent Bird Aware.	None
IPS390	Land at Horsebridge Hill	Newport	27.67	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS391	Durrants Farm, Colemans Lane	Prorchfield	39	D	Yes, through Solent Bird Aware.	Indirect impact resulting from increased recreational use of Newtown Estuary
IPS393	Fairfield Lodge, Priory Road	Shanklin	0.16	A	No	None
IPS394	Medina Yard	Cowes	5	B	Yes, through Solent Bird Aware. Requires onsite recreational greenspace.	None
IPS397	Bettesworth Lodge, Lower Bettesworth Road	Ryde	0.5	D	Yes, through Solent Bird Aware.	None
IPS398	Land adjacent to Greenwood Villas, Greenwood Lane	Brading	9.70	B	Yes, through Solent Bird Aware. Require onsite recreational greenspace	None

IPS399	Land behind 87 Gunville Road	Newport	1.02	D	Yes, through Solent Bird Aware	None
IPS400	Warlands	Shalfleet	2.23	D	Yes, through Solent Bird Aware	None
IPS403	Land rear of Lanes End	Totland	0.26	D	Yes, through Solent Bird Aware	None
IPS404	Island Harbour	Newport	10	C	Yes, through Solent Bird Aware.	There will be direct impacts that will need assessment.
IPS406	Former HMP Site	Newport	9.98	B	Yes, through Solent Bird Aware. Requires substantial appropriate onsite greenspace	None
IPS407	Land at Buckbury Farm, Buckbury Lane	Newport	0.37	D	Yes, through Solent Bird Aware	None
IPS408	Land adjacent to Winchester House	Lake	0.29	D	Yes, through Solent Bird Aware	None

Employment allocation

Site reference	Site address	Town	Size ha	Proximity to EU site (km)	Category of impact	Is it likely the impacts can be mitigated	Appropriate to take forward	Justification
EA1	Land to the east of Pan Lane	Newport	2.8	1.3	A	N/A	Yes	Unconnected to any designated site.
EA2	Nicholson Road	Ryde	14.7	1.4	B	Yes	Yes	The site is in close proximity to the Monktonmead Brook

								which runs into the protected site. Therefore impacts to water quality may be an issue, however avoidance measures would be secured at an application level and the necessary permits licensed through the Environment Agency.
EA3	Somerton Farm	Cowes	2	0.58	B	Yes	Yes	The site will be connected to the Cowes/Newport cycle track which runs adjacent to the protected sites. The track is well screened on either side and is already well used. Therefore additional recreational impacts have been ruled out.
EA4	Kingston Marine Park	East Cowes	6.1	Immediately adjacent	C	Yes	Yes	In 2012 an application for development of employment use was granted and in 2016 planning permission was granted for site layout changes. Both applications were subject to an appropriate

								assessment through the Habitat Regulations. The appropriate assessments concluded that providing adequate mitigation is provided and appropriate planning conditions applied that the overall impacts would be de minimus (not significant).
EA5	Lowtherville	Ventnor	0.7	0.05	A	Yes	Yes	The site is close to the Isle of Wight Downs SAC but is already in use and unconnected to the protected site.
EA6	Sandown Airport	Sandown	3	1.5	A	Yes	Yes	Unconnected to any designated site.

Appendix B – draft Summary Air Quality Impact Assessment for
the draft Island Planning Strategy

Draft



Isle of Wight Local Plan: Air Quality Impact Assessment

Interim report

Report for Isle of Wight Council

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Isle of Wight Council

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28 November 2018

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Executive summary

The Isle of Wight is the largest island in England. It is located between approximately 1 mile and 5 miles off the south coast of the English mainland. The Isle of Wight is separated from the coast of Hampshire by the Solent. The population of the Isle of Wight is approximately 140,000.

The Island Plan Core Strategy was originally adopted in 2012 and sets the approach to planning for the Island. Isle of Wight (IOW) Council is currently updating the Core Strategy in accordance with a manifesto commitment made prior to local elections held in May 2017. The revised Core Strategy may have the potential for significant effects on the environment both within the Island, and in nearby areas. A robust evidence base is required in order to enable Isle of Wight Council to identify the air quality impacts of the revised Island Plan, and to determine any necessary changes to the Island Plan, or mitigation of impacts resulting from air pollution.

This report considers air quality impacts from increased vehicle emissions associated with proposed development on the Isle of Wight. It forms part of the evidence base supporting the revised Island Plan.

Air quality is an ongoing issue of concern for many local authorities. In the context of human health and the UK's national air quality objectives, the main pollutant emissions arising from increased road traffic are nitrogen dioxide (NO₂) and particulate matter (both PM₁₀ and PM_{2.5}). The national Air Quality Objectives for these substances continue to be exceeded at some locations in the UK, although not within the Isle of Wight.

Air quality impacts are also a potential concern in relation to natural habitats. The Isle of Wight includes nationally and internationally designated habitat sites and species of international importance. Many roads on the Island pass through or nearby designated sites. These sites may be adversely affected by increases in air concentrations of pollutants, particularly oxides of nitrogen and ammonia, and the deposition of these pollutants within the habitats.

This report contains the results of an assessment of air quality impacts of the updated Island Plan. A sub-regional air dispersion model (RapidAir) was used to model predicted air quality impacts at all locations within the Island and extending into adjoining designated habitat sites, at a resolution of 3m x 3m. This method of spatially detailed compliance modelling was used to assess air quality impacts in terms of both potential effects on human health and on protected nature conservation sites.

Changes in traffic flows within the study area were identified from data provided by IOW Council's traffic consultant. In total, three traffic scenarios were modelled: 2015 Reference Case, 2036 Baseline Scenario and 2036 Do Minimum (2036 DM) Scenario. The 2015 Reference Case represents 2015 traffic conditions within the Isle of Wight, and was used both to verify the performance of the air dispersion model and to provide an indication of current air quality conditions. The 2036 Baseline Scenario includes committed development allocations and transport interventions up to 2036, but does not include development associated with the revised Island Plan. The 2036 DM Scenario includes the development and transport interventions included in the 2036 Baseline Scenario, as well as development associated with the revised Island Plan.

Human health impacts

Air quality impacts on human health were assessed based on predicted annual average airborne concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) for all three traffic model scenarios.

The air quality modelling study indicates that no areas within the island are forecast to exceed air quality standards and guidelines set for protection of human health in 2015 or over the period up to 2036. General improvements in vehicle emissions are forecast to occur over the period up to 2036, resulting in ongoing improvements in air quality. This indicates that there is no specific requirement for further mitigation to achieve air quality objectives on the Isle of Wight.

Impacts at nature conservation sites

Air quality impacts on designated sites were assessed on the basis of predicted annual average airborne concentrations of oxides of nitrogen (NO_x) and ammonia (NH₃), as well as annual deposition of nutrient nitrogen and acid. The assessment of impacts on designated sites was carried out in a stepwise process, designed to comply with Natural England's emerging requirements and good practice for evaluation of the impacts of air pollution on nature conservation sites. The requirements from Natural England were developed primarily for the assessment of designated sites with European (or equivalent international) designation, namely Ramsar sites, Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). We have also included nationally designated Sites of Special Scientific Interest (SSSIs) that do not form components of European sites in this study.

This assessment indicates that the risk of air quality impacts due to the Island Plan can be ruled out at a number of European sites:

- Isle of Wight Downs SAC
- Solent & Isle of Wight Lagoons SAC
- South Wight Maritime SAC

The risk of air quality impacts can also be ruled out at the majority of SSSIs on the island:

- Bembridge DownSSSI
- Bonchurch Landslips SSSI
- Bouldnor and Hamstead Cliffs SSSI
- Colwell Bay SSSI
- Compton Chine to Steephill Cove SSSI
- Compton Down SSSI
- Headon Warren and West High Down SSSI
- King's Quay Shore SSSI
- Medina Estuary SSSI
- Mottistone Down SSSI
- Newtown Harbour SSSI
- Thorness Bay SSSI
- Ventnor Downs SSSI
- Whitecliff Bay and Bembridge Ledges SSSI
- Alverstone Marshes SSSI
- America Wood SSSI
- Bembridge School and Cliffs SSSI
- Calbourne Down SSSI
- Cranmore SSSI
- Cridmore Bog SSSI
- Eaglehead and Bloodstone Copses SSSI
- Garston's Down SSSI
- Greatwood and Cliff Copses SSSI
- Lacey's Farm Quarry SSSI
- Lake Allotments SSSI
- Locks Farm Meadow SSSI
- Northpark Copse SSSI
- Parkhurst Forest SSSI
- Priory Woods SSSI
- Prospect Quarry SSSI

-
- Rew Down SSSI
 - Rowridge Valley SSSI
 - Shide Quarry SSSI
 - St Lawrence Bank SSSI
 - The Wilderness SSSI

The Island Plan has the potential to result in air quality impacts for four European designated sites, at which likely significant effects from air quality impacts cannot be ruled out based on the existing evidence base.

- Briddlesford Copses SAC
- Solent & Dorset Coast potential SPA
- Solent & Southampton Water Ramsar & SPA
- Solent Maritime SPA

The potential for likely significant effects cannot be ruled out at the following SSSIs which underlie these European sites:

- Brading Marshes to St. Helen's Ledges SSSI
- Briddlesford Copses SSSI
- Ryde Sands and Wootton Creek SSSI
- Yar Estuary SSSI

Finally, the potential for likely significant effects cannot be ruled out at the following SSSIs which are distinct from the European sites:

- Arreton Down SSSI
- Freshwater Marshes SSSI

In most cases, predicted areas of possible air quality impacts occur in close proximity to existing A-roads. Further spatial analysis and potentially site survey work will be carried out to refine this assessment. In the event that this analysis confirms that the protected habitats and species are not present in these zones, no further action would be needed to mitigate impacts. Where impacts cannot be ruled out in this way, for European-designated sites, an HRA Stage 2 appropriate assessment will be required to inform the Island Plan, and mitigation of any significant impacts may potentially be needed.

This study shows that overall the Isle of Wight will experience an improvement in air quality over the assessment period, resulting from changes to the road fleet during this time. However, it is also important that IOW Council seeks further opportunities to avoid or reduce the impacts of vehicle emissions on air quality, through the implementation of well-designed policies and plans that incorporate effective air quality and transport related measures.

This is an interim report; more detailed results and mapped figures will follow in subsequent version of this report.

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1 Introduction

This is an interim report; more detailed results and mapped figures will follow in subsequent version of this report.

The Isle of Wight is an island located off the south coast of England. The island covers an area of 380km² and has a population of approximately 140,000 people. The emerging Isle of Wight Island Plan sets the framework for future housing and employment development in the Isle of Wight up to 2036. This report assesses the air quality impacts arising from increases in road traffic associated with the development envisaged in the Island Plan.

In the context of human health and the UK's national air quality objectives, the main pollutant emissions arising from increased road traffic are nitrogen dioxide (NO₂) and particulate matter (both PM₁₀ and PM_{2.5}). Based on nitrogen dioxide modelling results produced by Defra, the air quality standards are not expected to be exceeded on the Isle of Wight and there are currently no Air Quality Management Areas (AQMAs) on the Isle of Wight.

The Isle of Wight includes numerous protected nature conservation areas of national and international significance. These sites may be adversely affected by increases in air concentrations of pollutants, particularly oxides of nitrogen and ammonia, and the deposition of these pollutants within the habitats.

In this study, a sub-regional air dispersion model (RapidAir) is used to model predicted air quality impacts at all locations within the Isle of Wight at a resolution of 3m x 3m. Traffic growth within the study area was provided by Solent Transport's Sub-Regional Transport Model (SRTM). In total, three traffic scenarios were modelled:

- 2015 Reference Case: This model was designed to replicate 2015 traffic conditions within the Isle of Wight. It is used to verify the performance of the air dispersion model and investigate baseline air quality conditions within the study area.
- 2036 Baseline Scenario: This scenario includes committed development allocations and transport interventions up to 2036 but does not include development associated with the new local plan. This provides a baseline in order to assess the effects of the new local plan against a future development scenario without the local plan.
- 2036 Do Minimum (2036 DM) Scenario: This model scenario includes committed development allocations and transport interventions up to 2036, as well as development associated with the new local plan.

Air quality impacts on human health are assessed based on predicted annual average airborne concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) for all three traffic model scenarios.

Air quality impacts on designated sites are assessed based on predicted annual average airborne concentrations of oxides of nitrogen (NO_x) and ammonia (NH₃), as well as annual deposition of nutrient nitrogen and acid. This study does not take account of any benefits resulting from mitigation measures described under the Do Something (2036 DS) scenario.

2 Method Statement

2.1 Study Overview

This chapter describes the air quality modelling methodology. It then goes on to describe the methodology for the assessment of impacts on designated sites.

2.2 Air dispersion modelling methodology

2.2.1 Air quality modelling system

The RapidAir Urban Air Quality Modelling Platform was used to predict air pollutant concentrations for this study. This is Ricardo Energy & Environment's proprietary modelling system developed for urban air pollution assessment, and the model that was used previously in Southampton for the Low Emission Strategy (LES) and Clean Air Zone (CAZ) studies, for an assessment of the Royal Borough of Windsor and Maidenhead local plan completed in March 2018, and for the Partnership for Urban South Hampshire (PUSH) air quality impact assessment (AQIA) completed in September 2018. This model is being used for ongoing studies for other boroughs in Hampshire and elsewhere.

RapidAir has been developed to provide graphic and numerical outputs which are comparable with other models used widely in the United Kingdom. The model approach is based on loose-coupling of three elements:

- Road traffic emissions model conducted using fleet specific COPERT 5 (via the Defra Eft) algorithms to prepare grams/kilometre/second ($\text{g km}^{-1} \text{s}^{-1}$) emission rates of air pollutants originating from traffic sources.
- Combination of dispersion kernels derived from the USEPA (United States Environmental Protection Agency) AERMOD¹ model with an emissions grid, at resolutions ranging from 1 m to 20 m. AERMOD provides the algorithms which govern the dispersion of the emissions and is an accepted international model for road traffic air quality studies.
- The kernel based RapidAir model running in GIS software to prepare dispersion fields of concentration for further analysis with a set of decision support tools coded in Python/arcpy.

RapidAir includes an automated meteorological processor based on AERMET which obtains and processes meteorological data of a format suitable for use in AERMOD. Surface meteorological data is obtained from the NOAA (National Oceanic and Atmospheric Administration) online repository² and upper air data is downloaded from the NOAA Radiosonde database³.

The model produces high resolution concentration fields at the city scale (down to a 1m scale) and is ideal for spatially detailed compliance modelling. The combination of an internationally recognised model code and careful parameterisation matching international best practice makes RapidAir ideal for this study. A validation study has been conducted in London using the same datasets as the 2011 Defra air quality model inter-comparison study⁴. Using the LAEI (London Atmospheric Emissions Inventory) 2008 data and the measurements for the same time period the model performance is consistent (and across some metrics performs better) than other modelling

¹ https://www3.epa.gov/ttn/scram/dispersion_prefrec.htm#aermod

² <ftp://ftp.ncdc.noaa.gov/pub/data/noaa>

³ <https://www.esrl.noaa.gov/roabs/>

⁴ <https://uk-air.defra.gov.uk/research/air-quality-modelling?view=intercomparison>

solutions currently in use in the UK. This validation study has been published in *Environmental Modelling and Software*, in partnership with the University of Strathclyde⁵.

2.2.2 Model domain

Dispersion modelling was carried out to forecast levels of air pollutants at a 3m x 3m grid resolution across the model domain. A grid height of 1.5 m was modelled to represent human exposure at ground level. Data were then extracted from the 3m x 3m grid results to provide a detailed evaluation of air quality impacts at relevant locations within the study area.

The main study area includes the entirety of the Isle of Wight and extends 300m beyond the Isle of Wight boundary. This is the study area for which results are extracted from the model and presented in this report.

IOW Council monitored NO₂ concentrations at two locations in the reference year (2015), and did not undertake any monitoring for particulate matter (PM₁₀ or PM_{2.5}). In order to ensure a robust model verification process, the model domain was extended to include small areas (1km diameter) around monitoring locations in Portsmouth (NO₂ and PM₁₀) and Southampton (PM₁₀ only). The extended model domain was used only for the 2015 reference year model, and only for model verification purposes.

2.2.3 Traffic activity data

Annual average daily traffic (AADT) vehicle numbers and average vehicle speeds were extracted from the SRTM datasets provided by Systra for the three scenarios (2015 Reference Case, 2036 Baseline, and 2036 Do Minimum).

The SRTM model classifies road links into several categories: A road, B road, motorway, slip road, shopping, buffer and other. The SRTM also provides a fleet composition breakdown into cars, light goods vehicles (LGVs), heavy goods vehicles (HGVs) and buses. NAEI fleet split information can be used to further split cars into petrol and diesel categories, and HGVs into rigid HGV and articulated HGV categories, based on national average fleet composition information and depending on whether the road link is categorized as rural, urban or motorway. For this study, SRTM AADT numbers for cars and HGVs were further categorized based on mapping the SRTM road types onto the NAEI road types as shown in Table 2-1 and Table 2-2. The Isle of Wight does not include any roads that are classified as motorways. Non-motorway SRTM road types (i.e., A road, B road, shopping, buffer and other) were categorized as either rural or urban based on their location as compared to the 2011 Area Classifications for Output Areas (2011 OAC).⁶

The fleet compositions in Table 2-1 and Table 2-2 were calculated using the most recent set of NAEI fleet projection information available (base year 2016, published February 2017).⁷ Since the publication of the 2016 NAEI dataset, the UK government has published a UK Air Quality Plan in 2017⁸ and a draft UK Clean Air Strategy in 2018.⁹ Both of these publications reaffirm the UK government's intention for the sale of new conventional petrol and diesel cars and vans to end by 2040, and for almost every car

⁵ Masey, Nicola, Scott Hamilton, and Iain J. Beverland. "Development and evaluation of the RapidAir® dispersion model, including the use of geospatial surrogates to represent street canyon effects." *Environmental Modelling & Software* (2018). DOI: <https://doi.org/10.1016/j.envsoft.2018.05.014>

⁶ The National Archives, "2011 Area Classifications", <http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/ns-area-classifications/ns-2011-area-classifications/index.html>, accessed 12/12/2017.

⁷ National Atmospheric Emissions Inventory, "Emission factors for transport", <http://naei.beis.gov.uk/data/ef-transport>, accessed 28/06/2018.

⁸ UK Department for Environment, Food & Rural Affairs, "Air quality plan for nitrogen dioxide (NO₂) in UK (2017)", <https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017>, accessed 20/06/2018.

⁹ Department for Environment, Food & Rural Affairs, "Clean Air Strategy 2018", <https://consult.defra.gov.uk/environmental-quality/clean-air-strategy-consultation/>, accessed 20/07/2018.

and van on the road to be a zero emission vehicle by 2050.¹⁰ If the UK government is to achieve these objectives, by 2036 the proportion of full plug-in electric vehicles in the national fleet would be greater than the current fleet projection data indicates. Hence if the government is successful in its strategy, and the proportion of electric vehicles in the national fleet is greater in 2036 than indicated in Table 2-2, the transport pollutant emissions and resulting pollutant concentrations modelled in this study for the 2036 scenarios are likely to be overpredicted to some extent.

Table 2-1 Matching SRTM fleet composition to EFT (Emission Factor Toolkit) vehicle types for 2015 Reference Case

NAEI Road Type	Petrol Car	Diesel Car	Electric Car	Rigid HGV	Articulated HGV
Urban (not London)	58.60%	41.30%	0.10%	78.39%	21.61%
Rural	52.19%	47.81%	–	52.17%	47.83%

Table 2-2 Matching SRTM fleet composition to EFT vehicle types for the 2036 Baseline and 2036 Do Minimum scenarios*

NAEI Road Type	Petrol Car	Diesel Car	Electric Car	Rigid HGV	Articulated HGV
Urban (not London)	59.72%	34.97%	5.31%	75.84%	24.16%
Rural	57.31%	42.69%	–	47.56%	52.44%

*NAEI projections are available up to 2035, therefore the data in this table are based on fleet projections for 2035.

2.2.4 Emission factors

Vehicle emission factors for oxides of nitrogen (NO_x) and particulate matter (PM₁₀ and PM_{2.5}) were obtained from COPERT v5 emission functions.⁷ Vehicle emission factors for ammonia (NH₃) were obtained from the EMEP/EEA air pollutant emission inventory guidebook.¹¹ Link specific emission factors were calculated with our in-house emission calculation tool RapidEms, which links directly to our RapidAir dispersion modelling system.

The input for RapidEms consists of a basic fleet split based on vehicle categories (diesel cars, petrol cars, LGVs, articulated HGVs, rigid HGVs, and buses) according to the traffic activity information specified in Section 2.2.3. RapidEms is used to provide a more detailed parameterization of vehicle fleets in 2015 and 2036, including all vehicles up to and including Euro 6/VI.

2.2.5 Meteorological data

RapidAir includes an automated meteorological processor based on AERMET which obtains and processes meteorological data of a format suitable for use in AERMOD. Surface meteorological data is obtained from the NOAA online repository¹² and upper air data is downloaded from the NOAA Radiosonde database¹³.

For this study, 2015 surface meteorological data was obtained from three stations (Wittering, Thorney Island and Southampton) and upper air meteorological data was obtained from two stations

¹⁰ Ultra low emission vehicles: evidence review of uptake in the UK (2015), <https://www.gov.uk/government/publications/ultra-low-emission-vehicles-evidence-review-of-uptake-in-the-uk>

¹¹ European Environment Agency, "EMEP/EEA air pollution emission inventory guidebook 2016", <https://www.eea.europa.eu/publications/emep-eea-guidebook-2016>, accessed 12/12/2017.

¹² <ftp://ftp.ncdc.noaa.gov/pub/data/noaa>

¹³ <https://www.esrl.noaa.gov/roabs/>

(Herstomonceux and Larkhill). RapidMet was used to carry out data filling where necessary according to the methodology provided by the USEPA in their “Meteorological Monitoring Guidance for Regulatory Modelling Applications” guidance document¹⁴. Data gaps from the primary meteorological stations (Wittering and Herstomonceux) are first filled using data from the other nearby stations (Thorney Island and Southampton for surface stations, and Larkhill for the upper air station). Remaining data gaps were filled based on the persistence method, where a missing value is replaced by the use of data from the previous hour(s), for data gaps up to and including three hours.

2.2.6 Reference year modelling and model verification

This section provides a summary of the model verification process and the derivation of linear adjustment factors to improve model performance. A more detailed description of the model verification process is presented in Appendix 1.

2.2.6.1 Oxides of nitrogen (NO_x) and nitrogen dioxide (NO₂) model verification and adjustment

A combination of automatic monitoring and diffusion tube NO₂ measurements was used for model verification. NO₂ measurements were obtained from Defra’s Automatic Urban and Rural Network (AURN) as well as the Annual Status Reports (ASRs) of Isle of Wight and Portsmouth.

Some monitoring sites were excluded from the model verification for the following reasons:

- No measurement was reported for that monitoring site in 2015.
- Data capture for the monitoring station was less than 75% in 2015.

RapidAir was used to generate a map of NO_x concentrations arising from road traffic sources across the extended study area at a 3m x 3m resolution, based on SRTM traffic activity data from the 2015 Reference Case and 2015 meteorological data. Background NO_x values for 2015 were obtained from the 2015 reference year background maps available on the LAQM website¹⁵. NO_x contributions arising from major roads were removed from the background map values to avoid double-counting, and the background values were then added to the RapidAir road NO_x results to compare the modelled vs measured concentrations at each of the monitoring locations. This initial comparison indicated that the model was under-predicting the NO_x arising from road emissions at most locations. Refinements were subsequently made to the model inputs to improve model performance where possible, and a linear adjustment factor of 1.5064 was calculated for the road emissions component of the NO_x model (see Appendix 1).

Total NO_x was calculated as the sum of the adjusted NO_x road contribution from RapidAir and the Defra 2014 background maps (with main road sources removed from the background map). Total NO₂ concentrations were derived using the following equation (see Appendix 1 for further details):

$$(\text{NO}_2 \text{ in } \mu\text{g}/\text{m}^3) = -0.00064119(\text{NO}_x \text{ in } \mu\text{g}/\text{m}^3)^2 + 0.56231729(\text{NO}_x \text{ in } \mu\text{g}/\text{m}^3) + 2.11251677$$

To evaluate model performance and uncertainty, the Root Mean Square Error (RMSE) for the observed vs predicted NO₂ annual mean concentrations was calculated, as detailed in Technical Guidance LAQM.TG(16).¹⁶ This guidance indicates that an RMSE of up to 4 µg/m³ is ideal, and an RMSE of up to 10 µg/m³ is acceptable. In this case the RMSE was calculated at 7.02 µg/m³, which is acceptable, and reasonable for a modelling study over this large a geographical region.

¹⁴ United States Environmental Protection Agency, “Meteorological Monitoring Guidance for Regulatory Modelling Applications” available via <https://www3.epa.gov/scram001/guidance/met/mmgrma.pdf>, accessed June 2017.

¹⁵ Department for Environment, Food & Rural Affairs, Background maps, <https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>, accessed 20/06/2018.

¹⁶ Department for Environment Food and Rural Affairs, “Local Air Quality Management: Technical Guidance (TG16)”, February 2018.

2.2.6.2 Particulate matter (PM₁₀ and PM_{2.5}) model verification and adjustment

Automatic particulate matter (PM₁₀) monitoring measurements were used for model verification. PM₁₀ measurements were obtained from Defra's Automatic Urban and Rural Network (AURN) as well as the Annual Status Reports (ASRs) of Portsmouth and Southampton.

RapidAir was used to generate a map of PM₁₀ concentrations arising from road traffic sources across the extended study area at a 3m x 3m resolution, based on SRTM traffic activity data from the 2015 Reference Case and 2015 meteorological data. Background PM₁₀ values for 2015 were obtained from the 2015 reference year background maps available on the LAQM website. PM₁₀ contributions arising from major roads were removed from the background map values to avoid double-counting, and the background values were then added to the RapidAir road PM₁₀ results to compare the modelled vs measured concentrations at each of the monitoring locations. This initial comparison indicated that the model was under-predicting the PM₁₀ arising from road emissions at most locations. Refinements were subsequently made to the model inputs to improve model performance where possible, and a linear adjustment factor of 3.3352 was calculated for the road emissions component of the PM₁₀ model (see Appendix 1). Total PM₁₀ was calculated as the sum of the adjusted PM₁₀ road contribution from RapidAir and the Defra 2015 background maps (with main road sources removed from the background map).

To evaluate model performance and uncertainty, the Root Mean Square Error (RMSE) for the observed vs predicted PM₁₀ annual mean concentrations was calculated, as detailed in Technical Guidance LAQM.TG(16). In this case the RMSE was calculated at 4.42 µg/m³, which is acceptable (only marginally outside the range which would be described as "ideal"), and reasonable for a modelling study over this large a geographical region.

Due to the limited availability of PM_{2.5} monitoring data, the linear adjustment factor derived for the PM₁₀ model (3.3352) was also used to adjust the road emission results from the RapidAir PM_{2.5} model. Total PM_{2.5} was calculated as the sum of the adjusted PM_{2.5} road contribution from RapidAir and the Defra 2015 background maps (with main road sources removed from the background map).

2.2.6.3 Ammonia (NH₃) model verification and adjustment

There are no monitoring locations for NH₃ located within the extended study area, and therefore it was impossible to compare measured vs modelled concentrations for NH₃. We have adopted an approach based on Section 7.527 of the Technical Guidance LAQM.TG(16) which suggests that, in the absence of measured data for model verification of a traffic pollutant, it may be appropriate to apply the adjustment factor derived from another traffic pollutant to the pollutant that does not have any monitoring data available. Of the two linear bias adjustment factors derived above, the adjustment calculated for PM₁₀ (3.3352) is larger and therefore more conservative. RapidAir was used to generate a map of NH₃ concentrations arising from road traffic sources across the main study area at a 3m x 3m resolution, and these values were subsequently multiplied by 3.3352 to obtain adjusted NH₃ road contribution values.

There are no background maps available for NH₃ concentrations, and therefore total NH₃ concentrations could not be modelled. This does not affect the analysis of air quality impacts at designated sites, as it is the development contribution to traffic emissions that is of interest in this study, rather than the total concentration of NH₃.

2.2.7 Future scenario modelling

2.2.7.1 Airborne pollutant concentrations

For the two future scenarios (2036 Baseline and 2036 Do Minimum), RapidAir was used to generate pollutant concentration map across the main study area at a 3m x 3m resolution. These maps were

generated using SRTM traffic activity data from the appropriate future scenario, emission factors calculated using RapidEms, and 2015 meteorological data.

Pollutant concentration maps for road-only contributions (NO_x, NO₂, PM₁₀, PM_{2.5} and NH₃) were calculated using the adjustment factors described in Section 2.2.6. Maps for total pollutant concentrations (NO_x, NO₂, PM₁₀, and PM_{2.5}) were calculated by adding the road-only concentration maps to the appropriate pollutant background map from the LAQM website. Background maps for the year 2030 were selected, as this is the farthest year into the future for which background maps are available.

2.2.7.2 Pollutant deposition

Dry deposition rates of nutrient nitrogen and acid were calculated by multiplying the ground level air concentration of the appropriate pollutants (road contribution only) by the appropriate deposition velocity, followed by multiplication with a conversion factor.

Deposition velocities and conversion factors were obtained from Environment Agency guidance,¹⁷ and are provided in Table 2-3 and Table 2-4 respectively.

Table 2-3 Deposition velocities for NO₂ and NH₃

Pollutant	Vegetation type	Deposition velocity (m/s)
NO ₂	Grassland (sites with short vegetation)	0.0015
	Woodland (sites with tall vegetation)	0.003
NH ₃	Grassland (sites with short vegetation)	0.02
	Woodland (sites with tall vegetation)	0.03

Table 2-4 Dry deposition conversion factors

Pollutant	Conversion factor for nitrogen deposition	Conversion factor for acid deposition
	(from µg/m ² -s to kgN/ha-year)	(from µg/m ² -s to kEq/ha-year)
NO ₂	95.9	6.84
NH ₃	260	18.5

2.2.8 Sources of model uncertainty

There are a number of sources of model uncertainty inherent in this type of study, as discussed below:

- A monitoring site used to derive the linear adjustment factor might be located next to a large car park, bus stop, petrol station, or taxi rank that has not been explicitly modelled due to unknown activity data. This would have the effect of artificially inflating the calculated adjustment factor, resulting in an over-prediction of impacts. Where we have identified such locations, we have removed these from the model verification process.
- A monitoring site used to derive the linear adjustment factor might be located in an area where not all of the road sources contributing to pollutant concentrations have been modelled, i.e. at a junction. This would have the effect of artificially inflating the calculated adjustment factor, resulting in an over-prediction of impacts.
- Uncertainties in the traffic model outputs on modelled road links, with regards to number of vehicles, type of vehicles and vehicle speed. The number of low emission vehicles in the future

¹⁷ Environment Agency, "AQTAG06: Technical guidance on detailed modelling approach for an appropriate assessment for emissions to air," March 2014

development scenarios may also be underestimated if the UK government is successful in ending the sale of all conventional diesel and petrol cars and vans by 2040, which could result in a systematic over-estimation of future air quality impacts.

- Uncertainties in the real-world emissions from vehicles complying with the currently applicable Euro 6/VI vehicle emissions standards. Early real-world emission test results of Euro 6 vehicles indicate mixed results, ranging from vehicles which met the Euro 6 standards under real-world driving emissions to vehicles which displayed NO_x emissions up to 12 times higher than the Euro 6 standard.^{18,19} However, the increasing use of real-world emissions tests is likely to intensify pressure on vehicle manufacturers to comply with these more stringent Euro standards.
- Uncertainties in the background maps used to develop model adjustment factors and predict total modelled concentrations, with regards to other sources of pollution, such as industrial sources, domestic heating, port activity and forest fires.
- Background maps for the year 2030 were used to calculate total pollutant concentrations in the 2036 scenarios, as that is the farthest year into the future for which background maps are available. Background concentrations in 2030 are not expected to differ significantly from background concentrations in 2036, taking into account the uncertainties associated with the interpolation process and forecasting 12-18 years into the future. If anything, the 2030 maps are expected to be slightly conservative (i.e. over-predict) NO_x and NO₂ levels in 2036. There is no strong reason to anticipate that the 2030 maps for PM₁₀ and PM_{2.5} would be over- or under-predictions of the levels expected to occur in 2036.
- Uncertainties resulting from the lack of monitoring data for ammonia (NH₃). We have adopted a conservative approach in our analysis by using the higher of the two model adjustment factors we derived. This is expected to result in an over-prediction of the impacts associated with NH₃, including airborne NH₃ concentrations, nitrogen deposition and acid deposition. The incorporation of monitoring data for NH₃ would result in a more robust model.
- Uncertainties in the dispersion modelling process. These are accounted for so far as possible through the model verification process, but there inevitably remain some differences between modelled concentrations and the levels that would be measured in practice.

2.3 Assessment of impacts on designated sites

The assessment of impacts on sites designated for nature conservation was carried out in a stepwise process, designed to comply with Natural England's emerging requirements and good practice for evaluation of the impacts of air pollution on nature conservation sites. The requirements from Natural England were developed primarily for the assessment of designated sites with European (or equivalent international) designation, namely Ramsar sites, Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). We have also included Sites of Special Scientific Interest (SSSIs) that do not form components of European sites (i.e., standalone SSSIs) in this study.

2.3.1 Consideration of whether the Island Plan could give rise to emissions which could affect a designated site

Designated sites located within 300m of the study area are presented in Figure 2-1 (Ramsar sites), Figure 2-2 (SPAs and potential SPAs), Figure 2-3 (SACs) and Figure 2-4 (SSSIs).

¹⁸ The Real Urban Emissions Initiative, <https://www.trueinitiative.org/>, accessed 20/06/2018.

¹⁹ Emissions Analytics, EQUA Index, <https://equaindex.com/equa-air-quality-index/>, accessed 20/06/2018.

Figure 2-1 Ramsar sites located within 300m of the Isle of Wight

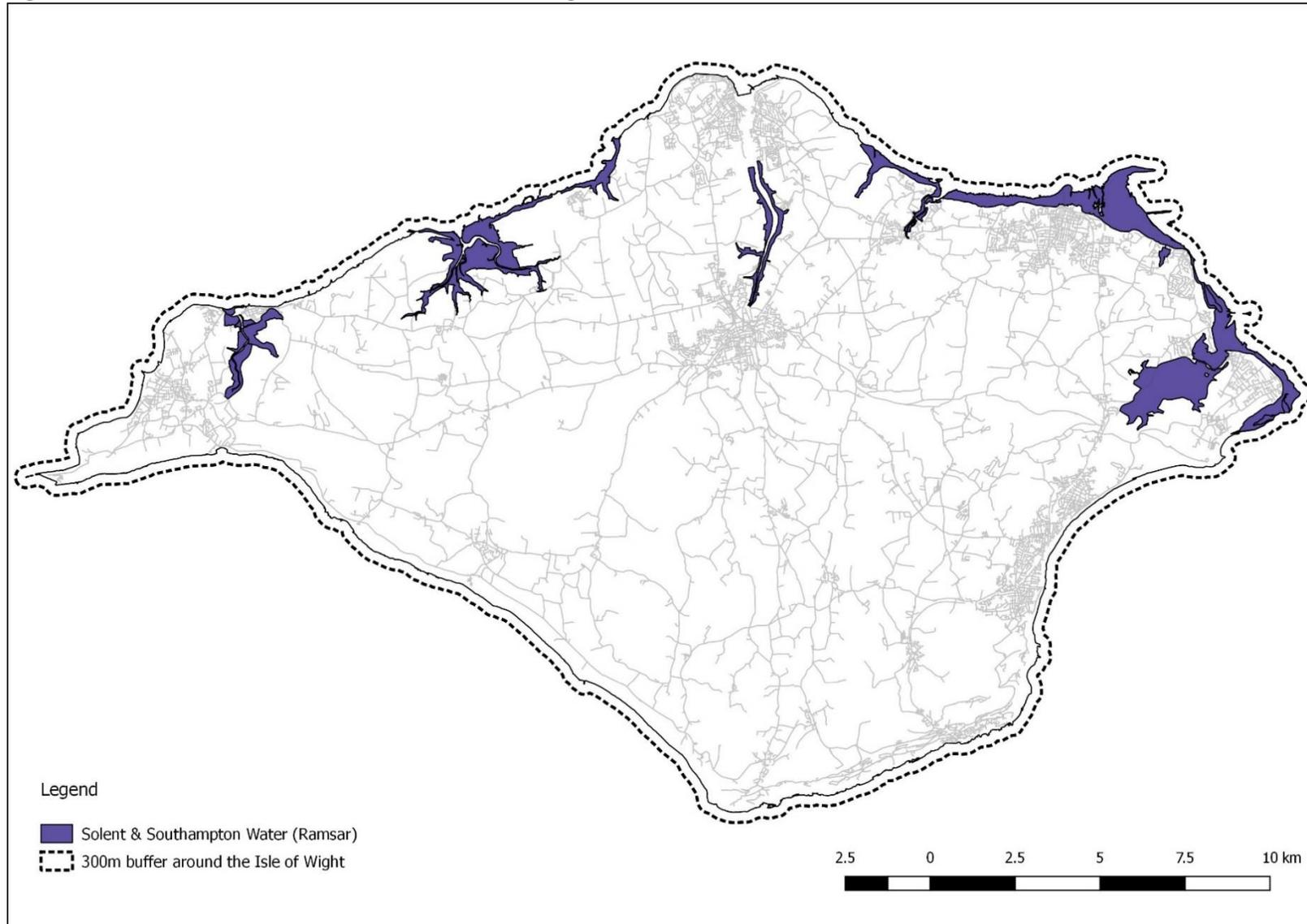


Figure 2-2 SPAs and potential SPAs located within 300m of the Isle of Wight

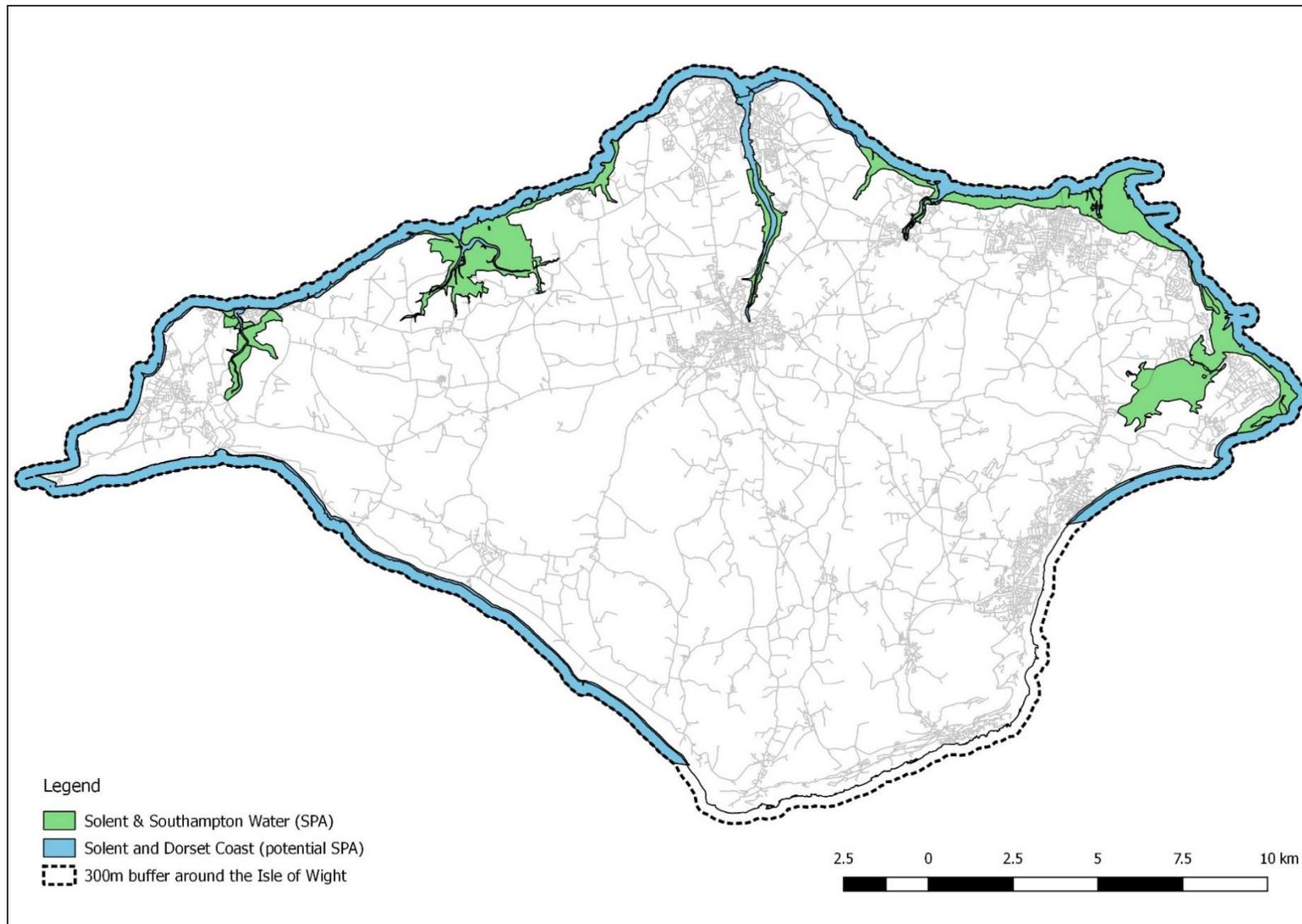


Figure 2-3 SACs located within 300m of the Isle of Wight

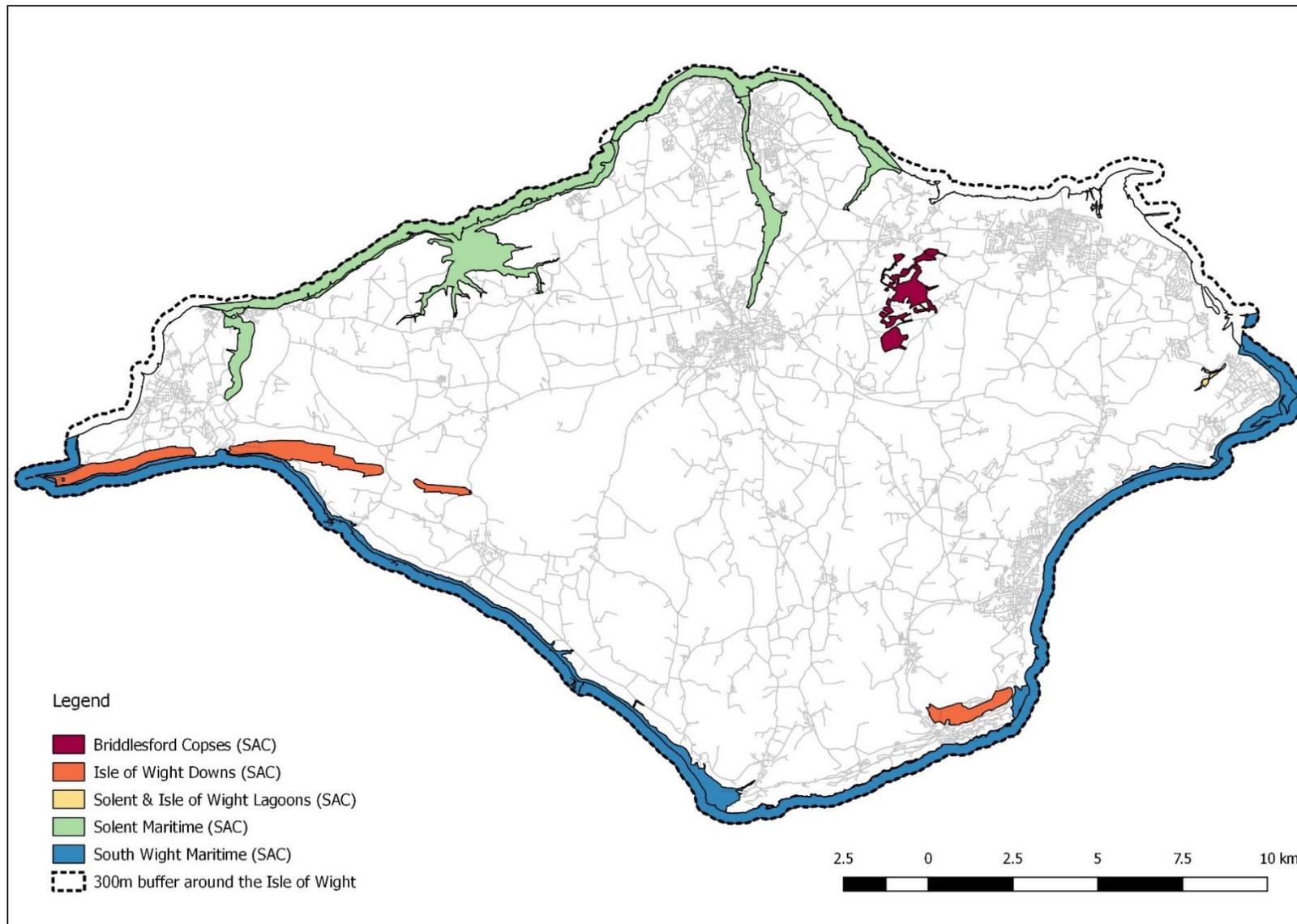
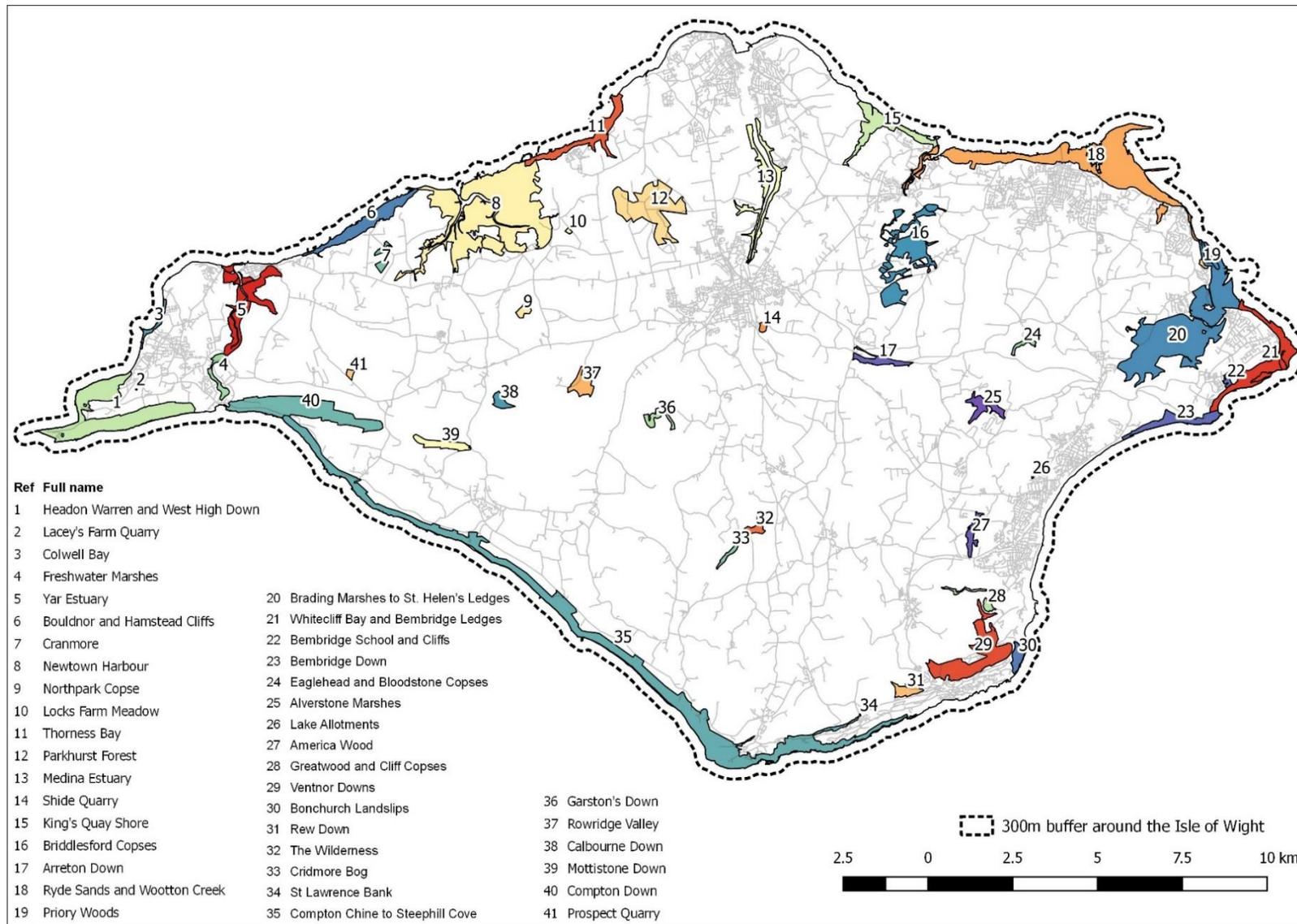


Figure 2-4 SSSIs sites located within 300m of the Isle of Wight



Established guidance from Natural England and Highways England indicates that protected sites falling within 200 metres of the edge of a road affected by a plan or project need to be considered further. This assessment avoids the need for relying on the assumption of a 200 metre zone of influence by including dispersion modelling of emissions from all roads with modelled traffic flows within the study area (the entire island), whether or not they are located within 200m of a designated site. This approach ensured a robust assessment without relying on a distance-based screening criterion, and provided a more detailed and complete assessment for each relevant designated site. The dispersion model was also extended 300m beyond the edge of the island in order to avoid possible edge effects in the dispersion modelling process.

2.3.2 Consideration of whether the qualifying features of the designated site are sensitive to air pollution impacts

Consideration was given to whether the designated site contains qualifying features that are sensitive to the emissions associated with the planned development. For increased road traffic resulting from the proposed development, the associated emissions include nutrient nitrogen deposition, acid deposition, airborne oxides of nitrogen (NO_x) and airborne ammonia (NH₃).

Site screening was carried out by searching for information on the UK Air Pollution Information System (APIS, www.apis.co.uk) and identifying potential sensitivity to air pollution impacts. At this stage, the spatial distribution of qualifying features within each designated site was not considered. If a potentially sensitive feature was identified at the designated site, as determined by APIS listing a critical load or critical level for at least one pollutant associated with road traffic at that site, it was included in the subsequent stages of the study. Otherwise, the site was screened out of requiring further assessment. The results of this analysis are summarised in Table 2-5 (for European-designated sites and their underlying SSSIs) and Table 2-6 (for standalone SSSIs).

Table 2-5 European-designated sites and underlying SSSIs: Assessment of sensitivity to emissions from road traffic

Site name	Ramsar site code	SPA site code	SAC site code	National grid reference	Does the site contain qualifying features that are sensitive to emissions from road traffic?
European-designated sites					
Briddlesford Copses SAC			UK0030328	SZ548907	Yes – include in study
Isle of Wight Downs SAC ^c			UK0016254	SZ373857	Yes – include in study
Solent & Dorset Coast (potential SPA) ^{b,f,g}		UK9020330		SZ702935	Yes, though as a potential SPA, it is not yet included in APIS. Include in study.
Solent & Isle of Wight Lagoons SAC ^e			UK0017073	SZ608977	Yes – include in study
Solent & Southampton Water (Ramsar & SPA) ^{d,f,g}	UK11063	UK9011061		SZ335935	Yes – include in study
Solent Maritime SAC ^{c,e}			UK0030059	SU756003	Yes – include in study
South Wight Maritime SAC ^{c,e}			UK0030061	SZ462771	Yes – include in study
Underlying SSSIs					
Bembridge Down ^{c,g}				SZ628856	Yes – include in study

Site name	Ramsar site code	SPA site code	SAC site code	National grid reference	Does the site contain qualifying features that are sensitive to emissions from road traffic?
Bonchurch Landslips ^g				SZ582785	Yes – include in study
Bouldnor and Hamstead Cliffs ^{c,f}				SZ390910	Yes – include in study
Brading Marshes to St. Helen's Ledges ^{d,e,g}				SZ635883	Yes – include in study
Bridlesford Copses ^a				SZ549904	Yes – include in study
Colwell Bay ^c				SZ323873	No qualifying features listed in APIS – exclude from study
Compton Chine to Steephill Cove ^{b,c,g}				SZ489763	Yes – include in study
Compton Down ^{b,c,g}				SZ365856	Yes – include in study
Headon Warren and West High Down ^{b,c,g}				SZ316852	Yes – include in study
King's Quay Shore ^{e,f}				SZ536935	Yes – include in study
Medina Estuary ^{e,f}				SZ508924	Yes – include in study
Mottistone Down ^b				SZ414846	Yes – include in study
Newtown Harbour ^{e,f}				SZ425915	Yes – include in study
Ryde Sands and Wootton Creek ^e				SZ548920	Yes – include in study
Thorness Bay ^{e,f}				SZ455935	Yes – include in study
Ventnor Downs ^b				SZ575786	Yes – include in study
Whitecliff Bay and Bembridge Ledges ^{c,e,g}				SZ657872	Yes – include in study
Yar Estuary ^{c,e,f}				SZ353886	Yes – include in study

*These designated sites also overlap with: ^a Bridlesford Copses SAC ^b Isle of Wight Downs SAC ^c Solent & Dorset Coast pSPA ^d Solent & Isle of Wight Lagoons SAC ^e Solent & Southampton Water Ramsar & SPA ^f Solent Maritime SAC ^g South Wight Maritime SAC

Table 2-6 Standalone SSSI sites: Assessment of sensitivity to emissions from road traffic

Site name	SSSI grid reference	Does the site contain notifiable features that are sensitive to emissions from road traffic?
Alverstone Marshes	SZ572859	Yes – include in study
America Wood	SZ567820	Yes – include in study
Arreton Down	SZ540872	Yes – include in study
Bembridge School and Cliffs	SZ647869	No qualifying features listed in APIS – exclude from study
Calbourne Down	SZ429858	Yes – include in study
Cranmore	SZ393901	Yes – include in study
Cridmore Bog	SZ495815	Yes – include in study
Eaglehead and Bloodstone Copses	SZ584877	Yes – include in study
Freshwater Marshes	SZ344866	Yes – include in study

Site name	SSSI grid reference	Does the site contain notifiable features that are sensitive to emissions from road traffic?
Garston's Down	SZ475855	Yes – include in study
Greatwood and Cliff Copses	SZ569802	Yes – include in study
Lacey's Farm Quarry	SZ323862	No qualifying features listed in APIS – exclude from study
Lake Allotments	SZ586838	Yes – include in study
Locks Farm Meadow	SZ449908	Yes – include in study
Northpark Copse	SU885258	Yes – include in study
Parkhurst Forest	SZ473915	Yes – include in study
Priory Woods	SZ635900	No qualifying features listed in APIS – exclude from study
Prospect Quarry	SZ385866	Yes – include in study
Rew Down	SZ550775	Yes – include in study
Rowridge Valley	SZ454864	Yes – include in study
Shide Quarry	SZ506881	Yes – include in study
St Lawrence Bank	SZ536768	Yes – include in study
The Wilderness	SZ505824	Yes – include in study

2.3.3 Assessment of air quality impacts of the development against screening thresholds

The next step was to use the dispersion modelling results to predict the air quality impacts associated with changes in traffic flow resulting from the local plan development scenario (2036 Do Minimum). For each set of model results (nutrient nitrogen deposition, acid deposition, airborne NO_x and airborne NH₃), the contributions attributable to the local plan development scenario were calculated as follows:

$$(\text{Contribution of the 2036 Do Minimum Scenario}) = (\text{2036 Do Minimum}) - (\text{2036 Baseline})$$

The contributions attributable to each PUSH development scenario were then compared to a screening threshold, where the screening threshold for each pollutant / habitat combination was set to 1% of the applicable Critical Load or Critical Level. This approach is supported by online guidance published by Defra and the Environment Agency,²⁰ a position statement published by the Institute of Air Quality Management (IAQM),²¹ and recent guidance received from Natural England.²²

According to the position statement published by the IAQM, the 1% threshold “*was originally set at a level that was considered to be so low as to be unequivocally in the ‘inconsequential’ category. In other words, this can be reasonably taken to mean that an impact of this magnitude will have an insignificant effect. This would be determined as part of the HRA screening stage. Such a conclusion would eliminate the requirement to proceed to ‘appropriate assessment.’*”²¹ The position statement indicates that the 1% criterion is intended to be a threshold below which the impact should be considered insignificant and screened out; impacts above 1% do not necessarily correspond to the onset of damage to a designated site. Impacts above 1% should be treated as potentially significant and undergo further detailed assessment.

²⁰ Department for Environment, Food and Rural Affairs and Environment Agency, “Air emissions risk assessment for your environmental permit”, February 2016.

²¹ Institute for Air Quality Management, “Position Statement: Effect of Air Quality Impacts on Sensitive Habitats,” January 2016

²² Email communication with Natural England, 12/01/2018.

In view of this guidance, a threshold of a contribution of 1% of the applicable Critical Load or Critical Level was used to screen out any areas where the proposed local plan development would have an insignificant impact on the relevant designated site.

Additionally, where the contribution of airborne NO_x was predicted to exceed 1% of the Critical Level (30 µg/m³), the total predicted concentration of NO_x was determined by adding the NO_x contribution from the 2036 Do Minimum development scenario to the predicted background NO_x concentration in 2030. Background NO_x concentrations for 2030 were obtained from the UK Air website.²³ If the total predicted NO_x concentration was determined to be less than 21 µg/m³ (i.e. 70% of the NO_x long-term Critical Level), the impact was screened out as insignificant, in line with guidance published by Defra and the Environment Agency.²⁰ This approach was not used for other pollutants (nutrient nitrogen deposition, acid deposition and airborne NH₃) due to the absence of predicted future background maps for these pollutants.

2.3.4 Consideration of in-combination effects

Recent guidance from Natural England, developed following the requirements of the Wealden Judgment, advise that the screening thresholds should be applied with consideration to impacts from individual proposed developments and with consideration to in-combination effects.

The SRTM models used in this assessment include modelled road traffic for the main study area, corresponding to the entire Isle of Wight, and accounts for increased road traffic in the 2036 Do Minimum scenario associated with housing and employment development from the local plan. The Isle of Wight is geographically isolated from other local authorities, with vehicle transport to and from the UK mainland being restricted to three ferry links:

- Between Fishbourne & Portsmouth Harbour
- Between Cowes & Southampton
- Between Yarmouth & Lymington

The difference in predicted vehicle movements between the 2036 Do Minimum and 2036 Baseline scenarios, for each of those ferry links, is provided in Table 2-7. The difference in annual average daily traffic (AADT) does not exceed the screening thresholds applicable to total vehicles (1000 AADT) or heavy goods vehicles (200 AADT) derived from Ref 16. On this basis, increased traffic emissions from development associated with the revised local plan is not likely to have a significant effect on designated sites located on the UK mainland.

Table 2-7 Annual Average Daily Traffic (AADT) for ferry links between the Isle of Wight and mainland UK

Ferry link	2036 Baseline Scenario		2036 Do Minimum Scenario		Difference	
	Total vehicle AADT	HGVs AADT	Total vehicle AADT	HGVs AADT	Total vehicle AADT	HGVs AADT
Cowes-Southampton	2777	4	2879	4	102	0
Fishbourne-Portsmouth	2333	243	2370	243	36	0
Yarmouth-Lymington	1195	29	1252	29	57	0

²³ Department for Environment, Food and Rural Affairs, UK Air website, "Background mapping data for local authorities", <https://uk-air.defra.gov.uk/data/laqm-background-home>

The National Infrastructure Planning website²⁴ was investigated to identify any potentially relevant major industrial developments in the Isle of Wight region. This highlighted one potentially relevant project:

- Navitus Bay Wind Park: Permission has been refused for this project.

Consequently, the current assessment does not include in-combination effects from industrial plans and projects.

The NO_x, PM₁₀ and PM_{2.5} pollutant background maps¹⁵ used in the air dispersion model account for existing industrial activity, including large combustion installations, airports and shipping activity. Known industrial sources are modelled explicitly in the baseline year of the background maps, and future-year background maps are derived by incorporating datasets from the UK Department for Business, Energy & Industrial Strategy (BEIS) regarding projected energy and economic activity data for various industrial sectors. The background maps therefore account for future growth in industrial sector emissions, within the limits of current government growth projections.

The current assessment does not explicitly include in-combination effects from new industrial plans and projects, particularly those which are unlikely to be included in the BEIS sector projections which underpin the background pollutant maps. There are no currently proposed major infrastructure projects which require consideration. Other new industrial plans and projects seeking planning permission will need to carry out their own in-combination assessment of effects, where applicable, as part of the HRA process.

²⁴ <https://infrastructure.planninginspectorate.gov.uk/>, accessed 05/11/2018.

3 Assessment of air quality related to human health

This section describes the impact of the development associated with the revised Island Plan on air quality related to human health.

3.1 Overview of air quality standards for human health

Table 3-1 summarises the air quality objectives relevant in this study. For Local Air Quality Management purposes, and for the assessment of air quality against the annual objective concentrations, personal exposure is also important. Therefore, predicted concentrations greater than the values listed in Table 3-1 at a given location do not necessarily indicate an exceedance of the Air Quality Objective. Rather, the predicted concentrations should be considered in the context of personal exposure, with consideration given to the types of locations where the Air Quality Objectives should apply (Table 3-2).

Table 3-1 Air Quality Objectives in England

Pollutant	Air Quality Objective	Measured as
Nitrogen dioxide	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM _{2.5}); to be achieved by 2020 and maintained thereafter	25 µg/m ³	Annual mean

Table 3-2 Examples of where the Air Quality Objectives should apply¹⁶

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1-hour mean	All locations where the annual mean and: 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

3.2 Model results

The examples of where the annual mean averaging periods apply (Table 3-2) have been used in conjunction with Address Base Plus to identify locations within the study area relevant for human health exposure. Address Base Plus is an Ordnance Survey product which contains information for approximately 35 million addresses within England, Wales and Scotland. The address information is sourced from the Royal Mail and Local Authorities, and categorizes addresses in terms of function, such as residential, commercial, schools, etc.

All addresses relevant to the annual mean air quality objectives and located within the Isle of Wight were included in the analysis of human health impacts, comprising a total of 40,705 addresses. None of these addresses are predicted to exceed the annual mean NO₂, PM₁₀ or PM_{2.5} air quality objectives for any of the modelled scenarios (2015 Reference Case, 2036 Baseline and 2036 Do Minimum Scenario). The maximum modelled concentrations for each scenario, at locations relevant for human exposure, are presented in Table 3-3 to Table 3-5; these concentrations are all below the air quality objectives. This indicates that there is no specific requirement for further mitigation to achieve air quality objectives on the Isle of Wight.

Table 3-3 Maximum modelled concentrations (µg/m³) at locations relevant for human health objectives for 2015 Reference Case

	NO ₂	PM ₁₀	PM _{2.5}
Town with maximum concentration	Ryde	Ryde	Newport
Modelled concentrations	30.0	22.8	15.3
Air Quality Objective	40	40	40

Table 3-4 Maximum modelled concentrations (µg/m³) at locations relevant for human health objectives for 2036 Baseline Scenario

	NO ₂	PM ₁₀	PM _{2.5}
Town with maximum concentration	Ryde	Newport	Newport
Modelled concentrations	14.5	21.4	14.3
Air Quality Objective	40	40	40

Table 3-5 Maximum modelled concentrations (µg/m³) at locations relevant for human health objectives for 2036 Do Minimum Scenario

	NO ₂	PM ₁₀	PM _{2.5}
Town with maximum concentration	Ryde	Newport	Newport
Modelled concentrations	14.7	21.8	14.5
Air Quality Objective	40	40	40

4 Assessment of air quality impacts on designated sites

This chapter sets out the study results with respect to potential impacts of the local plan on designated site, including Ramsar sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs).

4.1 Assessment of air quality impacts against screening thresholds

This section comprises the outcome of the assessment described in Section 2.3.3.

Critical load and critical level values for the designated sites considered in this study are summarized in Table 4-1 and Table 4-2. Critical loads for nutrient nitrogen deposition (kgN/ha-year) and acid deposition (kEq/ha-year) were obtained from the UK Air Pollution Information System (APIS, www.apis.co.uk) by using the “Site Relevant Critical Loads” tool. For each designated site, the critical load used in this assessment corresponds to the lowest (most stringent) critical load provided for any feature of interest within that designated site. The critical level for the airborne concentration of oxides of nitrogen (NO_x) is set at 30 µg/m³ for all designated sites across the UK. The critical levels for airborne concentrations of ammonia (NH₃) were obtained from APIS.

For simplicity, Table 4-1 and Table 4-2 indicate the sensitive qualifying feature associated with the lowest (most stringent) CL only, as this is the value that is used to set the screening thresholds. Many of the designated sites included in this study contain other qualifying features that are sensitive to air pollution and have different CL values, which may need to be considered in later stages of the HRA process.

The magnitude of nitrogen deposition and acid deposition at a designated site is influenced by the structure of the site’s vegetation. Sites with short vegetation (i.e. grassland) will experience lower amounts of deposition than sites with tall vegetation (i.e. woodland), due to the difference in deposition velocities applicable to short and tall vegetation. As a conservative approach for the initial screening assessment, designated sites in the following Table 4-3 to Table 4-6 have been classified as woodland if *any* of the features of interest listed on APIS for that designated site are woodland features; otherwise, they have been classified as grassland.

The tables below present the maximum modelled contribution of road traffic emissions from the local plan development and compare these contributions to a screening threshold equal to 1% of the applicable critical load or critical level. Values highlighted in yellow exceed the 1% screening threshold. The contributions of the local plan development is defined as:

$$(\text{Contribution of the 2036 Do Minimum Scenario}) = (\text{2036 Do Minimum}) - (\text{2036 Baseline})$$

Additionally, for airborne NO_x, the maximum modelled total concentration is presented, where the maximum total concentration is equal to the modelled road emissions for the Do Minimum scenario plus the 2030 NO_x background values obtained from UK Air.²⁵ As a precautionary approach, these maximum total NO_x concentrations correspond to the highest total concentration predicted anywhere within the designated site, and do not necessarily occur at the same geographic location as the maximum modelled NO_x contribution from road traffic emissions. Total NO_x concentration values highlighted in yellow exceed 21 µg/m³ (i.e. 70% of the NO_x long-term Critical Level).

²⁵ Department for Environment, Food and Rural Affairs, UK Air website, “Background mapping data for local authorities”, <https://uk-air.defra.gov.uk/data/laqm-background-home>

Table 4-1 Minimum Critical Load and Critical Level (CL) values and associated sensitive features for European-designated sites and underlying SSSIs

Site name	Minimum nutrient nitrogen deposition CL		Minimum acid deposition CL		Minimum airborne NH ₃ CL (µg/m ³)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
European-designated sites						
Briddlesford Copses SAC	10	Myotis bechsteini - Bechstein`s bat	0.357	Myotis bechsteini - Bechstein`s bat	3	Myotis bechsteini - Bechstein`s bat
Isle of Wight Downs SAC ^c	10	European dry heaths	0.856	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites)	1	European dry heaths
Solent & Dorset Coast (potential SPA) ^{b,f,g}	*	Site specific advice should be sought.	*	Site specific advice should be sought.	*	Site specific advice should be sought.
Solent & Isle of Wight Lagoons SAC ^e	20	Coastal lagoons	Not sensitive	All listed features specified as being 'not sensitive' to acid deposition.	3	Not listed on APIS; value indicated by Natural England via email
Solent & Southampton Water (Ramsar & SPA) ^{d,f,g}	8	Sterna sandvicensis (Western Europe/Western Africa) - Sandwich tern	0.223	Sterna sandvicensis (Western Europe/Western Africa) - Sandwich tern	3	Sterna sandvicensis (Western Europe/Western Africa) - Sandwich tern
Solent Maritime ^{c,e}	8	Perennial vegetation of stony banks	0.223	Perennial vegetation of stony banks	3	Vertigo moulinsiana - Desmoulin`s whorl snail
South Wight Maritime SAC ^{c,e}	Not sensitive	All listed features specified as being 'not sensitive' to eutrophication.	Not sensitive	All listed features specified as being 'not sensitive' to acid deposition.	*	Site specific advice should be sought.
Underlying SSSIs						
Bembridge Down ^{c,g}	15	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	0.856	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	3	Vascular plant assemblage - Vascular Plant Assemblage
Bonchurch Landslips ^g	15	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	0.142	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	1	Combinations of species - lichens - Combinations Of Species - Lichens
Bouldnor and Hamstead Cliffs ^{c,f}	10	Broad-leaved, mixed and yew woodland (Salix cinerea - Betula pubescens - Phragmites australis woodland)	0.357	Broad-leaved, mixed and yew woodland (Salix cinerea - Betula pubescens - Phragmites australis woodland)	1	Dwarf shrub heath (Ulex minor - Agrostis curtisii heath)

Site name	Minimum nutrient nitrogen deposition CL (kgN/ha-year)		Minimum acid deposition CL (kEq/ha-year)		Minimum airborne NH ₃ CL (µg/m ³)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
Brading Marshes to St. Helen's Ledges ^{d,e,g}	8	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	0.142	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	1	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)
Bridlesford Copses ^a	10	Myotis bechsteinii - Bechstein's Bat	0.357	Myotis bechsteinii - Bechstein's Bat	3	Myotis bechsteinii - Bechstein's Bat
Compton Chine to Steephill Cove ^{b,c,g}	15	Calcareous grassland (Brachypodium pinnatum lowland calcareous grassland)	0.856	Calcareous grassland (Brachypodium pinnatum lowland calcareous grassland)	1	Calcareous grassland (Festuca ovina - Carlina vulgaris lowland calcareous grassland)
Compton Down ^{b,c,g}	15	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	0.856	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	1	Calcareous grassland (Festuca ovina - Carlina vulgaris lowland calcareous grassland)
Headon Warren and West High Down ^{b,c,g}	8	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	0.223	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	1	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)
King's Quay Shore ^{e,f}	10	Broad-leaved, mixed and yew woodland (Quercus petraea - Betula pubescens - Oxalis acetosella woodland)	0.357	Broad-leaved, mixed and yew woodland (Quercus petraea - Betula pubescens - Oxalis acetosella woodland)	3	Vascular plant assemblage - Vascular Plant Assemblage
Medina Estuary ^{e,f}	10	Broad-leaved, mixed and yew woodland (Alnus glutinosa - Carex paniculata woodland)	0.357	Broad-leaved, mixed and yew woodland (Alnus glutinosa - Carex paniculata woodland)	3	Tringa totanus - Redshank
Mottistone Down ^b	10	Acid grassland (Festuca ovina - Agrostis capillaris - Rumex acetosella lowland acid grassland)	0.223	Acid grassland (Festuca ovina - Agrostis capillaris - Rumex acetosella lowland acid grassland)	1	Acid grassland (Festuca ovina - Agrostis capillaris - Rumex acetosella lowland acid grassland)
Newtown Harbour ^{e,f}	5	Larus ridibundus - Black-Headed Gull	0.321	Larus ridibundus - Black-Headed Gull	3	Larus ridibundus - Black-Headed Gull
Ryde Sands and Wootton Creek ^e	15	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	0.357	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	3	Calidris alba - Sanderling
Thorness Bay ^{e,f}	10	Fen, marsh and swamp (Narthecium ossifragum - Sphagnum papillosum mire)	0.321	Fen, marsh and swamp (Narthecium ossifragum - Sphagnum papillosum mire)	1	Fen, marsh and swamp (Narthecium ossifragum - Sphagnum papillosum mire)

Site name	Minimum nutrient nitrogen deposition CL (kgN/ha-year)		Minimum acid deposition CL (kEq/ha-year)		Minimum airborne NH ₃ CL (µg/m ³)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
Ventnor Downs ^b	10	Dwarf shrub heath (<i>Ulex minor</i> - <i>Agrostis curtisii</i> heath)	0.499	Dwarf shrub heath (<i>Ulex minor</i> - <i>Agrostis curtisii</i> heath)	1	Dwarf shrub heath (<i>Ulex minor</i> - <i>Agrostis curtisii</i> heath)
Whitecliff Bay and Bembridge Ledges ^{c,e,g}	*	Site specific advice should be sought.	*	Site specific advice should be sought.	*	Site specific advice should be sought.
Yar Estuary ^{c,e,f}	8	Supralittoral sediment (<i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland)	0.223	<i>Anas clypeata</i> - Shoveler	3	<i>Anas clypeata</i> - Shoveler

*These designated sites also overlap with: ^a Briddlesford Copses SAC ^b Isle of Wight Downs SAC ^c Solent & Dorset Coast pSPA ^d Solent & Isle of Wight Lagoons SAC ^e Solent & Southampton Water Ramsar & SPA ^f Solent Maritime SAC ^g South Wight Maritime SAC

Table 4-2 Minimum Critical Load and Critical Level (CL) values and associated sensitive features for standalone SSSIs

Site name	Minimum nutrient nitrogen deposition CL (kgN/ha-year)		Minimum acid deposition CL (kEq/ha-year)		Minimum airborne NH ₃ CL (µg/m ³)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
Alverstone Marshes	10	Broad-leaved, mixed and yew woodland (<i>Alnus glutinosa</i> - <i>Carex paniculata</i> woodland)	0.142	Broad-leaved, mixed and yew woodland (<i>Alnus glutinosa</i> - <i>Carex paniculata</i> woodland)	1	Acid grassland (<i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Rumex acetosella</i> lowland acid grassland)
America Wood	15	Broad-leaved, mixed and yew woodland (<i>Quercus robur</i> - <i>Pteridium aquilinum</i> - <i>Rubus fruticosus</i> woodland)	0.142	Broad-leaved, mixed and yew woodland (<i>Quercus robur</i> - <i>Pteridium aquilinum</i> - <i>Rubus fruticosus</i> woodland)	*	Site specific advice should be sought
Arreton Down	15	Calcareous grassland (<i>Bromus erectus</i> lowland calcareous grassland)	0.856	Calcareous grassland (<i>Bromus erectus</i> lowland calcareous grassland)	*	Site specific advice should be sought
Calbourne Down	15	Calcareous grassland (<i>Festuca ovina</i> - <i>Avenula pratensis</i> lowland calcareous grassland)	0.856	Calcareous grassland (<i>Festuca ovina</i> - <i>Avenula pratensis</i> lowland calcareous grassland)	3	<i>Thesium humifusum</i> - Bastard-Toadflax
Cranmore	*	Site specific advice should be sought	*	Site specific advice should be sought	*	Site specific advice should be sought
Cridmore Bog	10	Fen, marsh and swamp (<i>Carex rostrata</i> - <i>Potentilla palustris</i> swamp)	0.223	Fen, marsh and swamp (<i>Carex rostrata</i> - <i>Potentilla palustris</i> swamp)	3	Fen, marsh and swamp (<i>Juncus effusus</i> / <i>acutiflorus</i> - <i>Galium palustre</i> rush pasture)

Site name	Minimum nutrient nitrogen deposition CL (kgN/ha-year)		Minimum acid deposition CL (kEq/ha-year)		Minimum airborne NH ₃ CL (µg/m ³)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
Eaglehead and Bloodstone Copses	15	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	0.142	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	*	Site specific advice should be sought
Freshwater Marshes	10	Broad-leaved, mixed and yew woodland (Salix cinerea - Betula pubescens - Phragmites australis woodland)	0.142	Broad-leaved, mixed and yew woodland (Salix cinerea - Betula pubescens - Phragmites australis woodland)	3	Invertebrate assemblage - Invertebrate Assemblage
Garston's Down	8	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	0.223	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	1	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)
Greatwood and Cliff Copses	10	Broad-leaved, mixed and yew woodland (Fagus sylvatica - Mercurialis perennis woodland)	0.142	Broad-leaved, mixed and yew woodland (Fagus sylvatica - Mercurialis perennis woodland)	*	Site specific advice should be sought
Lake Allotments	*	Site specific advice should be sought	*	Site specific advice should be sought	3	Fumaria reuteri - Martin's Ramping-Fumitory
Locks Farm Meadow	20	Neutral grassland (Cynosurus cristatus - Centaurea nigra grassland)	0.438	Neutral grassland (Cynosurus cristatus - Centaurea nigra grassland)	3	Neutral grassland (Cynosurus cristatus - Centaurea nigra grassland)
Northpark Copse	15	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	0.357	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	1	Combinations of species - lichens - Combinations Of Species - Lichens
Parkhurst Forest	10	Broad-leaved, mixed and yew woodland (Fagus sylvatica - Rubus fruticosus woodland)	0.357	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	1	Combinations of species - lichens - Combinations Of Species - Lichens
Prospect Quarry	15	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	0.856	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	*	Site specific advice should be sought
Rew Down	8	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	0.223	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	1	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)

Site name	Minimum nutrient nitrogen deposition CL (kgN/ha-year)		Minimum acid deposition CL (kEq/ha-year)		Minimum airborne NH ₃ CL (µg/m ³)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
Rowridge Valley	15	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	0.142	Broad-leaved, mixed and yew woodland (Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland)	3	Clinopodium menthifolium - Wood Calamint
Shide Quarry	15	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	0.856	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	1	Combinations of species - bryophytes - Combinations Of Species - Bryophytes
St Lawrence Bank	*	Site specific advice should be sought	*	Site specific advice should be sought	3	Melampyrum arvense - Field Cow-Wheat
The Wilderness	10	Broad-leaved, mixed and yew woodland (Betula pubescens - Molinia caerulea woodland)	0.142	Broad-leaved, mixed and yew woodland (Betula pubescens - Molinia caerulea woodland)	3	Fen, marsh and swamp (Juncus effusus / acutiflorus - Galium palustre rush pasture)

Table 4-3 Study results: maximum modelled contribution from Do Minimum scenario to nitrogen deposition at European-designated sites and underlying SSSIs

Site name	Vegetation type (grassland or woodland)	Minimum critical load (kgN/ha-year)	Maximum road contribution from Do Minimum scenario (using woodland deposition rate)		Maximum road contribution from Do Minimum scenario (using grassland deposition rate)	
			in kgN/ha-year	as % of minimum CL	in kgN/ha-year	as % of minimum CL
European-designated sites						
Briddlesford Copses SAC	Woodland	10	0.131	1.3%	0.081	0.8%
Isle of Wight Downs SAC ^c	Grassland	10	0.011	0.1%	0.007	0.1%
Solent & Dorset Coast potential SPA ^{b,f,g}	Grassland	*tbd	0.104	n/a	0.065	n/a
Solent & Isle of Wight Lagoons SAC ^e	Grassland	20	0.027	0.1%	0.017	0.1%
Solent & Southampton Water Ramsar & SPA ^{d,f,g}	Grassland	8	0.117	1.5%	0.067	0.8%
Solent Maritime ^{c,e}	Woodland	8	0.058	0.7%	0.036	0.5%
South Wight Maritime SAC ^{c,e}	Grassland	Not sensitive	0.007	n/a	0.004	n/a
Underlying SSSIs						
Bembridge Down ^{c,g}	Woodland	15	0.005	0.0%	0.003	0.0%
Bonchurch Landslips ^g	Woodland	15	0.000	0.0%	0.000	0.0%
Bouldnor and Hamstead Cliffs ^{c,f}	Woodland	10	0.004	0.0%	0.002	0.0%

Site name	Vegetation type (grassland or woodland)	Minimum critical load (kgN/ha-year)	Maximum road contribution from Do Minimum scenario (using woodland deposition rate)		Maximum road contribution from Do Minimum scenario (using grassland deposition rate)	
			in kgN/ha-year	as % of minimum CL	in kgN/ha-year	as % of minimum CL
Brading Marshes to St. Helen's Ledges ^{d,e,g}	Woodland	8	0.059	0.7%	0.037	0.5%
Briddlesford Copses ^a	Woodland	10	0.131	1.3%	0.081	0.8%
Compton Chine to Steephill Cove ^{b,c,g}	Woodland	15	0.028	0.2%	0.018	0.1%
Compton Down ^{b,c,g}	Woodland	15	0.011	0.1%	0.007	0.0%
Headon Warren and West High Down ^{b,c,g}	Woodland	8	0.001	0.0%	0.001	0.0%
King's Quay Shore ^{e,f}	Woodland	10	0.005	0.1%	0.003	0.0%
Medina Estuary ^{e,f}	Woodland	10	0.058	0.6%	0.036	0.4%
Mottistone Down ^b	Woodland	10	0.003	0.0%	0.002	0.0%
Newtown Harbour ^{e,f}	Woodland	5	0.028	0.6%	0.017	0.3%
Ryde Sands and Wootton Creek ^e	Woodland	15	0.117	0.8%	0.067	0.4%
Thorness Bay ^{e,f}	Woodland	10	0.005	0.1%	0.003	0.0%
Ventnor Downs ^b	Woodland	10	0.002	0.0%	0.001	0.0%
Whitecliff Bay and Bembridge Ledges ^{c,e,g}	Woodland	*tbd	0.002	n/a	0.001	n/a
Yar Estuary ^{c,e,f}	Woodland	8	0.056	0.7%	0.035	0.4%

*These designated sites also overlap with: ^a Briddlesford Copses SAC ^b Isle of Wight Downs SAC ^c Solent & Dorset Coast pSPA ^d Solent & Isle of Wight Lagoons SAC ^e Solent & Southampton Water Ramsar & SPA ^f Solent Maritime SAC ^g South Wight Maritime SAC

Table 4-4 Study results: maximum modelled contribution from Do Minimum scenario to nitrogen deposition at standalone SSSIs

Site name	Vegetation type (grassland or woodland)	Minimum critical load (kgN/ha-year)	Maximum road contribution from Do Minimum scenario (using woodland deposition rate)		Maximum road contribution from Do Minimum scenario (using grassland deposition rate)	
			in kgN/ha-year	as % of minimum CL	in kgN/ha-year	as % of minimum CL
Alverstone Marshes	Woodland	10	0.007	0.1%	0.004	0.0%
America Wood	Woodland	15	0.003	0.0%	0.002	0.0%
Arreton Down	Woodland	15	0.137	0.9%	0.087	0.6%
Calbourne Down	Woodland	15	0.004	0.0%	0.002	0.0%
Cranmore	Woodland	*tbd	0.004	n/a	0.002	n/a

Site name	Vegetation type (grassland or woodland)	Minimum critical load (kgN/ha-year)	Maximum road contribution from Do Minimum scenario (using woodland deposition rate) in kgN/ha-year		Maximum road contribution from Do Minimum scenario (using grassland deposition rate) in kgN/ha-year	
				as % of minimum CL		as % of minimum CL
Cridmore Bog	Woodland	10	0.002	0.0%	0.002	0.0%
Eaglehead and Bloodstone Copses	Woodland	15	0.007	0.0%	0.004	0.0%
Freshwater Marshes	Woodland	10	0.071	0.7%	0.043	0.4%
Garston's Down	Woodland	8	0.003	0.0%	0.002	0.0%
Greatwood and Cliff Copses	Woodland	10	0.002	0.0%	0.001	0.0%
Lake Allotments	Grassland	*tbd	0.003	n/a	0.002	n/a
Locks Farm Meadow	Grassland	20	0.002	0.0%	0.002	0.0%
Northpark Copse	Woodland	15	0.002	0.0%	0.001	0.0%
Parkhurst Forest	Woodland	10	0.006	0.1%	0.004	0.0%
Prospect Quarry	Woodland	15	0.003	0.0%	0.002	0.0%
Rew Down	Woodland	8	0.000	0.0%	0.000	0.0%
Rowridge Valley	Woodland	15	0.003	0.0%	0.002	0.0%
Shide Quarry	Woodland	15	0.053	0.4%	0.032	0.2%
St Lawrence Bank	Woodland	*tbd	0.000	n/a	0.000	n/a
The Wilderness	Woodland	10	0.004	0.0%	0.002	0.0%

Table 4-5 Study results: maximum modelled contribution from Do Minimum scenario to acid deposition at European-designated sites and underlying SSSIs

Site name	Vegetation type (grassland or woodland)	Minimum critical load (kEq/ha-year)	Maximum road contribution from Do Minimum scenario (using woodland deposition rate) in kEq/ha-year		Maximum road contribution from Do Minimum scenario (using grassland deposition rate) in kEq/ha-year	
				as % of minimum CL		as % of minimum CL
European-designated sites						
Bridlesford Copses SAC	Woodland	0.357	0.0093	2.6%	0.006	1.6%
Isle of Wight Downs SAC ^c	Grassland	0.856	0.0008	0.1%	0.000	0.1%
Solent & Dorset Coast potential SPA ^{b,f,g}	Grassland	*tbd	0.0074	n/a	0.005	n/a

Site name	Vegetation type (grassland or woodland)	Minimum critical load (kEq/ha-year)	Maximum road contribution from Do Minimum scenario (using woodland deposition rate) as % of minimum CL		Maximum road contribution from Do Minimum scenario (using grassland deposition rate) as % of minimum CL	
			in kEq/ha-year	as % of minimum CL	in kEq/ha-year	as % of minimum CL
Solent & Isle of Wight Lagoons SAC ^e	Grassland	Not sensitive	0.0020	n/a	0.001	n/a
Solent & Southampton Water Ramsar & SPA ^{d,f,g}	Grassland	0.223	0.0083	3.7%	0.005	2.1%
Solent Maritime ^{c,e}	Woodland	0.223	0.0042	1.9%	0.003	1.1%
South Wight Maritime SAC ^{c,e}	Grassland	Not sensitive	0.0005	n/a	0.000	n/a
Underlying SSSIs						
Bembridge Down ^{c,g}	Woodland	0.856	0.0004	0.0%	0.000	0.0%
Bonchurch Landslips ^g	Woodland	0.142	0.0000	0.0%	0.000	0.0%
Bouldnor and Hamstead Cliffs ^{c,f}	Woodland	0.357	0.0003	0.1%	0.000	0.0%
Brading Marshes to St. Helen's Ledges ^{d,e,g}	Woodland	0.142	0.0042	3.0%	0.003	1.9%
Bridlesford Copses ^a	Woodland	0.357	0.0093	2.6%	0.006	1.6%
Compton Chine to Steephill Cove ^{b,c,g}	Woodland	0.856	0.0020	0.2%	0.001	0.1%
Compton Down ^{b,c,g}	Woodland	0.856	0.0008	0.1%	0.000	0.1%
Headon Warren and West High Down ^{b,c,g}	Woodland	0.223	0.0001	0.0%	0.000	0.0%
King's Quay Shore ^{e,f}	Woodland	0.357	0.0004	0.1%	0.000	0.1%
Medina Estuary ^{e,f}	Woodland	0.357	0.0042	1.2%	0.003	0.7%
Mottistone Down ^b	Woodland	0.223	0.0002	0.1%	0.000	0.1%
Newtown Harbour ^{e,f}	Woodland	0.321	0.0020	0.6%	0.001	0.4%
Ryde Sands and Wootton Creek ^e	Woodland	0.357	0.0083	2.3%	0.005	1.3%
Thorness Bay ^{e,f}	Woodland	0.321	0.0004	0.1%	0.000	0.1%
Ventnor Downs ^b	Woodland	0.499	0.0001	0.0%	0.000	0.0%
Whitecliff Bay and Bembridge Ledges ^{c,e,g}	Woodland	*tbd	0.0002	n/a	0.000	n/a
Yar Estuary ^{c,e,f}	Woodland	0.223	0.0040	1.8%	0.002	1.1%

*These designated sites also overlap with: ^a Bridlesford Copses SAC ^b Isle of Wight Downs SAC ^c Solent & Dorset Coast pSPA ^d Solent & Isle of Wight Lagoons SAC ^e Solent & Southampton Water Ramsar & SPA ^f Solent Maritime SAC ^g South Wight Maritime SAC

Table 4-6 Study results: maximum modelled contribution from Do Minimum scenario to acid deposition at standalone SSSIs

Site name	Vegetation type (grassland or woodland)	Minimum critical load (kEq/ha-year)	Maximum road contribution from Do Minimum scenario (using woodland deposition rate) in kEq/ha-year		Maximum road contribution from Do Minimum scenario (using grassland deposition rate) in kEq/ha-year	
				as % of minimum CL		as % of minimum CL
Alverstone Marshes	Woodland	0.142	0.0005	0.3%	0.000	0.2%
America Wood	Woodland	0.142	0.0002	0.2%	0.000	0.1%
Arreton Down	Woodland	0.856	0.0098	1.1%	0.006	0.7%
Calbourne Down	Woodland	0.856	0.0003	0.0%	0.000	0.0%
Cranmore	Woodland	*tbd	0.0003	n/a	0.000	n/a
Cridmore Bog	Woodland	0.223	0.0002	0.1%	0.000	0.0%
Eaglehead and Bloodstone Copses	Woodland	0.142	0.0005	0.4%	0.000	0.2%
Freshwater Marshes	Woodland	0.142	0.0051	3.6%	0.003	2.2%
Garston's Down	Woodland	0.223	0.0002	0.1%	0.000	0.1%
Greatwood and Cliff Copses	Woodland	0.142	0.0001	0.1%	0.000	0.1%
Lake Allotments	Grassland	*tbd	0.0002	n/a	0.000	n/a
Locks Farm Meadow	Grassland	0.438	0.0002	0.0%	0.000	0.0%
Northpark Copse	Woodland	0.357	0.0002	0.0%	0.000	0.0%
Parkhurst Forest	Woodland	0.357	0.0004	0.1%	0.000	0.1%
Prospect Quarry	Woodland	0.856	0.0002	0.0%	0.000	0.0%
Rew Down	Woodland	0.223	0.0000	0.0%	0.000	0.0%
Rowridge Valley	Woodland	0.142	0.0002	0.2%	0.000	0.1%
Shide Quarry	Woodland	0.856	0.0038	0.4%	0.002	0.3%
St Lawrence Bank	Woodland	*tbd	0.0000	n/a	0.000	n/a
The Wilderness	Woodland	0.142	0.0003	0.2%	0.000	0.1%

Table 4-7 Study results: maximum modelled contribution from Do Minimum scenario to airborne NOx at European-designated sites and underlying SSSIs

Site name	Critical level ($\mu\text{g}/\text{m}^3$)	Maximum road contribution ($\mu\text{g}/\text{m}^3$)	Maximum contribution as % of CL	Maximum total concentration ($\mu\text{g}/\text{m}^3$)
European-designated sites				
Bridlesford Copses SAC	30	0.24	0.8%	11.2
Isle of Wight Downs SAC ^c	30	0.02	0.1%	7.6
Solent & Dorset Coast potential SPA ^{b,f,g}	30	0.19	0.6%	17.6
Solent & Isle of Wight Lagoons SAC ^e	30	0.04	0.1%	9.3
Solent & Southampton Water Ramsar & SPA ^{d,f,g}	30	0.43	1.4%	17.7
Solent Maritime ^{c,e}	30	0.11	0.4%	17.3
South Wight Maritime SAC ^{c,e}	30	0.01	0.0%	8.2
Underlying SSSIs				
Bembridge Down ^{c,g}	30	0.01	0.0%	7.5
Bonchurch Landslips ^g	30	0.00	0.0%	6.2
Bouldnor and Hamstead Cliffs ^{c,f}	30	0.01	0.0%	6.1
Brading Marshes to St. Helen's Ledges ^{d,e,g}	30	0.11	0.4%	10.9
Bridlesford Copses ^a	30	0.24	0.8%	11.2
Compton Chine to Steephill Cove ^{b,c,g}	30	0.03	0.1%	6.5
Compton Down ^{b,c,g}	30	0.02	0.1%	5.7
Headon Warren and West High Down ^{b,c,g}	30	0.00	0.0%	5.0
King's Quay Shore ^{e,f}	30	0.01	0.0%	15.0
Medina Estuary ^{e,f}	30	0.11	0.4%	12.7
Mottistone Down ^b	30	0.01	0.0%	5.0
Newtown Harbour ^{e,f}	30	0.04	0.1%	7.3
Ryde Sands and Wootton Creek ^e	30	0.43	1.4%	17.7
Thorness Bay ^{e,f}	30	0.01	0.0%	9.7
Ventnor Downs ^b	30	0.00	0.0%	7.6
Whitecliff Bay and Bembridge Ledges ^{c,e,g}	30	0.01	0.0%	8.1

Site name	Critical level ($\mu\text{g}/\text{m}^3$)	Maximum road contribution ($\mu\text{g}/\text{m}^3$)	Maximum contribution as % of CL	Maximum total concentration ($\mu\text{g}/\text{m}^3$)
Yar Estuary ^{c,e,f}	30	0.10	0.3%	5.6

*These designated sites also overlap with: ^a Briddlesford Copses SAC ^b Isle of Wight Downs SAC ^c Solent & Dorset Coast pSPA ^d Solent & Isle of Wight Lagoons SAC ^e Solent & Southampton Water Ramsar & SPA ^f Solent Maritime SAC ^g South Wight Maritime SAC

Table 4-8 Study results: maximum modelled contribution from Do Minimum scenarios to airborne NOx at standalone SSSIs

Site name	Critical level ($\mu\text{g}/\text{m}^3$)	Maximum road contribution ($\mu\text{g}/\text{m}^3$)	Maximum contribution as % of CL	Maximum total concentration ($\mu\text{g}/\text{m}^3$)
Alverstone Marshes	30	0.01	0.0%	7.4
America Wood	30	0.01	0.0%	7.9
Arreton Down	30	0.18	0.6%	11.2
Calbourne Down	30	0.01	0.0%	5.4
Cranmore	30	0.01	0.0%	5.9
Cridmore Bog	30	0.00	0.0%	5.3
Eaglehead and Bloodstone Copses	30	0.01	0.0%	8.1
Freshwater Marshes	30	0.15	0.5%	7.5
Garston's Down	30	0.01	0.0%	6.0
Greatwood and Cliff Copses	30	0.00	0.0%	7.1
Lake Allotments	30	0.01	0.0%	7.3
Locks Farm Meadow	30	0.00	0.0%	6.9
Northpark Copse	30	0.00	0.0%	6.0
Parkhurst Forest	30	0.01	0.0%	9.4
Prospect Quarry	30	0.01	0.0%	5.0
Rew Down	30	0.00	0.0%	5.8
Rowridge Valley	30	0.01	0.0%	6.0
Shide Quarry	30	0.13	0.4%	9.8
St Lawrence Bank	30	0.00	0.0%	5.0

Site name	Critical level ($\mu\text{g}/\text{m}^3$)	Maximum road contribution ($\mu\text{g}/\text{m}^3$)	Maximum contribution as % of CL	Maximum total concentration ($\mu\text{g}/\text{m}^3$)
The Wilderness	30	0.01	0.0%	5.5

Table 4-9 Study results: maximum modelled contribution from Do Minimum scenario to airborne ammonia (NH_3) at European-designated sites and underlying SSSIs

Site name	Critical level ($\mu\text{g}/\text{m}^3$)	Maximum road contribution from Do Minimum scenario	
		in $\mu\text{g}/\text{m}^3$	as % of minimum CL
European-designated sites			
Bridlesford Copses SAC	3	0.012	0.4%
Isle of Wight Downs SAC ^c	1	0.001	0.1%
Solent & Dorset Coast potential SPA ^{b,f,g}	*tbc	0.010	n/a
Solent & Isle of Wight Lagoons SAC ^e	3	0.003	0.1%
Solent & Southampton Water Ramsar & SPA ^{d,f,g}	3	0.006	0.2%
Solent Maritime ^{c,e}	3	0.005	0.2%
South Wight Maritime SAC ^{c,e}	*tbc	0.001	n/a
Underlying SSSIs			
Bembridge Down ^{c,g}	3	0.000	0.0%
Bonchurch Landslips ^g	1	0.000	0.0%
Bouldnor and Hamstead Cliffs ^{c,f}	1	0.000	0.0%
Brading Marshes to St. Helen's Ledges ^{d,e,g}	1	0.006	0.6%
Bridlesford Copses ^a	3	0.012	0.4%
Compton Chine to Steephill Cove ^{b,c,g}	1	0.003	0.3%
Compton Down ^{b,c,g}	1	0.001	0.1%
Headon Warren and West High Down ^{b,c,g}	1	0.000	0.0%
King's Quay Shore ^{e,f}	3	0.001	0.0%
Medina Estuary ^{e,f}	3	0.005	0.2%
Mottistone Down ^b	1	0.000	0.0%
Newtown Harbour ^{e,f}	3	0.003	0.1%

Site name	Critical level ($\mu\text{g}/\text{m}^3$)	Maximum road contribution from Do Minimum scenario	
		in $\mu\text{g}/\text{m}^3$	as % of minimum CL
Ryde Sands and Wootton Creek ^e	3	0.006	0.2%
Thorness Bay ^{e,f}	1	0.001	0.1%
Ventnor Downs ^b	1	0.000	0.0%
Whitecliff Bay and Bembridge Ledges ^{c,e,g}	*tbc	0.000	n/a
Yar Estuary ^{c,e,f}	3	0.005	0.2%

*These designated sites also overlap with: ^a Briddlesford Copses SAC ^b Isle of Wight Downs SAC ^c Solent & Dorset Coast pSPA ^d Solent & Isle of Wight Lagoons SAC ^e Solent & Southampton Water Ramsar & SPA ^f Solent Maritime SAC ^g South Wight Maritime SAC

Table 4-10 Study results: maximum modelled contribution from Do Minimum scenario to airborne ammonia (NH₃) at standalone SSSI sites

Site name	Critical level ($\mu\text{g}/\text{m}^3$)	Maximum road contribution from Do Minimum scenario	
		in $\mu\text{g}/\text{m}^3$	as % of minimum CL
Alverstone Marshes	1	0.001	0.1%
America Wood	*tbc	0.000	n/a
Arreton Down	*tbc	0.014	n/a
Calbourne Down	3	0.000	0.0%
Cranmore	*tbc	0.000	n/a
Cridmore Bog	3	0.000	0.0%
Eaglehead and Bloodstone Copses	*tbc	0.001	n/a
Freshwater Marshes	3	0.006	0.2%
Garston's Down	1	0.000	0.0%
Greatwood and Cliff Copses	*tbc	0.000	n/a
Lake Allotments	3	0.000	0.0%
Locks Farm Meadow	3	0.000	0.0%
Northpark Copse	1	0.000	0.0%
Parkhurst Forest	1	0.001	0.1%
Prospect Quarry	*tbc	0.000	n/a
Rew Down	1	0.000	0.0%
Rowridge Valley	3	0.000	0.0%

Site name	Critical level ($\mu\text{g}/\text{m}^3$)	Maximum road contribution from Do Minimum scenario	
		in $\mu\text{g}/\text{m}^3$	as % of minimum CL
Shide Quarry	1	0.004	0.4%
St Lawrence Bank	3	0.000	0.0%
The Wilderness	3	0.000	0.0%

4.2 Summary of findings

Simplified results for the assessment of air quality impacts on designated sites are provided in Table 4-11 and Table 4-12. European-designated sites are subject to the HRA process, and where likely significant effects from air quality impacts cannot be ruled out (i.e., an entry of 'No' in the tables below), an HRA Stage 2 appropriate assessment will be required to inform the revised Island Plan. Since the recent Sweetman II 'People over Wind and Sweetman' ruling,²⁶ mitigation (avoidance or reduction) measures cannot be taken into account at the screening stage of a Habitat Regulations Assessment. To ensure compliance with this ruling, we recommend that any European-designated site for which likely significant effects cannot be ruled out for the Do Minimum scenario undergo an HRA Stage 2 appropriate assessment.

For designated sites with maximum modelled pollutant levels exceeding the screening thresholds, the modelled results were mapped onto Priority Habitats Inventory (PHI) maps obtained from Natural England.²⁷ This analysis indicates the habitat types (i.e., mudflat, grassland, etc.) within each designated site that are predicted to experience pollutant levels exceeding the screening thresholds.

Table 4-11 Summary of analysis for European-designated sites and underlying SSSIs

Site name	On the basis of available evidence and agreed thresholds, can likely significant effects from air quality impacts be ruled out for the Do Minimum scenario?
European-designated sites	
Bridlesford Copses SAC	<p>No; preliminary results indicate that nitrogen deposition and acid deposition are predicted to exceed the 1% screening threshold.</p> <p>Spatial analysis using the PHI dataset indicates that the areas of exceedance correspond to deciduous woodland. Satellite imagery, combined with the PHI dataset, confirm that these areas are located within the Combley Great Wood, near Combley road, and correspond to a forested area.</p> <p>The maximum development contribution modelled using woodland deposition rates has been calculated as 2.6% of the CL for acid deposition and 1.3% of the CL for nitrogen deposition. The predicted area of exceedance is 1.15 ha for acid deposition and 0.1 ha for nitrogen deposition.</p>
Isle of Wight Downs SAC ^c	Yes; the screening results are below the 1% screening threshold for all pollutants.
Solent & Dorset Coast (potential SPA) ^{b,f,g}	<p>Inconclusive. This is a potential SPA and as such CL values are not listed on APIS and will need to be confirmed by Natural England.</p> <p>The preliminary model results indicate that screening thresholds will not be exceeded for NO_x, as the total predicted NO_x is below 21 µg/m³ throughout the boundary of the designated site. For this interim report, an assessment of the other pollutants has been carried out using the lowest CL values for any European site within the study area: 8 kgN/ha-year for nitrogen deposition, 0.223 kEq/hq-year for acid deposition and 1 µg/m³ for ammonia. On this basis, modelled pollutant concentrations will not exceed the screening thresholds for nitrogen deposition or ammonia. However, if a CL of 0.223 is assumed for acid deposition, the 1% screening threshold is predicted to be exceeded using both woodland and grassland deposition rates. The CLs applicable to this designated site, and particularly the CL applicable to acid deposition, will need</p>

²⁶ People Over Wind and Peter Sweetman v Coillte Teoranta, 12 April 2018, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62017CJ0323>

²⁷ Natural England Open Data, "Priority Habitat Inventory (South) (England)", <https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-south-england>, accessed 12/10/2018.

Site name	On the basis of available evidence and agreed thresholds, can likely significant effects from air quality impacts be ruled out for the Do Minimum scenario?
Solent & Isle of Wight Lagoons SAC ^e	to be confirmed with Natural England in order to fully assess the likelihood of significant effects arising from the revised Island Plan. Yes; the screening results are below the 1% screening threshold for all pollutants.
Solent & Southampton Water (Ramsar & SPA) ^{d,f,g}	No; preliminary results indicate that acid deposition is predicted to exceed the 1% screening threshold. Spatial analysis using the PHI dataset indicates that the areas of exceedance correspond to mudflats, where grassland deposition rates are applicable. These areas are located: towards the southern area of Wootton Creek near Kite Hill road; towards the southern area of the River Medina near Riverway; along Esplanade in Seaview; and near the River Yar in St Helens. Satellite imagery confirms that these areas of exceedance are characterized by short vegetation. The maximum development contribution modelled using grassland deposition rates has been calculated as 2.1% of the CL for acid deposition. The predicted area of exceedance is 0.28 ha for acid deposition.
Solent Maritime SAC ^{c,e}	No; preliminary results indicate that acid deposition is predicted to exceed the 1% screening threshold. Spatial analysis using the PHI dataset indicates that the areas of exceedance correspond to mudflats, where grassland deposition rates are applicable. These areas are located towards the southern area of the River Medina near Riverway, and satellite imagery confirms that these areas of exceedance are characterized by short vegetation and open water areas. The maximum development contribution modelled using grassland deposition rates has been calculated as 1.1% of the CL for acid deposition. The predicted area of exceedance is 0.21 ha for acid deposition.
South Wight Maritime SAC ^{c,e}	Yes; the screening results are below the 1% screening threshold for all pollutants. The CL for ammonia will need to be confirmed with Natural England, however, the lowest CL value for ammonia at any of the designated sites within the study area is 1 µg/m ³ . If a CL of 1 is assumed, modelled pollutant concentrations will not exceed the screening threshold for ammonia
Underlying SSSIs	
Bembridge Down ^{c,g}	Yes; the screening results are below the 1% screening threshold for all pollutants.
Bonchurch Landslips ^g	Yes; the screening results are below the 1% screening threshold for all pollutants.
Bouldnor and Hamstead Cliffs ^{c,f}	Yes; the screening results are below the 1% screening threshold for all pollutants.
Brading Marshes to St. Helen's Ledges ^{d,e,g}	No; preliminary results indicate that acid deposition is predicted to exceed the 1% screening threshold. As an initial approach, spatial analysis using the PHI dataset was undertaken assuming woodland deposition rates. This indicated that the areas of exceedance correspond to mudflats, reedbeds, and coastal and floodplain grazing marsh, where grassland deposition rates are applicable. Spatial analysis using grassland deposition rates indicated that the areas of exceedance correspond to mudflats. These areas of exceedance are located near Bembridge harbour and the B3395. Satellite imagery confirms that the areas of exceedance are characterized by short vegetation.

Site name	On the basis of available evidence and agreed thresholds, can likely significant effects from air quality impacts be ruled out for the Do Minimum scenario?
	The maximum development contribution modelled using grassland deposition rates has been calculated as 1.9% of the CL for acid deposition, and the predicted area of exceedance is 0.02 ha.
Bridlesford Copses ^a	<p>No; preliminary results indicate that nitrogen deposition and acid deposition are predicted to exceed the 1% screening threshold.</p> <p>Spatial analysis using the PHI dataset indicates that the areas of exceedance correspond to deciduous woodland. Satellite imagery, combined with the PHI dataset, confirm that these areas are located within the Combley Great Wood, near Combley road, and correspond to a forested area.</p> <p>The maximum development contribution modelled using woodland deposition rates has been calculated as 2.6% of the CL for acid deposition and 1.3% of the CL for nitrogen deposition. The predicted area of exceedance is 1.15 ha for acid deposition and 0.1 ha for nitrogen deposition.</p>
Colwell Bay ^c	Yes; the site's qualifying features are not sensitive to air quality impacts
Compton Chine to Steephill Cove ^{b,c,g}	Yes; the screening results are below the 1% screening threshold for all pollutants.
Compton Down ^{b,c,g}	Yes; the screening results are below the 1% screening threshold for all pollutants.
Headon Warren and West High Down ^{b,c,g}	Yes; the screening results are below the 1% screening threshold for all pollutants.
King's Quay Shore ^{e,f}	Yes; the screening results are below the 1% screening threshold for all pollutants.
Medina Estuary ^{e,f}	<p>Yes; the screening results are below the 1% screening threshold for all pollutants.</p> <p>As an initial approach, spatial analysis using the PHI dataset was undertaken assuming woodland deposition rates. This indicated that the areas of exceedance, for acid deposition using woodland deposition rates, corresponded to mudflats, where grassland deposition rates are applicable. Satellite imagery confirmed that these areas were characterized by short vegetation and open water. The screening thresholds are not predicted to be exceeded using grassland deposition rates.</p>
Mottistone Down ^b	Yes; the screening results are below the 1% screening threshold for all pollutants.
Newtown Harbour ^{e,f}	Yes; the screening results are below the 1% screening threshold for all pollutants.
Ryde Sands and Wootton Creek ^e	<p>No; preliminary results indicate that acid deposition is predicted to exceed the 1% screening threshold.</p> <p>Spatial analysis using the PHI dataset indicates that the areas of exceedance correspond to mudflats, where grassland deposition rates are applicable. These areas are located near Kite Hill road, and satellite imagery confirms that these areas of exceedance are characterized by short vegetation.</p> <p>The maximum development contribution modelled using grassland deposition rates has been calculated as 1.3% of the CL for acid deposition, and the predicted area of exceedance is 0.01 ha.</p>
Thorness Bay ^{e,f}	Yes; the screening results are below the 1% screening threshold for all pollutants.
Ventnor Downs ^b	Yes; the screening results are below the 1% screening threshold for all pollutants.
Whitecliff Bay and Bembridge Ledges ^{c,e,g}	Yes; the screening results are below the 1% screening threshold for all pollutants.

Site name	On the basis of available evidence and agreed thresholds, can likely significant effects from air quality impacts be ruled out for the Do Minimum scenario?
	CL values will need to be confirmed by Natural England. For this interim report, an assessment has been carried out using the lowest CL values for any SSSI within the study area: 5 kgN/ha-year for nitrogen deposition, 0.142 kEq/hq-year for acid deposition and 1 µg/m ³ for ammonia. On this basis, modelled pollutant concentrations will not exceed the screening thresholds for any pollutant.
Yar Estuary ^{c,e,f}	<p>No; preliminary results indicate that acid deposition is predicted to exceed the 1% screening threshold.</p> <p>Spatial analysis using the PHI dataset indicates that the areas of exceedance correspond to mudflats, where grassland deposition rates are applicable. These areas are located near the A3054, and satellite imagery confirms that the area is characterized by short vegetation.</p> <p>The maximum development contribution modelled using grassland deposition rates has been calculated as 1.1% of the CL for acid deposition, and the predicted area of exceedance is 0.01 ha.</p>

*These designated sites also overlap with: ^a Briddlesford Copses SAC ^b Isle of Wight Downs SAC ^c Solent & Dorset Coast pSPA ^d Solent & Isle of Wight Lagoons SAC ^e Solent & Southampton Water Ramsar & SPA ^f Solent Maritime SAC ^g South Wight Maritime SAC

Table 4-12 Summary of analysis for standalone SSSIs

Site name	On the basis of available evidence and agreed thresholds, can likely significant effects from air quality impacts be ruled out for the Do Minimum scenario?
Alverstone Marshes	Yes; the screening results are below the 1% screening threshold for all pollutants.
America Wood	<p>Yes; the screening results are below the 1% screening threshold for all pollutants.</p> <p>The CL for ammonia will need to be confirmed with Natural England, however, the lowest CL value for ammonia at any of the designated sites within the study area is 1 µg/m³. If a CL of 1 is assumed, modelled pollutant concentrations will not exceed the screening threshold for ammonia.</p>
Arreton Down	<p>Inconclusive; the screening results are below the 1% screening threshold for nitrogen deposition, acid deposition and airborne NO_x. The CL for ammonia will need to be confirmed with Natural England in order to fully assess the likelihood of significant effects arising from the revised Island Plan.</p> <p>As an initial approach, spatial analysis using the PHI dataset was undertaken assuming woodland deposition rates. This indicated that the areas of exceedance, for acid deposition using woodland deposition rates, corresponded to mudflats, where grassland deposition rates are applicable. These areas are located along Downs Road. Satellite imagery confirmed that these areas were characterized by short vegetation. The screening thresholds are not predicted to be exceeded using grassland deposition rates.</p> <p>The CL value for ammonia will either be 1 or 3 µg/m³ and requires confirmation from Natural England. If the CL is 1, the maximum modelled development contribution would correspond to 1.4% and exceed the screening threshold.</p>
Bembridge School and Cliffs	Yes; the site's qualifying features are not sensitive to air quality impacts
Calbourne Down	Yes; the screening results are below the 1% screening threshold for all pollutants.

Site name	On the basis of available evidence and agreed thresholds, can likely significant effects from air quality impacts be ruled out for the Do Minimum scenario?
Cranmore	Yes; CL values will need to be confirmed by Natural England, but even assuming very low screening values for each pollutant, preliminary results suggest that the screening thresholds will not be exceeded.
Cridmore Bog	Yes; the screening results are below the 1% screening threshold for all pollutants.
Eaglehead and Bloodstone Copses	Yes; the screening results are below the 1% screening threshold for all pollutants. The CL for ammonia will need to be confirmed with Natural England, however, the lowest CL value for ammonia at any of the designated sites within the study area is 1 µg/m ³ . If a CL of 1 is assumed, modelled pollutant concentrations will not exceed the screening threshold for ammonia.
Freshwater Marshes	No; preliminary results indicate that acid deposition is predicted to exceed the 1% screening threshold. As an initial approach, spatial analysis using the PHI dataset was undertaken assuming woodland deposition rates. This indicated that the areas of exceedance, for acid deposition using woodland deposition rates, corresponded to reedbeds, lowland fens and deciduous woodland. These areas are located near Afton Road. Satellite imagery, combined with the PHI dataset, indicate that these areas can be considered woodland. The maximum development contribution modelled using woodland deposition rates has been calculated as 3.6% of the CL for acid deposition, and the predicted area of exceedance is 0.44 ha.
Garston's Down	Yes; the screening results are below the 1% screening threshold for all pollutants.
Greatwood and Cliff Copses	Yes; the screening results are below the 1% screening threshold for all pollutants. The CL for ammonia will need to be confirmed with Natural England, however, the lowest CL value for ammonia at any of the designated sites within the study area is 1 µg/m ³ . If a CL of 1 is assumed, modelled pollutant concentrations will not exceed the screening threshold for ammonia.
Lacey's Farm Quarry	Yes; the site's qualifying features are not sensitive to air quality impacts
Lake Allotments	Yes; the screening results are below the 1% screening threshold for all pollutants. CL values will need to be confirmed by Natural England for nitrogen deposition and acid deposition. For this interim report, an assessment has been carried out using the lowest CL values for any SSSI within the study area: 5 kgN/ha-year for nitrogen deposition and 0.142 kEq/hq-year for acid deposition.
Locks Farm Meadow	Yes; the screening results are below the 1% screening threshold for all pollutants.
Northpark Copse	Yes; the screening results are below the 1% screening threshold for all pollutants.
Parkhurst Forest	Yes; the screening results are below the 1% screening threshold for all pollutants.
Priory Woods	Yes; the site's qualifying features are not sensitive to air quality impacts
Prospect Quarry	Yes; the screening results are below the 1% screening threshold for all pollutants.

Site name	On the basis of available evidence and agreed thresholds, can likely significant effects from air quality impacts be ruled out for the Do Minimum scenario?
	The CL for ammonia will need to be confirmed with Natural England, however, the lowest CL value for ammonia at any of the designated sites within the study area is 1 µg/m ³ . If a CL of 1 is assumed, modelled pollutant concentrations will not exceed the screening threshold for ammonia.
Rew Down	Yes; the screening results are below the 1% screening threshold for all pollutants.
Rowridge Valley	Yes; the screening results are below the 1% screening threshold for all pollutants.
Shide Quarry	Yes; the screening results are below the 1% screening threshold for all pollutants.
St Lawrence Bank	Yes; the screening results are below the 1% screening threshold for all pollutants. CL values will need to be confirmed by Natural England for nitrogen deposition and acid deposition. For this interim report, an assessment has been carried out using the lowest CL values for any SSSI within the study area: 5 kgN/ha-year for nitrogen deposition and 0.142 kEq/hq-year for acid deposition.
The Wilderness	Yes; the screening results are below the 1% screening threshold for all pollutants.

4.3 Graphical presentation

Contour plots showing the modelled increment in air pollutants from road traffic at the sites listed above are provided in Appendix 2. Contour plots are provided for all sites at which the modelled increase in air pollution is more than 1% of the critical load/critical level over at least part of the site.

4.4 Next steps and recommendations for mitigation

The assessment has indicated that development associated with the revised Island Plan could result in increases in impacts above the applicable thresholds of 1% of critical levels and loads at several European designated sites and SSSIs. In most cases, exceedances of these thresholds occur in close proximity to existing A-roads. As a result, it is not possible to fully screen out potential impacts on habitat features within these limited areas of European sites resulting from changes to traffic flows considered in this assessment.

For sites where nitrogen and/or acid deposition is predicted to exceed the 1% screening thresholds, a more detailed analysis will be carried out in order to account for existing background levels of deposition. This process may conclude that likely significant effects can be ruled out for some of the sites currently predicted to exceed the thresholds. For sites where likely significant effects still cannot be ruled out, further spatial analysis and potentially site survey work will be carried out to refine this assessment. In the event that this analysis confirms that the protected habitats and species are not present in these zones, no further action would be needed to mitigate impacts. Where impacts cannot be ruled out in this way, for European-designated sites, an HRA Stage 2 appropriate assessment will be required to inform the Island Plan, and mitigation of any significant impacts may potentially be needed.

Suggested mitigation measures and applicable considerations are set out in Table 4-13. Appropriate measures should be selected by considering (a) the extent of mitigation required; (b) deliverability of potential mitigation measures, and (c) cost-effectiveness of mitigation measures.

Table 4-13 Deliverable and effective mitigation measures for consideration in offsetting air quality impacts at designated sites

Measure	Description
Suitable Alternative Natural Greenspaces	<p>Offsetting of potential impacts due to air quality through developer contributions to site management, and/or contributions to provision of alternative recreational space to attract recreational visitors away from a Natura 2000 site. These sites are referred to as Suitable Alternative Natural Greenspaces (SANGs).</p> <p>While not directly mitigating air pollution impacts arising from increased road traffic, such measures can have the effect of mitigating damage caused by deposition of air pollutants, for example by reducing other nitrogen and ammonia inputs to a site. This approach may be used to take land out of intensive agriculture and convert it to SANG(s). A reduction in intensive agriculture activity would have the effect of reducing background levels of airborne nitrogen and ammonia, as well as deposition of nitrogen and acid. Natural England has indicated that research has been undertaken in the Solent to calculate the level of nitrogen released by different agricultural land uses and this can be used to calculate off-setting Total Nitrogen figures from land use changes.²⁸ This would be particularly if the agricultural land converted to SANG(s) is located in the vicinity of designated sites.</p> <p>SANGs also offer other benefits to designated sites, such as removing non-specialist species, or reducing damage to interest features caused by visitors and dogs. Measures (e.g. using appropriate signage) could be taken to limit access to potential areas of concern within European sites.</p>
Reducing ammonia emissions from agricultural sources through changes to agricultural practices	<p>This measure includes reducing overall impacts by supporting reductions in emissions from other sources, in particular ammonia emissions from agricultural activities in the near vicinity of the affected habitats.²⁹ While the above mitigation measure involves converting agricultural land to one or more SANGs, this measure retains the agricultural functionality of the land but aims to reduce the emissions associated with that activity. Example strategies for the control of ammonia emissions include covered storage of manures, the use of effective spreading to reduce ammonia emissions and agricultural management plans.</p>
Reducing nitrogen from agricultural sources by introducing wetlands	<p>Wetlands are able to remove nitrogen from water.³⁰ The construction of a wetland downstream from an agricultural area and upstream from a designated site is an effective strategy to reduce the amount of nitrogen reaching the designated site. This approach is likely to be particularly effective for designated sites with prominent water elements, that are also located downstream from agricultural land.</p>
Woodland planting buffers	<p>Tall vegetation, such as woodland trees, can serve to 'scavenge' nutrients and pollutants from the atmosphere.³¹ This is supported by the different deposition rates applied to woodland and grassland habitats when calculating pollutant deposition (Section 2.2.7.2). While the introduction of a woodland planting buffer may reduce road traffic emission impacts on a designated site, consideration must be given to the existing space between the roadway and the designated</p>

²⁸ Guidance from Natural England to the PUSH group of local authorities, received via email on 25/06/2018.

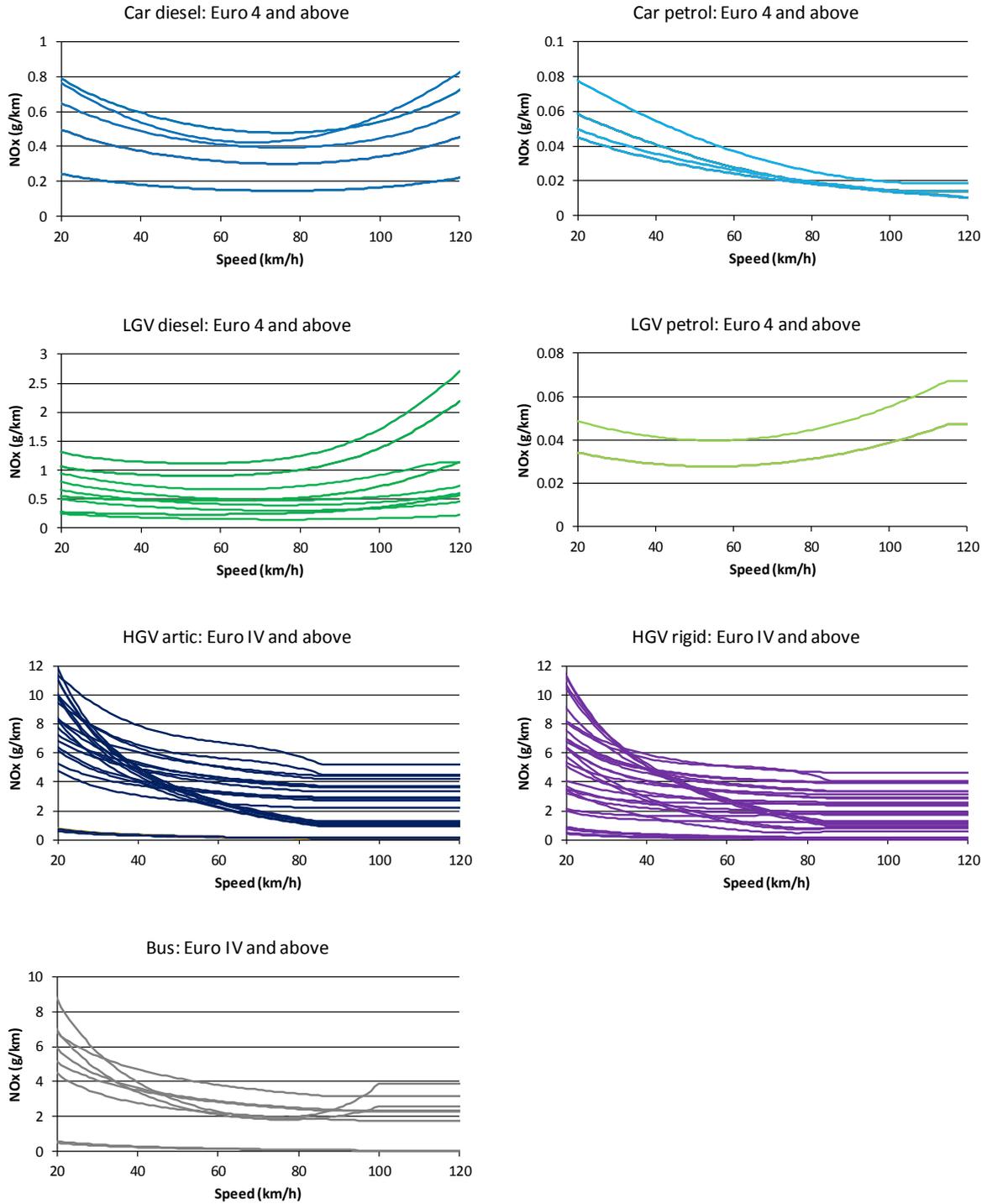
²⁹ CEH, "Identification of Potential "Remedies" for Air Pollution (nitrogen) Impacts on Designated Sites (RAPIDS)," Report to Defra Ref. AQ0834, 2015

³⁰ The Wetlands Initiative, <http://www.wetlands-initiative.org/nutrient-removal/>, accessed 20/06/2018.

³¹ Natural England, "Environmental impacts of land management (NERR030)", <http://publications.naturalengland.org.uk/file/62082>, 2009, accessed 20/06/2018.

Measure	Description
	site, and whether the introduction of a tall woodland planting buffer would alter the ecological characteristics of the designated site.
Reduced speed limits	This measure involves working with Highways England (a Duty to Co-Operate partner) to investigate the effect of reducing the speed limit or managing vehicle speeds on the key roads in the vicinity of the affected habitats. For illustrative purposes, Figure 4-1 provides an overview of the relationship between NOx emissions and vehicle speed, based on the COPERT v5 emission functions ⁷ used in RapidEms. These relationships indicate that a reduction in average vehicle speed from 100 km/hour to 70 or 80 km/hour could result in a significant decrease in NOx road emissions, depending on the make-up of vehicles on that road. This may prove effective in improving air quality at European sites due to emissions from traffic.
Site management	Developers may be able to fund site management measures which would be effective in offsetting any impact due to increased air pollution impacts. For example, site management may enable invasive species to be identified and eliminated, improving the opportunity for more diverse specialist wildlife to continue to feature at the site.
Planning measures	<p>Planning measures implemented in relation to specific developments may be considered, including:</p> <ul style="list-style-type: none"> • Strategic planning measures, such as a requirement to install electric vehicle charging points in new developments, provision of effective public transport links, or limitations on car parking. • Implementation of traffic management options to reduce the impact of specific groups or types of vehicles (for example, requiring particular classes of vehicles such as heavy goods vehicles travelling to and from a specific new development to use routes other than those resulting in exceedances of the threshold values). • Investment in public transport or other alternatives to diesel and petrol fuelled road transportation. This would be focused on specific developments on a case-by-case basis. • Development of Supplementary Air Quality Planning Guidance. Supplementary Planning Guidance could be a useful means of ensuring that developers contribute to the process of ensuring that more intense development does not result in significant air quality impacts over and above those expected from the strategic assessment of the development plan.

Figure 4-1 Relationship between NOx emission rates and vehicle speed



5 Summary and recommendations

The air quality modelling study results indicate that no areas within the island are forecast to exceed air quality standards and guidelines set for protection of human health in 2015 or over the period up to 2036. General improvements in vehicle emissions are forecast to occur over the period up to 2035, resulting in ongoing improvements in air quality. This indicates that there is no specific requirement for further mitigation to achieve air quality objectives on the Isle of Wight.

The Island Plan has the potential to result in air quality impacts for four European designated sites, at which likely significant effects from air quality impacts cannot be ruled out based on the existing evidence base. The potential for likely significant effects cannot be ruled out for four SSSIs which underlie those European sites, and also cannot be ruled out for two SSSIs which are distinct from the European sites. Further spatial analysis and potentially site survey work will be carried out to refine this assessment. In the event that this analysis confirms that the protected habitats and species are not present in these zones, no further action would be needed to mitigate impacts. Where impacts cannot be ruled out in this way, for European-designated sites, an HRA Stage 2 appropriate assessment will be required to inform the Island Plan, and mitigation of any significant impacts may potentially be needed.

This is an interim report; more detailed results and mapped figures will follow in subsequent version of this report.

Appendices

- Appendix 1 Air dispersion model verification and adjustment
- Appendix 2 Contour plots [To be completed for the next draft of this report]

Appendix 1 – Air dispersion model verification and adjustment

NO₂ model verification

Verification of the model involves comparison of the modelled results with any local monitoring data at relevant locations; this helps to identify how the model is performing and if any adjustments should be applied. The verification process involves checking and refining the model input data to try and reduce uncertainties and produce model outputs that are in better agreement with the monitoring results. This can be followed by adjustment of the modelled results if required. The LAQM.TG(16) guidance recommends making the adjustment to the road contribution of the pollutant only and not the background concentration these are combined with.

The approach outlined in LAQM.TG(16) section 7.508 – 7.534 (also in Box 7.14 and 7.15) has been used in this case. To verify the model, the predicted annual mean Road NO_x concentrations were compared with concentrations measured at the various monitoring sites during 2015.

The model output of Road NO_x (the total NO_x originating from road traffic) was compared with measured Road NO_x, where the measured Road NO_x contribution is calculated as the difference between the total measured NO_x and the background NO_x value. Total measured NO_x for each monitoring site was calculated from the measured NO₂ concentration using Version 6.1 of the Defra NO_x/NO₂ calculator available from the LAQM website³². Background NO_x values for 2015 were obtained from the 2015 reference year background maps available on the LAQM website.

The initial comparison of the modelled vs measured Road NO_x identified that the model was over-predicting the Road NO_x contribution at most locations. Refinements were subsequently made to the model inputs to improve model performance where possible.

The gradient of the best fit line for the modelled Road NO_x contribution vs. measured Road NO_x contribution was then determined using linear regression and used as a global/domain wide Road NO_x adjustment factor. This factor was then applied to the modelled Road NO_x concentration at each discretely modelled receptor point to provide adjusted modelled Road NO_x concentrations. A primary NO_x adjustment factor (PA_{adj}) of **1.5064** based on model verification using all of the included 2015 NO₂ measurements was applied to all modelled Road NO_x data prior to calculating an NO₂ annual mean.

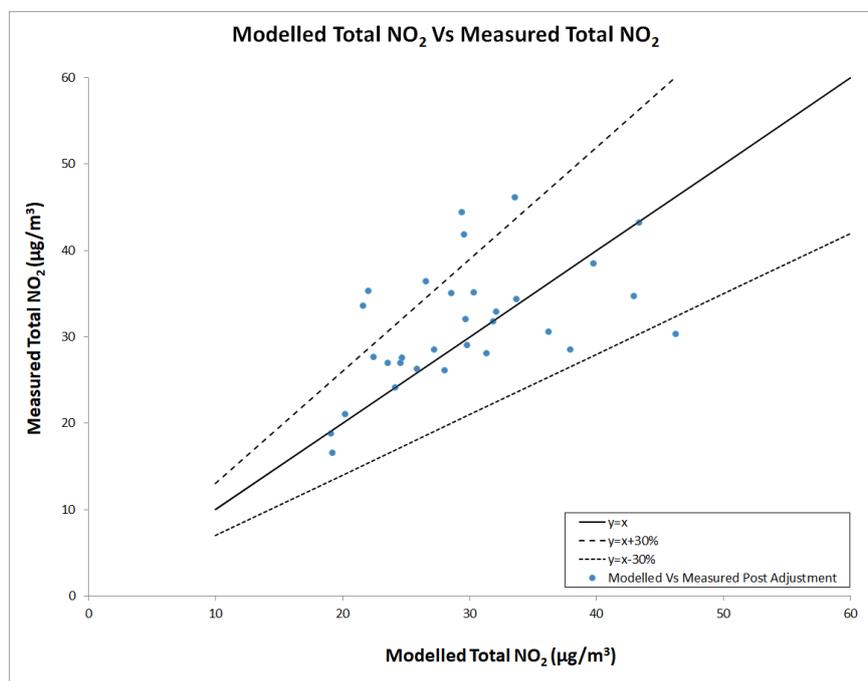
The total annual mean NO₂ concentrations were then determined at points within the model domain using the NO_x/NO₂ calculator to combine background and adjusted road contribution concentrations. For this step of the process, regional concentrations of ozone, oxides of nitrogen and nitrogen dioxide were set to those of the local authority where the calibration point was located. The following relationship was determined for conversion of total NO_x concentrations to total NO₂ concentrations:

$$(\text{NO}_2 \text{ in } \mu\text{g}/\text{m}^3) = -0.00064119 (\text{NO}_x \text{ in } \mu\text{g}/\text{m}^3)^2 + 0.56231729 (\text{NO}_x \text{ in } \mu\text{g}/\text{m}^3) + 2.11251677$$

A plot comparing modelled and monitored total NO₂ concentrations during 2015 is presented in Figure A1-1.

To evaluate the model performance and uncertainty, the Root Mean Square Error (RMSE) for the observed vs predicted NO₂ annual mean concentrations was calculated, as detailed in Technical Guidance LAQM.TG(16). The calculated RMSE is presented in Table A1-1. In this case the RMSE was calculated at **7.02 μg/m³**.

³² <https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>

Figure A1-1: Predicted annual average NO₂ concentrations against measured concentrations at monitoring locations. The 30% confidence intervals are also plotted.**Table A1-1: Modelled and measured NO₂ concentrations for the 2015 reference year and calculated RMSE value**

Site ID	Site name	Site type	Location (m)			Annual average NO ₂ concentrations, µg.m ⁻³	
			X	Y	Z	Measured	Modelled
PCC: 1	Lord Montgomery Way (FST)	Roadside	463872	99874	2	44.3	29.5
PCC: 3	High Street (HS-121A)	Roadside	463408	99460	2	24.1	24.2
PCC: 4	Queen Street (QS-Col 30)	Roadside	463190	100390	2	30.5	36.3
PCC: 5	119 Whale Island Way (WIW-119)	Roadside	464230	102194	2	27.5	24.8
PCC: 6	88 Stanley Road (SR-88)	Roadside	464331	102197	2	46.1	33.6
PCC: 7	138 Lower Derby Road (LDR-138)	Urban Background	464291	102279	2	26.1	28.1
PCC: 8	492 Hawthorn Crescent (HC-492)	Urban Background	466690	104355	2	28.4	38.0
PCC: 9	6 Northern Road (NR-6)	Roadside	465621	105528	2	35.0	28.6
PCC: 10	20 Stroudley Avenue (SA-20)	Urban Background	467107	104850	2	16.5	19.3
PCC: 14	4 Merlyn Drive (MD-4)	Roadside	466109	103736	2	26.9	24.6
PCC: 15	29 Milton Road (MR-29)	Roadside	466120	101324	2	26.2	25.9
PCC: 16	Parade Court, London Road (LR-PC)	Roadside	465474	104205	2	32.0	29.7
PCC: 18	4 Milton Road (MR-4)	Roadside	466097	101332	2	26.9	23.6
PCC: 19	7 Velder Avenue (VA-7)	Roadside	466392	100226	2	35.1	30.4
PCC: 20	136 Eastney Rd (ER-136)	Roadside	466712	99415	2	27.6	22.5
PCC: 21	118 Albert Road (AR-118)	Roadside	465209	98964	2	35.3	22.1
PCC: 22	2 Victoria Road North (VRN-2)	Roadside	464778	99306	2	28.1	31.4
PCC: 24	221 Fratton Road (FR-221)	Roadside	465111	100737	2	36.3	26.6

Site ID	Site name	Site type	Location (m)			Annual average NO ₂ concentrations, µg.m ⁻³	
			X	Y	Z	Measured	Modelled
PCC: 25	117 Kingston Rd (KR-117)	Roadside	465036	101547	2	41.8	29.6
PCC: 26	The Tap London Road (Tap)	Kerbside	464900	101976	2	43.1	43.4
PCC: 30	Market Tavern (Mile End Road) (MT)	Roadside	464478	101457	2	34.3	33.7
PCC: 32	Larch Court, Church Road (CR-Corner)	Roadside	464559	100980	2	31.7	31.9
PCC: 34	Sovereign Gate, Commercial Rd (UF)	Roadside	464425	100893	2	34.6	43.0
PCC: 35	Hampshire Terrace (AM)	Roadside	463837	99759	2	28.5	27.3
PCC: 36	Elm Grove (EG-103)	Roadside	464501	99329	2	29.0	29.9
PCC: C2	London Road	Kerbside	464925	102129	1.8	38.4	39.8
PCC: C4	Gatcombe Park Primary School	Urban Background	465403	103952	2.5	18.8	19.1
PCC: C6	Burrfields Road	Roadside	466004	102348	1.8	32.8	32.2
PCC: C7	Mile End Road	Roadside	464397	101270	1.8	30.3	46.3
IW4	IOW4	Kerbside	450377	89557	N/A	33.5	21.7
IW10	IOW10	Kerbside	459008	83715	N/A	21.0	20.3
RMSE (all sites in this table)							7.02

PM₁₀ model verification

The model output of Road PM₁₀ (the total PM₁₀ originating from road traffic) was compared with measured Road PM₁₀, where the measured Road PM₁₀ contribution is calculated as the difference between the total measured PM₁₀ and the background PM₁₀ value.

The initial comparison of the modelled vs measured Road PM₁₀ identified that the model was under-predicting the Road PM₁₀ contribution at most locations. Refinements were subsequently made to the model inputs to improve model performance where possible.

The gradient of the best fit line for the modelled Road PM₁₀ contribution vs. measured Road PM₁₀ contribution was then determined using linear regression and used as a global/domain wide Road PM₁₀ adjustment factor. This factor was then applied to the modelled Road PM₁₀ concentration at each discretely modelled receptor point to provide adjusted modelled Road PM₁₀ concentrations. A primary PM₁₀ adjustment factor (PA_{adj}) of **3.3352** based on model verification using all of the included 2015 PM₁₀ measurements was applied to all modelled Road PM₁₀ data prior to calculating an PM₁₀ annual mean.

A plot comparing modelled and monitored total PM₁₀ concentrations during 2015 is presented in Figure A1-2.

To evaluate the model performance and uncertainty, the Root Mean Square Error (RMSE) for the observed vs predicted PM₁₀ annual mean concentrations was calculated, as detailed in Technical Guidance LAQM.TG(16). The calculated RMSE is presented in Table A1-2. In this case the RMSE was calculated at **4.42 µg/m³**.

Limited measurement data was available for the verification of the modelled Road PM_{2.5} data. Using PM₁₀ and NO_x as an example, the TG16 guidance states that 'in the absence of any PM₁₀ data for verification, it may be appropriate to apply the road NO_x adjustment to the modelled road-PM₁₀'.

In this case, the primary PM₁₀ adjustment factor (PA_{adj}) of **3.3352** was applied to all modelled Road PM_{2.5} data prior to calculating their respective annual means.

Figure A1-2: Predicted annual average PM₁₀ concentrations against measured concentrations at monitoring locations. The 30% confidence intervals are also plotted.

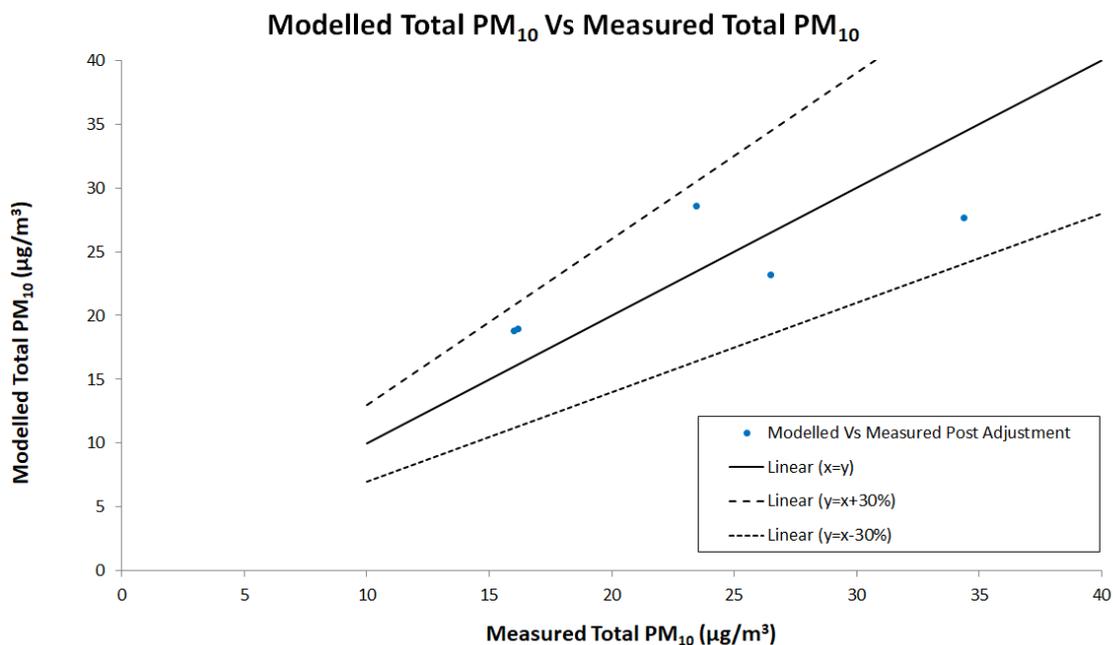


Table A1-2 Modelled and measured PM₁₀ concentrations for the 2015 reference year and calculated RMSE value

Site Name	Site type	Location (m)		Annual average PM ₁₀ concentrations, µg.m ⁻³	
		X	Y	Measured	Modelled
SCC: CM1	Southampton: AURN Brintons Road	Urban Centre	442583	112248	16.0
PCC: C4	Portsmouth: Gatcombe Park Primary School	Urban background	465403	103952	16.2
PCC: C6	Portsmouth: Burrfields Road	Roadside	466004	102348	26.5
PCC: C2	Portsmouth: London Road	Kerbside	464925	102129	34.4
PCC: C7	Portsmouth: Mile end Road	Roadside	464397	101270	23.5
RMSE (all sites in this table)					4.42

Appendix 2 – Contour plots

This is an interim report; contour plots will follow in subsequent version of this report.



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