Ricardo Energy & Environment

Isle of Wight Local Plan: Air Quality Impact Assessment

Addendum 1: Updates based on changes in planned development

Report for Isle of Wight Council

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Executive summary

The Isle of Wight (IoW) 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.

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 Planning Strategy.

Air quality impacts are 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 Planning Strategy. This study provided an update to the 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 protected nature conservation sites.

Changes in traffic flows within the study area were identified from data provided by IoW Council's traffic consultant. This was further updated through the use of scaling factors for each of the traffic scenarios. In total, two traffic scenarios were updated: 2036 Baseline Scenario and 2036 Do Minimum (2036 DM) Scenario. The 2036 Baseline Scenario includes committed development allocations and transport interventions up to 2036 but does not include development associated with the revised Island Planning Strategy. The updated 2036 baseline Scenario includes the updated changes in emissions as a result of National Atmospheric Emissions Inventory (NAEI) fleet split changes. 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 Planning Strategy. The 2036 DM Scenario was updated with the revised development forecast changes, and the updated changes in emissions as a result of NAEI fleet split changes. General improvements in vehicle emissions are forecast to occur over the period up to 2036, resulting in ongoing improvements in air quality.

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 (NOx) and ammonia (NH_3), as well as annual deposition of nutrient nitrogen and acid. The screening assessment of impacts on designated sites was carried out in a stepwise process, designed to comply with Natural England's emerging requirements[1] 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 Planning Strategy can be ruled out at a number of European sites:

- Briddlesford Copses SAC

[1] Natural England, "Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001)", 12 July 2018. Available from http://publications.naturalengland.org.uk/publication/4720542048845824, accessed 12/02/2019.

- Isle of Wight Downs SAC
- Solent & Dorset Coast (SPA)
- Solent & Isle of Wight Lagoons SAC
- Solent & Southampton Water Ramsar & SPA
- Solent Maritime (SAC)
- South Wight Maritime SAC

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

- Arreton Down SSSI
- Bembridge Down SSSI
- Bonchurch Landslips SSSI
- Bouldnor and Hamstead Cliffs SSSI
- Brading Marshes to St. Helen's Ledges SSSI
- Briddlesford Copses SSSI
- Colwell Bay SSSI
- Compton Chine to Steephill Cove SSSI
- Compton Down SSSI
- Freshwater Marshes 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
- Ryde Sands and Wootton Creek SSSI
- Shide Quarry SSSI

- St Lawrence Bank SSSI
- The Wilderness SSSI
- Yar Estuary SSSI

The Island Planning Strategy has the potential to result in air quality impacts for one of the ecological areas included in this study. For this ecological area, likely significant effects from air quality impacts cannot be ruled out based on the existing evidence base:

- Briddlesford Copses SAC functionally linked land

Functionally linked land associated with Briddlesford Copses SAC is the ecological area at which the updated air quality impacts from the Island Planning Strategy exceeded the screening thresholds. The HRA Stage 1 screening results indicate that likely significant effects from nitrogen deposition cannot be ruled out for the qualifying feature Bechstein's bat (*Myotis bechsteini*) and its supporting broadleaved, mixed and yew woodland habitat. The areas predicted to exceed the screening thresholds correspond to: thin bands of mixed deciduous woodland on either side of Stroud Wood Road and extending up to 8 m into the functionally linked land, and a very thin band of mixed deciduous woodland north of Lushington Hill Road and extending up to 2 m across the southern boundary of the functionally linked land. This study concludes that further detailed transport modelling and air dispersion modelling is carried out. This should be accompanied by an ecological assessment of the exceedance areas to assess if they are used by the Bechstein`s bat.

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Abbreviations

Abbreviation	Explanation
AADT	Annual Average Daily Traffic
APIS	Air Pollution Information System
AQIA	Air Quality Impact Assessment
BEIS	UK Department for Business, Energy & Industrial Strategy
BL	Baseline (a future-year model scenario)
CL	Critical Limit/Level
DM	Do Minimum (a future-year model scenario)
DS	(a future-year model scenario)
EFT	Emissions Factor Toolkit
GIS	Geographic Information System
HGV(s)	Heavy Goods Vehicle(s)
HRA	Habitats Regulations Assessment
IAQM	Institute of Air Quality Management
IoW	Isle of Wight
IWD	Inverse Distance Weighting
LGV(s)	Light Goods Vehicle(s)
NAEI	National Atmospheric Emissions Inventory
NE	Natural England
NH_3	Ammonia
NO_2	Nitrogen dioxide
NOx	Nitrogen oxides (NO + NO_2)
PC	Process Contribution
PEC	Predicted Environmental Concentration
RTM	Road Traffic Model
SAC	Special Area of Conservation
SPA	Special Protection Area
SRTM	Sub-Regional Transport Model
SSSI	Site of Special Scientific Interest

1 Introduction

The Isle of Wight is an island located off the south coast of England. The island covers an area of 380 km^2 and has a population of approximately 140,000 people. The emerging Isle of Wight Island Planning Strategy 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 revised increases in road traffic associated with the development envisaged in the Island Planning Strategy, as well as accounting for updated emission forecasts as a result of the updated National Atmospheric Emissions Inventory (NAEI) fleet split.

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, scaling factors are calculated based on the development forecast changes and the updates to the NAEI resulting in a change in fleet split and subsequently emissions on each road link. These scaling factors have been applied to both the traffic scenarios modelled in the previous project[2]:

- 2036 Baseline Scenario: This scenario includes committed development 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 designated sites were assessed based on the scaled predicted annual average airborne concentrations of oxides of nitrogen (NOx) and ammonia (NH_3), 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 Updates since previous report

This addendum focuses on updating the assessment for ecological receptors. The reason for this is that the human health results from the original modelling assessment provided no reason to believe that there would be exceedances across the island (see below excerpt from previous report). Based on the results of the previous assessment, coupled with Table 2-1 which shows an updated development forecast predicting lower levels of development on average, it is expected there will be no areas that exceed the guidelines set for human health.

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.

2.1 Change in development forecast

Table 2-1 provides a forecast of the original growth scenario for five settlements which were presented in the previous assessment and how this compares with the revised growth scenarios which will be assessed in this addendum. The largest absolute change occurs in Newport with a reduction of 1,559 dpa, resulting in a decrease of 42%. The largest settlement of growth occurs in East Cowes with an absolute difference of 34 dpa and increases by 12%.

Table 2-1: Change in forecast of growth

Growth scenario				
Settlement	**Values for dpa used in original study**	**Values for dpa used in this update**	**Difference**	**Ratio**
Cowes	978	947	-31	0.97
East Cowes	274	308	+34	1.12
Newport	3695	2136	-1559	0.58
The Bay (Sandown, Shanklin & Lake)	425	243	-182	0.57
Ryde	1358	1373	+15	1.01
Totals	**6730**	**5007**	**-1723**	**0.74**

*dpa – dwellings per annum

2.2 Change in NAEI fleet projection

Since the previous assessment was completed there has been an updated NAEI fleet projection released.[2] This has resulted in an increase in electric vehicles forecast to be on the roads, specifically rural and motorway road types; however only the changes to the rural road type classification affect this study. Table 2-2 presents the differences for each of the road types that had been previously assessed

[2] National Atmospheric Emissions Inventory, "Emission factors for transport", http://naei.beis.gov.uk/data/ef-transport,

for 2036. It should be noted that the NAEI only forecasts to 2035, and for this reason 2035 values are presented. Table 2-2 shows a much greater change in the car fleet split, with electric vehicles having a share of 17.5% compared to 5.3% on urban roads. This is magnified across rural roads as the 2016 NAEI did not provide electric vehicles in the split. This results in diesel vehicles reducing across both road types. 2035 shows the HGV split shift to an increase in articulated vehicles between the 2016 NAEI and 2019 NAEI across urban roads.

Table 2-2:Change in NAEI fleet splits for HGV and car for 2036

Road type	HGV				Car					
	2016 NAEI		2019 NAEI		2016 NAEI			2019 NAEI		
	Rigid	Articulated	Rigid	Articulated	Electric	Petrol	Diesel	Electric	Petrol	Diesel
Urban	75.8	24.2	65.2	34.8	5.3	59.7	35.0	17.5	56.9	25.6
Rural	47.6	52.4	48.2	51.8	N/A*	57.3	42.7	17.5	54.6	28.0

*The base 2016 NAEI did not provide information on the electric vehicle split for rural roads

2.3 Further changes

2.3.1 SPA alterations

The previous assessment included a proposed SPA: Solent & Dorset Coast. Since then, this has become a full SPA and will therefore be included once again in the analysis. However, there have been no updates to the APIS site with regards to the minimum critical loads and critical levels (CLs), therefore the previous study minimum CLs have been used.

2.3.2 Functionally linked land

There has been increasing interest in the consideration of functionally linked land to be included within this addendum. The Isle of Wight Council's local ecologist and HRA consultant have provided the extent of the functionally linked habitat for Bechstein's bats which reside in the Briddlesford Copses SAC. Bechstein's bats are primarily reliant on woodland habitats, and on this basis the assessment will incorporate an extended 3 km radius around Briddlesford Copses SAC to ensure all woodland areas within this buffer are included in the assessment. Figure 2.1 provides a map including Briddlesford Copses SAC and functionally linked land within a 3 km buffer in which analysis will be conducted.

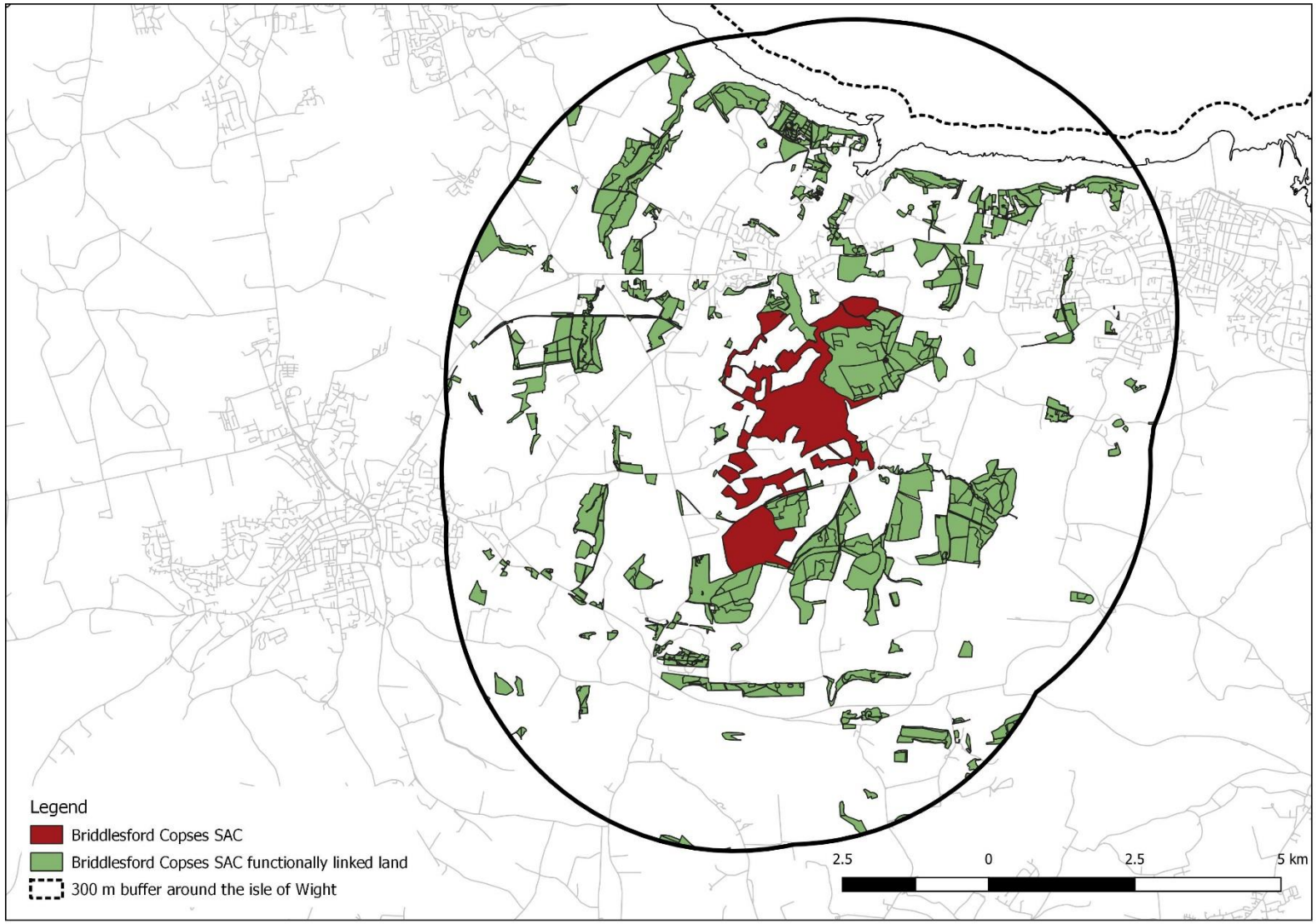

Figure 2.1: Briddlesford Copses SAC and functionally linked land within a 3 km radius

3 Method Statement

3.1 Study Overview

This chapter describes the methodology used to update the results of the original air quality impact assessment.

The following additional information can be found in the main report[3], where the indicated section numbers correspond to sections of that report:

- A description of the Sub-Regional Transport Model (SRTM) developed by MVA Consultancy and utilized by Systra to provide transport modelling data (Section 2.1).
- A description of the air dispersion modelling methodology (Section 2.2) used to generate the results of the main AQIA report[3] related for the local plan.
- A description of the assessment of impacts on human health (Section 2.3) describing the types of properties included as receptors for comparison with air quality standards for human health.
- A description of the assessment of impacts on designated ecological sites (Section 2.4) describing each of the Ramsar, SPA, SAC and SSSI sites to be evaluated.

3.2 Scaling factor methodology

In order to provide an indicative set of model results to assess ecological impacts at designated sites across the Isle of Wight a number of scaling rasters (mapped, spatially varying scaling factors) were calculated and applied to the original results. There were two types of scaling rasters created: the first incorporates the changes in forecast growth with regards to dwellings per annum (see Table 2-1), the second accounts for the updates in the NAEI fleet split since the original project was completed (see Table 2-2). The following sub-sections describe the methodology for creating each scaling raster.

3.2.1 Development forecast change scaling raster

The information provided in Table 2-1 formed the basis of creating an Isle of Wight wide scaling raster based on the ratio of the old development forecast compared with the updated forecast. As this was only provided for five settlements it required an interpolation to generate ratios for the remaining parts of the island. An Inverse Distance Weighting (IWD) interpolation method was used, this explicitly assumes that data values close to one another are more alike than those that are further apart. The resolution of the development scaling factor raster has been calculated at 90 m x 90 m. This resolution was chosen as it aligns with the original 3 m x 3 m resolution that was used for the original modelling, and it provided a balance of required detail to computational processing time. Figure 3.1 illustrates the final development scaling factor applied to the contribution of the ‘2036 Do Minimum’ scenario to vehicle emissions.

3.2.2 NAEI changes scaling raster

Table 2-2 provides information on a significant shift in the forecast fleet between the different versions of the NAEI. This is particularly the case for rural road types which previously had not included any electric vehicles in the fleet split. In order to assess the impacts of the updated NAEI on the dispersion modelling, the ratio between the original emissions (NAEI 2016) and updated emissions (NAEI 2019) for each road link has been calculated using our in-house emission calculation tool RapidEms. In order

[3] Ricardo Energy and Environment, “Isle of Wight Local Plan: Air Quality Impact Assessment”, Issue 4, March 2019

to account for the change in emissions at each road it was required to average the ratios within each 90 m x 90 m grid box and then perform the interpolation. An average was used due to the complex nature of the road network, this provides a conservative approach in the creation of the scaling factor rasters. Again, the IWD method of interpolation was used. It is important to note that there are four NAEI changes scaling rasters; 'NOx Baseline 2036', 'NH_3 Baseline 2036', 'NOx Do Minimum 2036' and 'NH_3 Do Minimum 2036'. This was necessary due to the emissions changing in both scenarios and pollutants as a result of the updated NAEI. Figure 3.2 and Figure 3.3 present the 'NOx 2036 Baseline' and 'NH_3 2036 Baseline' emission changes scaling factors respectively. Figure 3.4 and Figure 3.5 present the emission changes scaling factors for 'NOx 2036 Do Minimum' and 'NH_3 2036 Do Minimum'.

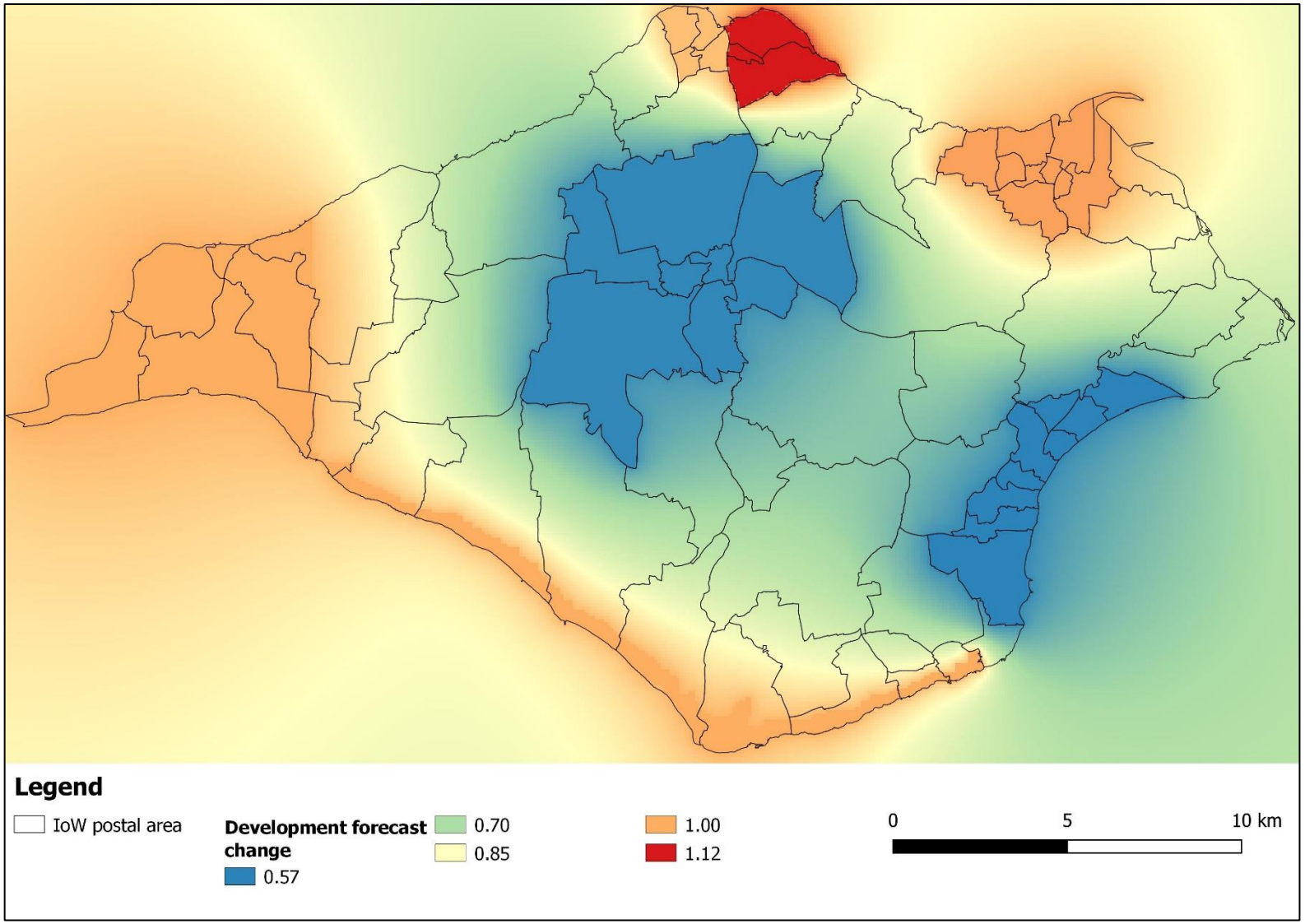

Figure 3.1: Development change scaling factor

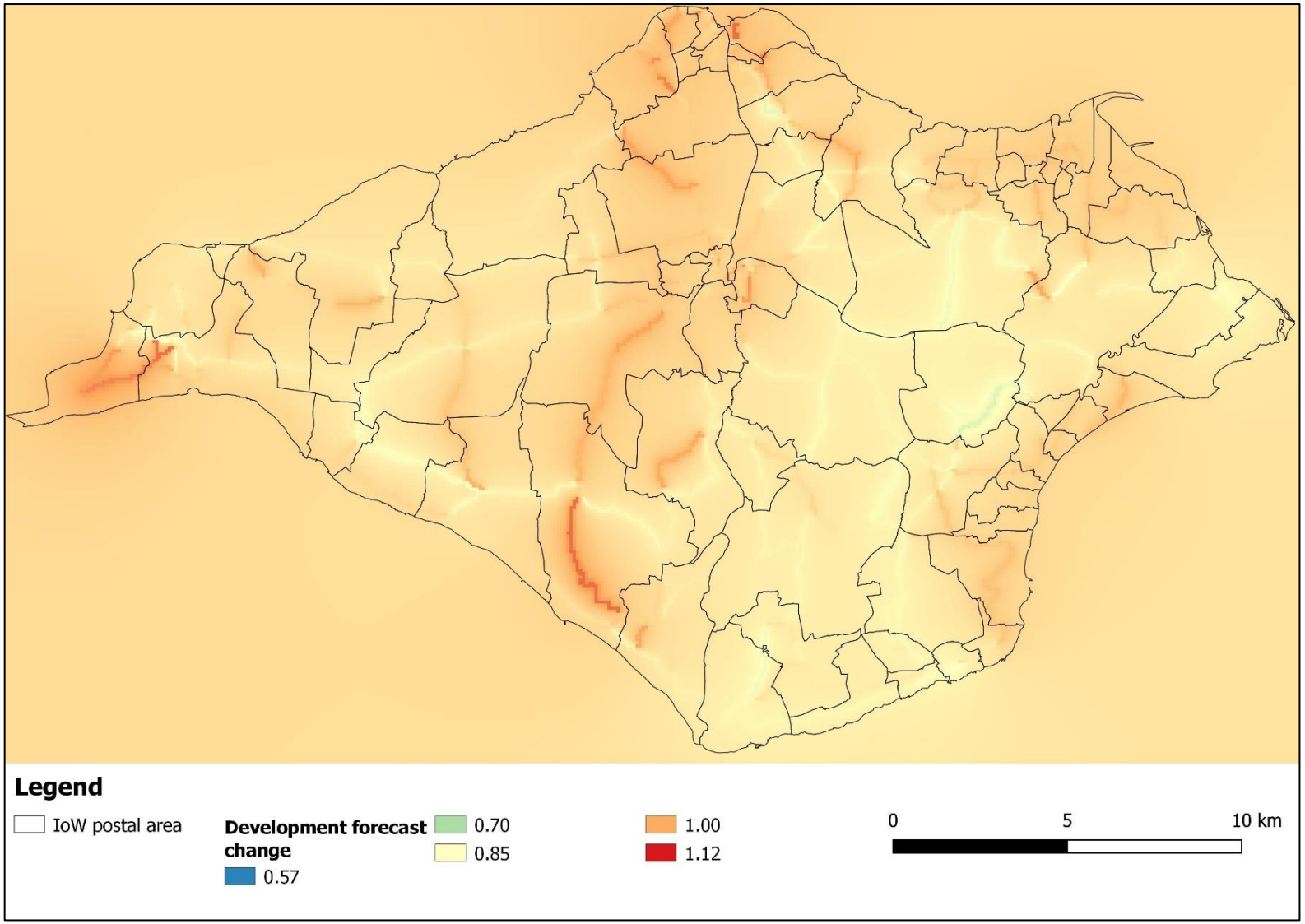

Figure 3.2: NOx baseline emissions scaling factor

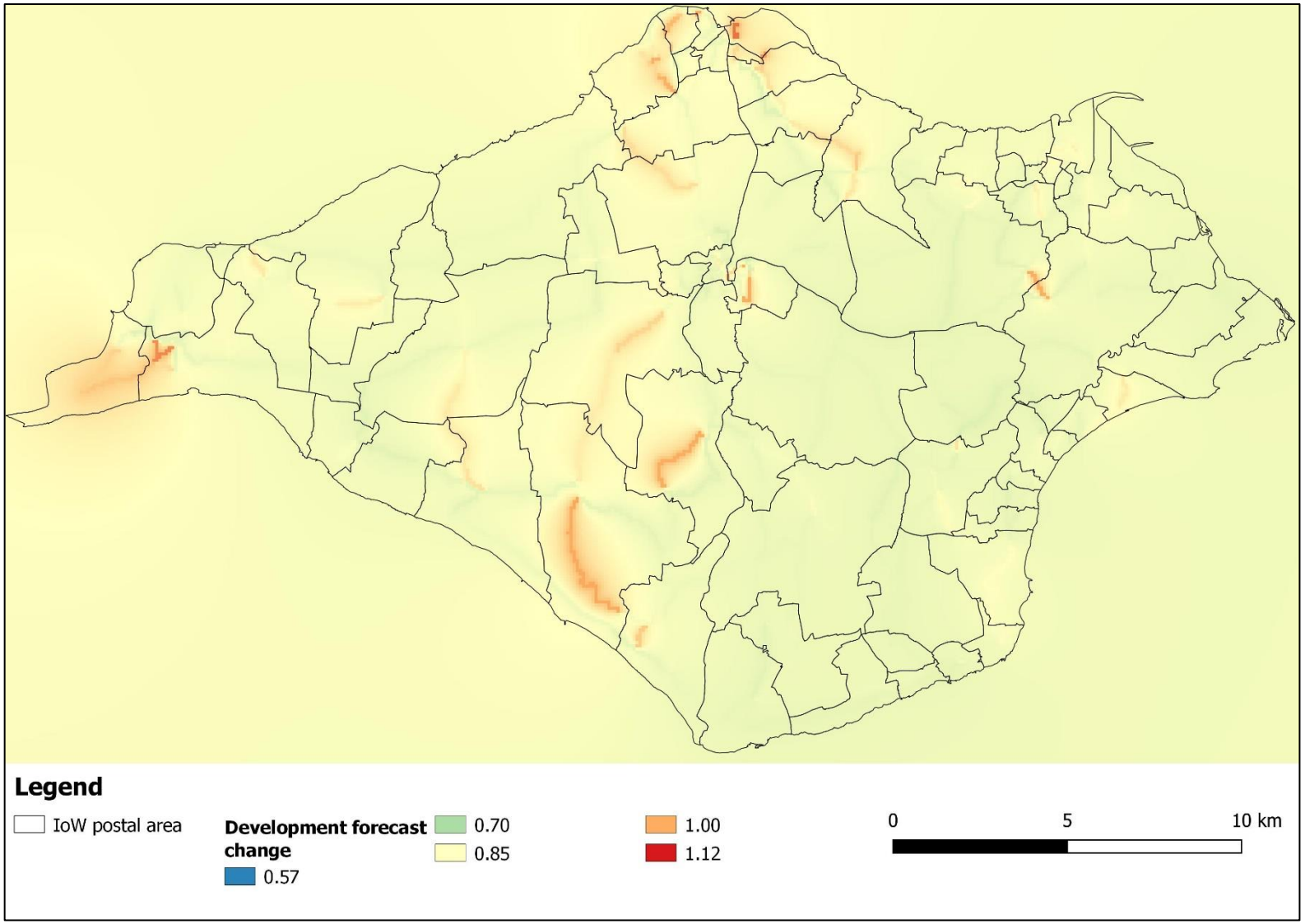

Figure 3.3: NH_3 baseline emissions scaling factor

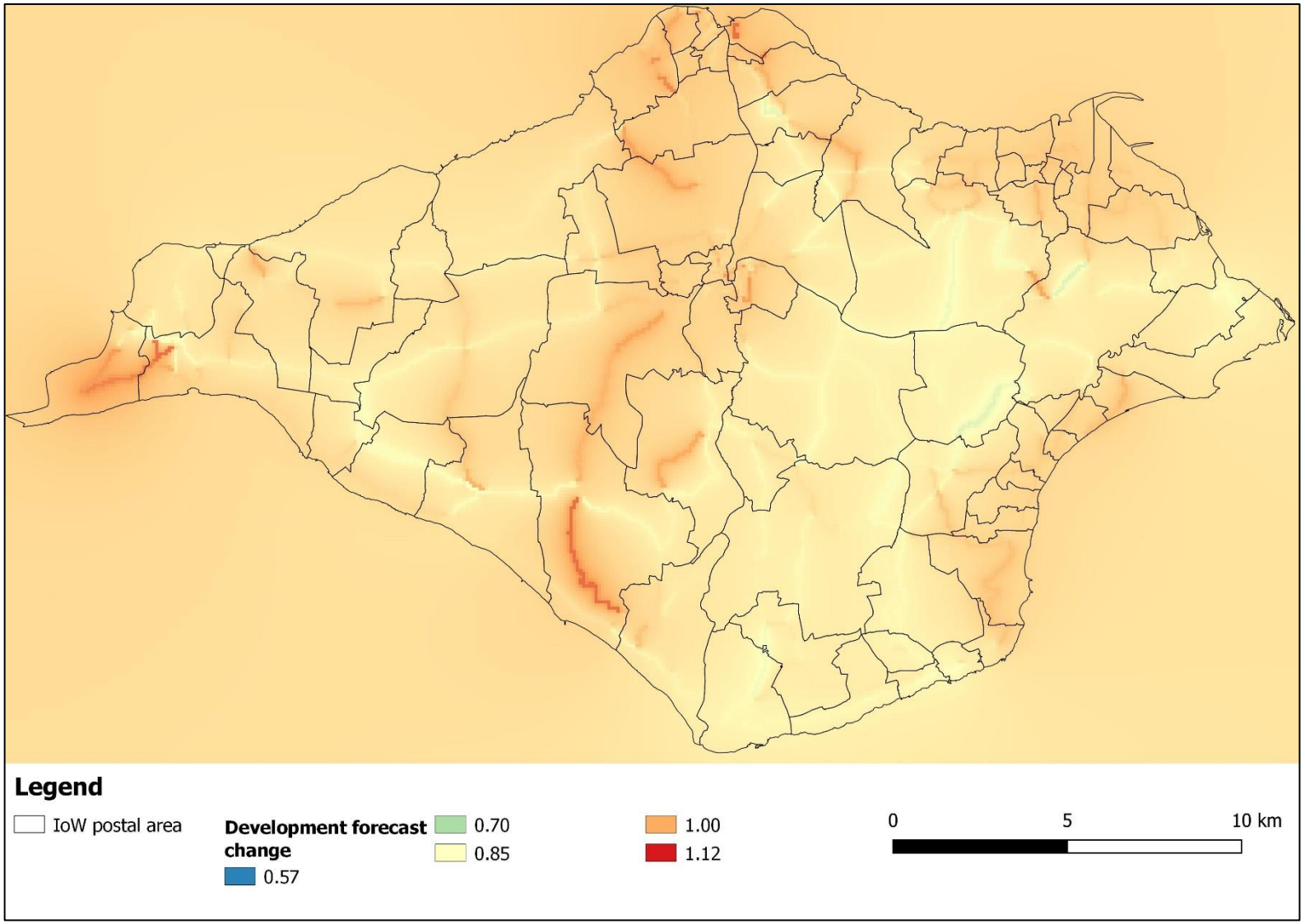

Figure 3.4: NOx emissions scaling factor for Do Minimum scenario

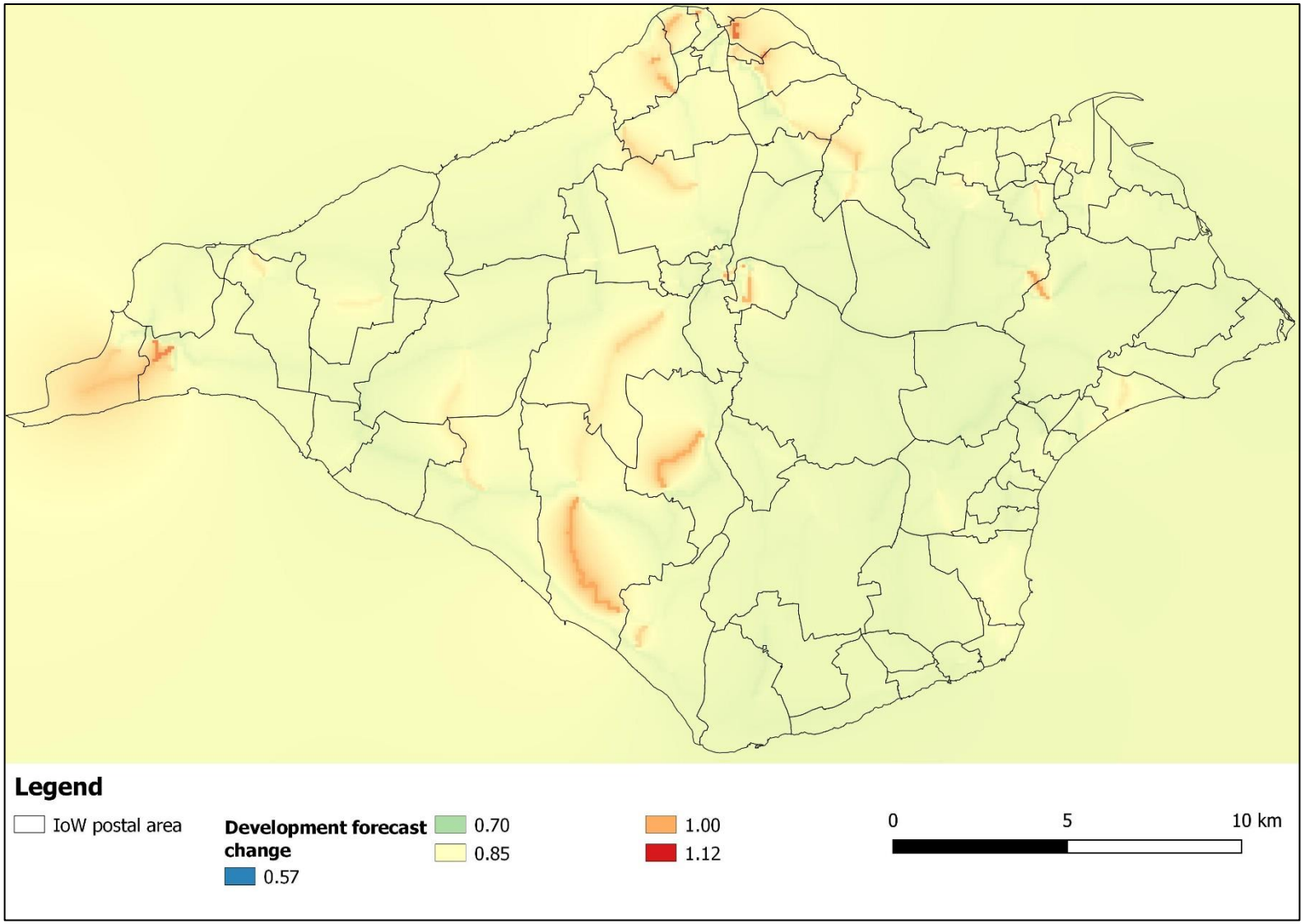

Figure 3.5: NH_3 emissions scaling factor for Do Minimum scenario

3.2.3 Uncertainty and assumptions

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

- The model uncertainty from the previous study[3] (section 2.2.3) is carried forward into this study.
- Additional uncertainty falls within the construction of the scaling rasters. For example, the development change scaling raster has been created from a number of data points and interpolated across the wider region, this leaves room for uncertainty in the regions which have been interpolated.
- In the creation of the emission scaling factors an average ratio based on the roads within each 90 m x 90 m grid box was applied due to the road network being too complex to create a ratio for each individual road. Again, this leads to uncertainties in the regions which have been interpolated.
- As a result of the above-mentioned additional model uncertainties, it is important to understand that this study is conservative and that the results are more likely to over-predict effects rather than under-predict.
    - The maximum concentration for each pollutant of interest across each of the habitat sites has been used in the assessment, and any other modelled concentrations will fall below the maximum values presented;
    - The UK government has recently (November 2020) brought forward the intention to ban the sale of all new conventional petrol and diesel cars and vans by 2030, brought forward from 2040. Secondly, all new cars and vans on the road by 2035 will be a zero-tailpipe emission vehicle[4]. 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 Do Minimum scenario are likely to be overpredicted to some extent;
    - The NAEI only projects to 2035 and therefore 2035 is the year which has been used for calculating the new emissions, and subsequently the ratio needed to develop the emissions scaling factor. It would be expected that the year 2036 results in a higher amount of the fleet being full plug-in electric vehicles leading this study to overpredict to some extent;
    - 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) NOx and NO_2 levels in 2036.
- As this assessment provides details of the in-combination effects resulting from the recovery from waste plant in Newport (Section 3.3.4) it is important to highlight aspects of the conservative nature of the previous modelling study carried out for the plant[5]:

[4] Government takes historic step towards net-zero with end of sale of new petrol and diesel cars by 2030 - GOV.UK (www.gov.uk)

[5] Jacobs, "Isle of Wight Waste Recovery Park, Forest Park, Environmental Statement", 6th November 2015.

- It was assumed that the proposed plant will operate continuously at maximum load for the entire year. In practice, the plant will have periods of shut-down and maintenance and may not always operate at maximum load. – the ATT plant is expected to operate for up to 8,000 hours per year (i.e. 91% of the year);
- The study is based on emissions being continuously at the emission limits specified in Annex VI of the IED;
- The maximum concentration at any location on the modelled grid or modelled receptor location was used in the assessment. Modelled concentrations at other locations will be less than the maximum values presented;
- It was assumed that 70% of oxides of nitrogen emitted from the proposed ATT facility will be converted to nitrogen dioxide at ground level in the vicinity of the site for determination of the annual mean. It was assumed that 35% of oxides of nitrogen will be converted to nitrogen dioxide for determination of the short-term concentrations. The actual conversion to nitrogen dioxide is likely to be less than this.

3.3 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[1] 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.

3.3.1 Consideration of whether the Island Planning Strategy could give rise to emissions which could affect a designated site

Designated sites located within 300m of the study area are presented in Figure 3.6 (Ramsar sites), Figure 3.7 (SPAs), Figure 3.8 (SACs) and Figure 3.9 (SSSIs).

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.

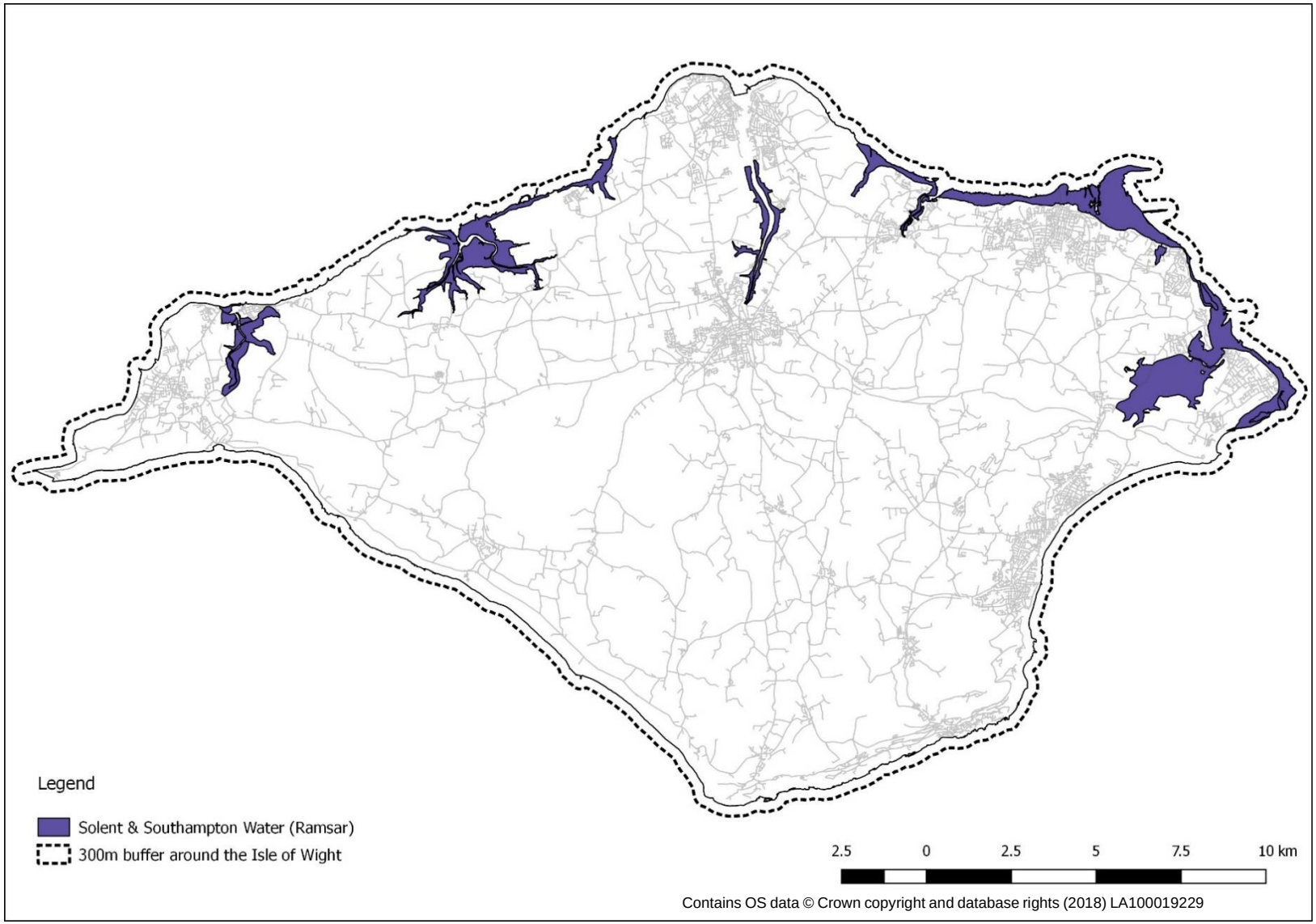

Figure 3.6 Ramsar sites located within 300m of the Isle of Wight

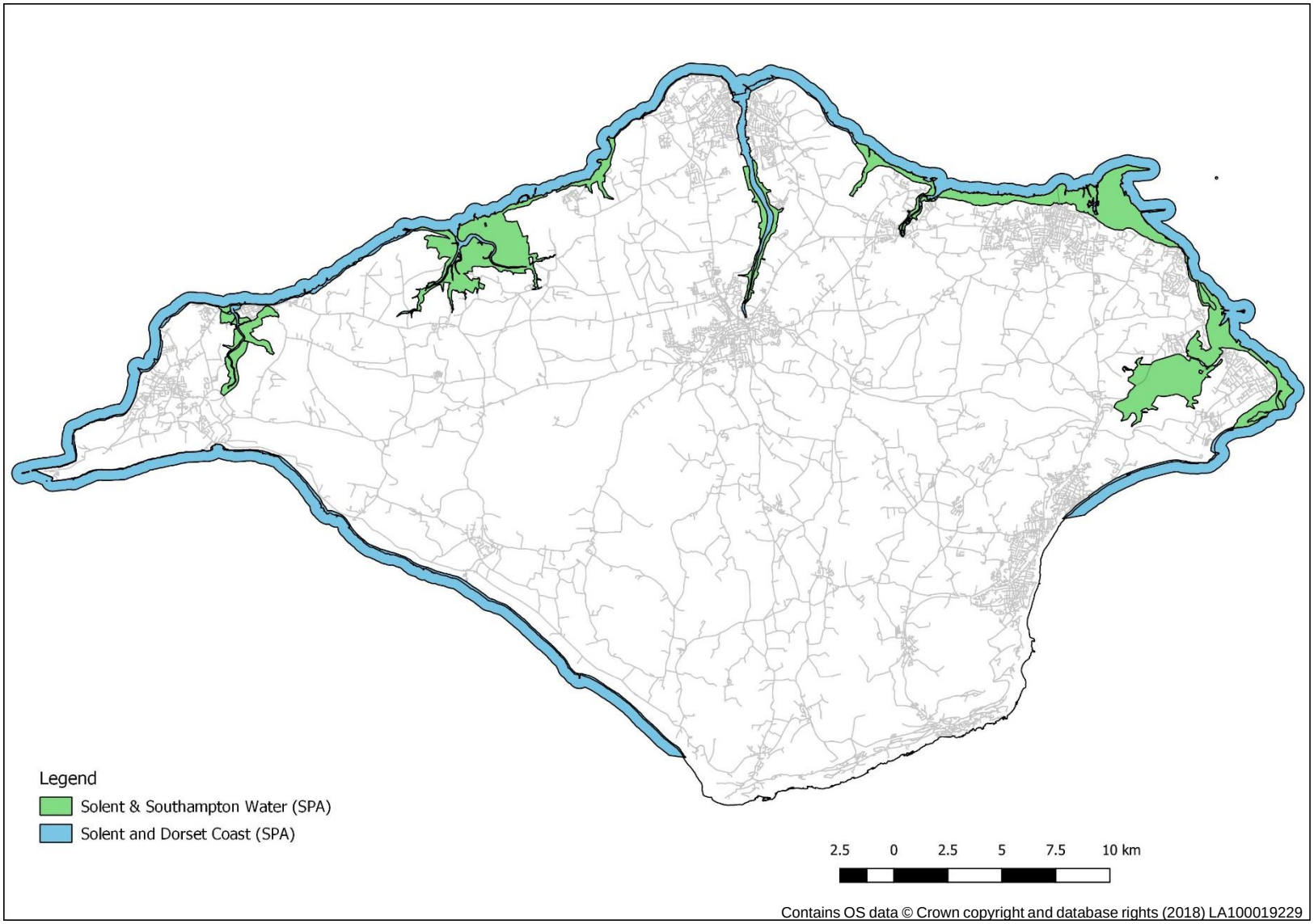

Figure 3.7 SPAs located within 300m of the Isle of Wight

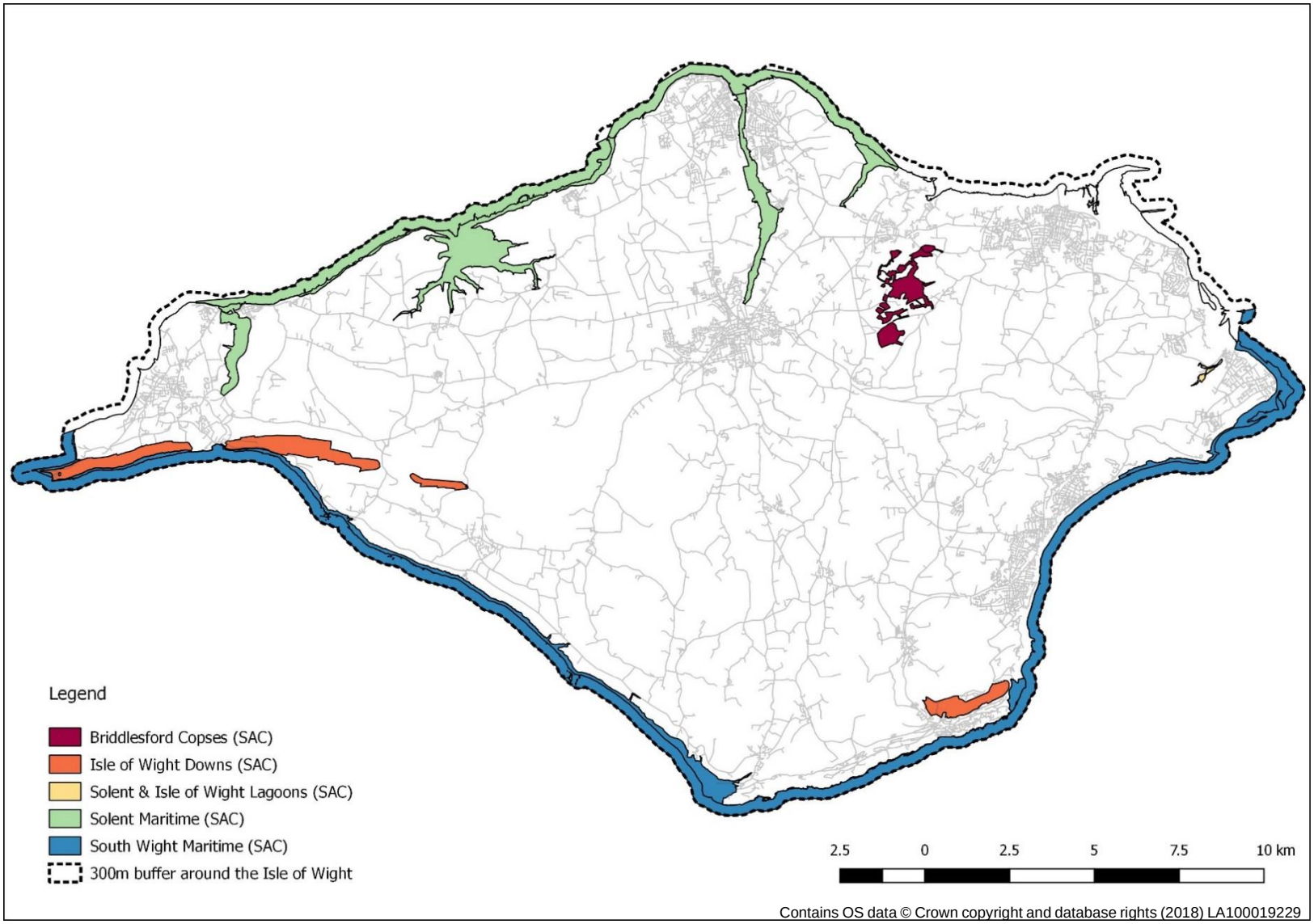

Figure 3.8 SACs located within 300m of the Isle of Wight

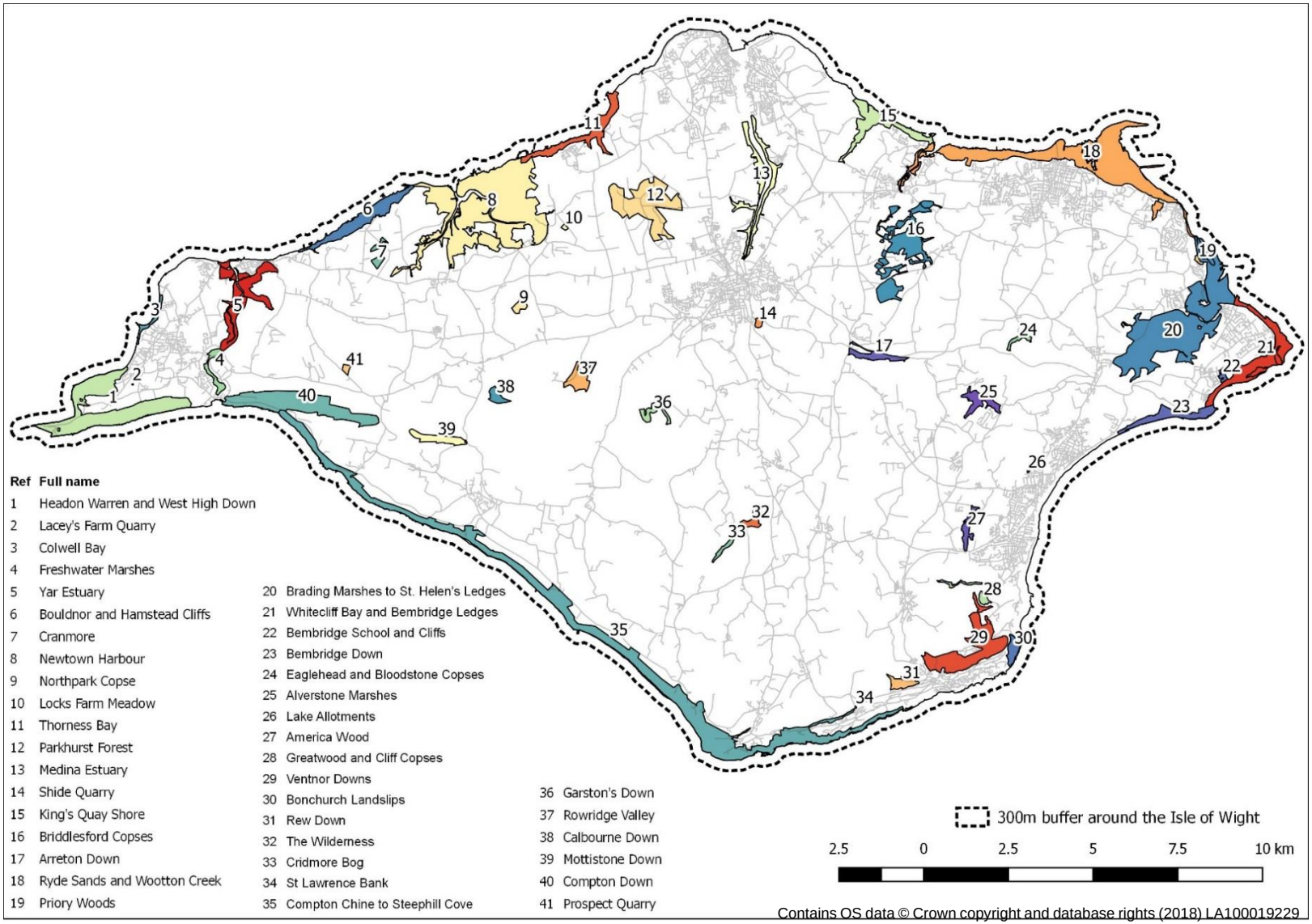

Figure 3.9 SSSIs sites located within 300m of the Isle of Wight

3.3.2 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 (NOx) and airborne ammonia (NH_3).

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 3-1 (for European-designated sites and their underlying SSSIs) and Table 3-2 (for standalone SSSIs).

Consideration was also given to potential impacts on "functional linked land" should be considered; a zone surrounding the designated site which plays a role in supporting the habitats and/or species for which each site was designated. Functionally linked land considered in this study includes areas within a 3 km buffer of Briddlesford Copses SAC in which Bechstein's bats reside and move between, see Figure 2.1 for the spatial distribution of such land.

Table 3-1 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 [b,f,g]		UK9020330		SZ702935	Yes, though it has recently changed from a potential SPA to a SPA and 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
Bonchurch Landslips [g]				SZ582785	Yes – include in study
Bouldnor and Hamstead Cliffs [c,f]				SZ390910	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?
Brading Marshes to St. Helen's Ledges [d,e,g]				SZ635883	Yes – include in study
Briddlesford 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] Briddlesford Copses SAC [b] Isle of Wight Downs SAC [c] Solent & Dorset Coast SPA [d] Solent & Isle of Wight Lagoons SAC [e] Solent & Southampton Water Ramsar & SPA [f] Solent Maritime SAC [g] South Wight Maritime SAC

Table 3-2 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
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

Site name	SSSI grid reference	Does the site contain notifiable features that are sensitive to emissions from road traffic?
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

3.3.3 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 NOx and airborne NH_3), the contributions attributable to the local plan development scenario were calculated as follows:

(Contribution of the 2036 Do Minimum Scenario) = (2036 Do Minimum) – (2036 Baseline)

As this current study aims at providing indicative model results through the use of scaling factors the above equation is slightly modified so that the relevant scaling factors are applied to the correct scenario. The general formula is as follows:

(Contribution of the 2036 Do Minimum Scenario) = ((((2036 Do Minimum) * (Do Minimum emissions scaling factor)) – ((2036 Baseline) * (baseline emissions scaling factor))) * (Development scaling factor))

The contributions attributable to each 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,[6] a position statement published by the Institute of Air Quality Management (IAQM), [7] and recent guidance received from Natural England.[8]

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.'*[7] 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.

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

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

[8] 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.

3.3.4 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 3-3. 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). 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 3-3 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

The National Infrastructure Planning website[9] was investigated to identify any potentially relevant major industrial developments in the Isle of Wight region. This highlighted two potentially relevant project:

- Navitus Bay Wind Park: Permission has been refused for this project.
- Isle of Wight waste recovery park: Permission has been granted April 2016.

Consequently, the Isle of Wight waste recovery park plans were identified as potentially leading to in-combination effects. An Environmental Statement[5] was provided by JACOBS regarding the waste recovery park which included tables of the process contributions for NOx, nitrogen deposition and acid deposition across the following ecological sites: Solent & Southampton Water (SPA/Ramsar), Briddlesford Copses (SAC), Isle of Wight Downs (SAC), South Wight Maritime (SAC), Solent Maritime (SAC) and Parkhurst Forest (SSSI). The maximum process contributions have been combined with the updated indicative model results from this updated study and screened against the relevant critical

[9] https://infrastructure.planninginspectorate.gov.uk/, accessed 05/11/2018.

loads / levels. Where exceedances of the relevant 1% threshold have been flagged further investigations were carried out.

The NOx pollutant background maps[10] 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.

[10] Department for Environment, Food & Rural Affairs, Background maps, https://uk-air.defra.gov.uk/data/lagm-background-home, accessed 04/08/2021.

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 sites, 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 3.3.3.

Critical load and critical level values (CLs) 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. The critical levels for airborne concentrations of ammonia (NH_3) were also obtained from APIS. For each designated site, the critical loads and critical levels used in this assessment correspond 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 (NOx) is set at 30 µg/m^3 for all designated sites across the UK.

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. Stage 1 screening represents a worst-case scenario and assumes that the most sensitive qualifying features are located right next to the road. If predicted air quality impacts were screened out on the basis of being less than 1% of the CL for the most sensitive features of a designated site (i.e. the feature with the lowest CL), air quality impacts were simultaneously screened out for any sensitive features with a higher CL. Many of the designated sites included in this study contain other qualifying features that are also sensitive to air pollution but have higher CL values. These less-sensitive features, with higher CLs, only need to be considered if air quality impacts on a designated site cannot be screened out at HRA Stage 1.

Table 4-3 to Table 4-14 present the maximum modelled contribution of road traffic emissions from the local plan development and the in-combination effects as a result of the Isle of Wight Waste Recovery Plan. These contributions are compared 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 contribution of the local plan development in the updated indicative results is defined as:

> (Contribution of the 2036 Do Minimum Scenario) = ((((2036 Do Minimum) * (Do Minimum emissions scaling factor)) – ((2036 Baseline) * (baseline emissions scaling factor))) * (Development scaling factor))

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 Table 4-3 to Table 4-8 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. For comparison, the magnitude of nitrogen and acid deposition has also been calculated for each site on the basis of both grassland and woodland deposition rates. While the use of woodland deposition rates is an overly conservative approach for sites characterized by short vegetation (i.e. sites that are primarily grassland), if the screening thresholds for nitrogen and acid

deposition were not exceeded with the woodland deposition rates, then there is no need for further analysis. If the screening threshold for nitrogen and/or acid deposition was predicted to be exceeded using the woodland deposition rate, then closer analysis of the type of vegetation in the predicted area of impact has been undertaken using satellite imagery to determine whether a woodland or grassland deposition rate is more appropriate for that location.

For airborne NOx (Table 4-9 to Table 4-11), the modelled contribution of the Island Planning Strategy was compared to 1% of the CL, using the same method as for the other pollutants. Air quality impacts on designated sites, arising from increased vehicle emissions of NOx related to the Island Planning Strategy, have therefore been screened out.

For airborne ammonia (NH_3, Table 4-12 and Table 4-14), none of the modelled contributions from the Do Minimum scenario were predicted to exceed the 1% screening thresholds. Air quality impacts on designated sites, arising from increased vehicle emissions of NH_3 related to the Island Planning Strategy, have therefore been screened out.

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 (kgN/ha-year)		Minimum acid deposition CL (MinCLMaxN, kEq/ha-year)		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	2.879	Myotis bechsteini - Bechstein`s bat	3	Myotis bechsteini - Bechstein`s bat
Isle of Wight Downs SAC [c]	10	European dry heaths	1.382	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites)	1	European dry heaths
Solent & Dorset Coast (SPA) [b,f,g]	8	Conservative estimate based on the presence of Terns at site.	0.555	Conservative estimate based on lowest value at other designated sites.	3	Based on advice from Natural England.[11]
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	0.626	Sterna sandvicensis (Western Europe/Western Africa) - Sandwich tern	3	Sterna sandvicensis (Western Europe/Western Africa) - Sandwich tern
Solent Maritime SAC [c,e]	8	Perennial vegetation of stony banks	0.626	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.	3	Based on advice from Natural England.[11]
Underlying SSSIs						
Bembridge Down [c,g]	15	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	4.856	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)	11.115	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	1	Combinations of species - lichens - Combinations Of Species - Lichens

[11] Email communication with Natural England, 28/11/2018.

Site name	Minimum nutrient nitrogen deposition CL (kgN/ha-year)		Minimum acid deposition CL (MinCLMaxN, kEq/ha-year)		Minimum airborne NH_3 CL (µg/m^3)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
Bouldnor and Hamstead Cliffs [c,f]	10	Broad-leaved, mixed and yew woodland (Salix cinerea - Betula pubescens - Phragmites australis woodland)	2.344	Broad-leaved, mixed and yew woodland (Salix cinerea - Betula pubescens - Phragmites australis woodland)	1	Dwarf shrub heath (Ulex minor - Agrostis curtisii heath)
Brading Marshes to St. Helen's Ledges [d,e,g]	8	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	1.133	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	1	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)
Briddlesford Copses [a]	10	Myotis bechsteinii - Bechstein's Bat	2.879	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)	4.856	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)	4.856	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)	1.13	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)	2.947	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)	2.78	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)	0.713	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	0.555	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)	2.942	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	3	Calidris alba - Sanderling

Site name	Minimum nutrient nitrogen deposition CL (kgN/ha-year)		Minimum acid deposition CL (MinCLMaxN, kEq/ha-year)		Minimum airborne NH_3 CL (µg/m^3)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
Thorness Bay [e,f]	10	Fen, marsh and swamp (Narthecium ossifragum - Sphagnum papillosum mire)	0.571	Fen, marsh and swamp (Narthecium ossifragum - Sphagnum papillosum mire)	1	Fen, marsh and swamp (Narthecium ossifragum - Sphagnum papillosum mire)
Ventnor Downs [b]	10	Dwarf shrub heath (Ulex minor - Agrostis curtisii heath)	0.989	Dwarf shrub heath (Ulex minor - Agrostis curtisii heath)	1	Dwarf shrub heath (Ulex minor - Agrostis curtisii heath)
Whitecliff Bay and Bembridge Ledges [c,e,g]	8	Conservative estimate based on lowest value at other designated sites.	Not sensitive	All listed features specified as being 'not sensitive' to acid deposition.	3	Based on advice from Natural England. [11]
Yar Estuary [c,e,f]	8	Supralittoral sediment (Festuca rubra - Galium verum fixed dune grassland)	1.13	Anas clypeata - Shoveler	3	Anas clypeata - Shoveler

*These designated sites also overlap with: [a] Briddlesford Copses SAC [b] Isle of Wight Downs SAC [c] Solent & Dorset Coast SPA [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 (MinCLMaxN, 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 (Alnus glutinosa - Carex paniculata woodland)	0.733	Broad-leaved, mixed and yew woodland (Alnus glutinosa - Carex paniculata woodland)	1	Acid grassland (Festuca ovina - Agrostis capillaris - Rumex acetosella lowland acid grassland)
America Wood	15	Broad-leaved, mixed and yew woodland (Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland)	1.369	Broad-leaved, mixed and yew woodland (Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland)	1	Based on advice from Natural England.[11]
Arreton Down	15	Calcareous grassland (Bromus erectus lowland calcareous grassland)	4.856	Calcareous grassland (Bromus erectus lowland calcareous grassland)	3	Based on advice from Natural England.[11]
Calbourne Down	15	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	4.856	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	3	Thesium humifusum - Bastard-Toadflax
Cranmore	8	Conservative estimate based on lowest value at other designated sites.	0.713	Conservative estimate based on lowest value at other designated sites.	3	Based on advice from Natural England.[11]

Site name	Minimum nutrient nitrogen deposition CL (kgN/ha-year)		Minimum acid deposition CL (MinCLMaxN, kEq/ha-year)		Minimum airborne NH_3 CL (µg/m^3)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
Cridmore Bog	10	Fen, marsh and swamp (Carex rostrata - Potentilla palustris swamp)	0.73	Fen, marsh and swamp (Carex rostrata - Potentilla palustris swamp)	3	Fen, marsh and swamp (Juncus effusus / acutiflorus - Galium palustre rush pasture)
Eaglehead and Bloodstone Copses	15	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	4.856	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	3	Based on advice from Natural England.[11]
Freshwater Marshes	10	Broad-leaved, mixed and yew woodland (Salix cinerea - Betula pubescens - Phragmites australis woodland)	2.792	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)	1.113	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)	1.837	Broad-leaved, mixed and yew woodland (Fagus sylvatica - Mercurialis perennis woodland)	1	Based on advice from Natural England.[11]
Lake Allotments	8	Conservative estimate based on lowest value at other designated sites.	0.713	Conservative estimate based on lowest value at other designated sites.	3	Fumaria reuteri - Martin's Ramping-Fumitory
Locks Farm Meadow	20	Neutral grassland (Cynosurus cristatus - Centaurea nigra grassland)	2.88	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)	2.844	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)	2.18	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)	4.856	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	3	Based on advice from Natural England.[11]

Site name	Minimum nutrient nitrogen deposition CL (kgN/ha-year)		Minimum acid deposition CL (MinCLMaxN, kEq/ha-year)		Minimum airborne NH_3 CL (µg/m^3)	
	CL	Sensitive feature	CL	Sensitive feature	CL	Sensitive feature
Rew Down	8	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	0.713	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)	1	Acid grassland (Festuca Ovina - Agrostis Capillaris - Rumex Acetosella Grassland)
Rowridge Valley	15	Broad-leaved, mixed and yew woodland (Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland)	4.856	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)	4.856	Calcareous grassland (Festuca ovina - Avenula pratensis lowland calcareous grassland)	1	Combinations of species - bryophytes - Combinations Of Species - Bryophytes
St Lawrence Bank	8	Conservative estimate based on lowest value at other designated sites.	0.713	Conservative estimate based on lowest value at other designated sites.	3	Melampyrum arvense - Field Cow-Wheat
The Wilderness	10	Broad-leaved, mixed and yew woodland (Betula pubescens - Molinia caerulea woodland)	0.73	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	Primary 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	0.082	0.8%	0.055	0.6%
Isle of Wight Downs SAC [c]	Grassland	10	0.013	0.1%	0.010	0.1%
Solent & Dorset Coast SPA [b,f,g]	Grassland	8	0.049	0.6%	0.030	0.4%
Solent & Isle of Wight Lagoons SAC [e]	Grassland	20	0.017	0.1%	0.011	0.1%
Solent & Southampton Water Ramsar & SPA [d,f,g]	Grassland	8	0.072	0.9%	0.041	0.5%
Solent Maritime [c,e]	Grassland	8	0.044	0.6%	0.027	0.3%
South Wight Maritime SAC [c,e]	Grassland	Not sensitive	0.005	n/a	0.003	n/a

Site name	Primary 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
Underlying SSSIs						
Bembridge Down [c,g]	Grassland	15	0.003	<0.1%	0.002	<0.1%
Bonchurch Landslips [g]	Woodland	15	<0.001	<0.1%	<0.001	<0.1%
Bouldnor and Hamstead Cliffs [c,f]	Woodland	10	0.003	<0.1%	0.002	<0.1%
Brading Marshes to St. Helen's Ledges [d,e,g]	Woodland	8	0.037	0.5%	0.023	0.3%
Briddlesford Copses [a]	Woodland	10	0.070	0.7%	0.043	0.4%
Compton Chine to Steephill Cove [b,c,g]	Grassland	15	0.023	0.2%	0.014	0.1%
Compton Down [b,c,g]	Grassland	15	0.009	0.1%	0.006	<0.1%
Headon Warren and West High Down [b,c,g]	Grassland	8	0.001	<0.1%	0.001	<0.1%
King's Quay Shore [e,f]	Woodland	10	0.004	<0.1%	0.002	<0.1%
Medina Estuary [e,f]	Woodland	10	0.027	0.3%	0.017	0.2%
Mottistone Down [b]	Grassland	10	0.002	<0.1%	0.001	<0.1%
Newtown Harbour [e,f]	Woodland	5	0.014	0.3%	0.009	0.2%
Ryde Sands and Wootton Creek [e]	Woodland	15	0.072	0.5%	0.041	0.3%
Thorness Bay [e,f]	Woodland	10	0.003	<0.1%	0.002	<0.1%
Ventnor Downs [b]	Grassland	10	0.001	<0.1%	0.001	<0.1%
Whitecliff Bay and Bembridge Ledges [c,e,g]	Grassland	8	0.001	<0.1%	0.001	<0.1%
Yar Estuary [c,e,f]	Grassland	8	0.044	0.5%	0.027	0.3%

*These designated sites also overlap with: [a] Briddlesford Copses SAC [b] Isle of Wight Downs SAC [c] Solent & Dorset Coast SPA [d] Solent & Isle of Wight Lagoons SAC [e] Solent & Southampton Water Ramsar & SPA [f] Solent Maritime SAC [g] South Wight Maritime SAC. Values highlighted in yellow exceed 1% of the critical load

Table 4-4: Study results: maximum modelled contribution from Do Minimum scenario to nitrogen deposition functionally linked land

Site name	Primary 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
Functionally linked land						
Briddlesford Copses SAC	Woodland	10	0.174	1.7%	0.110	1.1%

Table 4-5 Study results: maximum modelled contribution from Do Minimum scenario to nitrogen deposition at standalone SSSIs

Site name	Primary 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	0.004	<0.1%	0.002	<0.1%
America Wood	Woodland	15	0.002	<0.1%	0.001	<0.1%
Arreton Down	Grassland	15	0.073	0.5%	0.046	0.3%
Calbourne Down	Grassland	15	0.002	<0.1%	0.001	<0.1%
Cranmore	Grassland	8	0.003	<0.1%	0.002	<0.1%
Cridmore Bog	Grassland	10	0.001	<0.1%	0.001	<0.1%
Eaglehead and Bloodstone Copses	Woodland	15	0.004	<0.1%	0.003	<0.1%
Freshwater Marshes	Woodland	10	0.056	0.6%	0.034	0.3%
Garston's Down	Grassland	8	0.002	<0.1%	0.001	<0.1%
Greatwood and Cliff Copses	Woodland	10	0.001	<0.1%	0.001	<0.1%
Lake Allotments	Grassland	8	0.001	<0.1%	0.001	<0.1%
Locks Farm Meadow	Grassland	20	0.001	<0.1%	0.001	<0.1%
Northpark Copse	Woodland	15	0.001	<0.1%	0.001	<0.1%
Parkhurst Forest	Woodland	10	0.076	0.8%	0.075	0.7%
Prospect Quarry	Grassland	15	0.003	<0.1%	0.002	<0.1%
Rew Down	Grassland	8	<0.001	<0.1%	<0.001	<0.1%
Rowridge Valley	Woodland	15	0.002	<0.1%	0.001	<0.1%

Site name	Primary 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
Shide Quarry	Grassland	15	0.027	0.2%	0.016	0.1%
St Lawrence Bank	Grassland	8	<0.001	<0.1%	<0.001	<0.1%
The Wilderness	Woodland	10	0.002	<0.1%	0.001	<0.1%

Table 4-6 Study results: maximum modelled contribution from Do Minimum scenario to acid deposition at European-designated sites and underlying SSSIs

Site name	Primary vegetation type (grassland or woodland)	Minimum critical load (MinCLMaxN, kEq/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 kEq/ha-year	as % of minimum CL	in kEq/ha-year	as % of minimum CL
European-designated sites						
Briddlesford Copses SAC	Woodland	2.879	0.009	0.3%	0.008	0.3%
Isle of Wight Downs SAC [c]	Grassland	1.382	0.002	0.2%	0.002	0.1%
Solent & Dorset Coast SPA [b,f,g]	Grassland	0.555	0.004	0.6%	0.002	0.4%
Solent & Isle of Wight Lagoons SAC [e]	Grassland	Not sensitive	0.001	n/a	0.001	n/a
Solent & Southampton Water Ramsar & SPA [d,f,g]	Grassland	0.626	0.013	2.1% [+]	0.011	1.7% [+]
Solent Maritime [c,e]	Grassland	0.626	0.004	0.6%	0.002	0.4%
South Wight Maritime SAC [c,e]	Grassland	Not sensitive	<0.001	n/a	<0.001	n/a
Underlying SSSIs						
Bembridge Down [c,g]	Grassland	4.856	<0.001	<0.1%	<0.001	<0.1%
Bonchurch Landslips [g]	Woodland	11.115	<0.001	<0.1%	<0.001	<0.1%
Bouldnor and Hamstead Cliffs [c,f]	Woodland	2.344	<0.001	<0.1%	<0.001	<0.1%
Brading Marshes to St. Helen's Ledges [d,e,g]	Woodland	1.133	0.003	0.2%	0.002	0.1%
Briddlesford Copses [a]	Woodland	2.879	0.005	0.2%	0.003	0.1%
Compton Chine to Steephill Cove [b,c,g]	Grassland	4.856	0.002	<0.1%	0.001	<0.1%
Compton Down [b,c,g]	Grassland	4.856	0.001	<0.1%	<0.001	<0.1%
Headon Warren and West High Down [b,c,g]	Grassland	1.13	<0.001	<0.1%	<0.001	<0.1%

Site name	Primary vegetation type (grassland or woodland)	Minimum critical load (MinCLMaxN, kEq/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 kEq/ha-year	as % of minimum CL	in kEq/ha-year	as % of minimum CL
King's Quay Shore [e,f]	Woodland	2.947	<0.001	<0.1%	<0.001	<0.1%
Medina Estuary [e,f]	Woodland	2.78	0.002	0.1%	0.001	<0.1%
Mottistone Down [b]	Grassland	0.713	<0.001	<0.1%	<0.001	<0.1%
Newtown Harbour [e,f]	Woodland	0.555	0.001	0.2%	0.001	0.1%
Ryde Sands and Wootton Creek [e]	Woodland	2.942	0.005	0.2%	0.003	0.1%
Thorness Bay [e,f]	Woodland	0.571	<0.001	<0.1%	<0.001	<0.1%
Ventnor Downs [b]	Grassland	0.989	<0.001	<0.1%	<0.001	<0.1%
Whitecliff Bay and Bembridge Ledges [c,e,g]	Grassland	Not sensitive	<0.001	n/a	<0.001	n/a
Yar Estuary [c,e,f]	Grassland	1.13	0.003	0.3%	0.002	0.2%

*These designated sites also overlap with: [a] Briddlesford Copses SAC [b] Isle of Wight Downs SAC [c] Solent & Dorset Coast SPA [d] Solent & Isle of Wight Lagoons SAC [e] Solent & Southampton Water Ramsar & SPA [f] Solent Maritime SAC [g] South Wight Maritime SAC. Values highlighted in yellow exceed 1% of the critical load

[+] The value here is the in-combination effect of the current study and the recovery from waste site, it has since been investigated that these do not occur at the same location and therefore are not additive and do not lead to an exceedance of the screening threshold(see Section 4.2.1.5)

Table 4-7: Study results: maximum modelled contribution from Do Minimum scenario to acid deposition at functionally linked land

Site name	Primary vegetation type (grassland or woodland)	Minimum critical load (MinCLMaxN, kEq/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 kEq/ha-year	as % of minimum CL	in kEq/ha-year	as % of minimum CL
Functionally linked land						
Briddlesford Copses SAC	Woodland	2.879	0.012	0.4%	0.008	0.3%

Table 4-8 Study results: maximum modelled contribution from Do Minimum scenario to acid deposition at standalone SSSIs

Site name	Primary vegetation type (grassland or woodland)	Minimum critical load (kEq/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 kEq/ha-year	as % of minimum CL	in kEq/ha-year	as % of minimum CL
Alverstone Marshes	Woodland	0.733	<0.001	<0.1%	<0.001	<0.1%
America Wood	Woodland	1.369	<0.001	<0.1%	<0.001	<0.1%
Arreton Down	Grassland	4.856	0.005	0.1%	0.003	0.1%
Calbourne Down	Grassland	4.856	<0.001	<0.1%	<0.001	<0.1%
Cranmore	Grassland	0.713	<0.001	<0.1%	<0.001	<0.1%
Cridmore Bog	Grassland	0.73	<0.001	<0.1%	<0.001	<0.1%
Eaglehead and Bloodstone Copses	Woodland	4.856	<0.001	<0.1%	<0.001	<0.1%
Freshwater Marshes	Woodland	2.792	0.004	0.1%	0.002	0.1%
Garston's Down	Grassland	1.113	<0.001	<0.1%	<0.001	<0.1%
Greatwood and Cliff Copses	Woodland	1.837	<0.001	<0.1%	<0.001	<0.1%
Lake Allotments	Grassland	0.713	<0.001	<0.1%	<0.001	<0.1%
Locks Farm Meadow	Grassland	2.88	<0.001	<0.1%	<0.001	<0.1%
Northpark Copse	Woodland	2.844	<0.001	<0.1%	<0.001	<0.1%
Parkhurst Forest	Woodland	2.18	0.027	1.2%	0.027	1.2%
Prospect Quarry	Grassland	4.856	<0.001	<0.1%	<0.001	<0.1%
Rew Down	Grassland	0.713	<0.001	<0.1%	<0.001	<0.1%
Rowridge Valley	Woodland	4.856	<0.001	<0.1%	<0.001	<0.1%
Shide Quarry	Grassland	4.856	0.002	<0.1%	0.001	<0.1%
St Lawrence Bank	Grassland	0.713	<0.001	<0.1%	<0.001	<0.1%
The Wilderness	Woodland	0.73	<0.001	<0.1%	<0.001	<0.1%

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

Site name	Critical level (µg/m³)	Maximum road contribution (µg/m³)	Maximum contribution as % of CL
European-designated sites			
Briddlesford Copses SAC	30	0.172	0.6%
Isle of Wight Downs SAC [c]	30	0.046	0.2%
Solent & Dorset Coast SPA [b,f,g]	30	0.122	0.4%
Solent & Isle of Wight Lagoons SAC [e]	30	0.027	0.1%
Solent & Southampton Water Ramsar & SPA [d,f,g]	30	0.427	1.4%+
Solent Maritime [c,e]	30	0.087	0.3%
South Wight Maritime SAC [c,e]	30	0.030	0.1%
Underlying SSSIs			
Bembridge Down [c,g]	30	0.006	<0.1%
Bonchurch Landslips [g]	30	<0.001	<0.1%
Bouldnor and Hamstead Cliffs [c,f]	30	0.004	<0.1%
Brading Marshes to St. Helen's Ledges [d,e,g]	30	0.071	0.2%
Briddlesford Copses [a]	30	0.132	0.4%
Compton Chine to Steephill Cove [b,c,g]	30	0.027	0.1%
Compton Down [b,c,g]	30	0.016	0.1%
Headon Warren and West High Down [b,c,g]	30	0.002	<0.1%
King's Quay Shore [e,f]	30	0.006	<0.1%
Medina Estuary [e,f]	30	0.056	0.2%
Mottistone Down [b]	30	0.004	<0.1%
Newtown Harbour [e,f]	30	0.023	0.1%
Ryde Sands and Wootton Creek [e]	30	0.277	0.92%
Thorness Bay [e,f]	30	0.005	<0.1%
Ventnor Downs [b]	30	0.002	<0.1%
Whitecliff Bay and Bembridge Ledges [c,e,g]	30	0.004	<0.1%
Yar Estuary [c,e,f]	30	0.076	0.3%

*These designated sites also overlap with: [a] Briddlesford Copses SAC [b] Isle of Wight Downs SAC [c] Solent & Dorset Coast SPA [d] Solent & Isle of Wight Lagoons SAC [e] Solent & Southampton Water Ramsar & SPA [f] Solent Maritime SAC [g] South Wight Maritime SAC. Values highlighted in yellow exceed 1% of the critical load
[+] The value here is the in-combination effect of the current study and the recovery from waste site, it has since been investigated that these do not occur at the same location and therefore are not additive and do not lead to an exceedance (see Section 4.2.1.5)

Table 4-10: Study results: maximum modelled contribution from Do Minimum scenario to airborne NOx at functionally linked land

Site name	Critical level (µg/m^3)	Maximum road contribution (µg/m^3)	Maximum contribution as % of CL
Functionally linked land			
Briddlesford Copses SAC	30	0.236	0.8%

Table 4-11 Study results: maximum modelled contribution from Do Minimum scenarios to airborne NOx at standalone SSSIs

Site name	Critical level (µg/m^3)	Maximum road contribution (µg/m^3)	Maximum contribution as % of CL
Alverstone Marshes	30	0.006	<0.1%
America Wood	30	0.003	<0.1%
Arreton Down	30	0.094	0.3%
Calbourne Down	30	0.004	<0.1%
Cranmore	30	0.004	<0.1%
Cridmore Bog	30	0.002	<0.1%
Eaglehead and Bloodstone Copses	30	0.008	<0.1%
Freshwater Marshes	30	0.121	0.4%
Garston's Down	30	0.003	<0.1%
Greatwood and Cliff Copses	30	0.001	<0.1%
Lake Allotments	30	0.003	<0.1%
Locks Farm Meadow	30	0.002	<0.1%
Northpark Copse	30	0.002	<0.1%
Parkhurst Forest	30	0.257	0.9%
Prospect Quarry	30	0.005	<0.1%
Rew Down	30	0.001	<0.1%

Site name	Critical level (µg/m^3)	Maximum road contribution (µg/m^3)	Maximum contribution as % of CL
Rowridge Valley	30	0.003	<0.1%
Shide Quarry	30	0.071	0.2%
St Lawrence Bank	30	0.001	<0.1%
The Wilderness	30	0.003	<0.1%

Table 4-12 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 (µg/m^3)	Maximum road contribution from Do Minimum scenario	
		in µg/m^3	as % of minimum CL
European-designated sites			
Briddlesford Copses SAC	3	0.006	0.2%
Isle of Wight Downs SAC [c]	1	0.001	0.1%
Solent & Dorset Coast SPA [b,f,g]	3	0.004	0.1%
Solent & Isle of Wight Lagoons SAC [e]	3	0.002	0.1%
Solent & Southampton Water Ramsar & SPA [d,f,g]	3	0.004	0.1%
Solent Maritime [c,e]	3	0.004	0.1%
South Wight Maritime SAC [c,e]	3	<0.001	<0.1%
Underlying SSSIs			
Bembridge Down [c,g]	3	<0.001	<0.1%
Bonchurch Landslips [g]	1	<0.001	<0.1%
Bouldnor and Hamstead Cliffs [c,f]	1	<0.001	<0.1%
Brading Marshes to St. Helen's Ledges [d,e,g]	1	0.004	0.4%
Briddlesford Copses [a]	3	0.006	0.2%
Compton Chine to Steephill Cove [b,c,g]	1	0.002	0.2%
Compton Down [b,c,g]	1	0.001	0.1%
Headon Warren and West High Down [b,c,g]	1	<0.001	<0.1%
King's Quay Shore [e,f]	3	<0.001	<0.1%
Medina Estuary [e,f]	3	0.002	0.1%

Site name	Critical level (µg/m³)	Maximum road contribution from Do Minimum scenario	
		in µg/m³	as % of minimum CL
Mottistone Down [b]	1	<0.001	<0.1%
Newtown Harbour [e,f]	3	0.001	<0.1%
Ryde Sands and Wootton Creek [e]	3	0.004	0.1%
Thorness Bay [e,f]	1	<0.001	<0.1%
Ventnor Downs [b]	1	<0.001	<0.1%
Whitecliff Bay and Bembridge Ledges [c,e,g]	3	<0.001	<0.1%
Yar Estuary [c,e,f]	3	0.004	0.1%

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

Table 4-13: Study results: maximum modelled contribution from Do Minimum scenario to airborne ammonia (NH_3) at functionally linked land

Site name	Critical level (µg/m³)	Maximum road contribution from Do Minimum scenario	
		in µg/m³	as % of minimum CL
European-designated sites			
Briddlesford Copses SAC	3	0.018	0.6%

Table 4-14 Study results: maximum modelled contribution from Do Minimum scenario to airborne ammonia (NH_3) at standalone SSSI sites

Site name	Critical level (µg/m³)	Maximum road contribution from Do Minimum scenario	
		in µg/m³	as % of minimum CL
Alverstone Marshes	1	<0.001	<0.1%
America Wood	1	<0.001	<0.1%
Arreton Down	3	0.007	0.2%
Calbourne Down	3	<0.001	<0.1%
Cranmore	3	<0.001	<0.1%
Cridmore Bog	3	<0.001	<0.1%
Eaglehead and Bloodstone Copses	3	<0.001	<0.1%
Freshwater Marshes	3	0.005	0.2%
Garston's Down	1	<0.001	<0.1%

Site name	Critical level (µg/m^3)	Maximum road contribution from Do Minimum scenario	
		in µg/m^3	as % of minimum CL
Greatwood and Cliff Copses	1	<0.001	<0.1%
Lake Allotments	3	<0.001	<0.1%
Locks Farm Meadow	3	<0.001	<0.1%
Northpark Copse	1	<0.001	<0.1%
Parkhurst Forest	1	<0.001	<0.1%
Prospect Quarry	3	<0.001	<0.1%
Rew Down	1	<0.001	<0.1%
Rowridge Valley	3	<0.001	<0.1%
Shide Quarry	1	0.002	0.2%
St Lawrence Bank	3	<0.001	<0.1%
The Wilderness	3	<0.001	<0.1%

4.2 Results summary by designated site

4.2.1 European-designated sites

4.2.1.1 Briddlesford Copses (SAC)

Underlying Sites of Special Scientific Interest (SSSI): Briddlesford Copses SSSI.

Qualifying features associated with this site include: **1323 Bechstein`s bat *Myotis bechsteinii***. The Briddlesford Copse complex of woodlands represents the most varied, structurally diverse and species-rich cluster of ancient broadleaved woodland on the Isle of Wight and supports an important breeding population of the rare Bechstein's bat. The bats use holes and crevices in mature trees for roosting and the interconnecting woodlands for feeding.

The Site Improvement Plan for the SAC (SIP029) states that nitrogen deposition has been identified as a pressure.

The conservation objectives stated for this site are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of the habitats of qualifying species,
- The structure and function of the habitats of qualifying species,
- The supporting processes on which the habitats of qualifying species rely,
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects of the proposed development on this European site, and therefore no further HRA stages are required for air quality impacts.

4.2.1.1.1 Briddlesford Copses functionally linked land

The functionally linked land associated with Briddlesford Copses predicts exceedances of nitrogen deposition using forest and grassland deposition rates. As the habitat of interest is woodland the nitrogen deposition as a result of the forest deposition rates have been investigated. Table 4-4 presents the maximum nitrogen deposition value to be 0.174 kgN/ha/year which corresponds to 1.7% of the minimum CL. Figure 4.1 illustrates the areas in which the exceedances occur, this is overlayed with the outline of the functionally linked land to show the relative spatial distribution of the exceedances. There are two locations which show exceedances. The area towards the west outlined in red shows impacts of an adjacent road encroaching on an area of woodland. The second area towards the east of the map outlined in dark blue shows a road dissecting a woodland area which has resulted in exceedances within the habitat itself.

The areas predicted to exceed the screening thresholds correspond to: thin bands of mixed deciduous woodland on either side of Stroud Wood Road and extending up to 8 m into the functionally linked land, and a very thin band of mixed deciduous woodland north of Lushington Hill Road and extending up to 2 m across the southern boundary of the functionally linked land.

On the basis of available evidence and agreed thresholds, it is not possible to rule out the potential for significant effects at this location as a result of the proposed development. It is important to note that

the conservative assumptions made during this study as mentioned in Section 3.2.3 are more likely to result in over-estimates rather than under-estimates of impacts. However, to ensure all significant impacts associated with the development can be ruled out, a more detailed assessment is recommended.

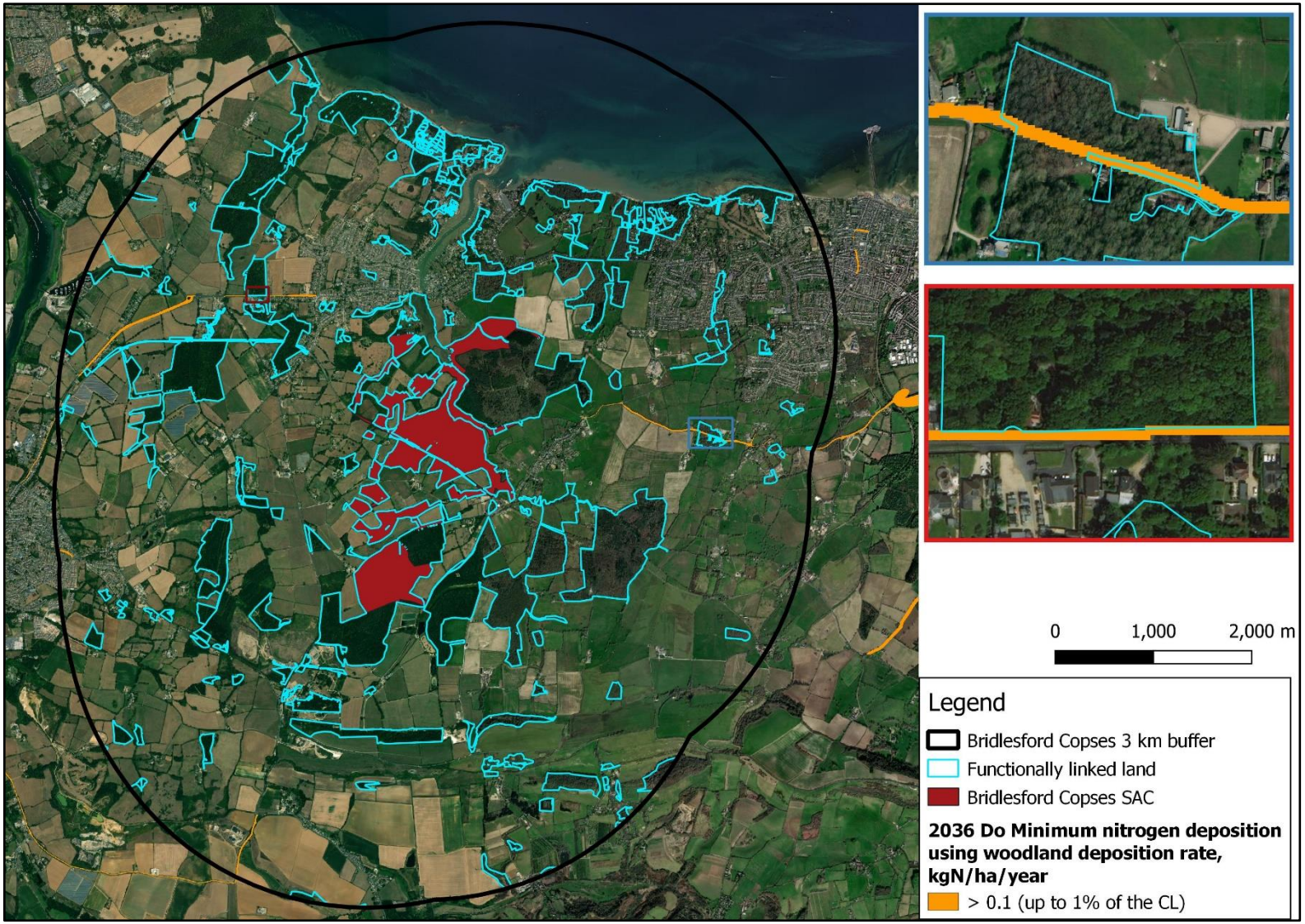

Figure 4.1: Nitrogen deposition (woodland deposition rate) exceedances of 1% of the minimum CL for Briddlesford Copses functionally linked land

4.2.1.2 Isle of Wight Downs (SAC)

Underlying Sites of Special Scientific Interest (SSSI): Compton Chine to Steephill Cove SSSI Compton Down SSSI Ventnor Downs SSSI Mottistone Down SSSI and Headon Warren & West High Down SSSI.

Qualifying features associated with this site include: **1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts, 4030 European dry heaths, 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) and 1654 Early gentian *Gentianella anglica*.**

The Site Improvement Plan for the SAC (SIP111) states that nitrogen deposition has been identified as a threat.

The conservation objectives stated for this site are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species,
- The structure and function (including typical species) of qualifying natural habitats,
- The structure and function of the habitats of qualifying species,
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely,
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects of the proposed development on this European site, and therefore no further HRA stages are required for air quality impacts.

4.2.1.3 Solent & Dorset Coast (SPA)

Underlying Sites of Special Scientific Interest (SSSI): South Dorset Coast SSSI, Townsend SSSI, Purbeck Ridge (West & East) SSSI, Studland Cliffs SSSI, Studland & Godlingson SSSI, Poole Bay Cliffs SSSI, Christchurch Harbour SSSI, Avon Valley (Bickton to Christchurch) SSSI, River Avon SSSI, Christchurch Harbour SSSI, Highcliffe to Milford Cliffs SSSI, Hurst Castle and Lymington River Estuary SSSI, North Solent SSSI, Dibden Bay SSSI, Hythe to Calshot Marshes SSSI, Lee-on-Solent to Itchen Estuary SSSI, Titchfield Haven SSSI, Browndown SSSI, Portsmouth Harbour SSSI, Chichester Harbour SSSI, Langstone Harbour SSSI, Sinah Common SSSI, Bracklesham Bay SSSI, Pagham Harbour SSSI, Bognor Reef SSSI, Compton Chine to Steephill Cove SSSI, Compton Down SSSI, Headon Warren and West High Down SSSI, Colwell Bay SSSI, Yar Estuary SSSI, Bouldnor and Hamstead Cliffs SSSI, Newtown Harbour SSSI, Thorness Bay SSSI, King's Quay Shore SSSI, Ryde Sands and Wootton Creek SSSI, Brading Marshes to St Helen's Ledges SSSI, Whitecliff Bay and Bembridge Ledges SSSI, Bembridge Down SSSI.

Qualifying and notifiable features associated with this site include: Sandwich tern *Sterna sandvicensis* (4.01% of GB breeding population), common tern *Sterna hirundo* (4.77% of GB breeding population) and little tern *Sterna albifrons* (3.31% of GB breeding population).

As this site is only a new SPA it does not yet have a Site Improvement Plan associated with it. Critical Loads do not apply over the sea where the vast majority of this SPA is located.

The conservation objectives for this site are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

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

This is a new SPA and as such CL values are not yet listed on APIS. A CL value of 30 µg/m^3 for oxides of nitrogen is applicable to all designated sites. A CL value of 3 µg/m^3 was used for ammonia after receiving advice from Natural England.[11] A conservative approach was taken for CL values for nitrogen and acid deposition, based on the lowest CL values listed for these pollutants for any European site within the study area: 8 kgN/ha-year for nitrogen deposition and 0.555 kEq/ha-year for acid deposition.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects of the proposed development on this European site, and therefore no further HRA stages are required for air quality impacts.

4.2.1.4 Solent & Isle of Wight Lagoons (SAC) UK0017073

Underlying Sites of Special Scientific Interest (SSSI): Brading Marshes to St Helen's Ledges SSSI, Langstone Harbour SSSI, Hurst Castle & Lymington River Estuary SSSI, Gilkicker Lagoon SSSI.

Qualifying and notifiable features associated with this site include: **1150 Coastal lagoons.** The Solent on the south coast of England encompasses a series of Coastal lagoons, including percolation, isolated and sluiced lagoons. The site includes a number of lagoons in the marshes in the Keyhaven – Pennington area, at Farlington Marshes in Chichester Harbour, behind the sea-wall at Bembridge Harbour and at Gilkicker, near Gosport. The lagoons show a range of salinities and substrates, ranging from soft mud to muddy sand with a high proportion of shingle, which support a diverse fauna including large populations of three notable species: the nationally rare foxtail stonewort *Lamprothamnium papulosum*, the nationally scarce lagoon sand shrimp *Gammarus insensibilis*, and the nationally scarce starlet sea anemone *Nematostella vectensis*. The lagoons in Keyhaven – Pennington Marshes are part of a network of ditches and ponds within the saltmarsh behind a sea-wall. Farlington Marshes is an isolated lagoon in marsh pasture that, although separated from the sea by a sea-wall, receives sea water during spring tides. The lagoon holds a well-developed low-medium salinity insect-dominated fauna. Gilkicker Lagoon is a sluiced lagoon with marked seasonal salinity fluctuation and supports a high species diversity. The lagoons at Bembridge Harbour have formed in a depression behind the sea-wall and sea water enters by percolation. Species diversity in these lagoons is high and the fauna includes very high densities of *N. vectensis*.

The Site Improvement Plan (SIP 270) states that nitrogen deposition has been identified as a threat. However, evidence presented above confirms that the Island Planning Strategy would not have a significant impact on nitrogen deposition at this site.

The conservation objectives for this site are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats,
- The structure and function (including typical species) of qualifying natural habitats, and,

- The supporting processes on which qualifying natural habitats rely.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects of the proposed development on this European site, and therefore no further HRA stages are required for air quality impacts.

4.2.1.5 Solent & Southampton Water (Ramsar) UK11063

Underlying Sites of Special Scientific Interest (SSSI): Brading Marshes to St. Helen's Ledges SSSI, Eling and Bury Marshes SSSI, Hurst Castle and Lymington River Estuary SSSI, Hythe to Calshot Marshes SSSI, King's Quay Shore SSSI, Lee-on-The-Solent to Itchen Estuary SSSI, Lincegrove and Hackett's Marshes SSSI, Lower Test Valley SSSI, Lymington River Reedbeds SSSI, Medina Estuary SSSI, Newtown Harbour SSSI, North Solent SSSI, Ryde Sands and Wootton Creek SSSI, Sowley Pond SSSI, Thorness Bay SSSI, Titchfield Haven SSSI, Upper Hamble Estuary and Woods SSSI, Whitecliff Bay and Bembridge Ledges SSSI, Yar Estuary SSSI.

Qualifying and notifiable features associated with this site include:

Ramsar Criterion 1: The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs.

Ramsar Criterion 2: The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site.

Ramsar Criterion 5: Assemblages of international importance:

Species with peak counts in winter:	
51343 waterfowl	(5 year peak mean 1998/99-2002/2003)

Ramsar Criterion 6: Species/populations occurring at levels of international importance.

Species with peak counts in spring/autumn:	
Ringed plover, *Charadrius hiaticula*, Europe/Northwest Africa	397 individuals, representing an average of 1.2% of the GB population (5 year peak mean 1998/92002/3)
Species with peak counts in winter:	
Dark-bellied brent goose, *Branta bernicla*	6456 individuals, representing an average of 3% of the population (5 year peak mean 1998/92002/3)
Eurasian teal, *Anas crecca*, NW Europe	5514 individuals, representing an average of 1.3% of the population (5 year peak mean 1998/9-2002/3)
Black-tailed godwit, *Limosa limosa islandica*, Iceland/W Europe	1240 individuals, representing an average of 3.5% of the population (5 year peak mean 1998/9-2002/3)

The Site Improvement Plan for the overlapping SPA (Solent SIP043) states that nitrogen deposition has been identified as a pressure. However, evidence presented above confirms that the Island Planning Strategy would not have a significant impact on nitrogen deposition at this site. Ramsar sites do not have Site Improvement Plans or Conservation objectives.

Areas of Solent & Southampton Water (Ramsar & SPA) overlap with Solent Maritime (SAC). Please see Section 4.2.1.7 below.

This designated site was only predicted to exceed the screening thresholds for NOx contributions and acid deposition using both grassland and woodland deposition rates.

4.2.1.5.1 Acid deposition exceedance

The cause of the exceedance is due to the recovery from waste plant located within Newport which provides a maximum Process Contribution (PC) of 0.0078 kEqH+/ha/year. This results in an exceedance of the relevant 1% threshold alone. For the purpose of this study Table 4-6 combined this value with the maximum PC of this study, 0.0052 kEqH+/ha/year and 0.0029 kEqH+/ha/year using a woodland and grassland deposition rate respectively. It is important to note that the maximum value taken from the recovery from waste report[5] does not coincide with the maximum value calculated in this present study, see below for details on locations.

The maximum PC from the recovery from waste plant occurs close to the River Medina, located on grassland near a roundabout on Riverway road. This maximum contribution from the development considered in this study (0.0013 kEqH+/ha/year, grassland deposition rate) at the location of the recovery from waste plant maximum PC falls well below the 1% threshold and therefore the development contribution as a result of this study is insignificant. The location of the exceedance resulting from the energy from waste plant had been further investigated by Jacobs with the following extract:

The projects ecologists have advised that in this area of the SPA / Ramsar there is unlikely to be sufficient suitable habitat for breeding birds. As for wintering birds the projects ecologists have advised that there is some potential for small numbers to be found on the nearby mudflats but, given that the site is located within Newport any birds present are likely to be frequently disturbed by walkers or nearby commercial or industrial activities. Therefore, it is unlikely that there would be species of wintering or breeding birds present at this small area of Solent and Southampton Water SPA / Ramsar that would be susceptible to acid deposition.

The location of the maximum calculated acid deposition rate for woodland and grassland deposition velocities, for the vehicle emissions considered in this study, occurs at the marina located close to Kite Hill road near Wootton Bridge. This is approximately 5 km away from the recovery from waste plant and therefore the PC from the recovery from waste plant would be expected to be reduced to an insignificant amount at this location.

On the basis of available evidence and agreed thresholds, there are no likely significant effects of the proposed development on this European site, and therefore no further HRA stages are required for air quality impacts.

4.2.1.5.2 Airborne NOx exceedance

As with the acid deposition exceedance, this is caused by the in-combination effect of the vehicle emissions considered in this study and the recovery from waste plant. Again, the maximum PC for both contributions is not co-located and therefore it is highly likely that the impacts will be insignificant. The Predicted Environmental Concentration (PEC) has also been calculated at both locations the maximum PC occurs in each study. This has been done by adding the 2030 background NOx to the recovery from waste plant and this study's NOx development contribution. In both cases the PEC is less than 70% of the of the long-term air quality objective, which is 30 µg/m^3.

On the basis of available evidence and agreed thresholds, there are no likely significant effects of the proposed development on this European site, and therefore no further HRA stages are required for air quality impacts.

4.2.1.6 Solent & Southampton Water (SPA) UK9011061

Underlying Sites of Special Scientific Interest (SSSI): Brading Marshes to St. Helen's Ledges SSSI, Eling and Bury Marshes SSSI, Hurst Castle and Lymington River Estuary SSSI, Hythe to Calshot Marshes SSSI, King's Quay Shore SSSI, Lee-on-The-Solent to Itchen Estuary SSSI, Lincegrove and

Hackett's Marshes SSSI, Lower Test Valley SSSI, Lymington River Reedbeds SSSI, Medina Estuary SSSI, Newtown Harbour SSSI, North Solent SSSI, Ryde Sands and Wootton Creek SSSI, Sowley Pond SSSI, Thorness Bay SSSI, Titchfield Haven SSSI, Upper Hamble Estuary and Woods SSSI, Whitecliff Bay and Bembridge Ledges SSSI, Yar Estuary SSSI.

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

During the breeding season:	
Common Tern *Sterna hirundo*	267 pairs representing at least 2.2% of the breeding population in Great Britain (5 year peak mean, 1993-1997)
Little Tern *Sterna albifrons*	49 pairs representing at least 2.0% of the breeding population in Great Britain (5 year peak mean, 1993-1997)
Mediterranean Gull *Larus melanocephalus*	2 pairs representing at least 20.0% of the breeding population in Great Britain (5 year peak mean, 1994-1998)
Roseate Tern *Sterna dougallii*	2 pairs representing at least 3.3% of the breeding population in Great Britain (5 year peak mean, 1993-1997)
Sandwich Tern *Sterna sandvicensis*	231 pairs representing at least 1.7% of the breeding population in Great Britain (5 year peak mean, 1993-1997)

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

Over winter:	
Black-tailed Godwit *Limosa limosa* islandica	1,125 individuals representing at least 1.6% of the wintering Iceland - breeding population (5 year peak mean, 1992/3-1996/7)
Dark-bellied Brent Goose *Branta bernicla bernicla*	7,506 individuals representing at least 2.5% of the wintering Western Siberia/Western Europe population (5 year peak mean, 1992/3-1996/7)
Ringed Plover *Charadrius hiaticula*	552 individuals representing at least 1.1% of the wintering Europe/Northern Africa - wintering population (5 year peak mean, 1992/3-1996/7)
Teal *Anas crecca*	4,400 individuals representing at least 1.1% of the wintering Northwestern Europe population (5 year peak mean, 1992/3-1996/7)

Assemblage qualification: A wetland of international importance. The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.

Over winter, the area regularly supports 53,948 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Gadwall *Anas strepera*, Teal *Anas crecca,* Ringed Plover *Charadrius hiaticula*, Black-tailed Godwit *Limosa limosa islandica*, Little Grebe *Tachybaptus ruficollis*, Great Crested Grebe *Podiceps cristatus*, Cormorant *Phalacrocorax carbo*, Dark-bellied Brent Goose *Branta bernicla bernicla*, Wigeon *Anas penelope*, Redshank *Tringa totanus*, Pintail *Anas acuta*, Shoveler *Anas clypeata*, Red-breasted Merganser *Mergus serrator*, Grey Plover *Pluvialis squatarola*, Lapwing *Vanellus vanellus*, Dunlin *Calidris alpina alpina*, Curlew *Numenius arquata*, Shelduck *Tadorna tadorna*.

The Site Improvement Plan for the SPA (Solent SIP043) states that nitrogen deposition has been identified as a pressure. However, evidence presented above confirms that the Island Planning Strategy would not have a significant impact on nitrogen deposition at this site.

Areas of Solent & Southampton Water (Ramsar & SPA) overlap with Solent Maritime (SAC). Please see Section 4.2.1.7 below.

The conservation objectives for this site are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

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

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects of the proposed development on this European site, and therefore no further HRA stages are required for air quality impacts.

4.2.1.7 Solent Maritime (SAC) UK0030059

Underlying Sites of Special Scientific Interest (SSSI): Hythe to Calshot Marshes SSSI, Lee-on-the Solent to Itchen Estuary SSSI, Upper Hamble Estuary & Woods SSSI, Bouldnor & Hamstead Cliffs SSSI, Newtown Harbour SSSI, Bracklesham Bay SSSI, Chichester Harbour SSSI, North Solent SSSI, Lower Test Valley SSSI, Langstone Harbour SSSI, Thorness Bay SSSI, Hurst Castle & Lymington River Estuary SSSI, Yar Estuary SSSI, Medina Estuary SSSI, King's Quay Shore SSSI, Eling & Bury Marshes SSSI, Lincegrove & Hackett's Marshes SSSI.

Qualifying and notifiable features associated with this site include: **1130 Estuaries**, **1320 Spartina swards (Spartinion maritimae)**, **1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)**, **1110 Sandbanks which are slightly covered by sea water all the time**, **1140 Mudflats and sandflats not covered by seawater at low tide**, **1150 Coastal lagoons**, **1210 Annual vegetation of drift lines**, **1220 Perennial vegetation of stony banks**, **1310 Salicornia and other annuals colonizing mud and sand**, **2120 "Shifting dunes along the shoreline with Ammophila arenaria (""white dunes"")"**, **1016 Desmoulin`s whorl snail *Vertigo moulinsiana***

The Site Improvement Plan for the SPA (Solent SIP043) states that nitrogen deposition has been identified as a pressure. However, evidence presented above confirms that the Island Planning Strategy would not have a significant impact on nitrogen deposition at this site.

The conservation objectives for this site are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species,
- The structure and function (including typical species) of qualifying natural habitats,
- The structure and function of the habitats of qualifying species,
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely,
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects of the proposed development on this European site, and therefore no further HRA stages are required for air quality impacts.

4.2.1.8 South Wight Maritime (SAC) UK0030061

Underlying Sites of Specieal Scientific Interest (SSSI): Compton Chine to Steephill Cove SSSI Brading Marshes to St Helen's Ledges SSSI Compton Down SSSI Bonchurch Landslips SSSI, Bembridge Down SSSI Whitecliff Bay & Bembridge Ledges SSSI and Headon Warren & West High Down SSSI.

Qualifying features associated with this site include: **1170 Reefs, 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts, 8330 Submerged or partially submerged sea caves.**

The Site Improvement Plan for the SAC (SIP271) does not state that air pollution has been identified as a pressure or threat.

Ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the Favourable Conservation Status of its qualifying features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of the qualifying species,
- The structure and function (including typical species) of qualifying natural habitats,
- The structure and function of the habitats of the qualifying species,
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely,
- The populations of qualifying species, and,
- The distribution of qualifying species within the site,

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects of the proposed development on this European site, and therefore no further HRA stages are required for air quality impacts.

4.2.2 Underlying SSSIs

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

4.2.2.1 Bembridge Down SSSI[12] [c,g]

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland, EC - Aptian – Albian, EC - Cenomanian-Maastrichtian, EC - Jurassic - Cretaceous Reptilia, EC - Post-Variscan structures, EC – Wealden, MC11 - *Festuca rubra - Daucus carota* ssp. *gummifer* maritime grassland, MC4 - *Brassica oleracea* maritime cliff-ledge community and MC8 - *Festuca rubra - Armeria maritima* maritime grassland and vascular plant assemblage.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

[12] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004298.pdf

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.2 Bonchurch Landslips SSSI[13] [g]

Notified features associated with this site include: Combinations of species – bryophytes, combinations of species – lichens and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.3 Bouldnor and Hamstead Cliffs SSSI[14] [c,f]

Notified features associated with this site include: EC – Aves, EC – palaeoentomology, EC – Palaeogene, EC - Tertiary mammalia, EC - Tertiary palaeobotany, EC - Tertiary reptilia, soft maritime cliff and slope, W10 - *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.4 Brading Marshes to St. Helen's Ledges SSSI[15] [d,e,g]

Notified features associated with this site include: Aggregations of non-breeding birds - black-tailed godwit, *Limosa limosa islandica*, aggregations of non-breeding birds - brent goose (dark-bellied), Branta *bernicla bernicla*, aggregations of non-breeding birds - cormorant, *Phalacrocorax carbo*, aggregations of non-breeding birds - curlew, *Numenius arquata*, aggregations of non-breeding birds - dunlin, *Calidris alpina alpine*, aggregations of non-breeding birds - gadwall, *Anas strepera*, aggregations of non-breeding birds - grey plover, *Pluvialis squatarola,* aggregations of non-breeding birds - little grebe, *Tachybaptus ruficollis*, aggregations of non-breeding birds - redshank, *Tringa tetanus*, aggregations of non-breeding birds - ringed plover, *Charadrius hiaticula*, aggregations of non-breeding birds - shelduck, *Tadorna tadorna*, aggregations of non-breeding birds - shoveler*, Anas clypeata*, aggregations of non-breeding birds - teal, *Anas crecca*, aggregations of non-breeding birds - wigeon, *Anas Penelope,* assemblages of breeding birds - lowland damp grasslands, assemblages of breeding birds - lowland open waters and their margins, EC – palaeoentomology, FM – palaeoentomology, invertebrate assemblage, lowland ditch systems, M22 - *Juncus subnodulosus - Cirsium palustre* fen meadow, M23 - *Juncus effusus/acutiflorus - Galium palustre* rush pasture, MG11 - *Festuca rubra - Agrostis stolonifera - Potentilla anserina* grassland, MG5 - *Cynosurus cristatus - Centaurea nigra* grassland, saline coastal lagoons, SD1 - Rumex crispus - Glaucium flavum shingle community, SD12 - Carex arenaria - *Festuca ovina - Agrostis capillaris* dune grassland, SD2 - *Cakile maritima-Honkenya peploides* strandline community, SD4 - *Elymus farctus* ssp. *Boreali-atlanticus* foredune community, sheltered muddy shores (including estuarine muds), sheltered rocky shores (predominately sheltered to very sheltered from wave action), SM14 - Atriplex portulacoides saltmarsh, SM16a - Festuca rubra saltmarsh *Puccinellia maritima* sub-community, SM18 - *Juncus maritimus* saltmarsh, SM24 - *Elytrigia atherica* saltmarsh, U1 b,c,d,f - *Festuca ovina - Agrostis capillaris - Rumex acetosella* grassland, U2 - *Deschampsia flexuosa*

[13] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004312.pdf

[14] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004338.pdf

[15] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000221.pdf

grassland, vascular plant assemblage, and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.5 Briddlesford Copses SSSI[16] [a]

Notified features associated with this site include: Maternity colonies of bats - Bechstein's bat, *Myotis Bechsteinii,* W10 - *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland, W15 - *Fagus sylvatica - Deschampsia flexuosa* woodland, W16 - *Quercus spp.-Betula spp.-Deschampsia flexuosa* woodland, W7 - *Alnus glutinosa - Fraxinus excelsior - Lysimachia nemorum* woodland and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland.*

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.6 Colwell Bay SSSI[17] [c]

Notified features associated with this site include: EC – Palaeogene and EC - Tertiary palaeobotany.

This designated site's qualifying features are not sensitive to air quality impacts, and therefore no further SSSI-specific assessment is required.

4.2.2.7 Compton Chine to Steephill Cove SSSI[18] [b,c,g]

Notified features associated with this site include: CG1 - *Festuca ovina - Carlina vulgaris* lowland calcareous grassland, CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland, CG3 - *Bromus erectus* lowland calcareous grassland, CG4 - *Brachypodium pinnatum* lowland calcareous grassland, CG5 - *Bromus erectus - Brachypodium pinnatum* lowland calcareous grassland, EC - Aptian – Albian, EC - Jurassic - Cretaceous Reptilia, EC - Mesozoic Palaeobotany, EC – Wealden, IA - Coastal Geomorphology, invertebrate assemblage, MC11 - *Festuca rubra - Daucus carota ssp. gummifer* maritime grassland, MC5 - *Armeria maritima - Cerastium diffusum ssp. diffusum* maritime therophyte community, MC8 - *Festuca rubra - Armeria maritima* maritime grassland, MC9 - *Festuca rubra - Holcus lanatus* maritime grassland, moderately exposed rocky shores, population of RDB liverwort - *Cephaloziella baumgartneri*, chalk threadwort, population of Schedule 8 liverwort - *Southbya nigrella*, blackwort, population of Schedule 8 moss - *Acaulon triquetrum,* triangular pygmy-moss, population of Schedule 8 plant - *Melampyrum arvense,* field cow-wheat and vascular plant assemblage.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

[16] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000554.pdf

[17] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004379.pdf

[18] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000471.pdf

4.2.2.8 Compton Down SSSI[19] b,c,g

Notified features associated with this site include: CG1 - *Festuca ovina - Carlina vulgaris* lowland calcareous grassland, CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland, EC - Cenomanian-Maastrichtian, invertebrate assemblage, MC1 - *Crithmum maritimum - Spergularia rupicola* maritime rock-crevice community, MC11 - *Festuca rubra - Daucus carota ssp. gummifer* maritime grassland, MC4 - *Brassica oleracea* maritime cliff-ledge community and vascular plant assemblage.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.9 Headon Warren and West High Down SSSI[20] b,c,g

Notified features associated with this site include: CG1 - *Festuca ovina - Carlina vulgaris* lowland calcareous grassland, CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland, CG3 - *Bromus erectus* lowland calcareous grassland, combinations of species – lichens, EC – Palaeogene, EC - Tertiary mammalia, EC - Tertiary palaeobotany, EC - Tertiary reptilia, H2 - *Calluna vulgaris - Ulex minor* heath, MC1 - *Crithmum maritimum - Spergularia rupicola* maritime rock-crevice community, MC11 - *Festuca rubra - Daucus carota ssp. gummifer* maritime grassland, MC4 - *Brassica oleracea* maritime cliff-ledge community, MC8 - *Festuca rubra - Armeria maritima* maritime grassland, MG5 - Cynosurus cristatus - Centaurea nigra grassland, U1 b,c,d,f - *Festuca ovina - Agrostis capillaris - Rumex acetosella* grassland and vascular plant assemblage.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.10 King's Quay Shore SSSI[21] e,f

Notified features associated with this site include: EC - Mesozoic - Tertiary Fish/Amphibia, EC - Tertiary palaeobotany, FM - Mesozoic - Tertiary fish/amphibia, FM - Tertiary palaeobotany, MC8 - *Festuca rubra - Armeria maritima* maritime grassland, MC9 - *Festuca rubra - Holcus lanatus* maritime grassland, S12 - *Typha latifolia* swamp, S4 - *Phragmites australis* swamp and reed-beds, SD2 - *Honkenya peploides - Cakile maritima* strandline community, sheltered muddy shores (including estuarine muds), SM14 - *Atriplex portulacoides* saltmarsh, SM15 - *Juncus maritimus - Triglochin maritima* saltmarsh, SM24 - *Elytrigia atherica* saltmarsh, SM6 - *Spartina anglica* saltmarsh, vascular plant assemblage, W10 - *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland, W11 - *Quercus petraea - Betula pubescens - Oxalis acetosella* woodland, W16 - *Quercus spp.-Betula spp.-Deschampsia flexuosa* woodland, W6 - *Alnus glutinosa* - Urtica dioica woodland and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

[19] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004388.pdf

[20] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000546.pdf

[21] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000559.pdf

4.2.2.11 Medina Estuary SSSI[22] e,f

Notified features associated with this site include: aggregations of non-breeding birds - black-tailed, godwit, *Limosa limosa islandica*, aggregations of non-breeding birds - brent goose (dark-bellied), *Branta bernicla bernicla*, aggregations of non-breeding birds - cormorant, *Phalacrocorax carbo*, aggregations of non-breeding birds - curlew, *Numenius arquata*, aggregations of non-breeding birds - dunlin, *Calidris alpina alpine*, aggregations of non-breeding birds - gadwall, *Anas Strepera*, aggregations of non-breeding birds - grey plover, *Pluvialis squatarola*, aggregations of non-breeding birds - little grebe, *Tachybaptus ruficollis*, aggregations of non-breeding birds - redshank, *Tringa tetanus*, aggregations of non-breeding birds - ringed plover, *Charadrius hiaticula*, aggregations of non-breeding birds - shelduck, *Tadorna tadorna*, aggregations of non-breeding birds - shoveler, *Anas clypeata,* aggregations of non-breeding birds - teal, *Anas crecca*, aggregations of non-breeding birds - wigeon, *Anas Penelope*, sheltered muddy shores (including estuarine muds), SM10 - transitional low marsh vegetation with *Puccinellia maritima*, annual salicornia species and *Suaeda maritima*, SM13a - *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community, SM14 - *Atriplex portulacoides* saltmarsh, SM16a - *Festuca rubra* saltmarsh *Puccinellia maritima* sub-community, SM24 - *Elytrigia atherica* saltmarsh, SM26 - *Inula crithmoides* stands, SM28 - *Elytrigia repens* saltmarsh, SM6 - *Spartina anglica* saltmarsh, SM9 - *Suaeda maritima* saltmarsh, vascular plant assemblage, W5 - *Al*nus *glutinosa - Carex paniculata* woodland, and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.12 Mottistone Down SSSI[23] b

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland, CG3 - *Bromus erectus* lowland calcareous grassland, population of Schedule 8 plant - *Gentianella anglica*, early gentian and U1e - *Festuca ovina - Agrostis capillaris - Rumex acetosella* lowland acid grassland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.13 Newtown Harbour SSSI[24] e,f

Notified features associated with this site include: >20,000 non-breeding waterbirds, aggregations of breeding birds - black-headed gull, *Larus ridibundus*, aggregations of breeding birds - common tern, *Sterna hirundo*, aggregations of breeding birds - little tern, *Sterna albifrons*, aggregations of breeding birds - sandwich tern, *Sterna sandvicensis*, aggregations of non-breeding birds - black-tailed godwit, *Limosa limosa* islandica, aggregations of non-breeding birds - brent goose (dark-bellied), *Branta bernicla bernicla*, invertebrate assemblage, MC8 - *Festuca rubra - Armeria maritima* maritime grassland, MC9 - *Festuca rubra - Holcus lanatus* maritime grassland, MG5 - *Cynosurus cristatus - Centaurea nigra* grassland, saline coastal lagoons, SM10 - transitional low marsh vegetation with *Puccinellia maritima*, annual Salicornia species and *Suaeda maritima*, SM13a - *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community, SM14 - *Atriplex portulacoides* saltmarsh,

[22] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000578.pdf

[23] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000591.pdf

[24] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004233.pdf

SM7 - *Sarcocornia perennis*, SM8 - annual *Salicornia* saltmarsh, SM9 - *Suaeda maritima* saltmarsh, vascular plant assemblage and W8 - *Fraxinus excelsior - acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.14 Ryde Sands and Wootton Creek SSSI[25] [e]

Notified features associated with this site include: aggregations of non-breeding birds - sanderling, *Calidris alba*, moderately exposed sandy shores (with polychaetes and bivalves), population of Schedule 8 stonewort - *Lamprothamnium papulosum*, foxtail stonewort, saline coastal lagoons, sheltered muddy shores (including estuarine muds), SM1 - *Zostera* communities, vascular plant assemblage and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.15 Thorness Bay SSSI[26] [e,f]

Notified features associated with this site include: aggregations of non-breeding birds - brent goose, (dark-bellied), *Branta bernicla bernicla*, aggregations of non-breeding birds - curlew, *Numenius arquata*, aggregations of non-breeding birds - dunlin, *Calidris alpina alpine*, aggregations of non-breeding birds - grey plover, *Pluvialis squatarola*, aggregations of non-breeding birds - ringed plover, *Charadrius hiaticula,* aggregations of non-breeding birds - shelduck, *Tadorna tadorna*, aggregations of non-breeding birds - shoveler, *Anas clypeata*, aggregations of non-breeding birds - teal, *Anas crecca*, aggregations of non-breeding birds - turnstone, *Arenaria interpres*, aggregations of non-breeding birds - wigeon, *Anas Penelope*, EC – palaeoentomology, EC – Palaeogene, EC - Tertiary palaeobotany, moderately exposed sandy shores (with polychaetes and bivalves), S21 - *Scirpus maritimus* swamp, S25 - *Phragmites australis - Eupatorium cannabinum* tall-herb fen, S4 - *Phragmites australis* swamp and reed-beds, SD1 - *Rumex crispus - Glaucium flavum* shingle community, SD2 - *Honkenya peploides - Cakile maritim*a strandline community, SD3 - *Matricaria maritima - Galium aparine* strandline community, SM13a - *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community, SM14 - *Atriplex portulacoides* saltmarsh, SM16b - *Festuca rubra* saltmarsh *Juncus gerardii* sub-community, SM24 - *Elytrigia atherica* saltmarsh, SM8 - annual *Salicornia* saltmarsh and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

[25] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000222.pdf

[26] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000022.pdf

4.2.2.16 Ventnor Downs SSSI[27] [b]

Notified features associated with this site include: CG2 - *Festuca ovina* - *Avenula pratensis* lowland calcareous grassland, CG3 - *Bromus erectus* lowland calcareous grassland, H2 - *Calluna vulgaris* - *Ulex minor* heath and H3 - *Ulex minor* - *Agrostis curtisii* heath.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.17 Whitecliff Bay and Bembridge Ledges SSSI[28] [c,e,g]

Notified features associated with this site include: EC – Palaeogene, EC - Tertiary mammalia, EC - Tertiary palaeobotany, MC11 - *Festuca rubra* - *Daucus carota ssp. gummifer* maritime grassland, moderately exposed rocky shores, moderately exposed sandy shores (with polychaetes and bivalves) reefs, SM1 - *Zostera* communities and soft maritime cliff and slope.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.2.18 Yar Estuary SSSI[29] [c,e,f]

Notified features associated with this site include: aggregations of non-breeding birds - black-tailed godwit, *Limosa limosa islandica*, aggregations of non-breeding birds - brent goose (dark-bellied), *Branta bernicla bernicla*, aggregations of non-breeding birds - cormorant, *Phalacrocorax carbo,* aggregations of non-breeding birds - curlew, *Numenius arquata*, aggregations of non-breeding birds - dunlin, *Calidris alpina alpine,* aggregations of non-breeding birds - gadwall, *Anas Strepera*, aggregations of non-breeding birds - grey plover, *Pluvialis squatarola*, aggregations of non-breeding birds - lapwing, *Vanellus vanellus*, aggregations of non-breeding birds - little grebe, *Tachybaptus ruficollis*, aggregations of non-breeding birds - redshank*, Tringa tetanus*, aggregations of non-breeding birds - ringed plover, *Charadrius hiaticula*, aggregations of non-breeding birds - shelduck, *Tadorna tadorna*, aggregations of non-breeding birds - shoveler, *Anas clypeata*, aggregations of non-breeding birds - teal, *Anas crecca*, aggregations of non-breeding birds - wigeon, *Anas Penelope*, invertebrate assemblage, S4 - *Phragmites australis* swamp and reed-beds, saline coastal lagoons, SD19 - *Phleum arenarium* - *Arenaria serpyllifolia* dune annual community, SD2 - *Honkenya peploides* - *Cakile maritima* strandline community, SD4 - *Elymus farctus* ssp. *Boreali-atlanticus* foredune community, SD6 - *Ammophila arenaria* mobile dune community, SD8 - *Festuca rubra* - *Galium verum* fixed dune grassland, sheltered muddy shores (including estuarine muds), SM10 - transitional low marsh vegetation with *Puccinellia maritima*, annual *Salicornia* species and *Suaeda maritima*, SM11 - *Aster tripolium var*. *discoides* – saltmarsh, SM28 - *Elytrigia repens* saltmarsh, SM6 - *Spartina anglica* saltmarsh and vascular plant assemblage.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

[27] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000773.pdf

[28] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000806.pdf

[29] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000838.pdf

4.2.3 Standalone SSSIs

4.2.3.1 Alverstone Marshes SSSI[30]

Notified features associated with this site include: M23 - *Juncus effusus/acutiflorus - Galium palustre* rush pasture, M27 - *Filipendula ulmaria - Angelica sylvestris* mire, S12 - *Typha latifolia* swamp, S26 - *Phragmites australis - Urtica dioica* tall-herb fen, S28 - *Phalaris arundinacea* tall-herb fen, S6 - *Carex riparia* swamp, U1e - *Festuca ovina - Agrostis capillaris - Rumex acetosella* lowland acid grassland, W1 - *Salix cinerea - Galium palustre* woodland, W2 - *Salix cinerea - Betula pubescens - Phragmites australis woodland*, W5 - *Alnus glutinosa - Carex paniculata* woodland, W6 - *Alnus glutinosa - Urtica dioica* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.2 America Wood SSSI[31]

Notified features associated with this site include: W10 - *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.3 Arreton Down SSSI[32]

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland and CG3 - *Bromus erectus* lowland calcareous grassland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.4 Bembridge School and Cliffs SSSI[33]

Notified features associated with this site include: EC - Quaternary of South Central England, FB - Quaternary of South Central England and IS - Quaternary of South Central England.

This designated site's qualifying features are not sensitive to air quality impacts, and therefore no further SSSI-specific assessment is required.

4.2.3.5 Calbourne Down SSSI[34]

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland, CG3 - *Bromus erectus* lowland calcareous grassland, nationally scarce plant -

[30] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004250.pdf

[31] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000687.pdf

[32] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004284.pdf

[33] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000390.pdf

[34] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001068.pdf

Thesium humifusum, bastard-toadflax, population of Schedule 8 plant - *Gentianella anglica*, early gentian, and populations of nationally scarce butterfly species - *Polyommatus bellargus*, adonis blue.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.6 Cranmore SSSI[35]

Notified features associated with this site include: population of Schedule 5 moth - *Acosmetia caliginosa*, reddish buff.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.7 Cridmore Bog SSSI[36]

Notified features associated with this site include: M23 - *Juncus effusus/acutiflorus - Galium palustre* rush pasture, M25 - *Molinia caerulea - Potentilla erecta* mire and S27 - *Carex rostrata - Potentilla palustris* swamp.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.8 Eaglehead and Bloodstone Copses SSSI[37]

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.9 Freshwater Marshes SSSI[38]

Notified features associated with this site include: invertebrate assemblage, S4 - *Phragmites australis* swamp and reed-beds, S6 - *Carex riparia* swamp and W2 - *Salix cinerea - Betula pubescens - Phragmites australis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

[35] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000456.pdf

[36] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000761.pdf

[37] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000622.pdf

[38] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004406.pdf

4.2.3.10 Garston's Down SSSI[39]

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland and U1 b,c,d,f - *Festuca ovina - Agrostis capillaris - Rumex acetosella* grassland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.11 Greatwood and Cliff Copses SSSI[40]

Notified features associated with this site include: W12 - *Fagus sylvatica - Mercurialis peren*nis woodland and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.12 Lacey's Farm Quarry SSSI[41]

Notified features associated with this site include: FB - Tertiary mammalia.

This designated site's qualifying features are not sensitive to air quality impacts, and therefore no further SSSI-specific assessment is required.

4.2.3.13 Lake Allotments SSSI[42]

Notified features associated with this site include: Population of Schedule 8 plant - Fumaria reuteri, Martin's Ramping-fumitory.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.14 Locks Farm Meadow SSSI[43]

Notified features associated with this site include: MG5 - *Cynosurus cristatus - Centaurea nigra* grassland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

[39] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004409.pdf

[40] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000653.pdf

[41] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001376.pdf

[42] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1002155.pdf

[43] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001136.pdf

4.2.3.15 Northpark Copse SSSI[44]

Notified features associated with this site include: combinations of species – lichens and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.16 Parkhurst Forest SSSI[45]

Notified features associated with this site include: combinations of species – lichens, invertebrate assemblage, MG5 - *Cynosurus cristatus - Centaurea nigra* grassland, W10 - *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland, W14 - *Fagus sylvatica - Rubus fruticosu*s woodland and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was predicted to exceed the screening thresholds for acid deposition under both forest and grassland deposition rates. However, this is a result of the process contribution caused by the energy from recovery plant which accounts for a maximum PC of 0.027 kEq/ha-year (1.2% of the minimum CL). Taking a conservative approach to investigating this exceedance, the maximum PC value from the recovery from waste plant has been combined with the maximum PC from this study using woodland deposition rates (0.0002 kEq/ha-year, 0.01% of the minimum CL). The critical load function tool on the APIS website[46] has been used to show the PEC is below 70% of the long-term air quality objective, see Table 4-15.

Table 4-15:In-combination acid deposition PC and PEC at Parkhurst Forest SSSI

Site	Critical Load (CL) (kEqH+/ha/year)			Existing acid deposition (kEqH+/ha/year)		Derived acid deposition (kEqH+/ha-year)			
	CLMaxS	CLMinN	CLMaxN	Background S	Background N	EfW PC	This study PC	PEC	PEC/CL (%)
Parkhurst Forest	2.581	0.357	2.938	0.2	1.508	0.0270	0.0002	1.74	59.2

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.17 Priory Woods SSSI[47]

Notified features associated with this site include: FB - Quaternary of south central England.

This designated site's qualifying features are not sensitive to air quality impacts, and therefore no further SSSI-specific assessment is required.

4.2.3.18 Prospect Quarry SSSI[48]

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland and ED – Palaeogene.

[44] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000716.pdf

[45] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000584.pdf

[46] http://www.apis.ac.uk/critical-load-function-tool

[47] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000346.pdf

[48] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000607.pdf

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.19 Rew Down SSSI[49]

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland and U1 b,c,d,f - *Festuca ovina - Agrostis capillaris - Rumex acetosella* grassland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.20 Rowridge Valley SSSI[50]

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland, population of Schedule 8 plant - *Clinopodium menthifolium*, wood calamint, W10 - *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland and W8 - *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.21 Shide Quarry SSSI[51]

Notified features associated with this site include: CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland, combinations of species – bryophytes.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.2.3.22 St Lawrence Bank SSSI[52]

Notified features associated with this site include: population of Schedule 8 plant - *Melampyrum arvense*, field cow-wheat.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

[49] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000623.pdf

[50] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000631.pdf

[51] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000714.pdf

[52] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000701.pdf

4.2.3.23 The Wilderness SSSI[53]

Notified features associated with this site include: M23 - *Juncus effusus/acutiflorus - Galium palustre* rush pasture , M25 - *Molinia caerulea - Potentilla erecta* mire, W10 - *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland, W4 - *Betula pubescens - Molinia caerulea* woodland.

This designated site was not predicted to exceed the screening thresholds for any of the modelled pollutants.

On the basis of available evidence and agreed thresholds, there are no likely significant effects on this SSSI, and therefore no further SSSI-specific assessment is required.

4.3 Summary of HRA Stage 1 findings

Simplified results for the screening assessment of air quality impacts on designated sites are provided in Table 4-16 and Table 4-18. 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 Planning Strategy. Since the recent Sweetman II 'People over Wind and Sweetman' ruling,[54] 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.

Table 4-16 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	
Briddlesford Copses SAC	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Isle of Wight Downs SAC [c]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Solent & Dorset Coast (SPA) [b,f,g]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Solent & Isle of Wight Lagoons SAC [e]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Solent & Southampton Water (Ramsar & SPA) [d,f,g]	**Yes**; the screening results were below the screening thresholds for all pollutants, with the exception of acid deposition and airborne NOx. The exceedance of the screening thresholds for acid deposition and airborne NOx were further investigated and discussed in Section 4.2.1.5. It was concluded that there are no likely significant effects of the proposed development on this European site.
Solent Maritime SAC [c,e]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
South Wight Maritime SAC [c,e]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Underlying SSSIs	

[53] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000825.pdf

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

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?
Bembridge Down [c,g]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Bonchurch Landslips [g]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Bouldnor and Hamstead Cliffs [c,f]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Brading Marshes to St. Helen's Ledges [d,e,g]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Briddlesford Copses [a]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
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 were below the 1% screening threshold for all pollutants.
Compton Down [b,c,g]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Headon Warren and West High Down [b,c,g]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
King's Quay Shore [e,f]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Medina Estuary [e,f]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Mottistone Down [b]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Newtown Harbour [e,f]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Ryde Sands and Wootton Creek [e]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Thorness Bay [e,f]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Ventnor Downs [b]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Whitecliff Bay and Bembridge Ledges [c,e,g]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Yar Estuary [c,e,f]	**Yes**; the screening results were below the 1% screening threshold for all pollutants.

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

Table 4-17: Summary of analysis for functionally linked land

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?
Functionally linked land	
Briddlesford Copses SAC	**No**; model results indicate that nitrogen deposition was predicted to exceed the 1% screening threshold when woodland deposition rates were used in the analysis. Spatial analysis shown in Figure 4.1 provides evidence that the locations of exceedances do correspond with forested areas.

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 woodland deposition rates has been calculated as 1.7% of the CL for nitrogen deposition.

Table 4-18 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 were below the 1% screening threshold for all pollutants.
America Wood	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Arreton Down	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Bembridge School and Cliffs	**Yes**; the site's qualifying features are not sensitive to air quality impacts.
Calbourne Down	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Cranmore	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Cridmore Bog	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Eaglehead and Bloodstone Copses	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Freshwater Marshes	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Garston's Down	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Greatwood and Cliff Copses	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Lacey's Farm Quarry	**Yes**; the site's qualifying features are not sensitive to air quality impacts.
Lake Allotments	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Locks Farm Meadow	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Northpark Copse	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Parkhurst Forest	**Yes**; the screening results were below the screening thresholds for all pollutants, with the exception of acid deposition. The exceedance of the screening threshold for acid deposition was further investigated and discussed in Section 4.2.3.16. It was concluded that there are no likely significant effects of the proposed development on this European site.
Priory Woods	**Yes**; the site's qualifying features are not sensitive to air quality impacts
Prospect Quarry	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Rew Down	**Yes**; the screening results were 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?
Rowridge Valley	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
Shide Quarry	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
St Lawrence Bank	**Yes**; the screening results were below the 1% screening threshold for all pollutants.
The Wilderness	**Yes**; the screening results were below the 1% screening threshold for all pollutants.

5 Summary and recommendations

The assessment of air quality impacts has shown that the Island Planning Strategy will not result in any significant impacts at ecological areas, with the exception of one location (functionally linked land associated with Briddlesford Copses SAC) where it has not been possible to rule out significant impacts at this stage. The assessment has adopted a conservative approach, meaning any impacts are expected to be overestimated, rather than underestimated. However, in order to provide certainty that all impacts are acceptable, it is recommended a detailed modelling assessment be undertaken for the functionally linked land associated with Briddlesford Copses SAC.

Based on the results of this study, we recommend the following:

1. **Conduct further transport modelling and air dispersion modelling for the functionally linked land associated with Briddlesford Copses SAC:**

This addendum study updates the results of the original air quality impact assessment[3] to reflect changes in anticipated development levels on the Isle of Wight as well as updates to the NAEI fleet projections since the previous study. The scaling rasters developed and applied as part of this study provide an indicative set of model results. As likely significant effects cannot be ruled out for the functionally linked land associated with Briddlesford Copses SAC, we recommend that potential air quality impacts on the functionally linked land are further investigated using updated transport modelling and air dispersion modelling. Although conservative approaches were used in this study such that the results are more likely to over-predict rather than under-predict effects, the use of updated transport modelling and dispersion modelling represents a more robust approach to impact assessment, and will ensure that any further steps required as part of the HRA process are based on the best available evidence. The use of updated transport and dispersion modelling will provide greater certainty regarding the spatial extent of any exceedances of the screening threshold, and we recommend that the updated modelling is accompanied by an ecological assessment of the exceedance areas to assess if they are used by the Bechstein`s bat.

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