



## Cornwall Local Plan Habitat Regulations Assessment (HRA)

Report  
March 2013



Prepared for



## Revision Schedule

### Habitat Regulations Assessment

March 2013

Rev	Date	Details	Prepared by	Reviewed by	Approved by
01	31/07/12	Draft Report for consultation with Natural England	<b>Dr Graeme Down</b> Ecologist	<b>Dr James Riley</b> Principal Ecologist	<b>Dr James Riley</b> Principal Ecologist
02	18/12/12	Report for public consultation	<b>Dr Graeme Down</b> Ecologist	<b>Dr James Riley</b> Principal Ecologist	<b>Dr James Riley</b> Principal Ecologist
03	28/02/13	Updated report for public consultation	<b>Dr James Riley</b> Principal Ecologist		

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# 1 Introduction

## 1.1 Background to the Project

- 1.1.1 URS was appointed by Cornwall Council (herein referred to as 'the Council') to assist in undertaking a Habitat Regulations Assessment (HRA) of the potential effects of the Local Plan on the Natura 2000 network and Ramsar sites (herein, collectively referred to as 'European sites').
- 1.1.2 Prior to April 2009, spatial planning in Cornwall was applied through six District Councils and the Council. Saved policies from existing adopted Local and Structure Plans remain applicable until new policy documents including the Local Plan are adopted.
- 1.1.3 The Local Plan has been subject to two HRA 'screening' stages prior to this report, a Preferred Approach screening exercise and an 'Options' stage screening exercise, both in 2011. These have been further developed for this HRA of the Working Draft Local Plan. The Working Draft Local Plan consists of two parts, Part 1, which contains the strategic policies, and Part 2 which contains details of the Community Network Areas (CNAs) across Cornwall including details of the number of new dwellings expected to be delivered within each CNA. Both Parts of the Local Plan have been used in this HRA.
- 1.1.4 The final plan will identify where housing, employment, services and infrastructure will be focused, and determine the levels of growth to be planned for. Whilst the Local Plan will guide a range of development such as employment, leisure and shopping the main influence will be on the levels of housing growth, where this will be located and how it is related to jobs.

## 1.2 Current Legislation

- 1.2.1 The need for Appropriate Assessment is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by the Conservation of Habitats and Species Regulations 2010. The ultimate aim of the Directive is to "*maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest*" (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering favourable conservation status.

- 1.2.2 The Habitats Directive applies the precautionary principle to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. Plans and projects may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

- 1.2.3 In order to ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question:

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Box 1. The legislative basis for Appropriate Assessment

**Habitats Directive 1992**

Article 6 (3) states that:

*“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives.”*

**Conservation of Habitats and Species Regulations 2010 (as amended)**

The Regulations state that:

*“A competent authority, before deciding to ... give any consent for a plan or project which is likely to have a significant effect on a European site ... shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives... The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site”.*

- 1.2.4 Over the years the phrase ‘Habitats Regulations Assessment’ (HRA) has come into wide currency to describe the overall process set out in the Conservation of Habitats and Species Regulations from screening through to IROPI. This has arisen in order to distinguish the process from the individual stage described in the law as an ‘appropriate assessment’. Throughout this report we use the term Habitat Regulations Assessment for the overall process and restrict the use of Appropriate Assessment to the specific stage of that name.

### 1.3 Scope of the Project

- 1.3.1 There is no pre-defined guidance that dictates the physical scope of a HRA of a policy document such as a Local Plan. Therefore, in considering the physical scope of the assessment, we were guided primarily by the identified impact pathways rather than by arbitrary ‘zones’. Current guidance suggests that the following European sites be included in the scope of assessment:

- All sites within Cornwall’s unitary authority boundary; and
- Other sites shown to be linked to development within Cornwall through a known ‘pathway’ (discussed below)

- 1.3.2 Briefly defined, pathways are routes by which a change in activity within the area covered by the Local Plan can lead to an effect upon a European site. In terms of the second category of European site listed above, CLG guidance states that the HRA should be ‘*proportionate to the geographical scope of the [plan policy]*’ and that ‘*an AA need not be done in any more detail, or using more resources, than is useful for its purpose*’ (CLG, 2006, p.6).

1.3.3 There are 25 designated European sites (SACs, SPAs or Ramsar sites) or candidate European sites (cSACs) that lie wholly or partly within Cornwall:

- Breney Common and Goss & Tregoss Moors SAC
- Carrine Common SAC
- Crowdy Marsh SAC
- Fal & Helford SAC
- Godrevy Head to St Agnes SAC
- Isles of Scilly Complex SAC
- Isles of Scilly Complex SPA
- Isles of Scilly Complex Ramsar
- Land's End and Cape Bank cSAC
- Lizard Point cSAC
- Lower Bostraze and Leswidden SAC
- Lundy Island SAC
- Newlyn Downs SAC
- Penhale Dunes SAC
- Phoenix United Mines & Crows Nest SAC
- Plymouth Sound & Estuaries SAC
- Polruan to Polperro SAC
- River Camel SAC
- St Austell Clay Pits SAC
- The Lizard SAC
- Tintagel-Marsland-Clovelly Coast SAC
- Tregonning Hill SAC
- Marazion Marsh SPA
- Tamar Estuaries Complex SPA

1.3.4 In addition, there is one other European site that lies outside of Cornwall, but which is included within this HRA since there are potential pathways of impact that may affect it as a result of approaches within the Cornwall Local Plan:

- Dartmoor SAC, included mainly due to its hydrological links to Cornwall since abstraction of the watercourses and aquifers in the Dartmoor area are used to supply parts of north-west Cornwall with water.

1.3.5 The HRA screening of the Options Paper identified that Lundy Island SAC lies sufficiently far from the Cornish mainland that no realistic pathways of impact exist. This also applies to the Isles of

Scilly sites. The three marine cSACs Land's End and Cape Bank cSAC, Start Point to Plymouth Sound and Eddystone cSAC and Lizard Point cSAC also lie in the marine zone and outside the influence of Local Plan development in Cornwall. Blackstone Point SAC has been considered but lies approximately 9km from Cornwall on the opposite side of Plymouth Sound and therefore no valid pathways of impact have been identified. These sites have therefore been scoped out of this current HRA. Figure 1 shows the location of the European sites in relation to Cornwall.

## 1.4 Report Outline

- 1.4.1 Chapter 2 of this report explains the process by which the HRA has been carried out. Chapter 3 contains the Likely Significant Effects assessment. Chapters 4 to 8 then covers the Appropriate Assessment each of the impact pathways that have been identified as being relevant to Local Plan development and how they relate to each relevant European site. A summary of the Council's responses to recommendations that stemmed from the initial draft HRA in July 2012 is provided at the end of each relevant Chapter.

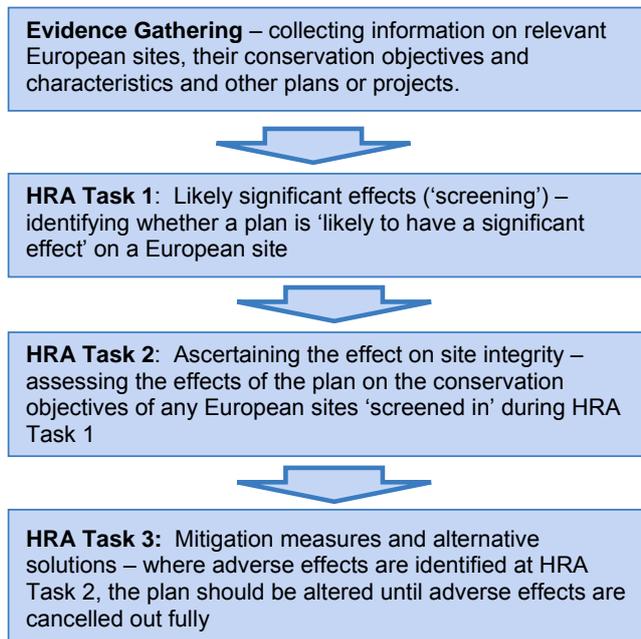
## 2 Methodology

### 2.1 Introduction

2.1.1 The HRA has been carried out in the continuing absence of formal central Government guidance. CLG released a consultation paper on AA of Plans in 2006<sup>1</sup>. As yet, no further formal guidance has emerged. However, Natural England has produced its own internal guidance as has the RSPB. Both of these have been referred to in producing this HRA.

2.1.2 Figure 2 below outlines the stages of HRA according to current draft CLG guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

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**Figure 2 - Four-Stage Approach to Habitat Regulations Assessment**

Source: CLG, 2006

<sup>1</sup> CLG (2006) Planning for the Protection of European Sites, Consultation Paper

## 2.2 HRA Task 1 – Likely Significant Effects (LSE)

2.2.1 The first stage of any Habitat Regulations Assessment is a Likely Significant Effect (LSE) test - essentially a risk assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

2.2.2 *"Is the Plan, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites?"*

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2.2.3 The objective is to 'screen out' those plans and projects that can, without any detailed appraisal, be said to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism for an adverse interaction with European sites.

2.2.4 In this case, the plan as a whole has been evaluated in detail within the context of existing knowledge of the various ways in which development can impact on European sites, accumulated from carrying out HRAs across the country at all geographical scales (from individual projects through to Regional Spatial Strategies). If it cannot be concluded with confidence that adverse effects are unlikely, we have deferred to the precautionary principle. For this version of the Local Plan, the draft policies were subject to screening. The details for each CNA as given in Part 2 of the Plan were then used for the Appropriate Assessment.

## 2.3 Appropriate Assessment

2.3.1 With regard to those European sites where it is considered not possible to 'screen out' the Development Plan Document without detailed appraisal, it is necessary to progress to the later 'Appropriate Assessment' stage to explore the adverse effects and devise mitigation.

2.3.2 The steps involved are detailed in Box 2.

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### Box 2. The steps involved in Appropriate Assessment

1. Explore the reasons for the European designation of these sites.
2. Explore the environmental conditions required to maintain the integrity of the selected sites and become familiar with the current trends in these environmental processes.
3. Gain a full understanding of the plan and its policies and consider each policy within the context of the environmental processes – would the policy lead to an impact on any identified process?
4. Decide if the identified impact will lead to an adverse effect on integrity.
5. Identify other plans and projects that might affect these sites in combination with the Plan and decide whether there are any adverse effects that might not result from the Plan in isolation but will do so "in combination".
6. Develop policy mechanisms to enable the delivery of measures to avoid the effect entirely, or if not possible, to mitigate the impact sufficiently that the effect on the European site is rendered effectively inconsequential.

2.3.3 In evaluating significance, URS have relied on our professional judgement as well as the results of previous stakeholder consultation regarding development impacts on the European sites considered within this assessment.

2.3.4 The level of detail in land use plans concerning developments that will be permitted under the plans will never be sufficient to make a detailed quantification of adverse effects. Therefore, we have again taken a precautionary approach (in the absence of more precise data) assuming as the default position that if an adverse effect cannot be confidently ruled out, avoidance or mitigation measures must be provided. This is in line with the former Department of Communities and Local Government guidance that the level of detail of the assessment, whilst meeting the relevant requirements of the Habitat Regulations, should be 'appropriate' to the level of plan or project that it addresses.

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2.3.5 When discussing 'mitigation' for a Local Plan one is concerned primarily with the policy framework to enable the delivery of such mitigation rather than the details of the mitigation measures themselves since the Local Plan is a high-level policy document. It is important to note that there is a clear mitigation hierarchy with regard to Appropriate Assessment – if possible the plan or project should seek to avoid the impact and if that cannot be achieved, the plan-maker or developer should seek to mitigate the impact to such an extent that an adverse effect on integrity of the European site will not result. Only in exceptional circumstances (following demonstration of 'no alternatives' and 'imperative reasons of over-riding public interest') will compensation be acceptable.

2.3.6 During the HRA Screening of the Options stage of the Local Plan, Natural England recommended that the following be included within the policy approach, as a minimum requirement:

*"Any development that would be likely to have a significant effect on a European site either alone or in combination with other plans or projects would not be in accordance with the Regeneration Plan and would not, therefore, have the benefit of the presumption in favour accorded via S.38 of the 2004 Act at application stage;*

*and,*

*Any development that would be likely to have a significant effect on a European site, either alone or in combination with other plans or projects, will be subject to assessment under Part 6 of the Habitats Regulations at project application stage. If it cannot be ascertained that there would be no adverse effects on site integrity the project will have to be refused or pass the tests of Regulation 61 and 62, in which case any necessary compensatory measures will need to be secured in accordance with Regulation 66."*

2.3.7 It is therefore recommended that environmental policy based on this approach be adopted as the Local Plan is developed.

## 2.4 Confirming other plans or projects that may act in combination

2.4.1 It is a requirement of the Regulations that the impacts and effects of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the European site(s) in question.

2.4.2 It is neither practical nor necessary to assess the 'in combination' effects of the Local Plan Preferred Approach within the context of all other plans and projects within the South West of England. For the purposes of this assessment, we have determined that, due to the nature of the identified impacts, the key other plans and projects relate to the additional housing, transportation and commercial/industrial allocations proposed for neighbouring authorities over the lifetime of the Local Plan. The South West Regional Spatial Strategy (2006) provides a good introduction to proposals for local authorities adjoining Cornwall. Although the government has announced its intention to revoke regional planning through a Decentralisation and Localism Bill, the RSS still provides the best summary of the currently anticipated levels of housing within authorities within the region.

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2.4.3 In considering the potential for regional housing development on European sites within Cornwall, the primary consideration is the impact of visitor numbers – i.e. recreational pressure – to which sites are vulnerable. Other pathways of impact described in more detail in Chapter 3 include reduced air quality, and pressure on water resources and quality. Whilst these are also strongly related to housing provision, the actual geographic impact must also be considered within the context of relevant infrastructure (e.g. road transport corridors and water supply catchments).

2.4.4 There are other plans and projects are relevant to 'in combination' assessment:

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- South West Regional Authority Draft Regional Spatial Strategy (2006) and Proposed Changes (2008), and HRA reports thereof.
- St Austell, St Blazey and China Clay Area Regeneration Plan (2011)
- West Devon Borough Council Local Development Framework Local Plan (adopted 2011)
- North Devon and Torridge Joint Local Plan (pre-publication draft, 2010)
- Plymouth City Council Local Plan (adopted 2007)
- South Hams District Council Local Plan (adopted 2006)
- Cornwall Minerals Local Plan (1998)
- Cornwall Waste Local Plan (2003)
- Devon Minerals Plan (2004)
- Devon Waste Plan (2006)
- HRA of the River Basins Management Plan for the South West River Basin District (2009)
- Fal and St Austell Streams Catchment Abstraction Management Strategy (2006)
- North Cornwall Catchment Abstraction Management Strategy (2005)
- Seaton, Looe and Fowey Catchment Abstraction Management Strategy

- Tamar Catchment Abstraction Management Strategy (2007)
- Torridge and Hartland Streams Catchment Abstraction Management Strategy (2007)
- West Cornwall Catchment Abstraction Management Strategy (2008)
- South West Water's Water Resources Management Plan (2009)
- Rame Head to Hartland Point Shoreline Management Plan
- Durlston Head to Rame Head Shoreline Management Plan
- Hartland Point to Anchor Head Shoreline Management Plan
- Connecting Cornwall: 2030 Strategy
- Cornwall Freight Strategy (2006-2011)
- Port of Falmouth Masterplan (2011)
- Applications for renewable energy projects (wind turbines, solar arrays, hydro-electric, marine renewables)

### 3 Likely Significant Effects

3.1.1 As a first stage in the HRA, each policy was subject to HRA screening to ascertain whether Likely Significant Effects on the interest features of European sites could be ‘screened out’. The following table presents the screening assessments for each Policy. Green shading in the final column indicates an objective or policy option that has been screened out of further consideration due to the absence of any mechanism for an adverse effect on European sites.

Policy Reference	Policy Summary	HRA screening outcome
<p>Policy 1 - Presumption in Favour of Sustainable Development</p>	<p>When considering development proposals the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework and set out by the policies of this Local Plan.</p> <p>We will work with applicants to find solutions which mean that proposals will be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.</p> <p>Planning applications that accord with the policies in this Local Plan and supporting Development Plan and Supplementary Planning Documents (including, where relevant, with policies in neighbourhood plans) will be regarded as sustainable development and be approved, unless material considerations indicate otherwise.</p> <p>Where there are no policies relevant to the application at the time of making the decision the Council will grant permission unless material considerations indicate otherwise – taking into account whether:</p> <p>a) Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or</p> <p>b) Specific policies in that Framework indicate that</p>	<p>The presumption in favour of sustainable development as set out in the National Planning Policy Framework explicitly excludes the application of this principle to development proposals that would lead to an adverse effect on the integrity of a European site.</p> <p>The policy promotes development of communities, the economy, services and infrastructure. Although the policy does note that protection of the environment, it does not specifically commit to protection of designate sites.</p> <p>The overall aim of this policy approach is to ensure that development is sustainable.</p>

Policy Reference	Policy Summary	HRA screening outcome
<p>Policy 2 – Key Targets and Spatial Strategy</p>	<p>development should be restricted.</p> <p>New development should provide the most sustainable approach to accommodating growth; making the best use of infrastructure and services whilst respecting the character of Cornwall. Overall, development should seek to:</p> <ol style="list-style-type: none"> <li>1. Improve conditions for business and investment providing for an overall increase of over 50,000 jobs supporting the provision of better paid full-time employment opportunities.</li> <li>2. Provide for employment floorspace over the plan period to help deliver a mix of B1a office and B1, B2 and B8 industrial premises.</li> <li>3. Deliver renewable and low carbon energies, increase energy efficiency and minimise resource consumption; by contributing towards a renewable energy target of at least 1,427 megawatts of installed electricity generation capacity and at least 190 megawatts of installed useable heat energy generation capacity through a range of onshore renewable/low carbon technologies.</li> <li>4. Provide for 42,250 homes over the plan period to help deliver sufficient new housing of appropriate types to meet future requirements in particular meeting affordable housing and Gypsy and Traveller needs.</li> <li>6. Positively manage the continued evolution of the unique, diverse and distinctive landscape and historic character in Cornwall through high quality design demonstrating a cultural, physical and aesthetic understanding of its location and the protection, enhancement and mitigation of environmental assets, appropriate and proportional to their value.</li> <li>7. Maintain the natural character of the undeveloped coast, protecting and enhancing its distinctive landscapes, particularly in areas defined as Heritage Coast;</li> <li>8. Re-enforce the spatial strategy of a continued dispersed development pattern providing homes and jobs, in a proportional manner, where they can best sustain the role and function of local communities in towns and villages and that of</li> </ol>	<p>This policy sets out the overall scale and strategy regarding development in the County until 2030. In order to conclude no likely significant effects of this policy, it will be necessary to undertake more detailed scrutiny of more specific spatial approaches, such as those contained within the CNAs. That constitutes the bulk of Chapter 4 onwards of this report, where each CNA policy is scrutinised in detail.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>their catchment as set out in this Plan's Community Network Area based policies and subsequent Neighbourhood Plans.</p> <p>8. Reflect the importance to the strength of Cornwall's economy as a whole, in particular;</p> <ul style="list-style-type: none"> <li>a) supports economic regeneration of Camborne, and Redruth and the emerging retail function of Pool.</li> <li>b) optimises the economic opportunity and maximises existing linkages in mid-Cornwall;               <ul style="list-style-type: none"> <li>i. supporting the role of Bodmin as a strategic employment location taking advantage of its position on the transport network</li> <li>ii. through allocating mixed use development to deliver the first phase of the eco-community at West Carclaze/Baal and Par Docks</li> <li>iii. in the St Austell, St Blazey and China Clay Regeneration Area exemplar development will be supported which positively contributes to the vision of becoming the Green Capital of Cornwall</li> <li>iv. support the Newquay Cornwall Airport and the Aerohub Enterprise Zone through improved linkages as an economic catalyst for the wider Newquay area and beyond.</li> </ul> </li> <li>d) support Truro's wider role as an economic and service centre and grow its role as a retail alternative to major centres outside of Cornwall.</li> <li>e) support economic development in south east Cornwall meeting the areas own needs and benefit from its relationship with Plymouth.</li> <li>f) strengthen the role of Launceston and Saltash as gateways to Cornwall through economic growth along the A30 and A38.</li> <li>g) provide for marine businesses and maximise the economic growth and the benefits of the proximity to the Combined Universities in Falmouth</li> <li>h) support town centre and housing renewal and regeneration.</li> </ul> <p>Limits to out of town retail developments will be identified for</p>	

Policy Reference	Policy Summary	HRA screening outcome
	<p>Cornwall's main towns in the Allocations Development Plan Document and until this is produced, the National Planning Policy Framework shall provide the measure.</p>	
<p>Policy 3 – Role and Function of Places</p>	<p>The scale and mix of uses of development and investment in services and facilities should be proportionate to the role and function of places. New development 2010-2030 will be accommodated in accordance with the following hierarchy:</p> <ol style="list-style-type: none"> <li>1. Larger scale community, cultural, leisure, retail, utility, employment and residential development will be accommodated in: Camborne with Pool, Illogan and Redruth; Falmouth with Penryn; Penzance with Newlyn; St Austell; Truro with Threemilestone; Newquay; Bodmin; Launceston; Bude with Stratton and Poughill; Helston; St Ives with Carbis Bay; Saltash; Hayle; Liskeard; Wadebridge.</li> <li>2. To promote vibrant local communities and support local services, an appropriate level of growth and investment will be encouraged in other settlements to reinforce their role as providers of employment; communit; leisure; and retail facilities.</li> <li>3. Outside of the main towns identified in this policy housing growth will be delivered through identification of sites where required through Neighbourhood plans affordable housing led schemes under Policy 9 and infill development defined below. Infill for the purposes of residential development should be proportionate to the scale of the settlement, respect the settlement and landscape character of the locality, not physically extend the settlement. It must clearly relate to part of an established settlement and not isolated dwellings. Particular preference will be given to sites of previously developed land.</li> </ol> <p>There is a distinction between (i) 'infill' sites in the built-up area of towns and large villages, and (ii) 'infill' sites of one-two housing units in smaller villages and hamlets.</p>	<p>Delivery of new housing is likely to increase demand for recreational facilities, water supply and treatment, and to lead to increased road traffic. Dependent on location, there could also be effects through pathways.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>For the purposes of this policy, the ‘infilling’ of one-two housing units in smaller villages and hamlets is defined as (i) the filling of a small gap in an otherwise continuously built up frontage that does not physically extend the village, hamlet or smaller settlement into the open countryside (ii) the redevelopment of an existing previously developed site within or adjoining the settlement or (iii) the rounding off of a settlement where its edge is defined by a physical feature such as a road.</p> <p>Many frontages however are not continuously built up and have substantial gaps between buildings or groups of buildings. These gaps provide the setting for the village, hamlet or small settlement, and add to the character of the area. They are not appropriate locations for infill development, and the development of such large gaps would not therefore be considered as infill under the policies of this Local Plan.</p> <p>In smaller villages and hamlets in which ‘infill’ sites of one-two housing units are allowed, the settlement should have a form and shape and clearly definable boundaries, not just a low density straggle of dwellings. It is anticipated that the settlement will be part of a network of settlements and/or be in reasonable proximity to a larger village or town with more significant community facilities, such as a primary school.</p>	
<p>Policy 4 – Shopping, Services and Community Facilities</p>	<p>1. Development should; maintain and enhance a good and appropriate range of shops, services and community facilities, retail and commercial development outside existing centres must show there is no significant harm on the viability and vitality of the existing centre; and demonstrate the application of a sequential approach to site selection or demonstrate an overriding strategic; role for the economic and social sustainability of Cornwall;</p> <p>2. Community facilities and local shops should, wherever possible be retained. Loss of provision will only be acceptable where the proposal shows;</p>	<p>Dependent on its nature and location, economic development can contribute to pathways of impact that can lead to likely significant adverse effects on European sites particularly through increased transport. The likelihood of Cornwall residents travelling to particular centres of population is incorporated into transport modelling that informs the air quality assessment later in this document.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>a. no need for the facility or service;            b. it is not viable; or            c. adequate facilities or services exist or are being re- provided that are similarly accessible by walking, cycling or public transport</p>	
<p>Policy 5 - Jobs and Skills</p>	<p>1. Appropriate locations for employment proposals;            a. within or well integrated to our city, towns and villages;            b. on existing employment (uses B1, B2 and B8) locations where re-location would be impractical or not viable;            c. areas that are well served by public transport and communications infrastructure;            d. in the countryside and smaller rural settlements where it is of a scale appropriate to its location or where the use can show an overriding business need for its location; or            e. exceptional proposals with significant economic benefit.            2. Enhancement of the quality and range of tourism facilities through the provision of high quality sustainable tourism facilities, attractions, accommodation and the upgrading of existing facilities in sustainable locations.            4. Support growth in marine sector in ports and harbours ensuring marine related employment, leisure and community sites are protected from alternative uses that do not require water side sites.            5. Support the Enterprise Zone Aerohub at Newquay Airport through improved linkages as an economic catalyst for the wider Newquay area.            6. Provide education facilities that improve the training and skills base and encourage knowledge based businesses and creative industries associated with Cornwall's colleges and the Combined Universities of Cornwall particularly where this enables graduate retention.            7. Safeguarding existing and potential strategic employment land and buildings along with sites considered locally important. In all other cases existing employment land and buildings will be safeguarded where they are viable. Such land and buildings</p>	<p>Dependent on its nature and location, economic development can contribute to pathways of impact that can lead to likely significant adverse effects on European sites particularly through increased transport. This is included in the transport modelling used to inform the air quality assessment later in this document.</p>

Policy Reference	Policy Summary	HRA screening outcome
	will only be considered for alternative uses where this does not result in the loss of economic performance i.e. through the redevelopment for a mix of uses.	
Policy 6 - Housing Mix	<p>New housing developments will be required to include a mix of house size, type, price and tenure to address identified needs and market demand and to support mixed communities, based on the following principles:</p> <ol style="list-style-type: none"> <li>1. Proposals of 10 or more dwellings should seek to provide a range of housing type and tenure.</li> <li>2. Where there is evidence of significant identified unmet need in the local area, major new residential developments should seek to incorporate an element of housing provision to meet special care or shelter needs or contribute towards an appropriate alternative site.</li> </ol>	Delivery of new housing is likely to increase demand for recreational facilities, water supply and treatment, and to lead to increased road traffic. Dependent on location, there could also be effects through pathways.
Policy 7 - Housing in the Countryside	<p>Additional accommodation to meet needs in the open countryside will be focused on the use of existing buildings through:</p> <ol style="list-style-type: none"> <li>1. Replacement dwellings of an appropriate scale and character or subdivision of existing residential dwellings.</li> <li>2. Reuse suitably constructed redundant or disused buildings which are considered appropriate to retain and would lead to an enhancement to the immediate setting.</li> </ol> <p>In addition:</p> <ol style="list-style-type: none"> <li>3. Accommodation, of a construction suitable for its purpose and duration, for workers (including seasonal migrant workers) and where no other suitable accommodation is available, to support established and viable rural businesses; and Dwellings for full time agricultural and forestry workers will be allowed where appropriate for these needs and supported by an up-to-date evidence of need.</li> </ol>	This policy sets the principles regarding delivery of housing in the countryside but does not set the quantum or location. As such, it can be screened out.
Policy 8 – Affordable Housing	All new housing schemes within the plan, including mixed use schemes, on sites where there is a net increase of two units or more or 0.1 of a hectare developments must contribute towards meeting affordable housing need.	This policy sets the principles regarding affordable housing but does not set the quantum or location. As such, it can be screened out.

Policy Reference	Policy Summary	HRA screening outcome
	<p>The site should aim to provide the target levels of affordable housing as set out. This will be based on viability and defined in supplementary guidance which will also set out the circumstances under which they will be varied or reviewed.</p> <p>The following provision on site will be sought: 50% in Zone 1 and 2 including the town of St Ives ; and 40% in Zones 3, 4 and 5 including the towns of Falmouth/Penryn; Truro, Bodmin; Bude; Saltash; Wadebridge; Penzance, Camborne/ Pool/ /Redruth; Helston and Liskeard.</p> <p>The mix of affordable housing products will vary through negotiation and shall be provided taking into account the Council’s evidence of housing need and any viability constraints identified, reflecting the different markets in different value zones. However, provision will typically be in the following tenure proportions: 70% rented homes owned and or managed by a bone fide affordable housing provider, provided that the initial rent level (inclusive of any relevant service charges) does not exceed the local housing allowance 30% intermediate housing for rent or sale, provided that the homes are available at first and subsequent occupation at a price which is affordable to a typical local household, taking into account the estimated purchasing power in such households.</p> <p>Planning obligations will be used to ensure that affordable housing is provided and retained for eligible local households. There may be some circumstances, particularly on sites of 5 dwellings or less, where it is more economic or sustainable to seek a financial contribution towards the provision of affordable housing on an alternative site.</p> <p>Any off site contributions will be broadly equivalent in value to on site provision and secured to support the delivery of</p>	

Policy Reference	Policy Summary	HRA screening outcome
	<p>affordable housing through a planning obligation. The Council may in some circumstances, subject to viability, also seek a contribution towards affordable housing from a non-housing development judged to have a significant and demonstrable impact on the local housing market.</p> <p>A financial or other contribution will be sought from proposals to remove holiday occupancy restrictions on existing dwellings where there is evidence of need and where development would otherwise have provided on site for community infrastructure including affordable housing.</p>	
<p>Policy 9 – Affordable Housing Led Schemes</p>	<p>Schemes, whose primary purpose is to provide affordable housing to meet local needs will be supported. The tenure split for each development should vary to reflect identified local needs as evidenced through the Cornwall housing register or any specific local surveys completed using an approved methodology.</p> <p>The inclusion of market housing in such proposals will be supported where;</p> <ul style="list-style-type: none"> <li>i) It can demonstrate it meets a local need for housing;</li> <li>ii) The Council is satisfied it is essential for the successful delivery of the development. (For example to fund abnormal development costs or to deliver a balanced, sustainable community);</li> <li>iii) It has the support of the local community measured by the level of support received from the local council, a positive outcome from a local referendum or where there is evidence that it is a community led proposal; and</li> <li>iv) Market housing does not represent more than 50% of the homes or 60% of the land take, excluding infrastructure and services.</li> </ul> <p>The Council will secure the first and future occupation of the affordable homes to those with a housing need and local</p>	<p>This policy sets the principles regarding affordable housing but does not set the quantum or location. As such, it can be screened out.</p>

Policy Reference	Policy Summary	HRA screening outcome
	connection to the settlement or parish in line with the Councils adopted local connection policies.	
Policy 10 – Publically Owned Sites	On sites within the ownership of the public sector or sites which were previously owned by the public sector (but have been disposed of for the purpose of redevelopment) but which had a public sector use or ownership immediately prior to disposal, the Council will seek to negotiate an element of affordable housing to a target of 50% of the development.	This policy sets the principles regarding affordable housing but does not set the quantum or location. As such, it can be screened out.
Policy 11 - Managing Viability	<p>Where the Council is satisfied through the submission of appropriate evidence that the proposal cannot deliver the full quota of affordable housing without affecting the viability of the scheme to such an extent that it cannot proceed, it will adopt the following sequential approach with the aim of securing the maximum contribution to affordable housing achievable:</p> <ol style="list-style-type: none"> <li>1. The alteration of the mix and design of the scheme to reduce scheme costs.</li> <li>2. Encourage securing public subsidy or other commuted sums, recognising that this may result in further changes to scheme mix and the delivery timescales</li> <li>3. The alteration of the affordable housing tenure mix within the development</li> <li>4. Consideration of an off-site contribution for improved number or range of affordable housing.</li> </ol> <p>If after considering the above options only very limited or no affordable housing can be secured due to market conditions at a particular moment in the economic cycle, the Council will seek other mechanisms within a planning obligation to secure planning gain. These can include (but not be limited to) re-phasing, deferment of affordable housing obligations, options to reappraise the scheme at future phases or at commencement to allow viability to be re-assessed and the inclusion of clawback mechanisms.</p>	This policy sets the principles regarding affordable housing but does not set the quantum or location. As such, it can be screened out.
Policy 12 – Gypsies,	The Council will protect existing authorised Gypsy and	Gypsy and traveller sites can result in the same impact

Policy Reference	Policy Summary	HRA screening outcome
<p>Travellers and Travelling Showpeople</p>	<p>Traveller sites. Additional pitches for Gypsies, Travellers and Travelling Showpeople will be supported to meet the following identified needs:-</p> <p>The sustainable provision of additional pitches for Gypsies, Travellers and Travelling Showpeople will be supported to meet the following identified needs:-</p> <p>Provision 2006-2020 (pitches): Residential pitches 237 Transit pitches (with good access to the trunk road network) 52 Travelling showpeople 9</p> <p>Proposals for new sites both residential and transit should meet the following criteria:</p> <ul style="list-style-type: none"> <li>i. Be of appropriate size to meet the identified need and be proportionate to any nearby settled community</li> <li>ii. Take account of the particular and differing needs of different groups of Gypsies and Travellers</li> <li>iii. Be located so as to ensure reasonable access to services including GP and other health care provision, education facilities, shops and public transport.</li> <li>iv. Provide suitable road access and sufficient space within the site for parking and turning of vehicles as well as the storage of equipment.</li> </ul> <p>Travelling Communities Development Plan Document will identify and delivery of a network of sufficient, suitable and appropriately located sites to meet the accommodation requirements of the travelling communities (Gypsies and Travellers and Travelling Show people).</p>	<p>pathways as all other types of residential development. However, assuming that this policy will also be subject to compliance with other policies and the general text protecting European sites that Natural England have recommended is included within the Local Plan then this policy can be screened out.</p>
<p>Policy 13 - Design</p>	<p>The Council is committed to achieving high quality buildings and places across all of Cornwall and ensure its distinctive character. Development proposals must show high quality design and layout of places demonstrating a process that has</p>	<p>This policy is concerned solely with design principles rather than quantum or location of development. It can therefore be screened out.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>clearly considered the existing context, and contribute to social, economic and environmental sustainability.</p> <p>1. As part of a comprehensive place-shaping approach proposals will be judged against fundamental design principles of:</p> <p>a. Character –creating places with their own identity and promoting local distinctiveness through use of materials. Being of an appropriate scale, density, layout, height and mass with and a clear understanding and response to its landscape and townscape setting.</p> <p>b. Layout – provide continuity with the existing built form; good quality private and public spaces; and improve perceptions of safety by overlooking of public space.</p> <p>c. Movement –creating a network of well connected routes which are easy to read and navigate by the use of landmarks, spaces, views and intersections.</p> <p>d. Adaptable, inclusive and diverse – building structures can be easily altered, particularly internally, to respond to changing social and economic conditions and provide a mix and pattern of uses.</p> <p>e. Process – undertaking community engagement, involvement and consultation in the design process proportionate to the scheme.</p>	
<p>Policy 14 - Development Standards</p>	<p>All new development will be expected to achieve the following;</p> <p>1. Open space provision on-site and in proportion to the scale of the development. Where there is access to alternative facilities contributions to the ongoing maintenance and management of these alternative facilities may be required.</p> <p>2. Provide an appropriate level of off street parking and cycle parking taking into account the accessibility of the location in terms of public transport and proximity to facilities and services.</p> <p>3. Demonstrate sufficient and convenient space for storage for domestic activities and recreation as well as collection of waste, recycling and compostables.</p> <p>4. Avoid adverse impacts, either individually or cumulatively,</p>	<p>This policy concerns itself exclusively with development standards rather than quantum or location of development. It can therefore be screened out.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>resulting from noise, dust, odour, vibration, waste, pollution and visual effects and during construction.</p> <p>5. Take advantage of any opportunities to minimise energy consumption, with an emphasis on the fabric of buildings, for example achieving high levels of insulation, use of natural lighting, ventilation, heating and orientation.</p> <p>This should achieve at least Zero Carbon new builds from 2016 for domestic buildings and from 2019 for non-domestic buildings. Additionally, the development of decentralised low carbon heat networks is particularly encouraged to connect or be designed to facilitate future connection to an existing or planned heat network.</p>	
<p>Policy 15 - Renewable and Low Carbon Energy</p>	<p>1. To increase use and production of renewable and low carbon energy generation development proposals will be supported that;</p> <p>a. Contribute towards a renewable energy target of at least 1,400 megawatts of installed electricity generation capacity and at least 190 megawatts of installed useable heat energy generation capacity through a range of onshore renewable/low carbon technologies by 2030;</p> <p>b. Maximise the use of the available resource by deploying installations with the greatest energy output practicable taking into account the provisions of this Plan;</p> <p>c. Make use, or offer genuine potential for use, of any waste heat produced; and</p> <p>d. In the case of wind turbines they avoid, or adequately mitigate, unacceptable shadow flicker and adverse impact on air traffic operations, radar and air navigational installations.</p> <p>2. Particular support will be given to renewable and low carbon energy generation developments that;</p> <p>a. Are lead by, or meet the needs of local communities; and</p> <p>b. Create opportunities for co-location of energy producers with energy users, in particular heat, and facilitate renewable and low carbon energy innovation.</p>	<p>This policy concerns itself with standards for renewable energy but does not specify which types of renewable energy. Since each renewable energy proposal will be assessed on its own merits through the development control process, this policy can be screened out.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>3. When considering such proposals, regard will be given to the wider benefits of providing energy from renewable sources, as well as the potential effects on the local environment; including any cumulative impact of these proposals.</p> <p>When assessing proposals for wind turbines on the outskirts of Areas of Outstanding Natural Beauty, the status of the Area of Outstanding Natural Beauty shall be taken into account when assessing landscape impact.</p> <p>In, and adjacent to, Areas of Outstanding Natural Beauty and undeveloped coast, developments would not be allowed except in exceptional circumstances and should generally be very small scale in order that the natural beauty of these areas may be conserved.</p> <p>Any proposal for the generation of energy from non-fossil fuel resources must not overshadow or have an overbearing effect on nearby habitations.</p>	
Policy 16 - Safeguarding Renewable Energy	New development, where appropriate, should show that it does not significantly harm the performance of any existing facility and the potential for optimisation of strategic renewable energy installations, or the availability of their resource (where the operation is dependent on uninterrupted flow of energy to the installation).	This policy concerns itself with standards for renewable energy but does not specify which types of renewable energy. Since each renewable energy proposal will be assessed on its own merits through the development control process, this policy can be screened out.
Policy 17 – Health & wellbeing	<p>To improve the health and wellbeing of Cornwall’s communities, residents, workers and visitors, development should seek to:</p> <ol style="list-style-type: none"> <li>1. Protect, and alleviate risk to, people and the environment from unsafe, unhealthy and polluted environments through avoiding or mitigating against harmful impacts and health risks such as air and noise pollution and water and land contamination.</li> <li>2. Maximise the opportunity for physical activity through use of open space and travel networks supporting walking and</li> </ol>	This policy does influence the quantum or location of development. It can therefore be screened out.

Policy Reference	Policy Summary	HRA screening outcome
	<p>cycling.</p> <p>4. Provide, where possible dwellings have easy, safe and secure storage for cycles and other recreational equipment.</p> <p>5. Encourage provision for growing local food such as allotments or private gardens which are large enough to accommodate vegetable growing or greenhouses.</p> <p>6. Provide flexible community spaces that can be adapted to the health needs of the community and encourage social interaction.</p> <p>7. Maximise positive health impacts and ensure the mitigation of negative health impacts through the use of Health Impact Assessment for significant major development proposals.</p>	
<p>Policy 18 - Minerals - General Principles</p>	<p>1. Support will be given to maintain and grow a world class, thriving and sustainable minerals industry in Cornwall which meets local needs as well as exporting minerals, predominantly by rail and sea, to serve regional, national and international markets.</p> <p>2. A sufficient supply of indigenous minerals will be maintained to achieve sustainable and economic growth, whilst encouraging the use of recycled and secondary materials, particularly secondary aggregates from china clay (kaolin) production, to minimise the requirement for new extraction.</p> <p>3. New mineral development, of a scale sensitive to any landscape designations, will be supported in the following areas;</p> <p>a. China clay (kaolin) and secondary aggregate extraction in the St Austell (Hensbarrow) China Clay Area.</p> <p>b. Throughout Cornwall for:</p> <p>i. Building, roofing and ornamental stone</p> <p>ii. Metal and industrial minerals.</p> <p>iii. Primary aggregate development for a particular grade of material not provided for by other permitted reserves,</p> <p>c. Mineral recycling and recovery facilities will be supported where they fall within well screened areas at currently operational quarries and landfill sites.</p>	<p>Minerals development has the potential to lead to adverse effects on European sites depending on location and details. However, it is noted that a separate minerals plan is being produced and given that this policy does not provide specifics it is considered that the minerals plan is the appropriate forum for any detailed HRA of minerals proposals. On that basis this policy can be screened out.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>4. Mineral development should have no adverse impact from slope stability, differential settlement of quarry backfilling and mining subsidence.</p> <p>5. All mineral development should enable effective reclamation at the earliest opportunity for appropriate uses that:</p> <ul style="list-style-type: none"> <li>i. Contribute to and enhance the natural and local environment including, ecosystem services and networks and</li> <li>ii. Conserve and enhance heritage assets and protect and enhance valued landscapes, geological conservation interests and soils; and/or</li> <li>iii. Have the potential for wider community benefits.</li> </ul>	
<p>Policy 19 – Minerals Safeguarding</p>	<p>1. Important mineral resources and reserves and associated bulk transport, storage, handling and processing facilities and sites of;</p> <ul style="list-style-type: none"> <li>a. aggregates (both primary and secondary),</li> <li>b. china clay,</li> <li>c. building and ornamental stone (including roofing and heritage materials) and</li> <li>d. metals.</li> </ul> <p>will be safeguarded from sterilisation by other forms of development.</p> <p>2. Mineral Safeguarding Areas will be identified for the following mineral infrastructure;</p> <ul style="list-style-type: none"> <li>a. for concrete batching and other products and roadstone coating,</li> <li>b. for handling, processing and distribution of substitute, recycled and secondary aggregate,</li> <li>c. for the bulk transport of minerals by rail, sea (ports) or haul roads.</li> </ul>	<p>This policy concerns itself only with ensuring that minerals bearing land is not sterilised by inappropriate development. Safeguarding of such land does not carry with it any presumption that it will be developed. As such, this policy can be screened out.</p>
<p>Policy 20 – Strategic Waste Management Principles</p>	<p>1. Proposals must show best solution against the waste hierarchy; reduction; re-use; and recycle.</p> <p>The Council will support energy recovery facilities where options higher up the waste hierarchy cannot reasonably be realised.</p>	<p>Waste development has the potential to lead to adverse effects on European sites depending on location and details. However, the only waste site specifically mentioned within this policy is Connon Bridge landfill site which is located over 10km from the nearest European site and is therefore unlikely to present any potential impact pathways.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>2. New or extensions to existing landfill facilities (with the exception of Connon Bridge landfill site which will close on 31 December 2018) will only be supported where:</p> <ul style="list-style-type: none"> <li>a. In the case of Local Authority Collected Waste proposals contribute towards meeting a shortfall in capacity;</li> <li>b. In the case of Construction, Demolition and Excavation waste, they contribute to meeting a shortfall in capacity and, wherever possible, make use of the material for restoration of former mineral workings where restoration is needed and appropriate; or</li> <li>c. In exceptional cases and where it can be demonstrated that the facility is required to meet an identifiable need to manage waste arising in Cornwall that cannot reasonably be moved up the waste hierarchy.</li> </ul> <p>3. Proposals for development that facilitates markets for recycled materials, in particular initiatives to assist businesses in Cornwall to re-use/recycle their discarded waste materials, will be supported where they comply with other policies within this plan.</p>	<p>Moreover, it is noted that a separate waste plan is being produced and given that this policy does not provide specifics it is considered that the minerals plan is the appropriate forum for any detailed HRA of waste proposals. On that basis this policy can be screened out.</p>
<p>Policy 21 - Managing the Provision of Waste Management Facilities</p>	<p>1. New or changes to existing energy recovery facilities should make use of a significant proportion of any heat produced by the recovery process to meet locally identifiable needs.</p> <p>2. Particular support will be given to proposals for recycling and/or re-use and recovery facilities that:</p> <ul style="list-style-type: none"> <li>a. are located in close proximity to the location from which the majority of the waste arises; and/or</li> <li>b. involve the re-use of previously developed land, suitable industrial estates or waste management facilities; and/or</li> <li>c. in the case of construction, demolition and excavation waste recycling facilities, are located within well screened areas at currently operational quarries and landfill sites; and/or</li> <li>d. in the case of construction, demolition and excavation waste, contribute to restoration of sites formerly worked for mineral extraction where restoration is needed and appropriate; and/or</li> <li>e. involve co-location with an existing operation of a similar or</li> </ul>	<p>This policy restricts itself to defining the criteria for the most sustainable waste management facilities that will be supported by the local authority, rather than determining the number or location of any new sites. On that basis it can be screened out.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>complimentary nature; and/or</p> <p>f. incorporate alternatives to the transport of waste by road; and/or</p> <p>g. incorporate added value services that benefit the community, such as apprenticeships and opportunities for volunteering and community involvement; and/or</p> <p>h. maximise use of local supply chains in the sourcing /reuse/recycling of waste.</p> <p>3. Landfill development shall enable effective reclamation at the earliest opportunity for appropriate end uses.</p>	
<p>Policy 22 - Best use of land</p>	<p>To ensure the best use of land development proposals should give priority to:</p> <p>a. previously developed land and buildings; and/or</p> <p>b. despoiled, degraded, derelict, contaminated and unstable land; and</p> <p>c. the subdivision of properties, the reuse or conversion of existing vacant properties and building density that will ensure an efficient use of land</p> <p>d. safeguarding Grade 1, 2 and 3a agricultural land for food production and where reasonable alternatives for development can be identified, safeguard grade 3b agricultural land.</p>	<p>This policy merely sets the criteria for the best use of land and makes no judgments about location or scale of development. On this basis it can be screened out.</p>
<p>Policy 23 - Natural Environment</p>	<p>Development proposals will need to sustain Cornwall's local distinctiveness and character and protect and enhance Cornwall's natural environment and assets according to their international, national and local significance through the following measures;</p> <p>1. Cornish Landscapes</p> <p>Development should be of an appropriate scale, mass and design which recognise and respect the distinctive and diverse, landscape character and coastline as being vital to Cornwall's economy whilst having regard for the sensitivity and capacity of the landscape asset, the potential for cumulative impact and the wish to maintain dark skies and tranquillity in areas that are relatively undisturbed as set out in the Cornwall Landscape Character Assessment. In areas undeveloped coast, outside</p>	<p>This is a development control policy and is concerned with ensuring that development is sustainable, rather than setting the scale and location of development. On this basis it can be screened out.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>main towns, only development requiring a coastal location, and cannot be achieved elsewhere, will be acceptable.</p> <p>However, all landscapes matter not just those with national designations which is why attention to distinctiveness and character of the whole of Cornwall is so important. This is reflected by the Council's Landscape Character Assessment. A range of evidence will inform decisions about the impact on landscape including our well documented Areas of Great Landscape Value and through the saved policies for these from previous Local and Structure Plans. We will undertake reassessment of the descriptions and extent of each Area of Great Landscape Value to inform and produce strong revised statements of these local designations of landscape value.</p> <p>2. The Cornwall and Tamar Valley Area of Outstanding Natural Beauty Ensuring that any proposals within the AONB or affecting its setting, conserves and enhances the natural beauty and special qualities of the AONB; is appropriately located to address the AONB's sensitivity and capacity and delivers the objectives of the Cornwall and Tamar Valley AONB Management Plans including the interests of those who live and/or work in them.</p> <p>3. Terrestrial and Marine Biodiversity and Geodiversity Specifically ensuring that with direct and cumulative impact; a. international, national and locally designated sites for nature conservation are safeguarded from inappropriate development including appropriate buffer areas and provision made for their management based on up-to-date evidence and management plans. b. conserves, protects and enhances features of biological or geological interest (including Biodiversity Action Plan habitats and species), and provide for their appropriate management. c. Ensure no net loss of existing biodiversity and enable a net</p>	

Policy Reference	Policy Summary	HRA screening outcome
	<p>gain in biodiversity by designing in biodiversity, and ensuring any unavoidable impacts are appropriately mitigated and/or compensated for.</p> <p>d. the importance of habitats identified in the South West Regional Nature Map and the creation of a local and regional biodiversity network of wildlife corridors and local wildlife sites, helping to deliver the actions set out in the Cornwall Biodiversity Action Plan are recognised.</p> <p>Mitigation Where development will result in loss, the council will seek appropriate and proportionate mitigation and/or compensation such as replacement habitats.</p>	
<p>Policy 24 – Historic Environment</p>	<p>Development proposals will need to sustain Cornwall’s local distinctiveness and character and protect and enhance Cornwall’s historic environment and assets according to their international, national and local significance through the following measures:</p> <p>a. Protect, conserve and enhance the historic environment of designated and undesignated heritage assets and their settings, including historic landscapes, settlements, Conservation Areas, marine environments, archaeological sites, parks and gardens and historic buildings.</p> <p>b. Enhance and promote the outstanding universal value of the World Heritage Site and its setting; supporting the adopted management plan</p> <p>Assessment and Mitigation Development and management proposals should be informed by proportionate historic environment assessments and evaluations. Where the balance of a decision in favour of development results in the loss of a heritage asset, the Council will seek appropriate and proportionate mitigation by using planning conditions, management agreements and obligations.</p>	
<p>Policy 25 - Green</p>	<p>To protect and enhance a diverse, connected and functional</p>	<p>This is a policy that does not affect the quantum and</p>

Policy Reference	Policy Summary	HRA screening outcome
Infrastructure Policy	<p>network of open spaces and waterscapes development proposals should</p> <ol style="list-style-type: none"> <li>1. Demonstrate that all the functional environmental infrastructure and connections have been taken into account including; ecosystem services; biodiversity; coastal processes; and recreation within and near to the application site and show how this understanding has positively influenced the proposal.</li> <li>2. Retain and enhance the most important environmental infrastructure assets and connections which contribute to our Strategic Environmental Infrastructure network in their existing location.</li> <li>3. Provide appropriate buffers to high value natural spaces.</li> <li>4. Restore or enhance connectivity for nature and people through the site and linking to adjacent sites.</li> <li>5. Provide good quality and accessible open and coastal space.</li> <li>6. In exceptional circumstances where the need for the retention of the most important environmental infrastructure assets and connections is outweighed by the benefits arising from the development proposals mitigate against the loss of such green infrastructure equal to or above its current value and quality.</li> <li>7. Provide clear arrangements for the long-term maintenance and management that supports the green infrastructure and for transport routes.</li> </ol>	location of development and can therefore be screened out.
Policy 26 - Flood risk management and coastal change	<ol style="list-style-type: none"> <li>1. Development should take account of any adopted strategic and local flood and coastal management strategies for Cornwall.</li> <li>2. Development should be sited, designed, of a type and where necessary relocated in a manner that;               <ol style="list-style-type: none"> <li>a. Increases flood resilience of the area taking account of the area's vulnerability to the impacts of climate change and coastal change;</li> <li>b. Minimises or reduces flood risk on site and in the area;</li> <li>c. Enables/replicates natural water flows and decreases</li> </ol> </li> </ol>	This is a policy that does not affect the quantum and location of development and can therefore be screened out.

Policy Reference	Policy Summary	HRA screening outcome
	<p>surface water runoff, particularly in Critical Drainage Areas, through sustainable drainage of surface water, utilising green infrastructure where possible and as guided by local standards, including Cornwall drainage guidance;</p> <p>d. Is consistent with the policies and actions in the Shoreline Management Plan and Catchment Flood Management Plans for Cornwall and South West Basin Management Plan;</p> <p>f. Supports community-led local solutions to managing flood risk and coastal change; and</p> <p>g. Does not create avoidable future liability for maintenance for public bodies and communities.</p> <p>3. Development proposals of 10 dwellings or more or over 0.1 ha should provide a long term water management plan, which includes maintenance of surface water drainage systems, measures to improve the network of surface water drainage systems on and around the site (e.g. culverts etc) and identifies opportunities for future enhancement.</p>	
<p>Policy 27 – Transport and Accessibility</p>	<p>To ensure a resilient and reliable transport system for people, goods and services development proposals should</p> <ol style="list-style-type: none"> <li>1. be consistent with and contribute to the delivery of Connecting Cornwall 2030, Cornwall's local transport plan or any subsequent LTPs;</li> <li>2. locate development and/or incorporate a mix of uses so that the need to travel will be minimised and the use of sustainable transport modes can be maximised by prioritising safe pedestrian routes, public transport and road routes within and in the immediate vicinity of the development. The inclusion of electric vehicle charging infrastructure and real time passenger information/journey planning will be considered favourably.</li> <li>5. be accompanied with effective travel plans to mitigate the impact of development;</li> <li>6. not significantly adversely impact the local or strategic road network that cannot be managed or mitigated; access by walking, cycling and public transport and providing new facilities and services to minimise car travel.</li> </ol>	<p>This is a policy that does not affect the quantum and location of development and can therefore be screened out.</p>

Policy Reference	Policy Summary	HRA screening outcome
	<p>3. locate developments which attract a proportionally large number of people in the city and main towns or locations which are highly accessible by public transport or areas which will be made high accessible by the development. Any proposals which do not accord with this will require significant justification and provide clear transport benefits;</p> <p>4. be designed to provide convenient accessible and appropriate cycle and</p> <p>7. safeguard strategic transport opportunities including land around existing facilities to allow for expansion and use for future sustainable modes of travel e.g. closed branch rail lines; and</p> <p>8. provide public transport solutions including park and ride where there is evidence that it will remove traffic from the highway network, is economically viable and that accord with the appropriate transport strategy for the area.</p>	
<p>Policy 28 Infrastructure</p>	<p>1. New development must be supported by appropriate infrastructure provided in a timely manner. The Council will continue to work in partnership with infrastructure providers and other delivery agencies to keep an up to date infrastructure delivery plan that will enable proposals, in accordance with the spatial objectives, to be brought forward.</p> <p>2. Developer contributions, as a Community Infrastructure Levy and based on the strategic viability assessment, will be sought to ensure that the necessary physical, social, economic and green infrastructure is in place to deliver development. Contributions will be used to mitigate the adverse impacts of development (including any cumulative impact).</p> <p>3. Developers will, in addition, be required to provide on-site mitigation measures or make financial contributions for site specific infrastructure provision not in the Regulation 123 list, including maintenance and management contributions, to be negotiated on a site-by-site basis.</p> <p>4. Unless it can be demonstrated that it is not feasible to do so, the Council will seek to ensure all 'allowable solutions' or</p>	<p>This is a policy that does not affect the quantum and location of development and can therefore be screened out.</p>

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Policy Reference	Policy Summary	HRA screening outcome
	'biodiversity off setting' payments are invested in projects within Cornwall with priority given to projects which achieve multiple benefits.	

3.1.2 Policy 2 (Strategic Policy), Policy 3 (Role and Function of Places), Policy 4 (Shopping, Services and Community Facilities), Policy 5 (Jobs and Skills) and Policy 6 (Housing) cannot be screened out as not leading to likely significant effects, essentially because these promote increased housing and employment and there is not as yet a policy mechanism that would enable the delivery of measures to avoid an adverse effect. Part 2 of the Local Plan (which sets out the development within each Community Network Area) was therefore used for the Appropriate Assessment, which (since multiple European sites are potentially affected by similar issues) is organised on an 'impact by impact' basis.

## 4 Recreational pressure and disturbance

### 4.1 Introduction

4.1.1 Habitat Regulation Assessments of Core Strategies and Local Plans tend to focus on recreational sources of disturbance as a result of new residents or an increasingly aging population with more leisure time available. While this is a key factor, other sources of disturbance associated with an increase in commercial development, road transport adjacent to sensitive sites, development of renewable energy technology, and increases in shipping and aircraft movement may also result.

4.1.2 Recreational use of a European site has the potential to:

- Cause disturbance to sensitive species, particularly ground-nesting birds and wintering wildfowl;
- Prevent appropriate management or exacerbate existing management difficulties;
- Cause damage through erosion and fragmentation; and
- Cause eutrophication as a result of dog fouling.

4.1.3 Different types of European sites are subject to different types of recreational pressures and have different vulnerabilities. Studies across a range of species have shown that the effects from recreation can be complex.

### 4.2 Mechanical/abrasive damage and nutrient enrichment

4.2.1 Most types of terrestrial European site can be affected by trampling, which in turn causes soil compaction and erosion. Walkers with dogs contribute to pressure on sites through nutrient enrichment via dog fouling and also have potential to cause greater disturbance to fauna as dogs are less likely to keep to marked footpaths. Motorcycle scrambling and off-road vehicle use can cause more serious erosion, as well as disturbance to sensitive species.

4.2.2 There have been several papers published that empirically demonstrate that damage to vegetation in woodlands and other habitats can be caused by vehicles, walkers, horses and cyclists:

- Wilson & Seney (1994)<sup>2</sup> examined the degree of track erosion caused by hikers, motorcycles, horses and cyclists from 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, it was concluded that horses and hikers disturbed more sediment on wet tracks, and therefore caused more erosion, than motorcycles and bicycles.

<sup>2</sup> Wilson, J.P. & J.P. Seney. 1994. Erosional impact of hikers, horses, motorcycles and off road bicycles on mountain trails in Montana. Mountain Research and Development 14:77-88

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- Cole et al (1995a, b)<sup>3</sup> conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow and grassland communities (each tramped between 0 and 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphological characteristics were found to explain more variation in response between different vegetation types than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. Cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks, but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.
- Cole (1995c)<sup>4</sup> conducted a follow-up study (in 4 vegetation types) in which shoe type (trainers or walking boots) and trampler weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier trampers caused a greater reduction in vegetation height than lighter trampers, but there was no difference in effect on cover.
- Cole & Spildie (1998)<sup>5</sup> experimentally compared the effects of off-track trampling by hiker and horse (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). Horse traffic was found to cause the largest reduction in vegetation cover. The forb-dominated vegetation suffered greatest disturbance, but recovered rapidly. Higher trampling intensities caused more disturbance.

4.2.3 The total volume of dog faeces deposited on sites can be surprisingly large. For example, at Burnham Beeches National Nature Reserve over one year, Barnard<sup>6</sup> estimated the total amounts of urine and faeces from dogs as 30,000 litres and 60 tonnes respectively. The specific impact on European sites in Cornwall has not been quantified from local studies; however, the fact that habitats for which the SAC is designated appear to already be subject to excessive nitrogen deposition<sup>7</sup>, suggests that any additional source of nutrient enrichment (including uncollected dog faeces) will make a cumulative contribution to overall enrichment. In sites that are heavily used by dog walkers, degradation of valuable habitat types near car parks, entrance points and tracks can be seen that is attributable to nutrient enrichment. Such enrichment is visible near the main car parks around Chobham Common NNR in Surrey, for example, where heathland is lost and coarse grasses predominates. Any such contribution must then be considered within the context of other recreational sources of impact on sites.

<sup>3</sup> Cole, D.N. 1995a. Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. *Journal of Applied Ecology* 32: 203-214

Cole, D.N. 1995b. Experimental trampling of vegetation. II. Predictors of resistance and resilience. *Journal of Applied Ecology* 32: 215-224

<sup>4</sup> Cole, D.N. 1995c. Recreational trampling experiments: effects of trampler weight and shoe type. Research Note INT-RN-425. U.S. Forest Service, Intermountain Research Station, Utah.

<sup>5</sup> Cole, D.N., Spildie, D.R. 1998. Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmental Management* 53: 61-71

<sup>6</sup> Barnard, A. (2003) Getting the Facts - Dog Walking and Visitor Number Surveys at Burnham Beeches and their Implications for the Management Process. *Countryside Recreation*, 11, 16 - 19

<sup>7</sup>UK Air Pollution Information Ssystem. [www.apis.ac.uk](http://www.apis.ac.uk)

## Direct Disturbance to Wildlife (Recreation)

4.2.4 Animals for which European sites covered in this report are designated include birds (SPA qualifying birds are aquatic warbler, bittern, little egret, avocet), otter, invertebrates (marsh fritillary butterfly, southern damselfly), and fish (Atlantic salmon, bullhead). Disturbance to coral reefs which are also qualifying features of European sites within this assessment is also discussed below.

### Disturbance of birds

4.2.5 Concern regarding the effects of disturbance on birds stems from the fact that they are expending energy unnecessarily and the time they spend responding to disturbance is time that is not spent feeding<sup>8</sup>. Disturbance therefore risks increasing energetic output while reducing energetic input, which can adversely affect the 'condition' and ultimately survival of the birds. In addition, displacement of birds from one feeding site to others can increase the pressure on the resources available within the remaining sites, as they have to sustain a greater number of birds<sup>9</sup>. Moreover, the more time a breeding bird spends disturbed from its nest, the more its eggs are likely to cool and the more vulnerable they, or any nestlings, are to predators.

4.2.6 The potential for disturbance may be less in winter than in summer, in that there are often a smaller number of recreational users. In addition, the consequences of disturbance at a population level may be reduced because birds are not breeding. However, winter activity can still cause important disturbance, especially as birds are particularly vulnerable at this time of year due to food shortages, such that disturbance which results in abandonment of suitable feeding areas through disturbance can have severe consequences. Several empirical studies have, through correlative analysis, demonstrated that out-of-season (October-March) recreational activity can result in quantifiable disturbance:

- Tuite et al<sup>10</sup> found that during periods of high recreational activity, bird numbers at Llangorse Lake decreased by 30% as the morning progressed, matching the increase in recreational activity towards midday. During periods of low recreational activity, however, no change in numbers was observed as the morning progressed. In addition, all species were found to spend less time in their 'preferred zones' (the areas of the lake used most in the absence of recreational activity) as recreational intensity increased.
- Underhill et al<sup>11</sup> counted waterfowl and all disturbance events on 54 water bodies within the South West London Water Bodies Special Protection Area and clearly correlated disturbance with a decrease in bird numbers at weekends in smaller sites and with the movement of birds within larger sites from disturbed to less disturbed areas.

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<sup>8</sup> Riddington, R. *et al.* 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* 43:269-279

<sup>9</sup> Gill, J.A., Sutherland, W.J. & Norris, K. 1998. The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* 12: 67-72

<sup>10</sup> Tuite, C. H., Owen, M. & Paynter, D. 1983. Interaction between wildfowl and recreation at Llangorse Lake and Talybont Reservoir, South Wales. *Wildfowl* 34: 48-63

<sup>11</sup> Underhill, M.C. *et al.* 1993. *Use of Waterbodies in South West London by Waterfowl. An Investigation of the Factors Affecting Distribution, Abundance and Community Structure.* Report to Thames Water Utilities Ltd. and English Nature. Wetlands Advisory Service, Slimbridge

- Evans & Warrington<sup>12</sup> found that on Sundays total water bird numbers (including shoveler and gadwall) were 19% higher on Stocker's Lake LNR in Hertfordshire, and attributed this to observed greater recreational activity on surrounding water bodies at weekends relative to week days. However, in this study, recreational activity was not quantified in detail, nor were individual recreational activities evaluated separately.
- Tuite et al<sup>13</sup> used a large (379 site), long-term (10-year) dataset (September – March species counts) to correlate seasonal changes in wildfowl abundance with the presence of various recreational activities. They found that shoveler was one of the most sensitive species to disturbance. The greatest impact on winter wildfowl numbers was associated with sailing/windsurfing and rowing.

4.2.7 A number of studies have shown that birds are affected more by dogs and people with dogs than by people alone, with birds flushing more readily, more frequently, at greater distances and for longer. In addition, dogs, rather than people, tend to be the cause of many management difficulties, notably by worrying grazing animals, and can cause eutrophication near paths. Nutrient-poor habitats such as heathland are particularly sensitive to the fertilising effect of inputs of phosphates, nitrogen and potassium from dog faeces<sup>14</sup>.

4.2.8 Underhill-Day<sup>15</sup> summarises the results of visitor studies that have collected data on the use of semi-natural habitat by dogs. In surveys where 100 observations or more were reported, the mean percentage of visitors who were accompanied by dogs was 54.0%.

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4.2.9 However the outcomes of many of these studies need to be treated with care. For instance, the effect of disturbance is not necessarily correlated with the impact of disturbance, i.e. the most easily disturbed species are not necessarily those that will suffer the greatest impacts. It has been shown that, in some cases, the most easily disturbed birds simply move to other feeding sites, whilst others may remain (possibly due to an absence of alternative sites) and thus suffer greater impacts on their population<sup>16</sup>. A recent literature review undertaken for the RSPB<sup>17</sup> also urges caution when extrapolating the results of one disturbance study because responses differ between species and the response of one species may differ according to local environmental conditions. These facts have to be taken into account when attempting to predict the impacts of future recreational pressure on European sites.

4.2.10 Disturbing activities are on a continuum. The most disturbing activities are likely to be those that involve irregular, infrequent, unpredictable loud noise events, movement or vibration of long duration. Birds are least likely to be disturbed by activities that involve regular, frequent, predictable, quiet patterns of sound or movement or minimal vibration. The further any activity is from the birds, the less likely it is to result in disturbance.

<sup>12</sup> Evans, D.M. & Warrington, S. 1997. The effects of recreational disturbance on wintering waterbirds on a mature gravel pitlake near London. *International Journal of Environmental Studies* 53: 167-182

<sup>13</sup> Tuite, C.H., Hanson, P.R. & Owen, M. 1984. Some ecological factors affecting winter wildfowl distribution on inland waters in England and Wales and the influence of water-based recreation. *Journal of Applied Ecology* 21: 41-62

<sup>14</sup> Shaw, P.J.A., K. Lankey and S.A. Hollingham (1995) – Impacts of trampling and dog fouling on vegetation and soil conditions on Headley Heath. *The London Naturalist*, **74**, 77-82.

<sup>15</sup> Underhill-Day, J. C. (2005) A literature review of urban effects on lowland heaths and their wildlife. English Nature Research Report No. 624. English Nature, Peterborough.

<sup>16</sup> Gill et al. (2001) - Why behavioural responses may not reflect the population consequences of human disturbance. *Biological Conservation*, **97**, 265-268

<sup>17</sup> Woodfield & Langston (2004) - Literature review on the impact on bird population of disturbance due to human access on foot. *RSPB research report* No. 9.

4.2.11 The factors that influence a species response to a disturbance are numerous, but the three key factors are species sensitivity, proximity of disturbance sources and timing/duration of the potentially disturbing activity.

4.2.12 Where increased recreational use is predicted to cause adverse impacts on a site, avoidance and mitigation should be considered. Avoidance of recreational impacts at European sites involves location of new development away from such sites; Local Plans (and other strategic plans) provide the mechanism for this. Where avoidance is not possible, mitigation will usually involve a mix of access management, habitat management and provision of alternative recreational space.

- *Access management* – restricting access to some or all of a European site - is not usually within the remit of the Council and restriction of access may contravene a range of Government policies on access to open space, and Government objectives for increasing exercise, improving health etc. However, active management of access may be possible, for example as practised on nature reserves.
- *Habitat management* is not within the direct remit of the Council. However the Council can help to set a framework for improved habitat management by promoting cross-authority collaboration and S106 funding of habitat management. In the case of Cornwall, there may be opportunities for this since, according to Natural England, some areas of Sites of Special Scientific Interest habitat underpinning SACs and SPAs in Cornwall are not currently in favourable condition<sup>18</sup>.
- *Provision of alternative recreational space* can help to attract recreational users away from sensitive European sites, and reduce additional pressure on them. For example, some species for which European sites have been designated are particularly sensitive to dogs, and many dog walkers may be happy to be diverted to other, less sensitive, sites. However the location and type of alternative space must be attractive for users to be effective. In the case of European sites within Cornwall, dog-walking, walking, cycling and off-shore recreation are likely to be the major site usages, and so alternative space needs to cater for this.

4.2.13 The HRA screening of the Local Plan Options Paper indicated that at least some European sites within Cornwall (or within a distance over which recreational visitors from Cornwall could be expected to have potential impacts) would be vulnerable to recreational pressure. Therefore this pathway of impact is considered further within the screening of the Preferred Approaches document.

**Other activities causing disturbance**

4.2.14 Non-recreational activities also have potential to lead to likely significant adverse effects on European sites through disturbance of species for which the sites are designated.

4.2.15 Ships/ports and vehicles/roads can cause a range of types of disturbance to the species at European sites. The sensitivity of wildlife to the noise of roads and aircraft varies greatly from species to species. However road and airport/aircraft noise can cause some wildlife – notably a

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<sup>18</sup> <http://www.natureonthemap.org.uk/>

range of grassland and woodland birds - to avoid areas near them, reducing the density of those animal populations<sup>19</sup>. Elsewhere, reduced breeding success has been recorded.

- 4.2.16 Animals can also be disturbed by the movement of ships, aircraft and vehicles. For instance, a DTI study of birds of the North West coast noted that: "Divers and scoters were absent from the mouths of some busier estuaries, notably the Mersey... Both species are known to be susceptible to disturbance from boats, and their relative scarcity in these areas... may in part reflect the volume of boat traffic in these areas" (DTI, 2006).

- 4.2.17 Large structures (e.g. offshore and onshore wind turbine or a new bridges as a result of greater infrastructure development), have the potential to alter bird flight paths (e.g. hunting flight paths for raptors, bird migratory paths, regular flight paths between roosting and feeding sites, and foraging routes for bats etc. This may result in a collision risk barrier effect or displacement which could make birds either vulnerable to predation or loss of vital energy stores.

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- 4.2.18 Direct disturbance due to renewable energy development of is particular note for Cornwall, with the Cornwall Sustainable Community (CSC) Strategy Vision for 2030 '*Cornwall will lead the country in sustainable living*' including '*Cornwall will be an industry leader in environmental technologies (land and marine)*' (Chapter 4 describes the 'in combination' scope of other plans and policies relating to renewable energy including this). Cornwall is one of the two counties in the UK that has invested in wave energy. Wave Hub currently comprises a small test area in the north west of Cornwall (the second UK site is in the Orkney Islands in Scotland). Further research and development within this renewable technology sector as a result of the Cornwall Local Plan is plausible. Potential ecological impacts identified in the Wave Hub Environmental Statement<sup>20</sup> that could result in detrimental impacts to European Sites (depending on location of future wave technology sites) included disturbance to terrestrial ecology and seabed ecology during construction, disturbance to birds and marine mammals (e.g. dolphins, porpoises) and elasmobranchs (species sensitive to electromagnetism such as sharks and rays). Furthermore in their SAC selection process for Lands End and Cape Bank SAC, Natural England<sup>21</sup> identified that the construction and operation of the Wave Hub off St Ives is likely to increase the amount of shipping traffic using the area and so increases the potential risk of chemical pollution and physical disturbance resulting from chronic and catastrophic events. This is described in water quality section below.

- 4.2.19 In addition Natural England<sup>22</sup> identifies a medium risk to Start point and Plymouth Sounds and Eddystone cSAC through the generation of tidal stream energy. Whilst there are currently no tidal power devices within Cornwall (the closest is Lymouth in Devon), research and development within this renewable technology within the Local Plan sector is also plausible, and may therefore require future consideration. Research undertaken by the University of Liverpool and Proudman Oceanographic Laboratory identify key ecological impacts of Tidal Power Schemes<sup>23</sup>. The most publicised impact of tidal barrages is the potential loss of certain habitats, especially inter-tidal mudflats and salt-marshes. These are particularly important for some species of birds and can be nationally and internationally protected areas. Benthic

<sup>19</sup> Kaseloo, P.A. & Tyson, K.O. (2004). Synthesis of noise effects on wildlife. US Federal Highway Administration Report No. FHWA-HEP-06-016.

<sup>20</sup> Halcrow and South West of England RDA (2006) Wave Hub Environmental Statement  
[http://www.wavehub.co.uk/information\\_for\\_developers/environmental\\_impacts.aspx](http://www.wavehub.co.uk/information_for_developers/environmental_impacts.aspx)

<sup>21</sup> Natural England (2010) Inshore Special Areas of Conservation Lands End and Cape Bank SAC

<sup>22</sup> Natural England (2010) Evidence base for the designation of Start point to Plymouth Sound and Eddystone pSAC

<sup>23</sup> Wolf, J., Walkington, IA, Holt, J., Burrows, R. (2009) Environmental Impact of Tidal Power Schemes  
[http://www.liv.ac.uk/engineering/burrows/WOLF\\_et\\_al\\_ICE\\_final.pdf](http://www.liv.ac.uk/engineering/burrows/WOLF_et_al_ICE_final.pdf)

habitats may change in that the bottom stress due to waves and currents may be modified. Migratory fish may be impeded although fish passes can be constructed. Fish and marine mammals may suffer damage by collision with the barrage and turbines. Some estuaries may provide nurseries for breeding fish and conditions for these may no longer be suitable. An increase in primary productivity may enhance the population of filter feeders.

**4.2.20** Offshore and onshore windfarms may also affect European sites through both disturbance and direct mortality.

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**4.2.21** Certain types of birds are more vulnerable to disturbance from windfarms than others. Disturbance and displacement from feeding and nesting areas has been demonstrated with regard to wintering geese<sup>24</sup>, curlew and hen harriers<sup>25</sup>.

**4.2.22** Bird collisions mainly occur with species with a lower ability for rapid avoidance manoeuvres (e.g. geese and swans, divers), or those with a need to hunt in airspace through which turbine arms pass (e.g. terns and low-flying raptors). This risk depends partly on turbine construction and placement, and distribution of the array. Collision risk and its impact on relatively long-lived, slow-reproducing species (e.g. terns) appears to have been underestimated in the past, judging from some recent research<sup>26</sup>.

**4.2.23** Offshore turbine arrays have also been shown to affect migrating and wintering seabirds, forcing birds away from coastal routes<sup>27</sup>. Changes in sediment flows due to the introduction of offshore turbine arrays may also have implications for benthic communities. It is also possible that excluding fishing activities around offshore turbines may create de facto protected areas for marine life, potentially increasing collision risk for feeding birds.

**4.2.24** Natural England<sup>28 29</sup> found commercial fishing from trawling and scallop dredging was identified as a vulnerability to Lizard Point SAC.

**Sites most at risk of increased visitor pressure**

**4.2.25** For the vast majority of European sites within Cornwall site-specific data does not yet exist that enables us to obtain precise data on the visitor catchments of these sites (and therefore the zone around the site within which a significant population increase may cause a significant change in visitor numbers). The Council is committed to improving this situation and obtaining baseline visitor data for all relevant sites. This will inform any mitigation strategies necessary following adoption of the Local Plan, including those identified later in this report.

**4.2.26** Over the past four years a series of visitor surveys of European sites in other parts of the south-west and other areas of England have been undertaken. These cover a range of European sites in various situations and can therefore serve as a broad indicator for European sites in Cornwall provided that they are used with care:

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<sup>24</sup> Langston, R.H.W. & Pullan, J.D. (2003). Windfarms and birds: An analysis of the effects of windfarms on birds, and guidance on environmental assessment criteria and site selection issues. Convention on the Conservation of European Wildlife and Natural Habitats.

<sup>25</sup> Madders, M. & Whitfield, D.P. (2006). Upland raptors and assessment of wind farm impacts. Ibis 148, 43-56.

<sup>26</sup> Everaert, J. & Kuijken, E. (2007). Wind turbines and birds in Flanders (Belgium). Preliminary Summary of the Mortality Research Results.

<sup>27</sup> Kingsley, A. & Whittam, B. (2005). Wind turbines and birds: A background review for environmental assessment.

<sup>28</sup> Natural England (2010) Inshore Special Areas of Conservation Lands End and Cape Bank SAC:

<sup>29</sup> Natural England (2010) Inshore Special Areas of Conservation Lizard Point SAC

- Exe Estuary SPA/Ramsar site - visitor surveys were undertaken by Footprint Ecology<sup>30</sup>. Most visitors (around 60%) had travelled by car and at least a further 29% travelled on foot. Foot visitors tended to be very local, whereas car-borne visitors were travelling considerable distances: 51% of those interviewed (taking only those visiting from home on a short visit/day trip rather than holidaymakers) had come from within a 10km radius of the interview location and 75% with 20km.
- Ashdown Forest SAC/SPA - Detailed studies have been undertaken over the past three years into recreational activity within Ashdown Forest and the sources of visitors. These studies are documented in reports by Footprint Ecology and others<sup>31</sup>. As a result of these visitor surveys, the core catchment for Ashdown Forest SAC/SPA is defined at 7km<sup>32</sup>. This has been chosen because it captures approximately 83% of regular visitors to the Forest. Development that lies outside this zone is not being targeted due to the small contribution it makes to regular visitors to the Forest.
- Humber Estuary SAC/SPA/Ramsar site - Visitor survey work on the Humber Estuary has now been completed by Footprint Ecology<sup>33</sup>. Eighty-eight percent of visitors interviewed were local residents visiting on a short trip or day trip from home. Most (70%) of interviewees arrived at sites by car. Home postcodes indicated people travelling from their home lived a median distance of 4.4km from the survey point. 50% of interviewed visitors on foot lived within 0.95km and 50% of visitors who travelled by car lived within 8.4km, after which points of origin became more dispersed.
- Thames Basin Heaths SPA – The Thames Basin Heaths occur in one of the most densely populated parts of the UK, and attract an estimated 5.36 million visitors per annum to the SPA, 4.45 million of whom arrive by car. Research established that 100% of visitors on foot, 93% of people arriving by bicycle and 70% of people arriving by car derived from within 5km of the SPA. Beyond 5km visitor origins became notably more dispersed. On this basis, 5km was used as the definition of the core catchment of the site.
- North Downs Woodlands SAC – Survey by RMG: Clarity of this small woodland SAC in Kent which lies on the Pilgrims Way and North Downs Way identified that over 70% of visitors (irrespective of transport type) lived within 5km of the SAC.
- Thanet Coast & Sandwich Bay SPA/Ramsar site – Surveys undertaken by Strategic Marketing<sup>34</sup> identified that over 80% of visitors to the SPA/Ramsar site lived within 3km.
- North Kent Estuaries – Surveys of the North Kent European sites (Medway Estuary & Marshes SPA/Ramsar site, The Swale SPA/Ramsar site and Thames Estuary & Marshes SPA/Ramsar site) by Footprint Ecology<sup>35</sup> identified that 63% of visitors travelled to their

<sup>30</sup> Liley, D. & Cruickshanks, K. (2010). Exe Visitor Survey, 2010. Teignbridge District Council / Footprint Ecology

<sup>31</sup> Clarke RT, Sharp J & Liley D. 2010. Ashdown Forest Visitor Survey Data Analysis (Natural England Commissioned Reports, Number 048)

UE Associates and University of Brighton. 2009. Visitor Access Patterns on the Ashdown Forest: Recreational Use and Nature Conservation

<sup>32</sup> UE Associates. October 2011. Habitat Regulations Assessment for the Mid-Sussex District Plan

<sup>33</sup> Fearnley, H., Liley, D. & Cruickshanks, K. (2012). Humber Management Scheme Visitor Survey. Footprint Ecology, unpublished report for Humber Management Scheme

<sup>34</sup> Strategic Marketing. April 2012. Dover Visitor's Survey: Pegwell Bay & Sandwich Bay

<sup>35</sup> Fearnley, H. & Liley, D. (2011). North Kent Visitor Survey Results. Footprint Ecology.

visit location by car or van, 34% of visitors arrived by foot; 90% of visitors who arrived by foot lived within 2.7km while 50% of visitors who arrived by car lived within 4.2km of their visit location, after which points of origin became more dispersed.

- Oxford Meadows SAC - a visitor survey undertaken during October 2011 by Oxford City Council to inform the Oxford Sites and Housing DPD. This identified that over 80% of visitors to the SAC live within 5km of the site.
- Solent Maritime SAC and overlapping Special Protection Areas – Data on visitor activity in the Solent complex was obtained through the Solent Disturbance and Mitigation Project<sup>36</sup>. Terrestrial (rather than water-based) visitors undertook a wide range of activities, with walking (without a dog) and dog walking the two most frequently recorded activities. Taking the data for non-holiday makers only, visitors were roughly evenly divided between those who arrived by car and those who arrived on foot. Ninety percent of all visitors arriving on foot lived within 2km. Almost eighty percent of all visitors arriving by car (excluding holiday makers) lived within 10km, with 50% living within 4km. In other words, approximately 70% of local resident visitors to the Solent estuarine sites (irrespective of mode of transport) lived within 4km.
- Lydden and Temple Ewell Downs SAC – Data on Lydden and Temple Ewell Downs SAC collected through a 2010 visitor survey by Aspect Ecology demonstrate that the number of people currently using the SAC is small constituting an average of approximately 50 people per day. The visitor survey identified that approximately 75% of visitors live within 4km of the site (50% from within 2km and 25% from between 2km and 4km away). Over 70% of visitors use the site more than once a week. The main reason that they visited the SAC was for dog walking and two thirds of respondents commented that the reason they came to this site rather than any other was due to the close proximity to their home and the lack of any alternative sites within walking distance of home.
- Dover to Kingsdown Cliffs SAC – Data made available by Dover District Council and The National Trust identifies that approximately 78% of ‘local’ visitors (as opposed to tourists) live within 5km of the SAC.

4.2.27 These data reveal site-specific variation in visitor catchments but two broad trends do emerge; firstly that large coastal estuarine sites tend to have considerably larger catchments than inland sites (typically with at least 50% of visitors living within 10km from the site), while smaller inland sites tend to have smaller catchments i.e. at least 50% of visitors living within 5km or less.

4.2.28 Following discussion with Natural England in August 2012, it is agreed that these data cannot be used to define generic ‘cut-off’ distances for recreational catchments. However, in the opinion of the authors it is reasonable to say that inland European sites which will experience large population changes within 5km are most at risk of a significant effect that will require visitor management measures to be introduced/improved, compared to sites where the population within 5km will change relatively little. Equally, those large coastal European sites (particularly those with an estuarine element or which are widely promoted as visitor attractions) that will experience a large population change within a 10km radius are most at risk of a significant effect.

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<sup>36</sup> Stillman, R. A., West, A. D., Clarke, R. T. & Liley, D. (2012) Solent Disturbance and Mitigation Project Phase II: Predicting the impact of human disturbance on overwintering birds in the Solent. Report to the Solent Forum

## 4.3 European site background

- 4.3.1 Breney Common and Goss & Tregoss Moors SAC. Although visitor surveys have been undertaken for parts of this site, the surveys are not designed to collect the type of information that would be most useful to this assessment e.g. what percentage of visitors derive from particular settlements. However, the general tone of Natural England and English Nature reports concerning this site over the past 10 years is well expressed in the report Rural Issues & Opportunities: Goss Moor and its Environs (2002) which stated that *'The Goss Moor is currently [in 2002] an undervalued resource in the area. Foot paths and tracks onto the reserve are underused and many are overgrown. The lack of grazing on the common lands and the subsequent encroachment of gorse scrub has further reduced the accessibility of areas for recreational use. The use of the area as a local recreational resource and as a tourist attraction is also restricted by the lack of facilities for visitors, promotion of the area, signs from the main transport routes and interpretation of the sites'*. While the site will not be as undervalued a resource after 10 years and active initiatives from Natural England and other bodies to improve access to the site and attract more visitors, it is clear that unmanageable levels of recreational activity is not one of this sites current problems. The isolation of the site and the difficulty of the terrain across much of the site inherently limit visitor usage, particularly 'off track'. Current local visitors appear to be dominated by dog-walkers and horse-riders from St Dennis and Roche.
- 4.3.2 Fal and Helford SAC. Many of the designated interest features of Fal and Helford SAC (subtidal sandbanks, intertidal mudflats/sandflats, large shallow inlets and bays, reefs and estuaries) are not particularly susceptible to trampling from walkers. Several of these features are however susceptible to abrasion from boating and disturbance from bait digging. The saltmarsh habitat has some vulnerability to trampling. The shore dock population is theoretically vulnerable but is isolated from areas where recreational walking occurs. The Fal and Helford SAC Management Scheme (shortly to be updated) identified in Section 3.2 and Table 4 the recreational activities to which the estuary is subjected. These include canoeing, sailing, diving, rowing, water skiing and wind surfing. However it is also made clear that recreational pressure is less of a concern in the SAC than commercial activities and the management scheme therefore prioritises commercial activities and restricts itself to *'monitor the level and pattern of recreational activities to inform future management decisions as necessary'* with regard to recreation. It can be concluded that the SAC is not currently subject to unmanageable levels of recreational activity.
- 4.3.3 Carrine Common SAC. No recreational surveys have been traced for use in this project. However, it has been ascertained that pressures on the site arise from damaging summer fires, attributable mainly to irresponsible visitors and motorists using the road that divides the site. Dumping and tipping have also occurred. Carrine Common is 'common land' that is open to public access and is located approximately 500m from parts of Truro (such as Newbridge), one of the largest towns in Cornwall. It is therefore likely that it is subject to regular high levels of recreational activity. The site is designated for its heathland habitat, which can be vulnerable to recreational trampling and associated impacts such as accidental fires.
- 4.3.4 Tregonning Hill SAC. This site is designated for its western rustwort populations. This is a species of liverwort which colonises moist, crumbling mica-rich weathered granite and china clay waste and requires regular abrasion/exposure of new bare areas for colonisation. As a pioneer species it is highly mobile. In general this species is not particularly vulnerable to recreation in as much as the plant requires the regular exposure of new areas to colonise for

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the population to persist; however, excessive recreation can cause an imbalance between the existing colony and new areas for expansion and can adversely affect the species. Tregonning Hill is quite isolated being 5.5km from the nearest sizeable town (Helston).

- 4.3.5 Lower Bostraze and Leswidden SAC. This site is also designated for western rustwort but is not open to the public. Recreational pressure is therefore not a concern for this site.
- 4.3.6 St Austell Clay Pits SAC is a very small SAC (0.6ha) which is also designated for western rustwort. The quarry within which this SAC is located is an active china clay quarry and is therefore not open to the public.
- 4.3.7 Marazion Marsh SPA is designated for its populations of passage aquatic warbler and wintering bittern; it is also the only Special Protection Area situated wholly within Cornwall. The site is an RSPB reserve and public access is therefore both encouraged and well-managed. Paths and hides are provided specifically to avoid the most sensitive areas of the site for birds. There are also controls on dog presence within the site; while some visitors occasionally break these codes, there is a prosecution system which is likely to serve as a deterrent. Marazion Marsh SPA is situated approximately 2km from Penzance and this settlement is therefore the most likely source of locally-based visitors.
- 4.3.8 Newlyn Downs SAC is designated for its heathland. As previously mentioned for Carrine Common, heathland is a habitat that can be adversely affected by recreational pressure. However, Newlyn Downs is a fairly isolated site being approximately 5km from the nearest sizeable settlement (Newquay); all other settlements closer to the SAC are small villages and are very sparsely distributed. It is unlikely to be a significant tourist attraction (unlike, for example, Penhale Dunes SAC). It is therefore unlikely to currently be subject to much recreational activity.
- 4.3.9 Most of the habitats and species for which the River Camel SAC is designated are not particularly vulnerable to recreational pressure (other than over-fishing) – bullhead, Atlantic salmon, otter, oak woodland and alder/ash wet woodland (much of the woodland lines steep sided gorges that are not easy to walk). Dry heathland is also one of the interest features of the SAC and is more susceptible to recreational pressure than the other interest features.
- 4.3.10 Crowdy Marsh SAC is designated for its transition mires and quaking bogs. This type of habitat is to a degree self-controlling with regard to recreational pressure since off-track/off-boardwalk activity is generally avoided as it is both unpleasant and potentially dangerous. On this basis, it is considered that Crowdy Marsh is not particularly vulnerable to recreational pressures. The site is 3km from the nearest sizeable settlement (Camelford).
- 4.3.11 Phoenix United Mines & Crow's Nest SAC is designated for its calaminarian grasslands (very unusual vegetation communities that colonise metal-contaminated ground). The JNCC Natura 2000 data sheet for this site identifies that at the time the citation was prepared motorbike scrambling was the key recreational activity that could adversely affect the interest of the SAC. It was identified that it was not at problematic levels at time of writing but required monitoring. It is assumed that motorbike scramblers will derive from the nearby small villages of Tremar, Derite, Minions, Henwood and/or Pensilva, or possibly from Liskeard.
- 4.3.12 Polruan to Polperro SAC is designated for its vegetated sea cliffs, heathland and a small population of shore dock. The sea cliffs are recorded in the Natura 2000 data sheet as being fairly accessible as are the areas of heathland at the top of the cliff, lying on the South West

Coast Path. The site is relatively isolated in terms of local settlements being approximately 7km from the nearest large settlement (St Austell), from which it cannot be reached by road without a considerable detour to cross the River Fowey at Lostwithiel. The nearest settlement of any size is the small town of Fowey which is immediately adjacent to the SAC but has a population of just over 2,000; moreover the SAC can only be reached from Fowey by ferry, without a considerable detour. There are however a large number of campsites and caravan sites in the area and it is therefore probable that tourists rather than local residents form the majority of recreational visitors to this area.

4.3.13 Godrevy Head to St Agnes SAC is designated for its heathland and its population of early gentian. Both are theoretically susceptible to excessive recreational pressure. However, the SAC lies within the National Trust Estate. The Cornwall Area of Outstanding Natural Beauty Management Plan 2011 – 2016 identifies some footpath erosion in the Chapel Porth area and that the AONB partnership is taking measures to address this. According to the Natura 2000 data sheet, *'the site is owned by the National Trust and public access is promoted. The site could therefore be vulnerable to trampling, scrub invasion and summer fires. The National Trust is managing the site in accordance with the nature conservation objectives set out in the agreed site management statement, which includes actions to address these issues'*. This comment does not imply that the site is suffering but that adequate management will be required to ensure that recreational pressure does not have an adverse effect, and The National Trust are delivering this management. The nearest sizeable settlement is St Agnes, located just over 1km to the east, and it is therefore probable that most local visitors derive from this settlement. Beyond St Agnes, the area is sparsely populated with the next nearest large settlement being Redruth, 5km to the south. The majority of visitors are likely to be tourists rather than local residents.

4.3.14 Penhale Dunes SAC is designated for its sand dune succession. Such habitats require a certain amount of disturbance to ensure that various successional stages are maintained, but excessive disturbance can retard succession completely and adversely affect the value of the site. The site is also designated for its colonies of petalwort, shore dock and early gentian. The resident population density in the surrounding area is quite low; the largest settlements within easy distance of the SAC are Perranporth and Holywell which are both fairly small (Perranporth has a population of approximately 3,000). Beyond these settlements the area is sparsely populated until one reaches Newquay approximately 5km to the north-east. There is an extremely high concentration of campsites in this area and it is therefore reasonable to conclude that this is a significant tourist area and that tourists probably contribute more than local residents to recreational activity, although the dunes are popular with those people who do live close to the site. Approximately half the area is under Ministry of Defence occupation, which over the years has restricted public access. According to the JNCC Natura 2000 data sheet the site management statements for all landowners cover visitor pressure, grazing, fire control and scrub management. Dune trampling has long been recognised as an issue by Cornwall Council. People visiting the sand dunes for recreation can have a severe impact on their environment if they do not act responsibly and the Cornwall Council website identifies that there is still some ongoing evidence of excessive recreational activity in the form of a large 'blow out' (literally an area in which the sand is denuded of vegetation and thus blows away) at Penhale, near the holiday park.

4.3.15 Tintagel-Marsland-Clovelly Coast SAC is not so much a site as an enormous stretch of coastline that crosses the Cornwall-Devon border. It is designated for its vegetated sea cliffs, heathland and oak woodland. The Natura 2000 data sheet for the SAC indicates that the cliffs

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are fairly inaccessible. The heathland and woodland areas are accessible and heathland in particular can be vulnerable to excessive recreational pressure. From examination of Nature on the Map the main heathland areas within the SAC appear to be located between Fire Beacon Point and Dizzard Point. The South West Coastal Path runs through the SAC. The site is partly owned and managed by The National Trust. As with Penhale Dunes SAC and Godrevy Head to St Agnes SAC, the Tintagel-Marsland-Clovelly Coast SAC is situated within an area that is extremely popular with tourists and has a relatively high density of campsites. Also as with those other SAC's the resident population is relatively sparsely distributed; along most of the coast there are only two settlements of significant size located within easy distance – Boscastle and Tintagel, both of which are villages with populations of approximately 1,000 people. As such, it is reasonable to conclude that tourists will constitute the bulk of visitors to this section of coast. It is only at the northern-most section of the SAC that a relatively large town (Bude; population approximately 10,000) is situated and where a significant proportion of visitors probably are local residents.

4.3.16 Plymouth Sound & Estuaries SAC/Tamar Estuaries Complex SPA is designated for its populations of little egret and avocet and its subtidal sandbanks, estuaries, large shallow inlets and bays, saltmarsh, reefs, intertidal mudflats/sandflats and populations of shore dock and Allis shad. The majority of the site lies within Devon but several areas (St John's Lake, the Lynher estuary, Kingsmill Lake and half of the Tamar Estuary itself) fall within Cornwall. Recreational visits to the site from the local population will clearly be dominated by the City of Plymouth which lies immediately adjacent to the site and is one of the largest settlements in south-west England with a population of 260,000; however, there are several significant settlements on the Cornwall side (principally Torpoint and Saltash, with a combined population of 24,000 people) that will also contribute to recreational activity. Assuming that the relative contribution can be broadly split on the basis of relative population size then approximately 90% of pressure will probably arise from Plymouth with 10% from Cornwall.

4.3.17 The Lizard SAC is designated for its complex of vegetated sea cliffs, hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp., Mediterranean temporary ponds and heathland. The heathland (which is the dominant habitat) and to a lesser extent vegetated sea-cliffs are theoretically most vulnerable to recreational pressure. The JNCC Natura 2000 data sheet however identifies that threats to this site are limited and the citation on the JNCC website implies that for at least some of these habitats a historic reduction in human activity on the peninsula has led to deterioration (with regard to the temporary ponds for example, it is stated that '*... in many areas the habitat type is much reduced, as trackways that once ensured the creation of the pools have fallen into disuse*'). The Lizard is one of the most sparsely populated parts of Cornwall (the largest settlement is Mullion, but the entirety of Mullion parish has a population of less than 2,000). The nearest sizeable settlement is Helston, with a population of 10,000, approximately 5km from the SAC. The entire Lizard Peninsula has a population of approximately 8,000 (not including Helston), spread over an area of more than 500 km<sup>2</sup> (a density of approximately 16 people per km<sup>2</sup>). It is therefore reasonable to conclude that unlike some large areas of heathland in other parts of the country (the Dorset Heaths SPA and the Thames Basin Heaths SPA in particular) which are subject to considerable recreational pressure due to very large urban populations situated within a few kilometres, the recreational activities and sparseness of population on The Lizard are such as to not currently pose a threat to the SAC.

4.3.18 In summary therefore it is considered that Tintagel-Marsland-Clovelly Coast SAC, Penhale Dunes SAC, Polruan to Polperro SAC and Godrevy Head to St Agnes SAC are most

vulnerable to increased recreational pressure due to the vulnerability of their habitats and the large levels of recreational visitor usage currently experienced. However, in all three cases visitors are probably dominated by tourists based on local campsites and hotels, rather than local residents as all are in relatively sparsely inhabited areas. Carrine Common SAC may also be particularly vulnerable due to the susceptibility of its key habitat (heathland) its status as common land and close proximity to Truro.

## 4.4 Appropriate Assessment

### **Brenay Common and Goss & Tregoss Moors SAC**

4.4.1 This site is located within the China Clay CNA. The population within this CNA is dispersed although due to high levels of growth over the past decade the total housing stock is 11,100 (c.12,100 taking account of housing delivered since 2010 and existing housing commitments i.e. dwellings with planning permission that haven't yet been delivered). Policy PP9 identifies that the China Clay CNA will need to make provision for 1,400 dwellings between 2010 and 2030; discounting those that already have planning permission<sup>37</sup> would leave a future housing requirement of 490 currently uncommitted new dwellings. If this need was met therefore, there would be an increase of approximately 4% in housing stock and potentially a similar increase in population (as a worst case, since that assumes that all new housing was occupied by newcomers to the area and that all new dwellings would be additional to the existing housing stock rather than replacements). This increase would occur over a large area given the dispersed nature of settlements within the China Clay CNA. The population density within the CNA would therefore barely change as a result of Local Plan delivery. As such, it is reasonable to conclude that recreational activity on the SAC would also change little as a result of this small amount of new housing.

4.4.2 This site also lies adjacent to the Newquay and St Columb CNA. However, the population of this CNA is not evenly distributed but is heavily focussed on Newquay (almost 80% of the entire CNA population). Newquay lies sufficiently far from the SAC (approximately 9km) that it is not likely as a significant source of regular frequent visitors. The only settlement within the CNA which does lie within a reasonable recreational distance of the SAC is St Columb Major located 3km to the north-west. This settlement and is likely to receive less than 300 dwellings over the period 2010-2030 (since Policy PP8 identifies that development of 402 dwellings should take place in the Newquay and St Columb CNA outside Newquay itself, with a focus on St Columb Major). There are approximately 1,300 households in St Columb Major<sup>38</sup> so the number of households could increase by around 20% if all new dwellings were occupied by new residents rather than existing residents (a very precautionary assumption) and that these were all net new dwellings rather than replacements. This is therefore the settlement within the vicinity of Brenay Common and Goss & Tregoss Moors SAC in which the population is most likely to significantly increase. However, the actual change in numbers is likely to be small since St Columb Major is a small settlement of c. 3,000 people.

4.4.3 Bodmin (within the Bodmin CNA) lies approximately 5km to the north of Brenay Common and will receive approximately 3,000 dwellings under the Local Plan. However, given the absence

<sup>37</sup> The Plan housing allocation is 'back dated' to 2010 and will therefore include dwellings that have been delivered and which already have planning permission but have not yet been delivered. Since they already have planning permission they cannot be considered a result of the Plan but rather part of the background

<sup>38</sup> Oxford Consultants for Social Inclusion. Rural deprivation in Cornwall and the Isles of Scilly: Profile report for St Columb Major. Final report. October 2009. Report for Cornwall County Council

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of good transport links coupled with the fact that residents of Bodmin have Bodmin Moor available for any recreational walking/dog walking at a much closer distance, it is unlikely that Breney Common forms a significant recreational resource for Bodmin residents.

- 4.4.4 As outlined in the preceding section 4.3, this site is likely to have considerable capacity for further visitors; given this and the relatively modest population changes likely in the surrounding area, it is considered that the Plan proposals would not lead to an adverse effect.

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### **Fal and Helford SAC**

- 4.4.5 Fal & Helford SAC is located within the Falmouth and Penryn CNA. As a coastal SAC it is likely to have a larger catchment than most inland SACs. The entire CNA lies within 10km of the SAC (with the two main settlements located within 5km) and may well therefore lie within the core recreational catchment of the site. There are 20,278 dwellings within the CNA (taking account of the 1,111 that are committed or have been delivered since 2010). The Local Plan identifies that a further 2,889 dwellings (4,000 mentioned in Policy PP5, minus the 1,111 committed dwellings) for delivery until 2030. This is a 14% increase in housing stock and could be associated as a worst-case with a similar increase in population.

- 4.4.6 The Truro and Roseland CNA also lies within 10km of the SAC, particularly Truro itself (which is the focus of new housing within the CNA and will receive approximately 2,200 dwellings). Truro lies immediately adjacent to the SAC. The Truro and Roseland CNA will receive 1,971 new dwellings under Policy PP6 (discounted for the 1,029 that are already committed) and has 21,700 existing or committed dwellings. The Local Plan policy will therefore involve a worst-case 9% increase in housing stock (assuming that all housing is additional to existing stock rather than replacements) and may therefore involve a similar increase in population (again as a worst-case since it assumes that all new housing will be occupied by new rather than existing residents of the CNA).

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- 4.4.7 Most of Helston & the Lizard CNA (notably Helston itself) also lies within 10km of the SAC. The CNA is allocated 1,800 dwellings between 2010 and 2030. Discounting the 974 dwellings that are already committed or have been delivered since 2010 that means a total new housing delivery of approximately 826 dwellings, most of which will be at Helston, within 4km of the SAC. There will therefore be an increase in housing stock of approximately 5% over the 16,216 existing and committed dwellings.

- 4.4.8 Assuming that the percentage increases in housing stock identified above do translate into similar worst-case population increases, this would mean an approximately 10% population increase within 10km of the SAC over the period to 2030. This is sufficiently large that if the interest features are sufficiently vulnerable an adverse effect could result. However, most of the habitats and species for which the SAC is designated are not particularly vulnerable to recreational pressure<sup>39</sup>. The main designated habitat of vulnerability is saltmarsh, which is only present over restricted areas of the SAC, principally the upper reaches of Fal-Ruan Creek, Restronguet Creek and Calenick Creek. Fal-Ruan Creek is isolated from any significant settlements, but Calenick Creek is very close to Truro.

<sup>39</sup> Reefs would be vulnerable to abrasion from boats, but recreational boat users will seek to avoid reefs as much as possible. Shore dock would be vulnerable but is not present within an easily accessible location.

4.4.9 As detailed in the previous section 4.3, commercial operations are generally of greater concern than recreational activities within this SAC. As such, it is probable that the SAC has sufficient capacity to absorb the increase in visitors. However, a monitoring scheme is in place to ensure that a response can be made to manage recreational pressure if required and the Council will need to ensure that this monitoring continues and commit to involvement in the delivery of any access management measures deemed necessary. This is discussed further in the recommendations.

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#### **Carrine Common SAC**

4.4.10 Truro & Kenwyn is situated within 1km of this SAC and is likely to receive 1,574 dwellings under Policy PP6 of the Local Plan (discounted for the 626 that have been delivered since 2010 or already have planning permission). There are approximately 9,000 households in Truro<sup>40</sup>, so a further 1,574 dwellings would involve an increase of approximately 17% (based on the very conservative assumption that all new dwellings will be additional to existing housing stock rather than replacement dwellings). Since this SAC is common land and may form a significant recreational resource for Truro residents it is quite possible that a significant increase in recreational pressure will result. It is therefore not possible to conclude that an adverse effect on the integrity of the SAC would not result without safeguards in policy, although it does depend on the location of the majority of new housing; residents living to the east of the River Allen are much less likely to use the SAC. Precautionary recommendations for addressing this are contained in the recommendations section of this Chapter.

#### **Tregonning Hill SAC**

4.4.11 This SAC is situated within the Helston and the Lizard CNA. However it is almost 5km from the nearest settlement likely to receive housing (Porthleven) and is not open to the public. As such, no change in recreational pressure should result and it can be concluded that adverse effects on the integrity of the SAC will not occur.

#### **Lower Bostraze and Leswidden SAC**

4.4.12 This SAC lies within the West Penwith Community Network Area (CNA). This CNA has a current population of 39,300 and 20,700 dwellings. Policy PP1 of the Local Plan proposes the provision of up to 1,400 dwellings in Penzance between 2010 and 2030 and 750 elsewhere in the CNA (centred on Crowless-Lower Ludgvan, Goldsithney-St Hilary, Madron, Mousehole, Porthcurno-St Levan, St Buryan, Pendeen and Sennen). The SAC is situated a considerable distance (over 5km) from all of these settlements except Pendeen and is not open to the public. It can therefore be concluded that there will be no adverse effect on the integrity of the SAC.

#### **St Austell Clay Pits SAC**

4.4.13 This SAC lies within the St Austell CNA, situated just outside St Austell itself. St Austell will receive approximately 4,000 dwellings over the Local Plan period under policy PP9 and the proposed Eco-Community but since the SAC is not accessible to the public no change in recreational pressure should result and it can be concluded that adverse effects on the integrity of the SAC will not occur.

#### **Marazion Marsh SPA**

<sup>40</sup> Oxford Consultants for Social Inclusion. Rural deprivation in Cornwall and the Isles of Scilly: Profile report for Truro. Final report. October 2009. Report for Cornwall County Council

- 4.4.14 Marazion Marsh lies within the West Penwith Community Network Area (CNA). This CNA has a current population of 39,300 and 20,700 dwellings. Policy PP1 of the Local Plan proposes the provision of 2,150 dwellings in the CNA between 2010 and 2030 (an increase of approximately 10%). Although Marazion itself will not be one of the key focal points for new housing it can be seen from the West Penwith CNA map in Part Two of the Local Plan that the new housing within this CNA will be concentrated within 5km of the SPA and therefore in relatively close proximity. Penzance/Newlyn in particular is approximately 2.5km west of Marazion Marsh and is therefore likely to be the main local source of visitors to the SPA being the largest settlement in such close proximity. Outside the West Penwith CNA, Hayle within the Hayle and St Ives CNA lies approximately 5km from the SPA and (based on recreational catchments identified for other inland European sites) may well lie within the catchment for this site. Hayle is intended to receive 303 dwellings (discounted for existing commitments) up until 2030.
- 4.4.15 Although Marazion Marsh is designated for passage/wintering birds rather than species present in the summer, it is considered that recreational visitors from the local area (particularly dog walkers) will visit the site frequently during winter as well as summer. However, the SPA is an RSPB reserve and public access (from across the country) is therefore both actively encouraged and well-managed. Paths and hides are provided specifically to avoid the most sensitive areas of the site for birds; moreover, the marshy nature of the habitat will naturally deter off-track access. There are also controls on dog presence within the site; while some visitors occasionally break these codes there is a prosecution system which is likely to serve as a deterrent for the majority. As such, it is considered that good management mechanisms are already in place. Given that the RSPB actively encourages public access<sup>41</sup>, it is considered that any increase in visitors associated with the delivery of new housing at Penzance could be accommodated within the existing management structures and would not lead to an adverse effect on the integrity of the SPA. The RSPB has proven on other reserves that they are well able to combine large scale public access with wildlife interest.

#### **Newlyn Downs SAC**

- 4.4.16 Newlyn Downs SAC is a relatively isolated site. This site lies within the St Agnes and Perranporth CNA. Since there are no large settlements in this CNA the amount of housing planned until 2030 is relatively small, at 810 dwellings (discounting the figure of 1,100 given in policy PP7 to take account of the 290 existing committed dwellings). This represents an increase of 9% on the existing and committed housing stock of 8,733 dwellings<sup>42</sup>. Moreover, the focus of existing and new housing within this CNA is well away from the SAC – Perranporth is 7km to the west while St Agnes is 11km to the south-west. St Newlyn East is the only settlement within the CNA identified to receive additional housing which is relatively close to the SAC (approximately 1km to the north). However, this is a small settlement with a population of less than 2,000 people. As such it is unlikely to receive much more than 100 new dwellings over the Local Plan period and its population is therefore unlikely to significantly change.
- 4.4.17 Newquay, within the Newquay & St Columb CNA lies just over 5km to the north of the SAC. It may therefore lie within the recreational catchment of the SAC based upon typical catchments established for other inland European sites. Newquay has a population of approximately

<sup>41</sup> The RSPB website with regard to Marazion Marsh states that 'We expect visitor numbers to double over the next 25 years. We aim to provide an excellent wildlife experience for locals and visitors alike. The reserve will become an asset to the local economy and community, enhancing the profile of the RSPB'. It is clear that RSPB welcomes increased visitors to this particular site and are not seeking to cap or exclude visitors. Source: <http://www.rspb.org.uk/reserves/guide/m/marazionmarsh/work.aspx>; accessed: 28/02/13

<sup>42</sup> 8,443 existing dwellings and 290 committed dwellings

22,000. Newquay will receive approximately 3,000 new dwellings (over 80% of the total for the CNA) under the Local Plan. However, this must be discounted to account for the 2,008 dwellings already committed (i.e. that already have planning permission). Therefore policy PP8 is actually seeking to achieve the delivery of 992 currently uncommitted dwellings at Newquay. The current existing and committed housing stock within the CNA is 15,883<sup>43</sup>. Therefore PP8 would result in a 6% increase in housing stock within the CNA (as a worst-case scenario as that assumes that all currently uncommitted housing would be additional to existing housing rather than replacement dwellings).

- 4.4.18 Given the low present and future population density around Newlyn Downs SAC it is considered that an adverse effect on the integrity of this SAC will not result from Local Plan development.

#### **River Camel SAC**

- 4.4.19 This SAC lies within several CNAs. Wadebridge (within the Wadebridge and Padstow CNA) is located within 1km of the River Camel and will receive approximately 800 dwellings over the Local Plan period. However, from examination of Biodiversity Action Plan habitat mapping available through the Nature on the Map website, there are no significant areas of the most recreation-vulnerable habitat within the SAC (heathland) within 5km of Wadebridge. The River Camel SAC also flows through the Bodmin CNA. Bodmin (which lies within 500m of the river) will receive approximately 3,000 dwellings under the Local Plan. However, as with Wadebridge, the stretch of river near Bodmin does not appear (from Biodiversity Action Plan habitat mapping available from the Nature on the Map website) to include any heathland habitat. The River Camel SAC also flows through the village of Camelford, within the Camelford SNA, which will receive approximately 300 dwellings under the Local Plan; however, there does not appear to be heathland habitat within this section of the river either. Since the most sensitive habitat within the SAC does not appear to lie close to any of the settlements where significant housing delivery will occur, an adverse effect on the integrity of the SAC due to increased recreational pressure can be discounted.

#### **Crowdy Marsh SAC**

- 4.4.20 Crowdy Marsh SAC is a relatively isolated site. The closest significant settlement (approximately 2.5km to the west) is Camelford within the Camelford SNA, which will receive approximately 300 dwellings under the Local Plan. This is a relatively large increase (approximately 25%) but the population will remain small (less than 3,000 people). The next nearest significant settlement is Boscastle but this lies 10km to the northwest and lacks easy transport links to Crowdy Marsh. Given this small housing allocation and since Crowdy Marsh is considered to be inherently self-controlling in terms of off-track recreational pressure, no adverse effect on the integrity of the SAC is expected to occur.

#### **Phoenix United Mines & Crow's Nest SAC**

- 4.4.21 This SAC lies within the Liskeard and Looe CNA. Approximately 1,000 new dwellings will be located within Liskeard, the main settlement of the CNA and the only sizeable settlement in this otherwise sparsely populated part of Cornwall. However, the only recreational issue that this site has had was recreational usage by motorcycle scramblers. This is a specialised recreational group and there is no reason to conclude that their number will increase

<sup>43</sup> 13,677 existing dwellings and 2,206 committed dwellings

significantly due to an increase in general residents. It is therefore considered that adverse effects on the integrity of the SAC will not result from Local Plan development but this situation will need to be monitored such that access control regarding scramblers can be introduced if required.

#### **Polruan to Polperro SAC**

4.4.22 The SAC lies adjacent to the St Blazey, Fowey & Lostwithiel CNA. St Blazey, Fowey and Tywardreath all lie 4-5km, which is well within the distances that other visitor surveys have identified as being typical of travel distances for coastal sites, but are separated from it by the River Fowey. To cross the river requires either use of the ferry or a significant road detour via Lostwithiel, which is likely to considerably reduce the proportion of residents of these settlements who visit the SAC on a regular basis. St Austell (in the St Austell CNA) lies approximately 7km to the west of the SAC, which is also within the large catchments that other visitor surveys have identified for coastal SACs, but does not have easy vehicular access to the SAC due to the need to take a considerable detour over the River Fowey at Lostwithiel. By road therefore, St Austell is actually approximately 20km from the SAC.

4.4.23 This SAC lies within the Liskeard & Looe CNA. Even allowing for the large core catchments that surveys indicate are more typical of coastal sites (e.g. c.10km), most of the CNA lies a considerable distance from the SAC. Liskeard itself, which will receive 60% of all housing to be delivered in the CNA, is 14km away. Looe, Pelynt, Polruan, Donderry and Duloe are the only settlements in this CNA that are within relatively close proximity (10km) to the SAC. All five are small villages (a total population of approximately 9,000) and will probably receive approximately 600 dwellings between them (since the 1000 dwellings to be delivered in the CNA outside of Liskeard will be split between at least nine villages). Since the population is small and dispersed, the change in actual number of residents would be small. Visitors are likely to remain dominated by tourists given the large number of campsites nearby. It is therefore considered that adverse effects on the integrity of the SAC will not result from Local Plan development.

#### **Godrevy Head to St Agnes SAC**

4.4.24 This site lies within the St Agnes and Perranporth CNA. Both key settlements within the CNA (St Agnes and Perranporth) lie well within the large core catchments that surveys indicate are more typical of coastal sites (e.g. c.10km) and St Agnes lies immediately adjacent. Discounted for existing housing commitments, policy PP7 plans to deliver approximately 810 new dwellings within these two settlements. The current and committed housing stock is 8,733 dwellings<sup>44</sup> so the Local Plan would result in a 9% increase in housing stock and potentially (as a worst) case, a similar increase in the population.

4.4.25 Outside the St Agnes and Perranporth CNA, the nearest settlement to this SAC that will receive significant housing is the Camborne-Pool-Redruth conurbation within the eponymous CNA, which lies approximately 6-7km from the SAC. Policy PP4 identifies that 4,000 dwellings will be delivered in these three settlements between 2010 and 2030, but this must be discounted by 2,723 to allow for the large number of committed dwellings. The Plan therefore seeks the delivery of 1,277 new dwellings within the conurbation. The CNA has an existing and committed housing stock of approximately 30,000 dwellings<sup>45</sup>, the vast majority of which are

<sup>44</sup> 8,443 dwellings as of 2010, with a further 290 housing commitments

<sup>45</sup> 26,680 existing dwellings and 3,089 committed dwellings

located at Camborne, Pool or Redruth. The Plan therefore seeks an approximately 4% increase in housing stock (assuming that all new housing is additional to existing housing rather than replacement dwellings) which may as a worst-case involve a similar population increase.

- 4.4.26 These could potentially lead to an approximately similar increase in visitors to the SAC from local sources. However, a roughly 5% increase<sup>46</sup> in the population within 10km of the SAC (and thus a similar increase in visitors to the SAC) is likely to be a considerably smaller increase in visitors overall since the majority of visitors to this SAC are probably tourists. Such an increase is unlikely to result in a significant change being required in current access management protocols being used by The National Trust but may mean additional resources are required. An adverse effect on the integrity of the SAC, in combination with a rise in tourist visitors, cannot be ruled out without precautions in the Local Plan. However, any effect would clearly be tourist-driven and severe controls on local housing delivery are therefore not appropriate. Precautionary recommendations are contained in the recommendations section of this Chapter.

### **Penhale Dunes SAC**

- 4.4.27 This site lies within the St Agnes and Perranporth CNA. Both key settlements within the CNA (St Agnes and Perranporth) lie within 10km of the SAC. Discounted for existing housing commitments, policy PP7 plans to deliver approximately 810 new dwellings within these two settlements. The current and committed housing stock is 8,733 dwellings<sup>47</sup> so the Local Plan would result in a 9% increase in housing stock and potentially (as a worst) case, a similar increase in the population.
- 4.4.28 This site also lies adjacent to the Newquay and St Columb CNA. The CNA has a population of approximately 27,000, of whom the majority (almost 80%) live in Newquay itself. Most of the CNA lies well within the large core catchments that surveys indicate are more typical of coastal sites (e.g. c.10km), with Newquay approximately 5km from the SAC. Discounted to allow for sites delivered since 2010 and existing commitments (i.e. sites with planning permission) means that policy PP8 seeks delivery of approximately 1,394 new dwellings within the CNA. The current existing and committed housing stock within the CNA is 15,883<sup>48</sup>. Therefore PP8 would result in an 9% increase in housing stock within the CNA (as a worst-case scenario as that assumes that all currently uncommitted housing would be additional to existing housing rather than replacement dwellings).
- 4.4.29 A roughly 9% increase in local visitors<sup>49</sup> is likely to be a considerably smaller increase in visitors overall since the majority of visitors to this SAC are probably tourists. While resident visitors are still likely to be in the minority compared to tourists there may be an overall increase in pressure. However, any effect would clearly be tourist-driven and severe controls on local housing delivery are therefore not appropriate. Such an increase is unlikely to result in a significant change being required in current access management protocols being used by

<sup>46</sup> The total existing/committed housing stock within St Agnes, Perranporth, Pool, Redruth and Camborne (the key settlements within 10km of the SAC) is approximately 39,000, while approximately 2,087 new dwellings are planned for these settlements in the Local Plan

<sup>47</sup> 8,443 dwellings as of 2010, with a further 290 housing commitments

<sup>48</sup> 13,677 existing dwellings and 2,206 committed dwellings

<sup>49</sup> The total existing/committed housing stock within St Agnes, Perranporth and the Newquay & St Columb CNA (the key settlements within 10km of the SAC) is 24,616, while approximately 2,204 currently uncommitted dwellings are planned for these settlements in the Local Plan

Cornwall Wildlife Trust but may mean additional resources are required. Precautionary recommendations are contained in the recommendations section of this Chapter.

#### **Tintagel-Marsland-Clovelly Coast SAC**

4.4.30 This section of coastline lies within the Camelford CNA and the Bude CNA. The closest settlements to the SAC within the Camelford CNA are Tintagel, Bude and Boscastle which are all adjacent to the SAC. However, the entire Camelford CNA and Bude CNA lies within 10km of this site and given the large catchment that other visitor surveys have identified can be associated with coastal sites, development across both CNA's could contribute to increased visitor activity.

4.4.31 Discounted for existing housing commitments, policy PP12 plans to deliver approximately 514 new dwellings within the Camelford CNA, mainly at Camelford. The current and committed housing stock is 6,465 dwellings<sup>50</sup> so the Local Plan would result in an 8% increase in housing stock and potentially (as a worst) case, a similar increase in the population. Discounted for existing housing commitments, policy PP13 plans to deliver 522 dwellings within the Bude CNA. The current and committed housing stock is 9,054 dwellings<sup>51</sup> so the Local Plan would result in a 6% increase in housing stock and potentially (as a worst) case, a similar increase in the population.

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4.4.32 A roughly 7% increase in local visitors<sup>52</sup> is likely to be a considerably smaller increase in visitors overall since the majority of visitors to this SAC are probably tourists. It is not possible to conclude that, in combination with a rise in tourist visitors, there would be no adverse effect on the integrity of the SAC without precautions in the Local Plan. However, any effect would clearly be tourist-driven and severe controls on local housing delivery are therefore not appropriate. Precautionary recommendations are contained in the recommendations section of this Chapter.

#### **Plymouth Sound & Estuaries SAC/ Tamar Estuaries Complex SPA**

4.4.33 This SAC/SPA lies adjacent to the Caradon CNA of which the main settlement is Callington and within the Cornwall Gateway CNA of which the main settlement is Saltash. Almost all of both CNAs lie within 10km of this site and given the large catchment that other visitor surveys have identified can be associated with coastal sites, development across both CNA's could contribute to increased visitor activity.

4.4.34 Discounted for existing commitments, policy PP16 of the Local Plan seek to achieve delivery of 534 currently uncommitted dwellings within the Caradon CNA. The current and committed housing stock is 8,618 dwellings<sup>53</sup>, so the Local Plan would result in a 6% increase in housing stock (assuming that all new dwellings are additional to existing dwellings rather than replacements) and potentially (as a worst) case, a similar increase in the population. Discounted for existing housing commitments, policy PP17 plans to deliver approximately 1,026 dwellings within the Cornwall Gateway CNA. The current and committed housing stock is

<sup>50</sup> 6,079 dwellings as of 2010, with a further 386 housing commitments

<sup>51</sup> 8,335 dwellings as of 2010, with a further 718 housing commitments

<sup>52</sup> The total existing/committed housing stock within the two CNAs is 15,523, while approximately 1,036 currently uncommitted dwellings are planned for these settlements in the Local Plan

<sup>53</sup> 8,152 dwellings as of 2010, with a further 466 housing commitments

15,232 dwellings<sup>54</sup> so the Local Plan would result in a 7% increase in housing stock and potentially (as a worst) case, a similar increase in the population.

4.4.35 As a worst-case this could therefore involve a roughly 7% increase in local visitors from within these two CNAs<sup>55</sup>. The number of dwellings to be delivered in these two CNA's is however, dwarfed by the number of dwellings to be delivered in Plymouth: well over 17,000.

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4.4.36 Since recreational activities within this site are dominated by activities arising from Plymouth, development in Cornwall would be unlikely to lead to a significant effect in isolation. However, it will make a small additional effect in combination with development in Plymouth and given the cross-boundary nature of management of this SAC/SPA, it would be logical for Cornwall to adopt the same measures that Plymouth has adopted in their Core Strategy and HRA.

### The Lizard SAC

4.4.37 The Lizard SAC is located within the Helston and Lizard CNA. Discounted for existing commitments policy PP3 of the Local Plan seeks to achieve delivery of 826 currently uncommitted dwellings within the CNA. The current and committed housing stock is 16,216 dwellings<sup>56</sup>, so the Local Plan would result in a 5% increase in housing stock (assuming that all new dwellings are additional to existing dwellings rather than replacements) and potentially (as a worst) case, a similar increase in the population. Given the relatively small scale nature of this change, and the fact that The Lizard peninsula will remain an area of low population density it is considered that it can be reasonably concluded that no adverse effect on the integrity of the SAC would result from this development strategy.

### Summary

4.4.38 In summary, it is concluded that the following European sites are likely to receive an increase in recreational pressure as a result of Local Plan development that would have an adverse effect on their integrity without management measures, at least when considered in combination with other projects and plans and particularly with an increase in tourism: Penhale Dunes SAC, Godrevy Head to St Agnes SAC and Tintagel-Marland-Clovelly Coast SAC (main contribution from tourism but also a significant contribution from additional local residents), Plymouth Sound & Estuaries SAC ('in combination' effect only, when considered alongside Plymouth City) and Carrine Common SAC (primarily from residents of Truro). This conclusion is based on several factors, including the relative isolation of the site, the sensitivity of the interest features, any recent historic evidence that excessive visitor pressure has caused damage and the change in population density within relatively close proximity to the site (defined as c.5km for inland sites and c.10km for coastal sites, based on a range of visitor surveys obtained from other European sites).

4.4.39 It is acknowledged that the analysis utilises data from European sites outside Cornwall (although it should be noted that in no case has the judgment regarding an adverse effect been based exclusively or primarily on such data). In recognition of this fact, the survey data has only been used in the broadest terms in order to define areas within which a significant change in population density would be most likely to result in a significant increase in visitor pressure. The data has not been used to define 'cut off' distances or exclusion zones. Cornwall Council is

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<sup>54</sup> 14,958 dwellings as of 2010, with a further 274 housing commitments

<sup>55</sup> The total existing/committed housing stock within the two CNAs is 23,850, while approximately 1,560 currently uncommitted dwellings are planned for these settlements in the Local Plan

<sup>56</sup> 15,242 dwellings as of 2010, with a further 974 housing commitments

committed to obtaining baseline visitor data for all relevant sites. This will inform any mitigation strategies necessary following adoption of the Local Plan. This is in line with the approach taken in other authorities at Core Strategy/Local Plan level in which detailed visitor surveys are undertaken to inform subsequent DPDs such as the Cornwall Towns Allocations DPD.

## 4.5 Other plans and projects

4.5.1 The key other plans and projects whereby a recreational pressure impact may arise on European sites covered in this chapter are identified as being:

- Plymouth Core Strategy (2007) and associated DPD's with regard to impacts on Plymouth Sound and Estuaries SAC/Tamar Estuaries Complex SPA – Recreational activities within this site will be dominated by Plymouth residents since they constitute 90% of the resident population within 5km of the SAC/SPA. However, an increased population in Saltash will make a contribution 'in combination'.
- Initiatives by site managers to continue to promote and facilitate tourist access to Penhale Dunes SAC, Godrevy Head to St Agnes SAC and Tintagel-Marsland-Clovelly Coast SAC – while all of these sites are popular with local residents, the populations within the vicinity of these sites are relatively low (with the exception of Bude which lies adjacent to the Tintagel-Marsland-Clovelly Coast SAC) while the density of campsites and tourist accommodation is high. As such, tourists or other non-resident visitors are always likely to constitute the bulk of visitors to these SACs. In themselves, a change in the local population as predicted in this HRA would be unlikely to lead to a significant effect on any of these sites. However, when considered 'in combination' with expected increases in tourist numbers, site management resource requirements can be expected to slowly increase over the period to 2030 and an increased local resident population will make a contribution.

4.5.2 As already discussed, adverse effects on these European sites will stem largely from Plymouth but development in Cornwall would make a contribution such that there would be an adverse effect in combination, without the introduction of the measures listed in the Recommendations section below.

## 4.6 Recommendations

### General

4.6.1 During the HRA Screening of the Options stage of the Local Plan, Natural England recommended that the following be included within policy, as a minimum requirement:

4.6.2 *"Any development that would be likely to have a significant effect on a European site either alone or in combination with other plans or projects would not be in accordance with the Regeneration Plan and would not, therefore, have the benefit of the presumption in favour accorded via S.38 of the 2004 Act at application stage; and,*

4.6.3 *Any development that would be likely to have a significant effect on a European site, either alone or in combination with other plans or projects, will be subject to assessment under Part 6 of the Habitats Regulations at project application stage. If it cannot be ascertained that there*

would be no adverse effects on site integrity the project will have to be refused or pass the tests of Regulation 61 and 62, in which case any necessary compensatory measures will need to be secured in accordance with Regulation 66.”

- 4.6.4 It is therefore recommended that environmental policy based on this approach be adopted within the Local Plan. This would provide the ultimate safeguard for European sites (from all impact sources, not purely recreation) and is the minimum measure that should be included within the Local Plan. However, recommendations are also made below for a series of more specific initiatives/policy measures which should also be included within the Local Plan text.

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**Plymouth Sound & Estuaries SAC/Tamar Estuaries Complex SPA**

- 4.6.5 Given that impacts on these European sites will be split between Cornwall and Plymouth (with Plymouth contributing approximately 90% of the pressure) it is logical for the Cornwall Local Plan to adopt a similar approach to protecting these sites as is being done in Plymouth as set out in the Plymouth Local Plan HRA (2007):

- 4.6.6 *‘Plymouth & the sub region are fortunate to have an exemplar estuary management partnership that can be taken ‘off-the-peg’ to manage future growth in recreational pressure. To avoid adverse impacts on the integrity of [Plymouth Sound & Estuaries SAC and Tamar Estuaries Complex SPA] it is clearly essential for the neighbouring planning authorities (and other stakeholders) to engage positively in a cross boundary management regime.*

- 4.6.7 *This management regime needs to provide confidence that the required measures will be delivered in a way, and in time to achieve their ecological function and statutory purpose. To achieve this Plymouth City Council will commit to the following:*

- 4.6.8 *1. Partnership funding & support: To strengthen & enhance the TECF partnership through continued financial contributions towards its core running costs; in kind support through the hosting of the partnerships Coastal Officer; in kind support through Senior Officer & elected member representation at partnership meetings;*

- 4.6.9 *2. Project funding & support: Provide funding and relevant officer time to support recreation-linked actions / projects as identified in Tamar Estuaries Management Plan Chapter 1 and 10. This should include a review and update of Port of Plymouth Area Recreation Study as a priority.*

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- 4.6.10 Cornwall’s contribution would of course be commensurate with the County’s probable contribution to the overall impact. It would be necessary for Cornwall Council to ensure that sufficient resources were ring-fenced in order to enable delivery of such a commitment.

**Carrine Common SAC**

- 4.6.11 It is by definition extremely difficult to restrict or control access on a Common even if it were desirable to do so. The main method by which to minimise the increase in recreational pressure will most likely therefore be to ensure that a suitable quantity of appropriate additional greenspace is provided to accommodate the increased population and that the population are informed of its availability and encouraged to make use of it.

- 4.6.12 Given the very close proximity of the SAC to Truro (within 1km) and the large increase in housing stock proposed for that town (the vast majority of new housing at the Truro & Roseland

CNA will be delivered at Truro), it is considered that as a first step the local authority should commission a visitor survey of this SAC a) to confirm levels of recreational use and thus feed into identifying greenspace requirements or other visitor management measures and b) to inform decisions regarding the most suitable features to include within any alternative greenspace or visitor management measures. This should be completed before any new large housing developments (i.e. 50 dwellings and upwards) are consented at Truro. Once a visitor survey of the Common is completed a view can be taken as to whether additional greenspace beyond the Natural England Accessible Natural Greenspace standard, or other measures, would be required.

### **Penhale Dunes SAC**

4.6.13 Provision of alternative natural greenspace is unlikely to be effective for this site; it has an intrinsic appeal with unique features (coastal location/sand dunes) that cannot be reproduced. Moreover, unlike Carrine Common, many visitors to Penhale Dunes will be tourists rather than residents. The Council and its partners are already involved in dune management since dune erosion (due to recreation and other causes) is a well known risk within the County. There is an agreed Management Plan in place for Penhale Dunes/Sands, which includes specific management and monitoring measures to counteract and control dune erosion from recreation.

4.6.14 Countryside Managers must establish a careful balance on dune sites to prevent excessive erosion by people, whilst maintaining the naturally dynamic characteristics of dune habitats. In the past, areas of erosion were quickly planted with marram grass and fenced, today a more non-interventionist approach tends to be adopted, where practical. On the larger dune systems, areas of bare sand are continuously monitored using aerial photography. Some exposed sand is vital to maintain a healthy dune system. The sand provides a habitat for many insects and allows the dunes to continue their ever-changing cycle, as they have done for thousands of years.

4.6.15 Seaward section of the dunes often still require a line of fencing to aid formation of mobile foredunes, which are at greatest risk from human trampling. In the future, it may be necessary to try and increase the area of bare sand on some of the large dune sites to reintroduce some of the mobility of the sand. This can be aided by grazing. Informal recreation is encouraged in areas where it will do least harm to the dune habitats and important species.

- Public access is carefully monitored
- Boardwalks and other trample resistant surfaces are used to minimise damage to the dunes;
- Motorbikes and cars damage dune grassland and endanger the public. A range of management measures are used to control this:
- Low wooden posts have been installed to define informal parking areas, preventing vehicles driving on the dunes and destroying protected habitats and species;
- Squeeze stiles and kissing gates can make it more difficult for motorbikes to access the dunes;
- Signs have been put up at key entrances to the dunes;

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- Steep-sided ditch and mounds are used to stop cars.

4.6.16 It clearly is not logical to devise a totally novel framework to manage recreation within Penhale Dunes SAC, when such a framework already exists and has proven itself to be effective (from a situation of severe erosion in the 1970's the condition and management of Penhale Dunes have improved considerably). Moreover, since the Council do not own or control the dunes, they cannot act unilaterally. Furthermore, the relatively modest increase in the local population that is expected to occur over the Local Plan period, coupled with the fact that a high percentage of visitors are tourists rather than residents and the fact that tourism/recreation is encouraged by the site owners/managers means that the Council response to this potential impact must be proportionate to the contribution that local residents may make to any impact and leads one to conclude that any increase in recreational visitors is likely to continue to be manageable through measures other than reducing the scale of housing to be delivered.

4.6.17 At the Local Plan/Local Plan level the main purpose is to devise a policy framework for the delivery of appropriate mitigation/management measures (should they prove necessary). It would therefore be appropriate for the Council to commit in the Local Plan to increasing their current contribution to management of the dunes commensurate with any increase in visitors which can be attributed to local residents, if additional management resources are deemed necessary. This could (for example) include the need for additional wardening, with which the Council could provide assistance. A first step in this process would be to work with Cornwall Wildlife Trust (the site managers) and Natural England to determine the need for a visitor survey, which can be used to accurately identify the points of origin for regular visitors to the SAC and inform any change to future management.

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#### **Tintagel-Marsland-Clovelly Coast SAC and Godrevy Head to St Agnes SAC**

4.6.18 Provision of alternative natural greenspace is unlikely to be effective for these sites; they have an intrinsic appeal that cannot be reproduced. As with Penhale Dunes, this stretch of coast is already managed to control recreational impacts. Again, since the Council do not own or control these sections of coast (most of which is owned and managed by The National Trust), they cannot act unilaterally. Moreover, the relatively modest increase in the local populations within 5km of each European site that is expected to occur over the Local Plan period (c. 10%), coupled with the fact that a high percentage of visitors are tourists rather than residents and the fact that tourism is strongly encouraged by the site owners/managers means that the Council response to this potential impact must be proportionate to the contribution that local residents may make to any impact and leads one to conclude that any increase in recreational visitors is likely to continue to be manageable through measures other than reducing the scale of housing to be delivered.

4.6.19 At the Local Plan/Local Plan level the main purpose is to devise a policy framework for the delivery of appropriate mitigation/management measures (should they prove necessary) rather than devise the details of the management measures themselves. As with Penhale Dunes, the Council should commit in their Local Plan to working with the site owners/managers and Natural England to ensuring that access and recreation are sustainable and acknowledge that the increased population coupled with the increase in tourism over the Local Plan period may require a more active role from the local authority in contributing to management of these SACs commensurate with any increase in visitors which can be attributed to local residents. This could (for example) identify the need for additional wardening, with which the Council could provide assistance. A first step in this process would be to work with The National Trust (the

site managers) and Natural England to determine the need for a visitor survey, which can be used to accurately identify the points of origin for regular visitors to the SAC and inform future management.

#### **Fal & Helford SAC**

- 4.6.20 It is recommended that the Cornwall Local Plan should include a commitment to working with its other partners in delivering the Fal & Helford SAC Management Scheme. This will particularly relate to undertaking visitor surveys of the SAC in order to inform any future changes to visitor management that may prove necessary, whether as a result of an increase in the resident population or Cornwall, tourists or other reasons. There must also be a commitment to deliver any management changes required (including ensuring sufficient budget/resources). This would be in line with delivery of the SAC Management Scheme objective to '*monitor the level and pattern of recreational activities to inform future management decisions as necessary*' with regard to recreation and it is clearly logical for the Council to continue to provide its support through this existing forum.

## 4.7 Council Response

- 4.7.1 The Council were supplied with recommendations in summer 2012 when an early draft of the Local Plan was assessed. In formulating the most recent (December 2012) draft of the Local Plan, they have documented how they have responded to the recommendations in reaching their conclusion that these measures will enable a conclusion of no adverse effect on integrity.

Topic	Recommendation	Response	Actions
General	Inclusion of policy wording as suggested by Natural England at Options Stage	<p>HRA is referenced in 'Our Approach.'</p> <p>The policy wording suggested is a repetition of our obligations under the Habitats Regulations.</p> <p>Policy 22 (Natural Environment) preamble refers to 'our statutory responsibilities and duty to safeguard the environment through legislation' and lists SPAs and Ramsar sites.</p> <p>Within the policy, section 3 states: Specifically ensuring that with direct and cumulative impact;</p> <p>a) international, national and locally designated sites for nature conservation are safeguarded from inappropriate development.</p>	<p>Direct reference to the Habitat regulations inserted above Policy 22, with a commitment to carry out studies for impact of planned development:</p> <p><i>'We will complete studies, as soon as possible, on the impact planned development, on international sites for nature conservation. This will be used to inform the measures that are necessary to avoid adverse impact of additional use on these sites. Any proposals with potential direct impacts will be assessed under the Habitats Regulations'.</i></p>
Plymouth Sound & Estuaries SAC/Tamar Estuaries Complex SPA	Adopt similar approach to protecting these sites as is being done in Plymouth as set out in the Plymouth Local Plan HRA (2007), with contribution commensurate with Cornwall's impact (10%)	Agree. TECF referenced in evidence base and is part of ongoing 'Duty to Cooperate' work	<p>Discussions on funding contribution for TECF still ongoing – the Environment Service for Cornwall Council makes the contribution and we work with and consult those officers.</p> <p>Added a commitment in the plan to work with existing management plans:</p> <p><i>Policy 22</i> <i>3. Terrestrial and Marine Biodiversity and Geodiversity</i> <i>Specifically ensuring that with direct and cumulative impact;</i></p>

Topic	Recommendation	Response	Actions
Carrine Common SAC	<ul style="list-style-type: none"> <li>-Commission a visitor survey of recreational use</li> <li>-Ensure new greenspace is delivered</li> <li>-Deliver this greenspace strategically</li> </ul>	<p>Although Carrine Common is close to Highertown/ Threemilestone where there is likely to be development, it lies south of the railway line, which has limited crossing points, dog walkers from Langarth for example would have to cross both the A390 and the railway line. It would therefore be easy to provide more accessible open space.</p> <p>The Local Plan: Strategic Sites Document does not allocate sites – this detail will follow in the Cornwall Towns and Strategic Sites Allocations DPD and Truro and Kenwyn Neighbourhood Plan.</p> <p>The Council has produced a strategic framework which provides a clear plan to guide the future planning and delivery of Green Infrastructure for Cornwall.</p> <p>Policy 24 - Green Infrastructure To protect and enhance a diverse, connected and functional network</p>	<p><i>a. international, national and locally designated sites for nature conservation are safeguarded from inappropriate development including appropriate buffer areas and provision made for their management based on up-to-date evidence and management plans.</i></p> <p>Direct reference to the Habitat regulations inserted above Policy 22, with a commitment to carry out studies for impact of planned development: <i>'We will complete studies, as soon as possible, on the impact planned development, on international sites for nature conservation. This will be used to inform the measures that are necessary to avoid adverse impact of additional use on these sites. Any proposals with potential direct impacts will be assessed under the Habitats Regulations'.</i></p> <p>As well as this general approach for European sites, allocations of strategic green infrastructure will be made in the Truro and Kenwyn neighbourhood Plan and/or Cornwall Towns DPD as appropriate and in accordance with the council's GI Strategy which is now adopted.</p>

Topic	Recommendation	Response	Actions
		<p>of open spaces and waterscapes development proposals should</p> <p>1. Demonstrate that all the functional environmental infrastructure and connections have been taken into account including; ecosystem services; biodiversity; coastal processes; and recreation within and near to the application site and show how this understanding has positively influenced the proposal.</p> <p>The Core Strategy sets the framework with GI Policy 24. The preamble states: <i>2.99 Networks of green spaces and corridors provide opportunities for recreation, walking and cycling and also benefit wildlife by conserving and enhancing habitats, and providing buffers from development to important wildlife sites and watercourses.</i></p> <p>And the policy requires: 2. <i>Retain and enhance the most important environmental infrastructure assets and connections which contribute to our Strategic Environmental Infrastructure network in their existing location.</i> 3. <i>Provide appropriate buffers to high value natural spaces.</i> 5. <i>Provide good quality and accessible open and coastal space.</i></p>	
Penhale Dunes	-Commit in the Local Plan to increasing current	Discussions held with Natural England	The SAC is mapped in the Community

Topic	Recommendation	Response	Actions
SAC	<p>contribution to management of the dunes commensurate with any increase in visitors which can be attributed to local residents, if additional management resources are deemed necessary.</p> <p>- work with CWT (the site managers) and Natural England to determine the need for a visitor survey, which can be used to accurately identify the points of origin for regular visitors to the SAC and inform any change to future management.</p>	<p>to consider survey work and determine the most appropriate time to carry out survey. This site is very heavily used by tourist as well as visitors from local area.</p>	<p>Network Area (CNA) section of the plan (Part II.)</p> <p>Our commitment to survey work and to contribute to existing management plans applies (As above)</p>
Tintagel-Marsland-Clovelly Coast SAC and Godrevy Head to St Agnes SAC	<p>-devise a policy framework for the delivery of appropriate mitigation/management measures</p> <p>-commit in Local Plan to working with the site owners/managers and NE to ensure that access and recreation are sustainable and acknowledge that the increased population coupled with the increase in tourism over the Local Plan period may require a more active role from the local authority in contributing to management of these SACs commensurate with any increase in visitors which can be attributed to local residents (mostly it's tourists)</p>	<p>Scale of housing provided in northern area will be small. Pressure on sites is therefore more likely to come from tourism. Discussions held with Natural England to consider survey work and determine the most appropriate time to carry out survey.</p>	<p>Our commitment to survey work and to contribute to existing management plans applies (As above)</p>
Fal and Helford SAC	<p>-include a commitment to working with its other partners in delivering the Fal &amp; Helford SAC Management Scheme to continue ongoing monitoring of visitor activities in the SAC in order to inform any future changes to visitor management that may prove necessary, whether as a result of an increase in the resident population or Cornwall, tourists or other reasons. This would be in line with delivery of the SAC Management Scheme objective to 'monitor the level and pattern of recreational activities to inform future</p>	<p>Agree. We have attended Fal and Helford SAC management meeting and sought their input into future visitor survey.</p>	<p>Our commitment to survey work and to contribute to existing management plans applies (As above)</p>

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Topic	Recommendation	Response	Actions
	management decisions as necessary' with regard to recreation and it is clearly logical for the Council to continue to provide its support through this existing forum.		

## 5 Air quality

### 5.1 Introduction

5.1.1 The main pollutants of concern for European sites are oxides of nitrogen (NO<sub>x</sub>), ammonia (NH<sub>3</sub>) and sulphur dioxide (SO<sub>2</sub>). NO<sub>x</sub> can have a directly toxic effect upon vegetation. In addition, greater NO<sub>x</sub> or ammonia concentrations within the atmosphere will lead to greater rates of nitrogen deposition to soils. An increase in the deposition of nitrogen from the atmosphere to soils is generally regarded to lead to an increase in soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats.

**Table 3. Main sources and effects of air pollutants on habitats and species**

Pollutant	Source	Effects on habitats and species
Acid deposition	SO <sub>2</sub> , NO <sub>x</sub> and ammonia all contribute to acid deposition. Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, it is likely that increased N emissions may cancel out any gains produced by reduced S levels.	Can affect habitats and species through both wet (acid rain) and dry deposition. Some sites will be more at risk than others depending on soil type, bed rock geology, weathering rate and buffering capacity.
Ammonia (NH <sub>3</sub> )	Ammonia is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but levels have increased considerably with expansion in numbers of agricultural livestock. Ammonia reacts with acid pollutants such as the products of SO <sub>2</sub> and NO <sub>x</sub> emissions to produce fine ammonium (NH <sub>4</sub> <sup>+</sup> )- containing aerosol which may be transferred much longer distances (can therefore be a significant trans-boundary issue.)	Adverse effects are as a result of nitrogen deposition leading to eutrophication. As emissions mostly occur at ground level in the rural environment and NH <sub>3</sub> is rapidly deposited, some of the most acute problems of NH <sub>3</sub> deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides NO <sub>x</sub>	Nitrogen oxides are mostly produced in combustion processes. About one quarter of the UK's emissions are from power stations, one-half from motor vehicles, and the rest from other industrial and domestic combustion processes.	Deposition of nitrogen compounds (nitrates (NO <sub>3</sub> ), nitrogen dioxide (NO <sub>2</sub> ) and nitric acid (HNO <sub>3</sub> )) can lead to both soil and freshwater acidification. In addition, NO <sub>x</sub> can cause eutrophication of soils and water. This alters the species composition of plant communities and can eliminate sensitive species.
Nitrogen (N) deposition	The pollutants that contribute to nitrogen deposition derive mainly from NO <sub>x</sub> and NH <sub>3</sub> emissions. These pollutants cause acidification (see also acid deposition) as well as eutrophication.	Species-rich plant communities with relatively high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication, due to its promotion of competitive and invasive species which can respond readily to elevated levels of N. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O <sub>3</sub> )	A secondary pollutant generated by photochemical reactions from NO <sub>x</sub> and volatile organic compounds (VOCs). These	Concentrations of O <sub>3</sub> above 40 ppb can be toxic to humans and wildlife, and can affect buildings. Increased ozone

Pollutant	Source	Effects on habitats and species
	are mainly released by the combustion of fossil fuels. The increase in combustion of fossil fuels in the UK has led to a large increase in background ozone concentration, leading to an increased number of days when levels across the region are above 40ppb. Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.	concentrations may lead to a reduction in growth of agricultural crops, decreased forest production and altered species composition in semi-natural plant communities.
Sulphur Dioxide SO <sub>2</sub>	Main sources of SO <sub>2</sub> emissions are electricity generation, industry and domestic fuel combustion. May also arise from shipping and increased atmospheric concentrations in busy ports. Total SO <sub>2</sub> emissions have decreased substantially in the UK since the 1980s.	Wet and dry deposition of SO <sub>2</sub> acidifies soils and freshwater, and alters the species composition of plant and associated animal communities. The significance of impacts depends on levels of deposition and the buffering capacity of soils.

5.1.2 Sulphur dioxide emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil, as well (particularly on a local scale) as shipping. There are no indications of current problems at SACs, cSACs or SPAs within Cornwall as a result of such processes or pathways.

5.1.3 Ammonia emissions are dominated by agriculture, with some chemical processes also making notable contributions. As such, it is unlikely that material increases in SO<sub>2</sub> or NH<sub>3</sub> emissions will be associated with Local Plans. NO<sub>x</sub> emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). Within a 'typical' housing development, by far the largest contribution to NO<sub>x</sub> (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison<sup>57</sup>. Emissions of NO<sub>x</sub> could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the Local Plan.

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5.1.4 According to the World Health Organisation, the critical NO<sub>x</sub> concentration (critical threshold) for the protection of vegetation is 30 µgm<sup>-3</sup>; the threshold for sulphur dioxide is 20 µgm<sup>-3</sup>. In addition, ecological studies have determined 'critical loads'<sup>58</sup> of atmospheric nitrogen deposition (that is, NO<sub>x</sub> combined with ammonia NH<sub>3</sub>).

5.1.5 The National Expert Group on Transboundary Air Pollution (2001)<sup>59</sup> concluded that:

- in 1997, critical loads for acidification were exceeded in 71% of UK ecosystems. This was expected to decline to 47% by 2010;
- reductions in SO<sub>2</sub> concentrations over the last three decades have virtually eliminated the direct impact of sulphur on vegetation;
- by 2010, deposited nitrogen was expected to be the major contributor to acidification, replacing the reductions in SO<sub>2</sub>;

<sup>57</sup> Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <http://www.airquality.co.uk/archive/index.php>

<sup>58</sup> The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur

<sup>59</sup> National Expert Group on Transboundary Air Pollution (2001) Transboundary Air Pollution: Acidification, Eutrophication and Ground-Level Ozone in the UK.

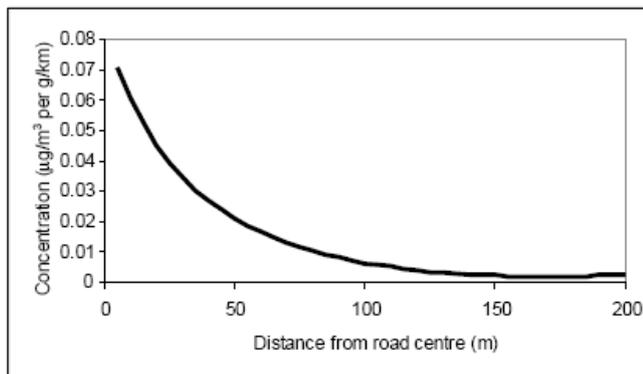
- current nitrogen deposition is probably already changing species composition in many nutrient-poor habitats, and these changes may not readily be reversed;
- the effects of nitrogen deposition are likely to remain significant beyond 2010;
- current ozone concentrations threaten crops and forest production nationally. The effects of ozone deposition are likely to remain significant beyond 2010; and
- reduced inputs of acidity and nitrogen from the atmosphere may provide the conditions in which chemical and biological recovery from previous air pollution impacts can begin, but the timescales of these processes are very long relative to the timescales of reductions in emissions.

5.1.6 Grice et al<sup>60 61</sup> do however suggest that air quality in the UK will improve significantly over the next 15 years due primarily to reduced emissions from road transport and power stations.

**Local Air Pollution**

5.1.7 According to the Department of Transport’s Transport Analysis Guidance, “Beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant”<sup>62</sup>.

**Figure 3. Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT)**



5.1.8 This is therefore the distance that has been used throughout this HRA in order to determine whether European sites are likely to be significantly affected by traffic generated by development under the Local Plan. Such a distance threshold cannot currently be applied to shipping emissions and we must therefore restrict ourselves to assuming that the presence of a pathway indicates a possible issue.

<sup>60</sup> Grice, S., T. Bush, J. Stedman, K. Vincent, A. Kent, J. Targa and M. Hobson (2006) Baseline Projections of Air Quality in the UK for the 2006 Review of the Air Quality Strategy, report to the Department for Environment, Food and Rural Affairs, Welsh Assembly Government, the Scottish Executive and the Department of the Environment for Northern Ireland.  
<sup>61</sup> Grice, S., J. Stedman, T. Murrells and M. Hobson (2007) Updated Projections of Air Quality in the UK for Base Case and Additional Measures for the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007, report to the Department for Environment, Food and Rural Affairs, Welsh Assembly Government, the Scottish Executive and the Department of the Environment for Northern Ireland.  
<sup>62</sup> [www.webtaq.org.uk/archive/feb04/pdf/feb04-333.pdf](http://www.webtaq.org.uk/archive/feb04/pdf/feb04-333.pdf)

5.1.9 Other forms of transport such as aircraft, and shipping are known to have potential to lead to reductions in air quality.

5.1.10 Cornwall has air transport infrastructure, most notably at Newquay airport, which caters for around 400,000 passengers per annum (figures from 2007)<sup>63</sup>, although in recent months airline operators have cut services from this airport.

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5.1.11 Nonetheless, the Masterplan for the airport<sup>64</sup> does project that by 2030/31, 1.43 million passengers could be travelling through the airport each year, with a total of 25,400 air traffic movements. The environment assessment included within the Masterplan does not anticipate any significant declines in air quality as a result of air traffic movements. The Masterplan states that *“existing background air quality at Newquay Cornwall Airport is very good and Restormel Borough Council has not declared any Air Quality Management Areas in the district and has not identified any air quality issues that specifically relate to the Airport or RAF St. Mawgan. It is unlikely that thresholds identified by the Local Air Quality Management Guidance for requiring an assessment of the air quality effects airports will be exceeded at Newquay Cornwall Airport.”*

5.1.12 With its extensive coastline, shipping is clearly an industry and mode of transport of importance to the unitary authority. Major ports are located at Falmouth, Truro, Fowey and Newlyn. Proposals for development of the Port of Falmouth were approved in July 2011, and the Falmouth Harbour Commissioners and Falmouth Docks and Engineering Company have recently applied for consent for operations as a part of this approach. This has involved consultation with Natural England.

5.1.13 At the head of the Fal estuary lies the Port of Truro which has deepwater access and is utilised for both leisure and cargo transport. Other commercial ports include Fowey, which is a major deepwater port, of particular note for the export of china clay, and Newlyn, where fishing is the major industry.

5.1.14 Although any increases in shipping levels would lead to potential for the sulphur deposition on habitats at European sites, there is no current evidence that levels of sulphur dioxide are causing harm. According to APIS, the critical load for SO<sub>2</sub> is 20µgm<sup>-3</sup>, whereas current levels measured across the unitary authority are 0.7 µgm<sup>-3</sup>. Nonetheless, air quality impacts of shipping include nitrogen emissions and so may not be scoped out of this HRA.

5.1.15 Air quality impacts may also occur as a result of renewable energy technologies such as Energy from Waste. While traffic makes the largest overall contribution to NO<sub>x</sub>, some individual point sources can also result in substantial increases in the local NO<sub>x</sub> concentration. Thermal treatment / Energy from Waste facilities have the potential to emit the greatest amounts, as any form of thermal treatment involves the emission of exhaust gases. Planning for such facilities will be addressed within the Council's strategies for renewables, minerals and waste.

<sup>63</sup> <http://www.bbc.co.uk/news/uk-england-cornwall-12214475>

<sup>64</sup> [http://www.newquaycornwallairport.com/media/pdf/a/6/Masterplan\\_Complete\\_w\\_new\\_back\\_cover.pdf](http://www.newquaycornwallairport.com/media/pdf/a/6/Masterplan_Complete_w_new_back_cover.pdf)

## 5.2 European site background

**Table 3. Critical nitrogen loads, actual modelled rates of nitrogen deposition and NOx concentrations<sup>65</sup> for European sites considered within this assessment (APIS<sup>66</sup> data accessed on 02/08/12). Amber = exceedence predicted, Green = no exceedence predicted**

Site	Key habitats (or species if critical loads are available) as defined on APIS	Minimum <sup>67</sup> Site Relevant Critical Load (Kg N/ha/yr)	Modelled nitrogen deposition by 2020 as provided by APIS <sup>68</sup>	Predicted exceedence of critical load?	Actual NOx concentration ( $\mu\text{gm}^{-3}$ ) compared to Critical Level of $30 \mu\text{gm}^{-3}$
Blackstone Point SAC	Shore dock	10	8.68	- 1.32	7.4
Breney Common and Goss & Tregoss Moors SAC	Upland heathland Transition mires and quaking bogs	10 10	15.54	5.54 (55%)	10.6
Carrine Common SAC	Upland heathland	10	17.22	7.22 (72%)	9.8
Crowdy Marsh SAC	Transition mires and quaking bogs	10	16.24	6.24 (62%)	7
Fal and Helford SAC	Saltmarsh Shore dock	20 10	10.5	- 9.5	8.5
Godrevy Head to St Agnes SAC	Heathland Early gentian	10 15	11.48	1.48 (15%)	10
Lower Bostraze and Leswidden SAC	Western rustwort	Considered broadly sensitive but no critical load available	10.5	-	7.8
Newlyn Downs SAC	Heathland	10	18.48	8.48 (85%)	9.6
Marazion Marsh SPA	Bittern and aquatic warbler	15	12.32	- 2.68	9.2
Penhale Dunes SAC	Sand dunes	8 (for fixed dunes, the most sensitive)	8.68	0.68 (9%)	8

<sup>65</sup> As NO<sub>2</sub>

<sup>66</sup> UK Air Pollution Information System. <http://www.apis.ac.uk>

<sup>67</sup> APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range

<sup>68</sup> Predictions available on APIS are available through the Site Relevant Critical Load tab but do not go further ahead than 2020. The predicted deposition rates available through the SRCL function on APIS represent an average across the site.

Site	Key habitats (or species if critical loads are available) as defined on APIS	Minimum <sup>67</sup> Site Relevant Critical Load (Kg N/ha/yr)	Modelled nitrogen deposition by 2020 as provided by APIS <sup>68</sup>	Predicted exceedence of critical load?	Actual NOx concentration ( $\mu\text{gm}^{-3}$ ) compared to Critical Level of $30 \mu\text{gm}^{-3}$
		dune type)			
Phoenix United Mine and Crow's Nest SAC	Calaminarian grassland	15	20.02	5.02 (33%)	7.2
Plymouth Sound and Estuaries SAC	Saltmarsh Shore dock	20 10	9.66	- 0.34	16.5
Polruan to Polperro SAC	Lowland heathland Shore dock	10 10	12.04	2.04 (20%)	7.5
River Camel SAC	Heathland	10	16.8	6.8 (68%)	7.8
	Oak woodland <sup>69</sup>	10	28	18 (180%)	
St. Austell Clay Pits SAC	Western rustwort	Considered broadly sensitive but no critical load available	14	-	14
Tamar Estuaries Complex SPA	Pied avocet	20	12.32	- 7.68	9.4
The Lizard SAC	Heathland	10	10.22	0.22 (2.2%)	7.3
Tintagel – Marsland – Clovelly SAC	Lowland heathland Oak woodland	10 10	11.76 20.58	1.76 (18%) 10.58 (106%)	6.8
Tregonning Hill SAC	Western rustwort	Considered broadly sensitive but no critical load available	13.3	-	8.3

5.2.1 It can be seen that the critical load for nitrogen deposition is currently being exceeded for designated or key supporting habitats at the majority of European sites for which data are available, with the exception of a few coastal sites. It should be noted that these data are based on centroids for the sites in question; in actuality deposition rates and concentrations will vary across the sites.

<sup>69</sup> Woodland has a different deposition rate than heathland because the difference in leaf area and available surfaces means that more nitrogen is deposited on trees.

5.2.2 In undertaking the AA for the South West RSS, Land Use Consultants<sup>70</sup> identified European sites vulnerable to air pollution, and located within 200m of major roads. These sites included those where nitrogen deposition is estimated as exceeding critical loads; those which are currently not exceeding loads but are located within 200m of a major road or in close proximity to a proposed airport; and those where there is uncertainty associated with whether critical load is currently being exceeded. Pertinent to the scope of this assessment, the European sites were identified as vulnerable to air pollution included:

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- Breney Common Goss and Tregoss Moors SAC;
- Marazion Marsh SPA; and
- Newlyn Downs SAC.

5.2.3 Re-analysis for this HRA identifies several other sites within Cornwall that lie within 200m of a major road. Table 4 below indicates European sites within 200m of roads that could be considered as having potential to support significantly elevated levels of traffic as a result of emerging policies within the Local Plan.

**Table 4. Major roads and traffic movements within 200 m of the European sites considered in detail within this assessment**

Site	Proximity to major roads
Breney Common and Goss & Tregoss Moors SAC	Adjacent to the A30.
Fal and Helford SAC	Parts of the site lie within 200m of the A390
Lower Bostraze and Leswidden SAC	Site lies adjacent to the A3071.
Marazion Marsh SPA	Within 200m of the A394.
Newlyn Downs SAC	Within 200m of the A30.
Plymouth Sound and Estuaries SAC	Lies adjacent to the A38.
River Camel SAC	Adjacent to the A39, A389 and A30.
St Austell Clay Pits SAC	Adjacent to the A391.

## 5.3 Appropriate Assessment

1.1.1 In consultation on Core Strategies for other local authorities, Natural England have referred to the following document for mitigation measures that could be included in Core Strategies: <http://www.westlondonairquality.org.uk/uploads/documents/Best%20Practice%20Guide/WLA%20Best%20Practice%20Air%20Quality%20and%20Transport%20Guide%2020051.pdf>. The report identifies four broad types of mitigation measure:

- Behavioural measures and modal shift - reducing the amount of traffic overall;
- Traffic management - modifying traffic behaviour to control where emissions are generated;
- Emissions reduction at source - reducing the emissions level per vehicle; and

<sup>70</sup> South West RSS Habitats Regulations Assessment Final Report, Land Use Consultants, February 2007 and South West Regional Spatial Strategy Proposed Changes HRA Executive Summary (July 2009) [http://www.southwest-ra.gov.uk/nqcontent.cfm?a\\_id=2655](http://www.southwest-ra.gov.uk/nqcontent.cfm?a_id=2655)

- Roadside barriers - reducing the impact on the public of emissions.

1.1.2 The measures identified in Local Plan policy (in Policy 27 Transport and Accessibility) cover all of these categories, except for the third and fourth which are not within the remit of Local Planning policy. The Local Plan does contain positive measures that should aim to mitigate or avoid the likelihood of significant adverse effects from reduced air quality:

- locate development and/or incorporate a mix of uses so that the need to travel will be minimised and the use of sustainable transport modes can be maximised by prioritising safe access by walking, cycling and public transport and providing new facilities and services to minimise car travel.
- locate developments which attract a large number of people in the city and main town centres or locations which are highly accessible by public transport or areas which will be made high accessible by the development.
- be designed to provide convenient accessible and appropriate cycle and pedestrian routes, public transport and road routes within and in the immediate vicinity of the development. The inclusion of electric vehicle charging infrastructure and real time passenger information/journey planning will be considered favourably.
- are accompanied with effective travel plans to mitigate the impact of development;
- do not significantly adversely impact the local or strategic road network that cannot be managed or mitigated;
- safeguard strategic transport opportunities including land around existing facilities to allow for expansion and use for future sustainable modes of travel e.g. closed branch rail lines;
- provide public transport solutions including park and ride where there is evidence that it will remove traffic from the highway network, is economically viable and that accord with the appropriate transport strategy for the area.

5.3.1 Department for Transport guidance as expressed in the Design Manual for Roads and Bridges (DMRB)<sup>71</sup> states that the first process in determining air quality impacts from schemes that may alter vehicle movements on the highway network is to determine whether the road in question is an 'affected road' which is defined as, among other criteria, if it will experience an increase in flows of more than 1,000 Average Annual Daily Traffic (AADT).

5.3.2 Traffic flows were therefore calculated for the links passing each European site. In the table below, 'Do Nothing' is the traffic flows at 2030 without Local Plan housing, while 'Do Minimum' is traffic flows at 2030 with Local Plan housing and the St Erth park and ride committed development. The key to each link is provided in the subsequent table. The A3071 past Lower Bostraze and Leswidden SAC is on the edge of the transport model and therefore AADT data cannot be calculated. However, this stretch of road only leads to the small town/large village of St Just and provides no through route. As such, it is highly unlikely that traffic movements due to Local Plan development would exceed 1000 AADT.

<sup>71</sup> Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 1: Air Quality

Link	Direction	2010	2030	2030	Difference between Do Nothing and Do Minimum
		AADT	AADT	AADT	AADT
		Base	Do Nothing	Do Minimum	
1	Eastbound (EB)	12724.70	12735.58	14521.23	1,785.65
1	Westbound (WB)	11048.37	11085.82	12414.09	1,328.27
2	EB	5014.08	5039.29	4745.54	293.75
2	WB	4756.10	4771.98	5949.84	1,177.86
3	EB	4773.21	4793.17	7047.16	2,253.99
3	WB	5157.17	5176.03	6861.24	1,685.21
4	EB	12724.70	12735.58	14521.23	1,785.65
4	WB	11048.37	11085.82	12414.09	1,328.27
5	EB	14193.59	14232.86	17881.15	3,648.29
5	WB	10674.97	10668.75	9792.28	876.47
6	EB	10315.64	10503.69	10137.23	366.46
6	WB	9949.95	9967.19	10777.10	809.91
7	EB	2014.99	2006.31	5076.36	3,070.05
7	WB	3260.57	3252.02	8264.87	5,012.85
8	EB	13220.96	12902.19	9064.09	- 3,838.1
8	WB	12789.76	12883.53	15370.22	2,486.69
9	NB	10029.14	10048.32	13345.90	3,297.58
9	SB	10883.44	10949.02	13524.30	2,575.28

Link No	Description	Grid Ref
1	Breney Common and Goss & Tregoss Moors SAC lies within 200m of the A30	SW976612
2	River Camel SAC crossed by the A39	SX106835
3	River Camel SAC crossed by the A389	SX048678
4	River Camel SAC crossed by the A30	SW986616
5	Plymouth Sound & Estuaries is within 200m of the A38	SX354597
6	Fal & Helford SAC is within 200m of the A390	SW828446
7	Marazion Marsh SPA is within 200m of the A394	SW517319
8	Newlyn Downs SAC within 200m of the A30	SW832533
9	St Austell Clay Pits SAC is within 200m of the A391	SX022549

5.3.3 It can be seen that the A30 past Breney Common and Goss & Tregoss Moors SAC, the A39, A389 and A30 across the River Camel SAC, the A38 past Plymouth Sound & Estuaries SAC, the A394 past Marazion Marsh SPA, the A30 past Newlyn Downs SAC and the A391 past St Austell Clay Pits SAC will all experience changes in flow of over 1,000 AADT in at least one

direction as a result of Local Plan development, compared to the projected 2030 baseline if the Local Plan development was not implemented. This does not mean that an adverse effect will occur but does mean that air quality calculations are required in order to rule out an effect. The A390 past Fal & Helford SAC will not experience an increase of over 1,000 AADT and therefore further assessment of this link is not required. Since there is no critical load available for Western rustwort, no air quality calculations for St Austell Clay Pits SAC are possible.

5.3.4 The calculated vehicle flows in AADT were utilised alongside average vehicle speeds on that stretch of road and percentage Heavy Duty Vehicles to calculate the expected change in NOx concentrations and nitrogen deposition within the six European sites where the change in flows will exceed 1000 AADT. The analysis is presented in Appendix 2. In the tables within Appendix 2 'Do Minimum' is the expected growth 2030 minus the Plan development, while 'Do Something' is the total expected growth.

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5.3.5 It can be seen from the analysis that in all instances, the NOx concentration within 200m of the roadside will remain below the critical level of 30  $\mu\text{g}\text{m}^{-3}$  under the 'Do Something' Scenario (i.e. with the Local Plan in place). As such, it can be concluded that there will be no likely significant effect on any of these European sites through changes in NOx concentration associated with road traffic.

5.3.6 Environment Agency guidance<sup>72</sup>, to which Natural England also subscribe, advises that '*Where the concentration within the emission footprint [i.e. the contribution of the scheme in question] in any part of the European site(s) is less than 1% of the relevant long-term benchmark (EAL, Critical Level or Critical Load), the emission is not likely to have a significant effect alone or in combination irrespective of the background levels*'.

5.3.7 It can be seen from Appendix 2 that the contribution of the Plan to overall change in nitrogen deposition within the European sites is below 1% of the Critical Load for all European sites with the exception of Marazion Marsh SPA where the Local Plan road traffic contribution to nitrogen deposition would be 1.3% of the Critical Load. However, this would only apply at distances of approximately 7m from the roadside. Beyond that zone the contribution of Local Plan traffic to deposition rates quickly falls to less than 1% of the Critical Load. It is therefore possible to conclude that there will be no likely significant effect on any European sites as a result of increased nitrogen deposition.

## 5.4 Other plans and projects

5.4.1 Although local Energy from Waste sites within Cornwall which have recently been permitted could theoretically contribute to atmospheric deposition on some of these sites (such as Breney Common and Goss & Tregoss Moors SAC) it is understood that air quality analysis has determined that no adverse effect on the integrity of any European site will result.

## 5.5 Conclusion

5.5.1 It is possible to conclude that the Cornwall Local Plan development will not lead to likely significant effects on European sites through changes in air quality.

<sup>72</sup> Environment Agency. 2007. Appendix ASC 1 Environment Agency Stage 1 and 2 Assessment of New PIR Permissions under the Habitats Regulations

## 6 Water resources and quality

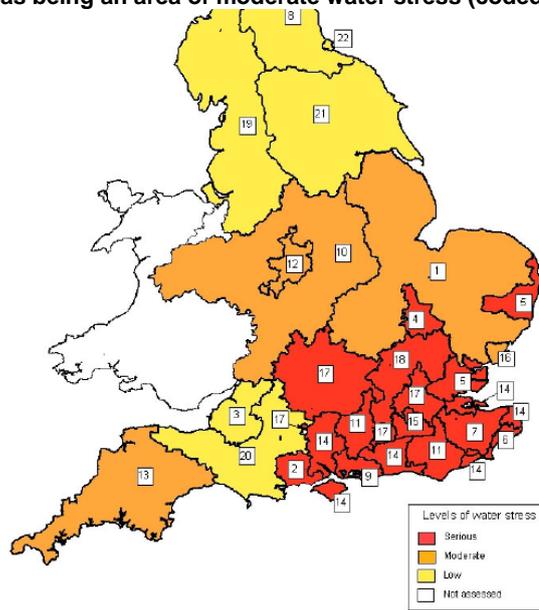
### 6.1 Introduction

6.1.1 This Chapter focuses on potential for water resource and quality impacts related primarily to any requirement for increased abstraction for the Public Water Supply to serve new housing that may lead to effects on European sites, and any potential for wastewater discharges to exceed the headroom of the current WWTW discharge consents for Cornwall as they affect European sites.

### 6.2 Water resources

6.2.1 Cornwall is generally an area of moderate water stress (see Figure 4).

**Figure 4. Areas of water stress within England. It can be seen from this map that Cornwall is classified as being an area of moderate water stress (coded orange).**<sup>73</sup>



6.2.2 River and estuarine European sites and sites with habitats dependent on ground water levels (such as bog, fen, swamp, wet grass and heathlands etc.) have the potential to be affected by increased water abstraction associated with development in the Local Plan. In addition, the rivers on Dartmoor, which provide migration routes for Atlantic salmon (one of Dartmoor SAC's qualifying features) may be affected by water abstraction to serve development at distance

<sup>73</sup> Figure adapted from Environment Agency. 2007. Identifying Areas of Water Stress. <http://publications.environment-agency.gov.uk/pdf/GEHO0107BLUT-e-e.pdf>

from the boundary of the SAC itself. The rivers on Dartmoor provide migration routes to the Dart, Teign, Erme, Yealm, Tavy, Torridge and Taw.

## 6.3 Water Quality

6.3.1 Many European Sites are dependent upon there being appropriate water quality to support their integrity, including water courses and estuaries and other wetland habitats, as well as less obvious habitat types (such as heathlands, dunes, oligotrophic waters) which may be dependent on ground water quality. Other qualifying features (e.g. Southern damselfly, Atlantic salmon, otters) could be affected by water pollution.

6.3.2 Increased amounts of housing or business development can lead to reduced water quality of rivers and estuarine environments. Sewage and industrial effluent discharges can contribute to increased nutrients on European sites leading to unfavourable conditions. In addition, diffuse pollution, partly from urban run-off, has been identified during an Environment Agency Review of Consents process as being a major factor in causing unfavourable condition of European sites. Water quality can be affected by a number of factors, such as:

- pollution from toxic chemicals, metals, oils, pesticides, etc., arising for example from accidental spills, industrial processes, run-off from urban areas, and agriculture;
- pesticides and nutrient enrichment, for example from agricultural fertilisers, leading to eutrophication; and
- discharges from sewage treatment works, and over-flowing foul water systems at times of high rainfall and flooding.

6.3.3 The quality of the water that feeds European sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts:

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour. Eutrophication, the enrichment of plant nutrients in water, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen; in the freshwater environment, phosphorus is usually a principal cause of eutrophication.
- Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life, and subsequently bird life and other qualifying species such as otter.
- Increased discharge of treated sewage effluent can result both in greater scour (as a result of greater flow volumes) and in high levels of macroalgal growth, which can smother the mudflats of value to SPA birds.

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6.3.4 For Sewage Treatment Works (STW) close to capacity, further development may increase the risk of effluent escape into aquatic environments. In many urban areas, sewage treatment and surface water drainage systems are combined, and therefore a predicted increase in flood and storm events could increase pollution risk.

6.3.5 However, it is also important to note that the situation is not always simple – for sites designated for waterfowl, a STW discharge can actually be a useful source of food and birds will often congregate around the outfall. In addition, while nutrient enrichment does cause considerable problems on the south coast (particularly in the Solent) due to the abundance of smothering macroalgae that is produced, it is not necessarily a problem in other areas where the macroalgae are broken up by tidal wave action and where colder and more turbid water limit the build-up in the first place. Nonetheless, at this screening stage water quality impacts are considered to be an issue that requires investigation.

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## 6.4 European site background

### Water resources

6.4.1 The South West Water Resources Plan<sup>74</sup> identifies the two resources zones applicable to Cornwall. Resource zones are defined as ‘*the largest possible zone in which all resources, including external transfers, can be shared and hence the zone in which all customers experiences the same risk of supply failure from a resource shortfall*’. South West Water refers to its resource zones as ‘Strategic Supply Areas’ - the Colliford Strategic Supply Area serves most of Cornwall except the north east of the unitary authority. The Roadford Strategic Supply Area serves north western Cornwall and eastern Devon. These information sources identify that water supplies for most of Cornwall are from surface water sources either from the River Fowey and Collingford Reservoir, or from the River Wolf and River Tavey with associated Roadford Reservoir.

6.4.2 The Environment Agency, in their study into the water resource implications of recommended housing numbers set out in the RSS Panel Report<sup>75</sup>, identified that within the Roadford resource zone deficits are expected to arise throughout the planning period (the planning period of the abolished RSS was until 2026) under the ‘dry year annual average scenario’.

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6.4.3 In undertaking the HRA for the South West RSS, Land Use Consultants<sup>76</sup> identified European sites where water supply and levels are factors required to maintain the site’s integrity, or where the site is already experiencing pressure from existing water abstraction. Land Use Consultants also liaised with the Environment Agency with respect to their RSS Panel Report (described above). Whilst the RSS has been abolished and predicted housing growth figures are therefore no longer applicable, key findings which identify those European Sites at risk from existing water abstractions and future pressures are identified below:

<sup>74</sup> South West Water (2009) Water Resources Plan (2010-2035) (November 2009)  
<http://www.southwestwater.co.uk/index.cfm?articleid=1556>

<sup>75</sup> Water Supply and Housing Growth in the South West of England. RSS Panel Report December 2007. Short Report, Environment Agency, March 2008.

<sup>76</sup> South West RSS Habitats Regulations Assessment Final Report, Land Use Consultants, February 2007 and South West Regional Spatial Strategy Proposed Changes HRA Executive Summary (July 2009) [http://www.southwest-ra.gov.uk/nqcontent.cfm?a\\_id=2655](http://www.southwest-ra.gov.uk/nqcontent.cfm?a_id=2655)

- Newlyn Downs SAC - water abstraction is identified as a current pressure. Groundwater aquifers may become depleted due to abstraction and contaminated by agricultural chemicals such as fertilisers, or by pollution leaking from landfill sites;
- River Camel SAC - drainage is identified as a current pressure. Drainage has a number of damaging effects on both the wet heath and the surrounding environment through, for example, lowering of the water table, increased erosion of peat, siltation of streams and rivers and increased risk of flooding. This site is therefore highly sensitive to water abstraction; and
- Dartmoor SAC - barriers to salmon migration, including effects of abstraction (migration routes include the Dart, Teign, Erme, Yealm, Tavy, Torridge and Tav).

### Water quality

- 6.4.4 In undertaking the HRA for the South West RSS, Land Use Consultants<sup>77</sup> identified that many of the most significant risks to water quality in Cornwall are as a result of agricultural activity. This falls outside the remit of the Cornwall Local Plan. Land Use Consultants also identified the risk of reduced water quality on European Sites arising from growth anticipated by the RSS in the South West related to increased pressures on existing STWs capacity and increased accidental pollution incidents associated with development. Land Use Consultants liaised with Natural England and the Environment Agency on the European Sites that require particular attention with regards to water quality and potential effects from development.
- 6.4.5 Within Cornwall and therefore pertinent to this HRA, and based on further consultation, we have identified that European sites within this assessment should include:
- Fal and Helford SAC (with respect to its estuarine and requirement for freshwater inputs. Water pollution risks of this site were confirmed by the Environment Agency<sup>78</sup>. During the EA Stage 3 Review of Consents process, a number of issues were identified that could affect water quality at the SAC. Ammonia input was identified as a concern downstream of Ladock Valley, while suspended solids arising from Kernick Mica Dam could not be ruled out as having likely significant effects. Organic compounds, including tributyltin (TBT) were found to be discharged at potentially harmful levels from Falmouth Docks and Tank Farm separator facility. Additionally, nutrient levels arising from several STWs (Carnon Downs; Falmouth; Ladock Valley; Lanner St. Day; Mylor Bridge; Ponsanooth; St. Stephen (Coombe); and Truro (Newham)) could not be concluded to not be having detrimental effects on the SAC;
  - Marazion Marsh SPA - diffuse pollution is identified as a potential threat to ecological integrity<sup>79</sup>. However at the EA Stage 3 Review of Consents process, no likely significant effects of permitted water abstractions or discharges were determined, and therefore no permissions were carried forward into Stage 4. This site is therefore not discussed further in this Chapter;

<sup>77</sup> South West RSS Habitats Regulations Assessment Final Report, Land Use Consultants, February 2007 and South West Regional Spatial Strategy Proposed Changes HRA Executive Summary (July 2009) [http://www.southwest-ra.gov.uk/nqcontent.cfm?a\\_id=2655](http://www.southwest-ra.gov.uk/nqcontent.cfm?a_id=2655)

<sup>78</sup> Draft RSS SW Panel report: The Environment Agency's observation on housing growth and waste water treatment, March, 2008

<sup>79</sup> [http://www2.plymouth.ac.uk/science/cornwall/Sites/Site\\_Marazion\\_Marsh.html](http://www2.plymouth.ac.uk/science/cornwall/Sites/Site_Marazion_Marsh.html)

- Plymouth Sound and Estuaries SAC (with respect to sewage discharges, port development, dredging, oil pollution). Langston et al<sup>80</sup> note that *'parts of the system, notably the upper estuaries, are subject to nutrient enrichment. Although the majority of nutrient inputs in the system may be due to diffuse sources such as agricultural run-off, sewage discharges constitute additional loading and result in chronic contamination of the affected areas, and nutrient associated water quality problems. For example low levels of dissolved oxygen have occurred periodically in the upper Tamar and may be responsible for salmonid deaths.'* Langston et al (2003) also note that the introduction of hydrocarbons to the estuary environment through road run off & industrial sources (oil depot, dockyard discharges, sediments) as another 'principal area of concern' affecting quality of the SAC/SPA. The EA Review of Consents Stage 3 found the six discharge permissions could not be concluded to be having no likely significant effects on the SAC – these all related to levels of metals and non-metallic toxins. Three of the permissions related to STWs in Plymouth. At Stage 4 of the RoC, the preferred approach was to revoke consent conditions for dieldrin at Plymouth Central, revoke TBT consent conditions at Plymouth (Radford) and modify consents (remove headroom) at Plymouth Ernesettle in order to reflect present performance. The consent modification approach was also recommended for Torpoint STW. Adjustment of consents was also required for one industrial and one quarry-related permission;
- Tamar Estuaries Complex SPA (with respect to dredging and accidental oil pollution). In terms of EA-controlled discharge permissions, at RoC Stage 3, no permissions with potential impacts on the SPA were identified to be taken forward to Stage 4. This site is therefore not considered further in this Chapter; and
- River Camel SAC (the SAC form identifies that otter and bullhead are dependent on water quality). During the EA Review of Consents Stage 3 process several STWs were cited as potentially contributing to adverse effects on the SAC through phosphorus discharges (Delabole STW; Camelford STW; Bodmin (Scarlett's Wells) STW; Nanstallon STW; St. Mabyn STW; St. Teath STW). Bodmin (Scarlett's Wells), Delabole, and Nanstallon were also identified based on issues relating to one or more of dissolved oxygen levels, water quality with respect to supporting salmon, and ammonia. At the Stage 4 of the RoC process, phosphorus stripping was required of Camelford, Bodmin (Scarlett's Wells) and Delabole STWs (by March 2008). Nanstallon STW was determined to meet requirements for supporting salmon in receiving water courses.

## 6.5 Appropriate Assessment

### Water resources

- 6.5.1 The Water Resource Management Plan (WRMP) of South West Water (2009) indicates that there will be a surplus of supply over demand plus headroom until 2034/35 as a result of demand management measures and further investment in water supply infrastructure. The Water Resource Management Plan sets out the agreed strategy for providing water resources and is approved by the Environment Agency and The Regulator (Ofwat). Most of Cornwall falls within the Colliford Strategic Supply Area. The exception is the north-west of the County around

<sup>80</sup> Langston, W.J., Chesman, B.S., Burt, G.R., Hawkins, S.J., Readman, J. and Worsfold, P. (2003) Characterisation of the South West European Marine Sites. Plymouth Sound and Estuaries cSAC, SPA. Occasional Publications. Marine Biological Association of the United Kingdom (9) 202p

Bude, which falls within the Roadford Strategic Supply Area. South West Water in preparing their Water Resource Management Plan took into account the conclusions of the Environment Agency's Review of Consents process. This process involves the Environment Agency examining all the abstraction licences they allow in order to determine whether any reductions in abstraction volume/rate are required in order to avoid adverse effects on European sites.

6.5.2 In the case of South West Water, only abstractions that affected Dartmoor SAC (supplying Devon and a small part of Cornwall) were identified as requiring reduction. No reductions were required with regard to the River Camel or other European sites. The reductions in abstraction from the Dartmoor SAC were taken into account by South West Water in the production of their Water Resource Management Plan. Relatively few measures are proposed in the WRMP as being necessary to ensure adequate water supply in the Cornwall area until 2034; they are restricted largely to water efficiency measures and new tariffs. In addition South West Water plans significant investment at Stithians WTW for capital maintenance and operational efficiency reasons; this work is planned for AMP8. The WRMP does not indicate that any increase in existing licenced abstraction rates/volumes from the River Camel or any other European sites will be required to secure additional resources to supply Cornwall. As such it is considered that no adverse effect on the integrity of any European sites would arise from the supply strategy for Cornwall over the Local Plan period as set out in the WRMP.

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## Water quality

### **Fal and Helford SAC**

6.5.3 Carnon Downs STW, Falmouth STW, Lanner St. Day STW, Mylor Bridge STW, St. Stephen (Coombe STW), and Truro (Newham STW) will all probably receive new dwellings within their catchments under the Local Plan. Unless it can be confirmed that the proposed levels of development can be accommodated within the existing consents at these STW's then it would not be possible to confirm that no adverse effects on the integrity of the SAC would result from development.

### **Plymouth Sound & Estuaries SAC**

6.5.4 Torpoint STW will probably receive new dwellings within its catchment under the Local Plan. Unless it can be confirmed that the proposed levels of development can be accommodated within the existing consent at this STW then it would not be possible to confirm that no adverse effects on the integrity of the SAC would result from development.

### **River Camel SAC**

6.5.5 Camelford, Bodmin (Scarlett's Wells) and Delabole STWs will all probably receive new dwellings within their catchments under the Local Plan. Unless it can be confirmed that the proposed levels of development can be accommodated within the existing consents at these STW's then it would not be possible to confirm that no adverse effects on the integrity of the SAC would result from development.

## 6.6 Other plans and projects

6.6.1 The principal other projects and plans are the existing abstraction licences and discharge consents held by the statutory water company and other abstractors/dischargers. However,

these have all been subjected to assessment under the Review of Consents process and deemed acceptable. Moreover, they will be taken into account in the water companies Water Resource Management Plan process and the Environment Agency's permitting process. They would however form the baseline against which any changes to consents would need to be assessed.

## 6.7 Recommendations

6.7.1 The Council should confirm with South West Water that the levels of development envisaged within the catchments of Carnon Downs STW, Falmouth STW, Lanner St. Day STW, Mylor Bridge STW, St. Stephen (Coombe STW), Truro (Newham STW), Camelford STW, Bodmin STW, Torpoint STW and Delabole STW can be accommodated without a requirement to increase the discharge consent volumes at these STW's, or that if an increase in consented discharge volumes is required this can be achieved without a deterioration in downstream water quality.

6.7.2 Avoiding an adverse effect is largely in the hands of the water companies (through their investment in future sewage treatment infrastructure) and Environment Agency (through their role in consenting effluent discharges). However, local authorities can also contribute through ensuring that sufficient wastewater treatment infrastructure is in place prior to development being delivered through the Local Plan. In the case of Cornwall, this is alluded to in Policy 28 (Infrastructure) which states that *'New development must be supported by appropriate infrastructure provided in a timely manner. The Council will continue to work in partnership with infrastructure providers and other delivery agencies to keep an up to date infrastructure delivery plan that will enable proposals, in accordance with the spatial objectives, to be brought forward'*.

6.7.3 However, it is considered that this allusion needs to be slightly expanded upon in order to provide a firm commitment with regard to the linking of housing delivery to delivery of necessary infrastructure that will ensure that an adverse effect on European sites is avoided. The Local Plan will need to make specific reference to the fact that the delivery of development will be phased in order to ensure that it only takes place once any new water treatment infrastructure necessary to service the development while avoiding an adverse effect on European sites is in place. The Local Plan should also make it clear that this need will be determined and delivered through interaction with other authorities including South West Water and the Environment Agency.

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## 6.8 Council Response

6.8.1 The Council were supplied with recommendations in summer 2012 when an early draft of the Local Plan was assessed. In formulating the most recent (December 2012) draft of the Local Plan, they have documented their response to the recommendations in reaching their conclusion that these measures will enable a conclusion of no adverse effect on integrity.

Topic	Recommendation	Response
Water Quality	<p>Confirm with South West Water that the levels of development envisaged within the catchments of Carnon Downs STW, Falmouth STW, Lanner St. Day STW, Mylor Bridge STW, St. Stephen (Coombe STW), Truro (Newham STW), Camelford STW, Bodmin STW, Torpoint STW and Delabole STW can be accommodated without a requirement to increase the discharge consent volumes at these STW's, or that if an increase in consented discharge volumes is required this can be achieved without a deterioration in downstream water quality</p> <p>Expand Infrastructure Policy to provide a firm commitment with regard to the linking of housing delivery to delivery of necessary infrastructure that will ensure that an adverse effect on European sites is avoided. Make specific reference to the fact that the delivery of development will be phased in order to ensure that it only takes place once any new water treatment infrastructure or appropriate retro-fitted technology (e.g. nitrate stripping) necessary to service the development while avoiding an adverse effect on European sites is in place. The Local Plan should also make it clear that this need will be determined and delivered through interaction with other authorities including South West Water and the Environment Agency</p>	<p>A meeting has been held between Cornwall County Council and South West Water. South West Water has confirmed that they will deal with the levels of development proposed. They continue to be part of the Council's Infrastructure Providers Group and so keep up to date and contribute to the developing plan.</p>

## 7 Coastal squeeze

### 7.1 Introduction

7.1.1 Rising sea levels can be expected to cause intertidal habitats (principally saltmarsh, sand dunes and intertidal mudflats) to migrate landwards. However, in built-up areas, such landward retreat is often rendered impossible due the presence of the sea wall and other flood defences. In addition, development frequently takes place immediately behind the sea wall, so that the flood defences cannot be moved landwards to accommodate managed retreat of threatened habitats. The net result is that the quantity of saltmarsh, sand dunes and mudflat adjacent to built-up areas will progressively decrease as sea levels rise. This process is known as 'coastal squeeze'. In areas where sediment availability is reduced, the 'squeeze' also includes an increasingly steep beach profile and foreshortening of the seaward zones.

7.1.2 Intertidal habitat loss is mainly occurring in the south and east of the country, particularly between the Humber and Severn. Northwest England, south Wales, the Solent in Hampshire, the southeast around the Thames estuary and large parts of East Anglia are also affected but to a lesser degree.

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7.1.3 Defra's current national assessment is that the creation of an annual average of at least 100 ha of intertidal habitat associated with European sites in England that are subject to coastal squeeze, together with any more specifically identified measures to replace losses of terrestrial and supra-tidal habitats, is likely to be required to protect the overall coherence of the Natura 2000 network. This assessment takes account of intertidal habitat loss from European sites in England that is caused by a combination of all flood risk management structures and sea level rise. The assessment will be kept under review taking account of the certainty of any adverse effects and monitoring of the actual impacts of plans and projects<sup>16</sup>.

### 7.2 European site background

7.2.1 The Shoreline Management Plan (SMP) that covers Cornwall is the Rame Head to Hartland Point SMP. A review of the SMP has led to a second plan (SMP2). The following Management Units are of relevance to European sites. For many of the sites, sections of undefended cliff exist where No Active Intervention is the proposed strategy:

#### Polruan to Polperro SAC

- Talland (No Active Intervention); Polperro (Hold the Line); Polruan (Hold the Line); Fowey (Hold the Line)

#### Fal and Helford SAC

- St. Mawes (Hold the Line); St Just-in-Roseland (Hold the Line); Restronguet Passage (No Active Intervention); Devoran and Perranarworthal (Managed Retreat); Mylor Quay (Hold the Line); Mylor Bridge (No Active Intervention); Flushing (Hold the Line with localised Managed Retreat); Penryn (Hold the Line); Falmouth (Hold the Line);

<sup>16</sup> Defra. 2005. Coastal Squeeze – Implications for Flood Management.  
<http://www.defra.gov.uk/environ/fcd/policy/csqueeze.pdf>

Pendennis Point (No Active Intervention); Ruan Laniorne (No Active Intervention); Tresillian (Hold the Line); Truro Upper Basin (Hold the Line/Managed Retreat); Calenick Creek (Managed Retreat); Castle Beach and Gyllyngvase (Hold the Line); Swanpool (Hold the Line); Maenporth (Hold the Line); Durgan (No Active Intervention); Helford Passage (No Active Intervention); Gweek Quays (Hold the Line); Helford (No Active Intervention); Flushing (No Active Intervention); Gillan (No Active Intervention); Porthallow (Hold the Line); Porthoustock (No Active Intervention)

#### The Lizard SAC and Lizard Point cSAC

- Coverack (Hold the Line); Kennack Sands (Managed Retreat); Cadgwith (Hold the Line); Mullion Cove (No Active Intervention); Poldhu Cove (No Active Intervention); Church Cove (No Active Intervention); Jangye-ryn (Managed Retreat)

#### Marazion Marsh SPA

- Marazion West (Hold the Line); Marazion Marsh (Hold the Line)

#### Land's End and Cape Bank cSAC

- Sennen Cove (Hold the Line); Whitesand Bay (No Active Intervention)

#### Godrevy Head to St Agnes SAC

- Portreath Beach (Hold the Line); Portreath Harbour (Hold the Line); Porthtowan (Managed Retreat)

#### Penhale Dunes SAC

- Perran Beach (Managed Retreat); Penhale and Holywell Bay (Managed Retreat)

#### Tintagel-Marsland-Clovelly Coast SAC

- Tintagel (No Active Intervention); Boscastle (Hold the Line); Crackington Haven (Hold the Line); Black Rock/South Widemouth (Managed Retreat); North Widemouth (Hold the Line); Bude Haven and Canal Area (Hold the Line); Summerleaze Beach (Managed Retreat); Crooklets Beach (Managed Retreat); Hartland Quay (No Active Intervention)

7.2.2 Decisions on coastal defence strategies are made independently of the Local Plan. In terms of consideration of potential impacts, the Local Plan would have potential to affect European sites with any requirements for development that would lead to a policy of 'Hold The Line' or 'Advance The Line' and where this would conflict with the coastal strategy. Additionally, any proposed development in an area identified for 'managed retreat' within the SMP or in an area listed within the Environment Agency Regional Habitat Creation programme would also lead to a requirement for further consideration as part of the HRA.

## 7.3 Appropriate Assessment

7.3.1 Specific site allocations are not made within the Local Plan. However, there is no reason to conclude that any of the dwellings that will be allocated within Cornwall would require

placement in locations that would compromise natural coastal processes or managed retreat initiatives. Moreover, Policy 26 (Flood Risk Management and Coastal Change) already identifies the requirement for development proposals to comply with the coastal defence policies set for the County in its coastal strategies.

- 7.3.2 PP5 Falmouth & Penryn CNA refers to providing ‘*a strategic framework to balance economic development, maritime industries, access to the coast and protection of the environment.*’ This will primarily focus on the wider Port of Falmouth, including Penryn and the Falmouth Docks. Clearly, since most of the coastline at Falmouth and Penryn is part of the Fal & Helford SAC there will be numerous restrictions on the ability to deliver coastal development but only where this would require currently undefended areas (or areas identified in the SMP for ‘No Active Intervention’) to be defended to an improved standard (as this would trigger increased coastal squeeze beyond that taken into account in developing the SMP). There is no reason to conclude that such a change in defence policy would be required to achieve the broad objective stated in PP5. No specific proposals for Port expansion are made within the Local Plan and any such proposals would require project-level HRA before they could be permitted.
- 7.3.3 PP7 St Agnes & Perranporth CNA refers to ‘*harnessing the full potential of the waterfront for employment and leisure.*’ However, this is a broad statement that could encompass a range of initiatives. The SMP states that: ‘*An important aspect of moving toward a more sustainable shoreline position at Perranporth will be to manage the present day development pressures which exist along the frontage, particularly adjacent to the main Beach Road car park. Land Use Planners must be guided to avoid further unsuitable development in this area as it will be increasingly at risk in the future and will need to be considered spatially as part of any realignment strategy beyond 2025.*’ Cornwall Council are a partner organisation in developing the SMP and subscribe to its policies. It is considered that the broad statement made in PP7 is sufficiently broad (and is not actually contained within the policy text) that it could be achieved while avoiding adverse effects on the Penhale Dunes SAC since the SAC does not actually abut the Perranporth coastline.
- 7.3.4 PP17 Cornwall Gateway CNA states (with regard to Saltash) that ‘*The regeneration of the waterfront is therefore fundamental to achieving this aim.*’ Saltash is clearly much constrained by the presence of Plymouth Sound & Estuaries SAC but there is no reason why waterfront regeneration would involve a change to the coastal defences around Saltash beyond those identified in the SMP. Saltash is already well defended against sea level rise. The policy describes ‘*the provision of, or safeguarding for, employment related to maritime uses in waterside locations and the creation of new public access to the waterfront.*’ No specific proposals are made in policy and any such proposals would require project-level HRA before they could be permitted.

## 7.4 Other plans and projects

- 7.4.1 The principal other plans and projects of relevance to this HRA are the Shoreline Management Plan for Plymouth (the South Devon and Dorset (Durlston Head to Rame Head) SMP) and Coastal Strategies for the Cornwall coastline. However, since the Local Plan does not include any policy or allocation that would require establish coastal defence policy as set out in the SMP and Coastal Strategies to change, or which would affect coastal policy at all, there is no basis on which an in combination effect would be triggered.

## 7.5 Conclusion

- 7.5.1 It can therefore be concluded that there will be no adverse effect on the integrity of any European sites through this pathway.

## 8 Loss of Supporting Habitat

### 8.1 Introduction

8.1.1 For European sites that are designated for highly mobile species, land outside the boundary of the site can nonetheless be important for its integrity. For example, some sites that are designated for wintering waterfowl depend for their integrity not only on the habitat within the designated site but areas of land outside the boundary that are used by large numbers of the population as a high tide roost. Local Plans can theoretically result in habitat fragmentation though loss of supporting habitat. Riverside development upstream from a European Site may result in a loss of supporting riparian habitat. Similarly, semi-natural habitats adjacent to an SPA or Ramsar may serve a supporting habitat function for qualifying bird species, even when outside of the site boundary.

### 8.2 European site background

8.2.1 This supporting habitat has also been considered, in particular with respect to

- River Camel SAC – due to its designation for otter and Atlantic salmon that may use areas contiguous with, but outside the SAC; and
- Plymouth Sound & Estuaries SAC/Tamar Estuaries Complex SPA – due to its designation for bird species that are inherently mobile and its population of Allis shad.

### 8.3 Appropriate Assessment

#### River Camel SAC

8.3.1 This SAC lies within several CNAs. Wadebridge (within the Wadebridge and Padstow CNA) is located within 1km of the River Camel and will receive approximately 800 dwellings over the Local Plan period. The River Camel SAC also flows through the Bodmin CNA. Bodmin (which lies within 500m of the river) will receive approximately 1,000 dwellings under the Local Plan. The River Camel SAC also flows through the village of Camelford, within the Camelford SNA, which will receive approximately 300 dwellings under the Local Plan.

8.3.2 Individual site boundaries or locations for development sites are not provided as part of the Local Plan (this is to be expected). Impacts on otter populations (e.g. disruption of otter corridors) cannot be assessed in any meaningful way without such information. Therefore potential disruption of otter corridors due to development in Bodmin and Camelford (which both straddle the River Camel) is not impossible. However, otters (irrespective of their association with an SAC) are in themselves an internationally protected species covered by the Conservation of Habitats and Species Regulations 2010. These Regulations prohibit any damage or destruction of otter habitat without a licence and it is unlikely that a licence to undertake such an activity would be granted without a requirement to mitigate for any loss. In practice therefore, otters and their habitat even outside the SAC are still legally protected and therefore no adverse effect on the integrity of the SAC would occur through this pathway in reality.

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**8.3.3** The River Camel drains into Padstow Bay. Although the section of the River from Wadebridge to Padstow Bay is not part of the SAC, Atlantic salmon (one of the species for which the SAC is designated) is a migratory species and will therefore move out of the SAC and along the River into Padstow Bay (and back) in order to migrate. Anything that prevented this passage could therefore result in an adverse effect on the integrity of the SAC. The Local Plan intends for approximately 800 dwellings to be delivered at Wadebridge and further housing (quantum not specified) at Rock/Tredizzick and Padstow. All of these settlements are immediately adjacent to the River between Wadebridge and Padstow Bay. However, there is no reason to conclude that the construction of these dwellings will involve any in-river works and therefore no basis on which to conclude that there would be an adverse effect on the integrity of the SAC through disruption of salmon migration.

**Plymouth Sound & Estuaries SAC/ Tamar Estuaries Complex SPA**

**8.3.4** Although the Allis shad is a migratory species, the entire Plymouth Sound and associated estuaries are designated as part of the SAC and no information has been identified that indicates that large scale migration upstream of the SAC boundary takes place. As such, there is no potential for works outside the SAC boundary to impact on Allis shad movements. In addition, Natural England’s Regulation 33 report for the European Marine Site lists those habitats whose preservation is essential for the integrity of the avocet and little egret populations within the SPA. No areas of land/habitats outside the SPA boundary are identified as being of particular importance.

**8.3.5** This SAC/SPA lies adjacent to the Caradon CNA. The main settlement that will receive housing within this CNA is Callington which lies approximately 4km from the SAC at its closest; however the vast majority of the SAC/SPA (over 90%) lies well over 5km distant and Callington is therefore unlikely to be a significant source of recreational activity. The SAC/SPA also lies within the Cornwall Gateway CNA of which the main settlement is Saltash which lies adjacent to the SAC/SPA. Saltash will receive 750 new dwellings over the Local Plan period while other settlements within 5km will bring the total to be delivered in that zone to 1,300. This is however, dwarfed by the number of dwellings to be delivered in Plymouth: well over 17,000.

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**8.3.6** However, there are no proposals within the Local Plan that would result in obstruction of any of the watercourses that flow into Plymouth Sound and Estuaries SAC or in impact piling immediately adjacent to these watercourses which could otherwise form an acoustic barrier to movement of migratory fish. It can therefore be concluded that the Local Plan will not lead to an adverse effect on the integrity of the SAC/SPA through the pathway of impacts on supporting habitat.

**8.4 Other plans and projects**

**8.4.1** There are no other plans and projects that have been identified which would potentially act ‘in combination’ with the Local Plan.

**8.5 Conclusion**

**8.5.1** It can therefore be concluded that there will be no adverse effect on the integrity of any European sites through this pathway.

## APPENDIX 1 - EUROPEAN SITE SUMMARY TABLE

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
<b>Blackstone Point SAC</b>  (Devon)  10km from Cornwall in, marine pathway connection to site	7.38	Shore dock	<ul style="list-style-type: none"> <li>Minimal trampling</li> <li>Relatively unpolluted water</li> <li>Maintenance of freshwater inputs</li> </ul>	<p>This site is under protective management through a Countryside Stewardship Scheme</p> <p>The site comprises</p> <ul style="list-style-type: none"> <li>Shingle. Sea cliffs. Islets (95%)</li> <li>Improved grassland (5%)</li> </ul>
<b>Breney Common and Goss &amp; Tregoss Moors SAC</b>	816.01	<ul style="list-style-type: none"> <li>Wet heathland with cross-leaved heath</li> <li>Dry heaths</li> <li>Very wet mires often identified by an unstable 'quaking' surface</li> <li>Marsh fritillary</li> </ul>	<ul style="list-style-type: none"> <li>Minimal air pollution (nitrogen deposition can cause compositional changes over time)</li> <li>Use of grazing management to prevent succession</li> <li>Balanced hydrological regime to maintain wet heath.</li> <li>Low levels of recreational disturbance</li> <li>Relatively unpolluted water</li> </ul>	<p>Whilst there are considerable practical difficulties associated with achieving nature conservation management on areas of Common Land, the majority of which has not been actively managed for a considerable length of time, active engagement of the Common Rights holders has been initiated to progress the delivery of appropriate management aimed at securing favourable condition.</p> <p>In the most recent Natural England Condition Assessment process, over 90% of Goss and Tregoss Moors SSSI was listed as 'unfavourable recovering' (2009-10), while 100% of Breney Common was in this condition (2010).</p>
<b>Carrine Common SAC</b>	45.86	<ul style="list-style-type: none"> <li>Wet heathland with cross-leaved heath</li> <li>Dry heaths</li> </ul>	<ul style="list-style-type: none"> <li>Minimal air pollution (nitrogen deposition can cause compositional changes over time)</li> <li>Use of grazing management to prevent succession</li> <li>Balanced hydrological regime</li> </ul>	<p>Pressures on the site arise from damaging summer fires, attributable mainly to irresponsible visitors and motorists using the road that divides the site. Dumping and tipping have also occurred. These are difficult to control, as public access is not restricted. Nearly half the site is under a management agreement and fire-breaks have been constructed around</p>

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
			<ul style="list-style-type: none"> <li>to maintain wet heath.</li> <li>Low levels of recreational disturbance</li> </ul>	<p>the site.</p> <p>In the most recent Natural England Condition Assessment process (2009-10), 36% of the SSSI was in favourable condition, with the remainder recovering from unfavourable status.</p>
<b>Crowdy Marsh SAC</b>	92.65	<ul style="list-style-type: none"> <li>Very wet mires often identified by an unstable 'quaking' surface</li> </ul>	<ul style="list-style-type: none"> <li>Minimal air pollution (nitrogen deposition can cause compositional changes over time)</li> <li>Careful management of water levels</li> <li>Relatively unpolluted water</li> </ul>	<p>The site comprises both Common Land and privately-owned land. Historically there have been considerable practical difficulties associated with achieving positive nature conservation management both on the Common and adjacent privately-owned land, resulting in both areas not being appropriately managed for a considerable length of time. In order to progress the delivery of appropriate management aimed at securing favourable condition, a Countryside Stewardship agreement was negotiated on all of the Common Land within and adjacent to the site boundary. At the time of issue of the Natura 2000 data form for the SAC, it was intended that a further management agreement would be negotiated with the private land manager and their grazier.</p> <p>In the most recent Natural England Condition Assessment process (2009), Crowdy Marsh was considered to be in an unfavourable recovering condition.</p>
<b>Dartmoor SAC (Devon)</b>	23165.77	<ul style="list-style-type: none"> <li>Northern Atlantic wet heath with <i>Erica tetralix</i></li> <li>European dry heath</li> <li>Blanket bog</li> <li>Old sessile oak woodlands Ilex</li> </ul>	<ul style="list-style-type: none"> <li>maintaining long-established traditional farming methods</li> <li>reverse the degradation of blanket bog and wet heath by providing stable conditions that favour bog vegetation.</li> </ul>	<p>Much of Dartmoor's blanket bog and wet heath has been affected by uncontrolled and unplanned fires, some of which start naturally in hot, dry summers, but most of which are started deliberately. A programme of alerting the public to the dangers of starting accidental fires is already undertaken by the National Park Authority.</p> <p>Dartmoor is used for military training and artillery and mortar fire has led to the formation of numerous craters, and gully erosion in some areas.</p>

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
		<ul style="list-style-type: none"> <li>and Blechnum in British Isles</li> <li>• Southern damselfly <i>Coenagrion mercuriale</i></li> <li>• Otter <i>Lutra lutra</i></li> <li>• Atlantic salmon <i>Salmo salar</i></li> </ul>		<p>However, the use of heavy munitions has ceased since 1998 and the craters are healing naturally.</p> <p>Dry heath on Dartmoor has suffered extensive damage through overgrazing and frequent burning. Consequently, some areas of former dry heath have been converted to grass moorland, and large areas are in unfavourable condition because of low dwarf-shrub cover.</p>
<b>Fal &amp; Helford SAC</b>	6387.8	<ul style="list-style-type: none"> <li>• Subtidal sandbanks</li> <li>• Intertidal mudflats and sandflats</li> <li>• Shallow inlets and bays</li> <li>• Atlantic salt meadows</li> <li>• Estuaries</li> <li>• Reefs</li> <li>• Shore dock</li> </ul>	<ul style="list-style-type: none"> <li>• Sufficient space between the site and development to allow for managed retreat of intertidal habitats and avoid coastal squeeze.</li> <li>• Unpolluted water.</li> <li>• Absence of nutrient enrichment.</li> <li>• Absence of non-native species.</li> <li>• Maintenance of freshwater inputs.</li> <li>• Balance of saline and non-saline conditions.</li> <li>• Maintenance of grazing</li> </ul>	<p>The ria systems of the Fal and Helford Rivers and adjacent Falmouth Bay attract visitors and accommodate many commercial and recreational activities. Potential threats therefore include:</p> <ul style="list-style-type: none"> <li>• additional usage of the area for deep water moorings;</li> <li>• deep-water oil rig lay-up in Carrick Roads;</li> <li>• increased pressure for moorings and associated facilities;</li> <li>• port development;</li> <li>• oil pollution.</li> </ul>
<b>Godrevy Head to St Agnes SAC</b>	128.07	<ul style="list-style-type: none"> <li>• Wet heathland with cross-leaved heath</li> <li>• Dry heaths</li> <li>• Early gentian</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal air pollution (nitrogen deposition can cause compositional changes over time)</li> <li>• Use of grazing management to prevent succession</li> <li>• Balanced hydrological regime to maintain wet heath.</li> </ul>	<p>The site is owned by the National Trust and public access is promoted. The site could therefore be vulnerable to trampling, scrub invasion and summer fires. The National Trust is managing the site in accordance with the nature conservation objectives set out in the agreed site management statement, which includes actions to address these issues.</p> <p>The SSSI unit within which the SAC occurs was assessed as</p>

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
<b>Land's End and Cape Bank cSAC</b>	30,172	<ul style="list-style-type: none"> <li>Reefs</li> </ul>	<ul style="list-style-type: none"> <li>Low levels of recreational disturbance</li> <li>Avoidance of smothering of sediments</li> <li>No siltation or abrasion of substrates</li> <li>Lack of pollution</li> <li>Absence of nutrient enrichment</li> </ul>	<p>Unfavourable Recovering in 2010.</p> <p>Shipping has the potential to cause environmental damage as despite the many measures provided to promote and assist shipping safety (e.g. lighting, buoys and a traffic separation scheme) accidents still occur leading to pollution and physical wreckage.</p> <p>In the shorter term, the construction and operation of the Wave Hub off St Ives is likely to increase the amount of shipping traffic using the area and so increases the potential risk of chemical pollution and physical disturbance resulting from chronic and catastrophic events.</p> <p>Seasonal fishing by static gear has occurred in the area over many generations without apparent detriment to its function. Other activities at the site including scuba diving, angling, pleasure boating (yachting) and other „adventure sports“ are unlikely to have an impact on the area in a detrimental way.</p>
<b>Lizard cSAC</b>	13,988	<ul style="list-style-type: none"> <li>Reefs</li> </ul>	<ul style="list-style-type: none"> <li>Avoidance of smothering of sediments</li> <li>No siltation or abrasion of substrates</li> <li>Lack of pollution</li> <li>Absence of nutrient enrichment</li> <li>Maintenance of current salinity (in caves)</li> <li>No introduction of pathogens or non-native species, and no removal of native species</li> </ul>	<p>There is commercial fishing from trawling and scallop dredging which have the potential to damage the reef habitat.</p> <p>Fishing up to the 6 mile limit by larger UK and/or foreign vessels has increased in terms of frequency, and the number of pots and nets have increased to a level which leaves little room for further expansion (Cefas, 2008).</p> <p>Shipping has the potential to impact the site in a detrimental way for despite the many measures provided to promote and assist shipping safety (e.g. lighting, buoyage and a traffic separation scheme) accidents still occur leading to pollution and physical damage.</p>

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
				Other activities at the site including scuba diving, angling and pleasure boating (yachting) all of which are unlikely to have an impact on the area. The area also has a long history of potting for edible crabs and lobsters and netting, angling/hand lining for fish although the physical removal of the habitat is unlikely as a result of these fishing activities.
<b>Lower Bostraze &amp; Leswidden SAC</b>	2.33	<ul style="list-style-type: none"> <li>Western rustwort</li> </ul>	<p>This liverwort is a colonist at early stages in the succession on newly-exposed china clay waste and decaying granite rocks.</p> <ul style="list-style-type: none"> <li>The continued survival of this species therefore depends on management of existing sites to continually expose areas of china clay waste and control scrub, heathers and grasses.</li> </ul>	<p>As the rustwort is a pioneer species, if unmanaged, there is a probability that it would be lost through natural succession as taller plants, particularly heather and gorse, shade it out. This successional change is being addressed at the site through site management agreed with the owner, informed by research into management of the species.</p> <p>However, in the most recent Natural England Condition Assessment process (2006), the site was considered to be unfavourable and declining, mainly due to encroachment and lack of new colonisation.</p>
<b>Newlyn Downs SAC</b>	115.71	<ul style="list-style-type: none"> <li>Temperate Atlantic wet heaths with <i>Erica ciliaris</i> and <i>Erica tetralix</i></li> <li>European Dry heaths</li> </ul>	<ul style="list-style-type: none"> <li>Minimal air pollution (nitrogen deposition can cause compositional changes over time)</li> <li>Use of grazing management to prevent succession</li> <li>Balanced hydrological regime to maintain wet heath.</li> </ul> <p>Low levels of recreational disturbance</p>	<p>The site is under private but generally sympathetic ownership. Much of the heathland is being positively managed under Countryside Stewardship, an agri-environment scheme.</p> <p>Motorcycle scrambling is being restricted to a small area and annually monitored.</p>
<b>Marazion Marsh SPA</b>	54.58	This site qualifies by supporting:	<ul style="list-style-type: none"> <li>Minimal air pollution (nitrogen deposition can cause compositional changes over</li> </ul>	Marazion Marsh is the largest reedbed in Cornwall and the most westerly extensive area of reedbed in England, making it of strategic importance

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
		<ul style="list-style-type: none"> <li>At least 9.0% of the British passage population of aquatic warbler.</li> <li>At least 2.0% of the British wintering population of bittern.</li> </ul>	<ul style="list-style-type: none"> <li>Use of grazing management to prevent succession</li> <li>Balanced hydrological regime</li> <li>Low levels of recreational disturbance of birds</li> </ul>	<p>for breeding, passage and wintering birds. The site is managed as a nature reserve by the RSPB.</p> <p>The maintenance of the reedbed depends on active management through the periodic cutting of reeds and control of potentially invasive scrub and willow carr, carried out according to the management plan. An assessment of water level requirements to maintain the reedbed and associated areas of open water has been carried out. Plans for the installation of water level controls are currently being developed. Eutrophication through diffuse pollution, probably from agricultural sources, is an outstanding issue yet to be resolved</p>
<b>Start point to Plymouth Sounds and Eddystone cSAC</b>  <b>(Cornwall and Devon)</b>		Reefs, subdivided into: <ul style="list-style-type: none"> <li>Bedrock reefs</li> <li>Stony reefs</li> <li>Biogenic reefs</li> </ul>	It is assumed that environmental conditions required will be similar to Lizard Point cSAC: <ul style="list-style-type: none"> <li>Avoidance of smothering of sediments</li> <li>No siltation or abrasion of substrates</li> <li>Lack of pollution</li> <li>Absence of nutrient enrichment</li> <li>Maintenance of current salinity (in caves)</li> <li>No introduction of pathogens or non-native species, and no removal of native species</li> </ul>	<p>The Evidence base for the designation of Start point to Plymouth Sound and Eddystone (2010) identifies Operations which may cause disturbance, and the vulnerability of the reefs to this disturbance.</p> <p>High vulnerability was identified to biological disturbance through selective extraction of species through bait digging, wildfowling, commercial and recreational fishing).</p> <p>Medium vulnerability was identified to:</p> <ul style="list-style-type: none"> <li>Physical loss through removal, harvesting, coastal development</li> <li>Physical damage through abrasion (boating anchoring and trampling)</li> <li>Non toxic contamination through changes in organic loading (e.g. mariculture and outfalls).</li> </ul> <p>Additionally a medium risk was identified from disturbance through generation of tidal stream energy. ;</p>
<b>Penhale Dunes SAC</b>	621.34	<ul style="list-style-type: none"> <li>Dune grassland</li> <li>Humid dune slacks</li> </ul>	<ul style="list-style-type: none"> <li>Minimal air pollution (nitrogen deposition can cause compositional changes over</li> </ul>	<p>These extensive and exposed calcareous dunes are dependent upon the natural dune processes being allowed to continue. The unspoilt</p>

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
		<ul style="list-style-type: none"> <li>Shifting dunes with marram grass</li> <li>Dunes with creeping willow</li> <li>Petalwort</li> <li>Shore dock</li> <li>Early gentian</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient space between the site and development to allow for managed retreat of intertidal habitats and avoid coastal squeeze.</li> <li>Maintenance of freshwater inputs</li> </ul>	<p>character of the site is in part a result of approximately half the area being under Ministry of Defence occupation, which over the years has restricted public access. The Ministry of Defence has also voluntarily implemented policies designed to reduce any artificially induced instability into the system, e.g. limiting vehicle movements and access. A site management statement has been drawn up between English Nature and Ministry of Defence, which forms the basis of an agreed management plan. The other main landowners on the site have entered a Countryside Stewardship scheme and an agrienvironment scheme. The site management statements for all the three landowners cover visitor pressure, grazing, fire control and scrub management</p>
<b>Phoenix United Mines &amp; Crows Nest SAC</b>	48.72	<ul style="list-style-type: none"> <li>Grasslands on soils rich in heavy metals (<i>Calaminarian grasslands</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Low-intensity grazing to control scrub invasion</li> <li>Control of tipping, landscaping and some recreational activities, specifically motorbike scrambling</li> </ul>	<p>The rare mosses and liverwort populations occurring here are pioneer species of bare or sparsely-vegetated metalliferous mine-spoil. Their continued survival depends on the retention of these areas of minespoil. The management regime requires low intensity grazing to control scrub invasion and strict control of any tipping, landscaping and some recreational activities, specifically motorbike scrambling (third party activity which is very difficult to control, probably not causing damage at current levels but needs to be monitored). Site management is being achieved through close liaison with landowners, particularly with the LPA in relation to Derelict Land Grants Schemes for restoration of old mine buildings and safety works to mine shafts. Liaisons with other landowners has involved the agreement of Site Management Statements where appropriate</p>
<b>Plymouth Sound &amp; Estuaries SAC</b>	6402.03	<ul style="list-style-type: none"> <li>Subtidal sandbanks</li> <li>Estuaries</li> <li>Shallow inlets &amp; bays</li> <li>Reefs</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient space between the site and development to allow for managed retreat of intertidal habitats and avoid coastal squeeze.</li> <li>Unpolluted water.</li> </ul>	<p>The complex ria system and wide rocky inlet of Plymouth Sound are popular with visitors, close to a large population, and accommodate military and commercial shipping. Potential threats therefore include: increased pressure for recreational moorings and associated facilities; port development; ongoing maintenance dredging.</p>

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
		<ul style="list-style-type: none"> <li>Atlantic meadows</li> <li>Intertidal mudflats &amp; sandflats</li> <li>Shore dock</li> <li>Allis shad</li> </ul>	<ul style="list-style-type: none"> <li>Absence of nutrient enrichment.</li> <li>Absence of non-native species.</li> <li>Maintenance of freshwater inputs.</li> <li>Balance of saline and non-saline conditions.</li> <li>Maintenance of grazing</li> </ul>	<p>A single scheme of management has been drafted to address these issues. Both the geology and geography of Plymouth Sound make it very sensitive to oil pollution. A review of the oil contingency strategy has been completed, along with appropriate training.</p>
<b>Polruan to Polperro SAC</b>	213.39	<ul style="list-style-type: none"> <li>Vegetated sea cliffs</li> <li>Dry heaths</li> <li>Shore dock</li> </ul>	<ul style="list-style-type: none"> <li>Minimal air pollution (nitrogen deposition can cause compositional changes over time)</li> <li>Sufficient space between the site and development to allow for managed retreat of intertidal habitats and avoid coastal squeeze.</li> <li>Maintenance of grazing</li> <li>Maintenance of freshwater inputs</li> </ul>	<p>The sea cliffs support a variety of maritime vegetation that is dependent on natural processes and climatic influence. The sea cliffs require limited management, and are fairly accessible in many areas. Maintenance and enhancement of the coastal strip is being pursued in collaboration with the National Trust and other land managers through the provision of advice and promotion of positive land management schemes such as the Wildlife Enhancement Scheme and Countryside Stewardship.</p>
<b>River Camel SAC</b>	621.17	<ul style="list-style-type: none"> <li>Dry heaths</li> <li>Western acidic oak woodland</li> <li>Alder woodland on floodplains</li> <li>Bullhead</li> <li>Otter</li> <li>Atlantic salmon</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance of flow velocities</li> <li>Maintenance of water levels</li> <li>Low levels of siltation</li> <li>Unpolluted water</li> <li>Low nutrient inputs</li> <li>Maintenance of grazing pressure.</li> </ul>	<p>The otter and bullhead populations are dependent on high water quality and a natural river environment. The otter population also requires strong fish populations as well as areas of cover and holt sites for breeding and lying-up. The latter are provided by bank-side trees, areas of woodland, scrub and rank vegetation. Otters can also feed in adjacent wet meadows. Maintenance and creation of these features is being pursued in collaboration with the Environment Agency (EA) through the Local EA Plan (LEAP), provision of advice to land managers and the promotion of positive land management schemes such as Countryside Stewardship and Woodland Grant Schemes. The role of the Local Water</p>

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
<b>St Austell Clay Pits SAC</b>	0.61	<ul style="list-style-type: none"> <li>Western rustwort <i>Marsupella profunda</i></li> </ul>	<ul style="list-style-type: none"> <li>This liverwort is a colonist at early stages in the succession on newly-exposed china clay waste and decaying granite rocks.</li> <li>The continued survival of this species therefore depends on management of existing sites to continually expose areas of china clay waste and control scrub, heathers and grasses.</li> </ul>	<p>company is also important, for example in relation to future catchment uses. Disturbance is an issue, particularly as the Camel Trail (a major walking/cycling attraction) is situated next to the site. It will be important to ensure that the local authority committees that run this facility fully integrate its promotion and operation with conservation needs</p> <p>The continued survival of this species depends on the management of existing sites, which in the St Austell area, are in close proximity to active working pits, and on the inclusion of new sites. New sites are continually being created by china clay extraction in the St Austell area and are being artificially created in former clay-mining areas in west Cornwall. Management of existing sites includes manual control of scrub (willow and gorse), heathers and grasses, trials with herbicide control of heathers, etc., and small-scale translocation experiments. This management is being achieved through close liaison with the landowners</p>
<b>Tamar Estuaries Complex SPA</b>	1955	<ul style="list-style-type: none"> <li>This site qualifies by supporting:</li> <li>At least 9.0% of the British passage population of little egret.</li> <li>At least 15.8% of the British wintering population of avocet and</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient space between the site and development to allow for managed retreat of intertidal habitats and avoid coastal squeeze.</li> <li>Unpolluted water.</li> <li>Absence of nutrient enrichment.</li> <li>Absence of non-native species.</li> <li>Maintenance of freshwater inputs.</li> <li>Balance of saline and non-saline conditions.</li> <li>Maintenance of grazing</li> </ul>	<p>The complex ria system of the Tamar is close to a large conurbation, accommodates military and commercial shipping and is popular area for a variety of recreational activities. The single scheme of management being developed under the EC Life Programme will address all issues such as: increased pressure for moorings and associated facilities; port development; coastal squeeze; dredging; bait collection; and risk of accidental oil pollution. Current management is underway to address concerns over bait digging and loss of intertidal habitat to land claim.</p>

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
		8.4% of the British wintering population of little egret.		
<b>The Lizard SAC</b>	3257.11	<ul style="list-style-type: none"> <li>• Vegetated sea cliffs</li> <li>• Calcium-rich, nutrient poor lakes, lochs and pools</li> <li>• Mediterranean temporary ponds</li> <li>• Wet heathland with cross-leaved heath</li> <li>• Dry heaths</li> <li>• Dry coastal heaths with Cornish heath</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal air pollution (nitrogen deposition can cause compositional changes over time)</li> <li>• Use of grazing management to prevent succession</li> <li>• Balanced hydrological regime to maintain wet heath.</li> <li>• Low levels of recreational disturbance</li> <li>• Relatively unpolluted water</li> </ul>	Over half the site is a National Nature Reserve and much of the remainder is managed by the National Trust. Threats to the site, at the present time, are limited. Uncontrolled fires still pose a threat, but greater public awareness, improved response times and fire-breaks minimise the risk.
<b>Tilntagel Marsland Clovelly Coast SAC</b>	– 2429.84	<ul style="list-style-type: none"> <li>• Western acidic oak woodland</li> <li>• Dry heaths</li> <li>• Vegetated sea cliffs</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal air pollution (nitrogen deposition can cause compositional changes over time)</li> <li>• Use of grazing management to prevent succession</li> <li>• Low levels of recreational disturbance</li> </ul>	The sea cliffs support a variety of maritime vegetation that is dependent upon natural processes and climatic influence. The sea cliffs require limited management, and are fairly inaccessible in many areas. Maintenance and enhancement of the coastal strip is being pursued in collaboration with the National Trust and other land managers, through the provision of advice and promotion of positive land management schemes such as the Wildlife Enhancement Scheme and Countryside Stewardship
<b>Tregonning Hill SAC</b>	5.21	<ul style="list-style-type: none"> <li>• Western rustwort</li> </ul>	<ul style="list-style-type: none"> <li>• This liverwort is a colonist at early stages in the succession</li> </ul>	Western rustwort occurs within the site which consists of old china clay

European Site (Alphabetical Order) Within Cornwall Boundary unless stated	Size (ha)	Qualifying Features	Environmental conditions to support site integrity	Historic Trends and Existing Vulnerabilities
			<p>on newly-exposed china clay waste and decaying granite rocks.</p> <ul style="list-style-type: none"> <li>The continued survival of this species therefore depends on management of existing sites to continually expose areas of china clay waste and control scrub, heathers and grasses.</li> </ul>	<p>workings, pits and spoil-tips, surrounded mostly by western lowland heath. Monitoring of the site and investigation into the specific ecological requirements of the species are desirable to ensure optimal conditions for its survival and increase.</p>

## 2 Appendix 2 – Air quality calculations

In the tables below 'Do Minimum' is the expected growth by 2030 minus the Plan development, while 'Do Something' is the total expected growth. The difference between 'Do Min' and 'Do Some' is therefore the contribution of the Local Plan.

**Table 1: Background Pollutant Concentrations at Ecological Sites**

Site: Nearest Road	1 km x 1 km OS Grid Square	Year	Annual mean background NO <sub>x</sub> concentrations (µg/m <sup>3</sup> )
Brey Common Goss and Tregoss Moors SAC: A30	195500, 061500	2011	8.50
		2030*	5.80
River Camel SAC: A39	210500, 83500	2011	10.17
		2030*	7.57
River Camel SAC: A389	204500, 67500	2011	8.34
		2030*	5.64
River Camel SAC: A30	198500, 61500	2011	12.60
		2030*	7.73
Plymouth Sound and Estuaries: A38	235500, 59500	2011	8.31
		2030*	5.50
Marazion Marsh SPA: A394	151500, 31500	2011	8.47
		2030*	6.27
Newlyn Downs SAC: A30	183500, 55300	2011	9.31
		2030*	5.85

\* Background for 2020 as that is the limit of the background map projections

**Table 2: NO<sub>x</sub> Concentrations at Brey Common Goss and Tregoss Moors SAC**

Distance from named link* (m)	Annual Mean NO <sub>x</sub> (µg/m <sup>3</sup> )			Change (µg/m <sup>3</sup> )	
	2011 Base	2030** Do-Min	2030** Do-Some	Do-Some – Do-Min	Do-Some – Base
20	34.98	22.65	24.82	+2.17	-10.16
70	16.32	10.78	11.42	+0.64	-4.90
120	10.80	7.27	7.46	+0.19	-3.35

\* This is distance from named road (A30 WB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 3: NO<sub>x</sub> Concentrations at River Camel SAC; adjacent to A39**

Distance from named link* (m)	Annual Mean NO <sub>x</sub> (µg/m <sup>3</sup> )			Change (µg/m <sup>3</sup> )	
	2011 Base	2030** Do-Min	2030** Do-Some	Do-Some – Do-Min	Do-Some – Base
7	26.37	15.45	16.02	+0.57	-10.35
57	14.74	9.80	9.96	+0.17	-4.78
107	11.52	8.23	8.28	+0.05	-3.24

\* This is distance from named road (A39 EB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 4: NO<sub>x</sub> Concentrations at River Camel SAC; adjacent to A389**

Distance from named link* (m)	Annual Mean NO <sub>x</sub> (µg/m <sup>3</sup> )			Change (µg/m <sup>3</sup> )	
	2011 Base	2030** Do-Min	2030** Do-Some	Do-Some – Do-Min	Do-Some – Base
7	24.69	13.58	16.71	+3.13	-7.98
57	12.96	7.88	8.77	+0.88	-4.19
107	9.70	6.30	6.56	+0.26	-3.14

\* This is distance from named road (A389 EB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 5: NO<sub>x</sub> Concentrations at River Camel SAC; adjacent to A30**

Distance from named link* (m)	Annual Mean NO <sub>x</sub> (µg/m <sup>3</sup> )			Change (µg/m <sup>3</sup> )	
	2011 Base	2030** Do-Min	2030** Do-Some	Do-Some – Do-Min	Do-Some – Base
44	27.02	16.91	18.13	+1.22	-8.90
94	16.90	10.47	10.83	+0.36	-6.07
144	14.83	8.67	8.80	+0.12	-5.28

\* This is distance from named road (A30 EB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 6: Baseline NO<sub>x</sub> Concentrations at Plymouth Sound and Estuaries**

Distance from named link* (m)	Annual Mean NO <sub>x</sub> (µg/m <sup>3</sup> )			Change (µg/m <sup>3</sup> )	
	2011 Base	2030** Do-Min	2030** Do-Some	Do-Some – Do-Min	Do-Some – Base
39	24.53	15.64	15.84	+0.20	-8.70
89	13.18	8.55	8.60	+0.06	-4.57
139	9.82	6.45	6.47	+0.02	-3.35

\* This is distance from named road (A38 WB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 7: NO<sub>x</sub> Concentrations at Marazion Marsh SPA**

Distance from named link* (m)	Annual Mean NO <sub>x</sub> (µg/m <sup>3</sup> )			Change (µg/m <sup>3</sup> )	
	2011 Base	2030** Do-Min	2030** Do-Some	Do-Some – Do-Min	Do-Some – Base
7	17.00	10.39	16.60	+6.22	-0.40
57	10.89	7.43	9.19	+1.76	-1.69
107	9.81	6.61	7.13	+0.52	-2.05

\* This is distance from named road (A394 EB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 8: NO<sub>x</sub> Concentrations at Newlyn Downs SAC**

Distance from named link* (m)	Annual Mean NO <sub>x</sub> (µg/m <sup>3</sup> )			Change (µg/m <sup>3</sup> )	
	2011 Base	2030** Do-Min	2030** Do-Some	Do-Some – Do-Min	Do-Some – Base
199	9.88	6.20	6.17	-0.03	-3.71

\* This is distance from named road (A30 EB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

In the Tables below, figures in bold identify the contribution of the Local Plan i.e. the difference between 'Do Min' and 'Do Some'.

**Table 9: Nitrogen Deposition Rates at Breney Common Goss and Tregoss Moors SAC**

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
20	2011 Base	0.76	21.61	22.37
	2030** DM	0.53	14.43	14.96
	2030** DS	0.59	14.43	15.02
	DS-DM	-	-	<b>+0.06</b>
	<b>DS-Base</b>	-	-	<b>-7.35</b>
70	2011 Base	0.26	21.61	21.87
	2030** DM	0.18	14.43	14.61
	2030** DS	0.20	14.43	14.63
	DS-DM	-	-	<b>+0.02</b>
	<b>DS-Base</b>	-	-	<b>-7.24</b>
120	2011 Base	0.08	21.61	21.69
	2030** DM	0.06	14.43	14.48
	2030** DS	0.06	14.43	14.49
	DS-DM	-	-	<b>+0.01</b>
	<b>DS-Base</b>	-	-	<b>-7.20</b>
<b>Critical Load</b>				<b>10</b>

\* This is distance from named road (A30 WB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 10: Nitrogen Deposition Rates at River Camel SAC; adjacent to A39**

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
7	2011 Base	0.50	34.13	34.62
	2030** DM	0.27	22.78	23.05
	2030** DS	0.29	22.78	23.07
	DS-DM	-	-	<b>+0.02</b>
	<b>DS-Base</b>	-	-	<b>-11.55</b>
57	2011 Base	0.16	34.13	34.29
	2030** DM	0.08	22.78	22.87
	2030** DS	0.09	22.78	22.87
	DS-DM	-	-	<b>+0.01</b>
	<b>DS-Base</b>	-	-	<b>-11.41</b>

107	2011 Base	0.05	34.13	34.18
	2030** DM	0.03	22.78	22.81
	2030** DS	0.03	22.78	22.81
	DS-DM	-	-	<b>+&lt;0.01</b>
	<b>DS-Base</b>	-	-	<b>-11.37</b>
<b>Critical Load</b>				<b>10</b>

\* This is distance from named road (A39 EB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 11: Nitrogen Deposition Rates at River Camel SAC; adjacent to A389**

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
7	2011 Base	0.51	37.16	37.67
	2030** DM	0.28	24.81	25.09
	2030** DS	0.37	24.81	25.18
	DS-DM	-	-	<b>+0.09</b>
	<b>DS-Base</b>	-	-	<b>-12.49</b>
57	2011 Base	0.16	37.16	37.32
	2030** DM	0.09	24.81	24.89
	2030** DS	0.12	24.81	24.93
	DS-DM	-	-	<b>+0.03</b>
	<b>DS-Base</b>	-	-	<b>-12.40</b>
107	2011 Base	0.05	37.16	37.21
	2030** DM	0.03	24.81	24.83
	2030** DS	0.04	24.81	24.84
	DS-DM	-	-	<b>+0.01</b>
	<b>DS-Base</b>	-	-	<b>-12.37</b>
<b>Critical Load</b>				<b>10</b>

\* This is distance from named road (A389 EB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 12: Nitrogen Deposition Rates at River Camel SAC; adjacent to A30**

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
44	2011 Base	0.44	36.37	36.81
	2030** DM	0.31	24.28	24.59
	2030** DS	0.34	24.28	24.62
	DS-DM	-	-	<b>+0.04</b>
	<b>DS-Base</b>	-	-	<b>-12.18</b>
94	2011 Base	0.14	36.37	36.51
	2030** DM	0.10	24.28	24.38
	2030** DS	0.11	24.28	24.39
	DS-DM	-	-	<b>+0.01</b>
	<b>DS-Base</b>	-	-	<b>-12.12</b>
144	2011 Base	0.05	36.37	36.42
	2030** DM	0.04	24.28	24.32
	2030** DS	0.04	24.28	24.32
	DS-DM	-	-	<b>+&lt;0.01</b>
	<b>DS-Base</b>	-	-	<b>-12.10</b>

<b>Critical Load</b>	<b>10</b>
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\* This is distance from named road (A30 EB). Other roads included within calculation if within 200m  
\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 13: Nitrogen Deposition Rates at Plymouth Sound and Estuaries**

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
39	2011 Base	0.50	14.76	15.26
	2030** DM	0.35	9.85	10.20
	2030** DS	0.35	9.85	10.20
	DS-DM	-	-	<b>+0.01</b>
	<b>DS-Base</b>	-	-	-5.06
89	2011 Base	0.17	14.76	14.93
	2030** DM	0.12	9.85	9.97
	2030** DS	0.12	9.85	9.97
	DS-DM	-	-	<b>+&lt;0.01</b>
	<b>DS-Base</b>	-	-	-4.96
139	2011 Base	0.06	14.76	14.81
	2030** DM	0.04	9.85	9.89
	2030** DS	0.04	9.85	9.89
	DS-DM	-	-	<b>+&lt;0.01</b>
	<b>DS-Base</b>	-	-	-4.92
<b>Critical Load</b>				<b>20</b>

\* This is distance from named road (A38 WB). Other roads included within calculation if within 200m  
\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 14: Nitrogen Deposition Rates at Marazion Marsh**

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
7	2011 Base	0.29	17.00	17.28
	2030** DM	0.15	11.35	11.50
	2030** DS	0.35	11.35	11.70
	DS-DM	-	-	<b>+0.20</b>
	<b>DS-Base</b>	-	-	-5.59
57	2011 Base	0.09	17.00	17.09
	2030** DM	0.05	11.35	11.39
	2030** DS	0.11	11.35	11.46
	DS-DM	-	-	<b>+0.06</b>
	<b>DS-Base</b>	-	-	-5.63
107	2011 Base	0.03	17.00	17.02
	2030** DM	0.01	11.35	11.36
	2030** DS	0.03	11.35	11.38
	DS-DM	-	-	<b>+0.02</b>
	<b>DS-Base</b>	-	-	-5.64
<b>Critical Load</b>				<b>15</b>

\* This is distance from named road (A394 EB). Other roads included within calculation if within 200m  
\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools

**Table 15: Nitrogen Deposition Rates at Newlyn Downs SAC**

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
99	2011 Base	0.02	21.21	21.24
	2030** DM	0.01	14.16	14.18
	2030** DS	0.01	14.16	14.18
	DS-DM	-	-	-<0.01
	<b>DS-Base</b>	-	-	-7.06
<b>Critical Load</b>				<b>10</b>

\* This is distance from named road (A30 EB). Other roads included within calculation if within 200m

\*\* Calculation carried out for 2025 as that is the limit of the emission factor tools