Sittingbourne Town Centre and Milton Creek: Supplementary Planning Document

Habitats Regulations Assessment Report

Final

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1 INTRODUCTION

1.1 Current Legislation

1.1.1 In October 2005, the European Court of Justice ruled that the UK had failed to correctly transpose the provisions of Articles 6(3) and (4) of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora – the Habitats Directive – into national law. Specifically, the UK had failed to ensure that land use plans are subject to Appropriate Assessment where they might have a significant effect on a *Natura 2000* site (Special Areas of Conservation, SACs and Special Protection Areas, SPAs). It is Government policy (as described in Planning Policy Statement 9: Biodiversity & Geological Conservation) for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) to be treated as having equivalent status to Natura 2000 sites. As such, Appropriate Assessments should also cover these sites.

1.1.2 The need for Habitat Regulations Assessment is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by Regulation 48 of the Conservation (Natural Habitats &c) Regulations 1994 (as amended in 2007). The ultimate aim of HRA 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.

1.1.3 The Habitats Directive applies the precautionary principle to protected areas; 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. This is in contrast to the SEA Directive which does not prescribe how plan or programme proponents should respond to the findings of an environmental assessment; it simply says that the assessment findings (as documented in the 'environmental report') should be 'taken into account' during preparation of the plan or programme. In the case of the Habitats Directive, 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.

1.1.4 In order to ascertain whether or not site integrity will be affected, an HRA should be undertaken of the plan or project in question:

Box 1. The legislative basis for Habitat Regulations 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 (Natural Habitats &c. Regulations) 1994 (as amended)

Regulation 48 states 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*".

1.1.5 Following the European Court ruling, the former Office of the Deputy Prime Minister (ODPM; now CLG) indicated that the regulations implementing the Habitats Directive in the UK would be amended to ensure that HRA explicitly applies to land use plans[1]. Planning Policy Statement (PPS) 9 states that Ramsar sites (wetlands of international importance) should receive the same protection as designated SACs and SPAs.

1.2 Scope and objectives

1.2.1 Scott Wilson has been appointed by Swale Borough Council ("the Council") to assist in undertaking a Habitat Regulations Assessment (HRA) of the potential effects of the Local Development Framework Supplementary Planning Document (SPD) Sittingbourne Town Centre and Milton Creek, on the *Natura 2000* network. The role of the *Natura 2000* sites (SACs, SPAs, Ramsar) is to provide statutory protection for terrestrial and coastal sites that are of European and global importance as a result of habitats or species contained within them.

1.2.2 The LDF, alongside the Regional Spatial Strategy (RSS) for the South East, will supersede the current Local Plan (site allocations and generic development control policies) and Kent and Medway Structure Plan (strategic planning framework for the protection of the environment, major transport priorities, and the scale, pattern and broad location of new development including provision for new housing and major economic development across Kent and Medway). The current Local Plan was adopted in 2008 and is saved until 2011. The Council's aim is to adopt an LDF Core Strategy from 2012. Revisions of 'parent' policies within the Local Plan in the light of the emerging Core Strategy are allowed for.

[1] The Government previously argued that HRA did not apply to development plans on the basis that "*Development in this context does not include development plans, since the plan itself cannot authorize developments that would affect the site*" (PPG9: Nature Conservation, 1994).

1.2.3 Chapter 2 of this report explains the process by which the HRA has been carried out. Chapter 3 explores the relevant pathways of impact resulting from the issues and options in the SPD and provides a screening exercise for the SPD as a whole.

1.2.4 Chapters 4 to 10 are organised on the basis of one chapter per European site, except where multiple sites overlap in a particular geographic area (e.g. The Swale SPA and Ramsar sites). Each chapter begins with a consideration of the interest features and ecological condition of the site and environmental process essential to maintain site integrity. An assessment of the SPD in respect of each European site is then carried out and avoidance and mitigation strategies proposed where necessary. The key findings are summarised in Chapter 11: Conclusions.

1.2.5 Following public consultation on the Sittingbourne & Milton Creek SPD and the draft HRA report this report has been revised, in particular to take account of comments raised by Natural England and Kent Wildlife Trust regarding disturbance-related impacts on the Medway and Swale estuaries and in particular on Milton Creek itself.

2 METHODOLOGY

2.1 Key principles

2.1.1 This section sets out the basis of the methodology for the HRA. Scott Wilson has adhered to several key principles in developing the methodology – see Table 1.

Table 1 - Key principles underpinning the proposed methodology

Principle	Rationale
Use existing information	We will use existing information to inform the assessment. This will include information gathered as part of the SA of the emerging LDF and information held by Natural England, the Environment Agency and others.
Consult with Natural England, the Environment Agency and other stakeholders	We will ensure continued consultation with both Natural England and the Environment Agency for the duration of the assessment. We will ensure that we utilise information held by them and others and take on board their comments on the assessment process and findings.
Ensure a proportionate assessment	We will ensure that the level of detail addressed in the assessment reflects the level of detail in the LDF (i.e. that the assessment is proportionate). With this in mind, the assessment will focus on information and impacts considered appropriate to the local level.
Keep the process simple as possible	We will endeavour to keep the process as simple as possible while ensuring an objective and rigorous assessment in compliance with the Habitats Directive and emerging best practice.
Ensure a clear audit trail	We will ensure that the AA process and findings are clearly documented in order to ensure a clearly discernible audit trail.

2.2 Process

2.2.1 The HRA has been carried out in the absence of formal Government guidance. Communities and Local Government released a consultation paper on Appropriate Assessment of Plans in 2006[5]. As yet, no further formal guidance has emerged.

2.2.2 Experience with HRA of LDFs and RSSs suggests that 1) a European site based approach, and 2) avoidance / mitigation measures focused on the environmental conditions needed to maintain site integrity are in keeping with the spirit of the Habitats Directive and less likely to lead to legal challenge. This has been the broad approach taken for almost all Regional Spatial Strategies and many HRA's for Local Development Frameworks.

2.2.3 Figure 1 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.

[5] CLG (2006) *Planning for the Protection of European Sites*, Consultation Paper

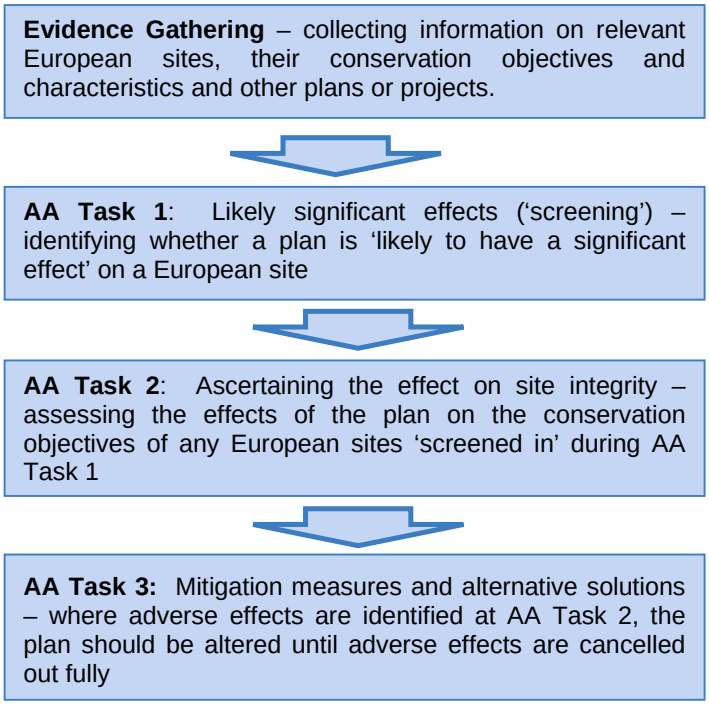


Figure 1 - Four-Stage Approach to Habitat Regulations Assessment
Source: CLG, 2006

2.3 Likely Significant Effects (LSE)

2.3.1 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:

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

2.3.2 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.

2.3.3 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 HRA's 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 and assumed that they require investigation in the Appropriate Assessment.

2.4 Appropriate assessment and mitigation

2.4.1 When plan cannot be 'screened out' on first glance as being unlikely to lead to significant effects on European sites, it is necessary to progress to the later 'Appropriate Assessment' stage to explore the adverse effects and devise mitigation.

2.4.2 The steps involved are detailed in Box 2.

Box 2. The steps involved in the Appropriate Assessment exercise undertaken for the Sittingbourne SPD

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 is likely to lead to an adverse effect.
5. Identify other plans and projects that might affect these sites in combination with the Plan and decide whether there any adverse effects that might not result from the Plan in isolation will do so "in combination".
6. Develop measures to avoid the effect entirely, or if not possible, to mitigate the impact sufficiently that its effect on the European site is rendered effectively inconsequential

2.4.3 In evaluating significance, Scott Wilson have relied on our professional judgement as well as stakeholder consultation. We believe that we are in an excellent position to provide such judgement given our previous experience in undertaking HRA of plans in the East of England, South East and North West at RSS, LDF and Area Action Plan levels.

2.4.4 The level of detail concerning developments that will be permitted under land use 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 CLG guidance that the level of detail of the assessment, whilst meeting the relevant requirements of the Habitats Regulations, should be 'appropriate' to the level of plan or project that it addresses (see Appendix 1 for a summary of this 'tiering' of assessment).

2.5 Confirming other plans and projects that may act in combination

2.5.1 It is neither practical nor necessary to assess the 'in combination' effects of the SPD within the context of all other plans and projects within Kent. In practice therefore, in combination assessment is only really of relevance when the plan would otherwise be screened out because its individual contribution is inconsequential. 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 both the Swale as a whole, and other neighbouring Kent authorities over the lifetime of the LDF framework.

2.5.2 Plans and projects relevant to the pathways identified in AA Task 1 have been identified in order to check whether the LDF could cause significant impacts upon European sites in combination with their policies or activities. Potential impacts of the LDF assessed in AA Task 1 and identified pathways have been revisited according to this knowledge in order to identify any likely significant effects that may result in combination with the Core Strategy, especially those not previously considered to pose significant risk individually (see AA Task 1 below).

2.5.3 The South East Plan provides a good introduction to proposals for areas surrounding Sittingbourne. At this stage, we have identified a range of plans and projects that may act in combination with the Core Strategy.

Table 2. Housing levels to be delivered across Kent under the South East Plan (Proposed Changes)

Local Authority	*Annual housing average*	*Total housing from 2006 to 2026*
Kent	**6,971**	**139,420**
Ashford	1,135	22,700
Canterbury	510	10,200
Dartford	867	17,340
Dover	505	10,100
Gravesham	465	9,300
Maidstone	554	11,080
Medway	815	16,300
Sevenoaks	165	3,300
Shepway	290	5,800
Swale	540	10,800
Thanet	375	7,500
Tonbridge and Malling	450	9,000
Tunbridge Wells	300	6,000

2.5.4 There are other plans and projects that are often relevant to the 'in combination' assessment, most notably Southern Water's Draft Water Resource Management Plan (2008) and the Environment Agency's North Kent Catchment Abstraction Management Strategy. Sittingbourne lies within Swale, and therefore strategies for the Borough as a whole, including the Swale Greengrid Strategy and Swale Regeneration Framework, must be considered. Other plans and policies that could

have in combination impact on European protected sites include transport links covered in the Local Transport Plan for Kent, port developments in the Medway estuary, and power station/incinerator proposals for the Isle of Grain. These have all been taken into account in this assessment.

2.5.5 For the purposes of this assessment, we have reviewed the following documents; other more technical reports and papers are referenced in the text as appropriate:

Author	Document	Relevant contents
Swale Borough Council (2008)	Local Plan	Development within District.
Swale Forward (2006)	Swale Forward Regeneration Framework	Background to SPD
EDAW (2005)	Sittingbourne Regeneration and Delivery Framework	Background to SPD
CLG (2007)	Thames Gateway Delivery Plan	Development within the Thames Gateway context
Scott Wilson (2008)	Sustainability Appraisal Scoping Report for the LDF Core Strategy	Background Context
Scott Wilson (2008)	Sustainability Appraisal Scoping Report for the Sittingbourne Town Centre and Milton Creek SPD	Background Context
Southern Water (2008)	Draft Water Resource Management Plan	Water resources in the borough
South East Water (2008)	Draft Water Resource Management Plan	Water resources in the borough
Thames Water (2008)	Draft Water Resource Management Plan	Water resources in the borough
Environment Agency (2004)	North Kent and Swale Catchment Abstraction Management Strategy	Understanding of existing hydrological conditions at Natura 2000 sites.
Environment Agency (2006)	North Kent Rivers Catchment Flood Management Plan Scoping Report	Background on Flood risks and implications in Sittingbourne
Halcrow (1995)	Shoreline Management Plan: Isle of Grain to Dover Harbour	Tidal flooding risk; effects of coastal development on European sites.
Swale Borough Council (2007)	Swale Green Grid Strategy	Background to green infrastructure in the Borough
Kent County Council	Local Transport Plan for Kent 2006-2011	Transport schemes relevant to Swale district
Kent County Council	Vision for Kent (2006)	Community Strategy for Kent to 2026.
Swale Borough Council (2006)	Sustainable Communities Plan 2016, Priority Swale	Community Strategy for Swale
Swale Borough Council (2006)	Corporate Plan 2007-2011: Shaping the Future of Swale	Background to development within Swale
South East England Regional Assembly, (2006)	The South East Plan. Draft plan for submission to Government.	Housing figures for Swale and surrounding Authorities. Other local proposals. General development context for Southeast of England.

Author	Document	Relevant contents
Government Office for the South East (2008)	The South East Plan. Secretary of States' Proposed Changes	Revised Housing figures for Swale and surrounding Authorities. Other local proposals. General development context for Southeast of England.
Scott Wilson / Levett-Therivel (2006)	Appropriate Assessment of the South East Plan	The Appropriate Assessment for the Regional Spatial Strategy
South East England Regional Assembly, (2006)	Sustainability Appraisal of the South East Plan	The Sustainability Appraisal for the Regional Spatial Strategy
JNCC	Natura 2000 Data Sheets, Ramsar citations and component SSSI citations	Data concerning the interest features of European Sites
(2008)	Kent Biodiversity Action Plan	Background to biodiversity priorities within the county.
Kent County Council (2006)	Kent and Medway Structure Plan	Background information
Countryside Agency (2006)	England Leisure Day Visits – the Results of the 2005 Survey	This survey has been used to extract broad patterns of recreational use within England

2.6 Physical scope of the assessment

2.6.1 There is no pre-defined guidance that dictates the physical scope of an HRA of an SPD. Therefore, in considering the physical scope of the assessment, we were therefore 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 the authority's boundary; and
- Other sites shown to be linked to development within the authority's boundary through a known 'pathway' (discussed below)

2.6.2 Briefly defined, pathways are routes by which a change in activity within the area defined by the Sittingbourne Town Centre and Milton Creek SPD 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 AA 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). As a result, the long list is inevitably limited to those *Natura 2000* sites for which recommended mitigation or alternatives to LDF policy can contribute significantly towards the protection of those sites and their nature conservation objectives.

2.6.3 No European sites lie wholly or partly within the boundary of the proposed area to be covered by the SPD. Ten European sites require consideration as to whether they have links with development within the SPD development boundary via pathways as described in the screening appraisal in Chapter 3. However, three of these (Essex Estuaries SAC, Foulness SPA and Ramsar and Benfleet and

Southend Marshes SPA and Ramsar) are located on the opposite side of the Thames Estuary and as such were considered sufficiently separated from Swale that they could be scoped out of this assessment. The remaining sites covered by the scope of this assessment are:

- The Swale SPA and Ramsar
- Medway Estuary and Marshes SPA and Ramsar
- Thames Estuary and Marshes SPA and Ramsar
- North Downs Woodlands SAC
- Peters Pit SAC
- Queendown Warren SAC
- Blean Complex SAC

2.7 Draft policies scoped into the assessment

2.7.1 In order to evaluate potential impacts of the SPD document upon European sites, it is essential to gain a full understanding of the document. The SPD seeks to establish a regeneration strategy for a defined area within Swale Borough, including the total quantum of development and its preferred location. The SPD is planned to build on policies within the current Local Plan and is expected to be adopted in summer 2009 (three years ahead of the finalised Core Strategy).

2.7.2 The following objectives and related details within the SPD were taken forward for screening, since these are the elements that actively promote development within Sittingbourne in order to achieve the aims set by the Regional Spatial Strategy and other requirements:

- Design 1 - (High Quality Public Spaces and Buildings);
- Design 2 - (Appropriate Scale and Form of Development);
- Design 3 - (Integration of Development with Special Features of the Town);
- Design 5 - (Physical and Thematic Links between Town and Milton Creek);
- Planning 1 - (Mixed-Use Town Centre);
- Planning 2 - (Provision for Multi-Opportunity Use);
- Planning 3 - (Improved Quality, Quantity and Connectivity of Retail);
- Planning 4 - (Improved and Increased Town centre Supporting Facilities);
- Planning 5 - (Redevelop Milton Creek into a new Sustainable Community);
- Transport and Movement 1 – (Access for All);
- Transport and Movement 2 – (Simplify and Increase Legibility of Major Movements Through Town);
- Transport and Movement 3 – (Improve north-south, Milton Creek-Town Connectivity);
- Transport and Movement 5 – (Easier, Safer and More Sustainable Transport);
- Management 1 – (Improve Town Image, Identity and Attractiveness);
- Management 2 – (Strategic Enhancement of Town Centre);
- Management 3 – (Improve Retail Vitality and Viability); and

- Management 4 – (Incremental and Phased Improvement with Appropriate Funding)

2.7.3 The following objectives and any related detail within the SPD were not taken forward for screening, since there is no clear mechanism by which they could cause adverse impacts on European protected sites:

- Design 4 - (Respect for and Enhancement of Milton Creek Environment)
- Transport and Movement 4 – (Network of Well-defined Streets and Spaces)
- Transport and Movement 6 – (Quality and Accessibility of Public Transport)

2.7.4 It should be noted that only policies that had the potential for a negative impact on European sites were scoped for assessment. Those policies that might have a beneficial effect are referred to where appropriate in the following chapters, but were not actually assessed. This is due to the fact the HRA is only concerned with adverse effects.

3 LIKELY SIGNIFICANT EFFECTS

3.1 Introduction

3.1.1 This section of the report covers the Likely Significant Effect test as set out in the methodology section.

3.1.2 In carrying out an HRA it is important to avoid confining oneself to effectively arbitrary boundaries (such as Local Authority boundaries) but to use ones understanding of the various ways in which land use plans can impact on European sites to follow the pathways along which development can be connected with European sites, in some cases many kilometres distant. Briefly defined, pathways are routes by which a change in activity associated with a development can lead to an effect upon a European site. It is also important to bear in mind CLG guidance which states that the AA 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[6]).

3.1.3 It was concluded that the SPD cannot be described *a priori* as being unlikely to result in significant adverse effects on European sites, because of the potential for adverse effects through the following impact pathways.

Urbanisation

3.1.4 This impact is closely related to recreational pressure, in that they both result from increased populations within close proximity to sensitive sites. Urbanisation is considered separately as the detail of the impacts is distinct from the trampling, disturbance and dog-fouling that result specifically from recreational activity. The list of urbanisation impacts can be extensive, but core impacts can be singled out:

- Increased fly-tipping - Rubbish tipping is unsightly but the principle adverse ecological effect of tipping is the introduction of invasive alien species with garden waste. Garden waste results in the introduction of invasive aliens precisely because it is the 'troublesome and over-exuberant' garden plants that are typically thrown out[3]. Alien species may also be introduced deliberately or may be bird-sown from local gardens.

- Cat predation - A survey performed in 1997 indicated that nine million British cats brought home 92 million prey items over a five-month period[4]. A large proportion of domestic cats are found in urban situations, and increasing urbanisation is likely to lead to increased cat predation. Turner and Meister

[6] Department for Communities and Local Government. 2006. *Planning for the Protection of European Sites: Appropriate Assessment*. http://www.communities.gov.uk/index.asp?id=1502244
[3] Gilbert, O. & Bevan, D. 1997. The effect of urbanisation on ancient woodlands. British Wildlife 8: 213-218.
[4] Woods, M. et al. 2003. Predation of wildlife by domestic cats *Felis catus* in Great Britain. Mammal Review 33, 2 174-188.

(1988) found that the mean range of cats was 371m although the maximum range was 1578m[5].

3.1.5 The most detailed consideration of the link between relative proximity of development to European sites and damage to interest features has been carried out with regard to the Thames Basin Heaths SPA.

3.1.6 After extensive research, Natural England and its partners produced a 'Delivery Plan' which made recommendations for accommodating development while also protecting the interest features of the European site. This included the recommendation of implementing a series of zones within which varying constraints would be placed upon development. While the zones relating to recreational pressure expanded to 5km (as this was determined from visitor surveys to be the principal recreational catchment for this European site), that concerning other aspects of urbanisation (particularly predation of the chicks of ground-nesting birds by domestic cats) was determined at 400m from the SPA boundary. The delivery plan concluded that the adverse effects of any development located within 400m of the SPA boundary could not be mitigated since this was the range within cats could be expected to roam as a matter of routine and there was no realistic way of restricting their movements, and as such, no new housing should be located within this zone.

3.1.7 No exact correlation can be made between the incidence of fly-tipping and deliberate arson and the specific proximity of large-scale human settlement, since it does depend on circumstances. However, it is reasonable to conclude that the incidence will be highest when human settlement is very near (for the purposes of this assessment we have as a precaution defined 'very near' as being within 500m rather than immediately adjacent). While this is not an empirically derived distance, it does enable urbanisation effects to be assessed at this high level. These impacts would need to be evaluated in more detail when individual site proposals and masterplans were developed.

3.1.8 Although Sittingbourne & Milton Creek is over 1km from the Swale SPA it is immediately adjacent to Milton Creek itself which constitutes important supporting habitat for some of the SPA birds (particularly redshank). As such, urbanisation is screened in for further consideration. Note that recreational impacts on Milton Creek are considered under 'recreational pressure' below.

Recreational pressure

3.1.9 All 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.

[5] Turner, Dennis C; Meister, Othmar. 1988. Hunting behaviour of the domestic cat. Chapter 9 in THE DOMESTIC CAT: THE BIOLOGY OF ITS BEHAVIOUR (D.C. Turner & P. Bateson (Eds). Cambridge: Cambridge University Press. pp.111-121

3.1.10 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)[7] 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.

- Cole et al (1995a, b)[8] conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each tramped between 0 – 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)[9] 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 tramplers caused a greater reduction in vegetation height than lighter tramplers, but there was no difference in effect on cover.

- Cole & Spildie (1998)[10] 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

[7] 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
[8] 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
[9] 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.
[10] 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

disturbance, but recovered rapidly. Higher trampling intensities caused more disturbance.

3.1.11 People from a wide-ranging catchment that includes the whole of Kent extensively use the shoreline and estuaries of the Swale, Thames and Medway estuaries for recreational activity which includes waterborne activities e.g. personal watercraft, land-based activities e.g. dogwalking and bait digging and other activities such as the flying of micro-light aircraft. Activities of walkers (particularly dog walkers) and water-borne recreation can, particularly if carried out in winter, have a significant disturbing effect upon large numbers of waterfowl thus increasing energetic expenditure (as birds have to take flight more frequently) and competition on the less disturbed mudflats[6]. Adverse effects on breeding water fowl can also result including greater exposure of eggs and chicks to predation as the parent birds are flushed more frequently.

3.1.12 The latest England Day Visits Survey[7] indicates that people typically travel:

- 10.8 miles (17.2 km) to visit a countryside site for the day;
- 11.3 miles (18.1 km) to visit a woodland site for the day; and
- 16 miles (25.5 km) to visit a coastal site for the day.

3.1.13 In all cases, more journeys were made by car than on foot. It should be noted that these are generalised figures; individual European sites may draw the majority of their visitors from a much smaller catchment (e.g. Thames Basin Heaths SPA, which draws 96% of its visitors from within 5 km[8]) or a much larger one (e.g. the New Forest SAC, for which 55% of visitors are holidaymakers rather than locals[9]).

3.1.14 Although we have attempted to source recreational data concerning the precise catchments of the European sites covered in this assessment and patterns of visitor usage within these sites, such data are scarce. In the absence of more precise visitor surveys for the European sites considered in this assessment, we take the England Day Visits data (which were based on a phone poll with 23,500 respondents) as broadly 'typical' of the distances that residents may travel to visit European sites, this means that all of those sites within these distances could be affected by trampling or (in the case of the estuarine sites) disturbance of sensitive wildlife as a result of the population increase in Sittingbourne associated with delivery of 2,519 new homes.

3.1.15 In addition, it is clear that the provision of greater recreational access to Milton Creek (which constitutes important supporting habitat for SPA birds such as redshank) would mean (without appropriate control measures) that adverse disturbance effects could not be described as unlikely.

[6] West, A.D., et al. 2002. Predicting the impacts of disturbance on shorebird mortality using a behaviour-based model. Biological Conservation 106:3, 319-328
[7] Various. 2006. England Leisure Visits: the Results of the 2005 Survey. Countryside Agency
[8] Liley, D. et al. 2005. Visitor access patterns on the Thames Basin Heaths. *English Nature Research Report,* English Nature, Peterborough
[9] Forestry Commission. 2005. New Forest Visitor Survey.

3.1.16 It was therefore concluded that adverse effects from the SPD on European sites as a result of recreational pressure could not be described as inherently unlikely. These therefore require further investigation at the Appropriate Assessment stage.

Atmospheric pollution

3.1.17 Current levels of understanding of air quality effects on semi-natural habitats are not adequate to allow a rigorous assessment of the likelihood of significant effects on the integrity of key European sites.

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

Pollutant	Source	Effects on habitats and species
Acid deposition	SO_2, NOx 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_3)	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_2 and NO_X emissions to produce fine ammonium (NH_4+)- 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_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides NO_x	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_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) can lead to both soil and freshwater acidification. In addition, NO_x 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_X and NH_3 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_3)	A secondary pollutant generated by photochemical reactions from NO_x and volatile organic compounds (VOCs). These 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 of O_3 above 40 ppb can be toxic to humans and wildlife, and can affect buildings. Increased 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	Main sources of SO_2 emissions are electricity	Wet and dry deposition of SO_2 acidifies soils

Pollutant	Source	Effects on habitats and species
Dioxide SO_2	generation, industry and domestic fuel combustion. May also arise from shipping and increased atmospheric concentrations in busy ports. Total SO_2 emissions have decreased substantially in the UK since the 1980s.	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.

3.1.18 The main pollutants of concern for European sites are oxides of nitrogen (NOx), ammonia (NH_3) and sulphur dioxide (SO_2). NOx can have a directly toxic effect upon vegetation. In addition, greater NOx 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.

3.1.19 Sulphur dioxide emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. Ammonia emissions are dominated by agriculture, with some chemical processes also making notable contributions. As such, it is unlikely that material increases in SO_2 or NH_3 emissions will be associated with Local Development Frameworks. NOx 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 NOx (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison[11]. Emissions of NOx could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the LDF.

3.1.20 According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 μgm^{-3}; the threshold for sulphur dioxide is 20 μgm^{-3}. In addition, ecological studies have determined 'critical loads'[12] of atmospheric nitrogen deposition (that is, NOx combined with ammonia NH_3).

3.1.21 The National Expert Group on Transboundary Air Pollution (2001)[13] 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_2 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_2.
- 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.

[11] 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
[12] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[13] National Expert Group on Transboundary Air Pollution (2001) Transboundary Air Pollution: Acidification, Eutrophication and Ground-Level Ozone in the UK.

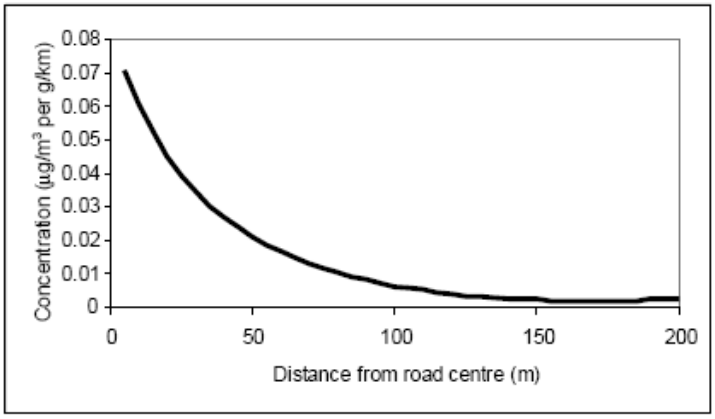
- Current ozone concentrations threaten crops and forest production nationally. The effects of ozone deposition are likely to remain significant beyond 2010.
- Reduced inputs of acidity and nitrogen from the atmosphere may provide the conditions in which chemical and biological recovery from previous air pollution impacts can begin, but the timescales of these processes are very long relative to the timescales of reductions in emissions.

3.1.22 Grice et al[14][15] 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

3.1.23 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*"[16].

Figure 2. Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT)



3.1.24 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 development under the SPD.

3.1.25 Given that several of the European sites considered within the scope of this assessment lie within 200m of major roads, it was concluded that adverse effects from the SPD on European sites as a result of deteriorating air quality could not be

[14] 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.
[15] 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.
[16] www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

described as inherently unlikely. These therefore require further investigation at the Appropriate Assessment stage.

Diffuse air pollution

3.1.26 In addition to the contribution to local air quality issues, development can also contribute cumulatively to an overall deterioration in background air quality across an entire region. In July 2006, when this issue was raised by Runnymede Borough Council in the South East, Natural England advised that their Local Development Framework 'can only be concerned with locally emitted and short range locally acting pollutants' as this is the only scale which falls within a local authority remit. It is understood that this guidance was not intended to set a precedent, but it inevitably does so since (as far as we are aware) it is the only formal guidance that has been issued to a Local Authority from any Natural England office on this issue.

3.1.27 In the light of this and our own knowledge and experience, it is considered reasonable to conclude that diffuse pan-authority air quality impacts are the responsibility of Regional Spatial Strategies, both since they relate to the overall quantum of development within a region (over which individual boroughs have little control), and since this issue is best addressed at the highest pan-authority level. Diffuse air quality issues will not therefore be considered further within this HRA but is considered further in the South East England Regional Spatial Strategy.

Water resources

3.1.28 The South East has experienced low rainfall for most of the last few years, including dry winters. Expected climate change trends for the South East are for drier summers, wetter winters, and more extreme events. If the current climate trends continue, it may be impractical in the longer term to preserve wetland habitats characteristic of our former climate but in the short and medium term, it is clear that strenuous efforts to reduce the risk of water stress in European wetland sites should be a priority. The potential for severe water stress is evidenced by Figure 3.

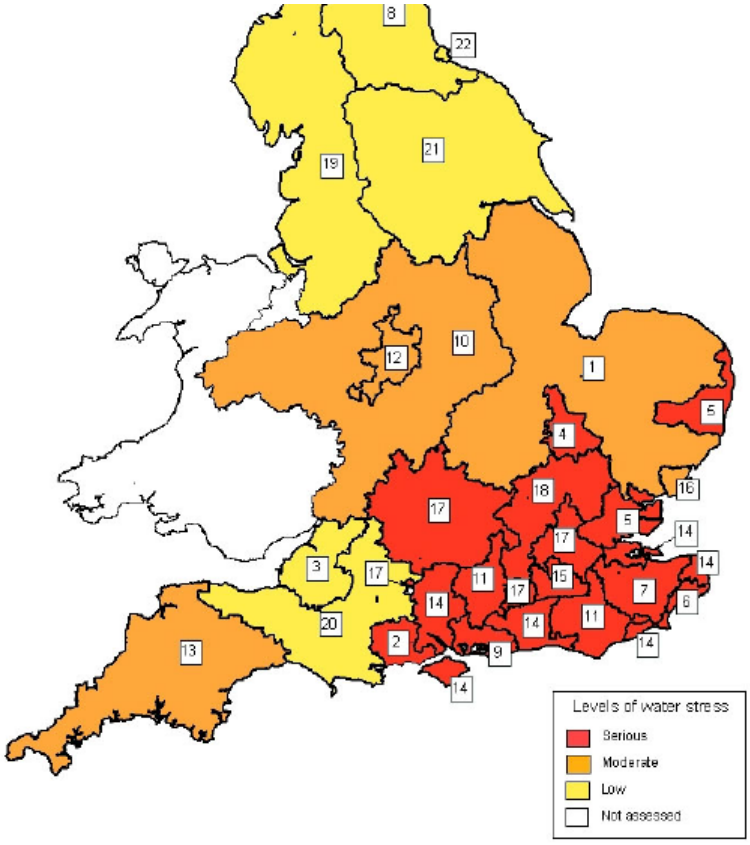


Figure 3. Areas of water stress within Southeast England. It can be seen from this map that the entire Southeast is classified as being an area of high water stress (coded red).[17]

3.1.29 The North Kent catchment is one of the driest catchments (in terms of precipitation) and yet also one of the most intensively licenced in the UK. In 1999, over three-quarters of this abstraction was for public water consumption. The geology of the area means that the water supply to Sittingbourne is abstracted from the Chalk aquifer to the south. In the Sittingbourne Groundwater Management Unit, the chalk aquifer is in hydraulic continuity with the Lower London Tertiaries (LLT) that overlay it. In terms of surface water availability (from rain or springs), the coastal units adjacent to Sittingbourne (Iwade and Teynham) are both listed under the Environment Agency CAMS as 'no water available.' The Sittingbourne Chalk and LLT groundwater management unit is 'over-abstracted.' There is a presumption against further summer consumptive abstraction, with abstractors encouraged to store water abstracted in the winter. There is also a presumption against further licencing for abstraction for consumption from major aquifers. This implies that future development will be reliant on improved efficiency of use of existing resources, including storage of winter abstraction.

[17] Figure adapted from Environment Agency. 2007. Identifying Areas of Water Stress. http://publications.environment-agency.gov.uk/pdf/GEHO0107BLUT-e-e.pdf

3.1.30 In the North Kent CAMS the Environment Agency notes that "*it is recognised that the expected scale of future housing development will act as a substantial demand-driven pressure on the maintenance (or increase) of licences. Although CAMS has no in-built means of avoiding this potential conflict, it is expected that the implications of the water resource status of the North Kent & Swale catchment will be noted by the water companies and the planning authorities and that plans and policies will be adjusted accordingly. It is assumed that efforts will be made to reconcile conflicting demands through the effective management of the demand for water and through other sustainable water management initiatives*."

3.1.31 Maintenance of current hydrological conditions is critical to the favourable maintenance of many estuarine and marsh habitats within SACs/SPAs and Ramsar sites in Kent and Essex. The Lower Medway Internal Drainage Board (IDB) is responsible for the maintenance of some watercourses and structures in the Medway and Swale Marshes and the Isle of Sheppey. For each area, there is a Water Level Management Plan. These plans provide a means by which the water level requirements for a range of activities in the area, including agriculture, flood defence and conservation, can be balanced and integrated.

3.1.32 Abstraction of water to supply new development within the Swale borough (including Sittingbourne) could potentially lead to increased salinity of the marshes, increased sedimentation of creek and river channels due to reduced flows and a reduction in the estuarine freshwater available to SPA birds for drinking and bathing[15].

Water quality

3.1.33 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.

3.1.34 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

[15] Ravenscroft, N.O.M. and Beardalb, C.H. 2003. The importance of freshwater flows over estuarine mudflats for wintering waders and wildfowl. Biological Conservation, 113:1, 89-97

plant nutrient and so eutrophication is associated with discharges containing available nitrogen.

- 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.

- 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.

3.1.35 For sewage treatment works 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.

3.1.36 The Environment Agency[18] have commented that, while nutrient levels within the Thames Estuary are high, this does not result in the smothering macroalgal growth that is having an adverse effect upon other European marine sites (such as The Solent), due to a combination of turbid water, tidal energy and erosion. The interconnected nature of the Thames estuary, the Medway Estuary and the Swale implies that similar conclusions for the Medway and Swale are also likely to apply. However, it should be noted that this advice primarily relates to the discharge of treated effluent into the marine components of the site. The grazing marsh components of the Swale SPA, Thames Estuary & Marshes SPA and Medway Estuary & Marshes SPA are all sensitive to deteriorating water quality as a result of surface water runoff, particularly from surrounding farmland.

3.1.37 It is considered that at this stage adverse water quality effects on the Medway Estuary & Marshes SPA & Ramsar, The Swale SPA & Ramsar and the Thames Estuary & Marshes SPA & Ramsar cannot be screened out as being inherently unlikely.

Coastal squeeze

3.1.38 Rising sea levels can be expected to cause intertidal habitats (principally saltmarsh and 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.

3.1.39 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 of this is that the quantity of saltmarsh 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.

[18] Dave Lowthion, Environment Agency Supra-Area Marine Team Leader, Southern Region, personal communication

3.1.40 Along large stretches of the UK coastline, high and low watermarks on the beaches are moving landwards by more than a metre a year. 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. The south coast has experienced the greatest steepening.

3.1.41 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 sufficient 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.[16]

3.1.42 However, since the SPD area is entirely surrounded by existing urban development and is situated approximately 2km from The Swale SPA/Ramsar at its closest point and even further from other coastal European sites, coastal squeeze can be screened out as being unlikely to result.

Conclusion of screening

3.1.43 Issues of urbanisation, recreational pressure, water resources, water quality and air quality have been screened in for consideration in the Appropriate Assessment. The issue of coastal squeeze has been considered but screened out as being unlikely.

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

4 THE SWALE SPA AND RAMSAR

4.1 Introduction

4.1.1 The Swale includes the largest remaining areas of freshwater grazing marsh in Kent and is representative of the estuarine habitats found on the north Kent coast. The habitats comprise chiefly mudflats, saltmarsh, and freshwater grazing marsh, the latter being intersected by extensive dykes and fleets. The area is particularly notable for the internationally important numbers of wintering and passage wildfowl and waders, and there are also important breeding populations of a number of bird species. Associated with the various constituent habitats of the site are outstanding assemblages of plants and invertebrates. The mudflats of the Swale are extremely rich in invertebrates, over 350 species having been recorded. The saltmarshes are among the richest for plant life in Britain. The Swale SPA and Ramsar lies within 1.6km of the area covered by the Sittingbourne Town Centre and Milton Creek SPD.

4.2 Features of European Interest

4.2.1 The most recent (2006) Natura 2000 data sheet for the SPA available from the JNCC removes many of the species that were listed on the original SPA citation and adds two additional species – dunlin and dark-bellied Brent goose. However, it is considered that the full 'long list' including both the original and added species should be used for this HRA.

4.2.2 The site is therefore considered to be designated as an SPA for:

4.2.3 During the breeding season:

- Avocet *Recurvirostra avosetta*
- Marsh Harrier *Circus aeruginosus*
- Mediterranean Gull *Larus melanocephalus*

4.2.4 Over winter:

- Avocet *Recurvirostra avosetta*
- Bar-tailed Godwit *Limosa lapponica*
- Golden Plover *Pluvialis apricaria*
- Hen Harrier *Circus cyaneus*
- Black-tailed Godwit *Limosa limosa islandica*
- Grey Plover *Pluvialis squatarola*
- Knot *Calidris canutus*
- Pintail *Anas acuta*
- Redshank *Tringa totanus*
- Shoveler *Anas clypeata*
- Dark-bellied Brent goose *Branta bernicla bernicla*
- Dunlin *Calidris alpina alpina*

4.2.5 On passage:

- Ringed Plover *Charadrius hiaticula*

4.2.6 The SPA also qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl (Over winter, the area regularly supports 65,390 individual waterfowl (5 year peak mean 1991/2 - 1995/6))

4.3 Features of International Interest: Ramsar criteria

4.3.1 Table 9 details how The Swale meets the Ramsar criteria.

Table 9. Ramsar Site Criteria

Site	Ramsar Criteria 2	Ramsar Criteria 5	Ramsar Criteria 6
The Swale	The site supports a number of nationally-scarce plant species, and British Red Data Book invertebrates	The site has internationally important bird assemblages in winter with 77501 waterfowl (5 year peak mean 1998/99-2002/2003)	The site has bird species occurring in internationally important numbers: Redshank (spring/autumn), dark-bellied brent goose and grey plover (winter)

4.4 Condition Assessment

4.4.1 In the most recent condition assessment, 96% of The Swale SSSI was in favourable condition. Small areas were unfavourable due to inappropriate management, disturbance, or urbanisation effects (e.g. litter).

4.5 Milton Creek Local Nature Reserve

4.5.1 Milton Creek is already an important mosaic of habitats; the creek itself is a Local Wildlife Site and the head of the creek links to the internationally important Swale Estuary designated Ramsar and SPA areas. In addition to the internationally designated habitat within the Special Protection Area and Ramsar site, Milton Creek has been identified as an important area of off-site roosting habitat for some of the species for which the SPA was designated.

4.5.2 Redshank is the dominant species with a high tide roost at the edge of the salt marsh noted within the LWS citation and the study for the Northern Relief Road Crossing undertaken by D Bennett in 2008. A mean peak count of130 redshank has been recorded using the creek constituting 8.3% of the SPA and 2.5% of the Kent populations. Other SPA bird species present in significant numbers are grey plover and black tailed godwit with mean peak counts of 32 and 40 and percentage SPA populations of 1.7% and 2.5% respectively.

4.5.3 None of the three breeding species for which the SPA was designated (marsh harrier, avocet and Mediterranean gull) have been recorded breeding in Milton Creek.

4.6 Key Environmental Conditions

4.6.1 The key environmental conditions that support the features of European interest are:

- Minimal recreational disturbance·
- Maintenance of grazing / mowing regimes·
- Sufficient freshwater inputs for bird species (feeding, preening and drinking)
- Sufficient space between the site and development to allow for managed retreat of intertidal habitats and avoid coastal squeeze;
- Unpolluted water;
- Absence of nutrient enrichment;
- Absence of non-native species;
- Balance of saline and non-saline conditions

4.7 Potential Effects of the Plan

Urbanisation

4.7.1 Since Milton Creek lies immediately adjacent to the area to be covered by the Sittingbourne & Milton Creek SPD there is potential for the Creek to be at increased risk of dumping of litter and etc. if easier access to the Creek is provided by the access design elements of the SPD without appropriate controls. This would constitute an adverse effect on an area of important supporting habitat for wintering SPA birds (particularly redshank).

Recreational disturbance of birds

4.7.2 There are two ways in which development to be delivered under the SPD could have an adverse effect on The Swale SPA:

- Firstly, by providing access to Milton Creek which currently provides important supporting habitat for some of the SPA species; and
- Secondly by increasing the resident population local to the SPA and thus the potential visitor pool for the SPA itself.

4.7.3 Development resulting from the Sittingbourne Town Centre and Milton Creek SPD would result in an increased residential population, through the provision of 2,519 new homes, with increased demand for and pressure on recreational facilities and opportunities. At its closest point, The Swale SPA/Ramsar lies only 1.6km from the location of the development proposed within the SPD, well within the typical daily distance that visitors will travel to a coastal site, and represents the most convenient coastal access to Sittingbourne's residents. Moreover, Milton Creek itself (which while not part of the SPA is an important off-site roost location for significant numbers of SPA birds, particularly redshank) is immediately adjacent to the redevelopment area.

4.7.4 The SPD would (without appropriate controls) allow increased usage of the Swale through improved connectivity between Sittingbourne and Milton Creek (taken forward from the Milton Creek Gateway Landscape Costed Delivery Plan of May 2009), regeneration of the Milton Creek area, and through improved walking/cycling opportunities that link the town with the coast (including new crossings of the creek).

4.7.5 Development of a relief road linking the A2 with the A249 has potential to increase visitor numbers to the SPA/Ramsar, if access to the SPA/Ramsar site areas closest to Milton Creek is encouraged (for example by provision of parking and signed access). Therefore, there is a realistic prospect of an increased population in Sittingbourne leading to significant increased recreational pressure on this site.

4.7.6 The Swale SPA/Ramsar supports a diverse assemblage of over-wintering waterfowl, which are prone to disturbance. 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[19]. 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[20].

4.7.7 Human activity can affect birds either directly (e.g. through causing them to flee) or indirectly (e.g. through damaging their habitat). The most obvious direct effect is that of immediate mortality such as death by shooting, but human activity can also lead to behavioural changes (e.g. alterations in feeding behaviour, avoidance of certain areas etc.) and physiological changes (e.g. an increase in heart rate) that, although less noticeable, may ultimately result in major population-level effects by altering the balance between immigration/birth and emigration/death[21].

4.7.8 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.

4.7.9 The distance at which a species takes flight when approached by a disturbing stimulus is known as the 'tolerance distance' (also called the 'escape flight distance') and differs between species to the same stimulus and within a species to different stimuli. Distances for responses are given in table 10, which compiles 'tolerance distances' from across the literature. Species for which The Swale SPA/Ramsar is noted have been highlighted in bold (though it should be noted that total assemblage of waterfowl and waders is also a qualifying feature). It is reasonable to assume from this that disturbance is unlikely to be experienced more than a few hundred metres from the birds in question.

[19] Riddington, R. *et al*. 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* 43:269-279
[20] Gill, J.A., Sutherland, W.J. & Norris, K. 1998. The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* 12: 67-72
[21] Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

Sensitivity of species

Table 10 - Tolerance distances of 21 water bird species to various forms of recreational disturbance, as described in the literature[22]. All distances are in metres. Single figures are mean distances; when means are not published, ranges are given. Species for which the SPA was designated are given in bold. [1] Tydeman (1978), [2] Keller (1989), [3] Van der Meer (1985), [4] Wolff et al (1982), [5] Blankestijn et al (1986), [6] Cook (1980).[23]

Species	Type of disturbance		
	Rowing boats/kayak	Sailing boats	Walking
Little grebe		60 – 100 [1]	
Great crested grebe	50 – 100 [2]	20 – 400 [1]	
Mute swan		3 – 30 [1]	
Teal		0 – 400 [1]	
Mallard		10 – 100 [1]	
Shoveler		200 – 400 [1]	
Pochard		60 – 400 [1]	
Tufted duck		60 – 400 [1]	
Goldeneye		100 – 400 [1]	
Smew		0 – 400 [1]	
Moorhen		100 – 400 [1]	
Coot		5 – 50 [1]	
Curlew			211 [3]; 339 [4]; 213 [5]
Shelduck			148 [3]; 250 [4]
Grey plover			**124 [3]**
Ringed plover			121 [3]
Bar-tailed godwit			**107 [3]; 219 [4]**
Brent goose			**105 [3]**
Oystercatcher			85 [3]; 136 [4]; 82 [5]
Dunlin			**71 [3]; 163 [2]**

[22] (1)Tydeman, C.F. 1978. *Gravel Pits as conservation areas for breeding bird communities*. PhD thesis. Bedford College
(2) Keller, V. 1989. Variations in the response of Great Crested Grebes *Podiceps cristatus* to human disturbance - a sign of adaptation? *Biological Conservation* 49:31-45
(3) Van der Meer, J. 1985. *De verstoring van vogels op de slikken van de Oosterschelde*. Report 85.09 Deltadienst Milieu en Inrichting, Middelburg. 37 pp.
(4) Wolf, W.J., Reijenders, P.J.H. & Smit, C.J. 1982. The effects of recreation on the Wadden Sea ecosystem: many questions but few answers. In: G. Luck & H. Michaelis (Eds.), *Schriftenreihe M.E.L.F., Reihe A: Agnew. Wissensch* 275: 85-107
(5) Blankestijn, S. *et al.* 1986. *Seizoensverbreding in de recreatie en verstoring van Wulp en Scholkester op hoogwatervluchplaatsen op Terschelling*. Report Projectgroep Wadden, L.H. Wageningen. 261pp.
(6) Cooke, A.S. 1980. Observation on how close certain passerine species will tolerate an approaching human in rural and suburban areas. *Biological Conservation* 18: 85-88

Other Projects and Plans

4.7.10 Development within Sittingbourne and the Milton Creek area must be taken in the context of 10,800 new homes within Swale as a whole, and 16,300 new homes in Medway, 22,700 in Ashford, 10,200 in Canterbury, 11,080 in Maidstone and 9,000 in Tonbridge and Malling. Parts of these districts and boroughs lie within the typical distance that people will travel to a coastal site, and so increased populations in these areas could lead to increased recreational pressure on the The Swale SPA and Ramsar.

Water Quality

4.7.11 Milton Creek drains directly to The Swale SPA/Ramsar site, approximately 1.5km distant. While the grazing marsh components of the SPA are sensitive to deteriorations in water quality, the grazing marsh and its ditches are not subject to the presence of treated sewage effluent which due to the point of discharge flows through the Milton Creek channel into the marine/estuarine portions of the SPA. The Environment Agency[24] have commented that, while nutrient levels within the Thames Estuary are high, this does not result in the smothering macroalgal growth that is having an adverse effect upon other European marine sites (such as The Solent), due to a combination of turbid water, tidal energy and erosion. The interconnected nature of the Thames estuary and the Swale implies that similar conclusions for the Swale are also likely to apply.

4.7.12 There is no indication that STW's that discharge into the SPA cannot cope with the increased capacity. There is therefore not anticipated to be any significant deterioration of the SPA/Ramsar due to increased wastewater disposal as a result of development of the 2,519 new homes and 69,290 sq m of new gross floorspace allocated within the Sittingbourne Town Centre and Milton Creek SPD, even considered in combination with development of 10,800 new homes and over 1 million sq m of new business floorspace in Swale (most of which will be north of the M2).

4.7.13 Any increase in surface water run-off due to development or redevelopment involving large impermeable surfaces, could also lead to flooding downstream in areas some distance from the development. Whilst the main risk to The Swale SPA/Ramsar would be via localised pollution, events further upstream in the catchment could potentially contribute to reduction in water quality at the SPA/Ramsar. However, the current local plan for Swale has a number of policies that seek to ensure adequate infrastructure within the borough, and these should underpin the implementation of the SPD.

- Policy SP1 seeks to ensure '*proper and timely provision…for…physical infrastructure*.'
- Policy SP2 states that development proposals and planning policy will protect hydrological environments of the borough.
- Policy SP6 seeks to phase new development to ensure timely co-ordination with utility provision.

[24] Dave Lowthion, Environment Agency Supra-Area Marine Team Leader, Southern Region, personal communication

4.7.14 The SA of the SPD identified that 'Milton Creek requires a 'clean-up' to improve the water quality and to contribute to an enhanced water environment. Although the Environment Agency has stated that no dredging should be undertaken due to sediment disturbance with contaminated material detrimental to the important SPA habitat and shellfish waters downstream of the creek.' Therefore the Council will ensure that development outlined in the SPD does not require dredging operations within the creek.

4.7.15 Within the SPD consultation draft document, the Council outlines measures such as SUDS and swales in the Milton Creek area, which will help to attenuate water and prevent run-off that could filter into the creek and potentially the SPA/Ramsar site. The document also notes that '*mitigation of surface water runoff from point of raindrop contact is an important concept*.' There is an expectation that developers will incorporate a number of defined measures (such as green roofs, porous paving and rainwater harvesting) to improve water quality within the development footprint.

4.7.16 It is therefore considered that the SPD contains all reasonable measures to avoid a damaging level of surface water runoff into the Creek and thereby the SPA/Ramsar site.

Water Resources

4.7.17 The Environment Agency's North Kent Catchment Abstraction Management plan notes that the Sittingbourne Chalk and Lower London Tertiaries Management Unit is currently 'over-abstracted'.

4.7.18 As part of their Restoring Sustainable Abstraction programme, the EA also identify a potential impact on groundwater resources through a sustainability reduction in the Kent Medway Water Resources Zone (WRZ).

4.7.19 Development taken in the context of a further 139,420 new homes within Kent is likely to result in increased demand for water resources within the lifetime of the LDF.

4.7.20 In order to protect water supplies, Southern Water, which supplies Sittingbourne, has a number of strategies contained within its emerging Water Resource Management Plan. To 2015, they will focus on inter-zonal water transfer, groundwater source improvements, metering and leakage reduction. By 2020, a waste-water recycling scheme, and a licence variation on a ground water supply should ensure adequate capacity for the Kent Medway WRZ.

4.7.21 To improve development efficiency in relation to water, the Sittingbourne Town Centre and Milton Creek SPD sets out expectations for new development to meet standards in the Code for Sustainable Homes certification system, or alternative, including the need to incorporate water efficiency measures. The Code for Sustainable Homes has benefits because it has minimum requirements of water efficiency for every different rating. This compares favourably to BREEAM/EcoHomes for which it is not necessary to incorporate water efficiency measures to achieve a rating. In terms of standards that should be achieved, the Council has stated that all new homes must reach Code 6 (the maximum) rating by

2016. The Council will also require new development under BREEAM to reach level 'Outstanding' by 2016.

4.7.22 In order to protect water supplies, Southern Water, which supplies Sittingbourne has a number of strategies contained within its emerging Water Resource Management Plan. To 2015, this will focus on inter-zonal water transfer, groundwater source improvements, metering and leakage reduction. By 2020, a waste-water recycling scheme, and a licence variation on a ground water supply should ensure adequate capacity for the Kent Medway WRZ. In developing and implementing the Sittingbourne Town Centre and Milton Creek SPD, it is understood that the Council have liaised with Southern Water in order to ensure that the development is able to be supplied by water without requiring damaging levels of abstraction from tributaries of any European sites including the Medway Estuary & Marshes SPA.

4.7.23 Given the extent of these measures it is considered that no further measures are required on behalf of the Council to ensure that the development to be delivered by the SPD does not have an adverse effect on the SPA, since most avoidance and mitigation mechanisms for impacts associated with water resource infrastructure are in the hands of the Environment Agency and water companies.

Air quality

4.7.24 Although the mudflat components of The Swale are not known to be sensitive to atmospheric nitrogen deposition, the grazing marsh components (on which the wintering birds rely for feeding and roosting) are known to be sensitive. Given that a major road (the A249 Sheppey Crossing) lies within 200m of the SPA/Ramsar site and would logically serve as an important route to Elmley Island from Sittingbourne, it is necessary to examine the possibility for adverse effects arising as an indirect result in increased traffic flows on this strategic route due to the additional housing to be delivered under the SPD.

4.7.25 It can be seen from Table 11 that the SPA/Ramsar site within proximity to the A249 does not currently exceed either the critical threshold for NOx or the critical nitrogen load for the key sensitive habitat. It can also be seen that sulphur dioxide does not currently appear to be a problem for this site.

Table 11. Critical nitrogen loads, actual rates of nitrogen deposition, NOx concentrations[25] and sulphur dioxide concentrations for Swale SPA/Ramsar using 2000 data. Red shading indicates exceedance of thresholds.

Site	Grid reference	Most nitrogen sensitive habitat	Minimum [26] critical loads (Kg N/ha/yr)	Actual nitrogen deposition [27] (Kg N/ha/yr)	Actual NOx concentration (μgm^{-3})	Actual SO_2 concentration (μgm^{-3})
Swale SPA/Ramsar	TQ918695	Grazing marsh	20	14	19.2	2.5

4.7.26 In order to take account of the fact that the data are historic, Department for Transport Interim Advice Note 61/05 states that "*the total average deposition rates obtained from the Air Pollution Information System for 2000 should be reduced by 2% per year to estimate [background] deposition rates for the assessment years [without the project or plan]*"[28]. If one works on the conservative assumption that improvements will level off after 2010 (the last year for which the 2% reduction has been modelled), this means that the baseline at the time the Core Strategy allocations are complete and operational (i.e. the time when the effects of the four Core Strategies will be strongest) will be 20% lower than the 2000 data, i.e. 11.2 kg/n/ha/yr (56% of the critical load) and 15.4 μgm^{-3} (51% of the critical level). Although detailed traffic modelling for the use of this route is not yet available, it is highly unlikely that any increase in traffic levels as a result of the housing to be delivered by the SPD will result in a sufficiently large increase to exceed the critical level and load even when considered 'in combination' with the increases in vehicle movements along the A249 as a result of development elsewhere in Swale and Medway over the same time period.

4.8 Avoidance and Mitigation

Urbanisation

4.8.1 The main urbanisation impacts (other than recreational pressure) will be an increased incidence of littering and construction noise.

4.8.2 Littering will be controllable through the same access management mechanisms that will be required to manage recreational pressure (e.g. screening of paths from the Creek will physically prevent deposition of litter within the Creek, waste bins

[25] Calculated as NO_2
[26] APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range
[27] To a resolution of 5 km
[28] Based on the results of trans-boundary deposition modelling for 1997 and 2010, deposition of reduced and oxidised nitrogen is expected to decrease on average across Britain by 1.5% and 2.6% per annum respectively due to increasingly stringent emission limits. As the deposition of oxidised nitrogen is expected to decrease faster than that of reduced nitrogen, the proportion of the total nitrogen deposited from reduced nitrogen will increase in the future. It is expected to have reached 60% by 2010. If reduced and oxidised nitrogen are assumed to contribute to total deposition in equal proportions, then the annual decrease in nitrogen deposition can be assumed to be 2% (estimated in a non cumulative manner, i.e. decrease over 5 years is 5 x 2% = 10%). The deposition changes will not be linear across the country but 2% should be indicative of the typical change

can be provided in locations away from the Creek itself and a wardening scheme would assist with general behaviour management).

4.8.3 In order to control construction noise individual planning applications for development within 500m of Milton Creek should take account of the need to use appropriate noise and visual disturbance controls (such as minimising winter construction activity and where it cannot be minimised using close-board fencing, damped piling and other measures set out in British Standards guidance) during construction in order to minimise disturbance of wintering waterfowl.

Recreational pressure

4.8.4 Recreational activity is not inherently incompatible with wildlife interest and numerous reserves (such as the RSPB reserve at Cliffe Pools) illustrate how the two can be combined. However, it is necessary for such access to be carefully designed and managed to keep disturbance levels for the wintering birds that use the Creek at an acceptable minimum.

4.8.5 It is likely that any mitigation strategy will need to consist of a mixture of access management (the principal technique) and, as a supplement, the creation of alternative accessible natural greenspace. Access management to control recreational pressure will also assist in managing more general urbanization impacts (i.e. littering)

Access management of Milton Creek

4.8.6 The Sittingbourne & Milton Creek SPD includes outline information concerning access to Milton Creek but this information is not detailed (primarily presenting footpath routes rather than design details) and is taken from the Milton Creek Gateway Landscape Costed Delivery Plan (May 2009). As such, the SPD is not the appropriate place to provide further information regarding how the access schemes will be designed and managed.

4.8.7 However, in order to comply with the requirements of the Conservation (Natural Habitats &c) Regulations 1994 (as amended) it is necessary for the SPD to acknowledge the need for careful detailed access design and management in order to ensure that adverse effects on the wintering waterfowl interest of Milton Creek (particularly redshank) do not result, and to provide a policy framework for their delivery (including the forum through which such details would be devised).

4.8.8 The Milton Creek Gateway Landscape forum and further iterations/daughter documents of the Costed Delivery Plan would be an appropriate forum for the development of these further measures and the need for more detailed work with regard to impacts on the SPA/Ramsar site (which must include Milton Creek) is acknowledged on page 36 of the Delivery Plan through the comment that '*due to the proximity of Milton Creek to the Swale estuary SPA, the potential impact of all or specific proposals on the SPA may need to be assessed in the form of an Appropriate Assessment*'.

4.8.9 The access management measures may include wardening, hides, temporary gating/closure of footpaths (including access from Milton Creek into the SPA)

during the winter (the most sensitive period), rerouting of some footpath stretches to provide a buffer zone between the recreational space and the Creek itself or screening of footpaths except in certain 'view point' locations among other options[29]. As various detailed options to control recreational access are available (as above) it is considered that adverse effects on Milton Creek can be avoided without the need to alter the actual quantum of housing to be delivered.

4.8.10 It is therefore recommended that wording should be inserted into the SPD which addresses the following matters:

- The access routes shown in the SPD are illustrative and the final access scheme may be subject to changes pending the results of more detailed work;
- This more detailed work will be undertaken as part of the further development of the Milton Creek Landscape Delivery Plan process and its Appropriate Assessment and will be developed further through individual planning applications;
- Measures that will be considered as part of this detailed design work are likely to include some or all of wardening, hides, temporary gating/closure of footpaths during the winter (the most sensitive period), rerouting of some footpath stretches to provide a buffer zone between the recreational space and the Creek itself or screening of footpaths except in certain 'view point' locations;
- No new access to Milton Creek will be permitted until the detailed access design and control measures have been assessed and agreed with Natural England as being adequate to avoid adverse effects on the Swale SPA and the wintering bird interest of Milton Creek;
- Is there potential for delivering the development such that development around the Creek (i.e. Milton Creek and Milton Regis) doesn't all take place in Phase 3?
- The Swale SPA will not itself be directly accessible to the public from Milton Creek;
- Boating within the Creek during the winter period (October-March) will be discouraged in order to minimise disturbance of wintering waterfowl;
- Wintering waterfowl using Milton Creek will be monitored for five years following implementation of the final recreation/access scheme in order to evaluate disturbance of wintering waterfowl and if necessary devise further control measures (such as temporary footpath closures etc).

4.8.11 In order to fund this, the Council could require a financial contribution from the developer.

[29] Access onto the Creek could be organised such that much of the paths were screened from the Creek itself (while provided with their own visually attractive planting) such that access to the Creek was at certain points. 'Screens' (a form of hide) could be provided at these points to provide an opportunity for visual appreciation of the Creek while minimising disturbance. A network of paths could guide people away from the Creek, connecting up to other tributaries, open spaces and onto Church Marshes. Any pedestrian or cycle routes across the Creek should be visually screened in order to prevent disturbance of Creek birds (particularly during winter).

Access management of The Swale SPA/Ramsar

4.8.12 The SPD will, by increasing the resident population local to the SPA and thus the potential visitor pool for the SPA itself, potentially result in adverse 'in combination' disturbance effects on the wintering bird interest of the remainder of the Swale SPA and Ramsar site. Since this is an 'in combination' issue it clearly cannot be resolved by Swale Council in isolation and is a wider issue than the Sittingbourne & Milton Creek area.

4.8.13 As such, while this issue needs to be addressed, it is appropriate that it is covered by an inter-authority forum separate from the SPD. The Medway & Swale Estuary Partnership would seem to be the most appropriate body since it already exists and includes recreation management and nature conservation in both estuaries among its aims.

4.8.14 In order to ensure that an adequate procedure for advancing and delivering enhanced access management across The Swale is in existence, Swale Council should therefore include reference within the SPD to engaging with the other bodies that make up the Partnership to ensure that the delivery of development across Medway and Swale is coupled with an enhanced access management strategy[30]. In order to fund their contribution to the production and delivery of this enhanced framework, the Council could use developer contributions.

4.8.15 It must be noted that Natural England, in their consultation response on the draft Appropriate Assessment for the SPD commented that further study will need to ascertain current recreational usage of the Swale and the anticipated increase in usage that might be expected from new residents as a result of the development within the SPD and other developments in the area (e.g. elsewhere in Swale and in Medway). That study should be a part of the enhanced access management framework for the Medway and Swale estuaries.

4.8.16 The SPD should acknowledge that development of this access management strategy will keep pace with the delivery of housing within the Sittingbourne & Milton Creek area such that the necessary control measures (which in the most extreme event could include partial closure of recreational usage of the estuary during some periods of the year) will be delivered in parallel with new development across Swale and Medway (rather than the development being delivered and the access management measures following some years later).

Alternative greenspace provision

4.8.17 Due to the intrinsic appeal of coastal sites, the provision of alternative recreational greenspace is likely to provide only a partial contribution (subsidiary and supplementary to appropriate access management) to mitigation for any increase in recreational pressure. This is particularly the case since the Swale SPA/Ramsar is considered to be under pressure from use of the estuary for water sports.

[30] Such as wardening, fencing, signage and seasonal closure of parts of the SPA as necessary; this would need to be achieved in liaison with Natural England and the relevant landowners

4.8.18 Due to the limitations of the assessment tools and data available at this time (and in particular the inability to quantify the number of residents of each allocated site that will be making use of the European sites in question and what proportion of the total cumulative load this represents), it is not possible to specify an exact quantity of alternative natural greenspace that will need to be provided in order to absorb recreational visitors.

4.8.19 Natural England's more general Accessible Natural Greenspace Standards (ANGSt) provide a set of benchmarks for ensuring access to places of wildlife interest and were specifically developed to provide size and distance criteria to provide natural spaces that will contribute most towards sustainable use of recreational resources. While the criteria were not developed with the specific intention of mitigating for adverse impacts on European sites, they were intended to specify a level of semi-natural greenspace provision that would meet the needs of a development's population.

4.8.20 Natural greenspace provision to the ANG Standard or higher would supplement enhanced access management of the SPA provided it is delivered within a timescale linked to that of the development and will fulfil a function similar to at least some of the functions of the SPA (i.e. dog walking and appreciation of nature rather than more formal recreational activities).

4.8.21 It is noted that the Swale Green Grid Strategy already includes provision for Church Marshes Country Park on the west bank of Milton Creek. This 52 ha community park will create large expanses of meadow, grassland, scrub, ponds and reed beds on land which has been used initially as brick fields and latterly for landfill activities. Unless this green space provision has already been used to offset loss of green space through development elsewhere, and provided that features of the Country Park are suitable to deflect land-based users from the Swale SPA/Ramsar site, then this could provide mitigation for development to be delivered as a result of the SPD. However, it will not be possible for this green space to avoid or mitigate for increased water sport activity within the estuary, which will have to be managed through access management (including potentially restricting access to some areas).

4.8.22 Policy LV1 – 'Strategic Green Space' – of Swale's Regeneration Framework outlines the plan for the Church Marshes Country park and also plans to deliver '*new wetland areas*' by 2016. These areas may make some contribution to mitigating the effects of development within the SPD from waterborne recreation (in conjunction with appropriate access management of the SPA) but only if they are appropriately located and managed to either provide undisturbed intertidal habitat for SPA birds or (if their purpose is to draw recreational visitors away from the SPA) to provide a suitable waterborne recreation experience.

4.8.23 We would also recommend the following additional details to be included either within this SPD, the future Core Strategy or within an associated SPD linked to the provision of new greenspaces:

- No individual area of natural greenspace should be less than 2ha in size, as the research underlying the ANG standard indicated that smaller sites were often too disturbed to have much biodiversity.

- Delivery of the greenspace would need to be phased in parallel to occupation of the development and would need to serve a similar recreational function to these sites, from which it is intended to draw recreational users. Existing natural greenspace could be included within the allocation provided that a visitor study could demonstrate that it did not already meet its maximum recreational capacity.
- Each of the accessible natural greenspaces would need to be linked to signage and information in order to attract visitors.

4.8.24 It is considered that if the above measures can all be incorporated, an adequate policy framework will have been established (through the Sittingbourne & Milton Creek SPD and other mechanisms) to deliver the necessary measures to mitigate an adverse effect upon The Swale SPA and Ramsar through recreational pressure.

5 MEDWAY ESTUARY AND MARSHES SPA AND RAMSAR

5.1 Introduction

5.1.1 The Medway Estuary and Marshes form the largest area of intertidal habitats that have been identified as of value for nature conservation in Kent and are representative of the estuarine habitats found on the North Kent coast. A complex of mudflats and saltmarsh is present with in places grazing marsh behind the sea walls that is intersected by dykes and fleets. The area holds internationally important populations of wintering and passage birds and is also of importance for its breeding birds. An outstanding assemblage of plant species also occurs on the site. The boundary of the SPA/Ramsar lies around 4km from the development area covered by the Sittingbourne Town Centre and Milton Creek SPD.

5.2 Features of European Interest

5.2.1 The site is designated as an SPA for supporting bird populations of European importance for the breeding species of:

- Avocet *Recurvirostra avosetta* with 6.2% of the breeding population in Great Britain (5 year mean, 1988-1992)
- Little tern *Sterna albifrons* with 1.2% of the breeding population in Great Britain (5 year mean, 1991-1995)
- Common tern *Sterna hirundo* with 0.6% of the breeding population in Great Britain (1994)

5.2.2 The site is designated as an SPA for supporting bird populations of European importance for the over-wintering species of:

- Tundra swan *Cygnus columbianus bewickii* with 0.2% of the wintering population in Great Britain (5 year mean 1991/2-1995/6)
- Avocet *Recurvirostra avosetta* with 24.7% of the wintering population in Great Britain (5 year mean 1991/2-1995/6)

5.3 Features of International Interest: Ramsar criteria

5.3.1 Table 4 details how Medway Estuary and Marshes meets the Ramsar criteria.

Table 4. Ramsar Site Criteria

Site	Ramsar Criteria 2	Ramsar Criteria 5	Ramsar Criteria 6
Medway Estuary and Marshes	The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates	The site has internationally important bird assemblages in winter with 47637 waterfowl (5 year peak mean 1998/99-2002/2003)	The site has bird species occurring in internationally important numbers: Redshank, grey plover (spring/autumn), dark-bellied brent goose, shelduck, pintail, red knot, ringed plover, dunlin (winter)

5.4 Condition Assessment

5.4.1 During the most recent condition assessment process, almost 99% of Medway Estuary and Marshes SSSI was in favourable condition.

5.5 Key Environmental Conditions

5.5.1 The key environmental conditions that support the features of European interest are:

- Minimal disturbance·
- Maintenance of grazing / mowing regimes·
- Sufficient freshwater inputs for birds (feeding, preening, drinking)
- Sufficient space between the site and development to allow for managed retreat of intertidal habitats and avoid coastal squeeze;·
- Unpolluted water;·
- Absence of nutrient enrichment;·
- Absence of non-native species and control of cord grass encroachment;·
- Balance of saline and non-saline conditions

5.6 Potential Effects of the Plan

Recreational Impacts

5.6.1 Development resulting from the Sittingbourne Town Centre and Milton Creek SPD would result in an increased residential population, with increased demand for and pressure on recreational facilities and opportunities. At its closest point, Medway Estuary and Marshes SPA/Ramsar lies only 4km from the location of the development proposed within the SPD, well within the typical distance that respondents to the England Leisure Day Visits survey were prepared to travel to visit a coastal site.

5.6.2 Medway Estuary and Marshes SPA/Ramsar support a diverse assemblage of both breeding and over-wintering waterfowl, which are prone to disturbance. 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[31]. 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[32]. 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 are to predators.

[31] Riddington, R. *et al*. 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* 43:269-279
[32] Gill, J.A., Sutherland, W.J. & Norris, K. 1998. The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* 12: 67-72

5.6.3 Human activity can affect birds either directly (e.g. through causing them to flee) or indirectly (e.g. through damaging their habitat). The most obvious direct effect is that of immediate mortality such as death by shooting, but human activity can also lead to behavioural changes (e.g. alterations in feeding behaviour, avoidance of certain areas etc.) and physiological changes (e.g. an increase in heart rate) that, although less noticeable, may ultimately result in major population-level effects by altering the balance between immigration/birth and emigration/death[33].

5.6.4 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.

5.6.5 The distance at which a species takes flight when approached by a disturbing stimulus is known as the 'tolerance distance' (also called the 'escape flight distance') and differs between species to the same stimulus and within a species to different stimuli. Distances for responses are given in table 5, which compiles 'tolerance distances' from across the literature. Species for which the Medway Estuary and Marshes SPA/Ramsar is noted have been highlighted in bold (though it should be noted that total assemblage of waterfowl and waders is also a qualifying feature). It is reasonable to assume from this that disturbance is unlikely to be experienced more than a few hundred metres from the birds in question.

Sensitivity of species

Table 5 - Tolerance distances of 21 water bird species to various forms of recreational disturbance, as described in the literature[34]. All distances are in metres. Single figures are mean distances; when means are not published, ranges are given. [1] Tydeman (1978), [2] Keller (1989), [3] Van der Meer (1985), [4] Wolff et al (1982), [5] Blankestijn et al (1986), [6] Cook (1980).[35]

Species	Type of disturbance		
	Rowing boats/kayak	Sailing boats	Walking
Little grebe		60 – 100 [1]	
Great crested grebe	50 – 100 [2]	20 – 400 [1]	
Mute swan		3 – 30 [1]	

[33] Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

[34] (1)Tydeman, C.F. 1978. *Gravel Pits as conservation areas for breeding bird communities*. PhD thesis. Bedford College

(2) Keller, V. 1989. Variations in the response of Great Crested Grebes *Podiceps cristatus* to human disturbance - a sign of adaptation? *Biological Conservation* 49:31-45

(3) Van der Meer, J. 1985. *De verstoring van vogels op de slikken van de Oosterschelde*. Report 85.09 Deltadienst Milieu en Inrichting, Middelburg. 37 pp.

(4) Wolf, W.J., Reijenders, P.J.H. & Smit, C.J. 1982. The effects of recreation on the Wadden Sea ecosystem: many questions but few answers. In: G. Luck & H. Michaelis (Eds.), *Schriftenreihe M.E.L.F., Reihe A: Agnew. Wissensch* 275: 85-107

(5) Blankestijn, S. *et al.* 1986. *Seizoensverbreding in de recreatie en verstoring van Wulp en Scholkester op hoogwatervluchplaatsen op Terschelling*. Report Projectgroep Wadden, L.H. Wageningen. 261pp.

(6) Cooke, A.S. 1980. Observation on how close certain passerine species will tolerate an approaching human in rural and suburban areas. *Biological Conservation* 18: 85-88

Species	Type of disturbance		
	Rowing boats/kayak	Sailing boats	Walking
Teal		0 – 400 [1]	
Mallard		10 – 100 [1]	
Shoveler		200 – 400 [1]	
Pochard		60 – 400 [1]	
Tufted duck		60 – 400 [1]	
Goldeneye		100 – 400 [1]	
Smew		0 – 400 [1]	
Moorhen		100 – 400 [1]	
Coot		5 – 50 [1]	
Curlew			211 [3]; 339 [4]; 213 [5]
Shelduck			**148** [3]; **250** [4]
Grey plover			**124** [3]
Ringed plover			**121** [3]
Bar-tailed godwit			107 [3]; 219 [4]
Brent goose			**105** [3]
Oystercatcher			85 [3]; 136 [4]; 82 [5]
Dunlin			**71** [3]**; 163** [2]

5.6.6 According to the Medway Swale Estuary Partnership, the Medway Estuary and Marshes has undergone some marked declines in its wintering bird population in recent years. Major declines have been noted in the numbers of great crested grebe, dark bellied Brent goose, shelduck, wigeon, redshank, dunlin, grey plover and ringed plover. The cause of these declines is largely uncertain but it is highly likely that disturbance caused by recreational activities on the Medway will be a significant contributing factor. The Medway Swale Estuary Partnership co-ordinated a targeted study to measure the impact of recreational activity on birds around the Estuary during 2008. However, it is understood that this study is not currently available.

5.6.7 The proposed new link road between the A2 and A249 (the Northern Relief Road) will direct through traffic away from Sittingbourne town centre, but will also improve access to the Medway Estuary from the east, with the connection to the A249 being within 1.5km of the SPA/Ramsar. This has potential to exacerbate recreational pressure on the site.

Other plans and projects

5.6.8 In addition to the increased recreational pressure that may result from the addition of 2,519 new homes as allocated in the SPD, the Appropriate Assessment of the draft South East Plan noted that development of 53,740 new homes in Medway, Gravesham, Swale and Dartford may result in increased recreational pressure given that this site is already under extensive recreational pressure (from waterborne users in addition to walkers, microlight aircraft etc.).

5.6.9 In addition, the Draft South East Plan advocates maintaining and enhancing the role of ports, including those on the Medway estuary (Policy T10). Any enhancement would have potential for greater 'activity' on the Medway estuary that could lead to disturbance of bird species. There are also plans for a new waste incinerator and gas power station on the Isle of Grain. There is therefore potential for greater general 'activity' around the Medway estuary that could lead to disturbance of bird species.

5.6.10 Therefore in developing mitigation strategies for development outlined within the SPD it will be important to place these within the context of the overall quantum of development in the region.

Air quality

5.6.11 Although the mudflat components of the Medway Estuary & Marshes SPA/Ramsar are not known to be sensitive to atmospheric nitrogen deposition, the grazing marsh components (on which the wintering and breeding birds rely for feeding and roosting) are known to be sensitive. Given that a major road (the A249 Sheppey Crossing) lies within 200m of the SPA/Ramsar site and would logically serve as an important route to Elmley Island from Sittingbourne, it is necessary to examine the possibility for adverse effects arising as an indirect result in increased traffic flows on this strategic route due to the additional housing to be delivered under the SPD.

5.6.12 It can be seen from Table 6 that the SPA/Ramsar site within proximity to the A249 does not currently exceed either the critical threshold for NOx or the critical nitrogen load for the key sensitive habitat. It can also be seen that sulphur dioxide does not currently appear to be a problem for this site.

Table 6. Critical nitrogen loads, actual rates of nitrogen deposition, NOx concentrations[36] and sulphur dioxide concentrations for Medway Estuary & Marshes SPA/Ramsar using 2000 data. Red shading indicates exceedance of thresholds.

Site	Grid reference	Most nitrogen sensitive habitat	Minimum [37] critical loads (Kg N/ha/yr)	Actual nitrogen deposition [38] (Kg N/ha/yr)	Actual NOx concentration (μgm^{-3})	Actual SO_2 concentration (μgm^{-3})
Medway Estuary & Marshes SPA/Ramsar	TQ918695	Grazing marsh	20	14.3	21.5	4.5

5.6.13 In order to take account of the fact that the data are historic, Department for Transport Interim Advice Note 61/05 states that "*the total average deposition rates obtained from the Air Pollution Information System for 2000 should be reduced by 2% per year to estimate [background] deposition rates for the assessment years [without the project or plan]*"[39]. If one works on the conservative assumption that improvements will level off after 2010 (the last year for which the 2% reduction has been modelled), this means that the baseline at the time the Core Strategy allocations are complete and operational (i.e. the time when the effects of LDF housing delivery will be strongest) will be 20% lower than the 2000 data, i.e. 11.4 kg/n/ha/yr (57% of the critical load) and 17.2 μgm^{-3} (57% of the critical level).

Other projects and plans

5.6.14 There are plans for a new waste incinerator and gas power station on the Isle of Grain. The operation of these facilities could affect air quality over the Medway Estuary and Marshes SPA. Incineration (mass burn) is currently the only thermal treatment technology that can be accurately modelled. Use of this technology can emit large quantities of NOx, but the NOx emissions of any form of incinerator, and their distances to deposition, are entirely dependent upon specific parameters of the facility (e.g. stack height).

5.6.15 Although detailed modelling is not currently available, it is highly unlikely (given that background NOx concentrations will only represent 57% of the critical load/level for the SPA/Ramsar) that any increase in NOx concentrations as a result of the housing to be delivered by the SPD will result in a sufficiently large addition to NOx concentrations to exceed the critical level and load even when considered 'in

[36] Calculated as NO_2
[37] APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range
[38] To a resolution of 5 km
[39] Based on the results of trans-boundary deposition modelling for 1997 and 2010, deposition of reduced and oxidised nitrogen is expected to decrease on average across Britain by 1.5% and 2.6% per annum respectively due to increasingly stringent emission limits. As the deposition of oxidised nitrogen is expected to decrease faster than that of reduced nitrogen, the proportion of the total nitrogen deposited from reduced nitrogen will increase in the future. It is expected to have reached 60% by 2010. If reduced and oxidised nitrogen are assumed to contribute to total deposition in equal proportions, then the annual decrease in nitrogen deposition can be assumed to be 2% (estimated in a non cumulative manner, i.e. decrease over 5 years is 5 x 2% = 10%). The deposition changes will not be linear across the country but 2% should be indicative of the typical change

combination' with the increases in vehicle movements along the A249 as a result of development elsewhere in Swale and Medway over the same time period or the presence of an incinerator on the Isle of Grain.

Water Quality

5.6.16 Sittingbourne Sewage Treatment Works discharges treated effluent to the Milton Creek which then drains into the Swale. The Swale then provides a hydrological link to the Medway estuary, some 4km from the creek mouth.

5.6.17 While the grazing marsh components of the SPA are sensitive to deteriorations in water quality, the grazing marsh and its ditches are not subject to the presence of treated sewage effluent which due to the point of discharge flows through the Milton Creek channel into the marine/estuarine portions of the SPA. The Environment Agency[40] have commented that, while nutrient levels within the Thames Estuary are high, this does not result in the smothering macroalgal growth that is having an adverse effect upon other European marine sites (such as The Solent), due to a combination of turbid water, tidal energy and erosion. The interconnected nature of the Thames estuary and the Medway Estuary implies that similar conclusions for the Medway are also likely to apply. There is therefore not anticipated to be any significant deterioration of the SPA/Ramsar due to increased wastewater disposal as a result of development of the 2,519 new homes and 69,290 sq m of new gross floorspace allocated within the Sittingbourne Town Centre and Milton Creek SPD. A reduction in water quality is therefore ruled out as a likely significant effect either alone or 'in combination' with other plans and projects since there is no mechanism for the SPD to lead to an adverse effect.

Water Resources

5.6.18 Due to the strategic nature of water supply, development to be delivered under the SPD can only realistically be considered 'in combination' with the other homes to be delivered within north Kent. The Appropriate Assessment of the draft South East Plan notes that development in the context of a further 139,420 new homes within Kent is likely to result in increased water abstraction from the Rivers that supply the Medway with freshwater, and therefore a decline in freshwater inputs to the Estuary. Although most of Kent is predicted to be in water surplus (sufficient water to support additional abstraction of up to 5 mega litres per day by 2026) the reduction in volume is likely to have an effect on birds using the estuary.

[40] Dave Lowthion, Environment Agency Supra-Area Marine Team Leader, Southern Region, personal communication

5.6.19 The Environment Agency's North Kent Catchment Abstraction Management plan notes that the Sittingbourne Chalk and Lower London Tertiaries Management Unit is currently 'over-abstracted', while the Unit between Sittingbourne and the Medway Estuary and Marshes SPA/Ramsar at Iwade has 'no water available.' As part of their Restoring Sustainable Abstraction programme, the EA also identify a potential impact on groundwater resources through a sustainability reduction in the Kent Medway Water Resources Zone (WRZ).

5.6.20 In order to protect water supplies, Southern Water, which supplies Sittingbourne, has a number of strategies contained within its emerging Water Resource Management Plan. To 2015, they will focus on inter-zonal water transfer, groundwater source improvements, metering and leakage reduction. By 2020, a waste-water recycling scheme, and a licence variation on a ground water supply should ensure adequate capacity for the Kent Medway WRZ.

5.6.21 To improve development efficiency in relation to water, the Sittingbourne Town Centre and Milton Creek SPD sets out expectations for new development to meet standards in the Code for Sustainable Homes certification system, or alternative, including the need to incorporate water efficiency measures. The Code for Sustainable Homes has benefits because it has minimum requirements of water efficiency for every different rating. This compares favourably to BREEAM/EcoHomes for which it is not necessary to incorporate water efficiency measures to achieve a rating. In terms of standards that should be achieved, the Council has stated that all new homes must reach Code 6 (the maximum) rating by 2016. The Council will also require new development under BREEAM to reach level 'Outstanding' by 2016.

5.6.22 In order to protect water supplies, Southern Water, which supplies Sittingbourne has a number of strategies contained within its emerging Water Resource Management Plan. To 2015, this will focus on inter-zonal water transfer, groundwater source improvements, metering and leakage reduction. By 2020, a waste-water recycling scheme, and a licence variation on a ground water supply should ensure adequate capacity for the Kent Medway WRZ. In developing and implementing the Sittingbourne Town Centre and Milton Creek SPD, it is understood that the Council have liaised with Southern Water in order to ensure that the development is able to be supplied by water without requiring damaging levels of abstraction from tributaries of any European sites including the Medway Estuary & Marshes SPA and that development will not take place until the necessary supporting infrastructure is in existence.

5.6.23 Given the extent of these measures it is considered that no further measures are required on behalf of the Council to ensure that the development to be delivered by the SPD does not have an adverse effect on the SPA, since most avoidance and mitigation mechanisms for impacts associated with water resource infrastructure are in the hands of the Environment Agency and water companies.

5.7 Avoidance and Mitigation

Recreational Pressure

5.7.1 The recreational impact surveys that have been recently undertaken within the Medway Estuary will provide further data to quantify the effect of recreational disturbance in the estuary on bird populations and facilitate the precise details of the mitigation strategies. It is likely that any mitigation strategy will need to consist of a mixture of access management (the principal technique) and, as a supplement, the creation of alternative accessible natural greenspace. These are discussed below.

Access management

5.7.2 The SPD will, by increasing the resident population local to the SPA and thus the potential visitor pool for the SPA itself, potentially result in adverse 'in combination' disturbance effects on the wintering bird interest of the remainder of the Medway Estuary & Marshes SPA and Ramsar site. Since this is an 'in combination' issue it clearly cannot be resolved by Swale Council in isolation and is a wider issue than the Sittingbourne & Milton Creek area.

5.7.3 As such, while this issue needs to be addressed, it is appropriate that it is covered by an inter-authority forum separate from the SPD. The Medway & Swale Estuary Partnership would seem to be the most appropriate body since it already exists and includes recreation management and nature conservation in both estuaries among its aims.

5.7.4 In order to ensure that an adequate procedure for advancing and delivering enhanced access management across The Medway Estuary is in existence, Swale Council should therefore include reference within the SPD to engaging with the other bodies that make up the Partnership to ensure that the delivery of development across Medway and Swale is coupled with an enhanced access management strategy[41]. In order to fund their contribution to the production and delivery of this enhanced framework, the Council could use developer contributions.

5.7.5 It must be noted that Natural England, in their consultation response on the draft Appropriate Assessment for the SPD commented that further study will need to ascertain current recreational usage of the Medway Estuary and the anticipated increase in usage that might be expected from new residents as a result of the development within the SPD and other developments in the area (e.g. elsewhere in Swale and in Medway). That study should be a part of the enhanced access management framework for the Medway and Swale estuaries.

5.7.6 The SPD should acknowledge that development of this access management strategy will keep pace with the delivery of housing within the Sittingbourne & Milton Creek area such that the necessary control measures (which in the most extreme event could include partial closure of recreational usage of the estuary during some periods of the year) will be delivered in parallel with new development across Swale and Medway (rather than the development being delivered and the access management measures following some years later).

Alternative greenspace provision

5.7.7 Due to the intrinsic appeal of coastal sites, the provision of alternative recreational greenspace is likely to provide only a partial contribution (subsidiary and supplementary to appropriate access management) to mitigation for any increase in recreational pressure. This is particularly the case since the Medway Estuary and Marshes SPA/Ramsar is considered to be under pressure from use of the estuary for water sports.

[41] Such as wardening, fencing, signage and seasonal closure of parts of the SPA as necessary. This would need to be achieved in liaison with Natural England and the relevant landowners

5.7.8 Due to the limitations of the assessment tools and data available at this time (and in particular the inability to quantify the number of residents of each allocated site that will be making use of the European sites in question and what proportion of the total cumulative load this represents), it is not possible to specify an exact quantity of alternative natural greenspace that will need to be provided in order to absorb recreational visitors.

5.7.9 Natural England's more general Accessible Natural Greenspace Standards (ANGSt) provide a set of benchmarks for ensuring access to places of wildlife interest and were specifically developed to provide size and distance criteria to provide natural spaces that will contribute most towards sustainable use of recreational resources. While the criteria were not developed with the specific intention of mitigating for adverse impacts on European sites, they were intended to specify a level of semi-natural greenspace provision that would meet the needs of a development's population.

5.7.10 Natural greenspace provision to the ANG Standard or higher would supplement enhanced access management of the SPA provided it is delivered within a timescale linked to that of the development and will fulfil a function similar to at least some of the functions of the SPA (i.e. dog walking and appreciation of nature rather than more formal recreational activities).

5.7.11 It is noted that the Swale Green Grid Strategy already includes provision for Church Marshes Country Park on the west bank of Milton Creek. This 52 ha community park will create large expanses of meadow, grassland, scrub, ponds and reed beds on land which has been used initially as brick fields and latterly for landfill activities. Unless this green space provision has already been used to offset loss of green space through development elsewhere, and provided that features of the Country Park are suitable to deflect land-based users from Medway Estuary and Marshes SPA/Ramsar site, then this could provide mitigation for development to be delivered as a result of the SPD. However, it will not be possible for this green space to avoid or mitigate for increased water sport activity within the estuary, which will have to be managed through access management (including potentially restricting access to some areas).

5.7.12 Policy LV1 – 'Strategic Green Space' – of Swale's Regeneration Framework outlines the plan for the Church Marshes Country park and also plans to deliver '*new wetland areas*' by 2016. These areas may make some contribution to mitigating the effects of development within the SPD from waterborne recreation (in conjunction with appropriate access management of the SPA) but only if they are appropriately located and managed to either provide undisturbed intertidal habitat for SPA birds or (if their purpose is to draw recreational visitors away from the SPA) to provide a suitable waterborne recreation experience.

5.7.13 We would also recommend the following additional details to be included either within this SPD, the future Core Strategy or within an associated SPD linked to the provision of new greenspaces:

- No individual area of natural greenspace should be less than 2ha in size, as the research underlying the ANG standard indicated that smaller sites were often too disturbed to have much biodiversity.
- Delivery of the greenspace would need to be phased in parallel to occupation of the development and would need to serve a similar recreational function to these sites, from which it is intended to draw recreational users. Existing natural greenspace could be included within the allocation provided that a visitor study could demonstrate that it did not already meet its maximum recreational capacity.
- Each of the accessible natural greenspaces would need to be linked to signage and information in order to attract visitors.

5.7.14 It is considered that if the above measures can all be incorporated, an adequate policy framework will have been established (through the Sittinbourne & Milton Creek SPD and other mechanisms) to deliver the necessary measures to mitigate an adverse effect upon The Medway Estuary & Marshes SPA and Ramsar through recreational pressure.

6 BLEAN COMPLEX SAC

6.1 Introduction

6.1.1 This is a complex of woodlands of which Church Woods SSSI and Ellenden Wood SSSI lie approximately 18km east of the SPD development boundary. The SAC is one of the best remaining examples of primary deciduous woodland in the wider Blean Woods complex north of Canterbury. Church Woods contain a diverse assemblage of deciduous tree species with sweet chestnut coppice a substantial component. The invertebrate community is notable, and a number of scarce woodland bird species, including lesser-spotted woodpecker and redstart breed. Ellenden Wood comprises sessile oak-beech woodland on acid soils and hornbeam with pedunculate and sessile oak on clay, plus a small amount of sweet chestnut coppice. Rare species of insect have been recorded.

6.2 Features of European Interest

6.2.1 The site is designated as a Special Area of Conservation for its:

- Oak-hornbeam forests

6.3 Condition Assessment

6.3.1 In the most recent condition assessment, 71% of the Church Woods SSSI was judged to be in favourable condition. Almost the entirety of the remainder was recovering from unfavourable condition with progressive reduction of conifers present. 100% of Ellenden Wood was in favourable condition.

6.4 Key Environmental Conditions

6.4.1 The key environmental conditions that support the features of European interest are:

- Low levels of trampling
- Maintenance of coppice management
- Minimal air pollution
- Absence of direct fertilisation and
- Well-drained soil

6.5 Potential Effects of the Plan

6.5.1 This SAC will clearly be subject to recreational pressure from the increased population associated with some of the 21,000 houses to be delivered in Swale and Canterbury and over 62,519 in surrounding districts under the South East Plan. However, the Sittingbourne and Milton Creek area within Swale lies at the outer limits of the distance that England Leisure Day Survey respondents typically travelled for a day visit to a woodland site. Given that the ELDV survey is likely to overestimate the activities of the 'typical' resident it is therefore likely that the Sittingbourne SPD area is likely to make an inconsequential contribution to this increase in recreational pressure. Moreover, on this particular site recreational use is easily manageable and is not considered to put the survival of the qualifying features at risk[42]. Therefore there is no feasible means by which the Sittingbourne Town Centre and Milton Creek SPD could contribute directly to any impact on the key designated features for this site.

6.5.2 Although the A290 does pass within 200 m of the Blean Complex SAC for short distances, there is generally intervening housing which will reduce the distances at which atmospheric pollutants from the road will be deposited. Moreover, the road does not form a route which residents of Sittingbourne would be likely to utilise in significant numbers, lying as it does away from the main route to Canterbury or Whitstable. It is therefore unlikely that the development to be delivered by the SPD will lead to adverse effects upon the SAC as a result of deteriorations in air quality and no mitigation is required.

[42] Scott Wilson/Levett-Therivel (2006) Appropriate Assessment of the South East Plan.

7 NORTH DOWNS WOODLANDS SAC

7.1 Introduction

7.1.1 The North Downs Woodlands SAC consists of two SSSIs - Wouldham to Detling Escarpment SSSI (situated within Maidstone Borough) and Halling to Trottiscliffe Escarpment SSSI (situated within Tonbridge & Malling). The Wouldham-Detling part of the site lies approximately 12km from the proposed location for development in the SPD, whilst the Halling-Trottiscliffe section is over 20km distant.

Wouldham to Detling Escarpment SSSI

7.1.2 Although most of the woodland is recent in origin, it has already acquired a rich community of plants and animals. A variety of tree species occur, including beech, ash, whitebeam and yew, with box present at one of few sites in the south-east. Chalk grassland survives as fragments within the scrub, and a number of larger areas also occur. These areas support a number of scarce and rare plants, such as meadow clary, and invertebrates including the straw belle.

7.2 Features of European Interest

7.2.1 The site is designated as a Special Area of Conservation for its:

- Beech forests on neutral to rich soils;
- Yew-dominated woodland; and
- Dry grasslands and scrublands on chalk and limestone.

7.3 Condition Assessment

7.3.1 During the most recent condition assessment process, 77% of Halling to Trottiscliffe Escarpment SSSI and 55% of Wouldham to Detling Escarpment SSSI was judged to be in favourable condition with most of the remainder recovering under improved management.

7.4 Key Environmental Conditions

7.4.1 The key environmental conditions that support the features of European interest are:

- Low nutrient runoff from surrounding land - being steep and narrow, the Hanger woodlands are vulnerable to nutrient run-off leading to eutrophication;
- Maintenance of grazing;
- Minimal trampling of sensitive woodland ground flora;
- Minimal air pollution – nitrogen deposition may cause reduction in diversity, sulphur deposition can cause acidification;
- Absence of direct fertilisation; and
- Well-drained soils.

7.5 Potential Effects of the Plan

Recreational pressure

7.5.1 Development resulting from the Sittingbourne Town Centre and Milton Creek SPD would result in an increased residential population, with increased demand for and pressure on recreational facilities and opportunities. At its closest point, the North Downs Woodlands SAC lies within the typical daily distance that visitors will travel to a woodland site and the A249 provides convenient access to the eastern end of the SAC which is itself easily accessed from the North Downs Way. Therefore, an increased population in Sittingbourne has potential to lead to significant increased recreational pressure on this site. The woodlands themselves are not considered likely to be affected by recreational activity due to their steep and inaccessible nature. By itself development of 2,519 new homes in Sittingbourne is unlikely to lead to an increase in a significant increase in recreational pressure on this European site.

Other projects and plans

7.5.2 However, when considered in combination with 10,800 new homes in Swale as a whole, 16,300 in Medway, 11,080 in Maidstone and 9,000 in Tonbridge and Malling to be delivered under the South East Plan it is likely that there will be a net increase in recreational pressure on the grassland component of this site, which is already subject to considerable pressure due to use of off-road vehicles. Based on the potential for recreational impact, it is not currently possible to conclude that there would be no likely significant adverse effects on the North Downs Woodlands SAC arising from development plans within the SPD.

Air quality

7.5.3 The woodland components of the SAC are considered to be susceptible to deteriorations in air quality as a result of increased nitrogen deposition and NOx concentrations. The yew woodland components of Management Unit 26 of Wouldham to Detling Escarpment SSSI lie within 200 m of the A249[43]. In addition, although it is not a major road, there are substantial traffic movements along Lidsing Road due to traffic moving between Maidstone town and the Medway towns such as Sittingbourne. This road bisects Wouldham to Detling Escarpment SSSI (Management Units 19, 20 and 21).

7.5.4 Therefore any development within Sittingbourne or elsewhere in Swale that would lead to substantially greater traffic movements on either the A249 or Lidsing Road could add (particularly when considered cumulatively with the 10,800 homes to be delivered in Swale as a whole and the 11,080 homes to be delivered within Maidstone itself in order to meet housing allocations from the South East Plan) to

[43] Some chalk grassland components of the SSSI also lie within 200 m of the road, but these are not part of the SAC

deposition of atmospheric pollutants within those parts of the SAC, an area that totals 14.24 ha or 5% of the SAC[44].

7.5.5 It can be seen from Table 7 that the SAC within proximity to the A249 does currently exceed the critical nitrogen load for the key sensitive habitat present within this management unit[45]. It can also be seen that sulphur dioxide does not currently appear to be a problem for this site.

Table 7. Critical nitrogen loads, actual rates of nitrogen deposition, NOx concentrations[46] and sulphur dioxide concentrations for North Downs Woodlands SAC using 2000 data. Red shading indicates exceedance of thresholds.

Site	*Grid reference*	*Most nitrogen sensitive habitat*	*Minimum [47] critical loads (Kg N/ha/yr)*	*Actual nitrogen deposition [48] (Kg N/ha/yr)*	*Actual NOx concentration (μgm^{-3})*	*Actual SO_2 concentration (μgm^{-3})*
North Downs Woodlands SAC	TQ918695	Coniferous woodland	10	38.9	28.7	4.8

7.5.6 In order to take account of the fact that the data are historic, Department for Transport Interim Advice Note 61/05 states that "*the total average deposition rates obtained from the Air Pollution Information System for 2000 should be reduced by 2% per year to estimate [background] deposition rates for the assessment years [without the project or plan]*"[49]. If one works on the conservative assumption that improvements will level off after 2010 (the last year for which the 2% reduction has been modelled), this means that the baseline at the time the Core Strategy allocations are complete and operational (i.e. the time when the effects of the four Core Strategies will be strongest) will be 20% lower than the 2000 data. However, even this reduction would still leave a background level of nitrogen deposition considerably higher than the critical load for the habitat.

7.5.7 Although the site is currently subject to poor air quality as a result of the road, this must be balanced against the small proportion of the site that is likely to be affected and the fact that three of these four Units were judged to be in favourable condition, suggesting that the poor air quality is not in fact leading to detectable effects on the

[44] The Natura 2000 data sheet records the area of the SAC as 287.58 ha
[45] Although not coniferous, this habitat was considered the closest on the APIS system to the yew woodland that dominates these management units.
[46] Calculated as NO_2
[47] APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range
[48] To a resolution of 5 km
[49] Based on the results of trans-boundary deposition modelling for 1997 and 2010, deposition of reduced and oxidised nitrogen is expected to decrease on average across Britain by 1.5% and 2.6% per annum respectively due to increasingly stringent emission limits. As the deposition of oxidised nitrogen is expected to decrease faster than that of reduced nitrogen, the proportion of the total nitrogen deposited from reduced nitrogen will increase in the future. It is expected to have reached 60% by 2010. If reduced and oxidised nitrogen are assumed to contribute to total deposition in equal proportions, then the annual decrease in nitrogen deposition can be assumed to be 2% (estimated in a non cumulative manner, i.e. decrease over 5 years is 5 x 2% = 10%). The deposition changes will not be linear across the country but 2% should be indicative of the typical change

ground[50]. The contribution of vehicles deriving from Sittingbourne would of course be small compared to that of Swale District as a whole and Maidstone District and which will be delivered by the respective Core Strategies. Nonetheless, utilising the precautionary principle and the requirement to assess impacts 'in combination', it is not currently possible to state that development to be delivered under the SPD will not lead to significant adverse cumulative effects on the North Downs Woodlands SAC as a result of deteriorating air quality.

7.6 Avoidance and Mitigation

Recreational pressure

7.6.1 The main purpose of legal recreational visits (i.e. other than illegal off-roading) to the site appears from observation by the authors of this report to be recreational walking (including dog-walking) and general enjoyment of the woodland and its views, associated with its close proximity to a convenient major footpath (the North Downs Way) and with the majority of visitors (other than holidaymakers) likely to arise from the Maidstone and Chatham areas which are both within 1km of the site. As such, it is likely that the provision of alternative tranquil countryside sites within Swale district (particularly woodland) would serve to drawn recreational visitors who might otherwise visit the North Downs Woodlands SAC and thus reduce Swale's contribution to recreational pressure.

7.6.2 Due to the limitations of the assessment tools and data available at this time (and in particular the inability to quantify the number of residents of each allocated site that will be making use of the European sites in question and what proportion of the total cumulative load this represents), coupled with the need for any standards to be generally applicable (it not being possible to devise a unique policy or standard for each allocated site), it is not possible to specify an exact quantity of alternative natural greenspace that will need to be provided for individual developments in order to absorb recreational visitors to such an extent that they will not materially contribute towards recreational pressure on the European sites in question.

7.6.3 Natural England's more general Accessible Natural Greenspace Standards (ANGSt) provide a set of benchmarks for ensuring access to places of wildlife interest and were specifically developed to provide size and distance criteria to provide natural spaces that will contribute most towards sustainable use of recreational resources. While the criteria were not developed with the specific intention of mitigating for adverse impacts on European sites, they were intended to specify a level of semi-natural greenspace provision that would meet the needs of a development's population.

7.6.4 In many cases natural greenspace provision to the ANG Standard should therefore serve to minimise the need for recreational resources further afield (i.e. European sites) to receive an unsustainably large influx of visitors provided that they are

[50] The fourth unit (19) was considered unfavourable recovering, but this was as a result of unauthorised access. It is also important to bear in mind that 200 m is the maximum distance from the roadside at which the majority of atmospheric pollutants will be deposited. At any given site, the majority of pollutants may actually be deposited much closer to the roadside (something that cannot be accurately determined without modelling)

delivered within a timescale linked to that of the development and will fulfil a function similar to that of the European site in question (i.e. dog walking and appreciation of nature rather than more formal recreational activities). For these reasons, we have selected the Natural England ANG standards as the criterion for semi-natural greenspace provision that the LDF should require all developments to meet in order to ensure that sufficient recreational space is provided to minimise adverse effects on the identified European sites.

7.6.5 The Natural England ANG standard would require accessible natural green space at a rate of 1ha/1000 population[51], which assuming a delivery figure of 2,519 homes and 2.2 occupants per home, would require a minimum of 5.5ha of accessible natural greenspace to be delivered in parallel with the occupation of the 2,519 new homes at Sittingbourne.

7.6.6 It is noted that the Swale Green Grid Strategy already includes provision for Church Marshes Country Park on the west bank of Milton Creek. This 52 ha community park will create large expanses of meadow, grassland, scrub, ponds and reed beds on land which has been used initially as brick fields and latterly for landfill activities. Unless this green space provision has already been used to offset loss of green space through development elsewhere, and provided that features of the Country Park are suitable to deflect users from North Downs Woodlands SAC, then this could provide mitigation for development to be delivered as a result of the SPD.

7.6.7 We would also recommend the following additional details to be included either within this SPD, the Core Strategy or within an associated Open Space SPD:

- No individual area of natural greenspace should be less than 2ha in size, as the research underlying the ANG standard indicated that smaller sites were often too disturbed to have much biodiversity.
- The specific locations for these areas of natural greenspace would need to be targeted such that they are closer to the key centres of new housing than North Downs Woodlands SAC.
- Delivery of the greenspace would need to be phased in parallel to occupation of the development and would need to serve a similar recreational function to these sites, from which it is intended to draw recreational users (i.e. dog-walking and appreciation of nature). However, that does not mean that it would have to be identical in terms of habitats. Existing natural greenspace could be included within the allocation provided that a visitor study could demonstrate that it did not already meet its maximum recreational capacity.
- Each of the accessible natural greenspaces would need to be linked to signage and information in order to attract visitors.

7.6.8 It is considered that if the above measures can all be incorporated, the Sittingbourne Town Centre and Milton Creek SPD could be concluded as being unlikely to lead to a significant adverse effect upon the North Downs Woodlands SAC through recreational pressure.

[51] The 1ha/1000 people ratio contained within Natural England's ANG standard was based upon experience studying small reserves that combine local biodiversity with high levels of use in a well-designed and managed natural setting

Air quality

7.6.9 The SPD could contribute toward air pollution that would impact upon the North Downs Woodlands SAC through increased traffic utilization of the A249. The SAC itself lies within Maidstone district, where delivery of 11,080 new homes could add to in combination effects. It is difficult for the SPD to include mitigation strategies that would deflect commuters from using the A249 between Sittingbourne and Maidstone, though measures outlined for avoiding recreational impact will also help to reduce air quality impact, through diverting users from using the A249. Also, development of retail facilities within Sittingbourne will reduce incentives to travel to Maidstone for such purposes. Locally, recommendation A1 from Creative Environmental Networks' 'Climate Change Strategy – Sustainable Design and Construction, Swale Borough Council' states that '*new development should be accessible for people walking, cycling and travelling by public transport'*.

7.6.10 In terms of addressing the issue fully, it is recommended that sustainable transport policies be developed within the Core Strategy that take account of alleviating the effect of traffic using the A249. Such policies could encourage the use of bus transport between Sittingbourne and Maidstone and promote incentives such as car sharing schemes for commuters.

7.6.11 It is considered that if the above measures can all be incorporated, the Sittingbourne Town Centre and Milton Creek SPD could be concluded as being unlikely to lead to a significant adverse effect upon the North Downs Woodlands SAC through reduced air quality.

8 PETER'S PIT SAC

8.1 Introduction

8.1.1 An active chalk quarry until about 20 years ago, Peters Pit has an undulating terrain in which many rain fed ponds, of various sizes, have developed. This site supports one of the largest populations of the great crested newt in Britain. Two other newt species also breed here together with frogs and at least two species of reptile. Terrestrial habitats represented include chalk grassland and ruderal vegetation as well as scrub and developing woodland. Many herbs characteristic of the chalk are present.

8.2 Features of European Interest

8.2.1 The site is designated as a SAC for its:

- Great-crested newt

8.3 Condition Assessment

8.3.1 In the most recent condition assessment, 100% of Peter's Pit SAC was considered to be in favourable condition.

8.4 Key Environmental Conditions

8.4.1 The key environmental conditions that support the features of European interest are:

- Maintenance of suitable aquatic and marginal habitat for breeding newts.

8.5 Potential Effects of the Plan

8.5.1 The only pathway of impact arising from the Sittingbourne Town Centre and Milton Creek SPD that could potentially impact on Peter's Pit SAC would be recreational visits from an increased population present in the town. However, it is unlikely that visitors would be attracted to this site, and in addition, the qualifying features of the site are not considered to be particularly vulnerable to recreational pressure. Therefore, it can be concluded that there is no feasible means by which the Sittingbourne Town Centre and Milton Creek SPD could contribute directly to any impact on the key designated features for this site.

9 QUEENDOWN WARREN SAC

9.1 Introduction

9.1.1 This site on the south-facing slope of a dry chalk valley comprises grassland and woodland. The former has a diverse flora including meadow clary and several orchid species including early spider orchid. There are also a good variety of invertebrates present, including the Adonis blue butterfly. Potter's Wood is mainly sweet chestnut coppice with oak standards, but with beech, hazel and other species along the southern edge. Uncommon plant species occur, such as lady orchid and yellow bird's nest. The SAC lies approximately 7km from the proposed development area within the SPD.

9.2 Features of European Interest

9.2.1 The site is designated as a SAC for its:

- Dry grasslands and scrublands on chalk or limestone, including important orchid sites.

9.3 Condition Assessment

9.3.1 During the most recent condition assessment process, 100% of Queendown Warren SSSI was adjudged to be in favourable condition.

9.4 Key Environmental Conditions

9.4.1 The key environmental conditions that support the features of European interest are:

- Maintenance of grazing·
- Minimal recreational trampling·
- Minimal air pollution – nitrogen deposition may cause reduction in diversity, sulphur deposition can cause acidification·
- Absence of direct fertilisation·
- Well-drained soils

9.5 Potential Effects of the Plan

9.5.1 Development resulting from the Sittingbourne Town Centre and Milton Creek SPD would result in an increased residential population, with increased demand for and pressure on recreational facilities and opportunities. Queendown Warren SAC lies within the typical daily distance that visitors will travel to a countryside site, and the A249 and M2 provide convenient access to the SAC. Development of 2,519 new homes in Sittingbourne by itself is unlikely to lead to a significant adverse effect on this European site.

Other Projects and Plans

9.5.2 However, when considered in combination with 10,800 new homes in Swale as a whole, 16,300 in Medway, 11,080 in Maidstone, and 9,000 in Tonbridge and Malling could lead to increased recreational pressure on this site. Based on recreational impact, it is therefore not currently possible to conclude that there would be no likely significant adverse effects on Queendown Warren SAC arising from development plans within the SPD.

Air Quality

9.5.3 Components of the Queendown Warren SAC are considered to be susceptible to deteriorations in air quality as a result of increased nitrogen deposition and NOx concentrations. Although there is a transport pathway by which development arising from the SPD could lead to greater traffic using the M2 London-bound past the SAC, the SAC itself lies more than 200m from the motorway, and therefore is beyond the distance over which air quality effects can be accurately determined within the scope of this Appropriate Assessment.

9.5.4 Based on air quality impact, it is therefore possible to conclude that there would be no likely significant adverse effects on Queendown Warren SAC arising from development plans within the SPD.

9.6 Avoidance and Mitigation

Recreational pressure

9.6.1 Due to the limitations of the assessment tools and data available at this time (and in particular the inability to quantify the number of residents of each allocated site that will be making use of the European sites in question and what proportion of the total cumulative load this represents), coupled with the need for any standards to be generally applicable (it not being possible to devise a unique policy or standard for each allocated site), it is not possible to specify an exact quantity of alternative natural greenspace that will need to be provided for individual developments in order to absorb recreational visitors to such an extent that they will not materially contribute towards recreational pressure on the European sites in question.

9.6.2 Natural England's more general Accessible Natural Greenspace Standards (ANGSt) provide a set of benchmarks for ensuring access to places of wildlife interest and were specifically developed to provide size and distance criteria to provide natural spaces that will contribute most towards sustainable use of recreational resources. While the criteria were not developed with the specific intention of mitigating for adverse impacts on European sites, they were intended to specify a level of semi-natural greenspace provision that would meet the needs of a development's population.

9.6.3 In many cases natural greenspace provision to the ANG Standard should therefore serve to minimise the need for recreational resources further afield (i.e. European sites) to receive an unsustainably large influx of visitors provided that they are delivered within a timescale linked to that of the development and will fulfil a

function similar to that of the European site in question (i.e. dog walking and appreciation of nature rather than more formal recreational activities). For these reasons, we have selected the Natural England ANG standards as the criterion for semi-natural greenspace provision that the LDF should require all developments to meet in order to ensure that sufficient recreational space is provided to minimise adverse effects on the identified European sites.

9.6.4 The Natural England ANG standard would require accessible natural green space at a rate of 1ha/1000 population[52], which assuming a delivery figure of 2,519 homes and 2.2 occupants per home, would require a minimum of 4.6ha of accessible natural greenspace to be delivered in parallel with the occupation of the 2,519 new homes at Sittingbourne.

9.6.5 It is noted that the Swale Green Grid Strategy already includes provision for Church Marshes Country Park on the west bank of Milton Creek. This 52 ha community park will create large expanses of meadow, grassland, scrub, ponds and reed beds on land which has been used initially as brick fields and latterly for landfill activities. Unless this green space provision has already been used to offset loss of green space through development elsewhere, and provided that features of the Country Park are suitable to deflect users from Queendown Warren SAC, then this could provide mitigation for development to be delivered as a result of the SPD.

9.6.6 We would also recommend the following additional details to be included either within this SPD, the Core Strategy or within an associated Open Space SPD:

- No individual area of natural greenspace should be less than 2ha in size, as the research underlying the ANG standard indicated that smaller sites were often too disturbed to have much biodiversity.
- The specific locations for these areas of natural greenspace would need to be targeted such that they are closer to the key centres of new housing than Queendown Warren SAC.
- Delivery of the greenspace would need to be phased in parallel to occupation of the development and would need to serve a similar recreational function to these sites, from which it is intended to draw recreational users (i.e. dog-walking and appreciation of nature). However, that does not mean that it would have to be identical in terms of habitats. Existing natural greenspace could be included within the allocation provided that a visitor study could demonstrate that it did not already meet its maximum recreational capacity.
- Each of the accessible natural greenspaces would need to be linked to signage and information in order to attract visitors.

9.6.7 It is considered that if the above measures can all be incorporated, the Sittingbourne Town Centre and Milton Creek SPD could be concluded as being unlikely to lead to a significant adverse effect upon Queendown Warren SAC through recreational pressure.

[52] The 1ha/1000 people ratio contained within Natural England's ANG standard was based upon experience studying small reserves that combine local biodiversity with high levels of use in a well-designed and managed natural setting

10 THAMES ESTUARY AND MARSHES SPA AND RAMSAR

10.1 Introduction

10.1.1 Thames Estuary & Marshes is both a Ramsar site and a Special Protection Area (SPA) due to the nationally and internationally important numbers of wintering wildfowl and wading birds. The majority of this site is situated within Kent as South Thames Estuary & Marshes SSSI, while additional parts are located north of the River Thames (Mucking Flats & Marshes SSSI; Inner Thames Marshes SSSI).

10.1.2 South Thames Estuary and Marshes SSSI consists of an extensive mosaic of grazing marsh, saltmarsh, mudflats and shingle characteristic of the estuarine habitats of the north Kent marshes. Freshwater pools and some areas of woodland provide additional variety and complement the estuarine habitats. The site supports outstanding numbers of waterfowl with total counts regularly exceeding 20,000. Many species regularly occur in nationally important numbers and some species regularly use the site in internationally important numbers. The breeding bird community is also of particular interest. The diverse habitats within the site support a number of nationally rare and scarce invertebrate species and an assemblage of nationally scarce plants. The SSSI adjoins the Medway Estuary and Marshes SPA and Ramsar, and, at its closest point, is approximately 12km from the proposed area of development within the Sittingbourne Town Centre and Milton Creek SPD.

10.2 Features of European Interest

10.2.1 The site is designated as an SPA for supporting bird populations of European importance for the over-wintering species of:

- Hen harrier *Circus cyaneus* with 1% of the wintering population in Great Britain (5 year mean 1993/4-1997/8)
- Avocet *Recurvirostra avosetta* with 28.3% of the wintering population in Great Britain (5 year mean 1993/4-1997/8)

10.3 Features of International Interest: Ramsar criteria

10.3.1 Table 8 details how Thames Estuary and Marshes meets the Ramsar criteria.

Table 8. Ramsar Site Criteria

Site	Ramsar Criteria 2	Ramsar Criteria 5	Ramsar Criteria 6
Thames Estuary and Marshes	The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates	The site has internationally important bird assemblages in winter with 45118 waterfowl (5 year peak mean 1998/99-2002/2003)	The site has bird species occurring in internationally important numbers: Ringed plover, black-tailed godwit (spring/autumn), red knot, grey plover, dunlin, redshank (winter)

10.4 Condition Assessment

10.4.1 In the most recent condition assessment, 87% of the South Thames Estuary and Marshes SSSI was adjudged to be in favourable condition with the majority of the remainder recovering, although a few areas were still unfavourable through inappropriate ditch/grassland management or coastal squeeze.

10.5 Key Environmental Conditions

10.5.1 The key environmental conditions that support the features of European interest are:

- Minimal disturbance·
- Maintenance of grazing / mowing regimes·
- Sufficient freshwater inputs for bird species (feeding, preening and drinking)
- Sufficient space between the site and development to allow for managed retreat of intertidal habitats and avoid coastal squeeze;·
- Unpolluted water;
- Absence of nutrient enrichment;
- Absence of non-native species;
- Balance of saline and non-saline conditions

10.6 Potential Effects of the Plan

Recreational Pressure

10.6.1 Development resulting from the Sittingbourne Town Centre and Milton Creek SPD would result in an increased residential population, with increased demand for and pressure on recreational facilities and opportunities. The Thames Estuary and Marshes SPA and Ramsar lies within the typical daily distance that visitors will travel to a coastal site, but there is no major transport link between this site and Sittingbourne, with potential visitors needing to circumnavigate the Medway estuary. In addition, for recreational use the Medway estuary provides an environment very similar to that of the Thames, and so there is reduced likelihood that visitors would make the effort to travel the greater distance. Therefore, there is no realistic prospect of an increased population in Sittingbourne leading to significant increased recreational pressure on this site.

Water Quality

10.6.2 Milton Creek drains into the Swale, which forms a narrow channel to the Medway estuary at the western end and the North Sea east. Therefore there is no direct tidal flow between the area covered by the SPD and Thames Estuary and Marshes SPA/Ramsar, which is at least 10km distant by water. Given this, and the fact that any pollutants would disperse and/or sediment over the distance between the SPA/Ramsar and Milton Creek, then it is possible to conclude that there would be

no likely significant effect of adverse effects on the SPA/Ramsar site arising from the SPD.

10.6.3 Therefore there is no feasible means by which the Sittingbourne Town Centre and Milton Creek SPD could contribute directly to any impact on the key designated features for this site other than 'in combination' with other plans.

11 CONCLUSIONS

11.1 European sites

11.1.1 Of the seven European protected sites identified as requiring screening, the Sittingbourne Town Centre and Milton Creek SPD could potentially affect four. The following sites were screened out, since there was no combination of key environmental conditions needed to maintain site integrity and pathways of impact arising from the SPD that could possibly create a negative impact on the site:

- Blean Complex SAC
- Peter's Pit SAC
- Thames Estuary and Marshes SPA and Ramsar

11.1.2 The major pathways of impact are through recreation, water resources, air quality and water quality. However, additional mitigation and avoidance measures were only considered necessary to deal with recreational pressure. Sites for which we have been unable to conclude that adverse effects are unlikely as a result of increased recreational pressure resulting from the SPD are:

- Medway Estuary and Marshes SPA and Ramsar
- North Downs Woodlands SAC
- Queendown Warren SAC
- The Swale SPA and Ramsar

11.1.3 Sites for which we have been unable to conclude that adverse effects are unlikely as a result of deteriorating air quality are:

- North Downs Woodlands SAC

11.1.4 As detailed in Section 2.3, the level of detail concerning developments that will be permitted under LDF's (and to an extent, knowledge concerning the sensitivities and vulnerabilities of European sites) is insufficient to make a detailed assessment of significance of effects, beyond the levels of risk identified in preceding sections either practical or reasonable. Therefore, we find it most productive to take a precautionary approach (in the absence of more precise data) and essentially combine AA Stages 2 and 3 of the CLG guidance, assuming that all those impacts identified as 'likely' are actual impacts that will require mitigation. The purpose of this section of the report is therefore be to try summarise the measures that should be incorporated into the formal adoption stage of the SPD to enable the Council to be confident that they have gone as far as they can to ensuring that significant adverse effects on European sites as a result of the SPD are rendered unlikely.

11.2 Mitigation measures for The Swale (and Milton Creek)

11.2.1 The SPDs specific biodiversity-related objective (Design 4) provides a platform from which to develop policy to ensure protection of European designated sites, but with regard to HRA the SPD could be strengthened by the following further references:

Urbanisation

11.2.2 The main urbanisation impacts (other than recreational pressure) will be an increased incidence of littering and construction noise.

11.2.3 Littering will be controllable through the same access management mechanisms that will be required to manage recreational pressure (e.g. screening of paths from the Creek will physically prevent deposition of litter within the Creek, waste bins can be provided in locations away from the Creek itself and a wardening scheme would assist with general behaviour management).

11.2.4 In order to control construction noise individual planning applications for development within 500m of Milton Creek should take account of the need to use appropriate noise and visual disturbance controls (such as minimising winter construction activity and where it cannot be minimised using close-board fencing, damped piling and other measures set out in British Standards guidance) during construction in order to minimise disturbance of wintering waterfowl.

Recreational pressure

11.2.5 Recreational activity is not inherently incompatible with wildlife interest and numerous reserves (such as the RSPB reserve at Cliffe Pools) illustrate how the two can be combined. However, it is necessary for such access to be carefully designed and managed to keep disturbance levels for the wintering birds that use the Creek at an acceptable minimum.

11.2.6 It is likely that any mitigation strategy will need to consist of a mixture of access management (the principal technique) and, as a supplement, the creation of alternative accessible natural greenspace. Access management to control recreational pressure will also assist in managing more general urbanization impacts (i.e. littering)

Access management of Milton Creek

11.2.7 The Sittingbourne & Milton Creek SPD includes outline information concerning access to Milton Creek but this information is not detailed (primarily presenting footpath routes rather than design details) and is taken from the Milton Creek Gateway Landscape Costed Delivery Plan (May 2009). As such, the SPD is not the appropriate place to provide further information regarding how the access schemes will be designed and managed.

11.2.8 However, in order to comply with the requirements of the Conservation (Natural Habitats &c) Regulations 1994 (as amended) it is necessary for the SPD to acknowledge the need for careful detailed access design and management in order

to ensure that adverse effects on the wintering waterfowl interest of Milton Creek (particularly redshank) do not result, and to provide a policy framework for their delivery (including the forum through which such details would be devised).

11.2.9 The Milton Creek Gateway Landscape forum and further iterations/daughter documents of the Costed Delivery Plan would be an appropriate forum for the development of these further measures and the need for more detailed work with regard to impacts on the SPA/Ramsar site (which must include Milton Creek) is acknowledged on page 36 of the Delivery Plan through the comment that '*due to the proximity of Milton Creek to the Swale estuary SPA, the potential impact of all or specific proposals on the SPA may need to be assessed in the form of an Appropriate Assessment*'.

11.2.10 The access management measures may include wardening, hides, temporary gating/closure of footpaths (including access from Milton Creek into the SPA) during the winter (the most sensitive period), rerouting of some footpath stretches to provide a buffer zone between the recreational space and the Creek itself or screening of footpaths except in certain 'view point' locations among other options[53]. As various detailed options to control recreational access are available (as above) it is considered that adverse effects on Milton Creek can be avoided without the need to alter the actual quantum of housing to be delivered.

11.2.11 It is therefore recommended that wording should be inserted into the SPD which addresses the following matters:

- The access routes shown in the SPD are illustrative and the final access scheme may be subject to changes pending the results of more detailed work;
- This more detailed work will be undertaken as part of the further development of the Milton Creek Landscape Delivery Plan process and its Appropriate Assessment and will be developed further through individual planning applications;
- Measures that will be considered as part of this detailed design work are likely to include some or all of wardening, hides, temporary gating/closure of footpaths during the winter (the most sensitive period), rerouting of some footpath stretches to provide a buffer zone between the recreational space and the Creek itself or screening of footpaths except in certain 'view point' locations;
- No new access to Milton Creek will be permitted until the detailed access design and control measures have been assessed and agreed with Natural England as being adequate to avoid adverse effects on the Swale SPA and the wintering bird interest of Milton Creek;

[53] Access onto the Creek could be organised such that much of the paths were screened from the Creek itself (while provided with their own visually attractive planting) such that access to the Creek was at certain points. 'Screens' (a form of hide) could be provided at these points to provide an opportunity for visual appreciation of the Creek while minimising disturbance. A network of paths could guide people away from the Creek, connecting up to other tributaries, open spaces and onto Church Marshes. Any pedestrian or cycle routes across the Creek should be visually screened in order to prevent disturbance of Creek birds (particularly during winter).

- Is there potential for delivering the development such that development around the Creek (i.e. Milton Creek and Milton Regis) doesn't all take place in Phase 3?
- The Swale SPA will not itself be directly accessible to the public from Milton Creek;
- Boating within the Creek during the winter period (October-March) will be discouraged in order to minimise disturbance of wintering waterfowl;
- Wintering waterfowl using Milton Creek will be monitored for five years following implementation of the final recreation/access scheme in order to evaluate disturbance of wintering waterfowl and if necessary devise further control measures (such as temporary footpath closures etc).

11.2.12 In order to fund this, the Council could require a financial contribution from the developer.

Access management of The Swale SPA/Ramsar

11.2.13 The SPD will, by increasing the resident population local to the SPA and thus the potential visitor pool for the SPA itself, potentially result in adverse 'in combination' disturbance effects on the wintering bird interest of the remainder of the Swale SPA and Ramsar site. Since this is an 'in combination' issue it clearly cannot be resolved by Swale Council in isolation and is a wider issue than the Sittingbourne & Milton Creek area.

11.2.14 As such, while this issue needs to be addressed, it is appropriate that it is covered by an inter-authority forum separate from the SPD. The Medway & Swale Estuary Partnership would seem to be the most appropriate body since it already exists and includes recreation management and nature conservation in both estuaries among its aims.

11.2.15 In order to ensure that an adequate procedure for advancing and delivering enhanced access management across The Swale is in existence, Swale Council should therefore include reference within the SPD to engaging with the other bodies that make up the Partnership to ensure that the delivery of development across Medway and Swale is coupled with an enhanced access management strategy[54]. In order to fund their contribution to the production and delivery of this enhanced framework, the Council could use developer contributions.

11.2.16 It must be noted that Natural England, in their consultation response on the draft Appropriate Assessment for the SPD commented that further study will need to ascertain current recreational usage of the Swale and the anticipated increase in usage that might be expected from new residents as a result of the development within the SPD and other developments in the area (e.g. elsewhere in Swale and in Medway). That study should be a part of the enhanced access management framework for the Medway and Swale estuaries.

[54] Such as wardening, fencing, signage and seasonal closure of parts of the SPA as necessary; this would need to be achieved in liaison with Natural England and the relevant landowners

11.2.17 The SPD should acknowledge that development of this access management strategy will keep pace with the delivery of housing within the Sittingbourne & Milton Creek area such that the necessary control measures (which in the most extreme event could include partial closure of recreational usage of the estuary during some periods of the year) will be delivered in parallel with new development across Swale and Medway (rather than the development being delivered and the access management measures following some years later).

Alternative greenspace provision

11.2.18 Due to the intrinsic appeal of coastal sites, the provision of alternative recreational greenspace is likely to provide only a partial contribution (subsidiary and supplementary to appropriate access management) to mitigation for any increase in recreational pressure. This is particularly the case since the Swale SPA/Ramsar is considered to be under pressure from use of the estuary for water sports.

11.2.19 Due to the limitations of the assessment tools and data available at this time (and in particular the inability to quantify the number of residents of each allocated site that will be making use of the European sites in question and what proportion of the total cumulative load this represents), it is not possible to specify an exact quantity of alternative natural greenspace that will need to be provided in order to absorb recreational visitors.

11.2.20 Natural England's more general Accessible Natural Greenspace Standards (ANGSt) provide a set of benchmarks for ensuring access to places of wildlife interest and were specifically developed to provide size and distance criteria to provide natural spaces that will contribute most towards sustainable use of recreational resources. While the criteria were not developed with the specific intention of mitigating for adverse impacts on European sites, they were intended to specify a level of semi-natural greenspace provision that would meet the needs of a development's population.

11.2.21 Natural greenspace provision to the ANG Standard or higher would supplement enhanced access management of the SPA provided it is delivered within a timescale linked to that of the development and will fulfil a function similar to at least some of the functions of the SPA (i.e. dog walking and appreciation of nature rather than more formal recreational activities).

11.2.22 It is noted that the Swale Green Grid Strategy already includes provision for Church Marshes Country Park on the west bank of Milton Creek. This 52 ha community park will create large expanses of meadow, grassland, scrub, ponds and reed beds on land which has been used initially as brick fields and latterly for landfill activities. Unless this green space provision has already been used to offset loss of green space through development elsewhere, and provided that features of the Country Park are suitable to deflect land-based users from the Swale SPA/Ramsar site, then this could provide mitigation for development to be delivered as a result of the SPD. However, it will not be possible for this green space to avoid or mitigate for increased water sport activity within the estuary, which will have to be managed through access management (including potentially restricting access to some areas).

11.2.23 Policy LV1 – 'Strategic Green Space' – of Swale's Regeneration Framework outlines the plan for the Church Marshes Country park and also plans to deliver '*new wetland areas*' by 2016. These areas may make some contribution to mitigating the effects of development within the SPD from waterborne recreation (in conjunction with appropriate access management of the SPA) but only if they are appropriately located and managed to either provide undisturbed intertidal habitat for SPA birds or (if their purpose is to draw recreational visitors away from the SPA) to provide a suitable waterborne recreation experience.

11.2.24 We would also recommend the following additional details to be included either within this SPD, the future Core Strategy or within an associated SPD linked to the provision of new greenspaces:

- No individual area of natural greenspace should be less than 2ha in size, as the research underlying the ANG standard indicated that smaller sites were often too disturbed to have much biodiversity.
- Delivery of the greenspace would need to be phased in parallel to occupation of the development and would need to serve a similar recreational function to these sites, from which it is intended to draw recreational users. Existing natural greenspace could be included within the allocation provided that a visitor study could demonstrate that it did not already meet its maximum recreational capacity.
- Each of the accessible natural greenspaces would need to be linked to signage and information in order to attract visitors.

11.2.25 It is considered that if the above measures can all be incorporated, an adequate policy framework will have been established (through the Sittingbourne & Milton Creek SPD and other mechanisms) to deliver the necessary measures to mitigate an adverse effect upon The Swale SPA and Ramsar through recreational pressure.

11.3 Mitigation measures for The Medway Estuary & Marshes SPA & Ramsar site

11.3.1 The SPDs specific biodiversity-related objective (Design 4) provides a platform from which to develop policy to ensure protection of European designated sites, but with regard to HRA the SPD could be strengthened by the following further references:

Recreational Pressure

11.3.2 The recreational impact surveys that have been recently undertaken within the Medway Estuary will provide further data to quantify the effect of recreational disturbance in the estuary on bird populations and facilitate the precise details of the mitigation strategies. It is likely that any mitigation strategy will need to consist of a mixture of access management (the principal technique) and, as a supplement, the creation of alternative accessible natural greenspace. These are discussed below.

Access management

11.3.3 The SPD will, by increasing the resident population local to the SPA and thus the potential visitor pool for the SPA itself, potentially result in adverse 'in combination' disturbance effects on the wintering bird interest of the remainder of the Medway Estuary & Marshes SPA and Ramsar site. Since this is an 'in combination' issue it clearly cannot be resolved by Swale Council in isolation and is a wider issue than the Sittingbourne & Milton Creek area.

11.3.4 As such, while this issue needs to be addressed, it is appropriate that it is covered by an inter-authority forum separate from the SPD. The Medway & Swale Estuary Partnership would seem to be the most appropriate body since it already exists and includes recreation management and nature conservation in both estuaries among its aims.

11.3.5 In order to ensure that an adequate procedure for advancing and delivering enhanced access management across The Medway Estuary is in existence, Swale Council should therefore include reference within the SPD to engaging with the other bodies that make up the Partnership to ensure that the delivery of development across Medway and Swale is coupled with an enhanced access management strategy[55]. In order to fund their contribution to the production and delivery of this enhanced framework, the Council could use developer contributions.

11.3.6 It must be noted that Natural England, in their consultation response on the draft Appropriate Assessment for the SPD commented that further study will need to ascertain current recreational usage of the Medway Estuary and the anticipated increase in usage that might be expected from new residents as a result of the development within the SPD and other developments in the area (e.g. elsewhere in Swale and in Medway). That study should be a part of the enhanced access management framework for the Medway and Swale estuaries.

11.3.7 The SPD should acknowledge that development of this access management strategy will keep pace with the delivery of housing within the Sittingbourne & Milton Creek area such that the necessary control measures (which in the most extreme event could include partial closure of recreational usage of the estuary during some periods of the year) will be delivered in parallel with new development across Swale and Medway (rather than the development being delivered and the access management measures following some years later).

Alternative greenspace provision

11.3.8 Due to the intrinsic appeal of coastal sites, the provision of alternative recreational greenspace is likely to provide only a partial contribution (subsidiary and supplementary to appropriate access management) to mitigation for any increase in recreational pressure. This is particularly the case since the Medway Estuary and Marshes SPA/Ramsar is considered to be under pressure from use of the estuary for water sports.

[55] Such as wardening, fencing, signage and seasonal closure of parts of the SPA as necessary. This would need to be achieved in liaison with Natural England and the relevant landowners

11.3.9 Due to the limitations of the assessment tools and data available at this time (and in particular the inability to quantify the number of residents of each allocated site that will be making use of the European sites in question and what proportion of the total cumulative load this represents), it is not possible to specify an exact quantity of alternative natural greenspace that will need to be provided in order to absorb recreational visitors.

11.3.10 Natural England's more general Accessible Natural Greenspace Standards (ANGSt) provide a set of benchmarks for ensuring access to places of wildlife interest and were specifically developed to provide size and distance criteria to provide natural spaces that will contribute most towards sustainable use of recreational resources. While the criteria were not developed with the specific intention of mitigating for adverse impacts on European sites, they were intended to specify a level of semi-natural greenspace provision that would meet the needs of a development's population.

11.3.11 Natural greenspace provision to the ANG Standard or higher would supplement enhanced access management of the SPA provided it is delivered within a timescale linked to that of the development and will fulfil a function similar to at least some of the functions of the SPA (i.e. dog walking and appreciation of nature rather than more formal recreational activities).

11.3.12 It is noted that the Swale Green Grid Strategy already includes provision for Church Marshes Country Park on the west bank of Milton Creek. This 52 ha community park will create large expanses of meadow, grassland, scrub, ponds and reed beds on land which has been used initially as brick fields and latterly for landfill activities. Unless this green space provision has already been used to offset loss of green space through development elsewhere, and provided that features of the Country Park are suitable to deflect land-based users from Medway Estuary and Marshes SPA/Ramsar site, then this could provide mitigation for development to be delivered as a result of the SPD. However, it will not be possible for this green space to avoid or mitigate for increased water sport activity within the estuary, which will have to be managed through access management (including potentially restricting access to some areas).

11.3.13 Policy LV1 – 'Strategic Green Space' – of Swale's Regeneration Framework outlines the plan for the Church Marshes Country park and also plans to deliver '*new wetland areas*' by 2016. These areas may make some contribution to mitigating the effects of development within the SPD from waterborne recreation (in conjunction with appropriate access management of the SPA) but only if they are appropriately located and managed to either provide undisturbed intertidal habitat for SPA birds or (if their purpose is to draw recreational visitors away from the SPA) to provide a suitable waterborne recreation experience.

11.3.14 We would also recommend the following additional details to be included either within this SPD, the future Core Strategy or within an associated SPD linked to the provision of new greenspaces:

- No individual area of natural greenspace should be less than 2ha in size, as the research underlying the ANG standard indicated that smaller sites were often too disturbed to have much biodiversity.
- Delivery of the greenspace would need to be phased in parallel to occupation of the development and would need to serve a similar recreational function to these sites, from which it is intended to draw recreational users. Existing natural greenspace could be included within the allocation provided that a visitor study could demonstrate that it did not already meet its maximum recreational capacity.
- Each of the accessible natural greenspaces would need to be linked to signage and information in order to attract visitors.

11.3.15 It is considered that if the above measures can all be incorporated, an adequate policy framework will have been established (through the Sittinbourne & Milton Creek SPD and other mechanisms) to deliver the necessary measures to mitigate an adverse effect upon The Medway Estuary & Marshes SPA and Ramsar through recreational pressure.

11.4 Mitigation measures for the North Downs Woodlands SAC

Recreational pressure

11.4.1 The main purpose of legal recreational visits (i.e. other than illegal off-roading) to the site appears from observation by the authors of this report to be recreational walking (including dog-walking) and general enjoyment of the woodland and its views, associated with its close proximity to a convenient major footpath (the North Downs Way) and with the majority of visitors (other than holidaymakers) likely to arise from the Maidstone and Chatham areas which are both within 1km of the site. As such, it is likely that the provision of alternative tranquil countryside sites within Swale district (particularly woodland) would serve to drawn recreational visitors who might otherwise visit the North Downs Woodlands SAC and thus reduce Swale's contribution to recreational pressure.

11.4.2 Due to the limitations of the assessment tools and data available at this time (and in particular the inability to quantify the number of residents of each allocated site that will be making use of the European sites in question and what proportion of the total cumulative load this represents), coupled with the need for any standards to be generally applicable (it not being possible to devise a unique policy or standard for each allocated site), it is not possible to specify an exact quantity of alternative natural greenspace that will need to be provided for individual developments in order to absorb recreational visitors to such an extent that they will not materially contribute towards recreational pressure on the European sites in question.

11.4.3 Natural England's more general Accessible Natural Greenspace Standards (ANGSt) provide a set of benchmarks for ensuring access to places of wildlife interest and were specifically developed to provide size and distance criteria to provide natural spaces that will contribute most towards sustainable use of recreational resources. While the criteria were not developed with the specific intention of mitigating for adverse impacts on European sites, they were intended to

specify a level of semi-natural greenspace provision that would meet the needs of a development's population.

11.4.4 In many cases natural greenspace provision to the ANG Standard should therefore serve to minimise the need for recreational resources further afield (i.e. European sites) to receive an unsustainably large influx of visitors provided that they are delivered within a timescale linked to that of the development and will fulfil a function similar to that of the European site in question (i.e. dog walking and appreciation of nature rather than more formal recreational activities). For these reasons, we have selected the Natural England ANG standards as the criterion for semi-natural greenspace provision that the LDF should require all developments to meet in order to ensure that sufficient recreational space is provided to minimise adverse effects on the identified European sites.

11.4.5 The Natural England ANG standard would require accessible natural green space at a rate of 1ha/1000 population[56], which assuming a delivery figure of 2,519 homes and 2.2 occupants per home, would require a minimum of 5.5ha of accessible natural greenspace to be delivered in parallel with the occupation of the 2,519 new homes at Sittingbourne.

11.4.6 It is noted that the Swale Green Grid Strategy already includes provision for Church Marshes Country Park on the west bank of Milton Creek. This 52 ha community park will create large expanses of meadow, grassland, scrub, ponds and reed beds on land which has been used initially as brick fields and latterly for landfill activities. Unless this green space provision has already been used to offset loss of green space through development elsewhere, and provided that features of the Country Park are suitable to deflect users from North Downs Woodlands SAC, then this could provide mitigation for development to be delivered as a result of the SPD.

11.4.7 We would also recommend the following additional details to be included either within this SPD, the Core Strategy or within an associated Open Space SPD:

- No individual area of natural greenspace should be less than 2ha in size, as the research underlying the ANG standard indicated that smaller sites were often too disturbed to have much biodiversity.
- The specific locations for these areas of natural greenspace would need to be targeted such that they are closer to the key centres of new housing than North Downs Woodlands SAC.
- Delivery of the greenspace would need to be phased in parallel to occupation of the development and would need to serve a similar recreational function to these sites, from which it is intended to draw recreational users (i.e. dog-walking and appreciation of nature). However, that does not mean that it would have to be identical in terms of habitats. Existing natural greenspace could be included within the allocation provided that a visitor study could demonstrate that it did not already meet its maximum recreational capacity.

[56] The 1ha/1000 people ratio contained within Natural England's ANG standard was based upon experience studying small reserves that combine local biodiversity with high levels of use in a well-designed and managed natural setting

- Each of the accessible natural greenspaces would need to be linked to signage and information in order to attract visitors.

11.4.8 It is considered that if the above measures can all be incorporated, the Sittingbourne Town Centre and Milton Creek SPD could be concluded as being unlikely to lead to a significant adverse effect upon the North Downs Woodlands SAC through recreational pressure.

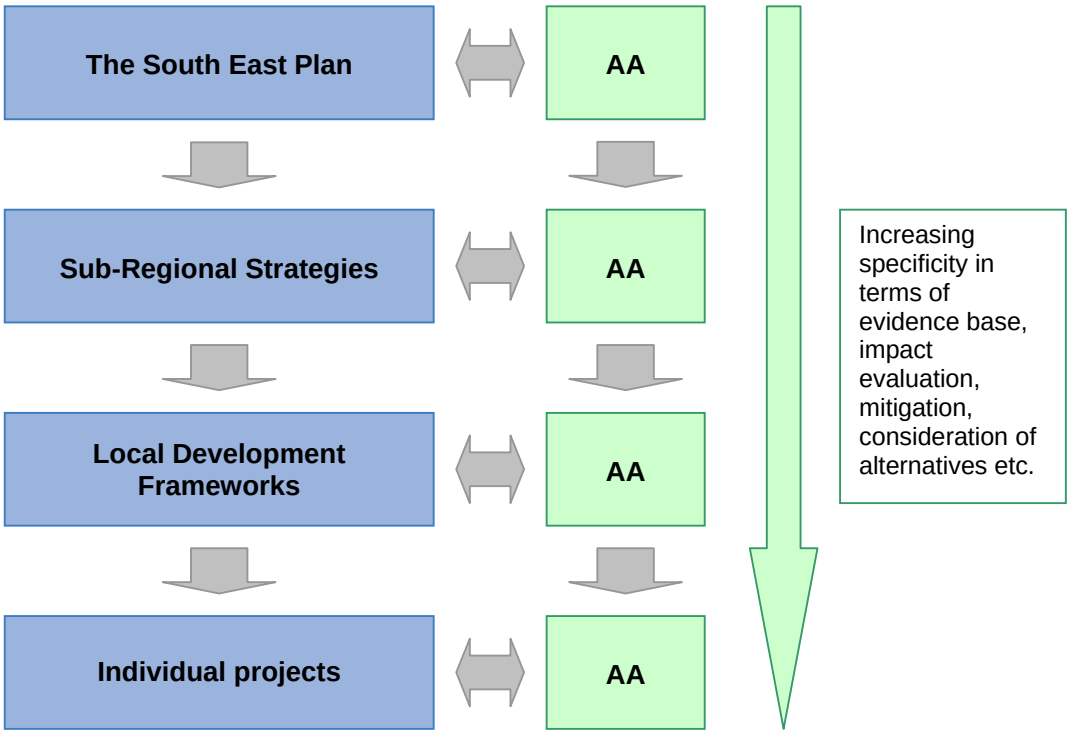
Air Quality

11.4.9 The SPD could contribute toward air pollution that would impact upon the North Downs Woodlands SAC through increased traffic utilization of the A249. The SAC itself lies within Maidstone district, where delivery of 11,080 new homes could add to in combination effects. It is difficult for the SPD to include mitigation strategies that would deflect commuters from using the A249 between Sittingbourne and Maidstone, though measures outlined for avoiding recreational impact will also help to reduce air quality impact, through diverting users from using the A249. Also, development of retail facilities within Sittingbourne will reduce incentives to travel to Maidstone for such purposes. Locally, recommendation A1 from Creative Environmental Networks' 'Climate Change Strategy – Sustainable Design and Construction, Swale Borough Council' states that '*new development should be accessible for people walking, cycling and travelling by public transport*'.

11.4.10 In terms of addressing the issue fully, it is recommended that sustainable transport policies be developed within the Core Strategy that take account of alleviating the effect of traffic using the A249. Such policies could encourage the use of bus transport between Sittingbourne and Maidstone and promote incentives such as car sharing schemes for commuters.

11.4.11 It is considered that if the above measures can all be incorporated, the Sittingbourne Town Centre and Milton Creek SPD could be concluded as being unlikely to lead to a significant adverse effect upon the North Downs Woodlands SAC through reduced air quality.

APPENDIX 1. 'TIERING' IN HABITAT REGULATIONS ASSESSMENT



APPENDIX 2. SCREENING OF SPD OBJECTIVES AND PROPOSALS

The entire SPD was scoped for potential conflicts with European sites. The majority of objectives expressed could not be scoped out as there is no Core Strategy policy framework against which to rule out adverse effects on European sites (though the current Local Plan provides a framework on a shorter timescale). The following objectives remained following screening, as being considered capable of giving rise to likely significant effects on European sites. These will require consideration by the Council when developing these into policies to underpin the SPD. In doing so, it is advised that the Council should take account of suggested avoidance and mitigation measures, so as to maximise the potential to be able to rule out likely significant effects on European protected sites as the SPD evolves.

- Design 1 - (High Quality Public Spaces and Buildings). This could contribute to an overall quantum of development, and so needs to take account of environmental considerations.
- Design 2 - (Appropriate Scale and Form of Development). The new development needs to take explicit account of the natural environment.
- Design 3 - (Integration of Development with Special Features of the Town). The new development needs to take explicit account of the natural environment.
- Design 5 - (Physical and Thematic Links between Town and Milton Creek). This policy has potential implications for The Swale and for Medway Estuary and Marshes, including in combination access improvements due to a new link road between the A2 and A249.
- Planning 1 - (Mixed-Use Town Centre). This could contribute to an overall quantum of development, and so needs to take account of environmental considerations.
- Planning 2 - (Provision for Multi-Opportunity Use). This could contribute to an overall quantum of development, and so needs to take account of environmental considerations.
- Planning 3 - (Improved Quality, Quantity and Connectivity of Retail). This policy has potential implications for The Swale and for Medway Estuary and Marshes, including in combination access improvements due to a new link road between the A2 and A249.
- Planning 4 - (Improved and Increased Town centre Supporting Facilities). This could contribute to an overall quantum of development, and so needs to take account of environmental considerations.
- Planning 5 - (Redevelop Milton Creek into a new Sustainable Community). This policy has potential implications for The Swale and for Medway Estuary and Marshes, including in combination access improvements due to a new link road between the A2 and A249.
- Transport and Movement 1 – (Access for All). This policy would need to define ‘access’ – town centre or areas such as Milton Creek also, and take account of needs of the environment.
- Transport and Movement 2 – (Simplify and Increase Legibility of Major Movements Through Town). This should be expressed as being achieved in a sustainable and sensitive manner, and whether it is concerned with the town

centre access only, or major traffic through-flow. . If the objective is to encourage greater numbers of visitors or to accommodate greater volumes of through traffic, then there could be implications for disturbance on wildlife sites.

- Transport and Movement 3 – (Improve north-south, Milton Creek-Town Connectivity). This policy has potential implications for The Swale and for Medway Estuary and Marshes, including in combination access improvements due to a new link road between the A2 and A249.
- Transport and Movement 5 – (Easier, Safer and More Sustainable Transport). This should present few issues in the town, but could encourage walking/cycling on to the Swale, with potential for bird disturbance.
- Management 1 – (Improve Town Image, Identity and Attractiveness). This could contribute to an overall quantum of development, and so needs to take account of environmental considerations.
- Management 2 – (Strategic Enhancement of Town Centre). This objective does not provide enough detail to determine whether the strategic nature of the developments could have implications for European protected sites.
- Management 3 – (Improve Retail Vitality and Viability). This could contribute to an overall quantum of development, and so needs to take account of environmental considerations.
- Management 4 – (Incremental and Phased Improvement with Appropriate Funding). This could contribute to an overall quantum of development, and so needs to take account of environmental considerations.