

Habitats Regulations Assessment for: Maidstone Borough Local Plan - Publication (Regulation 19) February 2016

January 2016

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1 Introduction

1.1 Scope of the Project

- 1.1.1 AECOM was appointed by Maidstone Borough Council to assist the Council in undertaking a Habitats Regulations Assessment (HRA) of the emerging Local Plan (LP). The Plan will cover the period 2011-2031. The objective of this assessment was to identify any aspects of the Local Plan that would have the potential to cause a likely significant effect on Natura 2000 or European sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites), either in isolation or in combination with other plans and projects, and to devise appropriate mitigation strategies where such effects were identified. This HRA document considers the policies contained within Maidstone Borough's Local Plan - Publication (Regulation 19) February 2016.

1.2 Legislation

- 1.2.1 The need for HRA, sometimes also referred to as Appropriate Assessment (AA) is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by the Conservation of Habitats & Species Regulations 2010. The ultimate aim of the Habitats Directive is to "*maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest*" (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering favourable conservation status. European sites (also called Natura 2000 sites) can be defined as actual or proposed/candidate Special Areas of Conservation (SAC) or Special Protection Areas (SPA). It is also Government policy for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) to be treated as having equivalent status to Natura 2000 sites.
- 1.2.2 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 designated site(s) in question. This is in contrast to the Strategic Environmental Assessment Directive (SEA Directive) which does not prescribe how a plan or programme proponents should respond to the findings of an environmental assessment; merely 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.
- 1.2.3 All the European sites mentioned in this document are shown in **Appendix A, Figure 1**, and detailed within **Appendix B**. In order to ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question.

Habitats Directive 1992

Article 6 (3) states that:

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

Conservation of Habitats & Species Regulations 2010 (as amended)

The Regulations state that:

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

Box 1. The legislative basis for Appropriate Assessment

1.3 Geographic Scope

- 1.3.1 There is no pre-defined guidance that dictates the physical scope of an HRA of a Development Plan Document (DPD), such as a Local Plan. Therefore, in considering the physical scope of the assessment we were guided primarily by the identified impact pathways rather than by arbitrary ‘zones’. Current guidance (as described below), suggests that the following European sites be included in the scope of assessment:
- All sites within Maidstone Borough; and
 - Other sites shown to be linked to development within the Borough boundary through a known ‘pathway’ (discussed below).
- 1.3.2 Briefly defined, pathways are routes by which a change in activity within the Local Plan area can lead to an effect upon a European site. In terms of the second category of European site listed above, Department for Communities and Local Government (DCLG)¹ 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*’ (DCLG, 2006, p.6).
- 1.3.3 A single internationally designated site is located within the Borough of Maidstone; this is:
- North Downs Woodlands SAC
- 1.3.4 **Table 1** outlines designated sites located beyond Maidstone Borough, but within 20km of the Borough. These will be considered within this report.

¹ Was CLG (Communities and Local Government)

Table 1: Internationally designated sites located beyond Maidstone Borough, but within 20km of the Borough.

Internationally designated site	Closest distance from Maidstone Borough
Queendown Warren SAC	Adjacent to the Borough
Peter's Pit SAC	3.9km north west of the Borough
Medway Estuary and Marshes SPA and Ramsar site	4.1km north of the Borough
The Swale SPA and Ramsar site	7.5km north east of the Borough
Thames Estuary and Marshes SPA and Ramsar site	12.6 km north of the Borough
Wye and Crundale Downs SAC	13.3km east of the Borough
Blean Complex SAC	15.4km east of the Borough

1.4 This Report

- 1.4.1 **Chapter 2** of this report explains the process by which the HRA has been carried out. **Chapter 3** explores the relevant pathways of impact. **Chapter 4** covers the initial sieving of impact pathways that could link to the Local Plan policies. **Chapter 5** undertakes the screening assessment of the Local Plan where impact pathways could not be sieved out at the previous stage. This includes in-combination consideration of other projects and plans. The key findings are summarised in **Chapter 6**: Conclusions.

2 Methodology

2.1 Introduction

2.1.1 This section sets out the basis of the methodology for the HRA. AECOM has adhered to several key principles in developing the methodology – see **Table 2**.

Table 2: Key principles underpinning the proposed methodology

Principle	Rationale
Use existing information	We make the best use of existing information to inform the assessment. This will include information gathered as part of the Sustainability Appraisal (SA) of the emerging Plan and information held by Natural England, the Environment Agency and others.
Consult with Natural England, the Environment Agency and other stakeholders	We will ensure consultation with Natural England 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 Plan (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 as 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 best practice.
Ensure a clear audit trail	We will ensure that the HRA process and findings are clearly documented in order to ensure a discernible audit trail.

2.2 Key Principles

2.2.1 The HRA is being carried out in the absence of formal Government guidance. The Department for Communities and Local Government (DCLG) released a consultation paper on Appropriate Assessment of Plans in 2006². As yet, no further formal guidance has emerged.

2.2.2 **Figure 1** below outlines the stages of HRA according to current draft DCLG 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.

² CLG (2006) Planning for the Protection of European Sites, Consultation Paper

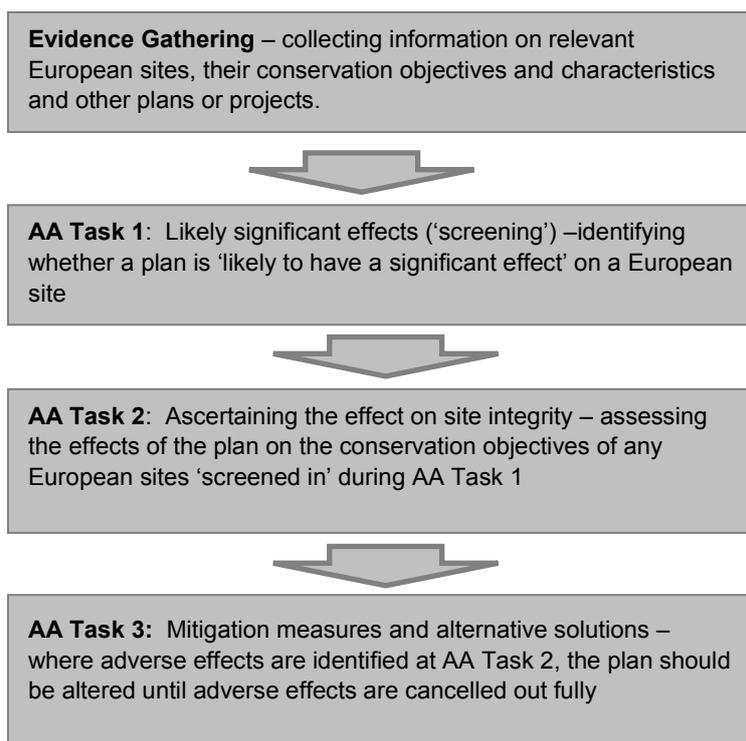


Figure 1– Four-Stage Approach to Habitat Regulations Assessment (Source: CLG, 2006)

2.3 Likely Significant Effects

2.3.1 The first stage of any Habitats Regulations Assessment (AA Task 1) 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.

2.4 Confirming Other Plans and Projects That May Act In Combination

2.4.1 It is clearly neither practical nor necessary to assess the 'in combination' effects of the Local Plan within the context of all other plans and projects within the South East. In practice therefore, in combination assessment is of greatest 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 other neighbouring authorities over the lifetime of the Plan.

2.4.2 The principal other plans and projects that have been considered in making the judgements in **Chapters 4 and 5** are:

Plans

- Kent Local Transport Plan (LTP 3) 2011 to 2016³
- Kent Minerals and Waste Local Plan 2013 to 2030⁴
- Swale Borough Council Local Plan to 2031⁵
- Medway Council Local Plan 2003⁶
- Tonbridge and Malling Borough Council Core Strategy 2007 to 2021
- Tunbridge Wells Borough Council Core Strategy 2010 to 2026
- Ashford Borough Council Core Strategy 2006 to 2021⁷

2.4.3 In preparing this HRA we have utilised data held on the following sources in order to inform on the current ecological status of relevant European sites:

- The UK Air Pollution Information System (www.apis.ac.uk); and
- Multi-Agency Geographical Information for the Countryside (MAGIC) and its links to SSSI citations and the JNCC website (<http://www.magic.gov.uk>)

³ Kent County Council (2011) Local Transport Plan for Kent 2011-16.

http://www.kent.gov.uk/_data/assets/pdf_file/0008/5939/local-transport-plan.pdf [accessed 21/12/15]

⁴ At the time of writing Kent County Council are proposing modifications to the Kent Minerals and Waste Local Plan 2013-30.

⁵ The submission version of this Local Plan is currently subject to consultation.

⁶ In November 2015 the issues and options consultation document for a new Local Plan was approved by Medway Council Cabinet.

⁷ At the time of writing Ashford Council were preparing a new draft Local Plan for consultation in early 2016.

3 Pathways of Impact

3.1 Introduction

3.1.1 In carrying out an HRA it is important to determine the various ways in which land use plans can impact on European sites by following 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 associated with a development can lead to an effect upon a European site. This assessment of Maidstone's Publication Local Plan investigates the following impact pathways:

- Recreational pressure;
- Atmospheric Pollution; and,
- Water Quality and Flows.

3.2 Recreational Pressure

3.2.1 Recreational use of an international designated site has the potential to:

- Prevent appropriate management or exacerbate existing management difficulties;
- Cause damage through erosion and fragmentation;
- Cause nutrient enrichment as a result of dog fouling; and
- Cause disturbance to sensitive species such as breeding and wintering birds.

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

Mechanical erosion and nutrient enrichment

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

3.2.4 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)⁸ 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.

⁸ 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

- Cole et al (1995a, b)⁹ conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each trampled 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)¹⁰ conducted a follow-up study (in 4 vegetation types) in which shoe type (trainers or walking boots) and trample weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier tramples caused a greater reduction in vegetation height than lighter tramples, but there was no difference in effect on cover.
- Cole & Spildie (1998)¹¹ experimentally compared the effects of off-track trampling by hiker and horse (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). Horse traffic was found to cause the largest reduction in vegetation cover. The forb-dominated vegetation suffered greatest disturbance, but recovered rapidly. Higher trampling intensities caused more disturbance.

3.2.5 The total volume of dog faeces deposited on sites can be surprisingly large. For example, at Burnham Beeches National Nature Reserve over one year, Barnard¹² estimated the total amounts of urine and faeces from dogs as 30,000 litres and 60 tonnes respectively. Nutrient-poor habitats such as heathland are particularly sensitive to the fertilising effect of inputs of phosphates, nitrogen and potassium from dog faeces¹³.

Disturbance to wintering and breeding birds

3.2.6 Disturbance effects for birds can have an adverse effect in various ways, with increased nest predation by natural predators as a result of adults being flushed from the nest and deterred from returning to it by the presence of people and dogs likely to be a particular problem. A literature review on the effects of human disturbance on bird breeding found that 36 out of 40 studies reported reduced breeding success as a consequence of disturbance. The main reasons given for the reduction in breeding success were nest abandonment and increased predation of eggs or

⁹ 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

¹⁰ 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.

¹¹ 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

¹² Barnard, A. (2003) Getting the Facts - Dog Walking and Visitor Number Surveys at Burnham Beeches and their Implications for the Management Process. *Countryside Recreation*, 11, 16 - 19

¹³ Shaw, P.J.A., K. Lankey and S.A. Hollingham (1995) – Impacts of trampling and dog fouling on vegetation and soil conditions on Headley Heath. *The London Naturalist*, 74, 77-82.

young. Over years, studies of other species have shown that birds nest at lower densities in disturbed areas, particularly when there is weekday as well as weekend pressure.

- 3.2.7 A number of studies have shown that birds are affected more by dogs and people with dogs than by people alone, with birds flushing more readily, more frequently, at greater distances and for longer (Underhill-Day, 2005). In addition, dogs, rather than people, tend to be the cause of many management difficulties, notably by worrying grazing animals, and can cause eutrophication near paths. Nutrient-poor habitats are particularly sensitive to the fertilising effect of inputs of phosphates, nitrogen and potassium from dog faeces.
- 3.2.8 Underhill-Day (2005) summarises the results of visitor studies that have collected data on the use of semi-natural habitat by dogs. In surveys where 100 observations or more were reported, the mean percentage of visitors who were accompanied by dogs was 54.0%.
- 3.2.9 However these studies need to be treated with care. For instance, the effect of disturbance is not necessarily correlated with the impact of disturbance, i.e. the most easily disturbed species are not necessarily those that will suffer the greatest impacts. It has been shown that, in some cases, the most easily disturbed birds simply move to other feeding sites, whilst others may remain (possibly due to an absence of alternative sites) and thus suffer greater impacts on their population. A recent literature review undertaken for the RSPB also urges caution when extrapolating the results of one disturbance study because responses differ between species and the response of one species may differ according to local environmental conditions. These facts have to be taken into account when attempting to predict the impacts of future recreational pressure on European sites.
- 3.2.10 It should be emphasised that recreational use is not inevitably a problem. Many European sites are also National Nature Reserves or nature reserves managed by Wildlife Trusts and the RSPB. At these sites, access is encouraged and resources are available to ensure that recreational use is managed appropriately.
- 3.2.11 Where increased recreational use is predicted to cause adverse impacts on a site, avoidance and mitigation should be considered. Avoidance of recreational impacts at European sites involves location of new development away from such sites; Local Development Frameworks (and other strategic plans) provide the mechanism for this. Where avoidance is not possible, mitigation will usually involve a mix of access management, habitat management and provision of alternative recreational space:
- Access management – restricting access to some or all of a European site - is not usually within the remit of the Council and restriction of access may contravene a range of Government policies on access to open space, and Government objectives for increasing exercise, improving health etc. However, active management of access is possible, for example as practised on nature reserves.
 - Habitat management is not within the direct remit of the Council. However the Council can help to set a framework for improved habitat management by promoting cross-authority collaboration and S106 funding of habitat management.
 - Provision of alternative recreational space can help to attract recreational users away from sensitive European sites, and reduce additional pressure on them. Some species for which European sites have been designated are particularly sensitive to dogs, and many dog walkers may be happy to be diverted to other, less sensitive, sites. However the location and type of alternative space must be attractive for users to be effective.

3.3 Atmospheric Pollution

- 3.3.1 The main sources and effects of air pollutants on habitats and species is in Table 3 below.

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

Pollutant	Source	Effects on habitats and species
Acid deposition	SO ₂ , NO _x 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. Ammonia is also produced through some industrial process and by the composting of organic matter on waste sites.
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 Dioxide	Main sources of SO ₂ emissions are electricity generation, industry and domestic	Wet and dry deposition of SO ₂ acidifies soils and freshwater, and alters the

SO ₂	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.	species composition of plant and associated animal communities. The significance of impacts depends on levels of deposition and the buffering capacity of soils. Major SO ₂ problems now only tend to occur in cities in which coal is still widely used for domestic heating, in heavy industry and in power stations ¹⁴ .
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3.3.2 For the following reasons, only NO_x and ammonia are considered further as specific pollutants in this assessment:

- Despite the general association with nitrogen dioxide, ozone levels are not as high in urban areas (where high levels of nitrogen dioxide are emitted) as in rural areas. This is largely due to the long-range nature of this pollutant, which is sufficiently great that the source of emission and location of deposition often cross national boundaries. As such, low-level ozone can only be practically addressed at the national and international level.
- Sulphur dioxide concentrations are overwhelmingly influenced (82% of emissions¹⁵) by the output of power stations and industrial processes that require the combustion of coal and oil. None of these activities will be associated with developments under the LP.

3.3.3 Since ammonia is of relevance to European sites primarily through its effect upon nitrogen deposition, it is not considered independently of nitrogen deposition in this assessment. Since NO_x can be directly toxic to plants, it is considered separately from its influence on nitrogen deposition in this assessment.

3.3.4 Eutrophication of sensitive habitats through atmospheric deposition is a widely acknowledged phenomenon, although it is extremely difficult to measure as its effects are often hidden by changes in local nutrients (i.e. via direct fertilisation) or changes in grazing pressure.

3.3.5 In well-managed sites, the effects of eutrophication may be to some extent counteracted through an increase in grazing pressure. Bobbink et al.¹⁶ suggest that sites with low intensity management may have lower critical thresholds than those in higher levels of management. Reintroducing grazing into ungrazed or under-grazed sites can help to counteract changes in vegetation due to nitrogen deposition; however increasing grazing on sites that are already well-grazed may have a direct adverse impact on the plants for which the site was designated.

3.3.6 Furthermore, air pollution can act synergistically with insufficient grazing to exacerbate management problems and lead to a coarser species-poor sward. A changing climate (i.e. rising temperatures and reduced summer rainfall) is further exacerbating the situation by putting sensitive habitats and species under increasing stress, in turn reducing their competitive ability and increasing susceptibility to pathogens.

Oxides of nitrogen and nitrogen deposition

3.3.7 The most acute impacts of NO_x take place close to where they are emitted, but individual sources of pollution will also contribute to an increase in the general background levels of pollutants at a wider scale, as small amounts of NO_x and other pollutants from the pollution source are dispersed more widely by the prevailing winds.

¹⁴ 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>

¹⁵ 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>

¹⁶ Bobbink, Ashmore, Braun, Fluckiger and Vanden Wyngaert. 2002. Work on critical loads for natural and semi-natural systems ("*Empirical nitrogen critical loads for natural and semi-natural ecosystems 2002 update*")

3.3.8 The main sources of NO_x in the UK are¹⁷:

- Road and other transport (approximately 47%; greater in urban areas);
- Public power generation using fossil fuels (22%).
- Combustion in industrial processes¹⁸ (14%).
- Domestic and commercial sources (4%), e.g. commercial boilers in schools, hospitals etc.

3.3.9 Therefore, when considering the ecologically relevant impacts of the Local Plan, by far the largest contribution to NO_x will generally be made by the associated road traffic.

Transport exhaust emissions

3.3.10 According to the Department for Transport's Transport Analysis Guidance, "Beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant"¹⁹.

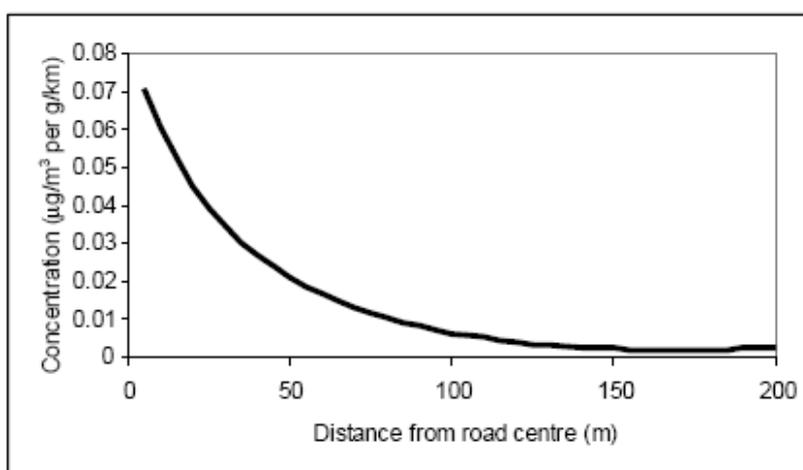


Figure 2: Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT)

3.3.11 Consequently this is the distance that has been used throughout this screening report in order to determine whether European sites are likely to be significantly affected by development under the LP.

3.3.12 The following air pollution limit value applies for the protection of vegetation and ecosystems from NO_x:

- World Health Organisation 30 µg_m⁻³ annual average;
- EU Air Quality Framework Directive 30 µg_m⁻³ annual average away from areas close to main roads, built up areas or major industrial sites;
- Natural England policy in agreement with the Environment Agency in their Review of Consents process is that the 30 µg_m⁻³ threshold should apply to all designated sites, due to the sensitivity of the habitats within the sites.

¹⁷ 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>

¹⁸ Combustion of coal and oil, some refinery processes and the production of sulphuric acid and other chemicals

¹⁹ www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

Diffuse air pollution

- 3.3.13 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 District Council in the South East, Natural England advised that they 'can only be concerned with locally emitted and short range locally acting pollutants'²⁰ as this is the only scale which falls within a local authorities 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.
- 3.3.14 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 central Government, both since they relate to the overall quantum of development across the UK 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.

3.4 Water Quality and Flows

- 3.4.1 The quality of the water that feeds European sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts:
- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
 - Eutrophication, the enrichment of plant nutrients in water, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen; phosphorus is the limiting nutrient in most freshwater environments.
 - 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.

²⁰ English Nature (16 May 2006) letter to Runnymede Borough Council, 'Conservation (Natural Habitats &c.) Regulations 1994, Runnymede Borough Council Local Development Framework'.

4 Internationally Designated Sites: Initial Sieving of Impact Pathways

4.1 North Downs Woodlands SAC

4.1.1 The following impact pathways have potential to link Maidstone's Local Plan to this SAC:

- Recreational pressure
- Air quality
- Water resources

Recreational Pressure

4.1.2 During previous iterations of HRAs for Maidstone's Local Plan, this impact pathway upon Wouldham to Detling Escarpment SSSI (the eastern component of the North Downs Woodlands SAC, located within the Borough of Maidstone) could not be screened out. This is due to the potential contribution of increased recreational pressure from visitors from Maidstone. In order to determine patterns of access, a visitor survey was conducted in 2012 and 2013. This is discussed in the subsequent chapter. Halling to Trottscliffe Escarpment SSSI (the western component of the North Downs Woodlands SAC) is located 6.5km from the Borough boundary. Due to the distance involved and the lack of direct accessibility from Maidstone; this impact pathway can be screened out for this parcel of the SAC.

Air Quality

4.1.3 North Downs Woodlands SAC (Wouldham to Detling Escarpment SSSI) is located within 200m of the A229 and the A249 which are major routes for traffic arising within Maidstone. The A229 passes within 160m of the SAC whilst the A249 passes within 5m of the SAC.

4.1.4 **Table 4** shows the current value for nitrogen deposition and NO_x concentrations for the North Downs Woodlands SAC (Wouldham to Detling Escarpment SSSI) at locations closest to the A229 and A249.

Table 4: Main sources and effects of air pollutants on habitats and species

Site	Grid reference	Key habitats ²¹	Minimum critical loads (Kg N/ha/yr) ²²	Actual nitrogen deposition ²³ (Kg N/ha/yr)	Actual NO _x concentration (µgm ⁻³) ²⁴
North Downs Woodlands SAC	TQ795584	Broad-leaved, mixed and yew woodland (coniferous woodland)	5	27.3	18.94
	TQ753603		5	29.12	18.24

4.1.5 **Table 4** illustrates that the SAC (Wouldham to Detling Escarpment SSSI) currently exceeds the critical load for nitrogen deposition for key habitats for which the SAC North Downs Woodlands SAC

²¹ Based on the precautionary principle, this is the most sensitive habitat

²² APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range

²³ Centroids to a resolution of 5 km.

Air Pollution Information Systems. <http://www.apis.ac.uk> [accessed 23/12/15]

²⁴ Air Pollution Information Systems. <http://www.apis.ac.uk> [accessed 23/12/15]

is designated. Any decrease in air quality provided by the Local Plan at this site has the potential to result in likely significant effects.

4.1.6 The North Downs Woodlands SAC (Wouldham to Detling Escarpment SSSI) lies within 200m of both the A229 and A249 which could be used as a strategic transport route between Maidstone and Medway for any increased volumes of road traffic as a result of policies contained within the LP.

4.1.7 At this stage, this impact pathway cannot be screened out as not resulting in likely significant effects upon the Wouldham to Detling Escarpment SSSI portion of the SAC and requires further consideration. This is undertaken in the proceeding chapter. Halling to Trottscliffe Escarpment SSSI is located 6.5km from the Borough boundary; there is a lack of major roads within 200m of this portion of the SAC, and due to the distances involved and the convoluted road routes from the Borough to this parcel of the SAC, this impact pathway upon this parcel of the SAC can be screened out.

Water quality

4.1.8 North Downs Woodlands SAC is not considered particularly sensitive to hydrological changes, with the majority of the site comprising free-draining chalk escarpments. There is no surface water connectivity between the SAC and development within Maidstone Borough. Therefore water quality and flows are not considered further in this assessment.

4.2 Queendown Warren SAC

4.2.1 The following impact pathways have potential to link Maidstone's Local Plan to this SAC:

- Recreational pressure
- Air quality
- Water resources

Recreational pressure

4.2.2 This site has the potential to be sensitive to increases in recreational pressure as a result of new residential development within Maidstone. The nearest strategic residential provision within the Borough is GT1(14): The Ash, Yelsted Road, Stockbury, 0.9km from the SAC. Two other strategic site allocations [GT1(12), and GT1(13)] are located within 1.7km of the SAC. The next nearest residential site allocation [H1(30)] is located 7.3km from the SAC. Due to the proximity of three proposed sites allocations, this impact pathway upon this site is discussed further within the following chapter.

Air quality

4.2.3 Whilst this site is noted to be vulnerable to air pollution, it is located in a rural setting away from any major roads. The closest major road is the A27, at its closest located more than 300m from the SAC. As such, this impact pathway can be screened out.

Water resources

4.2.4 Queendown Warren SAC is not considered particularly sensitive to hydrological changes, with the majority of the site comprising free-draining chalk escarpment. There is no surface water connectivity between the SAC and development within Maidstone Borough. Therefore water quality and flows are not considered further in this assessment.

4.3 Peter's Pit SAC

4.3.1 The following impact pathways have potential to link Maidstone's Local Plan to this SAC:

- Recreational pressure
- Water resources

Recreational pressure

4.3.2 It is unlikely that visitors from Maidstone would be attracted to this site. The nearest residential development site is H1(1): Bridge Nursery, London Road, Maidstone, located 5.4km from the SAC.

In addition, the qualifying features of the SAC are not considered to be particularly vulnerable to recreational pressure. As such this impact pathway can be screened out.

Water resources

4.3.3 The ponds within the SAC are rain fed²⁵ as such there are no impact pathways present that could link the Local Plan to this SAC. This impact pathway upon this SAC can be screened out from further consideration.

4.3.4 It can be concluded that there are no reasonable impact pathways present linking Maidstone's Publication Local Plan document to Peter's Pit SAC. As such, this designated site is not considered further.

4.4 Medway Estuary and Marshes SPA and Ramsar site/ The Swale SPA and Ramsar site

4.4.1 For the purpose of this part of the assessment, the Medway Estuary and Marshes SPA and Ramsar site, and The Swale SPA and Ramsar site are considered together as they share similar qualifying features. The following impact pathways have potential to link Maidstone's Local Plan to these SPA and Ramsar sites:

- Recreational disturbances

Recreational disturbances

4.4.2 At its closest, the Borough of Maidstone is located 4.1km from the Medway Estuary and Marshes SPA and Ramsar site. Site allocation GT1(12) is located 5.3km from the nearest designated site (Medway Estuary and Marshes SPA and Ramsar site). Due to this low provision of new housing within proximity to the designated sites, when considering the Local Plan alone, this impact pathway can be screened out as the number of visitors arising from Maidstone as a result of the Local Plan alone will not lead to likely significant effects. However, in combination with other projects and plans, this impact pathway requires further consideration. As such, this impact pathway cannot be screened out and will be discussed further in combination with other projects and plans in the subsequent chapter.

4.4.3 The Swale SPA and Ramsar site is located 7.5km from the Borough of Medway. Due to the distance involved and lack of direct access, this impact pathway upon this designated site can be screened out both alone and in combination with other projects and plans.

4.5 Thames Estuary and Marshes SPA and Ramsar site

4.5.1 The following impact pathways have potential to link Maidstone's Local Plan to this SPA and Ramsar site:

- Recreational pressure

Recreational pressure

4.5.2 In a direct line, the Borough of Maidstone is located 12.6km from the designated site. Due to this distance and the fact that there is easier access from Maidstone to the coast elsewhere, the recreational pressure resulting from the new residential development provided within the Maidstone Local Plan is not a conceivable impact pathway to the Thames Estuary and Marshes designated site. As such this site can be screened out from further consideration.

4.6 Wye and Crundale Downs SAC

4.6.1 The following impact pathways have potential to link Maidstone's Local Plan to this SAC:

- Recreational pressure
- Air quality
- Well-drained soils

²⁵ English Nature (now Natural England). Peter's Pit SAC designation Citation (2005)

4.6.2 This site is located 13.3km from the Borough. Over this distance, this site has no environmental sensitivities that could be impacted upon by Maidstone's Local Plan. As such, this site can be screened out from further consideration.

4.7 Blean Complex SAC

4.7.1 The following impact pathways have potential to link Maidstone's Local Plan to this SAC:

- Recreational pressure
- Air quality
- Water quality

4.7.2 This SAC is located 15.4km from Maidstone Borough boundary with no direct access. As such it is not conceivable that changes in air quality, recreational pressure or water quality resulting from Maidstone's Local Plan could impact upon this SAC. This site can be screened out from further consideration.

4.8 Summary

4.8.1 In summary, the following impact pathways linking to the listed internationally designated sites could not be screened out and will be subject to more detailed screening in **Chapter 5**, taking into account site allocations and Local Plan policies:

- North Downs Woodlands SAC:
 - Recreational pressure
 - Air quality
- Queendown Warren SAC
 - Recreational pressure
- Medway Estuary and Marshes SPA and Ramsar site
 - Recreational pressure

5 Habitats Regulations Assessment Screening

5.1.1 The HRA screening of policies within the Maidstone Borough Local Plan – Publication (Regulation 19) February 2016 document can be found in **Appendix C**. Locations of strategic site allocations identified within the Local Plan document can be seen in **Appendix A, Figures 2 -2E**. The following sections draw upon the findings of the screening of policies within **Appendix C**, and the potential impact pathways identified in **Chapter 4**.

5.1.2 A summary of the Policies within Maidstone's Publication Local Plan screened in for further consideration are as follows:

Spatial Policies

- SS1: Maidstone Borough spatial strategy
- SP1: Maidstone urban area
- SP2: Maidstone urban area: north west strategic development location
- SP3: Maidstone urban area: south east strategic development location
- SP4: Maidstone town centre
- H1: Housing allocations
- H2: Broad locations for housing growth
- H2(1): Maidstone town centre broad location for housing growth
- H2(2): Invicta Park Barracks, Maidstone broad location for housing growth
- GT1: Gypsy and Traveller site allocations
- RMX1: Retail and mixed use allocations
- EMP1: Employment allocations

Housing Site Allocations

- H1(1): Bridge Nursery, London Road, Maidstone
- H1(2): East of Hermitage Lane, Maidstone
- H1(11): Springfield, Royal Engineers Road and Mill Lane, Maidstone
- H1(12): 180-188 Union Street, Maidstone
- H1(13): Medway Street, Maidstone
- H1(14): American Golf, Tonbridge Road, Maidstone
- H1(15): 6 Tonbridge Road, Maidstone
- H1 (16): Slencrest House, 3 Tonbridge Road, Maidstone
- H1(18): Dunning Hall (off Fremlin Walk), Week Street, Maidstone
- H1(19): 18-21 Foster Street, Maidstone
- H1(20): Wren's Cross, Upper Stone Street, Maidstone
- H1(30): West of Eclipse, Maidstone

Gypsy and Traveller Site Allocations

- GT1(12): Cherry Tree Farm, West Wood Road, Stockbury
- GT1(13): Flips Hole, South Street Road, Stockbury
- GT1(14): The Ash, Yelsted Road, Stockbury

Retail and Mixed Use Site Allocations

- RMX1(1): Newnham Park, Bearsted Road, Maidstone
- RMX1(2): Maidstone East and Sorting Office, Sandling, Road, Maidstone

- RMX1(3): King Street car park and former AMF Bowling site, Maidstone

5.2 North Downs Woodlands SAC

Recreational pressure

5.2.1 As noted in **paragraph 4.1.2** the eastern parcel of the North Downs Woodlands SAC (Wouldham to Detling Escarpment SSSI – also referred to as Boxley Warren) is sensitive to increases in recreational pressure that could arise from new residential development provided within the Maidstone Local Plan. The SAC contains Public Rights of Way (PRoW). This includes two long distance PRoW; the North Downs Way which runs the length of the north eastern extent of the SAC; and Pilgrim's Way trackway, located within the north of the SAC, along the site's south western edge. In addition Lidsing Road passes through the SAC.

5.2.2

5.2.3 Policy SS 1 (Maidstone Borough spatial strategy) provides for 18,560 new dwellings within Maidstone throughout the Plan Period (2011 to 2031). Policy SP 2 (Maidstone urban area: north west strategic development location) provides for approximately 1,157 of the new dwellings to be located to the north west of Maidstone, this includes residential site allocations H1(1) (Bridge Nursery, London Road, Maidstone), and H1(2) (East of Hermitage Lane, Maidstone), located 3.2km and 4.3km from the SAC respectively. In addition to this, the following residential site allocations are located within a potential catchment area from where increases in recreational pressure to the SAC could originate:

- H1(11) Springfield, Royal Engineers Road and Mill Lane, Maidstone
- H1(12) 180-188 Union Street, Maidstone
- H1(13) Medway Street, Maidstone
- H1(14) American Golf, Tonbridge Road, Maidstone
- H1(15) 6 Tonbridge Road, Maidstone
- H1 (16)Slencrest House, 3 Tonbridge Road, Maidstone
- H1(18) Dunning Hall (off Fremlin Walk), Week Street, Maidstone
- H1(19) 18-21 Foster Street, Maidstone
- H1(20)Wren's Cross, Upper Stone Street, Maidstone
- H1(30) West of Eclipse, Maidstone

5.2.4 New residential development located to the north west of Maidstone, to the north east of Maidstone, and within Maidstone urban area could provide easy access to the North Downs Woodlands SAC for the purposes of recreation.

5.2.5 In October 2012 and summer 2013 a visitor survey was conducted within the SAC (Boxley Warren²⁶) to support the preparation of the Local Plan. The visitor survey data obtained identify that visitor numbers to the nearest part of the North Downs Woodlands SAC (Boxley Warren) are fairly low; 59 visitors were recorded during 6 days of survey in October 2012 and 85 in 3 days in July 2013. Taking these as being typical of winter and summer numbers respectively this is an average of 10 people per day in winter and 28 people per day in summer. The majority of these visitors were recording simply using the paths along the north and south of the site, rather than entering the Warren itself. Just over one third of visitors recorded (4 per day in winter and 11 per day in summer) came from Maidstone borough, indicating that most visitors actually come from points of origin other than Maidstone borough.

5.2.6 The 18,560 dwellings to be delivered across Maidstone under the Local Plan would (in the worst-case scenario of all dwellings being occupied by people who do not already live in Maidstone) result in an increase of approximately 39% in the population of the borough over the plan period, assuming average household size of approximately 2.4 residents per dwellings. If this was reflected by an increase of similar magnitude in visitors to Boxley Warren from Maidstone borough this would be an average of 1.5 additional visitors per day in winter and an additional 4.3 visitors per day in summer. This is probably an overestimate as it assumes that all occupants of new housing will be incomers to Maidstone borough and assumes that all parts of Maidstone borough contribute to visitor activity in Boxley Warren.

²⁶ Located within the Wouldham to Detling Escarpment SSSI portion of the SAC.

- 5.2.7 Historically the North Downs Woodlands SAC has been subject to high levels of fly tipping and anti-social behaviour such as illegal access by off-road motorbikes and vehicles etc., negatively impacting upon the designated habitats. As a result of this, a partnership of organisations, including Maidstone Borough Council, the Mid Kent Downs Countryside Project, the Kent Downs Area of Outstanding Natural Beauty Unit, the Rail Link Countryside Initiative and English Nature (now Natural England) has worked together, with landowners and stakeholders, to tackle these issues. Historically this has included the 'downgrading' of the Pilgrims Way through the site from a 'Byway Open to All Traffic' to a 'Restricted Byway' (e.g. no access for motor vehicles), physical boundary protection measures (fencing, ditches, and hedge planting) and a large-scale clear-up of fly tipped refuse. These measures resulted in a great reduction of these disturbances. However, site abuse and illegal access remain an issue. This includes use of the site by cyclists and motorcyclists accessing the site through vandalised fencing or where ditches are not present to restrict access. In addition fly tipping and the dumping of cars still occurs from time-to-time²⁷. It can be considered that provided funding continues at an appropriate level to ensure existing measures in place are suitably maintained (such as fencing, gateways etc., and entrance points) that the modest contribution to additional visitors that Maidstone will contribute should remain manageable through the existing arrangements.
- 5.2.8 The Publication Local Plan contains policies that should help to avoid likely significant effects occurring to this and other sensitive designated sites through recreational pressure such as Policy DM22 (Publicly accessible open space and recreation). This policy states:

'1. For new housing or mixed use development sites, the council will seek to deliver the following categories of publicly accessible open space provision in accordance with the specified standards:

<i>Open Space Type</i>	<i>Draft standard (ha/1000 population)</i>	<i>Minimum size of facility (ha)</i>
<i>Amenity green space</i>	<i>0.7</i>	<i>0.1</i>
<i>Provision for children and young people</i>	<i>0.25</i>	<i>0.25 excluding a buffer zone</i>
<i>Publicly accessible outdoor sports</i>	<i>1.6</i>	<i>To meet technical standards produced by the Sport England or the relevant governing bodies of sport.</i>
<i>Allotment and community garden</i>	<i>0.2</i>	<i>0.66</i>
<i>Natural/ semi-natural areas of open space</i>	<i>6.5</i>	<i>0.2</i>

- 5.2.9 In addition to this, Policy DM22 (Publicly accessible open space and recreation) states:
- 'If open space cannot be provided in full on development sites, due to site constraints, housing delivery expectations on allocated sites, or location, then provision should be provided off-site where it is within the distance from the development site identified in the accessibility standard.'*
- 5.2.10 Further to this, Policy DM3 (Historic and natural environment) includes the following text that provides overarching provision for publicly accessible open space as follows:
- '4. Publicly accessible open space should be designed as part of the overall green and blue infrastructure and layout of a site, taking advantage of the potential for multiple benefits including enhanced play, wildlife, sustainable urban drainage, tree planting and landscape provision. The form*

²⁷ Clarity Interpretation (2012) on behalf of Maidstone Borough Council. Boxley Warren Local Nature Reserve Summary Plan (2012-2017) – Revised August 2012. http://boxleywarren.org.uk/wp-content/uploads/2014/09/Summary-Plan-Revised-2012.pdf?bcsi_scan_ab11caa0e2721250=1+ImTPnQWgPXskmhRb+jXhoWaQpAAAA/0MoPQ==&bcsi_scan_filename=Summary-Plan-Revised-2012.pdf [accessed 23/12/15]

and function of green infrastructure will reflect a site's characteristics, nature, location and existing or future deficits.'

- 5.2.11 This provision of publicly accessible open space will act to draw new residents away from the SAC, thus reducing the likelihood of increases in recreational pressure (and thus likely significant effects) upon the SAC.
- 5.2.12 Policy DM3 (Historic and natural environment) also includes the following text that provides overarching protection against likely significant effects upon internationally designated sites:
- '1. ii: Avoid damage to and inappropriate development within or adjacent to:*
- b. Internationally, nationally and locally designated sites of importance for biodiversity;*
- 5. Development proposals will not be permitted where they lead to adverse impacts on natural and heritage assets for which mitigation measures or, as a last resort, compensation appropriate to the scale and nature of the impacts cannot be achieved.*
- 5.2.13 It is recommended that the wording of Policy DM3 (Historic and natural environment) is strengthened to state that new development will not be acceptable if it is '*considered likely to have significant adverse effects*' on international designations, rather than as currently states '*within or adjacent*' to internationally designated sites, since pathways of impact such as recreational pressure and reduced air quality may act at distance from development.
- 5.2.14 With the in-built protection from the above listed Policies, it can be concluded that no likely significant effects resulting from recreational pressure from increased residential development are likely to arise as a result of Maidstone's Local Plan, however, a commitment needs to be made by the Council to ensure levels of contributions are appropriate to enable continued maintenance and management of the SAC to ensure no likely significant effects arise.

Air quality

- 5.2.15 As noted in paragraph 4.1.5, North Downs Woodlands SAC is sensitive to increases in air pollution that could result from development provided within Maidstone's Local Plan. This pathway has been subject to scrutiny to determine if significant effects are likely to result from traffic related air quality changes resulting from Maidstone's Local Plan on the North Downs Woodlands SAC; this has included traffic modelling.

5.2.15.1.1 Traffic flows

- 5.2.16 Department for Transport Guidance, as expressed in the Design Manual for Roads and Bridges, states that the first process in determining air quality impacts from road schemes is to determine whether the road in question is an 'affected road' which is defined as such if, among other criteria, it will experience an increase in flows of more than 1,000 Average Annual Daily Traffic (AADT). If it is not an 'affected road', then no further assessment is required.
- 5.2.17 Flow data for 2014 and 2031 were based on a VISUM²⁸ modelling exercise undertaken by Amey. For the purposes of this analysis, since it is the actual effect of future growth that we are interested in analysing, rather than the effect of supplementary transport improvement schemes, we have utilised the scenario described in the VISUM report as the '2031 Do Minimum Model'. This model uses travel demand developed from the base year model, based on known development from 2007 to 2014 and forecast development assumptions to 2031 provided by Maidstone Borough Council. It does not however allow for any transport improvement schemes other than the 'Bridges Gyratory Scheme' which is considered to be a committed improvement.
- 5.2.18 In **Table 5** below, traffic flows associated with the 2031 scenario have been compared to the 2014 baseline. Traffic growth due to background trends has not been separated from growth due to the Local Plan; therefore, the changes in flow provided in **Table 5** are actually an overestimate of those that would be expected due to the Local Plan itself. Transport modelling (**Table 5**) indicates that traffic flows on the A249 by 2031 are expected to be c. 1,600 AADT less than those in 2014. The authors of the VISUM report consider that this probably reflects the limited capacity of junctions on the road network connected to the A249 to absorb further vehicle flows and the consequent use of alternative routes to avoid queues. In other words, the capacity of the A249 is already constrained such that drivers are expected to disperse over a wider range of routes in response to the increasing commuter population.

²⁸ Modelling software system.

5.2.19 However, an increase in traffic flow of 5,232 AADT is expected on the A229 by 2031 compared to the 2014 baseline.

Table 5: Annual Average Daily Transport (AADT) Movements Predicted on A229 and A249 Past North Downs Woodlands SAC in 2014 and 2031

Road	Measured 2014 AADT (both combined) directions	Predicted 2031 AADT (both combined) directions	Change
A249	63,269	61,579	Decrease of 1,690
A229	52,859	58,091	Increase of 5,232

5.2.20 It is therefore possible to conclude that there will be no likely significant effect on the SAC from expected traffic flows on the A249 by 2031 compared to 2014 since the flows will actually be lower than in 2014. It is not yet possible to reach that conclusion for the A229 based purely on examination of traffic flow since the increase in flow exceeds 1,000 AADT.

5.2.20.1.1 Nitrogen oxide (NO_x) concentrations

5.2.21 For the air quality calculations a precautionary approach has been taken in that background NO_x concentrations (and thus nitrogen deposition rates) for 2031 have been held at 2014 levels, rather than being reduced to allow for expected improvements in air quality over that time period. Assuming that there will be no improvement in background air quality or emissions technology over the period until 2031 removes uncertainties over the degree of improvement that could be legitimately expected but is also likely to overestimate the total concentrations that will actually occur.

Table 6: Changes in NO_x Concentrations

Distance from A229 ²⁹ (m)	Annual Mean NO _x (µg/m ³)		Change as a percentage of the critical level of 30 µg/m ³
	2014	2031	
153	26.74	27.19	1.5%
193	26.02	26.39	1.2%

5.2.22 The North Downs Woodlands SAC (Wouldham to Detling Escarpment SSS1) lies 153m from the A229 at its closest. Approximately 200m² of the SAC (0.007% of the total area) lies within 200m of the road. The entire area in question constitutes the south-west corner of Unit 15 of Wouldham to Detling Escarpment SSSI. The change in NO_x concentrations within this small patch by 2031 is predicted to marginally exceed the '1% of the critical level' (see **Table 6**) threshold of triviality for NO_x, but only if one makes the very precautionary assumption that no further improvement in background air quality will occur by 2031.

5.2.23 Whilst there is some uncertainty about the degree to which background pollutant concentrations are decreasing, one would in reality expect to see some improvement by 2031. It would only require a slight improvement in background air quality for the change in NO_x concentrations along the A229 to fall below the '1% of the critical level' threshold and thus become entirely inconsequential. This analysis is also precautionary because it examines the total change in NO_x concentrations by 2031, rather than those purely associated with the Local Plan. Bearing this in mind, it can be concluded with confidence that the change in NO_x concentrations due to Local Plan growth by 2031 is very likely to be inconsequential (i.e. equivalent to less than 1% of the critical level) and thus will not result in a likely significant effect on the SAC alone or in combination with other plans and projects.

5.2.23.1.1 Nitrogen (N) deposition

5.2.24 The main role of NO_x in relation to vegetation is its influence on nitrogen deposition rates.

5.2.25 **Table 7** presents the change in nitrogen deposition rates along the A229 between 2014 and 2031.

²⁹ Data are not provided for the 193m-200m zone as this falls below 1% of the critical load

Table 7: Changes in nitrogen deposition rate

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
153	2014	0.23	33.45	33.68
	2031	0.26	33.45	33.71
	Change	-	-	+0.03 or 0.3% of the critical load
193	2014	0.20	33.45	33.64
	2031	0.22	33.45	33.66
	Change	-	-	+0.02 or 0.2% of the critical load
Critical Load for North Downs Woodland SAC according to APIS				10-15³⁰

5.2.26 These data indicate that, even without taking account of improvements in background air quality by 2031 or separating background traffic growth from that attributable to the Local Plan, the change in nitrogen deposition rates within the SAC adjacent to the A229 will not exceed the '1% of the critical load' threshold of triviality.

5.2.27 These calculations indicate that the traffic flows expected on the A229 and A249 within 200m of the North Downs Woodlands SAC by 2031 will not result in changes in NO_x concentration or nitrogen deposition rate within the woodland that would result in a likely significant effect on the SAC, either alone or in combination with other projects and plans. As such, the level of growth in Maidstone that was used to generate the 2031 future case could be delivered without a likely significant effect on the SAC.

In-combination with other projects or plans

5.2.28 The results of the 2012 – 2013 visitor survey suggest that at present the SAC is subject to relatively low levels of use. Even with an increase in residential dwellings within proximity to the SAC, with the existing provision of management of the site, likely significant effects can be avoided. As previously noted, it is important that existing levels of management and the maintenance of management provision is ensured.

5.2.29 As previously detailed, it is recommended that the wording of Policy DM3 (Historic and natural environment) is strengthened to state that new development will not be acceptable if it is '*considered likely to have significant adverse effects*' on international designations, rather than as currently states '*within or adjacent*' to internationally designated sites, since pathways of impact such as recreational pressure and reduced air quality may act at distance from development.

5.2.30 Maidstone Borough Council should commit to the continued working with partners to manage and maintain the integrity of the SAC. Provided this commitment is made and the minor modification made to Policy DM3 (Historic and natural environment), it may be considered that the Maidstone Borough Council Local Plan will be unlikely to lead to likely significant effects on the SAC even in-combination with increased visitor numbers from other local authorities, since Maidstone is making a sufficient contribution for mitigating effects.

5.2.31 The air quality impact study detailed in the above section indicates that the traffic flows expected on the A229 and A249 within 200m of the North Downs Woodlands SAC by 2031 will result in changes

³⁰ As discussed earlier in this document, although APIS provides a critical load range for coniferous woodland of 5-15 kgN ha⁻¹ yr⁻¹ in the Site Relevant Critical Load tab for North Downs Woodlands SAC, the range for coniferous woodland is derived from research into pine and spruce forests. In addition, a site visit has confirmed that the small section of woodland within 200m of the A229 is predominantly broadleaved. The 10-15 kgN ha⁻¹ yr⁻¹ range is therefore considered most appropriate.

in NOx concentration and nitrogen deposition rate within the woodland. As detailed above, this change would not result in a likely significant effect on the SAC, either alone or in combination with other projects and plans. The air quality assessment methodology and findings detailed above have been subject to consultation with Natural England who agree with the findings.

5.3 Queendown Warren SAC

Recreational pressure

- 5.3.1 Although Queendown Warren SAC is located adjacent to Maidstone Borough, it is 8.9km in a straight line from the nearest significant population centre in the Borough (Maidstone). Moreover, there is very limited informal parking which inherently limits the number of visitors who arrive by car at any one time.
- 5.3.2 A small number of Gypsy and Traveller site allocations are located between 1km and 1.7km from the SAC. In reality, the SAC is unlikely to attract significant increased recreational pressure from the small number of dwellings (12 pitches in total) provided by GT1(12, 13 and 14). The next nearest residential site allocation [H1(30)] is located 7.3km from the SAC. Visitor surveys undertaken for a range of inland European sites over the past five years have identified that the vast majority of visitors live within 4-5km of the site and the majority of visitors who arrive by methods other than private car generally live within 2km or closer. Given the very limited parking, most visitors to this SAC will be either cyclists or on foot. It is therefore concluded that the main population centres of Maidstone Borough will lie outside the core recreational catchment of this site and are more likely to visit sites closer as an alternative.

In-combination with other projects or plans

- 5.3.3 Visitors to Queendown Warren are likely to be dominated by residents of the nearest Medway town, Gillingham, which lies just over 1km north west of the SAC and has easy access. The HRA of the adopted Medway Core Strategy concluded that even visitors from Medway would not result in a likely significant effect on the SAC. As such this pathway can be screened out from further consideration. The rural location of this SAC and the limited parking provision at the site, limit the number of visitors that can utilise this site. As such, the impact pathway of recreational pressure can remain screened out both alone and in-combination with other projects and plans.

5.4 Medway Estuary and Marshes SPA and Ramsar site

Recreational pressure - In-combination with other projects or plans

5.4.1 Due to the small provision of dwellings within 6km of the SPA and Ramsar site (seven pitches within 6km) within Maidstone's Local Plan, likely significant effects arising from the Plan are considered unlikely. The now revoked South East Plan provided for an increase of approximately 70,000 new homes across the Kent area between 2006 and 2026. This raised concerns regarding the potential impact of strategic increased recreational disturbances to the bird populations of the Medway Estuary and Marshes SPA and Ramsar along with The Swale, and Thames Estuary and Marshes, SPA and Ramsar sites (collectively known as the North Kent Marshes SPA and Ramsar sites) as a result of increased number of new dwellings.

5.4.2 In response to this, the North Kent Environmental Planning Group (NKEPG)³¹ commissioned assessments to investigate future levels of recreational activity on the North Kent Marshes SPA and Ramsar sites. A detailed study was undertaken to investigate disturbance of birds for which the North Kent Estuaries were designated³². The study outcome and recommendations can be summarized as follows:

- There have been marked declines in the numbers of birds using the three SPAs (the third being the Thames Estuary & Marshes SPA/Ramsar site on the south bank of the River Thames). Declines are particularly apparent on the Medway and have occurred at the locations with the highest levels of access.
- Disturbance is a potential cause of the declines. The disturbance study shows birds are responding to the presence of people, and there is evidence that the busiest locations (which have seen the most marked bird declines) support particularly low numbers of birds.
- Access levels are linked to local housing, with much of the access involving frequent use by local residents. Indicative data on future housing development, when used with the visitor data to estimate change in access levels between now and c.2026, would suggest that the SPA/Ramsar sites would see a future increase of approximately 15%. Given the results of the disturbance work to date and the likely scale of change in the future, it is clearly not possible to rule out any Likely Significant Effects on the integrity of the European sites as a result of increased housing. A suite of mitigation measures are therefore necessary to avoid potential adverse effects caused by future development.
- All activities (i.e. the volume of people) are potentially likely to contribute to additional pressure on the SPA sites and should be addressed within mitigation plans. Dog walking, and in particular dog walking with dogs off leads, is currently the main cause of disturbance (by far) and therefore should be a focus for mitigation. Other particular activities are those that involve people on the mudflats or the water.
- Development within 6km of access points to the SPAs is particularly likely to lead to increase in recreational use of the SPAs. Local greenspace use such as dog walking, cycling, jogging, walking and to some extent family outings will originate from people living within this radius.
- Beyond 6km from access points onto the SPA, large developments or large scale changes to housing levels will also result in increased recreational use. It would appear that visitors to the North Kent coast mostly originate from a zone north of the M2/A2 between Gravesend and Herne. People living within this broad coastal strip (i.e. beyond 6km from SPA access points and north of the M2/A2) are likely to visit for more coastal specific activities.

5.4.3 As previously noted, the only North Kent Marshes designated site located within 6km of the Borough of Maidstone is the Medway Estuary and Marshes SPA and Ramsar site (located 4.1km from the boundary of the Borough of Maidstone). The following site allocations provide new residential development within 6km of the Medway Estuary and Marshes SPA and Ramsar site:

³¹ NKEPG comprises Canterbury, Dartford, Gravesham, Medway and Swale local authorities, together with Natural England and other stakeholders.

³² Liley, D., Lake, S. & Fearnley, H. (2012) North Kent Interim Overarching Report. Footprint Ecology /GGKM/NE

- GT1(12) Cherry Tree Farm, West Wood Road, Stockbury: for two permanent Gypsy and Traveller pitches: located 5.3km from the Medway Estuary and Marshes SPA and Ramsar site. Allocation is for two pitches.
- GT1(14) The Ash, Yelsted Road, Stockbury: for five permanent Gypsy and Traveller pitches: located 5.4km from the Medway Estuary and Marshes SPA and Ramsar site. Allocation is for five pitches.

5.4.4 In line with the NKEPG, development beyond 6km (excluding large sites) and those located south of the M2/A2 can be screened out of assessments and assumed to have no likely significant effect on European sites.

5.4.5 The above two site allocations are located south of the M2/A2. In line with findings identified in **Point 5 and 6 of paragraph 5.4.2**, it is considered unlikely that these residential site allocations will result in likely significant effects resulting from increases in recreational pressure within 6km of the North Kent designated site due to their location south of the M2/A2 and the small provision of new residential development. Further to this, Maidstone Council is not a partner in the NKEPG strategic mitigation package, suggesting that Natural England do not consider Maidstone Borough to be within the core catchment for recreational pressure to the designated sites. This impact pathway can be screened out both alone and in-combination with other projects and plans.

6 Conclusions

- 6.1.1 After an initial sieving of impact pathways to internationally designated sites (**Chapter 4**), this HRA considered the following potential impact pathways resulting from Maidstone's Local Plan policies upon the listed internationally designated sites (**Chapter 5**):
- North Downs Woodlands SAC:
 - Recreational pressure
 - Air quality
 - Queendown Warren SAC
 - Recreational pressure
 - Medway Estuary and Marshes SPA and Ramsar site
 - Recreational pressure
- 6.1.2 Screening of the Local Plan Policies can be found in **Appendix C**.
- 6.1.3 To ensure that Maidstone's Local Plan - Publication (Regulation 19) February 2016 document does not result in any likely significant effect upon any internationally designated sites the following is recommended: wording of Policy DM3 (Historic and natural environment) is strengthened to state that new development will not be acceptable if it is '*considered likely to have significant adverse effects*' on international designations, rather than as currently states '*within or adjacent*' to internationally designated sites, since pathways of impact such as recreational pressure and reduced air quality may act at distance from development.
- 6.1.4 It is noted that whilst policies within the Local Plan document do provide protection for internationally designated sites, a commitment needs to be demonstrated by the Council to ensure funding continues at an appropriate level to ensure existing management measures in place at North Downs Woodlands SAC are suitably maintained (such as fencing, gateways etc., and entrance points), thus ensuring existing and future levels of residential development do not result in likely significant effects upon the North Downs Woodlands SAC as a result of increased recreational pressure. This will enable the impact pathway of increased recreational pressure from the Local Plan upon the North Downs Woodlands SAC to be screened out.
- 6.1.5 Provided the above recommendations are adhered to, Policies within Maidstone Borough's Local Plan - Publication (Regulation 19) February 2016 document can be screened out from further consideration both alone and in-combination with other projects or plans.