



London Borough of Waltham Forest
**Preferred Options Wood Street Area
Action Plan – Habitats Regulations
Assessment**

Report
August 2013



Revision Schedule

Habitats Regulations Assessment August 2013

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1 Introduction

1.1 Background to the Project

- 1.1.1 URS was appointed by the London Borough of Waltham Forest to assist the Council in undertaking a Habitats Regulations Assessment of the Preferred Options Stage of its Wood Street Area Action Plan (AAP). The objective of the assessment was to identify any aspects of the AAP that would cause an adverse effect on the integrity of Natura 2000 sites, otherwise known as European sites ((Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of Government policy, Ramsar sites), either in isolation or in combination with other plans and projects, and to advise on appropriate policy mechanisms for delivering mitigation where such effects were identified.
- 1.1.2 The core Waltham Forest Local Plan documents already include an adopted Core Strategy (CS) (March 2012) and Development Management Policies (DMPs) that are at Submission stage. The Local Plan will also ultimately include Area Action Plans (Wood Street, Northern Olympic Fringe, Walthamstow Town Centre and Blackhorse Lane).
- 1.1.3 The Core Strategy was subjected to HRA; amendments were made to both the Core Strategy and Development Management Policies DPD to reflect recommendations made for mitigation measures in order to determine no likely significant effects on European sites. Appraisal of this AAP has therefore been undertaken on the basis that the recommendations relating to the Core Strategy and Development Management Policies DPD have been incorporated, and that the Council acknowledges in the Wood Street Preferred Options document that policies contained within should comply with the CS and DMP documents.
- 1.1.4 The AAP will seek to provide a coordinated approach in order to manage the town centre's regeneration, growth and development over the next 15 years.

1.2 Current Legislation

- 1.2.1 The need for Habitats Regulations Assessment is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by the Conservation of Habitats and Species Regulations 2010. The ultimate aim of the Directive is to “*maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest*” (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering favourable conservation status.
- 1.2.2 The Habitats Directive applies the precautionary principle to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. Plans and projects may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.
- 1.2.3 In order to ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question:

Box 1. The legislative basis for Appropriate Assessment

Habitats Directive 1992

Article 6 (3) states that:

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

Conservation of Habitats and Species Regulations 2010

The Regulations state that:

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

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

1.3 Scope of the Project

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

- All sites within the Wood Street boundary; and
- Other sites shown to be linked to development within the AAP boundary through a known ‘pathway’ (discussed below).

- 1.3.2 Briefly defined, pathways are routes by which a change in activity within the AAP area can lead to an effect upon a European site. In terms of the second category of European site listed above, CLG guidance¹ states that the HRA should be *‘proportionate to the geographical scope of the*

¹ Communities and Local Government (2006) - Planning for the Protection of European Sites: Appropriate Assessment - Guidance For Regional Spatial Strategies and Local Development Documents.

[plan policy]’ and that ‘*an AA need not be done in any more detail, or using more resources, than is useful for its purpose*’ (CLG, 2006, p.6).

1.3.3 There are no European sites that lie within the area covered by the AAP, but there are three European sites that lie partly within the Borough of Waltham Forest – Epping Forest SAC, the Lee Valley SPA and the Lee Valley Ramsar site. The details of these European sites are provided in Appendix 1. As the Core Strategy notes, all 224,300 residents (as of 2009) within the Borough are currently living within 1.2km of either Epping Forest or the Lee (or Lea) Valley Regional Park (within which the components of the Lee Valley SPA and Ramsar sites are geographically contained).

1.3.4 Figure 1 shows the location of the European sites in relation to Wood Street.

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 considers the screening stage of the HRA process. The key findings are summarised in Chapter 5.

2 Methodology

2.1 Introduction

- 2.1.1 The HRA has been carried out in the continuing absence of formal central Government guidance, although general EC guidance on HRA does exist². The former Department for Communities and Local Government released a consultation paper on the Appropriate Assessment of Plans in 2006³. As yet, no further formal guidance has emerged. However, Natural England has produced its own internal guidance⁴ as has the RSPB⁵.
- 2.1.2 Figure 2 below outlines the stages of HRA according to current draft CLG guidance. The stages are essentially iterative, being re-visited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

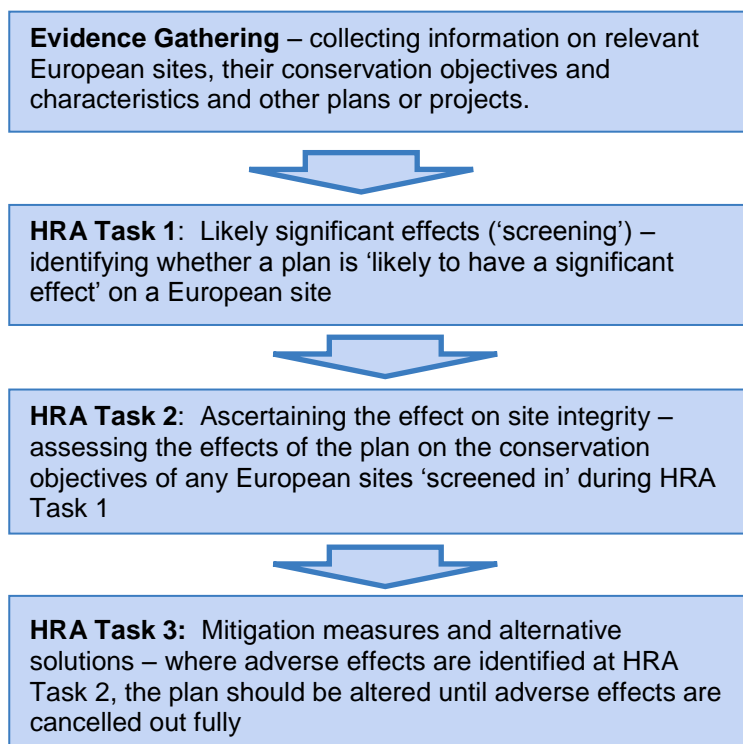


Figure 2. Four-Stage Approach to Habitat Regulations Assessment

Source: CLG, 2006

² European Commission (2001): Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.

³ CLG (2006) Planning for the Protection of European Sites, Consultation Paper

⁴ http://www.ukmpas.org/pdf/practical_guidance/HRGN1.pdf

⁵ Dodd A.M., Cleary B.E., Dawkins J.S., Byron H.J., Palframan L.J. and Williams G.M. (2007) *The Appropriate Assessment of Spatial Plans in England: a guide to why, when and how to do it*. The RSPB, Sandy.

2.2 HRA Task 1 – Screening for Likely Significant Effects (LSE)

2.2.1 The first stage of any Habitat Regulations Assessment is a Likely Significant Effect (LSE) test - essentially a risk assessment or screening exercise 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?”

2.2.2 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.

2.2.3 Since this assessment is within the context of an existing Core Strategy and associated HRA, we have also used this screening exercise as the basis to confirm that there are no new mechanisms for any likely significant effects on European sites which might arise from the further details of development contained within the AAP that were not identified at the Core Strategy level and thus addressed by avoidance or mitigation measures included within Core Strategy policy.

2.3 Appropriate Assessment and Mitigation

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

2.3.2 The steps involved are detailed in Box 2.

Box 2. The steps involved in Appropriate Assessment

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

- 2.3.3 In evaluating significance, URS has relied on our professional judgement as well as the results of previous stakeholder consultation regarding development impacts on the Lee Valley SPA and Ramsar site and Epping Forest SAC.
- 2.3.4 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 2 for a summary of this 'tiering' of assessment).
- 2.3.5 It is important to note that there is a clear mitigation hierarchy with regard to Appropriate Assessment – if possible the plan or project should seek to avoid the impact and if that cannot be achieved should seek to mitigate it to such an extent that an adverse effect on integrity of the European site will not result. Only in exceptional circumstances (following demonstration of 'no alternatives' and 'imperative reasons of over-riding public interest') will compensation be acceptable.

2.4 Confirming other plans and projects that may act in combination

- 2.4.1 It is a requirement of the Regulations that the impacts and effects of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also affect the European site(s) in question.
- 2.4.2 It is neither practical nor necessary to assess the 'in combination' effects of the AAP within the context of all other plans and projects within London. 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 the rest of Waltham Forest and for other neighbouring authorities over the lifetime of the AAP. The East of England Plan (March 2010), South East Plan (May 2009) and the London Plan (2011) provide a good introduction to proposals for areas surrounding Waltham Forest borough. Although both the South East Plan and the East of England Plan are being revoked, they still provide the best summary of the currently anticipated levels of housing within authorities within the region.
- 2.4.3 In considering the potential for impacts from regional housing development on Epping Forest SAC, and Lee Valley SPA and Ramsar, the primary consideration is the impact of visitor numbers – i.e. recreational pressure – to which all three sites are vulnerable. Other pathways of impact described in more detail in Chapter 3 include reduced air quality and pressure on water resources and quality. Whilst these are also strongly related to housing provision, the actual geographic impact must also be considered within the context of relevant infrastructure (e.g. road transport corridors and water supply catchments).

2.4.4 The following plans and projects are relevant to 'in combination' assessment:

- Housing provision figures identified within The East of England Plan (March 2010), South East Plan (May 2009) and the London Plan (2011), along with policies relating to employment provision and any significant infrastructure;
- Local Plans of neighbouring local authorities;
- Crossrail and Crossrail 2;
- Thames Gateway London Partnership;
- London-Stansted-Cambridge-Peterborough Growth Area;
- Upper/Lower Lea Valley Opportunity Area Planning Frameworks;
- Epping Forest Management Plan 2004-2010;
- Lee Valley Regional Park Development Framework – including Area 2 Proposals - The Three Marshes: Walthamstow, Leyton and Hackney (2011);
- City of London/Essex County Council. Epping Forest Transport Strategy proposals 2009-2016;
- Waltham Forest Strategic Infrastructure Plan (2009);
- Waltham Forest Housing Land Availability Assessment (2008);
- Environment Agency - Water for People and the Environment: Water Resources Strategy Regional Action Plan for Thames Region (2009);
- Environment Agency London Catchment Abstraction Management Plan (2006);
- Environment Agency River Basin Management Plan: Thames River Basin District (2009);
- Thames Water's Water Resource Management Plan (2012);
- Veolia Water Central's Final Water Resource Management Plan (2010);
- Impact of East of England Housing and Economic Growth Scenarios on Regional Water Supplies: Draft Environment Agency Response to EERA Consultation (2009);
- Great Britain Day Visitor Survey (2011);
- Epping Forest Visitor Survey Analysis (2006);
- Lee Valley Regional Park Authority Visitor Tracking Survey data;
- Locational data available from the Air Pollution Information System (APIS) database;
- Hyder Consulting - Rye Meads Water Cycle Strategy (2009);
- Stage 3 and (as appropriate) Stage 4 of the Environment Agency's Review of Consents process for the European sites covered in this assessment (where available); and
- Mayor of London - Connecting with London's Nature – The Mayor's Biodiversity Strategy (2002).

2.4.5 When undertaking this part of the assessment it is essential to bear in mind the principal intention behind the legislation i.e. to ensure that those projects or plans which in themselves have minor

impacts are not simply dismissed on that basis, but are evaluated for any cumulative contribution they may make to an overall significant effect. In practice, in combination assessment is therefore of greatest relevance when the plan would otherwise be screened out because its individual contribution is inconsequential.

- 2.4.6 As identified above, the HRA of the AAP will be assessing whether there exist new mechanisms for any likely significant effects on European sites that were not identified at the Core Strategy level and thus covered by Core Strategy policy. The HRA of the CS was able to conclude no likely significant effects on European sites 'in combination', and therefore in the absence of any new mechanisms for adverse effects within the AAP, there would be no need to re-visit the 'in combination' considerations in this HRA.

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 in activity associated with a development can lead to an effect upon a European site.

3.1.2 The following pathways of impact have been identified as relevant for this assessment and are discussed further in this chapter:

- Recreational pressure and disturbance;
- Atmospheric pollution;
- Water abstraction; and
- Water quality.

3.2 Recreational pressure and Disturbance

3.2.1 Recreational use or other activity within or adjacent to a European site has the potential to:

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

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/abrasive damage 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. Motorcycle scrambling and off-road vehicle use can cause more 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)⁶ 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)⁷ conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow and 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)⁸ conducted a follow-up study (in 4 vegetation types) in which shoe type (trainers or walking boots) and trampler weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier trampers caused a greater reduction in vegetation height than lighter trampers, but there was no difference in effect on cover.
- Cole & Spildie (1998)⁹ 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, Barnard¹⁰ estimated the total amounts of urine and faeces from dogs as 30,000 litres and 60 tonnes respectively. The specific impact on Epping Forest has not been quantified from local studies; however, the fact that

⁶ 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

⁷ 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

⁸ 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.

⁹ 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

¹⁰ 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

habitats for which the SAC is designated appear to already be subject to excessive nitrogen deposition, suggests that any additional source of nutrient enrichment (including uncollected dog faeces) will make a cumulative contribution to overall enrichment. Any such contribution must then be considered within the context of other recreational sources of impact on sites.

Disturbance

- 3.2.6 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 feeding¹¹. 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 birds¹².
- 3.2.7 The potential for disturbance may be less in winter than in summer, in that there are often a smaller number of recreational users. In addition, the consequences of disturbance at a population level may be reduced because birds are not breeding. However, winter activity can still cause important disturbance, especially as birds are particularly vulnerable at this time of year due to food shortages, such that disturbance which results in abandonment of suitable feeding areas through disturbance can have severe consequences. Several empirical studies have, through correlative analysis, demonstrated that out-of-season (October-March) recreational activity can result in quantifiable disturbance:
- Underhill *et al*¹³ counted waterfowl and all disturbance events on 54 water bodies within the South West London Water bodies Special Protection Area and clearly correlated disturbance with a decrease in bird numbers at weekends in smaller sites and with the movement of birds within larger sites from disturbed to less disturbed areas.
 - Evans & Warrington¹⁴ found that on Sundays total water bird numbers (including shoveler and gadwall) were 19% higher on Stocker's Lake LNR in Hertfordshire, and attributed this to displacement of birds resulting from greater recreational activity on surrounding water bodies at weekends relative to week days. However, recreational activity was not quantified in detail, nor were individual recreational activities evaluated separately.
 - Tuite *et al*¹⁵ used a large (379 site), long-term (10-year) dataset (September – March species counts) to correlate seasonal changes in wildfowl abundance with the presence of various recreational activities. They found that shoveler was one of the

¹¹ Riddington, R. *et al.* 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* 43:269-279

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

¹³ Underhill, M.C. *et al.* 1993. Use of Waterbodies in South West London by Waterfowl. An Investigation of the Factors Affecting Distribution, Abundance and Community Structure. Report to Thames Water Utilities Ltd. and English Nature. Wetlands Advisory Service, Slimbridge

¹⁴ Evans, D.M. & Warrington, S. 1997. The effects of recreational disturbance on wintering waterbirds on a mature gravel pitlake near London. *International Journal of Environmental Studies* 53: 167-182

¹⁵ Tuite, C.H., Hanson, P.R. & Owen, M. 1984. Some ecological factors affecting winter wildfowl distribution on inland waters in England and Wales and the influence of water-based recreation. *Journal of Applied Ecology* 21: 41-62

most sensitive species to disturbance. The greatest impact on winter wildfowl numbers was associated with sailing/windsurfing and rowing.

- Pease *et al*¹⁶ investigated the responses of seven species of dabbling ducks to a range of potential causes of disturbance, ranging from pedestrians to vehicle movements. They determined that walking and biking created greater disturbance than vehicles and that gadwall were among the most sensitive of the species studied.
- A three year study of wetland birds at the Stour and Orwell SPA found that walkers, boats and dogs were the most regular source of disturbance. Despite this, the greatest responses came from relatively infrequent events, such as gun shots and aircraft noise. Birds seemed to habituate to frequent 'benign' events such as vehicles, sailing and horses, but there was evidence that apparent habituation to more disruptive events related to reduced bird numbers – i.e. birds were avoiding the most frequently disturbed areas. Disturbance was greatest at high tide and on the Orwell, but birds on the Stour showed greatest sensitivity (Ravenscroft, 2005).¹⁷

3.2.8 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 longer¹⁰. In addition, dogs, rather than people, tend to be the cause of many management difficulties, notably by worrying grazing animals, and can cause eutrophication near paths. Nutrient-poor habitats such as heathland are particularly sensitive to the fertilising effect of inputs of phosphates, nitrogen and potassium from dog faeces¹⁸.

3.2.9 Underhill-Day¹⁰ 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%.

3.2.10 However the outcomes of many of these studies need to be treated with care. For instance, the effect of disturbance is not necessarily correlated with the impact of disturbance, i.e. the most easily disturbed species are not necessarily those that will suffer the greatest impacts. It has been shown that, in some cases, the most easily disturbed birds simply move to other feeding sites, whilst others may remain (possibly due to an absence of alternative sites) and thus suffer greater impacts on their population¹⁹. A literature review undertaken for the RSPB²⁰ 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.

3.2.11 Disturbing activities are on a continuum. The most disturbing activities are likely to be those that involve irregular, infrequent, unpredictable loud noise events, movement or vibration of long

¹⁶ Pease, M.L., Rose, R.K. & Butler, M.J. 2005. Effects of human disturbances on the behavior of wintering ducks. *Wildlife Society Bulletin* 33 (1): 103-112.

¹⁷ Ravenscroft, N. (2005) Pilot study into disturbance of waders and wildfowl on the Stour-Orwell SPA: analysis of 2004/05 data. Era report 44, Report to Suffolk Coast & Heaths Unit.

¹⁸ 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.

¹⁹ Gill et al. (2001) - Why behavioural responses may not reflect the population consequences of human disturbance. *Biological Conservation*, 97, 265-268

²⁰ Woodfield & Langston (2004) - Literature review on the impact on bird population of disturbance due to human access on foot. *RSPB research report* No. 9.

duration. Birds are least likely to be disturbed by activities that involve regular, frequent, predictable, quiet patterns of sound or movement or minimal vibration. The further any activity is from the birds, the less likely it is to result in disturbance.

- 3.2.12 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.

Sensitivity of Species – Waterfowl and Waders

- 3.2.13 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. These are given in Table 1, which compiles 'tolerance distances' from across the literature. 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.

Table 1. Tolerance distances of 21 water bird species to various forms of recreational disturbance, as described in the literature. All distances are in metres. Single figures are mean distances; when means are not published, ranges are given. Tydeman (1978)²¹, Keller (1989)²², Van der Meer (1985)²³, Wolff et al (1982)²⁴, Blankestijn et al (1986)²⁵.

Species	Type of disturbance		
	Rowing boats/kayak	Sailing boats	Walking
Little grebe		60 – 100 ²¹	
Great crested grebe	50 – 100 ²²	20 – 400 ²¹	
Mute swan		3 – 30 ²¹	
Teal		0 – 400 ²¹	
Mallard		10 – 100 ²¹	
Shoveler		200 – 400 ²¹	
Pochard		60 – 400 ²¹	
Tufted duck		60 – 400 ²¹	
Goldeneye		100 – 400 ²¹	
Smew		0 – 400 ²¹	
Moorhen		100 – 400 ²¹	

²¹ Tydeman, C.F. 1978. Gravel Pits as conservation areas for breeding bird communities. PhD thesis. Bedford College

²² 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

²³ 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.

²⁴ Wolf, W.J., Reijnders, 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

²⁵ 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.

Species	Type of disturbance		
	Rowing boats/kayak	Sailing boats	Walking
Coot		5 – 50 ²¹	
Curlew			211 ²³ ; 339 ²⁴ ; 213 ²⁵
Shelduck			148 ²³ ; 250 ²⁴
Grey plover			124 ²³
Ringed plover			121 ²³
Bar-tailed godwit			107 ²³ ; 219 ²⁴
Brent goose			105 ²³
Oystercatcher			85 ²³ ; 136 ²⁴ ; 82 ²⁵
Dunlin			71 ²³ ; 163 ²²

3.2.14 It should be emphasised that recreational use is not inevitably a problem. Many European sites are also nature reserves managed for conservation and public appreciation of nature. The Lee Valley Regional Park that encompasses the SPA and Ramsar sites is such an example. At these sites, access is encouraged and resources are available to ensure that recreational use is managed appropriately.

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

- *Access management* – restricting access to some or all of a European site - is not usually within the remit of the Borough Council and restriction of access may contravene a range of Government policies on access to open space, and Government objectives for increasing exercise, improving health etc. However, active management of access may be possible, for example as practised on nature reserves.
- *Habitat management* is not within the direct remit of the Council. However the Council can help to set a framework for improved habitat management by promoting cross-authority collaboration and S106 funding of habitat management. In the case of Waltham Forest, there may be opportunities for this since, according to Natural England, all areas of Site of Special Scientific Interest habitat underpinning Epping Forest SAC and Lee Valley SPA and Ramsar sites in Waltham Forest are not currently in favourable condition²⁶.
- *Provision of alternative recreational space* can help to attract recreational users away from sensitive European sites, and reduce additional pressure on them. For example, some species for which European sites have been designated are particularly sensitive to dogs, and many dog walkers may be happy to be diverted to other, less sensitive, sites. However the location and type of alternative space must be attractive for users to be effective. In the case of both Epping Forest and Lee Valley SPA and Ramsar sites, dog-walking, walking and cycling are likely to be the major site usages, and so alternative space needs to cater for this.

²⁶ <http://www.natureonthemap.org.uk/>

- 3.2.16 Both Epping Forest SAC and the Lee Valley SPA and Ramsar sites lie partly within Waltham Forest, and they are theoretically vulnerable, from a geographic perspective, to the effects of recreational pressure or other disturbing activities. Both sites are sensitive ecologically – the woodland sites through habitat erosion, fragmentation and nutrient enrichment, and Lee Valley through disturbance to the species for which the SPA and Ramsar are designated.
- 3.2.17 Therefore it is necessary to perform an initial screen to determine whether the Wood Street AAP contains policy measures that could lead to a significant adverse effects, either alone or ‘in combination’ with other plans and projects, through recreational pressure or other disturbance factors, on these European sites.

3.3 Atmospheric pollution

- 3.3.1 The main pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂). NO_x can have a directly toxic effect upon vegetation. In addition, greater NO_x or ammonia concentrations within the atmosphere will lead to greater rates of nitrogen deposition to soils. An increase in the deposition of nitrogen from the atmosphere to soils is generally regarded to lead to an increase in soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats.

Table 2. 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.
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.

Pollutant	Source	Effects on habitats and 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 SO ₂	Main sources of SO ₂ emissions are electricity 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.	Wet and dry deposition of SO ₂ acidifies soils and freshwater, and alters the species composition of plant and associated animal communities. The significance of impacts depends on levels of deposition and the buffering capacity of soils.

3.3.2 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 SO₂ or NH₃ emissions will be associated with Local Plans. NO_x emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). Within a 'typical' housing development, by far the largest contribution to NO_x (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison²⁷. Emissions of NO_x could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the LDF.

3.3.3 According to the World Health Organisation, the critical NO_x 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'²⁸ of atmospheric nitrogen deposition (that is, NO_x combined with ammonia NH₃) for key habitats within the European sites considered within this assessment (Table 3). Epping Forest SAC currently exceeds critical loads for nitrogen deposition and NO_x levels. Lee Valley SPA/Ramsar is also experiencing high levels of NO_x.

²⁷ 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>

²⁸ The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur

Table 3. Critical nitrogen loads, actual rates of nitrogen deposition and NOx concentrations²⁹ for the European sites considered within this assessment (APIS³⁰ data accessed on 31/01/13)

Site	Grid reference ³¹	Key habitats	Minimum ³² critical loads (Kg N/ha/yr)	Actual nitrogen deposition ³³	Actual NOx concentration (µgm ⁻³)
Epping Forest SAC	TQ396882	Beech woodland	10	34.3	59.3
		Lowland heathland		17.6	
Lee Valley SPA and Ramsar	TQ352883	(Grazing marsh) ³⁴	(20)	17.6	59.3

3.3.4 The National Expert Group on Transboundary Air Pollution (2001)³⁵ 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 SO₂ 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 SO₂.
- Current nitrogen deposition is probably already changing species composition in many nutrient-poor habitats, and these changes may not readily be reversed.
- The effects of nitrogen deposition are likely to remain significant beyond 2010.
- Current ozone concentrations threaten crops and forest production nationally. The effects of ozone deposition are likely to remain significant beyond 2010.
- 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

²⁹ As NO₂

³⁰ UK Air Pollution Information System. <http://www.apis.ac.uk>

³¹ Grid references relate to the closest points to the AAP area.

³² APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range

³³ To a resolution of 5 km

³⁴ Although parts of Lee Valley SPA/Ramsar habitat consists of grazing marsh, within Waltham Forest the underlying habitat is standing open water, for which there is no defined critical load for atmospheric pollution available from APIS. Therefore grazing marsh is included as the best available habitat indicator. It is important to bear in mind that any interpretation of the data should account for the fact that the critical loads and actual deposition are therefore not directly comparable at the given grid reference.

³⁵ National Expert Group on Transboundary Air Pollution (2001) Transboundary Air Pollution: Acidification, Eutrophication and Ground-Level Ozone in the UK.

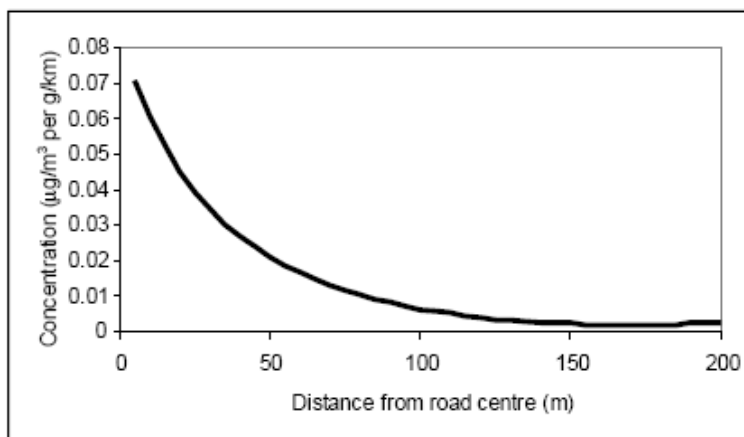
the timescales of these processes are very long relative to the timescales of reductions in emissions.

- 3.3.5 Grice *et al*^{36 37} 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.
- 3.3.6 Recent data on historical and projected emissions³⁸ has confirmed that UK emissions of NO_x in 2010 exceeded that of SO₂, but that NO_x emissions are declining and are projected to continue to do so. NH₃ emissions are predicted to remain stable until at least 2020. Wet deposition of nitrogen and sulphur has been found to decrease more slowly than the emissions reductions rate³⁹. This is attributed to a number of factors including increases in emissions from international shipping and changing rates of atmospheric oxidation. The percentage of the United Kingdom surface area for which critical loads are exceeded is estimated to fall from 85% in 1970 to 37% in 2020 for acidic deposition and from 73% to 49% for nutrient nitrogen deposition.

Local air pollution

- 3.3.7 According to the Department of Transport's Transport Analysis Guidance, "Beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant"⁴⁰.

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



³⁶ 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.

³⁷ 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.

³⁸ Dore, A., Matejko, M., Hallsworth, S., Kryza, M., Bealey, B., Hall, J., Dore, C., Smith, R., Tang, S., Vieno, M., Dragosits, U. & Sutton, M. (2010). Modelling the deposition of nitrogen and sulphur and exceedance of critical loads and levels in the UK. Linnean Society, London.

³⁹ Matejko, M., Dore, A., Hall, J., Dore, C., Blas, M., Kryza, M., Smith, R., & Fowler, D. (2009). The influence of long term trends in pollutant emissions on deposition of sulphur and nitrogen and exceedance of critical loads in the United Kingdom. Environmental Science and Policy 12 882-896.

⁴⁰ www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

3.3.8 This is therefore the distance that has been used throughout this HRA in order to determine whether European sites are likely to be significantly affected by development under the AAP. Given that sites detailed in Table 4 lie within 200m of major roads that may be regularly used by vehicle journeys arising from Waltham Forest as a result of the increased population, and potentially other development plans, it was concluded that air quality should be included within the scope of this assessment. The location of these roads in relation to the European sites is shown in Figure 1.

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

Site	Proximity to major roads
Epping Forest SAC	Lies adjacent to, or within 200m of, the M25, A104, A121, A110, A406, A1009, A112, A1069, A113, A11, A12 and A503 as well as smaller, but well-used B-roads and more minor routes.
Lee Valley SPA/Ramsar	Lies adjacent to the A503 and A414 and within 200m of the A1055

Diffuse air pollution

3.3.9 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 Plan ‘*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.

3.3.10 In the light of this and our own knowledge and experience, it is considered reasonable to conclude that it must be the responsibility of higher-tier plans to set a policy framework for addressing the cumulative diffuse pan-authority air quality impacts, partly because such impacts stem from the overall quantum of development within a region (over which individual Councils have little control), and since this issue can only practically be addressed at the highest pan-authority level. In the light of this, diffuse air quality issues will not therefore be considered further within this HRA.

3.4 Water abstraction

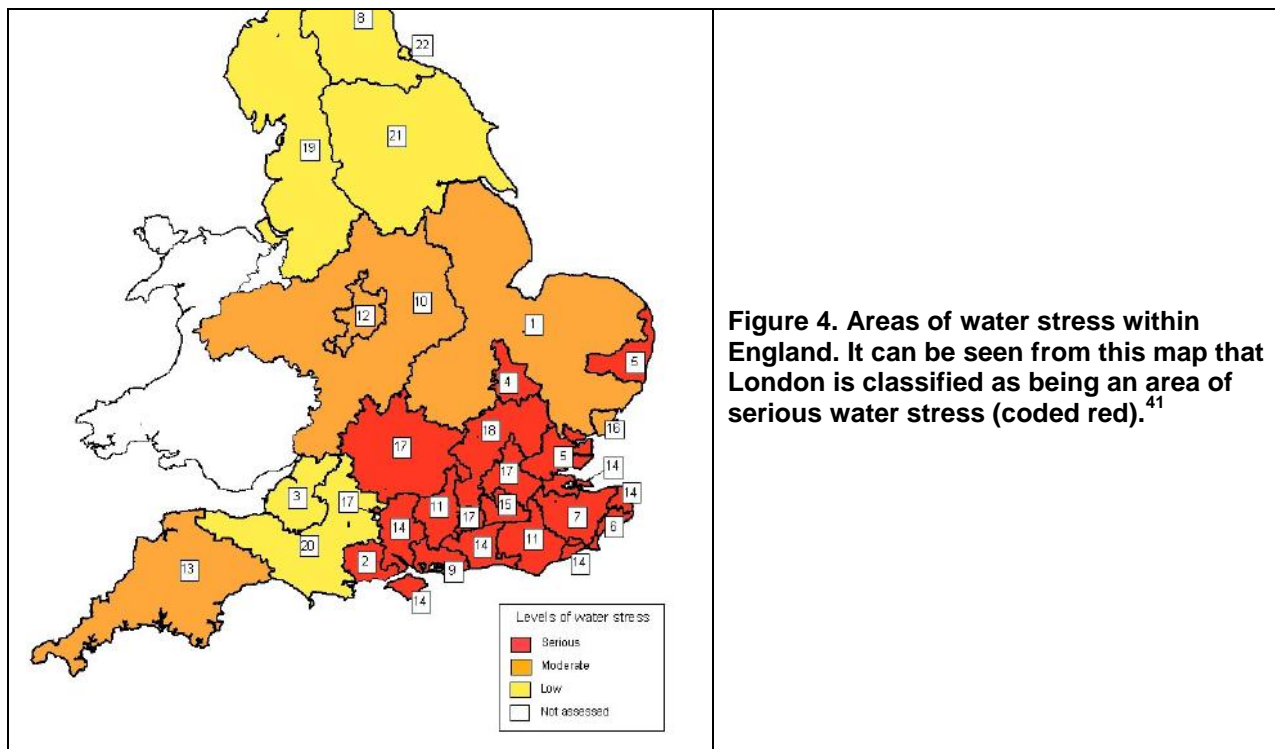
3.4.1 London is generally an area of high water stress (see Figure 4).

3.4.2 Development within Waltham Forest Borough over the plan period will increase water demand.

3.4.3 Waltham Forest lies within Thames Water’s supply area, specifically their London Resource Zone. The majority of London’s public water supplies come from the rivers Thames and Lee (with approximately 80% of London’s supply taken from the freshwater River Thames upstream of Teddington Weir). The remaining supplies are obtained from groundwater sources situated beneath the London Boroughs from the confined chalk aquifer. Water supply for Thames Water’s

London Resource Zone (WRZ) does involve some abstraction from the Lee Valley Reservoirs (including Walthamstow Reservoirs), which are also subject to an agreement to (if necessary) supply Essex and Suffolk Water with up to 91Ml/day average bulk transfer. The bulk supply is provided from the King George and William Girling Reservoirs in the Lee Valley, potentially supported by abstraction directly from the River Lee at defined intakes, if required.

3.4.4 In the London CAMS document, the Environment Agency identifies the River Lee as ‘over abstracted’, which means that no further consumptive abstraction licences will be issued (except under conditions of very high flow), and no further consumptive abstraction can take place within this catchment.



3.4.5 As such, with no other schemes in place, increased residential development within Waltham Forest could lead to a need for damaging levels of abstraction from the Lee Valley SPA/Ramsar when considered cumulatively with all other new development in the London WRZ and further north in Hertfordshire that would ordinarily entail water supply from the Lee Valley. However, Thames Water have implemented a major water supply project in London which involves abstraction and desalination of water from the tidal River Thames (the Thames Gateway Water Treatment Plant), such that damaging levels of abstraction from the River Lee to supply Waltham Forest (or other parts of London) should be avoidable.

3.4.6 It should be noted that Thames Water’s Water Resources Management Plan identifies that in order to prevent the London WRZ from being in deficit during the lifetime of the WRMP there will be a need to address this through demand management approaches and ultimately, through

⁴¹ Figure adapted from Environment Agency. 2007. Identifying Areas of Water Stress. <http://publications.environment-agency.gov.uk/pdf/GEHO0107BLUT-e-e.pdf>

provision of an Upper Thames reservoir at Abingdon, which would provide a secure supply in the longer term.

- 3.4.7 Thames Water's Water Resources Management Plan has been adopted and therefore there is confidence in the future of water resource management within the area that covers both Waltham Forest and Lee Valley SPA and Ramsar sites. Given this, it may be concluded that there are adequate safeguards in place to ensure that lack of water resources as a result of Preferred Options within the Wood Street AAP would not occur and there would be no significant adverse effects, either alone or 'in combination' with other plans and projects, on these European sites.

3.5 Water Quality

- 3.5.1 As wastewater for Waltham Forest is currently processed by Beckton Sewage Treatment Works and discharged into the Thames, increases in volumes of wastewater that could result from policies promoting housing and employment development are not likely to have a significant adverse effect on the Lee Valley SPA and Ramsar site.
- 3.5.2 In conclusion, no European designated sites are susceptible to reduced water quality through STW discharges or direct run-off arising from development within Wood Street, and therefore such considerations are not considered further within the HRA.

4 Screening

- 4.1.1 The following tables present the screening assessments for each AAP Preferred Option and Development Sites. Green shading in the final column indicates a policy option that has been screened out of further consideration due to the absence of any mechanism for an adverse effect on European sites. Orange shading indicates the need for further consideration at Appropriate Assessment stage. Note that there are no 'site-specific' issues relating to individual Development Sites mentioned within the Area Action Plan, in that any potential impacts on European sites would stem from the quantum of development generally within Walthamstow Town Centre rather than particular Opportunity Sites. As such, this HRA does not include a detailed appraisal of individual Opportunity Sites but confines itself to assessment of the policies.

Table 5. HRA Screening of Wood Street AAP Preferred Options

Preferred Option Number/Name	Summary	Screening Decision
WS1 – Meeting Growth Targets with a Mix of Uses	<p>The Council will seek to facilitate a vibrant mix of uses and activities in Wood Street and will work with the private sector to deliver mixed use development on the development sites identified in the Key Diagram and in Chapter 5 – Development Sites, which will comprise of:</p> <ul style="list-style-type: none"> - up to 1,000 additional residential units; - additional retail; - additional floorspace for restaurants and cafes; - additional business floorspace; and - additional leisure and community facilities. <p>Developers will be required to demonstrate that their proposals are in conformity with the land use strategy set out in the Key Diagram and with the principles and policies set out in this document. Developers will be required to contribute towards the adequate provision of social and physical infrastructure in support of the proposed development.</p>	<p>There are no HRA aspects that require consideration as a result of this policy. The total quantum of housing to be delivered within Waltham Forest has been considered within the HRA of the adopted Core Strategy, and measures have been recommended to ensure no adverse effects on European designated sites.</p> <p>It is unlikely that additional retail or leisure and community facilities will lead to significantly increased recreational visits to Epping Forest SAC and the Lee Valley SPA and Ramsar sites. The HRA of the Core Strategy recommended measures that would enable a conclusion of no likely significant effects on the SAC, SPA and Ramsar sites from a Borough-wide perspective and these have been incorporated into the Core Strategy.</p> <p>Though the policy leaves open the possibility of increases in private car transport (through travel to work in new business facilities or through journeys from new housing), there are unlikely to be significant effects on Epping Forest SAC as a result since policies WS13-5.4 seek to reduce the need for car travel.</p>
WS2 – Respecting Local Character	<p>Future development should be based on an appreciation of the existing local context in terms of: urban grain; building type; building scale; height and mass; and streetscape, including trees and landscaping.</p> <p>Development proposals should seek to strengthen the local character and identity. Developments that are expected to have a detrimental impact on the local character of the area will not be permitted.</p> <p>Policy WS2 to WS11 set out the criteria that new developments will have to meet in order to preserve the character and identity of Wood Street and new developments need to be in conformity with these policies.</p>	No HRA considerations.
WS3 – Strengthening and Enhancing the Town Centre	We aim to encourage an increase in the total amount of retail floorspace to meet demand and we will encourage a diversity of floorspace (i.e. unit sizes) to meet the demand of different type of shops.	It is unlikely that additional retail facilities will lead to significantly increased recreational visits to Epping Forest SAC and the Lee Valley SPA and Ramsar sites. The HRA of the Core Strategy recommended measures that would enable a conclusion of no

Preferred Option Number/Name	Summary	Screening Decision
	<p>We will encourage proposals for small scale shopping to meet day to day convenience needs, cafes and restaurants along Wood Street.</p> <p>We will seek to protect the existing character, identity and amenity of the town centre by:</p> <ul style="list-style-type: none"> • As part of this we seeking to protection and sensitively upgrade of the indoor market; and • retaining and protecting shops fronts located in 'Shop Front Character Areas' and resisting inappropriate development which would detract and alter their special character; and • improving and enhancing new shop fronts located along the high street in accordance with High Street Life (2011). <p>As part of this we seek protection and sensitive upgrade of the indoor market and we will support and encourage sensitive shop front restoration and renewal along the high street.</p>	<p>likely significant effects on the SAC, SPA and Ramsar sites from a Borough-wide perspective.</p> <p>Though the policy leaves open the possibility of car transport increases (through travel to retail facilities), there are unlikely to be significant effects on Epping Forest SAC as a result since policies WS13-5.4 seek to reduce the need for car travel.</p>
<p>WS4 – Consolidate Wood Street with a clear Spatial Strategy</p>	<p>We seek the creation of strong frontages in the plan area, in particularly along Wood Street.</p> <p>Within the proposed primary frontages retail activity will be the dominant use in accordance with our policy DM26 in the DM Policies DPD. Other ground floor uses will be acceptable, where they can demonstrate that they contribute towards achieving an appropriate mix of use, increased footfall in the town centre and both day and night-time activity in the town centre.</p> <p>Within the Secondary Shopping Area, a mixture of uses will be permitted in accordance with our policy DM26 in the DM Policies DPD to enable a greater diversity of use within the town centre. Accepted uses include retail, business and entertainment uses (e.g. restaurants and cafes). Accommodation for small-scale independent retail, leisure-related uses and for cultural/creative community facilities will be particularly encouraged.</p>	<p>It is unlikely that additional retail or leisure and community facilities will lead to significantly increased recreational visits to Epping Forest SAC and the Lee Valley SPA and Ramsar sites. The HRA of the Core Strategy recommended measures that would enable a conclusion of no likely significant effects on the SAC, SPA and Ramsar sites from a Borough-wide perspective.</p> <p>Though the policy leaves open the possibility of car transport increases (through travel to facilities), there are unlikely to be significant effects on Epping Forest SAC as a result since policies WS13-5.4 seek to reduce the need for car travel.</p>
<p>WS5 – Comprehensive and Integrated Approach</p>	<p>We will require development in the plan area to comply with the following placemaking principles:</p> <ul style="list-style-type: none"> - Appreciating the context - Designing for diversity and mixed uses - Creating a fine grid of streets 	<p>No HRA considerations.</p>

Preferred Option Number/Name	Summary	Screening Decision
	<ul style="list-style-type: none"> - Augmenting permeability of the area and making places easy to understand and to get around - Providing strong and continuous frontage with active uses on ground floor - Contributing to a clear definition of public and private spaces - Orienting fronts and backs correctly - Designing for community safety <p>Major Development will be expected to demonstrate that they meet the Building for Life Criteria.</p>	
WS6 – Protect and Enhance Historic Assets and Local Heritage	<p>We will seek the retention, re-use or sensitive renewal, refurbishment or redevelopment of historic buildings and heritage assets to preserve the historic and valued character of the area. We will require development to demonstrate that they take account of and minimise the impact on the setting of local assets and historic buildings.</p>	No HRA considerations.
WS7 – Tall Buildings	<p>The height and scale of new development should fit into the urban context of Wood Street and should respect the setting of existing development including listed buildings. For the majority of the plan area, this would relate to building heights of 2-3 storeys. Taller buildings (defined in our Core Strategy policy CS15) may be appropriate in certain locations, subject to the highest quality of design and fully meeting the criteria set out in Development Management policy DM32 and the Council's Urban Design SPD.</p>	No HRA considerations.
WS8 – Housing Growth	<p>Over the plan period up to 1,000 new homes will be created in Wood Street on the key sites identified.</p>	<p>There are no HRA aspects that require consideration as a result of this policy. The total quantum of housing to be delivered within Waltham Forest has been considered within the HRA of the adopted Core Strategy, and measures have been recommended to ensure no adverse effects on European designated sites.</p>
WS9 – Mix of Housing and Tenure	<p>To ensure that mixed, sustainable communities are created, we will require development proposals to demonstrate:</p> <ul style="list-style-type: none"> a) a balanced provision of dwelling sizes within each development in accordance with the requirements set out in the DM Policies DPD, with particular emphasis on the need to provide for larger families (3 bedrooms and above); b) a provision for affordable housing in accordance with our DM Policies DPD, with requirements for affordable housing to be established on a site-by-site basis. Deferred contributions will be 	No HRA considerations.

Preferred Option Number/Name	Summary	Screening Decision
	<p>required in accordance with our DM Policies DPD, where developments provide less affordable housing than set out in our adopted plan documents;</p> <p>c) a balanced provision of contemporary typologies that blend into the existing urban form, scale and massing of the plan area and make a positive contribution to the street and defining public and private spaces;</p> <p>d) high architectural, urban design and environmental standards, regardless of tenure; and</p> <p>e) adequate consideration and funding contributions towards community infrastructure provision in accordance with policy DM37 of the Development Management DPD.</p>	
WS10 – Distribution and Density of Homes	<p>In pursuit of the London Plan 2011 density matrix (Table 3.2) and our preferred housing mix, developments will be required to meet a density of</p> <p>a) 50 – 180 units per hectare for areas that have a PTAL (public transport accessibility level) of 4-6;</p> <p>b) 50 – 115 units per hectare for areas that have a PTAL of 2-3; and</p> <p>c) 40 – 65 units per hectare for areas that have a PTAL of 0-1. Higher residential densities should be concentrated in the following areas:</p> <p>a) along key Wood Street frontages;</p> <p>b) adjacent to the train station;</p> <p>c) fronting the Plaza; and</p> <p>d) at gateway sites identified in the key diagram.</p>	No HRA considerations.
WS11 – Marlowe Road Estate	<p>High quality family housing will be provided through the redevelopment of the Marlowe Road Estate. Proposals for the Marlowe Road Estate will be developed in conjunction with the Plaza redevelopment to maximise mutual benefits and synergies.</p>	No HRA considerations.
WS12 – An Attractive High Street	<p>We seek to protect an appropriate balance in Wood Street between the different requirements of a high street and its users and create an vibrant and safe environment for visitors and residents alike that complements the town centre.</p> <p>We will require new development to demonstrate that it does not negatively impact on Wood Streets function; safety; and amenity for all road users, in particular vulnerable road users</p>	No HRA considerations.

Preferred Option Number/Name	Summary	Screening Decision
WS13 – Walking and Cycling	<p>We seek to create a pedestrian and cycle friendly environment and encourage walking and cycling within the area. Development proposals should take account of the requirements of walking and cycling.</p> <p>Where development includes the creation of new, or the modification of existing public highway, it needs to provide a well connected network of high quality, safe, direct and accessible streets that provide an attractive walking and cycling environment, while creating access for motor vehicles where appropriate. Streets must cater for a range of uses with priority generally given to pedestrians and cyclists and account taken of the requirements of vulnerable road users and mobility impaired people.</p>	No HRA considerations.
WS14 – Public Transport	<p>We will continue to work with Transport for London (TfL) and Network Rail to improve the frequency, quality and reliability of public transport services and infrastructure.</p>	No HRA considerations.
WS15 – Transport Impacts	<p>We will use a range of measures, including public transport improvements, travel plans, road improvements and managing car parking to ease the impact of new development on the transport network and services.</p> <p>Development proposals need to be supported by a transport assessment and a travel plan demonstrating that sufficient transport capacity is available to meet additional traffic demands and how impacts on the road network will be minimised and mitigated.</p>	This policy should help to reduce car and business travel within the Wood Street area and beyond, and thus contributes to reducing the likelihood of deposition of atmospheric pollutants at Epping Forest SAC.
WS16 - Parking	<p>The amount of car parking in residential development proposals should not exceed a maximum parking standards set in the DM Policies DPD (Appendix 4). Parking levels for individual developments will be determined on the basis of need in accordance with our parking hierarchy, public transport accessibility levels and supporting Transport Assessment and the Travel Plan. Car-free developments will be encouraged in areas that are close to the station.</p> <p>Non-residential parking will need to be provided in accordance with our parking standards set out in the Development Management DPD.</p> <p>Spaces for visitor parking and loading requirements will be provided both along Wood Street and off-street. The Council will seek the efficient use and management of parking spaces</p>	No HRA considerations.

Preferred Option Number/Name	Summary	Screening Decision
	throughout the day and evening.	
WS17 – CHP and Decentralised Energy	<p>We will seek to facilitate a decentralised energy network (DEN) in the Wood Street and Town Hall area to supply the area with low carbon energy by</p> <ul style="list-style-type: none"> (a) working with neighbouring boroughs and the GLA on the delivery of a decentralised energy network; (b) working with public sector partners and redevelopment of Council properties to connect to the network in order to provide sufficient anchor loads; and (c) requiring developments in the area to be connection ready and connect to a committed network in the future in accordance with policy DM12 in the DM Policies DPD. 	No HRA considerations.
WS18 – Providing Alternatives to Existing Sensitive Sites	<p>New development in Wood Street must protect and enhance existing open spaces within, and in proximity to, the plan area, in particular the Epping Forest and the Sites of Local Importance to Nature.</p> <p>We seek to create a new and/or improved public open space in the plan area to support the provision of green infrastructure and create more alternatives for recreational use.</p> <p>Where appropriate, we will require developer contributions for the enhancement and maintenance of existing green infrastructure.</p>	No HRA considerations.
WS19 – Provision and Quality of Private and Communal Open Spaces and Play Areas	<p>We will require new developments to provide private or communal external amenity space in accordance with the space standards set out our DM Policies.</p> <p>Where this cannot fully be achieved we will require developments to contribute to enhancing existing open spaces to ensure that residents have access to open spaces of different sizes and functions. New children’s play areas will be required in residential developments where appropriate, in particularly in the southern and northern part of the plan area.</p>	No HRA considerations.
WS20 – Connections to Open Spaces and Nature, in Particular to Epping Forest	<p>We will improve pedestrian connections between Wood Street and Epping Forest and between Epping Forest and other open spaces in the area and seek tree planting along key links to create a network of green infrastructure.</p>	<p>In itself, this policy could lead to increased recreational pressure on Epping Forest SAC. However, the supporting text makes clear that the Council are committed to partnership working with the Corporation of London to avoid negative impacts on the SAC.</p> <p>The HRA of the Core Strategy was able to conclude no likely significant effects on European designated sites through</p>

Preferred Option Number/Name	Summary	Screening Decision
		recreational pressure due to the inclusion of measures to protect the integrity of such sites (particularly policies regarding Location and Management of Growth; Enhancing Green Infrastructure and Biodiversity; and Tourism Development and Visitor Attractions). The HRA recommended that on a borough-wide basis, a commitment to timely delivery of green space, of a nature that would fulfil a similar function to the European sites in terms of visitor usage, should be incorporated into the Core Strategy.
WS21 – Protection of Borough Employment Sites	We will protect the borough employment sites at Clifford Road and Barrett Road. If sites within these areas come forward for redevelopment, we will allow mixed-use schemes where a development can demonstrate an adequate provision of employment space through an intensification of use on these sites.	No HRA considerations.
WS22 – Creating New Jobs and Diversifying the Area	We will seek to diversify the employment offer in the area and we will encourage developers to provide flexible employment space and community uses, where deemed viable.	No HRA considerations.
WS23 – Protecting Local Amenity	Employment uses will be required to be of a suitable type and nature to complement town centre uses. All employment proposals will be required to demonstrate to the Council's satisfaction that they will not result in material negative impacts on neighbouring uses. Therefore, the development needs to demonstrate that a) the amenity of local residents is protected; b) the development is of a scale, form and character appropriate to its location and incorporates high quality design; c) there are no significant adverse impacts on the function and vitality of Wood Street as a town centre; d) there is no significant adverse impact on the historic environment or the recreational, open space and landscape character or value of the area; e) there are no significant adverse transport impacts outside or inside the site as a result of the development, in particular with regards to the pedestrian and cycle environment; and f) the development makes the fullest possible contribution to climate change adaptation and mitigation.	No HRA considerations.
WS24 – Provide Social	We will work in partnership with other bodies (such as PCT,	No HRA considerations.

Preferred Option Number/Name	Summary	Screening Decision
Infrastructure in Support of Growth	<p>NELFT, and the Local Education Authority) to enable the provision of a suitable range of social infrastructure facilities in Wood Street plan area to meet existing and future demand. Developer contributions will be sought to support the provision of new, or expansion and maintenance of existing social infrastructure.</p> <p>Community uses and social infrastructure will be supported as part of mixed use developments on opportunity sites, in particular within the town centre core.</p>	
WS25 – Consolidate Community Uses	<p>We seek to potentially relocate existing, and provide additional, new community uses within the core of the plan area, in particular the Plaza.</p>	No HRA considerations.
WS26 - Strengthening Town Centre Use with Cultural and Arts Facilities	<p>We will support and increase the amount and diversity of leisure floor space, including cultural uses, and focuses larger scale facilities within the central area of the plan.</p> <p>The indoor market is a major asset for Wood Street and we will continue to encourage its use for the handicraft, vintage and art. We will facilitate arts and cultural experience through improvements to public spaces and we will encourage and facilitate street entertainment, events and informal play in the Wood Street area.</p>	No HRA considerations.
WS27 – Providing Work Studios	<p>We will encourage provision of suitable workspace for artists and small creative industries in the plan area.</p>	No HRA considerations.

5 Conclusions of Screening

- 5.1.1 Issues of recreational pressure and reduction in air quality have been considered in relation to the impacts of the Wood Street Area Action Plan on the Lee Valley SPA and Ramsar sites and Epping Forest SAC.
- 5.1.2 It has been concluded that, in consideration of the AAP as a daughter document of the Core Strategy, it does not contain, either through its own preferred options, or through relation to the CS, any measures that would be likely to have a significant adverse effect on the European sites assessed.
- 5.1.3 As a result, it is concluded the draft preferred policies of the AAP do not need to be taken forward for Appropriate Assessment.

Appendix 1: Background on European Sites Referenced in this Document

Epping Forest SAC

Introduction

Epping Forest SAC covers over 1,600 ha of Essex and the London Borough of Waltham Forest, with 70% of the site consisting of broadleaved deciduous woodland. Epping Forest is one of only a few remaining large-scale examples of ancient wood-pasture in lowland Britain and has retained habitats of high nature conservation value including ancient semi-natural woodland, old grassland plains and scattered wetland. The semi-natural woodland is particularly extensive, forming one of the largest coherent blocks in the country. Most is characterised by groves of over-mature pollards and these exemplify all three of the main wood-pasture types found in Britain: beech-oak, hornbeam-oak and mixed oak. The Forest plains are also a major feature and contain a variety of unimproved acid grasslands, which have become uncommon elsewhere in Essex and the London area. In addition, Epping Forest supports a nationally outstanding assemblage of invertebrates, a major amphibian interest and an exceptional breeding bird community.

Features of European Interest⁴²

The site is designated as an SAC for its:

- Beech forests on acid soils; an example of such habitat toward the north-east of its UK range, containing a notable selection of bryophytes, fungi and dead-wood invertebrates;
- Stag beetle (*Lucanus cervus*), for which this is one of only four known outstanding localities in the UK;
- Dry heaths; and
- Wet heathland with cross-leaved heath.

Historic Trends and Current Conditions

Deteriorating air quality and under-grazing are the two key pressures that currently affect the site. While recreational pressure is a considerable impact in some areas, these are localised; however, funding of management on the SAC is governed largely by donation and contributions from the Corporation of London and it is likely that the ability to adequately manage recreation on the SAC will come under increasing pressure as the population of northeast London, Epping Forest district and East Hertfordshire district increases.

Within the London Borough of Waltham Forest itself none of the SSSI management units that underpin the SAC are in favourable condition – some are considered to be recovering from unfavourable status, but others are showing no improvement or are declining. In all cases, poor

⁴² Features of European Interest are the features for which a European sites is selected. They include habitats listed on Annex 1 of the Habitats Directive, species listed on Annex II of the EC Habitats Directive and populations of bird species for which a site is designated under the EC Birds Directive.

air quality is cited in the most recent condition assessment process (2010) as a primary factor for this condition. There are localised concerns over recreational pressure, but the condition assessment reports state that the site would be able to withstand this in a more robust manner were it not for the stress imposed by atmospheric pollutants.

Key environmental conditions

The following key environmental conditions have been identified for the maintenance of the interest features of Epping Forest SAC:

- Controlled recreational activity;
- Good air quality;
- Maintenance of grazing regimes;
- Unpolluted water;
- Absence of nutrient enrichment;
- Absence of non-native species.

Lee Valley SPA and Ramsar

Introduction

The Lee Valley comprises a series of embanked water supply reservoirs, sewage treatment lagoons and former gravel pits along approximately 24 km of the valley. These waterbodies support internationally important numbers of wintering gadwall and shoveler, while the reedbeds support a small but internationally important population of bittern.

The Lee Valley SPA/Ramsar consists of four Sites of Special Scientific Interest, of which Turnford and Cheshunt Pits SSSI, Rye Meads SSSI and Amwell Quarry SSSI all lie outside of Waltham Forest borough on the Hertfordshire/Essex border. Walthamstow Reservoirs SSSI lies within London Borough of Waltham Forest. The Special Protection Area is managed by the Lee Valley Regional Park Authority and by Thames Water.

The Walthamstow Reservoirs contain one of the country's major heronries and a particularly large concentration of breeding wildfowl. They are also an important gathering area for moulting tufted duck and in winter attract nationally significant populations of wildfowl and other wetland birds. They were mainly constructed in the latter half of the nineteenth century and comprise ten relatively small, shallow, water storage basins. Several of the reservoirs are fringed by sloping earth banks and these, together with the presence of wooded islands, form distinctive habitat features. The reservoirs serve an active part in Thames Water's strategic water supply infrastructure.

During the winter months the reservoirs are a favoured area for a variety of wetland birds and in particular, large numbers of wildfowl. The populations of shoveler and tufted duck consistently reach levels of national significance, while great crested grebe, pochard and coot also occur in important numbers. The shores of the reservoirs and the banks of the Coppermill Stream are of added interest for fringes of fenland vegetation containing species that are uncommon in Greater London.

Features of European interest

Lee Valley is designated as a SPA due to its over-wintering populations of:

- Bittern *Botaurus stellaris*, 6 individuals representing at least 6.0% of the wintering population in Great Britain (5 year peak mean, 1992/3-1995/6)
- Gadwall *Anas strepera*, 515 individuals representing at least 1.7% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)
- Shoveler *Anas clypeata*, 748 individuals representing at least 1.9% of the wintering Northwestern/Central Europe population (5 year peak mean 1991/2 - 1995/6)

The birds that winter on many Special Protection Areas/Ramsar sites (the Lee Valley being no exception) are not confined to the boundaries of the SPA, but in fact utilise areas of 'supporting habitat' located outside the boundaries and sometimes many kilometres distant.

Lee Valley qualifies as a Ramsar site under two criteria:

- **Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.** The site supports the nationally scarce plant species whorled water-milfoil *Myriophyllum verticillatum* and the rare or vulnerable invertebrate *Micronecta minutissima* (a water-boatman).
- **Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.**
 - Species with peak counts in spring/autumn:
 - Shoveler *Anas clypeata*, 287 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)
 - Species with peak counts in winter:
 - Gadwall *Anas strepera*, 445 individuals, representing an average of 2.6% of the GB population (5 year peak mean 1998/9- 2002/3)

Historic Trends and Current Conditions

Although parts of the SPA currently experience high levels of visitor pressure, it is not currently deemed to be at levels that threaten the SPA/ Ramsar site⁴³.

During the most recent condition assessment of the SSSI units that underpin the SAC (2008), the Walthamstow reservoirs were listed as recovering from unfavourable condition. The assessment noted that "There has been a slight fall in the number of breeding Grey Heron and Tufted Duck. Wintering Cormorant, Shoveler and Tufted Duck and breeding Pochard remain favourable. The site is in good condition and the fall in numbers is no reflection of site management."

Key environmental conditions

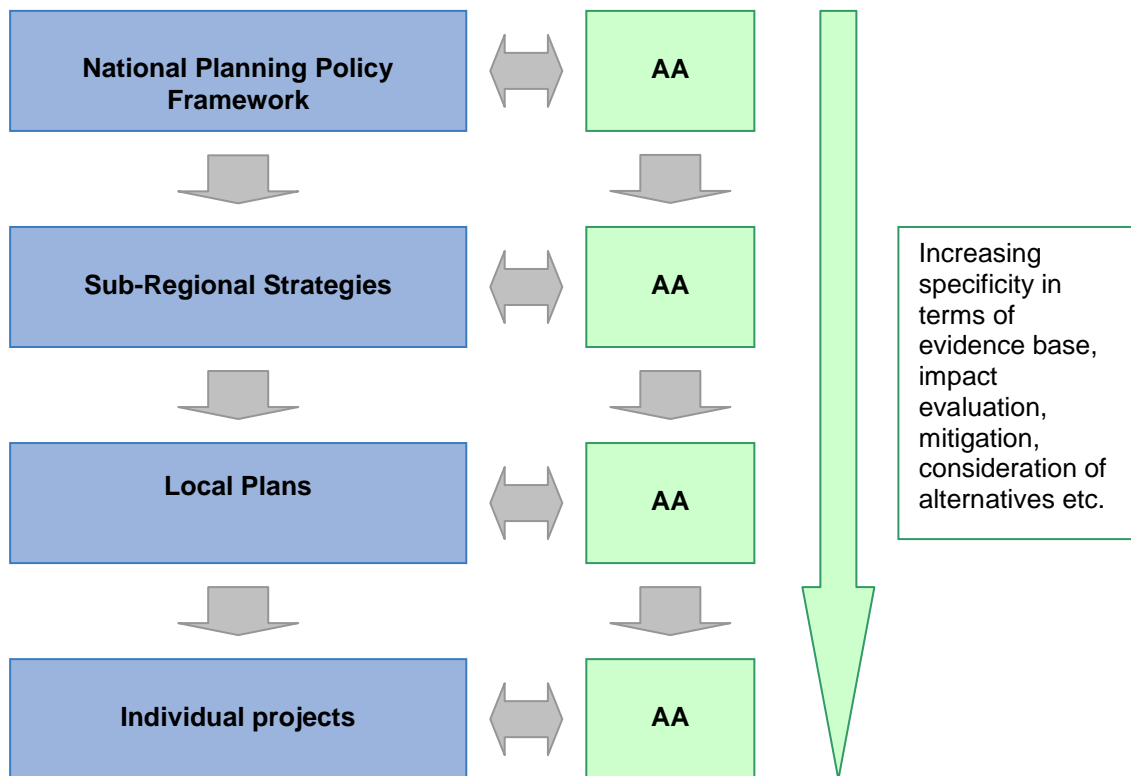
The following key environmental conditions were identified for this site:

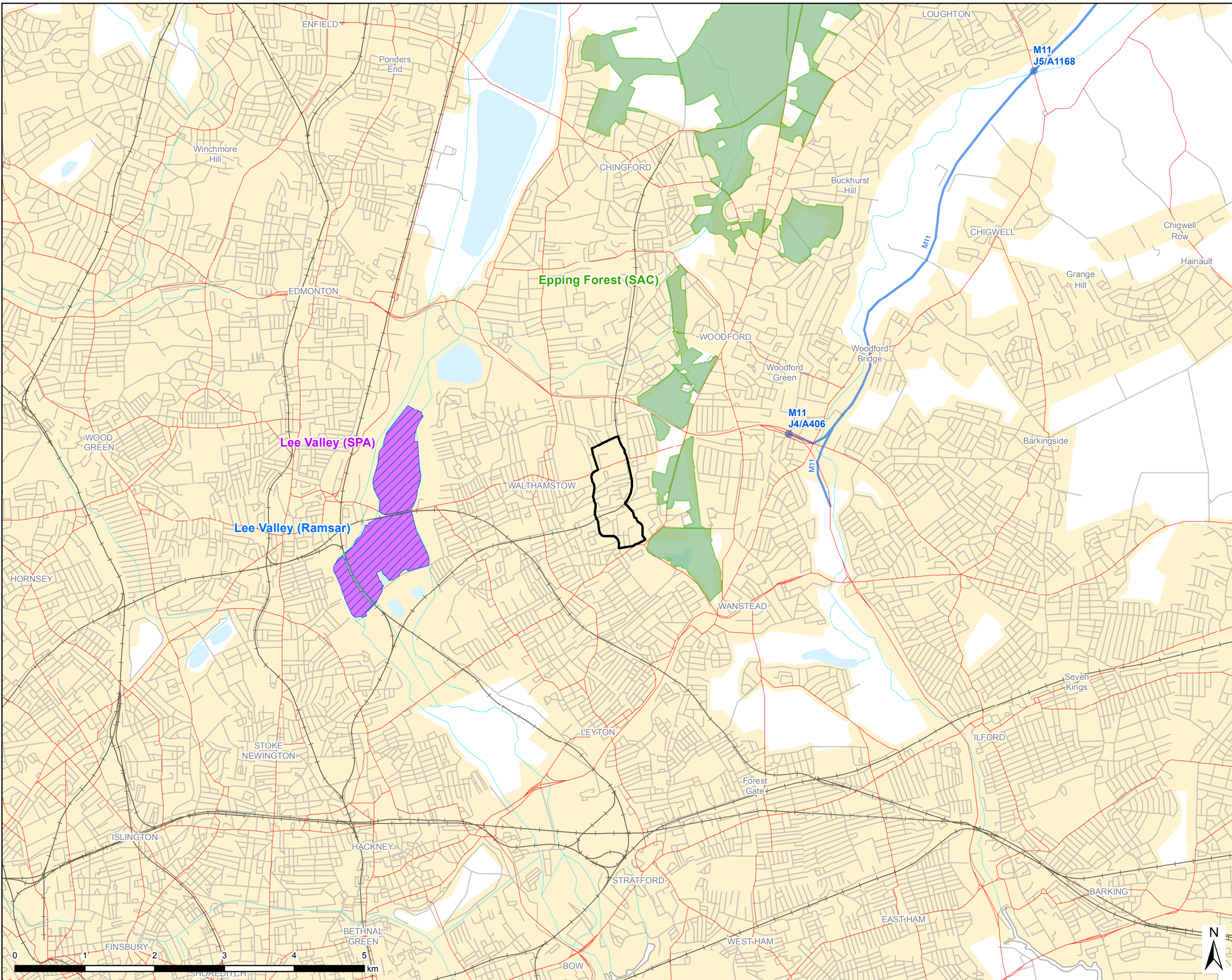
⁴³ JNCC (2000) Information Sheet on Ramsar Wetlands – Lee Valley <http://www.jncc.gov.uk/pdf/RIS/UK11034.pdf>

-
- Minimal disturbance
 - Maintenance of grazing / mowing regimes
 - Consistent freshwater flows and volumes
 - Consistent water quality
 - Good air quality
 - Unpolluted water
 - Absence of nutrient enrichment
 - Absence of non-native species
 - The maintenance of adequate supporting habitat outside the boundaries of the European site

It is understood that most of the off-site supporting habitat for gadwall and shoveler relates to nearby water bodies (i.e. within approximately 2 km). It is understood that bittern does not significantly utilise habitat outside the boundaries of the SPA/Ramsar site.

Appendix 2: 'Tiering' in Habitat Regulations Assessments





LEGEND

- Wood Street Boundary
- Special Area of Conservation (SAC)
- Ramsar
- Special Protection Area (SPA)
- A Road
- Motorway
- Minor Road
- Railway
- River

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Revision Details	By	Check	Date	Suffix
Purpose of Issue				

DRAFT

Client
LONDON BOROUGH OF WALTHAM FOREST

Project Title
WALTHAM FOREST HRA

Drawing Title
EUROPEAN DESIGNATED SITES

Drawn JW	Checked GD	Approved GD	Date 06/02/2013
URS Internal Project No. 47042593		Scale @ A3 1:50,000	

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Drawing Number FIGURE 1	Rev Rev
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Plot Date: 06 Feb 2013
 File Name: I:\5004 - Information Systems\47042593 - Waltham_Forest_SAMXDs\Wood Street European Designated Sites.mxd