

LDF

Local Development Framework

Habitat Regulations Assessment September 2011

Dalston Area Action Plan
(Pre-Submission Document)



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1 Introduction

1.1 Legislation

- 1.1.1 In October 2005, the European Court of Justice ruled that the UK had failed to correctly transpose the provisions of Articles 6(3) and (4) of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora – the Habitats Directive – into national law. Specifically, the UK had failed to ensure that land use plans are subject to Appropriate Assessment where they might have a significant effect on a *Natura 2000* site (Special Areas of Conservation, SACs and Special Protection Areas, SPAs). It is Government policy (as described in Planning Policy Statement 9: Biodiversity & Geological Conservation) for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) to be treated as having equivalent status to *Natura 2000* sites. As such, Appropriate Assessments should also cover these sites.
- 1.1.2 The need for Habitat Regulations Assessment is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by Regulation 48 of the Conservation (Natural Habitats &c) Regulations 1994 (as amended in 2007). The ultimate aim of HRA is to “maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest” (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering favourable conservation status.
- 1.1.3 The Habitats Directive applies the precautionary principle to protected areas; plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. This is in contrast to the SEA Directive which does not prescribe how plan or programme proponents should respond to the findings of an environmental assessment; it simply says that the assessment findings (as documented in the ‘environmental report’) should be ‘taken into account’ during preparation of the plan or programme. In the case of the Habitats Directive, plans and projects may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.
- 1.1.4 In order to ascertain whether or not site integrity will be affected, an HRA should be undertaken of the plan or project in question:

Box 1. The legislative basis for Habitat Regulations Assessment

Habitats Directive 1992

Article 6 (3) states that:

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

Conservation (Natural Habitats &c. Regulations) 1994 (as amended)

Regulation 48 states that:

“A competent authority, before deciding to ... give any consent for a plan or project which is likely to have a significant effect on a European site ... shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives”.

- 1.1.5 Following the European Court ruling, the former Office of the Deputy Prime Minister (ODPM; now CLG) indicated that the regulations implementing the Habitats Directive in the UK would be amended to ensure that HRA explicitly applies to land use plans¹. Planning Policy Statement (PPS) 9 states that Ramsar sites (wetlands of international importance) should receive the same protection as designated SACs and SPAs.

1.2 Scope and Objectives

- 1.2.1 The role of the *Natura 2000* sites (SACs, SPAs, Ramsar) is to provide statutory protection for terrestrial and coastal sites that are of European and global importance as a result of habitats or species contained within them. Scott Wilson has been appointed by Hackney Borough Council to assist in undertaking a Habitat Regulations Assessment (HRA) of the potential effects of the Local Development Framework (LDF), on the *Natura 2000* network. This is despite the absence of any European sites actually within the Borough itself, due to an acknowledgement that development within a borough can lead to adverse effects on European sites within neighbouring boroughs and to the fact that the Lee Valley SPA and Ramsar site abuts the north east boundary of the Borough.

- 1.2.2 The core LDF documents will ultimately consist of:

- Core Strategy;
- Site-Specific Allocations;

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

- Proposals Map;
- Hackney Area Action Plan; and
- Dalston Area Action Plan.

1.2.3 In June 2009 an HRA (Appropriate Assessment stage) was carried out on the submission Core Strategy. Since the Dalston Area Action Plan (AAP) is a daughter document of the Core Strategy it is therefore necessary to undertake a screening assessment of the AAP in order to confirm that:

- there are no mechanisms for any adverse effects on European sites; or
- if there is a mechanism for an adverse effect the necessary avoidance and mitigation will be delivered will be addressed through the Core Strategy measures and do not need specific measures to be delivered through the AAP; or
- If there is a need for specific measures to be delivered through the AAP, this is identified.

1.2.4 This HRA screening report therefore presents an evaluation of the likely significant effects of the Dalston AAP within the context of the Core Strategy, refreshing and updating the assessment.

1.2.5 Chapter 2 of this report explains the process by which the HRA screening has been carried out. Chapter 3 explores the relevant pathways of impact that have been scrutinised and where appropriate documents the conclusion of the Core Strategy HRA regarding how these are dealt with at the highest, Core Strategy, tier of the LDF. Chapter 4 presents a table which screens each policy of the Dalston AAP, set within the context of the Hackney Core Strategy policies. The conclusions of the screening report are summarised in Chapter 5: Conclusions.

2 Methodology

2.1 Process

- 2.1.1 The HRA is being carried out in the absence of formal Government guidance. Communities and Local Government released a consultation paper on Appropriate Assessment of Plans in 2006². As yet, no further formal guidance has emerged.
- 2.1.2 Figure 1 below outlines the stages of HRA according to current draft CLG guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

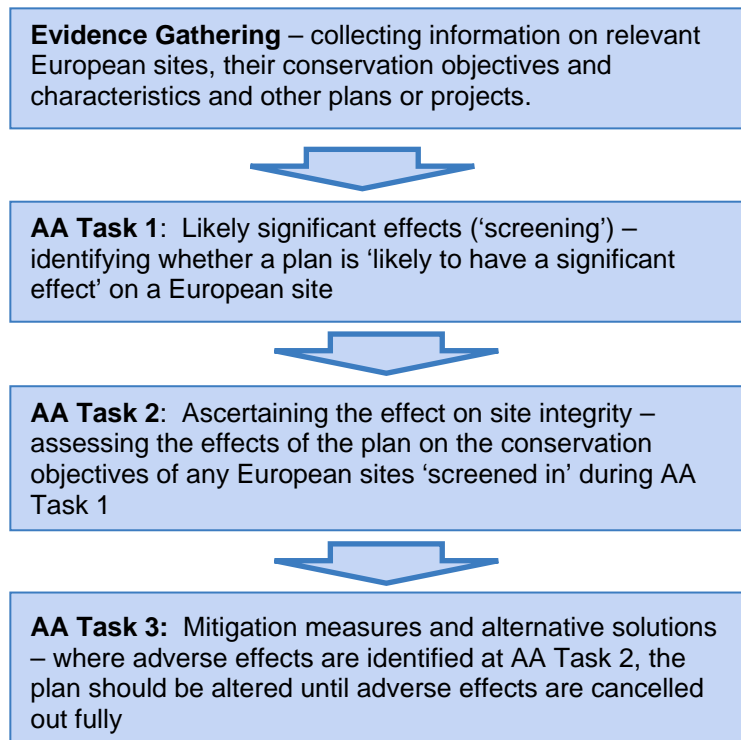


Figure 1 - Four-Stage Approach to Habitat Regulations Assessment

Source: CLG, 2006

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

2.2 Likely Significant Effects Test (LSE)

- 2.2.1 The first stage of any Habitat 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:
- 2.2.2 *"Is the Plan, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites?"*
- 2.2.3 The objective is to 'screen out' those plans and projects that can, without any detailed appraisal, be said to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism for an adverse interaction with European sites.
- 2.2.4 That screening assessment is the purpose of this report. 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 mechanisms for any adverse effects on European sites; or
 - if there is a mechanism for an adverse effect the necessary avoidance and mitigation will be delivered will be addressed through the Core Strategy measures and do not need specific measures to be delivered through the AAP; or
 - If there is a need for specific measures to be delivered through the AAP, this is identified.

2.3 Physical scope of the assessment

- 2.3.1 There is no pre-defined guidance that dictates the physical scope of an HRA of the AAP. Therefore, in considering the physical scope of the assessment, we have been guided primarily by the identified impact pathways rather than by arbitrary 'zones'. Current guidance suggests that the following European sites be included in the scope of assessment:
- All sites within the authority's boundary; and
 - Other sites shown to be linked to development within the authority's boundary through a known 'pathway' (discussed below)
- 2.3.2 Briefly defined, pathways are routes by which a change in activity within the London Borough of Hackney can lead to an effect upon a European site. In terms of the second category of European site

listed above, CLG guidance states that the AA should be '*proportionate to the geographical scope of the [plan policy]*'. The scope of the HRA screening of the Dalston AAP has been informed by the HRA work undertaken by Hackney Borough Council in consultation with Natural England on the Hackney Core Strategy.

- 2.3.3 No European sites lie within the London Borough of Hackney. However one European site (Lee Valley SPA and Ramsar site) lies immediately adjacent to the northeast boundary of the Borough, whilst further afield lies Epping Forest SAC, Richmond Park SAC, Wormley-Hoddensdonpark Woods SAC and Wimbledon Common SAC. During the HRA of the Core Strategy, these European sites were subject to consideration as to whether or not they have links with development within the Borough as described in Chapter 3.

3 Pathways of Impact

3.1 Introduction

3.1.1 This section of the report summarises the various impact pathways that could connect development within Hackney with European sites. In order to do this, the HRA of the Hackney Core Strategy is used as the basis. It was identified (prior to consideration of any mitigation measures) that development to be delivered under the Hackney Core Strategy could not be described *a priori* as being unlikely to result in significant adverse effects on European sites, because of the potential for adverse effects through the following impact pathways: urbanisation of Lee Valley SPA & Ramsar site, increased recreational pressure on both Lee Valley SPA/Ramsar and Epping Forest SAC, increased abstraction from the waterbodies within the Lee Valley SPA/Ramsar to achieve increased water resources, impacts on supporting habitat for the wintering bird interest of Lee Valley SPA and deteriorating air quality due to increased vehicle movements on roads immediately adjacent to the Lee Valley SPA/Ramsar and Epping Forest SAC.

3.2 Urbanisation

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

- Increased fly-tipping - Rubbish tipping is unsightly but the principle adverse ecological effect of tipping is the introduction of invasive alien species with garden waste. Garden waste results in the introduction of invasive aliens precisely because it is the 'troublesome and over-exuberant' garden plants that are typically thrown out³. Alien species may also be introduced deliberately or may be bird-sown from local gardens.
- Cat predation - A survey performed in 1997 indicated that nine million British cats brought home 92 million prey items over a five-month period⁴. A large proportion of domestic cats

³ Gilbert, O. & Bevan, D. 1997. The effect of urbanisation on ancient woodlands. *British Wildlife* 8: 213-218.

⁴ Woods, M. et al. 2003. Predation of wildlife by domestic cats *Felis catus* in Great Britain. *Mammal Review* 33, 2 174-188

are found in urban situations, and increasing urbanisation is likely to lead to increased cat predation.

- 3.2.2 The most detailed consideration of the link between relative proximity of development to European sites and damage to interest features has been carried out with regard to the Thames Basin Heaths SPA.
- 3.2.3 After extensive research, Natural England and its partners produced a 'Delivery Plan' which made recommendations for accommodating development while also protecting the interest features of the European site. This included the recommendation of implementing a series of zones within which varying constraints would be placed upon development. While the zones relating to recreational pressure expanded to 5km (as this was determined from visitor surveys to be the principal recreational catchment for this European site), that concerning other aspects of urbanisation (particularly predation of the chicks of ground-nesting birds by domestic cats) was determined at 400m from the SPA boundary. The delivery plan concluded that the adverse effects of any development located within 400m of the SPA boundary could not be mitigated since this was the range within cats could be expected to roam as a matter of routine and there was no realistic way of restricting their movements, and as such, no new housing should be located within this zone.
- 3.2.4 No exact correlation can be made between the incidence of fly-tipping and deliberate arson and the specific proximity of large-scale human settlement, since it does depend on circumstances. However, it is reasonable to conclude that the incidence will be highest when human settlement is very near (for the purposes of this assessment we have as a precaution defined 'very near' as being within 500m rather than immediately adjacent). While this is not an empirically derived distance, it does enable urbanisation effects to be assessed at this high level. These impacts would need to be evaluated in more detail when individual site proposals were developed.
- 3.2.5 Policy DTC 01 of the AAP defines the extent of the Dalston town centre, which is approximately 3.2km from the Walthamstow Reservoir SSSI component (the nearest part of the SPA) of the Lee Valley SPA and Ramsar site and 6.5km from the Epping Forest SAC. Enhanced urbanisation effects (as distinct from those associated with recreational activity) are therefore considered to be unlikely to increase significantly as a result of the AAP. Urbanisation is therefore scoped out of consideration in this HRA.

3.3 Recreational Pressure

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

3.2.7 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)⁵ 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)⁶ conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each tramped between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphological characteristics were found to explain more variation in response between different vegetation types than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. Cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks, but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were

⁵ 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

⁶ 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

least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.

- Cole (1995c)⁷ 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)⁸ 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.

3.2.8 Many wetland sites, and particularly the Lee Valley, are extensively used for recreational activity by people from a wide-ranging catchment that includes the whole of Hertfordshire and also draw visitors from further afield. Activities of walkers (particularly dog walkers) and water-borne recreation can, if carried out in winter, have a significant disturbing effect upon wintering waterfowl thus increasing energetic expenditure (as birds have to take flight more frequently) and competition on the less disturbed parts of the wetland⁹.

3.2.9 We have managed to obtain some visitor survey and recreational catchment data relating to both European sites considered within the scope of this assessment - Epping Forest SAC and the Lee Valley SPA/Ramsar. Since Hackney falls within the recreational catchment of both sites the Core Strategy HRA investigated the potential for adverse effects as a result of increased recreational pressure associated with the increased resident population.

Lee Valley SPA/Ramsar

3.2.10 The Lee Valley Regional Park is already extensively used for recreational activity. Inevitably, given the major draw that the Park represents, the additional 10,850 new homes that the Council are required to deliver over the plan period (the quantum, location and type of which is set by the policies listed in paragraph 2.7.2) will add

⁷ 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.

⁸ 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

⁹ West, A.D., et al. 2002. Predicting the impacts of disturbance on shorebird mortality using a behaviour-based model. *Biological Conservation* 106:3, 319-328

to recreational pressures. This should not be considered in isolation, but must be set within the context of over 305,000 new dwellings in Greater London to be delivered under the London Plan, including 107,730 within the six boroughs neighbouring Hackney. While the Park has detailed management plans to control recreation, it is inevitable that these plans will be placed under greater pressure (and potentially require greater funds to implement) if the number of recreational users increases considerably.

- 3.2.11 However, most of the Regional Park lies outside the boundaries of the SPA. Specifically, recreational access to Walthamstow Reservoirs SSSI is currently restricted and controlled on a permit basis (which is not currently anticipated to change), such that the future exposure of the Reservoirs to human activity is very limited, unlike the rest of the Regional Park.
- 3.2.12 As such, it was concluded from the Core Strategy HRA that there will be no adverse effect on the interest features of the SPA as a result of recreational pressure associated with the increased population in Hackney. As this is a Hackney-wide issue, and the Dalston AAP as a daughter document of the Hackney Core Strategy does not contradict its policies, it is considered that this issue can therefore be scoped out of consideration with regard to the Dalston AAP.

Epping Forest SAC

- 3.2.13 The Corporation of London have published the results of the Epping Forest Visitor Survey 2006¹⁰. The entirety of Hackney lies within 2 to 10 miles of Epping Forest SAC, with Wanstead Flats being the closest SAC component to the Borough. According to the Epping Forest visitor survey data approximately 29% of visitors to the site come from within this band. It is not possible to determine what proportion of Hackney's residents travel to visit Epping Forest for recreational purposes based upon these data.
- 3.2.14 The Core Strategy HRA did conclude that an 'in combination' adverse effect upon the SAC could result in the absence of mitigation. The Council therefore confirmed that they will liaise with the Epping Forest Conservators and other stakeholders to assist in the long-term delivery of the Management Plan for Epping Forest SAC with regard to any changes to the management of the site that are necessary as a result of increased visitor numbers that would be associated in part with the increased population in the northeast London boroughs as a whole.
- 3.2.15 As this is a Hackney-wide issue, and the Dalston AAP as a daughter document of the Hackney Core Strategy does not contradict its

¹⁰ Corporation of London, 2006. Epping Forest Visitor Survey 2006 Analysis. Unpublished report

policies, it is considered that this issue can therefore be scoped out of consideration with regard to the Dalston AAP.

3.4 Atmospheric Pollution

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

Table 1. 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.
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	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,

Pollutant	Source	Effects on habitats and species
	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.	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.

3.2.17 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.

3.2.18 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 Development Frameworks. 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 comparison¹¹. 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.

3.2.19 According to the World Health Organisation, the critical NO_x concentration (critical threshold) for the protection of vegetation is 30 µg m⁻³; the threshold for sulphur dioxide is 20 µg m⁻³. In addition,

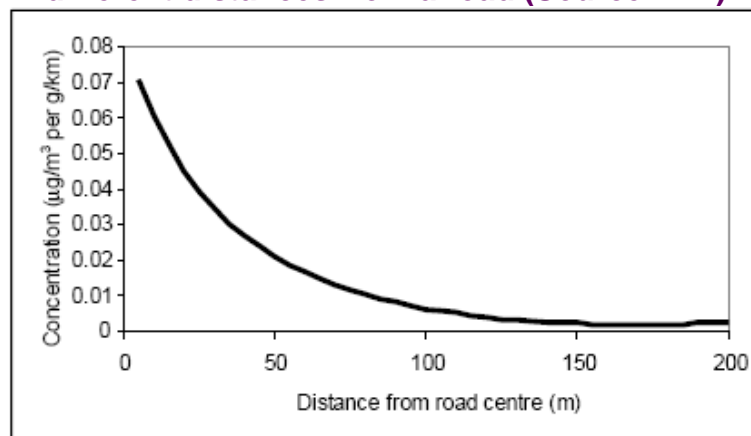
¹¹ Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <http://www.airquality.co.uk/archive/index.php>

ecological studies have determined 'critical loads'¹² of atmospheric nitrogen deposition (that is, NO_x combined with ammonia NH₃).

Local air pollution

- 3.2.20 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"¹³.

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



- 3.2.21 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 Core Strategy. Given that both the Lee Valley SPA/Ramsar and Epping Forest SAC lie within 200m of major roads that may be regularly used by vehicle journeys arising from Hackney and Dalston as a result of the increased population, it was concluded that air quality should be included within the scope of this screening assessment.
- 3.2.22 The issue of air pollution was addressed in the Appropriate Assessment of the Core Strategy. It was concluded that the strong policies contained within the Core Strategy to discourage car use and encourage the use of sustainable transport go as far as the local authority could be reasonably be expected in a Core Strategy towards minimising reliance on private car use. Additional mitigation was therefore not considered necessary and Natural England concurred in their consultation response.
- 3.2.23 While this is a Hackney-wide issue, it clearly requires individual AAP's to introduce measures promoting sustainable transport in order to be effective. This screening report will therefore consider whether the

¹² The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur

¹³ www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

Dalston AAP includes measures to ensure the contribution of the Dalston redevelopment to maximising sustainable transport.

3.5 Water Resources and Quality

- 3.5.1 There is a risk that increased abstraction to meet the needs of the increased population of Hackney (and therefore Dalston) will (when considered 'in combination' with the increased population throughout East London and parts of Hertfordshire over the plan period) lower water levels within the River Lee that are designated as or which feed the European site, thereby reducing freshwater inputs. This could potentially lead to increased sedimentation of the river channel due to reduced flows and a reduction in the freshwater available to SPA birds for drinking, feeding, roosting, loafing and bathing¹⁴.
- 3.5.2 Since the River Lee and its associated reservoirs form a major component of the water resource for northeast London, it was concluded that adverse effects from the Core Strategy on European sites as a result of increased abstraction from sensitive surface water sources could occur. However, it was ultimately concluded that since Thames Water are currently implementing a major water supply project in London which will involve abstraction and desalination of water from the tidal River Thames (the Thames Gateway Water Treatment Plant), damaging levels of abstraction from the River Lee to supply Waltham Forest (or other parts of London) should be avoidable.
- 3.5.3 It was also concluded that the minimum standards that developers must achieve in order to maximise sustainable water use as set in Core Strategy Policy 30 (Resource Efficiency) - residential developments will need to achieve '*...minimum ratings of Level 3 from 2010, Level 4 from 2013 and Level 6 from 2016*' – would be a necessary adjunct to new resource delivery.
- 3.5.4 While this is a Hackney-wide issue, it clearly requires individual AAP's to introduce measures seeking maximum water efficiency in order to be effective. This screening report will therefore consider whether the Dalston AAP includes measures to ensure the contribution of the Dalston redevelopment to maximising water efficiency.
- 3.5.5 Since wastewater for Hackney (and therefore Dalston) currently is 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 effect on the Lee Valley SPA and

¹⁴ Ravenscroft, N.O.M. and Beardalb, C.H. 2003. The importance of freshwater flows over estuarine mudflats for wintering waders and wildfowl. *Biological Conservation*, 113:1, 89-97

Ramsar site. This issue is therefore scoped out of consideration in this HRA.

3.6 Impacts on Supporting Habitat

- 3.6.1 Some European sites are designated for highly mobile species (such as bats and birds) that are not physically restricted to the boundaries of the European site. In those circumstances some areas of habitat outside the boundaries of the European site can be of fundamental importance for the overall survival of the population for which the European site was designated. As such, significant adverse impacts on that supporting habitat can result in an indirect adverse effect on the interest features of the European site. In the London Borough of Hackney, this is mainly associated with the Stoke Newington Reservoirs, which are known to provide an important area of supporting habitat for the gadwall and shoveler populations for which the SPA was designated (specifically as supporting habitat for Walthamstow Reservoirs SSSI).
- 3.6.2 The Woodberry Down estate was identified in the Preferred Options Core Strategy as being a location for major regeneration including an increase in the density of residents. The estate lies immediately north of Stoke Newington Reservoirs. However, a detailed project-level Habitat Regulations screening assessment was carried out for the Woodberry Down regeneration project¹⁵, which specifically considered the issue of increased recreational pressure on the Reservoirs and the possible displacement of gadwall and shoveler. The report concluded that due to the avoidance measures incorporated into the design of the new estate footprint, significant adverse effects on the Lee Valley SPA were unlikely as a result of displacement of wildfowl from the Reservoirs. This view was accepted by Natural England.
- 3.6.3 As such, impacts on supporting habitat are scoped out of consideration in the HRA for the Dalston AAP.

¹⁵ Scott Wilson. 2008. Regeneration of the Woodberry Down Estate, London Borough of Hackney. Habitat Regulations Assessment. Scott Wilson, Basingstoke

4 Screening Tables

4.1.1 The following tables present the screening assessments for the Dalston AAP policies that have been put forward for consideration. In the table, green shading in the final column indicates a site or policy option that has been screened out of further consideration due to the absence of any mechanism for an adverse effect on European sites, or the issue being Hackney-wide and covered by strong policies contained within the Hackney Core Strategy.

4.2 Dalston AAP Policies

Table 2: Screening Assessment of the Dalston AAP Policies

Issue	Policy	Screening (green = screened out, amber = screened in for appropriate assessment)
Strengthening local character and identity	DTC 01 - Definition of the Dalston AAP area	This policy defines the extent of the Dalston town centre. There is no mechanism for an adverse effect on European sites.
	DTC 02 - Respecting and enhancing local character	This policy outlines that future development should be based on the local character and context. There is no mechanism for an adverse effect on European sites.
	DTC 03 - Heritage	This policy outlines how future development should be in keeping with the historic fabric of the town centre. There is no mechanism for an adverse effect on European sites.
	DTC 04 - Building heights	This policy outlines how future development should adhere to building height parameters defined across the different areas of the town centre. There is no mechanism for an adverse effect on European sites.
Promoting a mix of well-integrated uses	DTC 05 – Ensuring a vibrant town centre through mixed use development	This policy outlines support for mixed use development in the town centre. It is not capable of an adverse effect on European sites in itself, as it outlines qualitative principles only.
	DTC 06 – Employment provision and priority employment area	This policy details an area designated as a priority employment area, with the types of workspace and priority sectors outlined. This policy would be capable of an adverse effect on European sites through air quality from potential travel to employment areas. However, this is balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA.
	DTC 07 – New housing provision	This policy outlines provisions for around 1770 new homes within Dalston up to the year 2025.

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Issue	Policy	Screening (green = screened out, amber = screened in for appropriate assessment)
		It would be capable of an 'in combination' adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u> , the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.
	DTC 08 – Improving town centre retail provision	This policy outlines where the majority of the new retail development should be located. Capable of an adverse effect on European sites by the expansion of visitor economy within Dalston increasing travel to the area but may reduce the need to travel outside of the Borough for 'high quality' shopping. However, this is balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA.
	DTC 09 – Supporting Community and Creativity	There is no mechanism by which this policy would lead to significant adverse effects on European sites. However it does provide a mechanism whereby adverse effects could be avoided by reducing the need to go to the European sites for amenity space.
	DTC 10 – Improving leisure offer and the evening economy	This policy aims to develop the evening and leisure economies of Dalston, increasing activities and safety. This policy is capable of an adverse effect on European sites by the expansion of visitor economy within Dalston, which may increase travel to the area. However, this is balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA.
Enhancing the public realm	DTC 11 – Public realm quality	There is no mechanism by which this policy would lead to significant adverse effects on European sites. However it does provide a mechanism whereby adverse effects could be avoided by reducing the need to go to the European sites for amenity space.
	DTC 12 – Spaces for play and recreation	There is no mechanism by which this policy would lead to significant adverse effects on European sites. However it does provide a mechanism whereby adverse effects could be avoided by reducing the need to go to the European sites for amenity space.
Supporting Culture, Community and Creativity and the Third Sector	DTC 13 – Supporting the community and creative sectors	This policy outlines how development should contribute positively to Dalston's varied culture and community character. There is no mechanism for an adverse effect on European sites.
	DTC 14 – Community/Social Infrastructure	This policy outlines how development should contribute positively to the provision of community/social infrastructure in Dalston. There is no mechanism for an adverse effect

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Issue	Policy	Screening (green = screened out, amber = screened in for appropriate assessment)
		on European sites.
Getting around the town centre	DTC 15 – User hierarchy in Dalston	This policy outlines a hierarchy of transport-related users. There is no mechanism by which this policy would lead to significant adverse effects on European sites. However it does provide a mechanism whereby adverse effects could be avoided by encouraging travel by foot, cycle or public transport over car usage.
	DTC 16 – Improving transport and accessibility in Dalston town centre	This policy outlines improvements to transport in accordance with the road user hierarchy. There is no mechanism by which this policy would lead to significant adverse effects on European sites. However it does provide a mechanism whereby adverse effects could be avoided by encouraging travel by foot and bicycle therefore potentially reducing car usage.
	DTC 17 – Strategic improvements to the pedestrian and cycle network	This policy aims to improve connectivity and permeability, minimise conflicts, improve environmental quality and reduce crime. There is no mechanism by which this policy would lead to significant adverse effects on European sites. However it does provide a mechanism whereby adverse effects could be avoided by encouraging travel by foot and bicycle therefore potentially reducing car usage.
	DTC 18 – Improvements to junctions and crossings within the town centre	This policy outlines encouragement for improvements to improved pedestrian crossings. There is no mechanism by which this policy would lead to significant adverse effects on European sites.
Making the most of public transport	DTC 19 – Public transport improvements	This policy outlines principles to encourage development to promote the use of public transport for all users. There is no mechanism by which this policy would lead to significant adverse effects on European sites. However it does provide a mechanism whereby adverse effects could be avoided by improving public transport connections and implementing a car free policy in the town centre, potentially reducing over car usage.
	DTC 20 – Parking and servicing	This policy outlines improvements to car parking provisions. The provision of more parking spaces associated with retail development may increase travel by car. However this policy does also provide a mechanism whereby adverse effects could be avoided by encouraging car club schemes and reducing car ownership.
Maximising energy efficiency	DTC 21 – Energy efficiency and construction	This policy outlines proposals to decrease CO ₂ emissions by sustainable design and construction, decentralised supply and renewable energy and to meet Code for Sustainable Homes standards of level 4 with a stepped increase to level 5 by 2013 and level 6 by 2016. There is no mechanism for an adverse effect on European sites.
Character area 01: Kingsland High	DTC 22 – Kingsland High Street Character Area	This policy outlines design and characteristics encouraged in development within the Kingsland High Street Character Area. This policy specifies encouragement for mixed

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Issue	Policy	Screening (green = screened out, amber = screened in for appropriate assessment)
Street		use development, but does not specify uses or quantify unit numbers. There is no mechanism by which this policy would lead to significant adverse effects on European sites.
	<p>DTC CA 01 – Kingsland High Street character area site-specific policies:</p> <ul style="list-style-type: none"> • Site A: 130 Kingsland High Street and site to the rear; • Site B: Dalston Kingsland station and associated works; • Site C: 51-57 Kingsland High Street; • Site D: D1: 25-33A Kingsland High Street ('Western curve' Northern site) and D2: 2-34 Kingsland High Street, 1-7 Ashwin Street, 3-9 Dalston Lane ('Western curve' Southern site; and • Site E: 36-42 Kingsland High Street. 	This sub-policy highlights potential development opportunity sites, building heights and development uses, although it does not specify numbers or ratios of the development uses. This policy is unlikely to lead to significant effects on European sites.
Character area 02: Kingsland Shopping Centre	DTC 23 – Kingsland Shopping Centre Character Area	This policy outlines encouragement of retail and residential development in the Kingsland Shopping Character area with improvements to the public realm. However, this policy does not specify precise development areas or unit numbers and is unlikely to lead to significant effects on European sites.
	DTC CA 02 – Kingsland Shopping Centre site-specific policy	<p>This site specific sub-policy highlights the Site F redevelopment opportunity site, and development use of retail and residential.</p> <p>It would be capable of an 'in combination' adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>

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Issue	Policy	Screening (green = screened out, amber = screened in for appropriate assessment)
Character area 03: Ridley Road	DTC 24 – Ridley Road Character Area	<p>This policy outlines opportunity sites for retail/ market use within the Ridley Road market area, where redevelopment and refurbishment of the existing market is encouraged. This policy may be capable of an adverse effect through an increase in travel to the area from an increase in the visitor economy.</p> <p>However, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA.</p>
	DTC CA 03 – Ridley Road character area site-specific policies (Sites G1 to G5)	<p>This sub-policy highlights potential development opportunity sites, building heights and development uses of retail and residential. However, this policy does not specify precise development areas or unit numbers and is unlikely to lead to significant effects on European sites.</p>
Character area 04: Gillett Square	DTC 25 – Gillett Square Character Area	<p>This policy encourages new mixed use development (including employment, retail and residential uses) within Gillett Square.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>
	DTC CA 04 – Gillett Square Character Area Site-Specific Policies:	<p>This sub-policy highlights Site S for comprehensive redevelopment to include retail, cultural, employment, residential and community uses.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>

Issue	Policy	Screening (green = screened out, amber = screened in for appropriate assessment)
Character area 05: Eastern Curve	DTC 26 – Eastern Curve Character Area	<p>This policy outlines preferred development uses (employment, residential and community), the need for public open space and development characteristics within the Eastern Curve Character area. The Eastern Curve area is highlighted as a Priority Employment area.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>
	DTC CA 05 – Eastern Curve Character Area Site-Specific Policies: <ul style="list-style-type: none"> • Site J: Thames House (J1) and 25-27 Dalston Lane, including the former Tyssen Arms public house; • Site K: Industrial building, Tyssen Street; • Site N: 67A-73 Dalston Lane and 36-36A Tyssen Street. 	<p>This sub-policy defines the opportunity sites within the Eastern Curve Character area with building heights and preferred development uses of employment, retail and residential.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>
Character area 06: Ashwin Street	DTC 27 – Ashwin Street Character Area	<p>This policy outlines the preferences for mixed use development (including employment and residential) within the Ashwin Street area. It also focuses on support for the night time economy.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the</p>

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Issue	Policy	Screening (green = screened out, amber = screened in for appropriate assessment)
		Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.
	DTC CA 06 – Ashwin Street Character Area Site-Specific Policy	<p>This sub-policy highlights the Site H redevelopment opportunity site, and development use of employment and residential.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>
Character area 07: Dalston Lane	DTC 28 – Dalston Lane Character Area	<p>This policy encourages predominantly mixed use development within the Dalston Lane area, including commercial/retail and residential uses.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>
	<p>DTC CA 07 – Dalston Lane Character Area Site-Specific Policies:</p> <ul style="list-style-type: none"> • Site I: 17-25 Dalston Lane; • Site O: Dalston Lane Terraces (46-86 Dalston Lane); and • Site P: CLR James Library, 16-22 Dalston Lane and 62 Beechwood Road. 	<p>This sub-policy defines the opportunity sites within the Dalston Lane character area and development uses at each individual site.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>

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Issue	Policy	Screening (green = screened out, amber = screened in for appropriate assessment)
Character area 08: Dalston Square	DTC 29 – Dalston Junction Character Area	<p>This policy outlines broad development requirements for the Dalston Junction character area including new residential development and expansion of existing educational space.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>
	<p>DTC CA 08 – Dalston Junction Character Area Site-Specific Policies:</p> <ul style="list-style-type: none"> • Site Q: Former Roseberry Cottage, Roseberry Place; and • Site M: Holy Trinity Primary School. 	<p>This sub-policy defines the site specific policies for the development opportunity sites within the Dalston Junction character area, with preferred uses for residential and educational space.</p> <p>It would be capable of an ‘in combination’ adverse effect on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. <u>However</u>, the Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21.</p>

5 Conclusions of Screening

- 5.1.1 Issues of recreation pressure, reduction in air quality and water resource issues have all been considered in relation to the impacts of the Dalston AAP on the Lee Valley SPA/Ramsar site and Epping Forest SAC.
- 5.1.2 It was concluded that considered in isolation, development to be delivered by the AAP could not be described as being unlikely to lead to significant adverse 'in combination' effects on European sites through recreational and air quality impacts on Epping Forest SAC and of recreational, air quality and water resource impacts on Lee Valley SPA. However, the Dalston AAP does not exist in isolation but as a daughter document of the Hackney Core Strategy.
- 5.1.3 The Hackney Core Strategy has been subject to HRA and does include measures to address these Hackney wide issues. In addition, the air quality effects are balanced by other policies (namely policies DTC16-DTC20) which would address sustainable transport provision in line with the Core Strategy and its HRA while the water resource pressures will be balanced by the water efficiency requirements of policy DTC21, particularly when placed within the context of new resources to be developed by Thames Water through their Water Resource Management Plan.
- 5.1.4 Based on these assumptions and the mitigation contained within the Hackney Core Strategy policies for Hackney-wide issues, it is concluded the policies of the Dalston AAP can be 'screened out' as being unlikely to lead to significant adverse effects on European sites and do not need to be taken forward for the next stage of Appropriate Assessment.

6 Appendix 1: Background on European Sites Referenced in this Document

6.1 Lee Valley SPA/Ramsar

Introduction

6.1.1 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.

6.1.2 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 within Broxbourne 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.

Turnford and Cheshunt Pits SSSI

6.1.3 The Turnford and Cheshunt Pits SSSI includes ten former gravel pits in the Lee Valley Regional Park. The pits range in age from North Metropolitan Pit, which is among the oldest pits in the Lee Valley to Hooks Marsh Lake, which was not excavated until the 1970s, and cover a span of over 40 years. Because of the profusion of pits and islands, several of the pits have extensive shorelines; North Metropolitan Pit alone having an estimated shoreline of about 4 miles (7.2km). Also included in the site are all the associated areas of marsh, grassland, ruderal herbs, scrub and woodland; part of the Small River Lee; and a further water body, Hall Marsh Scrape, which was constructed specifically for use by waterfowl.

6.1.4 The pits are of national importance for wintering gadwall *Anas strepera*; (regularly supporting some 2.9% of the UK population) and for wintering shoveler *Anas clypeata* (about 1.3% of the UK population). The site is of regional importance for wintering Coot *Fulica atra* and is locally important for wintering snipe *Gallinago gallinago* and bittern *Botaurus stellaris*.

Rye Meads SSSI

- 6.1.5 The Rye Meads meadows are the last substantial remnants of ancient flood-meadows on the rich alluvial soils of the Lee Valley. The site supports one of the largest areas of tall fen vegetation in the county and provides a valuable habitat for locally uncommon plants and for birds. This habitat has been reduced in extent significantly, both locally and nationally, by drainage and agricultural improvements, and it is now a rare habitat in Hertfordshire.
- 6.1.6 The site is important for breeding and wintering birds. In hard weather the lagoons support concentrations of Tufted Duck *Aythya fuligula*, Shoveler *Anas clypeata* and Gadwall *Anas strepera* of national importance. The tall fen areas are used by wintering birds, notably Snipe *Gallinago gallinago*, Water Rail *Rallus aquaticus*, Bittern *Botaurus stellaris* and Bearded Tit *Panurus biarmicus*, the last three species occurring here at their highest concentrations in the London basin.

Amwell Quarry SSSI

- 6.1.7 Amwell Quarry is a former gravel pit site in the Lee Valley near Ware, which supports nationally important numbers of wintering wildfowl, along with outstanding assemblages of breeding birds and of dragonflies and damselflies. The site includes two waterbodies, Great Hardmead Lake and Hollycross Lake, which were excavated between 1973 and 1990, and a variety of associated wetland, grassland and woodland habitats. Amwell Quarry is of national importance for wintering gadwall *Anas strepera* for wintering shoveler *Anas clypeata*. The site also regularly supports individual wintering bittern *Botaurus stellaris*. The lakes and their marginal habitats also support an outstanding assemblage of breeding birds.
- 6.1.8 The lagoons support the region's largest colony of Common Tern *Sterna hirundo* which breed very successfully on floating rafts. The lagoon banks hold a nationally important breeding concentration of Tufted Ducks and duckling survival is high compared to other sites in the Lee Valley.

Walthamstow Reservoirs SSSI

- 6.1.9 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.

- 6.1.10 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

- 6.1.11 The site was designated as being of European importance for the following interest features:
- 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)
- 6.1.12 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.

Features of International Interest: Ramsar Criteria

6.1.13 The Lee Valley Ramsar site qualifies on two of the nine Ramsar criteria.

Table 3. Criteria under which the Lee Valley qualifies as a Ramsar site

Ramsar criterion	Description of Criterion	Thames Estuary & Marshes
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 <i>Myriophyllum verticillatum</i> and the rare or vulnerable invertebrate <i>Micronecta minutissima</i> (a water-boatman).
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: <ul style="list-style-type: none"> • Shoveler <i>Anas clypeata</i>, 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: <ul style="list-style-type: none"> • Gadwall <i>Anas strepera</i>, 445 individuals, representing an average of 2.6% of the GB population (5 year peak mean 1998/9- 2002/3)

Condition Assessment

6.1.14 During the most recent condition assessment process, Turnford and Cheshunt Pits SSSI and Amwell Quarry SSSI were judged to be in 100% favourable condition. Rye Meads SSSI was judged to be 100% favourable or unfavourable recovering. It can be seen from Table 5 that the SPA exceeds both the critical threshold for NOx and its critical nitrogen load for the key habitat for which data are available and which the SPA birds are likely to use. It can also be seen that sulphur dioxide does not currently appear to be a problem for this site.

Table 4. Critical nitrogen loads, actual rates of nitrogen deposition, NOx concentrations¹⁶ and sulphur dioxide concentrations for the Lee Valley SPA. Red shading indicates exceedance of thresholds.

Site	Grid reference	Most nitrogen sensitive habitat	Minimum ¹⁷ critical loads (Kg N/ha/yr)	Actual nitrogen deposition ¹⁸ (Kg N/ha/yr)	Actual NOx concentration (μgm^{-3})	Actual SO ₂ concentration (μgm^{-3})
Lee Valley SPA	TQ795585	Grazing Marsh ¹⁹	20	24.6	33.5	8.1

Key Environmental Conditions

6.1.15 The following key environmental conditions were identified for this site:

- 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

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

¹⁶ Calculated as NO₂

¹⁷ APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range

¹⁸ To a resolution of 5 km

¹⁹ The closest habitat for which APIS has critical loads are low and medium altitude hay meadows

6.2 Epping Forest SAC

Introduction

6.2.1 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 Interest

6.2.2 The site is designated as an SAC for its:

- Atlantic acidophilous beech forest;
- Stag beetle, for which this is one of only four known outstanding localities in the UK. Stag beetles spend the majority of their life (up to 5 years) as larvae and during this period live in decaying wood at or below ground level. Adult beetles start to emerge in May and have generally mated and died by the end of August. It is not known whether adult stag beetles eat anything at all, although some entomologists have suggested that they may consume tree sap.
- European dry heaths; and
- Northern Atlantic wet heaths.

Condition Assessment

6.2.3 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 and east Hertfordshire increases.

6.2.4 It can be seen from Table 6 that the SAC exceeds both the critical threshold for NOx and its critical nitrogen load. It can also be seen that sulphur dioxide does not currently appear to be a problem for this site.

Table 5. Critical nitrogen loads, actual rates of nitrogen deposition, NOx concentrations²⁰ and sulphur dioxide concentrations for Epping Forest SAC. Red shading indicates exceedance of thresholds.

Site	Grid reference	Most nitrogen sensitive habitat	Minimum ²¹ critical loads (Kg N/ha/yr)	Actual nitrogen deposition ²² (Kg N/ha/yr)	Actual NOx concentration (µgm ⁻³)	Actual SO ₂ concentration (µgm ⁻³)
Epping Forest SAC	TQ425985	Oak woodland	10	36.4	30	3.7

Key Environmental Conditions

6.2.5 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.

²⁰ Calculated as NO₂

²¹ APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range

²² To a resolution of 5 km

7 Appendix 2: Tiering in Habitat Regulations Assessments

