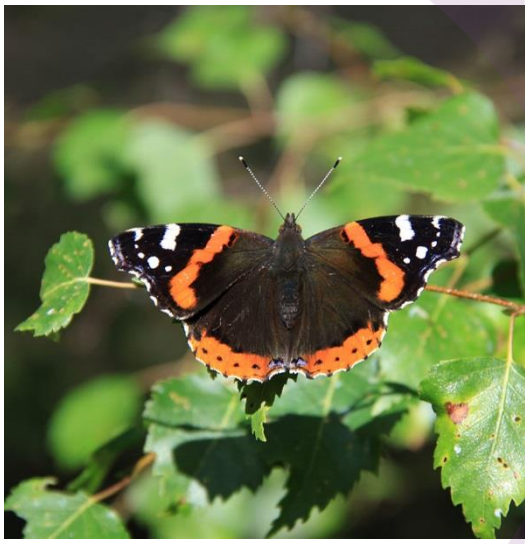
London Borough of Bexley

Bexley Local Plan Habitats Regulations Assessment

Information to support an assessment under Regulation 105 of the Conservation of Habitats and Species Regulations 2017



Wood Group UK Limited – May 2021

Report for

John Luckhurst
Senior Planning Policy and Placemaking Officer
London Borough of Bexley
Strategic Planning and Growth
Civic Offices
2 Watling Street
Bexleyheath
Kent
DA67AT

Main contributors

Mike Frost

Issued by

sean.nicholson Digitally signed by sean.nicholson
Date: 2021.05.20 10:15:57 +01'00'

.....

Sean Nicholson

Approved by

Pete.Davis Digitally signed by Pete.Davis
Date: 2021.05.20 10:43:53 +01'00'

.....

Peter Davis

Wood Group UK Limited

Nicholls House
Homer Close
Leamington Spa
Warwickshire CV34 6TT
United Kingdom
Tel +44 (0)1926 439 000

Doc Ref. 42168-WOOD-XX-XX-RP-OP-0003_S3_P01

\\war-fs1.global.amec.com\shared\Projects\42168 Integrated Impact Assessment and Habitats Regulations Assessment of Local Plan\Deliver Stage\D Design_Technical\Draft IIA Report\May final accessible\Bexley HRA Draft for issue May 2021v2.docx

Copyright and non-disclosure notice

The contents and layout of this report are subject to copyright owned by Wood (© Wood Group UK Limited 2021) save to the extent that copyright has been legally assigned by us to another party or is used by Wood under licence. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of Wood. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third Party Disclaimer set out below.

Third party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by Wood at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. Wood excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

Management systems

This document has been produced by Wood Group UK Limited in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

Document revisions

No.	Details	Date
1	Draft for client	November 2020
2	Draft	April 2021
3	Final	May 2021

Executive summary

The London Borough of Bexley ('the Council') is preparing its Local Plan, which will help implement the Bexley Growth Strategy[1]. The new Local Plan will set out the vision, spatial principles, planning policies and site allocations that will guide development in the local authority area in the period up to 2038. The Council is currently consulting on the Draft Local Plan (Regulation 19 submission). The Draft Local Plan will then be revised and submitted to the Secretary of State for Housing, Communities and Local government who will appoint an independent planning inspector to conduct an examination into plan's soundness.

Regulation 105 of the Habitats Regulations states that if a land-use plan is "(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects); and (b) is not directly connected with or necessary to the management of the site" then the plan-making authority must "…make an appropriate assessment of the implications for the site in view of that site's conservation objectives" before the plan is given effect. The process by which Regulation 105 is met is known as Habitats Regulations Assessment (HRA). An HRA determines whether there will be any 'likely significant effects' (LSE) on any European site as a result of a plan's implementation (either on its own or 'in combination' with other plans or projects) and, if so, whether these effects will then result in any 'adverse effects on site integrity'[2]. The Council has a statutory duty to prepare the Local Plan and is therefore the Competent Authority for an HRA.

The HRA process has explicitly considered the potential for the Local Plan to affect European sites within 20km of the Borough's boundary; these sites are

- Lee Valley SPA;
- Lee Valley Ramsar;
- Thames Estuary and Marshes SPA;
- Thames Estuary and Marshes Ramsar;
- Epping Forest SAC; and
- North Downs Woodlands SAC.

No other European sites or features (e.g. sites associated with the lower Thames Estuary such as Benfleet and Southend Marshes SPA, or otherwise identified by Natural England during consultations) are considered to be vulnerable (i.e. both exposed and sensitive) to the outcomes of the plan.

The first stage of the HRA process, 'screening', demonstrated that the Draft Local Plan will self-evidently have either no effects or no significant effects alone or in combination on the interest

[1] London Borough of Bexley (2017) Bexley Growth Strategy, December 2017.

[2] Site integrity (in HRA terms) is "the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated" (EC Guidance 'Managing Natura 2000' (2018)).

features of Lee Valley SPA, Lee Valley Ramsar, Thames Estuary and Marshes SPA, Thames Estuary and Marshes Ramsar or North Downs Woodlands SAC, principally due to the distance from the borough area to these sites and the associated absence of reasonable impact pathways.

The screening indicated some residual uncertainty that interest features of Epping Forest SAC may be exposed and sensitive to environmental changes associated with the Local Plan, principally in relation to the cumulative effects of air quality. This aspect has therefore been examined through an 'appropriate assessment' stage, which examined existing data for the site (including recent HRAs of Local Plans for LPAs closer to the SAC) to ensure that the Local Plan either avoids affecting the designated site entirely (no significant effect) or will not adversely affect site integrity where potential effect pathways remain, taking into account specific and cross-cutting policy-based mitigation and avoidance measures that have been incorporated into the plan and the Conservation Objectives of the site. The appropriate assessment employed additional analyses and data to resolve uncertainties present at the initial screening, and has concluded that the Local Plan will have no significant effects, alone or in combination, on the integrity of Epping Forest SAC.

It will be necessary to review any changes that are made to the Draft Local Plan prior to adoption in order to ensure that the HRA conclusions remain applicable. A formal assessment conclusion against the requirements of Regulation 105 will be made by the Council at that point.

© Wood Group UK Limited

Contents

1. Introduction 7

1.1 Background 7
1.2 This Report 9

2. Approach to the HRA of the Local Plan 11

2.1 Overview 11
2.2 Guidance 12
2.3 Approach and Assessment Principles 13

3. Baseline Summary and Impact Pathways 19

3.1 Effect Pathways and Key Regional Pressures 19
3.2 Study Area 23
3.3 European Site Summaries 24

4. Screening ('Test of Significance') 36

4.1 Screening of European Sites 36
4.2 Screening of Plan Components: Policies and Allocations 52
4.3 Screening Summary 55

5. Appropriate Assessment: Epping Forest SAC 56

5.1 Air Quality 56

6. Summary and Conclusions 63

6.1 Summary 63
6.2 Conclusions 64

Table 3.1	Typical effect pathways and environmental changes associated with terrestrial development	21
Table 3.2	European sites within study area	24
Table 4.1	Travel distances for ~70 – 75% of visitors recorded by previous studies	39
Table 4.2	Summary of European site screening in relation to visitor pressure	41
Table 4.3	Summary of APIS interrogation	45
Table 4.4	Summary of European site screening in relation to air quality	46
Table 4.5	Summary of European site screening in relation to water resources	49
Table 4.6	Summary of European site screening in relation to water quality	51
Table 4.7	Policy 'types' that can usually be screened out	53
Table 4.8	Colour coding for screening of Draft Local Plan policies	54
Table 5.1	Summary of N-deposition and critical loads for Epping Forest SAC, based on APIS	57
Table 5.2	Summary of NOx concentrations and critical levels for Epping Forest SAC, based on APIS	58
Table 5.3	Summary of NH_3 concentrations and critical levels for Epping Forest SAC, based on APIS	58
Table 5.4	Predicted contribution of the Local Plan to changes in AADT at roads within 200m of Epping Forest SAC	59

Bibliography 65

Appendix A European Site Terminology
Appendix B Summary of Assessment of Draft Local Plan Policies
Appendix C Review of Plans for 'In Combination' Effects

1. Introduction

1.1 Background

The Bexley Local Plan

1.1.1 The London Borough of Bexley (the Council) is currently preparing its Local Plan, which will help implement the Bexley Growth Strategy[3]. The new Local Plan will replace the adopted Local Plan, which comprises the Core Strategy (2012) and policies that have been retained from the Unitary Development Plan (2004), as well as an adopted policies map showing land use designations and site allocations.

1.1.2 The Bexley Growth Strategy was adopted by the Council in December 2017 and sets out how Bexley can deliver sustainable growth in homes, jobs and services to create a network of healthy, well-connected, high quality, desirable places where people want to live, play, learn and work. It identified the areas that have the potential to grow the most and the new infrastructure necessary to make sure these areas will work properly.

1.1.3 The new Local Plan, once adopted, will support the delivery of the Bexley Growth Strategy within the context of London's growth requirements. It will provide clarity on the location of development; its timing; and the local standards development should achieve over the plan period (2021-2038). It will enable the Council to plan proactively and positively for development by focusing on the community needs and opportunities in relation to places, housing, economy, infrastructure, local services and other areas across the borough. It also establishes planning policies that seek to safeguard the environment, aid resilience and adaptation to climate change and enhance the natural and historic environment.

1.1.4 The Council published a Regulation 18 stage consultation paper in February 2019 on preferred approaches to planning policies and land-use designations; this was accompanied by an Integrated Impact Assessment (IIA) Scoping Report[4].

1.1.5 The Council has subsequently prepared its Draft Local Plan in accordance with Regulation 19 of the Town and Country Planning Act (Local Planning) (England) Regulations 2012; the Draft Local Plan includes a vision, strategic objectives and a planning policy framework to guide and manage development in the borough to 2038, in line with the planning policy requirements set out by national government and the Greater London Authority (GLA) in the London Plan[5]. The Regulation 19 Draft Local Plan will be consulted on in Quarter 2 2021, with submission to the Secretary of State anticipated in Quarter 4 2021 and the subsequent examination into the soundness of the Local Plan anticipated to take place in Quarter 1 2022.

[3] London Borough of Bexley (2017) Bexley Growth Strategy, December 2017.

[4] Local Plan review.

[5] Mayor of London (2021), Published London Plan

Habitats Regulations Assessment

1.1.6 The Draft Local Plan must be supported by a range of assessment and evidence documents, including a 'Habitats Regulations Assessment' (HRA).

1.1.7 Regulations 105 and 107 of The Conservation of Habitats and Species Regulations (2017) (the 'Habitats Regulations') transpose the provisions of Articles 6(3) and 6(4) of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') as they relate to land-use plans in England and Wales. Regulation 105 states that if a land-use plan is "(a) is likely to have a significant effect on a European site[6] or a European offshore marine site[7] (either alone or in combination with other plans or projects); and (b) is not directly connected with or necessary to the management of the site" then the plan-making authority must "…make an appropriate assessment of the implications for the site in view of that site's conservation objectives" before the plan is given effect.

1.1.8 The plan can only be given effect if it can be concluded (following an 'appropriate assessment') that the plan "…will not adversely affect the integrity" of a site, unless the provisions of Regulation 107 are met.

1.1.9 The process by which Regulation 105 (and, if applicable, Regulation 107) is met is known as Habitats Regulations Assessment (HRA)[8]. An HRA determines whether there will be any 'likely significant effects' (LSE) on any European site as a result of a plan's implementation (either on its own or 'in combination' with other plans or projects)[9] and, if so, whether there will be any 'adverse effects on site integrity'[10]. The Council has a statutory duty to prepare the Local Plan and is therefore the Competent Authority for an HRA.

---

[6] Strictly, 'European sites' are: any Special Area of Conservation (SAC) from the point at which the European Commission and the UK Government agreed the site as a 'Site of Community Importance' (SCI) (if this was before 31 Jan 2020); any classified Special Protection Area (SPA); and any candidate SAC (cSAC). However, the term is also commonly used when referring to potential SPAs (pSPAs), to which the provisions of Article 4(4) of Directive 2009/147/EC (the 'new wild birds directive') apply; and to possible SACs (pSACs) and listed Ramsar Sites, to which the provisions of the Habitats Regulations are applied a matter of Government policy (NPPF para. 176) when considering development proposals that may affect them. "European site" is therefore used in this report in its broadest sense, as an umbrella term for all of the above designated sites. Additional information on European site designations is provided in **Appendix A**.

[7] 'European offshore marine sites' are defined by Regulation 18 of The Conservation of Offshore Marine Habitats and Species Regulations 2017; these regulations cover waters (and hence sites) over 12 nautical miles from the coast.

[8] The term 'Appropriate Assessment' has been historically used to describe the process of assessment; however, the process is now more accurately termed 'Habitats Regulations Assessment' (HRA), with the term 'Appropriate Assessment' limited to the specific stage within the process.

[9] Also referred to as the 'test of significance'.

[10] Also referred to as the 'integrity test'.

1.1.10 Regulation 105 essentially provides a test that the final plan must pass; there is no statutory requirement for HRA to be undertaken on draft plans or similar developmental stages (e.g. issues and options; preferred options). However, as with Sustainability Appraisal (SA), it is accepted best-practice for the HRA of strategic planning documents to be run as an iterative process alongside plan development, with the emerging policies or options reviewed during development to ensure that potentially significant effects on European sites can be identified at an early stage, so providing time for the effects (and any mitigation requirements) to be identified and assessed, and taken into account in the plan development. This is undertaken in consultation with Natural England (NE) and other appropriate consultees.

1.2 This Report

1.2.1 An HRA Screening was undertaken for the Core Strategy 2012. This concluded that a small number of policies had the potential to significantly affect European sites, but that this was limited and could be mitigated through the inclusion of an over-arching policy statement (Policy CS18); as a result the HRA of the Core Strategy 2012 concluded that the plan would have 'no likely significant effects'.

1.2.2 As part of the revised plan development process the Council undertook a seven-week public consultation on the 'Bexley Local Plan: Preferred approaches to planning policies and land use designations (Regulation 18)', between 15 February and 7 April 2019. This did not include explicit engagement with the HRA requirements, although views were requested from NE as a statutory consultee; NE made no HRA-related comments on the Regulation 18 consultation and accompanying IIA Scoping Report.

1.2.3 Wood Environment and Infrastructure UK Ltd (Wood) was commissioned by the Council to assist with the completion of the HRA of the Local Plan following the 2018 consultation. **This report summarises the HRA process that has been undertaken to support the Bexley Local Plan and ensure that it meets the requirements of Regulation 105**.

1.2.4 The report includes the following aspects:

- Details of the approach to the HRA of the Local Plan (**Section 2**);
- A summary of the baseline condition of the European sites and features that are potentially vulnerable (i.e. both exposed and sensitive) to the likely effects of the Local Plan, and the impact pathways (**Section 3**);
- A summary of the screening assessments undertaken as part of the HRA of the emerging policies and proposals of the Local Plan, identifying those European sites and features that will not be affected by plan proposals, and those plan aspects (policies or allocations) which will not significantly affect any European sites (**Section 4**);
- An appropriate assessment of the Local Plan effects on the interest features of the Epping Forest SAC, as the identified European site whose features are vulnerable to aspects of the Local Plan, taking account of mitigation measures included in the Draft Local Plan (**Sections 5**); and
- A summary of the proposed conclusion for the HRA of the Local Plan (**Section 6**).

1.2.5 This report is intended to support the Regulation 19 consultation for the Draft Local Plan; the assessment conclusions will therefore be reviewed following any amendments that are made post-consultation, prior to the submission of the plan for Examination. A formal assessment conclusion against the requirements of Regulation 105 will be made following Examination in Public, although this report sets out the provisional conclusions for the assessment, reflecting the content of the Regulation 19 Draft Local Plan.

2. Approach to the HRA of the Local Plan

2.1 Overview

2.1.1 European Commission guidance[11] suggests a four-stage process for addressing Articles 6(3) and 6(4), and hence Regulations 105 and 107 (see **Box 1**), although not all stages will necessarily be required: HRAs of Local Planning documents rarely proceed beyond Stage 2, as alternatives to 'adverse effect' policies or allocations are almost always available.

Box 1 – Stages of HRA

Stage 1 – Screening or 'Test of significance'

This stage identifies the likely effects of a project or plan on a European site, either alone or 'in combination' with other projects or plans and considers whether these effects are likely to be significant. The 'screening' test or 'test of significance' is a low bar, intended as a trigger rather than a threshold test: a plan should be considered 'likely' to have an effect if the competent authority is unable (on the basis of objective information) to exclude the possibility that the plan or project could have significant effects on any European site, either alone or in combination with other plans or projects; an effect will be 'significant' simply if it could undermine the site's conservation objectives. Mitigation measures should not be taken into account at the 'screening' stage, in accordance with the **People over Wind** (Court of Justice of the European Union (ECJ) Case C-323/17).

Stage 2 – Appropriate Assessment (including the 'Integrity test')

An 'appropriate assessment' (if required) involves a closer examination of the plan or project where the effects on relevant European sites are significant or uncertain, to determine whether any sites will be subject to 'adverse effects on integrity' if the plan or project is given effect. The scope of any 'appropriate assessment' stage is not set, and the assessments will not be extremely detailed in every case (particularly if mitigation is clearly available, achievable and likely to be effective): they must be 'appropriate' to the effects and proposal being considered, and sufficient to ensure that there is no reasonable doubt that adverse effects on site integrity will not occur (or sufficient for those effects to be appropriately quantified should Stages 3 and 4 be required).

Stage 3 – Assessment of Alternative Solutions

Where adverse effects remain after the inclusion of mitigation, Stage 3 examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of European sites. A plan or project that has adverse effects on the integrity of a European site cannot be permitted if alternative solutions are available, except for imperative reasons of overriding public interest (IROPI; see Stage 4).

Stage 4 – Assessment Where No Alternative Solutions Exist and Where Adverse Impacts Remain

This stage assesses compensatory measures where it is deemed that there are no alternatives that have no or lesser adverse effects on European sites, and the project or plan should proceed for imperative reasons of overriding public interest (IROPI). The EC guidance does not deal with the assessment of IROPI.

[11] Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC 2002).

2.1.2 It should be noted that the "**People Over Wind**" judgment[12] has altered how mitigation and avoidance measures are accounted for in an HRA (see Section 2.3 below). The judgment states that "…it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects [mitigation] of the plan or project on that site". This contrasts with established practice in this area (based on the "Dilly Lane" judgment[13]) whereby avoidance and mitigation measures were typically considered at screening. This presents some challenges for plan-level HRA, and in practice many more Local Plan HRAs now require an 'appropriate assessment'; however, typically this is met by ensuring that the subsequent assessment is 'appropriate' to the issues being considered.

2.1.3 It is important to recognise that the process of strategic HRA also assists in guiding the development of the plan, and demonstrating that effects on European sites have been considered appropriately, as well as (ultimately) assessing its effects and whether there would adverse effects and the implications of these. The HRA therefore contributes to the plan evidence-base, so assisting with the development of sustainable policies from the beginning of the plan-making process rather than being a purely retrospective 'test' applied towards the end.

2.1.4 As a result, whilst the HRA reports that may accompany the formal consultation stages of the plan development (Issues and Options, Preferred Options, Submission, etc.) necessarily reflect and assess the plan at that stage in its evolution, they also document the broader process of data gathering and assessment that occurs concurrently with the plan evolution and which ultimately demonstrates how the plan safeguards European sites. The HRA process therefore includes both evidence gathering and assessment, and informal reviews of the performance of the emerging plan and its policies, and whilst the two are inter-related for practical reasons a degree of separation is required in the reporting; therefore, this HRA report focuses on the evidence gathering and assessment of the Draft Local Plan.

2.2 Guidance

2.2.1 The following guidance has been used during the review and assessment of the Publication Local Plan:

- UK Government (2019). Appropriate Assessment: Guidance on the use of Habitats Regulations Assessment.
- EC (2018). Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Commission Notice C(2018) 7621 final, Brussels, 21.11.2018.
- PINS Note 05/2018: Consideration of avoidance and reduction measures in Habitats Regulations Assessment: People over Wind, Peter Sweetman v Coillte Teoranta).

[12] Court of Justice of the European Union (ECJ) Case C-323/17 - People over Wind, Peter Sweetman v Coillte Teoranta, preliminary ruling which is accepted by the English courts as binding: see e.g. Gladman Developments Ltd. v SSHLG [2019] EWHC 2001 (Admin).

[13] Hart District Council v Secretary of State for Communities and Local Government [2008] EWHC 1204 (Admin).

- DTA Publications (2020) The Habitats Regulation Handbook.
- SNH (2017) Habitats Regulations Appraisal of Plans: Guidance for plan-making bodies in Scotland. Scottish Natural Heritage.
- DCLG (2006) Planning for the Protection of European Sites: Appropriate Assessment. Guidance for Regional Spatial Strategies and Local Development Documents. Department for Communities and Local Government, HMSO, London;
- English Nature (1997-2001) Habitats Regulations Guidance Notes 1-9, Natural England, Peterborough;
- European Commission (2002) Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission, Brussels;
- European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites. European Commission, Brussels;
- European Commission (2007) Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/433/EEC. European Commission, Brussels.

2.3 Approach and Assessment Principles

Consultation and Plan Evolution

2.3.1 The HRA has been completed alongside the development of the Plan, following the Regulation 18 consultation. As noted, NE made no HRA-related comments on the 'Issues and Options' consultation document (April 2019).

2.3.2 The Council re-consulted with NE in March 2020 specifically in relation to the HRA; this consultation included a technical note produced by Wood that set out the proposed approach to the HRA and some initial screening observations[14]. NE provided a response to this re-consultation (letter from NE to the Council dated 18 March 2020, ref. 311240), indicating that it had "...no comments to make on this consultation".

Data Collection

2.3.3 Data on European site interest features, their distribution, and their sensitivity to potential effects associated with the Local Plan were obtained from various sources and reports, including the Joint Nature Conservation Committee (JNCC) and NE websites (citations; boundaries; Site Improvement Plans (SIPs); etc.); information on site condition was based on the NE condition assessments for the corresponding Site of Special Scientific Interest (SSSI) units. Additional information on particular sites or features was obtained from other sources where available. The protocols used to gather other baseline data required to characterise a particular environmental change (for example, air quality data) are summarised in the relevant sections of this report.

[14] Wood (2020). Bexley Local Plan Habitats Regulations Assessment: Proposed approach and initial screening observations. Report for London Borough of Bexley. Wood Environment & Infrastructure, Shrewsbury.

2.3.4 A broad study area was determined through an initial review of the potential environmental changes associated with the emerging Local Plan (to identify a suitably precautionary 'zone of influence'; and through consultations with NE (see also Section 3.2 'Study Area').

'Screening' the emerging plan

2.3.5 The principles[15] of '**screening**' are applied to the emerging plan and its components (i.e. the policies and allocations) as part of an iterative review process, to ensure that:

- Any necessary technical assessments focus on those plan aspects that are likely to result in significant effects on European sites; and
- That the policies of the adopted plan are drafted to provide appropriate overarching safeguards that help (alongside any subsequently identified mitigation) to ensure that the adopted plan will have no significant effects or no significant adverse effects.

2.3.6 The Draft Local Plan policies are checked during their development. The outcomes of these reviews are re-visited throughout plan evolution to ensure that they remain robust, and that the overall performance of the plan in relation to the safeguarding of European sites meets expectations.

Screening of the Regulation 19 Draft Local Plan

2.3.7 The approach and outcomes of the Regulation 19 Draft Local Plan screening are set out in **Section 4**. In summary, the screening is used to exclude European sites and plan components from further assessment if it is possible to determine that significant effects will not occur (e.g. if sites or interest features are clearly not vulnerable (i.e. both exposed and sensitive) to the outcomes of the plan due to the absence of any reasonable impact pathways). It is intended to be a coarse filter for identifying potential effect pathways that cannot be self-evidently discounted, and hence those aspects where further investigation ('appropriate assessment') is required to determine the scale or nature of any effects and / or any bespoke mitigation that is necessary, rather than a detailed assessment in its own right. The screening does not take into account 'mitigation', in accordance with 'People over Wind' (see '**Mitigation and Avoidance'**, below).

2.3.8 However, the screening is of a strategic planning document and so necessarily reflects the strategic direction and policies it provides; it cannot reasonably assess every possible developmental outcome that might conceivably arise in relation to a policy. To some extent, therefore, the screening is aiming to identify effects that are not obviously avoidable or controlled by those standard project-level measures typically applied to local plan development and required to meet existing regulatory regimes; for local plans these will generally be 'in combination' effects associated with the overall quantum of

[15] i.e. exploring whether significant effects on European sites are possible; note, from a strict procedural perspective the tests in Regulation 105 (including the 'test of significance') can only be formally applied to the plan intended for adoption and not to its various phases or iterations; therefore the term 'screening' is used advisedly when applied to assessments completed at earlier stages of the plan development.

development. As a result, many policy 'types' can be 'screened out': for example, environmental protection policies or policies that support development or other changes but which are too general to allow any specific assessments of effects (e.g. the locations, scale, quantum etc. are not specified below the geographical level of the plan, assuming that the type of development proposed is not such that signficant effects would be unavoidable regardless of these aspects). This is explored further in **Section 4**.

Appropriate Assessment

2.3.9 An 'appropriate assessment' determines whether any aspect of the plan will have 'adverse effects on integrity' for any European sites, taking into account the sites' conservation objectives and conservation status.

2.3.10 Site integrity (in HRA terms) is "the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated" (EC Guidance 'Managing Natura 2000' (2018)).

2.3.11 Where a site or interest feature has a 'favourable' conservation status then a 'no adverse effects on integrity' conclusion can be reached provided that this status will not be undermined by the plan or project at hand; if the conservation status is 'unfavourable' then the plan or project must not reduce the conservation status further or create conditions that would make it more difficult for the site or feature to reach 'favourable' conservation status. It should be noted that this is not simply a test of whether there are negative effects; an effect may be negative but not undermine the site's conservation objectives. The integrity test incorporates the precautionary principle, whereby plans or projects should not be approved unless there is no reasonable scientific doubt that adverse effects on site integrity will not occur[16].

2.3.12 Appropriate assessments are therefore used to provide a more detailed examination of those plan aspects where significant effects are likely, or (commonly) where there is a residual uncertainty which the assessment is intended to resolve or a mitigation measure requires examination. The 'appropriate assessment' stage may therefore conclude that the proposals are likely to have an adverse effect on the integrity of a site (in which case they should be abandoned or modified); or that the effects will be 'significant' but not adverse (i.e. an effect pathway exists, but those effects will not undermine site integrity, perhaps due to mitigation proposed for inclusion within the plan); or that the effects would, if screening were re-visited, be 'not significant' (i.e. the anticipated effect is subsequently shown to be minor or de minimis[17]). The approaches used for appropriate assessments

[16] It should be noted that 'no reasonable scientific doubt' does not mean 'absolute certainty' (which is rarely achievable in any case, particularly at the plan level where detail on specific future developments is often unavailable); sufficient certainty may be achieved through the use of suitably conservative assumptions (e.g. in modelling) or evidence from best-practice elsewhere, taking into account any advice from the relevant statutory bodies. The plan-making authority can then put in place a legally enforceable framework that provides certainty by ensuring that the potential adverse effects identified using the best-available information will not be realised.

[17] In the absence of avoidance or mitigation measures, as per 'People over Wind'.

vary according to the sites affected and the effect-pathways; specific technical assessments are detailed in the relevant sections.

2.3.13 Therefore, the initial screening essentially sets the framework for a more detailed examination of particular European sites or plan aspects, which is then undertaken alongside the plan development. However, there is obviously substantial overlap in the data requirements and assessment approaches for screening and appropriate assessment.

'In Combination' Effects

2.3.14 Article 6(3) of the Habitats Directive requires that the potential effects of the Local Plan on European sites must also be considered 'in combination with other plans or projects'. The 'in combination' assessment must also consider within-plan effects (i.e. between policies or allocations). Consideration of 'in combination' effects is not a separate assessment, but is integral to both the screening and appropriate assessment stages (although it should be noted that effects that are nil or nugatory and indistinguishable from background variations cannot operate 'in combination' and so can be excluded at the screening stage).

2.3.15 There is limited guidance available on the scope of the 'in combination' element, particularly with regard to which plans should be considered. However, the assessment should not be limited to plans at the same level in the planning hierarchy and there is consequently a wide range of plans that could have potential 'in combination' effects with the Local Plan.

2.3.16 The plans identified by the SA have provided the basis for the assessment of 'in combination' effects; these plans have been reviewed to identify any potential effects and then considered (as necessary) within the screening and appropriate assessment stages. The assessment has not generally included national strategies, national policy or legislation since the Local Plan must be compliant with these. It is considered that 'in combination' effects are most likely in respect of other regional and sub-regional development plans and strategies. The plans considered 'in combination', and the results of the assessment of these, are summarised in **Appendix C**.

Mitigation and Avoidance

2.3.17 The development of avoidance or mitigation measures is important to the HRA and plan development process. In this HRA 'avoidance measures' are those that are implemented during the iterative plan development process (for example, abandoning a policy or allocation that is likely to have unavoidable adverse effects if implemented)[18]; mitigation measures are used where significant effects are identified in order to prevent adverse effects on a site's integrity[19].

[18] Note, the term 'avoidance measures' in this context is not synonymous with the representation of 'mitigation' used in the People over Wind judgment; see also para. 2.3.21.

[19] Although it should be noted that not all 'likely significant effects' will require mitigation measures: the effect may be considered to be likely to be significant (i.e. has the potential to undermine the conservation objectives) but may be shown on further examination to be too limited to have any risk of adversely affecting site integrity.

2.3.18 Avoidance or mitigation measures should aim to reduce the probability or magnitude of impacts on a European site until 'no likely significant effects' or 'no adverse effects on integrity' are anticipated, and they will generally involve the development and adoption of (for example) wording changes to policies, or additional safeguarding policies. Measures must be specific and targeted, and likely to work; it is not appropriate to re-state existing legislation or policy, for example by adding "and must have no significant effect on any European site" (or similar) to every policy. The avoidance or mitigation measures should also reflect the limited influence that the Council can exert on non-planning issues, and should not generally exceed requirements set by national planning policy or guidance.

2.3.19 The 'People Over Wind' judgment creates some issues for the application of avoidance and mitigation measures in the HRA process, stating that "…it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects [mitigation] of the plan or project on that site"; as noted, this contrasts with established practice in this area (based on the 'Dilly Lane' judgment)

2.3.20 There is currently little information on the practical implementation of the 'People over Wind' judgment[20], particularly for plan-level HRAs where the assessment process is usually concurrent with plan development and where measures are invariably incorporated into the plan before the formal 'screening' of the final version takes place. Indeed, many 'recommendations' derived from an iterative policy review process might be interpreted as 'avoidance' or 'mitigation' measures if viewed solely in terms of their implications for European sites, making it difficult to distinguish between basic good policy practice and 'mitigation'. For example, generic policies promoting the use of Sustainable Drainage Systems (SuDS); or safeguarding designated sites (including European sites); or requiring that developers ensure utility provision in advance of occupation, are fairly standard inclusions in virtually all land-use plans, but will all act to moderate potential environmental changes that could affect European sites. However, it would clearly be illogical to attempt to screen a hypothetical version of the plan that did not include such policies, particularly if these are included independently of the HRA results.

2.3.21 The broader context of the 'People over Wind' case suggests that the judgment is principally focusing on those instances where specific measures are included or relied on to avoid or mitigate a specific effect that has been identified, and which would otherwise be significant; the judgment argues that the effectiveness of any such measures should be examined through an appropriate assessment stage. It is therefore arguable that an exhaustive examination of a plan's genesis to see if any aspects might count as 'mitigation' for screening purposes is not necessary, or (arguably) consistent with the intent of the Habitats Directive or the 'People over Wind' judgment.

2.3.22 Therefore, the screening **does not** take account of specific measures that are included in response to a specific identified effect on a European site, and which are intended to avoid or reduce that effect. However, generic policy safeguards that would be included regardless of the presence of European sites are essentially just 'the plan' and are not

[20] The Planning Inspectorate has issued a guidance note (PINS Note 05/2018: Consideration of avoidance and reduction measures in Habitats Regulations Assessment: People over Wind, Peter Sweetman v Coillte Teoranta) although this does not provide substantive practical information for LPAs or clear guidance on what might constitute an 'avoidance measure'.

considered to be 'mitigation' unless there is a specific effect or pathway that they are intended or relied on to obviate. Aspects requiring specific investigations to understand the problem (and hence the mitigation requirements), or which rely on established mitigation to avoid an effect, are in consequence subject to appropriate assessment.

Uncertainty and 'Down the Line' Assessment

2.3.23 For most policies, even at the strategic level, it will be clear if adverse effects are likely at an early stage, and in these instances the policy should not be included within the plan since plans should not include proposals which would be likely to fail the Habitats Regulations tests at the project application stage. For other options, however, the effects may be uncertain and it is therefore important that this uncertainty is addressed either through additional investigation or (if this is not possible) appropriate mitigation measures that provide certainty that the predicted effect will not occur or will not adversely affect site integrity.

2.3.24 It is usually possible to incorporate caveats or measures within policy text that are sufficient to ensure that adverse effects will not occur. However, for other policies this may not be possible because there is insufficient available information about the nature of the development that is being proposed through the policy to enable a robust conclusion to be reached. In these instances, it may be appropriate and acceptable for assessment to be undertaken 'down-the-line' at a lower tier in the planning hierarchy. For this to be acceptable, the following conditions must be met:

- The higher tier plan appraisal cannot reasonably predict the effects on a European site in a meaningful way; whereas;
- The lower tier plan, which will identify more precisely the nature, scale or location of development, and thus its potential effects, retains enough flexibility within the terms of the higher tier plan over the exact location, scale or nature of the proposal to enable an adverse effect on site integrity to be avoided; and
- HRA of the plan at the lower tier is required as a matter of law or Government policy.

3. Baseline Summary and Impact Pathways

3.1 Effect Pathways and Key Regional Pressures

3.1.1 The emerging plan has been reviewed during its development to identify the potential mechanisms by which European sites and features could be significantly affected.

3.1.2 The provisions of the Habitats Regulations ensure that 'direct' (encroachment) effects on European sites as a result of land use change (i.e. the partial or complete destruction of a European site) are extremely unlikely under normal circumstances, and this will not occur as a result of the Local Plan. Indeed, local plans will generally assist the safeguarding of European sites through their protective policies. However, there will be a number of areas where the direction, controls or influence provided by a plan can result in outcomes that can affect European site interest features.

3.1.3 Most potential effect pathways are associated with broad 'quantum of development' or population growth aspects, and whilst a local plan is not necessarily the main driver of these effects, they do have a key role in managing them locally through the site allocation process. In this context, the main aspects through which the Local Plan could affect European sites in the study area are:

- Through individual allocations or supported developments that are 'directed' to a specific location or area; or
- Through 'in combination' effects resulting from the cumulative impacts of development associated with the Local Plan and with the plans and programmes of external authorities (such as neighbouring LPAs).

3.1.4 In broad terms, the Regulation 19 Draft Local Plan establishes planning policies for the following topics:

- Bexley's growth (including the proposed spatial strategy;
- Bexley's homes (including how the requirement for new homes will be met);
- Bexley's economy (including the overall strategy for employment growth and change within industrial areas);
- Bexley's character (including policies in relation to heritage, tall buildings and policies to secure high quality design);
- Bexley's wellbeing (including policies relating to community services, facilities and open space);
- Bexley's infrastructure (including policies relating to transport, water and waste); and
- Climate change mitigation and enhancement (including policies relating to flood risk management and energy infrastructure).

3.1.5 Each topic includes Strategic Policies that set out key principles and more detailed policies that relate to specific matters within the topic. Indicators for monitoring the effects of the implementation of the Local Plan policies are also provided.

3.1.6 The new London Plan housing target for Bexley is 6,850 for the first ten years. This includes 3,050 homes from small sites. The draft Local Plan makes provision for at least 12,330 net new homes in the period between 2021 and 2038. The Local Plan seeks to achieve employment growth and innovation by supporting development proposals that broaden the mix of business uses and diversify the local employment offer, by embedding circular economy principles and by attracting higher quality knowledge based jobs.

3.1.7 The preferred spatial strategy focuses development as follows:

- Within 800m of and including the major town centre of Bexleyheath, district town centres of Crayford, Erith, Sidcup and Welling and proposed district town centre of Belvedere Station;
- Within existing residential areas with public transport accessibility levels of 3 or higher or within 800m of a railway station;
- At strategic industrial locations (specifically for industrial growth); and
- Within the remainder of the London Plan Opportunity Areas of Bexley Riverside and Thamesmead & Abbey Wood not covered in parts 3a and b.

3.1.8 The Local Plan also contains a suite of policies that seek to:

- Provide a range of housing, including housing for older people and Gypsy and Traveller accommodation;
- Broaden the range of employment available in the borough and encourage the circular economy;
- Protect existing designated industrial areas;
- Protect town centres, neighbourhood centres, small parades and local shops;
- Achieve high quality design;
- Provide social community services and facilities;
- Protect the Green Belt, whilst encouraging its use beneficial use;
- Protect and enhance Green and Blue Infrastructure to address existing shortfalls in provision;
- Encourage more sustainable forms of transport;
- Manage resources, including minerals and waste more sustainably; and
- Mitigate the borough's contribution to climate change whilst ensuring that new development adapts to changes that are already anticipated.

3.1.9 It should be noted that the London Plan, as the Spatial Development Strategy for Greater London, provides additional policy to help address potential significant negative effects. A key factor in considering the need for additional mitigation and enhancement is the

relationship of the Local Plan to the London Plan and the need to avoid the Local Plan repeating aspects of the London Plan unnecessarily. The Local Plan, when combined with the London Plan provides a comprehensive and complementary policy environment against which future development proposals will be assessed.

3.1.10 These aspects could affect European sites on their own, through typical development-related mechanisms operating at the local scale in relation to specific allocations (e.g. noise, lighting, etc.; see **Table 3.1**); or collectively by exacerbating regional pressures (e.g. pressures on water supply).

Table 3.1 Typical effect pathways and environmental changes associated with terrestrial development

Pressure / Threat	Common environmental changes
Hydrological changes	Temperature changes Salinity changes Water flow changes Flood regime changes
Pollution and other chemical changes	Non-synthetic and synthetic compound contamination Radionuclide contamination Introduction of other substances (solid, liquid or gas) De-oxygenation Nutrient enrichment Organic enrichment
Physical loss	Physical loss of habitat Physical change to another habitat
Physical damage	Habitat structure changes Changes in suspended solids Siltation rate changes
Other physical pressures	Litter Electromagnetic changes Noise changes Introduction of light Barrier to species movement Death or injury by collision
Biological pressures	Visual disturbance Genetic modification and translocation of indigenous species Introduction or spread of non-indigenous species Introduction of microbial pathogens Exploitation / harvesting of species Removal of non-target species during exploitation / harvesting

3.1.11 Significant effects as a result of individual allocations are generally unlikely as most environmental changes have a limited 'zone of influence' (for example, noise effects on species will rarely be significant over 500m from the source based on natural rates of attenuation alone). However, the Local Plan HRA must also consider the potential for development supported by the plan to operate 'in combination' to affect European sites, both internally (e.g. between allocations) or with external plans and programmes (e.g. cumulative housing growth regionally). 'In combination' changes are often of an inherently larger scale or operate over larger areas.

3.1.12 There is obviously a wide range of potential mechanisms and pathways for 'in combination' effects depending on the European sites and features. However, there are a few key mechanisms by which local plans (etc.) can operate cumulatively to affect European sites; these are noted below, and provide the broad framework for assessing potential 'in combination' effects associated with the Local Plan:

- **Recreational pressure**: Many European sites will be vulnerable to some degree of impact as a result of recreational pressure, although the effects of recreational pressure are complex and very much dependent on the specific conditions and interest features at each site. Local plans can influence recreational pressure through their allocations and associated controls;
- **Urbanisation**: Urbanisation is generally used as a collective term covering a suite of often disparate risks and impacts that occur due to increases in human populations near protected sites. This would include varied aspects such as fly-tipping or vandalism, predation by cats, or the dispersal of invasive species, although the effects of these aspects depend on proximity, accessibility and the interest features of the sites. This is generally only realised where allocations are close to a designated site;
- **Atmospheric pollution**: The most relevant air pollutants to habitats and species (particularly plant species) are the primary pollutants sulphur dioxide (SO_2, typically from combustion of coal and heavy fuel oils), nitrogen oxides (NOx, mainly from vehicles) and ammonia (NH_3, typically from agriculture). These pollutants affect habitats and species mainly through acidification and eutrophication. Local Plans will generally have few specific point-sources for air emissions and such emissions would typically be controlled through project-level permissions; the main issue for local plans is the assessment of 'in combination' effects due to air quality changes that might be associated with the quantum of development growth proposed / supported by a Local Plan, particularly in relation to traffic and N-deposition;
- **Water resources and flow regulation**: The exploitation and management of water resources is connected to a range of activities, most of which are not directly controlled or influenced by local plans; for example, agriculture, flood defence, recreation, power generation, fisheries and nature conservation. Much of the water supply to water-resource sensitive European sites is therefore managed through specific consenting regimes that are independent of local plans. Increased housing growth (which is likely to be supported by a local plan) increases demand on public water supply abstractions, some of which are associated with European sites; however, the consenting regimes are subject to HRA and, importantly, water companies are

required to produce 25 year Water Resource Management Plans (WRMPs) that take into account projected population growth and protected sites when considering future water resource provision. It is therefore very unlikely that development within one local planning authority area could have direct and consequential effects on a European site if growth is in line with water company plans, particularly as most water companies operate conjunctive-use systems that do not rely on single-source provision. This aspect is most typically managed through policy; and

- **Water quality**: Most waterbodies and watercourses are affected to some extent by point or diffuse sources of pollutants, notably nitrates and phosphates. Point sources are usually discrete discharge points, such as wastewater treatment works (WwTW) outfalls, which are generally managed through specific consenting regimes that are independent of local plans. In contrast, diffuse pollution is derived from a range of sources (e.g. agricultural run-off; road run-off) that cannot always be easily traced or quantified. Development promoted or supported by local plans is likely to increase demand on wastewater treatment works, and potentially increase run-off which could indirectly affect downstream European sites – although there will inevitably be attenuation as distance from the source increases.

3.1.13 In addition, many European interest features (particularly more mobile animal species) may use or be reliant on non-designated habitats outside of a European site during their life-cycle. Developments some distance from a European site can therefore have an effect on the site if its population of interest features is reliant on habitats being affected by a development. All of the above aspects (recreation, water resources, etc.) can therefore also affect European site integrity indirectly through effects on 'functional habitats' outside of the designated site boundary.

3.2 Study Area

3.2.1 The zone of influence of a Local Plan will vary according to the aspect being considered (for example, noise effects would rarely extend more than a few hundred metres from the source) and so it is not usually appropriate to employ 'arbitrary' spatial buffers to determine those European sites that should be considered within an HRA.

3.2.2 However, as distance is a strong determinant of the scale and likelihood of most effects, the considered use of a suitably precautionary search area as a starting point for the screening (based on a thorough understanding of both the plan outcomes and European site interest features) has some important advantages. Using buffers allows the systematic identification of European sites using GIS, so minimising the risk of sites or features being overlooked, and also ensures that sites where there are no reasonable impact pathways can be quickly and transparently excluded from any further screening or assessment. It also has the significant advantage of providing a consistent point of reference for consultees following the assessment process, allowing the 'screening' to focus on the potential effects, rather than on explaining why certain sites may or may not have been considered in relation to a particular aspect of the plan.

3.2.3 The screening stage therefore considers potential effects on:

- All European sites within 20km of the Council's Administrative Area;

- Any additional sites that may be hydrologically linked to the Local Plan's zone of influence and exposed to potentially significant environmental changes (note, there are no additional sites in this category[21]); and
- Any additional sites identified by NE during scoping consultations (none in this instance).

3.2.4 This is considered to be a suitably precautionary starting point for the assessment of the Local Plan. The sites listed in **Table 3.2** are therefore explicitly included in the screening assessment.

Table 3.2 European sites within study area

Site	Location relative to the Council's Administrative Area
Epping Forest SAC	Woodland site approximately 9.9km north-east of the London Borough of Bexley boundary.
Lee Valley SPA	Wetland site approximately 13.4km north-east of the London Borough of Bexley boundary.
Lee Valley Ramsar	Wetland site approximately 13.4km north-east of the London Borough of Bexley boundary.
Thames Estuary and Marshes SPA	Coastal site on the Thames estuary approximately 14.1 km east of the London Borough of Bexley boundary.
Thames Estuary and Marshes Ramsar	Coastal site approximately 13.6 km east of the London Borough of Bexley boundary (note, the Ramsar site is not entirely coincident with the Thames Estuary and Marshes SPA).
North Downs Woodlands SAC	Woodland site near Snodland, approximately 17.2km south-east of the London Borough of Bexley boundary.

3.2.5 For all other European sites, it is considered that there is no possibility of any significant effects, alone or in combination, as a result of the Local Plan; these are therefore implicitly 'screened out' and not considered further.

3.3 European Site Summaries

3.3.1 The following sections provide a summary of the European sites within the study area, including a contextual overview of each site; their interest features; their condition; and the

[21] Other sites further downstream on the Thames Estuary (e.g. Benfleet and Southend Marshes SPA / Ramsar) are considered too distant to be exposed to potentially significant effects through (e.g.) water quality changes due to the distance and consequent natural attenuation by the tidal estuary, and existing discharge controls and consents.

current pressures and threats identified for each site[22]. These are based on the citations, the Site Improvement Plans (SIPs), information on the condition of the underlying SSSIs, and any supplementary advice provided by NE[23]. A summary of the conservation objectives is subsequently provided.

3.3.2 The extent of each site in favourable or unfavourable condition has been estimated using the NE condition assessments for the corresponding SSSI units, although it must be noted that the boundaries of the component SSSI units (to which the condition assessments relate) do not always match the European site boundaries exactly (i.e. the SSSIs are often larger) and it is not always possible to split SSSI units to determine the precise area of the European site (or interest feature) that is in each condition category.

3.3.3 Where possible the site summaries also identify other features that may be relevant to site integrity, particularly '**typical species**' (for SACs), within-site **supporting habitats**, and designated or non-designated '**functional habitats**'.

3.3.4 A 'typical species' is broadly described by EC guidance as being any species (or community of species) which is particularly characteristic of, confined to, and/or dependent upon the qualifying Annex I habitat feature at a particular site. This may include those species which:

- Are critical to the composition or structure of an Annex I habitat (e.g. constant species identified by the National Vegetation Classification (NVC) community classification);
- Exert a critical positive influence on the Annex I habitat's structure or function (e.g. a bioturbator (mixer of soil/sediment), grazer, surface borer or predator);
- Are consistently associated with, and dependent upon, the Annex I habitat feature for specific ecological needs (e.g. feeding, sheltering), completion of life-cycle stages (e.g. egg-laying) and/or during certain seasons/times; or
- Are particularly distinctive or representative of the Annex I habitat feature at a particular site.

3.3.5 Within-site supporting habitats are those which support the population(s) of the qualifying species and which are therefore critical to the integrity of the feature.

3.3.6 'Functional habitats' are generally taken to be habitats or features outside a European site boundary that are important or critical to the functional integrity of the site habitats and / or its interest features. These might include, for example:

- 'Buffer' areas around a site (e.g. dense scrub areas preventing public access; areas of land that reduce the effects of agricultural run-off; etc.); and

[22] The Natural England Site Improvement Plans identify 'pressures', which are factors that are known to be currently affecting a site, and 'threats' which are factors that may not be exerting a pressure at the moment but which have the potential to do so based on local site knowledge.

[23] NE has published 'Supplementary advice on conserving and restoring site features' for some European sites, which describe in more detail the range of ecological attributes which are most likely to contribute to a site's overall integrity, and the targets each qualifying feature needs to achieve in order for the site's conservation objectives to be met.

- Specific features or habitats relied on by mobile species during their lifecycle (e.g. high-tide roosts for waders; significant maternity colonies for bats known to hibernate within an SAC; areas that are critical for foraging or migration; etc).

3.3.7 The potential mechanisms by which the Local Plan could affect these sites are discussed in **Section 3.2**. There are many factors currently affecting the European sites over which the Local Plan will have no or little influence; analysis of the available European site data and the SSSI condition assessments indicates that the most common reasons for an 'unfavourable' condition assessment of the component SSSI units are due to inappropriate management of some form (e.g. over- or under-grazing, scrub control, water-level management etc.).

Epping Forest SAC

Overview

3.3.8 Epping Forest is a former royal forest one of the few remaining large-scale examples of ancient wood-pasture in lowland Britain. It is long (~19km) but relatively narrow, covering a series of semi-natural woodland and grassland blocks between Wanstead in London (near the A12) and the M25 at Epping. Approximately two-thirds of the forest is designated as an SAC.

3.3.9 The site supports a mosaic of high-value habitats including ancient semi-natural beech woodlands (which dominate the site), unimproved acid grasslands, wet and dry heath, as well as small rivers, streams and bogs. The woodlands primarily correspond to the NVC communities W14 (Fagus sylvatica – Rubus fruticosus woodland), W15 (Fagus sylvatica – Deschampsia flexuosa woodland) and W10 (Quercus robur – Pteridium aquilinum – Rubus fruticosus woodland); the heathland habitats are primarily NVC communities M16 (Erica tetralix - Sphagnum compactum wet heath and H1 (Calluna vulgaris - Festuca ovina) heathland. The long history of grazing (formerly) and management has produced habitats (including large numbers of veteran trees) that are important for a range of associated species and species groups, including rare epiphyte[24] communities, fungi, and saproxylic[25] invertebrates.

3.3.10 The forest is London's largest open space and so is a significant resource for recreation, being used for a range of activities including walking, dog walking, running, cycling, wildlife watching and horse-riding. Indeed, the Epping Forest Act 1878 stipulates that it "shall at all times [be kept]...as an open space for the recreation and enjoyment of the people".

Interest Features

3.3.11 The SAC has the following qualifying features:

[24] Ephiphytes are plants (typically non-parasitic) that grow on other plants – for example, mosses or ferns growing on tree trunks.

[25] Species dependent on dead or decaying wood.

- Annex I habitats:
  - Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion);
  - Northern Atlantic wet heaths with Erica tetralix; and
  - European dry heaths.
- Annex II species:
  - Stag beetle Lucanus cervus

3.3.12 The **Atlantic acidophilous beech forests** and **Stag beetle** features are the primary reasons for the selection of the site.

3.3.13 The supplementary advice also provides guidance on the 'typical species' considered to be associated with the site; these include:

- The constant and preferential plant species of the M16 and H1 NVC vegetation types which comprise the **Northern Atlantic wet heaths with** Erica tetralix feature of the SAC;
- The constant and preferential plant species of the M16 and H1 NVC vegetation types which comprise the **European dry heaths** feature of the SAC;
- The constant and preferential plant species associated with W10, W14 and W15 NVC vegetation types which comprise the **Atlantic acidophilous beech forests** feature;
- The key species of ground flora associated with W10, W14 and W15 NVC vegetation types which comprise the **Atlantic acidophilous beech forests** feature;
- Key species of epiphytic bryophytes including the endangered Schedule 8 Knothole moss Zygodon forsteri and notable species;
- Key species of epiphytic lichens including: Pinheads, Southern Oceanic Species and threatened species; and
- The assemblage of saproxylic invertebrates.

3.3.14 No specific areas of 'functional land' are identified in relation to this site; however, the supplementary advice identifies a potential need to maintain or restore the functional connectivity of the site with the wider landscape, to support the migration, dispersal and genetic exchange of those typical species associated with the Annex I habitats.

Condition, Pressures and Threats

3.3.15 The SSSI underpinning the SAC is mostly in 'favourable' or 'unfavourable recovering' condition. The primary reasons for SSSI units being in 'unfavourable no change' or 'unfavourable recovering' condition are air pollution and public access / disturbance, although management and invasive aquatic species are also issues for some units. Accordingly, the SIP identifies the following pressures affecting site integrity:

- Air pollution (impact of atmospheric nitrogen (N) deposition);

- Undergrazing;
- Public access / disturbance; and
- Invasive species.

3.3.16 Changes in species distributions (relates to tree recruitment), water level management (principally relating to groundwater levels in wet heath areas), water pollution (primarily from local road run-off), disease (principally tree diseases) and invasive species (spread of heather beetle; impact of grey squirrel on woodland regeneration; Crassula dominance in Speakman's Pond) are all identified as threats.

Lee Valley SPA / Lee Valley Ramsar

Overview

3.3.17 The Lee Valley SPA and Lee Valley Ramsar site (hereafter the 'SPA/Ramsar' unless considering specific site features) comprise a series of man-made and semi-natural waterbodies (reservoirs, lagoons and gravel pits) along the River Lea in North London. The closest units to the borough area are a group of reservoirs around Walthamstow constructed in the late 19th century; the remainder of the SPA/Ramsar is located north of the M25 and substantially beyond the zone of influence of the Local Plan. Parts of the sites are managed as nature reserves.

3.3.18 The Walthamstow reservoirs are operated by Thames Water and are used for fishing and birdwatching, but watersports are not permitted. There are however a number of well-used public paths around the reservoir margins. Other units of the SPA are used for recreational watersports.

Interest Features

3.3.19 The SPA has the following qualifying features:

- Qualifying individual species listed in Annex I of the Wild Birds Directive (Article 4.1):
  - Great bittern Botaurus stellaris (non-breeding).
- Qualifying individual species not listed in Annex I of the Wild Birds Directive (Article 4.2):
  - Gadwall Anas strepera (non-breeding); and
  - Northern shoveler Anas clypeata (non-breeding).

3.3.20 The site meets the following Ramsar criteria:

- Criterion 2 (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 (Species/populations occurring at levels of international importance):

- Gadwall Anas strepera (winter); and
- Northern shoveler Anas clypeata (spring/autumn).

3.3.21 The site's diversity of habitats is important in supporting these species. Two broad supporting habitats at the site are considered important for the SPA waterbird assemblage and its component species; these are:

- Open standing water and canals; and
- Fen, marsh and swamp.

3.3.22 Possible areas of 'functional land' are identified away from the SPA/Ramsar, specifically King George V Reservoir and Holyfield Lake for **gadwall**; and King George V Reservoir, William Girling Reservoirs and Ponders End Lake for **shoveler**.

3.3.23 The qualifying features of the sites may make use of other habitats outside the site boundary, although most of the features are strongly associated with the wetland and open water habitats of the SPA / Ramsar rather than exclusively terrestrial habitats, and are primarily attracted to the site for this reason.

Condition, Pressures and Threats

3.3.24 The SSSI units underpinning the SPA and Ramsar site are currently in 'favourable' or 'unfavourable recovering' condition, and the SIP does not identify any pressures currently affecting site integrity. The SIP identifies several threats, principally:

- Water pollution (principally related to the need for clear open water and moderately eutrophic conditions);
- Water level management (principally relating to the operation of the reservoirs for water abstraction);
- Public access / disturbance (recreational watersports (not within Walthamstow reservoirs), angling and dog-walking);
- Inappropriate scrub control (relating to reedbed management and marginal habitats);
- Fish stocking (relating to recreational angling and the need to balance this against the interest feature requirements);
- Invasive species (the wetlands are periodically colonised by Azolla);
- Inappropriate cutting / mowing (rotational management of reedbed for **bittern**)
- Air pollution (principally relating to potential effects on reedbeds supporting **bittern**, although it should be noted that for most wetland habitats eutrophication via run-off and flood water is overwhelmingly more significant than air pollution, and available-N is rarely a limiting factor in these ecosystems).

3.3.25 The nearest units of the SPA to the Borough area (Walthamstow Reservoirs SSSI) are in 'unfavourable recovering' condition, due primarily to decreases in shoveler numbers, but this is not thought to be associated with the management (including recreational use) of the reservoirs, instead reflecting wider population trends or changes in site preferences.

Thames Estuary and Marshes SPA / Thames Estuary and Marshes Ramsar

Overview

3.3.26 The Thames Estuary and Marshes SPA and Thames Estuary and Marshes Ramsar site (hereafter SPA/Ramsar) are largely (but not entirely) coincident sites covering a mosaic of intertidal habitats, saltmarsh, coastal grazing marshes, saline lagoons and flooded chalk pits. The sites provides wintering habitats for important assemblages of wetland bird species, particularly wildfowl and waders, as well as supporting migratory birds on passage. The sites form part of the wider Thames Estuary, together with other classified SPAs and Ramsar sites in both Essex and Kent.

3.3.27 The SPA/Ramsar runs for approximately 24km along the southern edge of the Thames estuary from east of Gravesend to the eastern end of the Isle of Grain, with a small area of intertidal mudflat on the northern side of the Thames around East Tilbury and Mucking Flats. The Ramsar site is slightly larger than the SPA (~5500 ha. vs. 4800 ha.), and includes additional areas of terrestrial marsh on the southern shore near Gravesend and Cliffe. Most of the SPA/Ramsar to the south of the river is brackish grazing marsh, although some of this has been converted to arable use, with relatively small areas of saltmarsh and wide intertidal mudflats beyond the sea wall.

3.3.28 The site performs important hydrological functions, including shoreline stabilisation, sediment trapping, flood water storage and desynchronization of flood peaks, and maintenance of water quality by removal of nutrients. Recreational uses include yachting, angling, wildfowling (seasonal), jet skiing, waterskiing, and birdwatching, although public access to much of the site is limited to the seawall and a few other public rights of way.

Interest Features

3.3.29 The SPA has the following qualifying features:

- Qualifying individual species listed in Annex I of the Wild Birds Directive (Article 4.1):
  - Hen harrier Circus cyaneus (Non-breeding).
- Qualifying individual species not listed in Annex I of the Wild Birds Directive (Article 4.2):
  - Pied avocet Recurvirostra avosetta (Non-breeding);
  - Ringed plover Charadrius hiaticula (Non-breeding);
  - Grey plover Pluvialis squatarola (Non-breeding);
  - Red knot Calidris canutus (Non-breeding);
  - Dunlin Calidris alpina (Non-breeding);
  - Black-tailed godwit Limosa islandica (Non-breeding); and
  - Common redshank Tringa totanus (Non-breeding).
- Qualifying assemblage of waterbird species (Article 4.2), including:

- Pied avocet Recurvirostra avosetta (Non-breeding);
- Grey plover Pluvialis squatarola (Non-breeding);
- Red knot Calidris canutus (Non-breeding);
- Dunlin Calidris alpina (Non-breeding);
- Black-tailed godwit Limosa islandica (Non-breeding); and
- Common redshank Tringa totanus (Non-breeding).

3.3.30 Note, the above assemblage species are noted in the citation, although the composition of the assemblage will vary over time.

3.3.31 The site meets the following Ramsar criteria:

- Criterion 2 (supports vulnerable, endangered, or critically endangered species or threatened ecological communities):
  - The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates.
- Criterion 5 (Assemblages of international importance):
  - Species with peak counts in winter: 45118 waterfowl (5 year peak mean 1998/99-2002/2003).
- Criterion 6 (Species/populations occurring at levels of international importance):
  - Ringed plover Charadrius hiaticula (spring/autumn);
  - Black-tailed godwit Limosa islandica (spring/autumn);
  - Grey plover Pluvialis squatarola (winter);
  - Red knot Calidris canutus (winter);
  - Dunlin Calidris alpina (winter); and
  - Common redshank Tringa totanus (winter).

3.3.32 The site's diversity of habitats is important in supporting these species. The Ramsar citation notes the following broad supporting habitats at the site:

- Tidal flats;
- Seasonally flooded agricultural land;
- Saline / brackish lakes and marshes (seasonal and permanent);
- Saltmarshes;
- Sand / shingle shores (note, these are limited in extent); and
- Freshwater lagoons.

3.3.33 No areas of 'functional land' are identified away from the SPA/Ramsar, although non-designated fields within and adjacent to the complex will be used by site interest features and may have a functional linkage.

Condition, Pressures and Threats

3.3.34 The majority of the SSSI units underpinning the SPA and Ramsar site are in 'favourable' condition. There are several units comprising small areas of saltmarsh on the seaward side of the sea wall that are in 'unfavourable declining' condition due to coastal squeeze, and units coinciding with the Ramsar only that are in 'unfavourable no change' condition due to regular ploughing.

3.3.35 The SIP covers the wider Greater Thames Complex of sites (including Medway Estuary SPA, the Swale SPA and Benfleet & Southend Marshes SPA) rather than the Thames Estuary and Marshes SPA specifically. The SIP identifies the following pressures currently affecting site integrity.

- Coastal squeeze (due to the presence of coastal defences along much of the coastline and sea-level rise);
- Public access / disturbance (various activities including boating and watersports; walking; bait-digging; fishing, and wildfowling, with dog walking and recreational boating being particularly notable);
- Changes in species distributions (declines in population size for some bird species associated with the SPAs, principally ringed plover, knot and redshank at the Thames Estuary and Marshes SPA, although the extent to which this is attributable to site-specific versus regional-scale processes is not clear);
- Fisheries (particularly dredging of shellfish; thought to be principally a problem in the Swale Estuary); and
- Vehicles (illicit use of vehicles, typically off-road bikes).

3.3.36 The following issues are identified as threats by the SIP:

- Public access / disturbance (as above);
- Invasive species (a range of marine and freshwater species including sea squirt and pacific oyster (spreading along the Kent coast; smother other sessile species); common freshwater INNS such as pennywort, crassula, and parrot's feather; increases in Spartina anglica (mainly an issue for Benfleet and Southend Marshes SPA);
- Changes in species distributions (as above);
- Fisheries (as above); and
- Air pollution (principally relating to potential effects on terrestrial habitats supporting hen harrier (a feature of the Thames Estuary and Marshes SPA), and breeding little tern and seabirds (not a feature of Thames Estuary and Marshes SPA). It should be noted however that for most wetland habitats eutrophication via run-off and flood water is overwhelmingly more significant than air pollution, and available-N is rarely a limiting factor in these ecosystems.

North Downs Woodlands SAC

Overview

3.3.37 This SAC is located on the North Downs near Halling and comprises mature beech and yew woodlands on a steep chalk escarpment, with areas of unimproved grassland associated with the thin calcareous soils that overlay chalk and limestone deposits. The site also includes mosaics of scrub and other woodland types.

3.3.38 The SAC coincides with units of the Halling to Trottiscliffe Escarpment SSSI, which is a larger complex of woodlands running for around 11km along the escarpment.

Interest Features

3.3.39 The SAC has the following qualifying features:

- Annex I habitats:
  - Asperulo-Fagetum beech forests;
  - Taxus baccata woods of the British Isles (priority feature[26]); and
  - Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia).

3.3.40 The Asperulo-Fagetum **beech forests** and Taxus baccata **woods of the British Isles** features are the primary reasons for selection of the site.

3.3.41 The supplementary advice also provides guidance on the 'typical species' considered to be associated with the site; these include:

- For Asperulo-Fagetum beech forests:
  - The constant and preferential plants of the W12 woodland NVC community types; and
  - The vascular plant assemblage including White mullein Verbascum lychnitis; Stinking hellebore Helleborus foetidus; Lady orchid Orchis purpurea.
- For Taxus baccata woods of the British Isles:
  - The constant and preferential plants of the W13 woodland NVC community types; and
  - The vascular plant assemblage including White mullein Verbascum lychnitis; Stinking hellebore Helleborus foetidus; Lady orchid Orchis purpurea.
- For Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia):

[26] Some SAC habitats and species are considered particular priorities for conservation at a European scale and are subject to special provisions in the Habitats Regulations.

- The constant and preferential plant species of the CG2, CG3, CG4 and CG5 grassland NVC community types; and
- The vascular plant assemblage including: Ground Pine Ajuga chamaepitys; Man Orchid Aceras anthropophorum; Lady Orchid Orchis purpurea; Cut-leaved germander Teucrium botrys; and Musk orchid Herminium monorchis.

3.3.42 No specific areas of 'functional land' are identified in relation to this site; however, the supplementary advice identifies a potential need to maintain or restore the functional connectivity of the site with the wider landscape, to support the migration, dispersal and genetic exchange of those typical species associated with the Annex I habitats, and SAC is part of a wider complex of nationally and locally designated woodlands along the escarpment.

Condition, Pressures and Threats

3.3.43 The SSSI underpinning the SAC is mostly in 'favourable' condition. One SSSI unit coinciding with the SAC is in 'unfavourable declining' condition and one is in 'unfavourable no change' condition, both due to excess scrub. The SIP identifies the following pressures affecting site integrity:

- Public access / disturbance (principally relating to the type of access – unauthorised access by off-road vehicles and all-terrain bikes – rather than numbers of visitors);
- Woodland management (relating to beech regeneration and possible impedance of this by grey squirrels);
- Invasive species (sycamore, which can regenerate in woodland gaps at the expense of beech); and
- Air pollution (N-deposition exceeds site relevant critical loads although this is principally a diffuse pollution issue as only minor unclassified roads are within 200m of the site).

3.3.44 No threats are identified in the SIP.

Conservation Objectives

3.3.45 The conservation objectives for the sites noted above have been revised by NE in recent years to improve the consistency of assessment and reporting. As a result, the high-level conservation objectives for all sites are effectively the same:

3.3.46 For SACs:

- With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features'...), and subject to natural change; ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring [as applicable to each site];
  - The extent and distribution of the qualifying natural habitats;
  - The extent and distribution of the habitats of qualifying species;

- The structure and function (including typical species) of the qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which the qualifying natural habitats rely;
- The supporting processes on which the habitats of qualifying species rely;
- The populations of qualifying species; and,
- The distribution of qualifying species within the site.

3.3.47 For SPAs:

- With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features'...), and subject to natural change; ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:
  - The extent and distribution of the habitats of the qualifying features;
  - The structure and function of the habitats of the qualifying features;
  - The supporting processes on which the habitats of the qualifying features rely;
  - The population of each of the qualifying features; and
  - The distribution of the qualifying features within the site.

3.3.48 The conservation objectives for Ramsar sites are taken to be the same as for the corresponding SACs / SPAs (where sites overlap). The conservation objectives are considered when assessing the potential effects of plans and policies on the sites; information on the sensitivities of the interest features also informs the assessment.

3.3.49 As noted, NE has published 'Supplementary advice on conserving and restoring site features' for Epping Forest SAC, Lee Valley SPA/Ramsar and North Downs Woodlands SAC, which describe in more detail the range of ecological attributes which are most likely to contribute to a site's overall integrity, and the minimum targets each qualifying feature needs to achieve in order to meet the site's conservation objectives. These are considered at the screening and appropriate assessment stages, as necessary.

4. Screening ('Test of Significance')

4.1 Screening of European Sites

4.1.1 The European sites considered at the screening stage are set out in **Table 3.2**. This includes all European sites within 20km of the Council's Administrative Area. No additional sites beyond 20km (e.g. sites that may be hydrologically linked to the Local Plan's zone of influence and potentially exposed to significant effects, or otherwise noted by NE) have been identified for explicit consideration in the screening process.

4.1.2 Sites or interest features within a study area can often be excluded from further assessment at an early stage in the assessment process ('screened out') because the plan or project will self-evidently have either 'no effect' or 'no significant effect' on these sites (i.e. the interest features are not sensitive to the environmental changes associated with a plan or project; or will not be exposed to those changes due to the absence of any reasonable impact pathways); or, if both exposed and sensitive, the effects of the environmental changes will clearly be inconsequential to the achievement of the conservation objectives).

4.1.3 The following sections provide a brief summary of the screening of the European sites and their interest features based on the baseline data summarised in **Section 3,** the category of effects (also identified in **Section 3**) and the policies and proposals of the Local Plan. In consequence, the following effects have been considered:

- Recreational pressure;
- Urbanisation;
- Atmospheric pollution;
- Water resources and flow regulation; and
- Water quality.

4.1.4 It should be noted that this aspect of the screening process is intentionally a 'low bar', with sites, aspects or features only 'screened out' if they will self-evidently be unaffected by the Local Plan (i.e. it is aiming to identify those aspects that will clearly have 'no effect' or 'no significant effect' (alone or in combination) due to an absence of impact pathways). It does not attempt a detailed quantification if effects via particular pathway cannot be simply or self-evidently excluded (this is completed at an 'appropriate assessment' stage, when mitigation is also accounted for).

4.1.5 When screening it is appropriate to assume that all relevant lower-tier consents and permissions (etc.) will be correctly assessed and controlled, and that any activities directly or indirectly supported by the Local Plan will adhere to the relevant legislative and regulatory requirements and all normal best-practice (e.g. it would be inappropriate to assume that normal controls on, for example, the installation of a new discharge to a watercourse would not be correctly followed). The screening also recognises that there are some aspects over which the Local Plan will have no control.

Recreational Pressure

4.1.6 Many European sites will be vulnerable to some degree of impact as a result of recreational pressure, although the effects of recreational pressure are complex and very much dependent on the specific conditions and interest features at each site. For example: some bird species are more sensitive to disturbance associated with walkers or dogs than others; some habitats will be more sensitive to trampling or mechanical disturbance than others; some sites will be more accessible than others.

4.1.7 The most typical mechanisms for recreational effects are through direct damage of habitats, or disturbance of certain species. Damage will most often be accidental or incidental, but many sites are particularly sensitive to soil or habitat erosion caused by recreational activities and require careful management to minimise any effects (for example, through provision and maintenance of 'hard paths' (boardwalks, stone slabs etc.) and signage to minimise soil erosion along path margins).

4.1.8 Disturbance of species due to recreational activities can be highly variable and depends on a range of factors including the species, the time of year and the scale, type and predictability of disturbance. Most studies have focused on the effects on birds, either when breeding or foraging. For example, a long-term monitoring project by NE on the Thanet Coast has found that turnstones (a shoreline-feeding waterbird) are particularly vulnerable to disturbance from dogs, which interrupts their feeding behaviour and can prevent them from gaining sufficient body fat for overwintering or migration. Finney et al. (2005), meanwhile, noted that re-surfacing the Pennine Way significantly reduced the impact of recreational disturbance on the distribution of breeding Golden plover, by encouraging walkers to remain on the footpath.

4.1.9 In contrast, some species are largely unaffected by human disturbance (or even benefit from it) which can result in local or regional changes in the composition of the fauna. The scale, type and predictability of disturbance is also important; species can become habituated to some disturbance (e.g. noise), particularly if it is regular or continuous. Unpredictable disturbance is most problematic.

4.1.10 Most recreational activities with the potential to affect European sites are 'casual' and pursued opportunistically (e.g. walking, walking dogs, riding) rather than structured (e.g. organised group activities or trips to specific discrete attractions), which means that it can be difficult to quantify or predict either the uptake or the impacts of these activities on European sites and (ultimately) harder to control or manage effects. It also means that it is difficult to explore in detail all of the potential aspects of visitor pressure at the strategy level. However, it is possible for plans and strategies to influence recreational use of European sites through the planning process, for example by increasing the amount of green space required within or near developments if potentially vulnerable European sites are located nearby or by funding mitigation schemes.

4.1.11 With regard to European sites within the study area, all have public access / disturbance associated with recreational activity identified as a pressure.

4.1.12 Attempts to predict the effects of increased recreation on European sites that may be associated with development or allocations derived from strategic plans typically aim to identify the distance within which a certain percentage of visits originate. Site-specific questionnaire surveys can be undertaken to identify visitor origin and to characterise the

typical use of a site; these are then used to identify the 'buffer zones' or 'zones of influence' within which new development would be considered likely to have significant effects on a site, unless appropriately mitigated.

4.1.13 Probably the most common metric used for 'buffer zones' or 'zones of influence' is the distance within which approximately 70 - 75% of visitors live, although it is important to note that there is no standard method for defining the 'zone of influence' and a range of approaches have been adopted for different sites. For example, in a study for Canterbury City Council, Fearnley et al. (2014) suggested several possible options for a 'zone of influence' around the Thanet Coast SAC, on which mitigation proposals could be based; these ranged from 4.9km (the distance within which 75% of all 'regular visitors'[27] live) to 7.2km (the distance within which 90% of all 'regular visitors' live), to 9.8km (the distance within which 75% of all visitors live). Indeed, Fearnley et al. (2014) note that "The identification of a 'zone of influence' is really an exercise in identifying a boundary which seems pragmatic, representative of visitor patterns to the site, the physical features of the site, infrastructure, current housing distribution and the nature of the surrounding area". The South-East Devon European Site Mitigation Strategy (Liley et al. 2014) identifies several alternative approaches for determining the a 'zone of influence' around the Exe Estuary SPA (and hence the appropriate area for seeking developer contributions towards mitigation); these ranged from 7.8km from the SPA boundary to 14.3km, with a distance of 10km ultimately selected for the purposes of seeking developer contributions.

4.1.14 In reality a relatively small number of visitors will typically be responsible for most visits to a site (and hence most disturbance risk). NE, as part of its input to the County Durham Plan, has indicated that buffers should be based on the distance within which 75% of visits, as opposed to visitors, originate (i.e. taking account of frequency of visits as well as distance travelled); for the Durham Coast SAC, Northumbria Coast SPA / Ramsar and Teesmouth and Cleveland Coast SPA / Ramsar this distance was 6km.

4.1.15 More generally, studies at a number of European sites have generally found the distance within which 75% of visitors live is less than 6 – 7km, although in practice this distance is as likely to reflect the local settlement and population distributions, and journey times (which are not generally examined in detail), as much as the attractiveness of the European site. Coastal sites are generally thought to have larger visitor catchments. Some examples are summarised in **Table 4.1**. It should be noted that these are necessarily selective as not all studies considering visitor pressure have reported percentiles; however, they provide some good examples for European sites that have similarities to sites near the borough area, including the presence of nearby urban areas.

[27] People visiting at least once a week.

Table 4.1 Travel distances for ~70 – 75% of visitors recorded by previous studies

Study	European sites and key issues	Summary of findings
Solent Disturbance and Mitigation Project (Fearnley et al**. 2010)**	Solent Maritime SAC Chichester and Langstone Harbours SPA Pagham Harbour SPA Chichester and Langstone Harbours Ramsar Pagham Harbour Ramsar (Coastal sites; major urban areas; disturbance of birds)	Half of all visitors arriving on foot lived within 0.7km; half of all visitors arriving by car lived more than 4km away. Average travel distance (excluding holidaymakers): 5.04km. 75% of visits from postcodes within 5.6km.
Thames Basin Heaths (Liley et al**. 2005)**	Thames Basin Heaths SPA (Heathland sites; urban areas; disturbance of birds)	70% of visitors travel 5km or less to access sites.
Whitehall and Bordon Ecotown (EPR 2012)	Wealden Heaths SPA Shortheath Common SAC Woolmer Forest SAC Thursley, Ash, Pirbright and Chobham SAC Thursley and Ockley Bogs Ramsar site (Heathland and woodland sites; urban areas; disturbance of birds; damage to heath)	Average travel distance: 6.7km. 70% of visitors travel 4.3km or less to access sites. 70% distance values for following component sites: - Frensham Common: 10.7km - Kingsley Common: 7.4km - Bramshott Common: 4.5km - Woolmer Forest: 3.4km - Longmoor Enclosure: 3.2km - Ludshott Common: 2.9km - Broxhead Common: 2.1km - Hogmoor Inclosure: 0.9km - Shortheath Common: 0.6km - Bordon Enclosure: 0.5km
Ashdown Forest (UE / University of Brighton 2009)	Ashdown Forest SPA (Heathland sites; urban areas; disturbance of birds)	76% of visitors travel 5km or less to access sites.
Thanet Coast and Sandwich Bay (Fearnley et al**. 2014)**	Thanet Coast and Sandwich Bay SPA / Ramsar; Thanet Coast SAC (coastal sites, disturbance of birds)	75% of 'regular visitors' live within 4.9km; 75% of all visitors live within 9.8km.
Dorset Heaths (English Nature 2006)	Dorset Heaths SAC (plus other sites; heathland sites; urban areas; disturbance of birds)	75% of visitors coming to a site on foot come from within a straight-line distance of 500m. 75% of visitors by car live within 5.3km of the site.

Study	European sites and key issues	Summary of findings
South-East Devon European Site Mitigation Strategy (Liley et al**. 2014)**	Exe Estuary SPA (coastal sites, disturbance of birds); Dawlish Warren SAC (sand dunes, visitor damage); East Devon Pebblebed Heaths SAC / SPA (heathland, visitor damage, disturbance of birds)	75% of visitors to Exe Estuary, Dawlish Warren, and East Devon Pebblebed Heaths live within 7.8km, 14.4km and 6.9km of the site boundary respectively (based on household survey); 75% of visitors to Exe Estuary and Dawlish Warren live within 14.3km and 14.7km the site boundary respectively (based on on-site visitor surveys). Other metrics for determining 75% distances also used.
Deben Visitor Survey (Lake et al. **2014 for the Deben Estuary Partnership)**	Deben Estuary SPA / Ramsar	75% of visitors on a day trip / from home live within 13.2km.

4.1.16 Secondary buffers are also sometimes identified to reflect the variation in visitor behaviour, particularly for those that live in close proximity to a site. For example, the studies supporting the County Durham Plan adopted a 400m buffer also, since 59% of respondents living within the 0 – 400 metre buffer were high risk users, i.e. visit the coast between one and three times a day (see also 'Urbanisation' below). This distance has also been used as a threshold for seeking contributions towards mitigation for the Thames Basin Heaths SAC.

4.1.17 Recreational pressure 'zones of influence' have been developed for Epping Forest SAC (6.2km) and Thames Estuary and Marshes SPA / Ramsar (6km), based on visitor survey data (see **Table 4.2**).

Table 4.2 Summary of European site screening in relation to visitor pressure

Site	Notes	Screen in?
Epping Forest SAC	Visitor studies undertaken for Epping Forest have identified a 6.2km 'zone of influence' for the site, within which new housing development is assumed likely to have a significant effect in combination. This area forms the basis of the Epping Forest Strategic Access Management and Monitoring Strategy (SAMM)[28] that is relied on by councils local to the SAC as mitigation for the potential effects of housing growth in their administrative areas. Development or allocations outside this zone are therefore considered unlikely to have a significant effect in most instances. The site is approximately 9.8km from the borough boundary although the River Thames substantially increases journey times and distances (e.g. the shortest main road routes from the borough area to the SAC would probably be around 16 – 18km, via the Blackwall Tunnel). As a result, the contribution of visitors from the borough area to recreational pressure on the SAC will be negligible.	No
Lee Valley SPA / Ramsar	Although visitor pressure is identified as a factor affecting these sites, this is considered to be more of an issue for the more northerly site units (i.e. those substantially over 20km from the Bexley area) rather than the more closely managed Walthamstow reservoirs, although the 'supplementary advice' does note the potential for recreational pressure to affect undesignated waterbodies that may provide 'functional land' near the Walthamstow units, such as the King George V reservoir. However, as with Epping Forest SAC the River Thames substantially increases journey times and distances to this area (e.g. the shortest main road routes from the borough area to the SPA/Ramsar would probably be around 18 - 20km, via the Blackwall Tunnel) and so the contribution of visitors from the borough area to recreational pressure on the SPA/Ramsar will be negligible.	No

[28] Interim Mitigation Strategy for Epping Forest Special Area of Conservation [online].

Site	Notes	Screen in?
Thames Estuary and Marshes SPA / Ramsar	Visitor studies undertaken for the Thames Estuary and Marshes SPA / Ramsar have identified a 6km 'zone of influence' for the site, within which new housing development is assumed likely to have a significant effect in combination. This area forms the basis of the Thames, Medway and Swale Estuaries SAMM[29] that is followed and relied on by councils local to the SPA as mitigation for the potential effects of housing growth in their administrative areas when developing their Local Plans. Development or allocations outside this zone are therefore considered unlikely to have a significant effect in most instances. The borough area is over 13km from the SPA/Ramsar (at least 14km by road to the nearest access point) and so the contribution of visitors from the borough area to recreational pressure on the SPA/Ramsar will be negligible based on the existing data for the site and data for similar sites elsewhere.	No
North Downs Woodlands SAC	Although recreational activity is identified as a pressure for this site, this appears to be associated with specific, otherwise prohibited activities (damage to habitats by off-road bikes and vehicles) rather than numbers of visitors per se or general usage of the site by walkers and dog-walkers. Visitor survey data for the site are patchy, although surveys of part of the site were apparently undertaken to support the Maidstone Local Plan in 2012/13[30]; these surveys excluded areas over 6.5km from Maidstone (assumed no signficant effect due to distance), and recorded relatively low numbers of visitors to the areas surveyed (estimated at an average of 10 people per day in winter and 28 people per day in summer, if results were extrapolated across the year), with around a third of visitors being from Maidstone borough. The Bexley borough area is over 17km from the SAC and so the contribution of visitors from the borough area to recreational pressure on the SPA/Ramsar will be negligible based on the existing data for the site and data for similar sites elsewhere.	No

[29] Liley, D. & Underhill-Day, J. (2013). Thames, Medway and Swale Estuaries – Strategic Access Management and Monitoring Strategy. Unpublished report by Footprint Ecology.

[30] Original survey data or citation not available; results referenced in AECOM (2016) Habitats Regulations Assessment for: Maidstone Borough Local Plan - Publication (Regulation 19). Report for Maidstone Borough Council. AECOM, Baisingstoke.

Urbanisation

4.1.18 Urbanisation is generally used as a collective term covering a suite of often disparate risks and impacts that occur due to increases in human populations near protected sites. Typically, this would include aspects such as fly-tipping or vandalism, although the effects of these aspects again depend on the interest features of the sites: for example, predation of some species by cats is known to be sizeable (Woods et al. 2003) and can be potentially significant for some European sites. Recreational pressure is arguably one type of effect associated with urbanisation, although this is usually considered separately as it is less closely associated with proximity; as a broad guide, urbanisation effects are more likely when developments (etc.) are within a few hundred metres of a designated site, whereas people will typically travel further for recreation.

4.1.19 Where sensitive sites are involved, development buffers of around 400m are typically used to minimise the effects of urbanisation: for example, NE has identified a 400m zone around the Chichester and Langstone Harbours SPA within which housing development should not be located due to the potential effects of urbanisation (particularly, the risk of chick predation by cats, which cannot be mitigated). Similarly, LPAs near the Thames Basin Heaths SPA have adopted a 400m zone around the SPA boundary where there is a presumption against new residential development as the impact on the SPA is considered likely to be adverse.

4.1.20 Urbanisation effects as a result of the Local Plan will not occur for the European sites located outside the borough boundary due to the separation distances.

Atmospheric Pollution

4.1.21 A number of pollutants have a negative effect on air quality; however, the most significant and relevant to habitats and species (particularly plant species) are the primary pollutants sulphur dioxide (SO_2, typically from combustion of coal and heavy fuel oils although this has declined substantially), nitrogen oxides (NOx, mainly from vehicles) and ammonia (NH_3, principally from agriculture although it should be noted that the contribution of ammonia from vehicles[31] to N-deposition is known to be underestimated by most standard models), which (together with secondary aerosol pollutants[32]) are deposited as wet or dry deposits. These pollutants affect habitats and species mainly through acidification and eutrophication.

[31] Ammonia from vehicles has not typically been measured, partly as the contribution of vehicles to ammonia emissions was historically low and partly due to the relative difficultly of doing so compared to NOx and the absence of European air quality standards for ammonia. However, certain catalytic converters that reduce NOx emissions do so by emitting nitrogen as ammonia rather than NOx, with the result that whilst NOx emissions from vehicles are declining (and will continue to do so) ammonia emissions are not. This is likely to be resolved in the medium to long-term by the switch to electric vehicles.

[32] Secondary pollutants are not emitted, but are formed following further reactions in the atmosphere; for example, SO_2 and NO_x are oxidised to form SO_4^{2-} and NO_2^- compounds; ozone is formed by the reaction of other pollutants (e.g. NOx or volatile organic compounds) with UV light; ammonia reacts with SO_4^{2-} and NO_2^- to form ammonium (NH_4^+).

4.1.22 Acidification increases the acidity of soils, which can directly affect some organisms and which also promotes leaching of some important base chemicals (e.g. calcium), and mobilisation and uptake by plants of toxins (especially metals such as aluminium).

4.1.23 Air pollution contributes to eutrophication within ecosystems by increasing the amounts of available nitrogen (N)[33]. This is a particular problem in low-nutrient habitats, where available nitrogen is frequently the limiting factor on plant growth, and results in slow-growing low-nutrient species being out-competed by faster growing species that can take advantage of the increased amounts of available N.

4.1.24 Overall in the UK, there has been a significant decline in SOx and NOx emissions in recent years and a consequential decrease in acid deposition. In England, SOx and NOx have declined by 97% and 72% respectively since 1970 (Defra, 2018) which is the result of a switch from coal to gas, nuclear and renewables for energy generation, and increased efficiency and emissions standards for cars. These emissions are generally expected to decline further in future years. In contrast, emissions of ammonia have remained largely unchanged; they have declined by 10% in England since 1980 (Defra, 2018), but since 2008 have started to increase.

4.1.25 The effect of SOx and NOx decreases on ecosystems has been marked, particularly in respect of acidification; the key contributor to acidification is now thought to be deposited nitrogen, for which the major source (ammonia emissions) has not decreased significantly. Indeed, eutrophication from N-deposition (again, primarily from ammonia) is now considered the most significant air quality issue for many habitats.

4.1.26 The UK Air Pollution Information System (APIS) has been interrogated to identify those European sites and features in the study area where critical loads[34] for nutrient-N deposition and acidification are met or exceeded. APIS provides a comprehensive source of information on air pollution and the effects on habitats and species and although there are limitations to the data (see SNIFFER, 2007), particularly related to the scale at which data can be modelled, this provides the best basis for assessing the impacts of air emissions associated with the Local Plan in the absence of site-by-site monitoring data.

4.1.27 **Table 4.3** summarises the APIS data for SACs and SPAs with features that are directly sensitive to air quality in the study area. It should be noted that critical load values are generally provided for habitats rather than species, and that watercourses are not included as eutrophication of most watercourses due to air emissions is negligible compared to run-off from agricultural land.

[33] Nitrogen that is in a form that can be absorbed and used by plants.

[34] 'Critical Loads' are the threshold level for the deposition of a pollutant above which harmful indirect effects can be shown on a habitat or species, according to current knowledge (APIS, 2019).

Table 4.3 Summary of APIS interrogation

Site	Air quality sensitive features	Over CL?	
		Acid	N
Epping Forest SAC	Northern Atlantic wet heaths with Erica tetralix	+	++
	European dry heaths	+	++
	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	++	++
Lee Valley SPA / Ramsar*	Rich fens (Bittern)	+	++
	Hay meadows (Shoveler)	-	++
	(Gadwall)	n/a	n/a
Thames Estuary and Marshes SPA / Ramsar*	Saltmarshes (Pied avocet, Ringed plover, Grey plover, Red knot, Dunlin, Black-tailed godwit, Common redshank, Hen harrier)	n/a	+
	Shifting coastal dunes (Ringed plover)	n/a	++
	Dune grasslands (Ringed plover)	n/a	++
	Wet heath (Hen harrier)	n/a	+
	Rich fens (Hen harrier)	n/a	+
North Downs Woodlands SAC	Asperulo-Fagetum beech forests	+	++
	Taxus baccata woods of the British Isles (priority feature)	+	++
	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)	+	+

Table Notes:

CL	Critical load
Acid	Acidification
N	Eutrophication from nitrates (etc.)
n/a	Critical load not set for feature / feature not sensitive
-	below minimum CL for that habitat
+	minimum CL for that habitat is exceeded
++	maximum CL for that habitat is exceeded
*	The SPA interest features are not directly sensitive to air quality (at least at the levels encountered) and so the sensitivity is based on the sensitivity of the supporting habitats.

4.1.28 In practice, the principal source of air pollution associated with the Local Plan will be related to changing patterns of vehicle use due to the promotion of new development (since the Local Plan does not provide for any new significant point-sources). Highways England's Design Manual for Roads and Bridges (DMRB) sets out an approach for assessing the effect of emissions from specific road schemes on designated sites; this suggests that a quantitative air quality assessment may be required if a European site is within 200m of an affected road and the predicted change in annual average daily traffic (AADT) is over 1000. This approach has some limitations when considering the effects of a Local Plan (rather than a specific road scheme) although in the absence of any other specific guidance or thresholds it has typically been applied to main roads[35] within 200m

[35] i.e. trunk roads, A-roads and most B-roads. Changes in the number of vehicles using minor roads in the region will be too small to meaningfully assess using the industry standard approaches

of a European site, with case law[36] indicating that changes in AADT on particular roads should be determined 'in combination' with other plans and projects.

Table 4.4 Summary of European site screening in relation to air quality

Site	Notes	Screen in?
Epping Forest SAC	Air quality has been shown to have negatively affected the epiphytic lichen communities[37] of the Epping Forest SAC near the roads that cross the site. This is primarily an issue for the councils local to the site (most London councils that are a similar distance from the SAC as the Council is have screened this aspect out of the HRAs of their Local Plans) although NE has requested traffic studies for more distant councils (e.g. Chelmsford) in the recent past and therefore this site is considered in more detail on a precautionary basis.	Yes
Lee Valley SPA / Ramsar	The units of this site within 20km of the borough area (Walthamstow reservoirs) are within central London, with three A- and B-roads within 200m (A503, A1055 and B179); however, traffic associated with growth in the borough area is unlikely to contribute to future traffic growth on these roads, given their location and negligible value as through-routes to or from the borough area. Furthermore, the habitats of these units (principally managed open water) are eutrophic and for most wetland habitats (particularly waterbodies) eutrophication via run-off (in this instance supply from surface water sources) and flood water is overwhelmingly more significant than air pollution, and available-N is rarely a limiting factor in these ecosystems. The site will not therefore be exposed to potentially significant air quality changes associated with traffic originating in the borough area, alone or in combination with other plans or projects.	No

to AADT modelling that can be applied at the strategy-level (i.e. without substantial additional data collection including field monitoring at specific locations – this may be appropriate for a specific development or allocation but not for traffic-growth generally).

[36] Wealden District Council v. Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority [2017] EWHC 351.

[37] Epiphyte richness is a key factor in defining hyper-Atlantic forms of the Atlantic acidophilous beech forests Annex I type.

Site	Notes	Screen in?
Thames Estuary and Marshes SPA / Ramsar	There is one A- or B-road within 200m of this site, the A228 servicing the power station and oil refinery at the far eastern end of the Isle of Grain. This location is over 40km from the borough area by road and self-evidently will not be subject to potentially significant traffic growth as a result of the Local Plan; the site will not therefore be exposed to potentially significant air quality changes associated with traffic originating in the borough area, alone or in combination with other plans or projects.	No
North Downs Woodlands SAC	There are no A- or B-roads within 200m of the site; there are minor roads immediately adjacent to the SAC but these will self-evidently not see substantial increases in traffic due to the Local Plan, given their location and negligible value as through-routes to or from the borough area. The site will not therefore be exposed to potentially significant air quality changes associated with traffic originating in the borough area, alone or in combination with other plans or projects.	No

Water Resources

4.1.29 The exploitation and management of water resources is connected to a range of activities, most of which are not directly controlled or influenced by the Local Plan; for example, agriculture, flood defence, recreation, power generation, fisheries and nature conservation. Much of the water supply to water-resource sensitive European sites is managed through specific consenting regimes that are independent of the Local Plan.

4.1.30 It is clear that development supported or managed by the Local Plan is likely to increase demand for water, which could indirectly affect some European sites in the study area. When assessing the potential effects of increased water demand it is important to understand how the public water supply (PWS) system operates and how it is regulated with other water resource consents.

4.1.31 Potable water in the borough is supplied by Thames Water as part of its London Water Resource Zone (WRZ). The London WRZ is supplied primarily from surface water resources of the River Thames and River Lee (80%), either directly or via storage reservoirs, with the remainder comprising groundwater abstractions (including from the chalk aquifer under south east London around Bexley). The London WRZ is an integrated system and so direct and specific supply relationships cannot necessarily be made – i.e. it is rarely possible or appropriate to identify a particular 'source' for water supply to a specific area. Consequently, direct effects on specific European sites as a result of development within the borough cannot necessarily be identified or quantified.

4.1.32 More importantly, the water resources planning process helps to ensure that growth in water demand does not affect European sites. The Water Industry Act 1991, as amended by the Water Act 2003 and Water Act 2014, requires that all water companies must publish a Water Resources Management Plan (WRMP) that sets out their strategy for managing

water resources across their supply areas over the next 25 years and beyond. WRMPs use calculations of Deployable Output (DO) to establish supply/demand balances; this enables water companies to identify those WRZs with potential supply deficits over the planning period[38]. The calculations account for any reductions in abstraction that are required to safeguard European sites[39] and so the WRMP process (with other regulations) helps ensure (as far as is achievable) that future changes in demand will not affect any European sites[40].

4.1.33 Thames Water has accounted for the growth supported by the London Plan in forecasting for the 2019 WRMP, and has predicted future deficits from the beginning of the new planning period (2020-2025) increasing to 362 Ml/d by 2044/45 and 623 Ml/d by 2099/2100; this is due to the projected increase in population and the effects of climate change. Thames Water plans to meet these deficits through demand-reduction, new resource exploitation and water transfers into the WRZs using new and existing infrastructure.

4.1.34 The 2019 WRMP has been subject to HRA, which has concluded that it will have no adverse effects on any European sites, including those water-resource sensitive sites and features within the borough HRA study area (i.e. Lee Valley SPA/Ramsar and Thames Estuary and Marshes SPA/Ramsar). The WRMPs provide the best estimate of future water resource demand, and therefore it is reasonable to assume that the growth set out in the Local Plan can be accommodated without significant effects on any European sites due to PWS abstractions. Furthermore, since the WRMPs explicitly account for the growth predicted by the London Plan[41], 'in combination' effects between the Local Plan and the

[38] Forecasts are completed in accordance with the Water Resources Planning Guidelines (published by the Environment Agency) and take into account (inter alia) economic factors (economic growth, metering, pricing), behavioural factors (patterns of water use), demographic factors (population growth, inward and outward migration, changes in occupancy rate), planning policy (LPA land use plans), company policies (e.g. on leakage control and water efficiency measures) and environmental factors, including climate change. The WRMP therefore accounts for these demand forecasts based on historical trends, an established growth forecast model and through review of local and regional planning documents.

[39] For example, sustainability reductions required by the Review of Consents (RoC) or the Environment Agency's Restoring Sustainable Abstractions (RSA) programme. It should be noted that, under the WRMP process, the RoC changes (and non- changes to licences) are considered to be valid over the planning period. This means that the WRMP (and its underlying assumptions regarding the availability of water and sustainability of existing consents) is compliant with the RoC and so the WRMP can only affect European sites through any new resource and production-side options it advocates to resolves deficits, and not through the existing permissions regime.

[40] Calculations of DO include for Target Headroom (precautionary 'over-capacity' in available water) to buffer any unforeseen variation in predicted future demand; the WRMP is also reviewed on a five-yearly cycle to ensure it is performing as expected and to account for any variations between predicted and actual demand.

[41] Defra/ EA guidance on WRMPs requires that forecast population and property figures be based, wherever possible, upon plans published by local authorities (including 'adopted', 'emergent', 'consultation' and 'draft' local plans).

WRMP are unlikely to occur. Having said that, the Local Plan can obviously help manage demand and promote water efficiency measures through its policy controls.

Table 4.5 Summary of European site screening in relation to water resources

Site	Notes	Screen in?
Epping Forest SAC	The site features are not considered 'water resource sensitive', and will not be vulnerable to changes in abstraction (etc.) that may be associated with the growth supported by the Local Plan.	No
Lee Valley SPA / Ramsar	This site is water resource sensitive and part of it (e.g. Walthamstow reservoirs) form part of the PWS system in London. However, the WRMP HRA has demonstrated that there will be no adverse effects on this site as a result of the WRMP options. Local water-level management is critical to site integrity, although this is closely managed and the Local Plan will not affect the flooding / water management regime employed within the SPA / Ramsar.	No
Thames Estuary and Marshes SPA / Ramsar	This site is water resource sensitive although the groundwater bodies feeding the marshes do not form part of the London WRZ system, and are not relied on to supply London as part of the WRMP. The WRMP HRA has demonstrated that there will be no adverse effects on this site as a result of the WRMP options. Local water-level management is critical to site integrity, although this is locally managed by IDBs and the Local Plan will not affect the flooding / water management regime employed within the SPA / Ramsar.	No
North Downs Woodlands SAC	The site features are not considered 'water resource sensitive', and will not be vulnerable to changes in abstraction (etc.) that may be associated with the growth supported by the Local Plan.	No

Water Quality

4.1.35 There are two main ways in which the new development / population growth in the borough could affect water quality:

- Alteration of surface runoff flow and quality impacting on the hydro-ecology and quality of the receiving water systems (diffuse sources); and
- Increase in sewage treatment works effluent discharges (point sources) and storm-induced discharges from the sewer systems (CSOs - intermittent sources) affecting the hydro-ecology and quality of the receiving waters.

4.1.36 With regard to European sites, only Thames Estuary and Marshes SPA/Ramsar is downstream of the borough and so potentially vulnerable to changes in water quality associated with growth in the borough.

4.1.37 Wastewater and sewage from Bexley (along with Bromley, Croydon, Greenwich, Lambeth, Lewisham, Merton, Southwark, Sutton and Wandsworth) is treated at Crossness STW, which is located in the borough near Thamesmead. This site was recently upgraded as part of the London Tideway Tunnels programme, which aims to enhance the treatment capacity of London's five major STWs (Mogden, Crossness, Beckton, Long Reach and Riverside). The upgrade was partly driven by the Urban Waste Water Treatment Directive (UWWTD) and the need to increase the volume of storm sewage influent passing through full treatment, and increased capacity by around 44%.

4.1.38 This upgrade, and the Tideway Tunnels, will substantially improve sewerage discharges to the Thames and it is understood that there are no fundamental capacity or headroom issues associated with Crossness STW or, by extension, development in Bexley. The existing consenting regime takes into account effects on European sites.

4.1.39 Run-off from impermeable surfaces can have considerable effects on waterbodies and watercourses, and is a notable issue in both urban and rural areas. Development has traditionally sought to capture and divert rain and run-off to the nearest watercourse or treatment facility as quickly as possible, and extensive drainage networks have been developed to facilitate this. However, as developed areas have increased so have the total volumes and flow rates of run-off. This has two principal effects: firstly, impermeable surfaces provide very little resistance to the mobilisation and transport of pollutants within run-off; and secondly, flow rates and volumes often exceed the capacity of the receiving drains or watercourses, causing localised flooding or the operation of combined sewer overflows (CSOs)[42]. The effect of run-off from developed areas can be mitigated or reduced by the use of Sustainable Drainage Systems (SuDS) and by increasing the area of permeable surfaces (both natural and artificial) within developed areas. These measures offer effective attenuation by reducing the volumes of surface run-off. They also increase the retention of pollutants and, in the case of some SuDS, can allow for treatment of pollutants.

4.1.40 However, it should also be recognised that the water quality effects of the Local Plan are ultimately either controlled by existing consents regimes (which must undergo HRA) or have diffuse 'in combination' effects that are difficult to quantify, and so the HRA process typically aims to ensure that suitable mitigating policy that will minimise the impacts of plan-supported development on water quality generally is provided.

[42] All sewerage pipes have a certain capacity, determined by the size of the pipe and the receiving water treatment works. At times of high rainfall, this capacity can be exceeded, with the risk of uncontrolled bursts. CSOs provide a mechanism to prevent this, by allowing untreated sewerage to mix with surface water run-off when certain volumes are exceeded. This is then discharged to the nearest watercourse.

Table 4.6 Summary of European site screening in relation to water quality

Site	Notes	Screen in?
Epping Forest SAC	There is no pathway for this site to be affected by changes in water quality associated with the proposals within the Local Plan.	No
Lee Valley SPA / Ramsar	There is no pathway for this site to be affected by changes in water quality associated with the proposals within the Local Plan.	No
Thames Estuary and Marshes SPA / Ramsar	Water quality is not identified as a pressure or threat for these sites. Effects from development in the borough are only possible via discharges to the Thames, and the upgrades to Crossness STW and the Thames Tideway scheme ensure that there is sufficient sewerage treatment headroom. Notwithstanding this, these sites are a significant distance downstream and the dilutive capacity of the tidal Thames estuary will ensure attenuation of any discharges associated with growth in the borough area.	No
North Downs Woodlands SAC	There is no pathway for this site to be affected by changes in water quality associated with the proposals within the Local Plan.	No

Flooding / water level management

4.1.41 The implementation of the European Floods Directive (Directive 2007/60/EC) in England and Wales is being co-ordinated with the Water Framework Directive. Catchment Flood Management Plans (prepared by the EA), Shoreline Management Plans (prepared by coastal local authorities and the EA), River Basin District Flood Risk Management Plans (prepared by the EA) and Local Flood Risk Management Strategies set out long term policies for flood risk management. The delivery of the policies from these long-term plans will help to achieve the objectives of these plans and the RBMPs.

4.1.42 Development supported by the Local Plan is unlikely to significantly alter regional flood risk levels, but may exacerbate the effects of local flooding. Run-off from impermeable surfaces can have considerable effects on waterbodies and watercourses, meaning that flow rates and volumes often exceed the capacity of the receiving drains or watercourses. This can lead to local water quality impacts on European sites. The effect of run-off from developed areas can be mitigated or reduced by the use of SuDS and by increasing the area of permeable surfaces (both natural and artificial) within developed areas.

4.1.43 However, no European sites are considered to be exposed to potential changes in flood risk that may result from the Local Plan as the borough lies outside the surface water catchments of the sites. There will therefore be no possibility of effects through this mechanism.

Effects on functional habitats or species away from European Sites

4.1.44 The provisions of the Habitats Regulations ensure that 'direct' (encroachment) effects on European sites as a result of land use change (i.e. the partial or complete destruction of a European site) are extremely unlikely under normal circumstances, and this will not occur as a result of the Local Plan. However, many European interest features (particularly more mobile animal species) may use or be reliant on non-designated habitats outside of a European site during their life-cycle. Developments some distance from a European site can therefore have an effect on the site if its population of interest features is reliant on the habitats being affected by a development and sufficient numbers are exposed to the environmental changes. All of the above aspects (recreation, water resources, etc.) can therefore also affect European site integrity indirectly through effects on functional habitats outside of the designated site boundary.

4.1.45 With regard to the European sites within the study area, this is only a potential issue for Lee Valley SPA/Ramsar and Thames Estuary and Marshes SPA/Ramsar. However, the interest features of these sites will not be functionally linked to, or dependent on, habitats within the borough and possible functional habitats outside the borough area (e.g. the King George V reservoir, in relation to the Lee Valley SPA/Ramsar) will not be affected by the Local Plan for the same reasons that the European sites themselves will not be (i.e. distance and absence of effect pathways).

4.2 Screening of Plan Components: Policies and Allocations

Review of Draft Local Plan Site Allocations

4.2.1 The allocation sites proposed by the Local Plan have been reviewed to identify those which (if developed) could result in significant effects on a European **site that are not obviously avoidable with the standard project-level measures that would be required to meet existing regulatory regimes.** The assessment largely focuses on the identification of specific effects that might be associated with specific allocations (and which may therefore require the inclusion of allocation-specific mitigation within the plan) rather than the broader 'quantum of development' effects[43]. The risk of effects is obviously strongly dependent on how a particular development is implemented at the project stage and in most cases potential effects can be avoided using best-practice and standard scheme-level avoidance measures which do not necessarily need to be specified for each allocation.

4.2.2 In summary, all of the allocations will self-evidently have no significant effects alone or in combination (within plan) due to their distance from the nearest European sites and the absence of impact pathways.

Review of Draft Local Plan Policies

4.2.3 When considering the likely effects of a policy, it is recognised that some policy 'types' cannot usually result in impacts on any European sites. Different guidance documents

[43] Effects due to the overall quantum of development are essentially a within-plan 'in combination' effect and are considered in relation to specific European sites in Section 4.1.

suggest various classification and referencing systems to help identify those policies that can be 'screened out' on that basis; the general characteristics of these policy types are summarised in **Table 4.7**.

Table 4.7 Policy 'types' that can usually be screened out

Broad Policy Type	Notes
General statements of policy / aspiration	The European Commission recognises* that plans or plan components that are general statements of policy or political aspirations cannot have significant effects; for example, general commitments to sustainable development. This may include policies that support development or other changes but which are too general (e.g. locations, scale, quantum etc. not specified below the geographical level of the plan) to allow any specific assessments of effects, provided that the type of development proposed is not such that signficant effects would be unavoidable regardless of location etc.
General design / guidance criteria or policies that cannot lead to or trigger development	A general 'criteria based' policy expresses the tests or expectations of the plan-making body when it comes to consider proposals, or relates to design or other qualitative criteria which do not themselves lead to development (e.g. controls on building design; requirements for affordable homes; etc); however, policies with criteria relating to specific proposals or allocations should not be screened out.
External plans / projects	Plans or projects that are proposed by other plans or permissions regimes and which are referred to in the plan being assessed for completeness (for example, Highways Agency road schemes; specific waste development proposals promoted by a County Minerals and Waste Plan; DCO applications being advanced separately from the plan at hand); however, these would be considered as part of the plan-level 'in combination' assessment.
Environmental protection policies	Policies designed to protect the natural or built environment will not usually have signifcant or adverse effects (although they may often require modification if relied on to provide sufficient safeguards for other policies).
Policies which make provision for change but which could have no conceivable effect	Policies or proposals that cannot affect a European site (due to there being no impact pathways and hence no effect; for example, proposals for new cycle path several kilometres from the nearest European site; criteria for a development's appearance; etc.) or which cannot undermine the conservation objectives, either alone or in combination, if impact pathways exist.

* EC, 2000, Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC April 2000 at 4.3.2

4.2.4 It must be noted that it is inappropriate to uncritically apply a policy classification tool (as in **Table 4.7**) to all policies of a certain type. There will be some occasions when a policy or similar may have potentially significant effects, despite being of a 'type' that would normally be screened out. Moreover, many policies will have a number of elements to them which may meet different criteria.

4.2.5 The criteria in **Table 4.7** were applied to a review of the Draft Local Plan policies to identify the following broad policy groups:

- '**No effect**' policies: policies that will have 'no effect' (i.e. policies that, if included as drafted, self-evidently would not have any effect on a European site due to the type of policy or its operation; for example, a policy controlling town centre shop signage; a policy setting out sustainable development criteria that developments must meet). Note that 'no effect' policies cannot have in-combination effects;
- '**No likely significant effect**' policies: policies where impact pathways exist but the effects will not be significant (alone or in-combination); and
- '**Likely significant effect**' policies: policies where the precise effects on European sites (either alone or in combination) are uncertain or significant, or where measures have been incorporated into the policy to mitigate potential effects, and hence require additional investigation (appropriate assessment). Note that further investigation will often demonstrate that there is no significant effect or allow the suitability of any incorporated mitigation measures to be confirmed.

4.2.6 Reflecting these policy groups, a colour coding system (see **Table 4.8**) has been used for the purposes of screening the Local Plan policies in **Appendix B.**

Table 4.8 Colour coding for screening of Draft Local Plan policies

	No effect or no LSE – policy will not or cannot affect any European sites and can therefore be screened out (subject to a brief review of the final policy prior to adoption).
	Policies with mitigating/moderating elements that do not have significant effects but which are relied on (at least in part) to ensure that significant or significant adverse effects from specific pathways do not occur; these are examined through AA.
	Policies that have potential pathways for effects that require examination through appropriate assessment; note, this does not imply such policies will have adverse effects or even (potentially) signiifcant effects; rather it is an assessment flag.

4.2.7 It should be noted that the inclusion of a policy in the 'yellow' category does not mean that significant effects are inevitable since in many instances the assessments reflect uncertainties that need to be explored through further analysis (and it would be possible to undertake an appropriate assessment stage and still conclude that there will be no significant effects).

4.2.8 The review considers the policies collectively and individually, and so takes the non-specific cross-cutting protective policies within the plan into account, although cross-cutting or overarching policies are not relied on where specific mitigation for specific

effects is considered necessary for the policy[44]. The review also considers any internal tensions within the plan that may be relevant to HRA.

4.2.9 The policy review is completed in the context of the initial European sites screening (see above), and so in many instances 'mitigating' policies will not require consideration through an appropriate assessment stage if there are no mechanisms by which a European site could be affected; in summary, no European sites are likely to be exposed to the outcomes of the plan such that a mitigating policy element might have to be relied on, other than perhaps in relation to Epping Forest SAC and air quality where there is a minor residual uncertainty over the magnitude of any effects.

4.2.10 In summary, the planning policies contained in the Draft Local Plan are all categorised as 'no effect' or 'no significant effect' policies (see **Appendix B**), including those with a spatial component. However, the Policy DP22 (Sustainable transport) may have some beneficial outcomes with regard to air quality which are explored further in relation to Epping Forest SAC.

4.3 Screening Summary

4.3.1 There will be either **no effects or no significant effects alone or in combination on the interest features of Lee Valley SPA / Ramsar, Thames Estuary and Marshes SPA / Ramsar or North Downs Woodlands SAC.** This is principally due to the absence of reasonable impact pathways by which the Local Plan could affect these sites. These sites are not considered further.

4.3.2 The interest features of **Epping Forest SAC** are known to be exposed and sensitive to air quality changes associated with 'in combination' traffic growth, to which the Local Plan may contribute. This aspect is therefore considered further. This SAC will not be significantly affected by the Local Plan, alone or in combination, via any other mechanisms (e.g. changes in water quality; recreational pressure) due to the distance and absence of reasonable impact pathways.

[44] This is particularly relevant for policies that provide broad or non-specific support for development, but which are screened out because they do not define or direct particular developments or activities; in these instances the plan's protective policies will form a key part of the overall decision-making process.

5. Appropriate Assessment: Epping Forest SAC

5.1 Air Quality

Summary of Pathway

5.1.1 Epping Forest is one of the 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 SAC covers a series of semi-natural woodland and grassland blocks between Wanstead in London (near the A12) and the M25 at Epping. The key pressures currently affecting the site (based on the SIP) are air pollution, management (under-grazing), visitor pressure and invasive species.

5.1.2 The Local Plan proposals may indirectly contribute to local air pollution and wider diffuse pollution. In practice, the principal source of air pollution associated with the Local Plan will be related to changing patterns of vehicle use due to new development (since the Local Plan does not provide for any new significant point-sources), although it is important to recognise that in terms of quantum of development Bexley must be consistent with the direction provided by the London Plan (which has been subject to HRA) and so the provision within the Draft Local Plan is essentially reflecting an external plan. The choice of allocation location will have essentially no effect on air quality at Epping Forest SAC.

5.1.3 The SAC is approximately 9.9km from the Council's Administrative Area boundary at its closest point although any vehicle originating in the borough and travelling to or near the SAC will be constrained by the River Thames and the available crossing points (the nearest being the Blackwall Tunnel or Woolwich Ferry). Consequently, the closest point of the SAC (near the A12 in Wanstead) is at least 17km away from the borough boundary by road, and further from the nearest allocations within the borough.

5.1.4 Air quality has negatively affected the epiphytic lichen communities[45] of the Epping Forest SAC near the roads that cross the site. This is primarily perceived as an issue for the councils local to the SAC (most London councils that are a similar straight-line distances or less from the SAC as Bexley have screened this aspect out of the HRAs of their Local Plans entirely) although NE has requested traffic studies for more distant councils in the recent past (e.g. Chelmsford, the boundary of which is ~17km from the closest unit of the SAC) and so potential effects on this site are considered in more detail on a precautionary basis.

5.1.5 Highways England's Design Manual for Roads and Bridges (DMRB) sets out an approach for assessing the effect of emissions from specific road schemes on designated sites; this suggests that a quantitative air quality assessment may be required if a European site is within 200m of an affected road and the predicted change in annual average daily traffic (AADT) is over 1000.

[45] Epiphyte richness is a key factor in defining hyper-Atlantic forms of the Atlantic acidophilous beech forests Annex I type.

5.1.6 This approach has some limitations when considering the effects of a Local Plan (rather than a specific road scheme) although in the absence of any other specific guidance or thresholds it has typically been applied to main roads[46] within 200m of a European site, with case law[47] indicating that changes in AADT on particular roads should be determined 'in combination' with other plans and projects. This is a developing area, so there are currently no guidelines as to the catchment for inclusion into any air quality assessment, nor on the extent to which thresholds can still be applied (particularly where plan contributions to traffic flows are negligible).

Baseline Summary

Interest feature sensitivity

5.1.7 The features of the SAC considered sensitive to air quality impacts (specifically, based on the SIP, atmospheric nitrogen deposition) are:

- Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion);
- Northern Atlantic wet heaths with Erica tetralix; and
- European dry heaths.

5.1.8 The critical loads for N-deposition for these features, and the current N-deposition (based on APIS) are summarised in **Table 5.1**. NOx and NH_3 concentrations and critical levels are summarised in **Tables 5.2 and 5.3**.

Table 5.1 Summary of N-deposition and critical loads for Epping Forest SAC, based on APIS

Feature	**Critical Loads (kg N/ha/yr)**	**Current N-deposition (kg N/ha/yr)**		
		Max	Min	Average
Atlantic acidophilous beech forests	10 – 20	62.2	27.5	31.8
Northern Atlantic wet heaths with Erica tetralix	10 – 20	34.1	16.1	18.4
European dry heaths	10 – 20	34.1	16.1	18.4

[46] i.e. trunk roads, A-roads and most B-roads. Changes in the number of vehicles using minor roads in the region will be too small to meaningfully assess using the industry standard approaches to AADT modelling that can be applied at the strategy-level (i.e. without substantial additional data collection including field monitoring at specific locations – this may be appropriate for a specific development or allocation but not for traffic-growth generally).

[47] Wealden District Council v. Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority [2017] EWHC 351.

Table 5.2 Summary of NOx concentrations and critical levels for Epping Forest SAC, based on APIS

Feature	Critical Levels (µg/m^3)	Current NOx concentration (µg/m^3)		
		Max	Min	Average
Atlantic acidophilous beech forests	30 (annual); 75 (24hr)	52.82	21.3	27.79
Northern Atlantic wet heaths with Erica tetralix	30 (annual); 75 (24hr)	52.82	21.3	27.79
European dry heaths	30 (annual); 75 (24hr)	52.82	21.3	27.79

Table 5.3 Summary of NH_3 concentrations and critical levels for Epping Forest SAC, based on APIS

Feature	Critical Levels (µg/m^3)	Current NOx concentration (µg/m^3)		
		Max	Min	Average
Atlantic acidophilous beech forests	1 (annual)	5.1	1.45	1.92
Northern Atlantic wet heaths with Erica tetralix	1 (annual)	5.1	1.45	1.92
European dry heaths	1 (annual)	5.1	1.45	1.92

5.1.9 The variation in current N-deposition for the features is related to their locations within the SAC; as noted, the SAC is a series of semi-natural woodland and grassland blocks between Wanstead in London (near the A12) and the M25 at Epping, covering approximately 14.5km. All of the SSSI units where air pollution is identified as a key issue in an 'unfavourable' condition assessment are in the southern area of the Forest, between Chingford and Wanstead (and hence near the North Circular and the A12), rather than those areas near the M25. However, air quality is cited as an issue in the condition assessments for all SSSI units.

5.1.10 The 'Supplementary Advice' provides a broad target for air quality, specifically to "Restore as necessary the concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for the feature at this site on the Air Pollution Information System". The 'Supplementary Advice' also notes that "It is recognised that achieving this target may be subject to the development, availability and effectiveness of

abatement technology and measures to tackle diffuse air pollution, within realistic timescales"

Traffic Data

5.1.11 Many roads are within 200m of the SAC, although most (particularly towards the southern end of the SAC) are relatively minor residential streets which will not see any potentially significant increases in traffic volumes as result of the Local Plan. The assessment of the effects of the Local Plan therefore focuses on those routes most likely to be used by traffic from the Bexley area, specifically:

- the M25 near Epping;
- the A12 near Wanstead; and
- the A406 North Circular near Woodford.

5.1.12 Numerous traffic models undertaken for other Local Plans in recent years have demonstrated that there will be a traffic growth increase of over 1,000 vehicles / day in AADT 'in combination' on most main roads near Epping Forest SAC – i.e. above the threshold for significant effects to be possible due to air quality changes.

5.1.13 A high-level traffic assessment has therefore been undertaken as part of this HRA to estimate the Local Plan's contribution to this future traffic growth at the above locations. The assessment is based on AADT traffic statistics from the DfT and using the National Trip End Model (NTEM) and its presentation programme (TEMPRo) to generate a 2036 growth factor. The results of this are summarised in **Table 5.4**. It should be noted that this does not model specific allocations associated with the Local Plan, although given the distance from the borough to the SAC and the limited crossing points on the Thames this will have no meaningful impact on the results.

Table 5.4 Predicted contribution of the Local Plan to changes in AADT at roads within 200m of Epping Forest SAC

Road	2016 AADT	2036 AADT without Local Plan Allocations		2036 AADT with Local Plan Allocations		Local Plan AADT Contribution	
		Total	Change	Total	Change	Total	% of 2036
M25 Average	142688	164367	21679	164433	21745	66	0.04
A406 Average	109963	137493	27530	137553	27590	60	0.04
A12 Average	75521	94460	18939	94594	19073	134	0.14

5.1.14 This analysis demonstrates that the anticipated increase in AADT volumes by 2036 at all locations is substantially over the nominal 1,000 AADT increase threshold for 'significant' effects to be possible. However, this occurs irrespective of the Local Plan contribution with most of the increase being associated with growth in the LPA areas immediately around the SAC; this has been demonstrated in similar modelling exercises undertaken for councils adjacent or close to the SAC (e.g. Epping Forest District Council; Waltham Forest District Council). It is also clear that the Local Plan contribution under all scenarios is extremely limited – less than 0.15% of predicted traffic growth at the point of greatest contribution (the A12 near Wanstead).

Incorporated Mitigation and Moderating Factors

5.1.15 The potential for effects on European sites outside an LPA boundary due to air quality is difficult for a Local Plan to specifically mitigate, since the decision to travel by car to locations outside the LPA area is typically made in the context of regional and national travel conditions rather than local provision of sustainable travel options. However, the promotion of sustainable transport is woven throughout the Local Plan, particularly in DP22 (Sustainable transport). This will help moderate the effects of the plan, but will not necessarily mitigate or offset potential changes in air quality as accessibility to sustainable transport within the borough is unlikely to be the key factor governing longer-distance out-of-area travel.

5.1.16 The London Plan, as the Spatial Development Strategy for Greater London, provides additional policy to help address potential significant negative effects. These include the requirement for new development to be at least air quality neutral (London Plan Policy SI 1) and for development to be net zero-carbon (London Plan Policy SI 2). It should also be noted that the local authorities immediately around Epping Forest SAC, plus Essex County Council, Hertfordshire County Council, Highways England, NE and the Corporation of London, have agreed to work collaboratively to reduce air quality impacts on the SAC, putting in place a memorandum of understanding to support this.

Assessment of Effects (including In Combination Effects)

5.1.17 Given the very small contribution of the borough to traffic near the SAC, and the availability of recent air quality models for Epping Forest and associated proxy data, detailed Bexley-specific air quality modelling is not considered essential to allow robust conclusions to be drawn regarding the effects of the Local Plan.

5.1.18 N-deposition is currently affecting the interest features of the Epping Forest SAC, and this is predicted to continue over the plan period as traffic increases. However, the Local Plan's contribution to traffic growth and emissions near Epping Forest SAC will be inconsequential at all locations modelled, and the critical loads for N-deposition at the SAC will be exceeded irrespective of the proposals in the Local Plan.

5.1.19 The HRA of the Chelmsford Local Plan (adopted 2020)[48] reached a similar conclusion following AADT and air quality modelling, i.e. that the contribution of the Chelmsford plan

[48] Amec Foster Wheeler (2018). Chelmsford Pre-Submission Local Plan Habitats Regulations Assessment: Information to support an assessment under Regulation 105 of The Conservation of

to traffic growth around Epping Forest SAC would be too small to be significant; this is notable as the Chelmsford boundary is approximately 18km by road from the nearest part of the SAC, and so similar to Bexley; and the modelled contributions to AADT on roads near the SAC are of a similar magnitude. The air quality modelling for the Chelmsford Local Plan therefore provides useful proxy data and demonstrated (inter alia) that:

- The greatest change in annual mean NOx concentrations between the 'without Local Plan' and 'with Local Plan' scenarios for 2031 was 0.02 μgm^{-3} at Epping Forest New Road north and the North Circular, associated with an AADT contribution of 8 and 88 vehicles respectively; this is an inconsequential amount; and
- Nitrogen deposition calculated using the predicted annual mean concentration of NOx, and the contribution of the Local Plan is substantially less than the EA-accepted threshold for 'significant effects' to be possible alone (>1% of the minimum critical load[49]); in this instance it was predicted to be less than 0.01 kg/ha/yr[50].

5.1.20 It should be noted that Local Plans for several London boroughs have been recently adopted or submitted for EiP; these include the Hackney Local Plan (adopted 2020); the Tower Hamlets Local Plan (adopted 2020); the Newnham Local Plan (adopted 2018); the Lambeth Local Plan (submitted 2020); the New Southwark Plan (submitted 2020); and the Brent Local Plan (submitted 2020). These boroughs are all substantially closer to Epping Forest SAC and/or better connected by road than the Borough. The HRAs for all of these plans concluded that there would be no significant effects alone or in combination on Epping Forest SAC due to air quality changes, invariably without reference to the relative contributions to AADT. Whilst car ownership in some of these boroughs is likely to be lower than Bexley, these conclusions typically relied on the inclusion of standard mitigating policies relating to air quality (equivalent to those proposed by the Draft Local Plan); or the attenuating effects of travel distance; or the overarching neutrality commitments in the London Plan.

5.1.21 In addition, the HRA of the Intend to Publish London Plan (2019) determined that this plan would have no adverse effect on air quality in Epping Forest SAC, based on the air quality policies in the draft London Plan, The Mayor's Transport Strategy and the London

---

Habitats and Species Regulations 2017. Report for Chelmsford City Council. AFW Ref. S37180rr012i2. CCC Ref: SD006.

[49] The 1% threshold is used as it is accepted that levels below this are difficult to measure and not typically distinguishable from background fluctuations. An exceedance of 1% of the critical load should be seen as a 'starting point' for assessing the significance of any effects; the Institute of Air Quality Management (IAQM) position statement on air quality effects notes that "it is the position of the IAQM that the use of a criterion of 1% of an assessment level in the context of habitats should be used only to screen out impacts that will have an insignificant effect. It should not be used as a threshold above which damage is implied and is therefore used to conclude that a significant effect is likely."

[50] The air quality assessment models NOx and then converts it into rates of N-deposition using tools released by Defra, although these only calculate to two decimal places; in this instance the change in concentration is too small to be picked up by these tools and so the change in concentration is given as <0.01 kgN/ha/yr.

Environment Strategy; this is notable, as the London Plan effectively drives the quantum of growth within Bexley.

5.1.22 Nitrogen deposition is likely to remain over the minimum critical load for the site habitats in the medium term irrespective of the Draft Local Plan contributions, which will be inconsequential; however, it is expected that emission factors will decrease in future years as electric vehicles become more common. Given the de minimis contribution of the Local Plan to predicted changes in traffic volumes and hence air quality around Epping Forest, specific mitigation measures for potential effects associated with out-of-district travel are not considered essential to ensure 'no significant effects'. Whilst the Local Plan's ability to influence out-of-district travel will be limited, sustainable travel principles (including support for public transport, cycle and pedestrian routes, car clubs, etc.) are woven throughout the proposed Local Plan policies, particularly with regards to the strategic allocations.

5.1.23 Therefore, it can be reasonably concluded that the Draft Local Plan will have no significant effects on the air-quality sensitive interest features of the Epping Forest SAC, alone or in combination.

6. Summary and Conclusions

6.1 Summary

6.1.1 The London Borough of Bexley (the Council) has prepared its Draft Local Plan in accordance with Regulation 19 of the Town and Country Planning Act (Local Planning) (England) Regulations 2012; the Draft Local Plan includes a vision, strategic objectives and a planning policy framework to guide and manage development in the borough to 2036, in line with the planning policy requirements set out by national government and the Greater London Authority (GLA) in the London Plan. The Regulation 19 Draft Local Plan will be consulted on in January 2021, with submission to the Secretary of State and the subsequent examination into the soundness of the Local Plan anticipated to take place later in 2021.

6.1.2 The new Local Plan, once adopted, will support the delivery of the Bexley Growth Strategy within the context of London's growth requirements. It will provide clarity on the location of development; its timing; and the local standards development should achieve over the plan period (2021-2036). It will enable the Council to plan proactively and positively for development by focusing on the community needs and opportunities in relation to places, housing, economy, infrastructure, local services and other areas across the borough. It also establishes planning policies that seek to safeguard the environment, aid resilience and adaptation to climate change and enhance the natural and historic environment.

6.1.3 Regulation 105 of the Habitats Regulations states that if a land-use plan is "(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects); and (b) is not directly connected with or necessary to the management of the site" then the plan-making authority must "…make an appropriate assessment of the implications for the site in view of that site's conservation objectives" before the plan is given effect. The process by which Regulation 105 is met is known as HRA. An HRA determines whether there will be any 'likely significant effects' (LSE) on any European site as a result of a plan's implementation (either on its own or 'in combination' with other plans or projects) and, if so, whether these effects will result in any adverse effects on the site's integrity. The Council has a statutory duty to prepare the Local Plan and is therefore the Competent Authority for an HRA.

6.1.4 The HRA of the Draft Local Plan considered potential effects on all European sites within 20km of the Council's Administrative Area; any additional sites that may be hydrologically linked to the Local Plan's zone of influence and exposed to potentially significant environmental changes (note, there are no additional sites in this category); and any additional sites identified by NE during scoping consultations (none in this instance).

6.1.5 The HRA has demonstrated that the Draft Local Plan will have **no effects or no significant effects alone or in combination on the interest features of Lee Valley SPA / Ramsar, Thames Estuary and Marshes SPA / Ramsar or North Downs Woodlands SAC.** This is principally due to the absence of reasonable impact pathways by which the Local Plan could affect these sites. The vast majority of the Draft Local Plan policies and proposed site allocations will have 'no effect' (either alone or in combination) on any

European sites, typically because either they are policy types that do not make provision for changes or because they relate to areas that are a considerable distance from the European sites within the study area (with no known pollutant or effect pathway).

6.1.6 The interest features of **Epping Forest SAC** are known to be exposed and sensitive to air quality changes associated with 'in combination' traffic growth, to which the Bexley Local Plan may contribute. This aspect was therefore considered in greater detail. This SAC will not be significantly affected by the Local Plan, alone or in combination, via any other mechanisms (e.g. changes in water quality; recreational pressure) due to the distance and absence of reasonable impact pathways.

6.1.7 Site integrity (in HRA terms) is "the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated" (EC Guidance 'Managing Natura 2000' (2018)).

6.1.8 In summary, the assessment of potential air quality impacts is driven in part by recent case law that has altered the interpretation of historically accepted metrics regarding 'in combination' effects. The assessment presented in this report (**Section 5**) has considered potential effects on air quality sensitive sites that may arise due to future traffic growth associated with the Local Plan's implementation. This has focused on sections of Epping Forest SAC that are within 200m of a road that might see a potentially significant increase in traffic (>1,000 AADT) and to which the Local Plan might reasonably contribute.

6.1.9 This analysis has determined that the Local Plan's contribution to traffic growth and air quality changes around Epping Forest SAC will be inconsequential, and that air quality and associated traffic thresholds for the features of the SAC will be substantially exceeded over plan period irrespective of the Local Plan's contribution to traffic volumes near this site. The 'in combination' contribution of the Local Plan is therefore considered to be too small to be 'significant'.

6.2 Conclusions

6.2.1 The assessment of the Draft Local Plan has therefore concluded that most aspects of the plan will have no significant effects on any European sites, alone or in combination. Appropriate assessments have been undertaken where effect pathways could not be self-evidently excluded at screening; this has concluded that the 'in combination' contribution of the Local Plan to air quality changes is considered to be too small to be 'significant'. In summary, therefore, it is considered that the plan will have no significant effects on the integrity of any European sites (alone or in combination) due to the absence of impact pathways.

6.2.2 It will be necessary to review any changes that are made to the Draft Local Plan prior to adoption in order to ensure that the HRA conclusions remain applicable. A formal assessment conclusion against the requirements of Regulation 105 will be made at that point.

Bibliography

APIS (2020) Site Relevant Critical Loads [online]. [accessed August 2020].

APIS (2020). Nitrogen deposition and Ammonia [online]. [accessed August 2020].

Austin GE, Calbrade NA, Mellan HJ, Musgrove AJ, Hearn RD, Stroud DA, Wotton SR & Holt CA (2014). Waterbirds in the UK 2012/13: The Wetland Bird Survey. BTO, RSPB and JNCC, in association with WWT. British Trust for Ornithology, Thetford.

CEH (2016). CORINE Land Cover Map datasets for the UK, Jersey and Guernsey [online]. [Accessed August 2020].

Clarke, R.T., Liley, D., Underhill-Day, J.C. & Rose, R.J. (2006) Visitor Access Patterns on the Dorset Heaths. English Nature.

Clearlead (2016). Derbyshire Dales Local Plan – Submission Habitats Regulations Report. Report for Derbyshire Dales District Council. Clearlead, Devon)

Cutts N., Phelps A. & Burdon D. (2009) Construction and waterfowl: defining sensitivity, response, impacts and guidance. Report to Humber INCA by the Institute of Estuarine and Coastal Studies, University of Hull. EN (2003) The Humber Estuary European Marine Site: English Nature's advice given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994. English Nature, Peterborough

Cutts, N.D., Hemingway, K.L. & J. Spencer. (2013). TIDE Tool: Waterbird Disturbance & Mitigation Toolkit (Context & Guidance Document). Institute of Estuarine and Coastal Studies (IECS), University of Hull. Produced for the European 'TIDE' project as part of the Interreg IVB North Sea Region Programme.

Defra (2018). Emissions of Air pollutants in the UK, 1970 to 2016. [Accessed March 2018].

DoT (2003). Design Manual for Roads and Bridges. Department of Transport (now Department for Transport), London Vol 11.Section 3. Air Quality.

EC (2018). Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Commission Notice C(2018) 7621 final, Brussels, 21.11.2018.

EN (2004). Numbers and distribution of the wintering golden plover population in and around the Thanet Coast & Sandwich Bay SPA 2002/2003. English Nature Research Report No. 569. English Nature, Peterborough.

Environment Agency (2007). Stage 1 and 2 Assessment of New PIR Permissions under the Habitats Regulations. Appendix 7 to Environment Guidance.

Environment Agency (2007). Stage 1 and 2 Assessment of New PIR Permissions under the Habitats Regulations. Appendix 7 to Environment Guidance.

EPR (2012) Whitehill & Bordon Eco-town Visitor Survey Report. Report for East Hampshire District Council by Ecological Planning & Research Ltd, Winchester

Fearnley, H, Liley, D and Floyd L. (2014). Thanet Coast and Sandwich Bay SPA Visitor Survey. Unpublished report for Canterbury City Council.

Fearnley, H. & Liley, D. (2014) Results of the 2012/13 Visitor Survey on the Thames Basin Heaths Special Protection Area (SPA). Natural England Commissioned Report NECR136, Footprint Ecology / Natural England.

Fearnley, H., Clarke, R. T. & Liley, D. (2010). The Solent Disturbance & Mitigation Project. Phase II - On-site visitor survey results from the Solent region. Report for the Solent Forum by Footprint Ecology, Dorset

Finney SK Pearce-Higgins JW & Yalden DW (2005) The effect of recreational disturbance on an upland breeding bird, the golden plover Pluvialis apricaria, Biological Conservation **121**(1): pp 53-63.

Footprint Ecology (2011). North Kent Visitor Survey Results. Report for the North Kent Environmental Planning Group. Footprint Ecology, Wareham

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

Gill, J.A., Norris, K. & Sutherland, W.J. (2001) The effects of disturbance on habitat use by black-tailed godwits Limosa. Journal of Applied Ecology **38**(4) pp. 846 – 856.

Guillemain M, Blanc R, Lucas C & Lepley M (2007) Ecotourism disturbance to wildfowl in protected areas: historical, empirical and experimental approaches in the Camargue, Southern France. Biodiversity Conservation **16**: 3633-3651

Holt et al. (2015). Waterbirds in the UK 2013/14: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford

JNCC. (2016). The Status of UK SPAs in the 2000s: The Third Network Review. Joint Nature Conservancy Council, Peterborough.

KWT (2012) Pegwell Bay Bird Disturbance Study 2010 - 2011. Kent Wildlife Trust Report, Oct 2012.

Lake, S., Petersen, C., Panter, C. & Liley, D (2016). Deben Visitor Survey. Unpublished report by Footprint Ecology for the Deben Estuary Partnership

Laursen K, Kahlert J & Frikke J (2005). Factors affecting escape distances of staging waterbirds. Wildlife Biology **11**(1) pp 13 – 19.

Liley D, Jackson D. & Underhill-Day, J. (2005). Visitor Access Patterns on the Thames Basin Heaths. English Nature Research Report 682. English Nature, Peterborough.

Liley, D., Hoskin, R., Lake, S., Underhill-Day, J. & Cruickshanks, K. (2014) South-East Devon European Site Mitigation Strategy. Footprint Ecology

Mason C.F. & MacDonald S.M. (1999). Habitat use by Lapwings and Golden Plovers in a largely arable landscape. Bird Study **46**, 89-99.

SNH (2017) Habitats Regulations Appraisal of Plans: Guidance for plan-making bodies in Scotland. Scottish Natural Heritage

SNIFFER (2007) Source attribution and critical loads assessment for Special Areas of Conservation and Special Protection Areas in the UK. Report by the Centre for Ecology and Hydrology for Scotland and Northern Ireland Forum for Environmental Research, Edinburgh.

Stroud, D.A., Bainbridge, I.P., Maddock, A., Anthony, S., Baker, H., Buxton, N., Chambers, D., Enlander, I., Hearn, R.D., Jennings, K.R., Mavor, R., Whitehead, S. & Wilson, J.D. (eds.) (2016). The status of UK SPAs in the 2000s: the Third Network Review. JNCC, Peterborough

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds). (2001). The UK SPA network: its scope and content. JNCC, Peterborough.

Swandale, T. & Waite, A. (2012). Pegwell Bay, Kent: Bird Disturbance Study 2010-2011.

UE / University of Brighton (2009). Visitor Access Patterns on Ashdown Forest. Report for Mid Sussex and Wealden District Councils. UE Associates, Cheltenham / University of Brighton, Brighton.

Underhill, L.G. & Prys-Jones, R. (1994) Index numbers for waterbird populations. I. Review and methodology. Journal of Applied Ecology **31**: 463-480.

Webb, K. (2002). The Effects of Human Activity on Turnstone and other Wading Birds with the Thanet Sandwich Bay Special Protection Area (SPA). Published in: English Nature Research Reports, Number 570, Proceedings of the North East Kent Coastal Research Workshop, 22 October 2002, Sandwich Bay Bird Observatory.

Woods, M., McDonald R. A. & Harris S. (2003). Predation of wildlife by domestic cats Felis catus in Great Britain. Mammal Review **33** (2): 174-188

Appendix A
European Site Terminology

Table A.1 European site terminology

Name	Abbreviation	Notes
Special Area of Conservation	SAC	Designated under the EU Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, and implemented in the UK through the Conservation of Habitats and Species Regulations 2017, and the Conservation (Natural Habitats, & c.) Regulations (Northern Ireland) 1995 (as amended).
Sites of Community Importance	SCI	Sites of Community Importance (SCIs) are sites that have been adopted by the European Commission but not yet formally designated by the government of each country. Although not formally designated they are nevertheless fully protected by Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, the Conservation of Habitats and Species Regulations 2017, and the Conservation (Natural Habitats, & c.) Regulations (Northern Ireland) 1995 (as amended).
Candidate SAC	cSAC	Candidate SACs (cSACs) are sites that have been submitted to the European Commission, but not yet formally adopted as SCIs. Although these sites are still undergoing designation and adoption, they are still fully protected by Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, the Conservation of Habitats and Species Regulations 2017 and the Conservation (Natural Habitats, & c.) Regulations (Northern Ireland) 1995 (as amended).
Possible SACs	pSAC	Sites that have been formally advised to UK Government, but not yet submitted to the European Commission. As a matter of policy the Governments in England, Scotland and Wales extend the same protection to these sites in respect of new development as that afforded to SACs.
Draft SACs	dSAC	Areas that have been formally advised to UK government as suitable for selection as SACs, but have not been formally approved by government as sites for public consultation. These are not protected (unless covered by some other designation) and it is likely that their existence will not be established through desk study except through direct contact with the relevant statutory authority; however, the statutory

Name	Abbreviation	Notes
		authority is likely to take into account the proposed reasons for designation when considering potential impacts on them.
Special Protection Area	SPA	Designated under EU Council Directive 79/409/EEC on the Conservation of Wild Birds (the 'old Wild Birds Directive') and Directive 2009/147/EC on the Conservation of Wild Birds (the 'new Wild Birds Directive, which repeals the 'old Wild Birds Directive'), and protected by Article 6 of Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora. These directives are implemented in the UK through the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2017, the Wildlife (Northern Ireland) Order 1985, the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and The Conservation (Natural Habitats, &C.) (Northern Ireland) Regulations 1995 (as amended) and the Offshore Marine Conservation (Natural Habitats & c.) Regulations 2007.
Potential SPA	pSPA	These are sites that are still undergoing designation and have not been designated by the Secretary of State; however, ECJ case law indicates that these sites are protected under Article 4(4) of Directive 2009/147/EC (which in theory provides a higher level of protection than the Habitats Directive, which does not apply until the sites are designated as SPAs), and as a matter of policy the Governments in England, Scotland and Wales extend the same protection to these sites in respect of new development as that afforded to SPAs, and they may be protected by some other designation (e.g. SSSI).
Ramsar		The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention or Wetlands Convention) was adopted in Ramsar, Iran in February 1971. The UK ratified the Convention in 1976. In the UK Ramsar sites are generally underpinned by notification of these areas as Sites of Special Scientific Interest (SSSIs) (or Areas of Special Scientific Interest (ASSIs) in Northern Ireland). Ramsar sites therefore receive statutory protection under the Wildlife & Countryside Act 1981 (as amended), and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985. However, as a matter of policy the Governments in England, Scotland and Wales extend the same protection to listed Ramsar sites in respect of new development as that afforded to SPAs and SACs.

Appendix B
Summary of Assessment of Draft Local Plan Policies

Key

	No effect or no LSE – policy will not or cannot affect any European sites and can therefore be screened out (subject to a brief review of the final policy prior to adoption).
	Policies with mitigating/moderating elements that do not have significant effects but which are relied on (at least in part) to ensure that significant or significant adverse effects from specific pathways do not occur; are examined through AA.
	Policies that have potential pathways for effects that require examination through appropriate assessment; note, this does not imply such policies will have adverse effects or even (potentially) signiifcant effects; rather it is an assessment flag.

Table B.1 Summary of the assessment of the Draft Local Plan Policies (screening and AA)

Policy	HRA summary	Notes
SP1: Achieving sustainable development – the spatial strategy	No LSE	General design / guidance criteria or policies that cannot lead to or trigger development. Policy sets the broad criteria that new development in will be expected to meet; these are entirely consistent with the safeguarding of European sites.
SP2: Meeting Bexley's housing requirements	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
DP1: Providing a supply of housing	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
DP2: Residential development on backland and infill sites	No LSE	General statement of policy / General design / guidance criteria.
DP3: Providing housing for older people	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
DP4: Gypsy and traveller accommodation	No LSE	General statement of policy / General design / guidance criteria.

Policy	HRA summary	Notes
DP5: Houses in multiple occupation and live/work units	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
DP6: Loss of existing housing	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
SP3: Employment growth, innovation and enterprise	No LSE	Directs employment etc. to strategic industrial locations (SIL) and locally significant industrial sites (LSIS), as defined on the Local Plan Policies Map, although development in these locations will have no effects on European sites.
DP7: Appropriate uses within designated industrial areas	No LSE	Directs employment etc. to strategic industrial locations (SIL) and locally significant industrial sites (LSIS), as defined on the Local Plan Policies Map, although development in these locations will have no effects on European sites.
DP8: Telecommunications and digital infrastructure	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
SP4: Supporting successful town centres	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
DP9: Development within town centres	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
DP10: Neighbourhood centres and small parades	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
SP5: Placemaking through good design	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
DP11: Achieving high quality design	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.

Policy	HRA summary	Notes
DP12: Tall buildings and building heights	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
DP13: Protecting local views	No LSE	Safeguarding policy that cannot lead to or trigger development. General design / guidance criteria.
SP6: Managing Bexley's heritage assets	No LSE	Safeguarding policy that cannot lead to or trigger development. General design / guidance criteria.
DP14: Development affecting a heritage asset	No adverse effects	Safeguarding policy that cannot lead to or trigger development. General design / guidance criteria.
SP7: Social and community services and facilities	No LSE	General statement of policy.
DP15: Providing and protecting social and community infrastructure	No LSE	General statement of policy.
DP16: Health impact assessments	No LSE	Safeguarding / protective policy
DP17: Publicly accessible open space	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
SP8: Green infrastructure including designated Green Belt	No LSE	Safeguarding / protective policy
DP18: Waterfront development	No LSE	General statement of policy / General design / guidance criteria or policies that cannot lead to or trigger development.
DP19: The River Thames and the Thames Policy Area	No LSE	Safeguarding / protective policy with measures likely to have incidental benefits for European sites downstream.
SP9: Protecting and enhancing biodiversity and geological assets	No LSE	Safeguarding / protective policy with measures likely to have incidental benefits for European sites downstream.

Policy	HRA summary	Notes
DP20: Biodiversity and geodiversity in new developments	No LSE	Protective policy; no pathway for effects.
DP21: Greening of development sites	No LSE	General statement of policy / General design / guidance criteria.
SP10: Bexley's transport network	No LSE	General statement of policy / General design / guidance criteria; encourages modal shift to sustainable transport; likely to have beneficial effects in respect of air quality.
SP11: Safeguarding land for transport schemes	No LSE	Policy has spatial elements but derived from other plans and programmes; general statement of safeguarding, does not itself lead to development.
DP22: Sustainable transport	No LSE	General statement of policy; encourages modal shift to sustainable transport; likely to have beneficial effects in respect of air quality and so has elements that will have a small mitigating effect on air quality although this probably will not extend to Epping Forest SAC since its effects on out-of-area transport choices are likely to be limited (i.e. if it is necessary for a resident to travel past Epping Forest then the availability of sustainable transport choices in the borough will be a small component of their overall transport choice).
DP23: Parking management	No LSE	General statement of policy / General design / guidance criteria; no pathway for effects.
DP24: Impact of new development on the transport network	No LSE	General statement of policy / General design / guidance criteria; no pathway for effects.
SP12: Sustainable waste management	No LSE	General statement of policy / General design / guidance criteria; no pathway for effects.
DP25: New waste management facilities and extensions and alterations to existing facilities	No LSE	Spatial component to the policy that directs new facilities to strategic industrial locations (SIL) as defined on the Local Plan Policies Map, although development in these locations will have no effects on European sites.

Policy	HRA summary	Notes
DP26: Waste management in new development	No LSE	General statement of policy / General design / guidance criteria; no pathway for effects.
DP27: Minerals and aggregates	No LSE	Spatial component to the policy as it relates to land designated for aggregates on the Local Plan Policies Map, although development in these locations will have no effects on European sites.
DP28: Contaminated land and development and storage of hazardous substances	No LSE	General statement of policy / General design / guidance criteria / Protective policy; no pathway for effects.
SP13: Protecting and enhancing water supply and wastewater infrastructure	No LSE	General statement of policy support for water / wastewater infrastructure; no pathway for effects.
DP29: Water quality supply and treatment	No LSE	General statement of policy / General design / guidance criteria; no pathway for effects.
SP14: Mitigating and adapting to climate change	No LSE	Protective policy; no pathway for effects.
DP30: Mitigating climate change	No LSE	General statement of policy / General design / guidance criteria; no pathway for effects.
DP31: Energy infrastructure	No LSE	General statement of policy / General design / guidance criteria; no pathway for effects.
DP32: Flood risk management	No LSE	General statement of policy / General design / guidance criteria; no pathway for effects.
DP33: Sustainable drainage systems	No LSE	Protective policy; no pathway for effects.

© Wood Group UK Limited

Appendix C
Review of Plans for 'In Combination' Effects

© Wood Group UK Limited

Table C.1 Plans and programmes considered for potential 'in combination' effects with the Bexley Local Plan

Plan	Summary	Plan HRA conclusions*	Potential for i/c effects?	Notes / Assessment
Thames Water WRMP (2019)	Potable water in the borough is supplied by Thames Water as part of its London Water Resource Zone (WRZ). The London WRZ is supplied primarily from surface water resources of the River Thames and River Lee (80%), either directly or via storage reservoirs, with the remainder comprising groundwater abstractions (including from the chalk aquifer under south east London around Bexley). The London WRZ is an integrated system and so direct and specific supply relationships cannot necessarily be made – i.e. it is rarely possible or appropriate to identify a particular 'source' for water supply to a specific area. Consequently, direct effects on specific European sites as a result of development within the borough cannot necessarily be identified or quantified.	No adverse effect	No	WRMPs explicitly account for any reductions in abstraction that are required to safeguard European sites (see Section 4) and for the growth predicted by the Local Plan and other LPA local plans in their forecasting. Therefore, the future water resource requirements of the borough are factored into the abstraction regime, such that they will not affect European sites (i.e. the growth provided for by the Local Plan is in line with predictions used in the WRMP and will not increase water resources pressure on any European sites, alone or in combination).

© Wood Group UK Limited

Plan	Summary	Plan HRA conclusions*	Potential for i/c effects?	Notes / Assessment
Environment Agency (2015) River Basin Management Plans (RBMPs): • **Thames RBMP (2015)**	The RBMPs focuses on the protection, improvement and sustainable use of the water environment. The overall objective is to ensure sufficient water supplies for future generations especially in the face of climate change, housing growth and an increase in individual water use.	No significant effect	No	The plans will be complementary and the proposals within both plans do not create a scenario where there is insufficient flexibility at the project stage to allow significant effects to be avoided.
Thames Region Catchment Flood Management Plans (CFMPs): • **North Kent Rivers CFMP (2009)** • **Medway CFMP (2009)**	CFMPs account for the scale and extent of current and predicted flooding and set policies for managing flood risk within the catchments. CFMPs are used to inform planning and decision making by key stakeholders including LPAs	No significant effect	No	The CFMPs are accounted for in the development of the Local Plan. They do not generally identify specific flood schemes or projects but provide broad policies for the future management of flood risk which the Local Plan policies complement.

© Wood Group UK Limited

Plan	Summary	Plan HRA conclusions*	Potential for i/c effects?	Notes / Assessment
Thames Estuary 2100 Action Plan: Managing Flood Risk Through London and the Thames Estuary (EA, 2012)	For the first 25 years (2010-2035), the Strategy seeks to: • Continue to maintain the current flood defence system – including planned improvements; • Ensure that effective floodplain management (emergency and spatial planning) is in place across the estuary; • Safeguard areas that will be required for future changes to the flood defences; and • Monitor change indicators including sea level rise and climate change and review the Plan as required.	No adverse effect on sites also exposed to effects of Bexley Local Plan.	No	None of the sites exposed to potentially significant changes as a result of this plan will be directly affected by the Local Plan proposals / allocations so in combination risks are limited.

© Wood Group UK Limited

Plan	Summary	Plan HRA conclusions*	Potential for i/c effects?	Notes / Assessment
The London Plan (2021)	The Plan provides the framework to address key planning issues facing London. There are a number of objectives identified within the Plan, which includes: • Delivering 50% of green cover across London to help it become a National Park City; • 80% of all trips in London to be made by foot, cycle, or public transport by 2041; • 20% of all new homes to be genuinely affordable; • Major development should be net zero-carbon; and • Deliver an additional 522,870 between 2019/20-2028/29.	No adverse effects	No	The Bexley Local Plan must be in general conformity with the aims and goals of the London Plan, and the quantum of growth provided for by the Bexley plan is driven by the London Plan. The HRA of the London Plan has concluded that there will be 'no adverse effects' on the European sites in its ZoI, and the Bexley Local Plan does not introduce any new impact pathways that would not have been considered by this HRA, or which might act to make 'not significant' effects of the London Plan 'significant'.

© Wood Group UK Limited

Plan	Summary	Plan HRA conclusions*	Potential for i/c effects?	Notes / Assessment
Local Plans (in combination)	There are 66 LPAs within 15km of those parts of Epping Forest SAC, Lee Valley SPA / Ramsar, Thames Estuary and Marshes SPA / Ramsar and North Downs Woodlands SAC that are within 20km of the borough area; these Local Plans will all have the same broad aspects and pathways for potential effects on European sites.	No significant effects / no adverse effects	Yes	There are 66 LPAs within 15km of those parts of Epping Forest SAC, Lee Valley SPA / Ramsar, Thames Estuary and Marshes SPA / Ramsar and North Downs Woodlands SAC that are within 20km of the Bexley area – i.e. LPAs whose local plans may affect the European sites that are also exposed to the effects of the Local Plan. The HRAs of these plans have been reviewed (where possible – many are no longer available online) to determine potential pathways for in combination effects, and to determine whether 'not significant' effects of these plans might be significant in combination with the Local Plan. Due to the distance of the Bexley area from the European sites the only risk of potential 'in combination' effects relate to the broader 'quantum of development' effects that are explicitly considered in Sections 3 – 5 of this report. This concludes that there will be no significant 'in combination' effects on any of the European sites considered via the key 'quantum' related mechanisms.

Plan	Summary	Plan HRA conclusions*	Potential for i/c effects?	Notes / Assessment
Thames Water WRMP (2019)	Potable water in the borough is supplied by Thames Water as part of its London Water Resource Zone (WRZ). The London WRZ is supplied primarily from surface water resources of the River Thames and River Lee (80%), either directly or via storage reservoirs, with the remainder comprising groundwater abstractions (including from the chalk aquifer under south east London around Bexley). The London WRZ is an integrated system and so direct and specific supply relationships cannot necessarily be made – i.e. it is rarely possible or appropriate to identify a particular 'source' for water supply to a specific area. Consequently, direct effects on specific European sites as a result of development within the borough cannot necessarily be identified or quantified.	No adverse effect	No	WRMPs explicitly account for any reductions in abstraction that are required to safeguard European sites (see Section 4) and for the growth predicted by the Local Plan and other LPA local plans in their forecasting. Therefore, the future water resource requirements of the borough are factored into the abstraction regime, such that they will not affect European sites (i.e. the growth provided for by the Local Plan is in line with predictions used in the WRMP and will not increase water resources pressure on any European sites, alone or in combination).

*Based on the HRAs accompanying the published or draft plans, where available. The conclusion noted relates to the plan as a whole and not necessarily to the conclusion in relation to particular European sites (although a 'no significant effects conclusion is only possible if these are no

significant effects on any sites). Many of the sites considered by the Bexley Local Plan HRA will not be considered by other plan HRAs at all as they are beyond the plan's 'zone of influence'.

This page is intentionally blank