Bristol Local Plan

Habitats Regulations Assessment Appropriate Assessment of the Bristol Local Plan Submission Version (2024)

Submission Stage

Contents

1. Introduction

1.1 Overview

Bristol City Council (BCC) is preparing a new Local Plan, covering the period from 01 April 2025 to 31 March 2040, that will replace the currently adopted Local Plan which includes the Bristol Core Strategy (2011), the Site Allocations and Development Management Policies Development Plan Document (2014) and the Bristol Central Area Plan (2015).

BCC is currently in the process of preparing a Stage 2 Appropriate Assessment (AA) as part of the Habitats Regulations Assessment (HRA) process, to assess the potential for adverse effects on European designated sites (EDS), which may arise from implementation of the new Local Plan.

This will be in compliance with the requirements of The Conservation of Habitats and Species Regulations 2017 (as amended). It is also prepared in response to the Stage 1 Screening Report, which concluded that likely significant effects (LSE) on EDS from the implementation of the Local Plan cannot be ruled out, either alone or in-combination with other plans or projects, and therefore an Appropriate Assessment (AA) of the Local Plan must be undertaken.

In line with the precautionary principle, the Local Plan can only be adopted once it has been determined, following AA, that it will not adversely affect the integrity of an EDS.

1.2 Submission Stage Appropriate Assessment

The purpose of this AA is to undertake an objective, scientific assessment of the implications for the EDS qualifying features potentially affected by the emerging Local Plan, in light of their conservation objectives and other information for assessment.

The assessment aims to ensure that, prior to the Local Plan's adoption, all aspects of the Local Plan which could, alone or in combination with other plans or projects, affect any EDS are identified in the light of the best scientific knowledge available, so that a judgement can be made as to whether or not the plan would have an adverse effect on the integrity of any such sites.

The AA is an iterative process, with re-assessment of changes and potentially new or different mitigation measures likely to be required, as more evidence becomes available to inform the position on implications of the Plan for all EDS within the Zone of Influence (ZoI) for the Local Plan. The AA will provide a clear record if any further mitigation measures need to be included in the emerging Local Plan.

2. Basis for Appropriate Assessment

2.1 Legal Basis

The requirement for 'Appropriate Assessment' is set out in Articles 6(3) and 6(4) of the Habitats Directive (92/43/EEC).

A key requirement of the Habitats Directive is that the effects of any plan or project, which is not directly connected with or necessary to the management of a European Site, but which alone, or in-combination with, other plans or projects, are likely to have a significant effect on a European Site, should be assessed before any decision is made to allow that plan or project to proceed.

The obligation to undertake Screening for AA (Stage 1) and, if necessary, AA (Stage 2), derives from Article 6(3) of the Habitats Directive and both involve a number of steps and tests that need to be applied in sequential order.

As detailed within the Screening Stage, the Local Plan is not directly connected to or necessary to the management of any European site[1] and therefore is subject to the provisions of Article 6(3).

Article 6(3) of the EU Habitats Directive is transposed in England by The Conservation of Habitats and Species Regulations (2017), as amended (hereafter referred to as the 'Habitats Regulations'). The Habitats Regulations are domestic law and remain in place post-Brexit, unless and until the Government chooses to repeal or amend them. Indeed, whilst the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 made changes to the parts of the 2017 Habitats Regulations, the majority of the changes involved transferring functions from the European Commission (EC) to the appropriate authorities in England and Wales. The obligations of a 'competent authority' set out through the 2017 Habitats Regulations for the protection of sites or species were therefore not changed.

The Environment Act 2021 Section 112 and 113 introduced powers to Secretary of State to amend the Habitats Regulations through further regulation, which may include general duties, the assessment of plans and programmes and targets in respect of biodiversity and improvements to the natural environment. Section 112 (6 and 7) requires that the Secretary of State must have regard to the particular importance of furthering the conservation and enhancement of biodiversity, and to be satisfied that any new regulations do not reduce the level of environmental protection provided by the Habitat Regulations.

The Levelling Up and Regeneration Act also received Royal Ascent and was made into an Act in November 2023. Alongside significant reforms to the process of Strategic Environmental Assessment, Section 164 makes provision for new system of Environmental Outcomes Reporting regulations to consider interaction with the Habitats Regulations.

At the time of writing this AA, no amendments to the Habitat Regulations had been published.

[1] This is outlined in detail in Section 3.2 of the Stage 1: Habitats Regulations Assessment Screening Report.

Stage 1: HRA Screening

The HRA Screening Report (Version 1, 31st July 2023)[2] was produced by Arup on behalf of BCC. BCC is the competent authority with respect to the Local Plan.

The Stage 1 HRA Screening Report concluded that LSE on EDS from the implementation of the Local Plan cannot be ruled out, either alone or in-combination with other plans or projects, and therefore an Appropriate Assessment of the Local Plan must be undertaken.

A total of 25 Local Plan policies have been screened in for AA due to their potential for LSE on EDS alone. In accordance with national planning policy, these policies promote the development of predominantly urban residential and mixed-use sites, industry and distribution areas, and maritime industry areas; establish a housing requirement, transport improvements, renewable energy development and flood risk management; and propose site allocations across the Local Plan area.

The proposed Areas of Growth and Regeneration and the proposed allocated sites (Policy DA1) promote new development across the Local Plan area. These include: a total of 14 Areas of Growth and Regeneration which act as the focus for residential and residential-led mixed use development (including Green Belt release of three sites for this use) (59 sites). Employment provision within the Plan includes the maintenance of industry and distribution areas (36 sites) (former Principle Industrial and Warehousing areas) and two maritime industry areas (two sites) (former Maritime Industrial and Warehousing areas); alongside the provision of four new sites in the form of the Avonmouth Site Allocations (four sites). These proposed site allocations have the potential to have LSE on EDS due to their geography and the types of impact anticipated from the activities that may arise through the development of the sites for their allocated use. In the case of the Industrial and Distribution Areas and Maritime Industry Areas, policies allow for re-development of previously development areas for existing uses.

Considering the policies and site allocations proposed in the Local Plan alone, LSE are identified in relation to the following six EDS:

- Avon Gorge Woodlands Special Area of Conservation (SAC);
- Severn Estuary SAC;
- Severn Estuary Special Protection Area (SPA);
- Severn Estuary Ramsar;
- Chew Valley Lake SPA; and
- North Somerset and Mendip Bats SAC.

Regarding in-combination effects of the Local Plan with other plans or projects, of the 38 plans and projects identified with potential for in-combination effects, 18 of these plans or projects were screened-in to AA. Further details on each of these plans can be found in the Stage 1 HRA Screening Report[2].

Local Plan measures which include mitigation intended to avoid or reduce likely significant effects are not permitted to be considered at the Screening stage of an HRA due to 2018 European Court of Justice Case Ruling (CJEU C-323/17 – People Over Wind and Peter Sweetman vs Coillte Teoranta).

[2] https://www.bristol.gov.uk/files/documents/6754-bcc-local-plan-stage-1-habitats-regulations-assessment-screening-report/file

This was in reference to wind farm consent being granted subject to conditions, and under condition 17(k), a Construction Environmental Management Plan being required to manage silt-lade runoff and potential impacts on Nore pearl Mussel. The judgement set out the approach to handling potential mitigation at the Screening Stage of a HRA, ruling that only mitigation measures considered as 'incorporated' can be taken into account at the Screening Stage, and not mitigation measures specifically intended to avoid or reduce likely significant effects on EDS. Therefore, effects are assessed at AA with consideration of these measures set out as mitigation available within the Local Plan.

Stage 2: Appropriate Assessment

This assessment is being prepared in accordance with the Habitats Regulations.

Preparation of the AA commenced in October 2023, and therefore consultation on the Pre-Submission Publication Version of the Bristol Local Plan took place during the preparation of the AA. Alongside responses to the Screening, responses to the progress and content of the HRA were received from statutory nature conservation bodies, and have informed the preparation of the AA.

2.2 Approach to Appropriate Assessment Preparation

Strategic Environmental Assessment Preparation

In the preparation of this AA, the approach has been conducted in parallel with the requirements of the Strategic Environmental Assessment (SEA) process (Directive 2001/42/EC of the European Parliament and of the Council as transposed into UK law by The Environmental Assessment of Plans and Programmes Regulations 2004[3]).

Article 3.2(b) of the SEA Directive expressly links to AA, and the SEA Regulations specifically include a requirement to assess plans or programmes that have been checked under the provisions of the Habitats Regulations and require an AA.

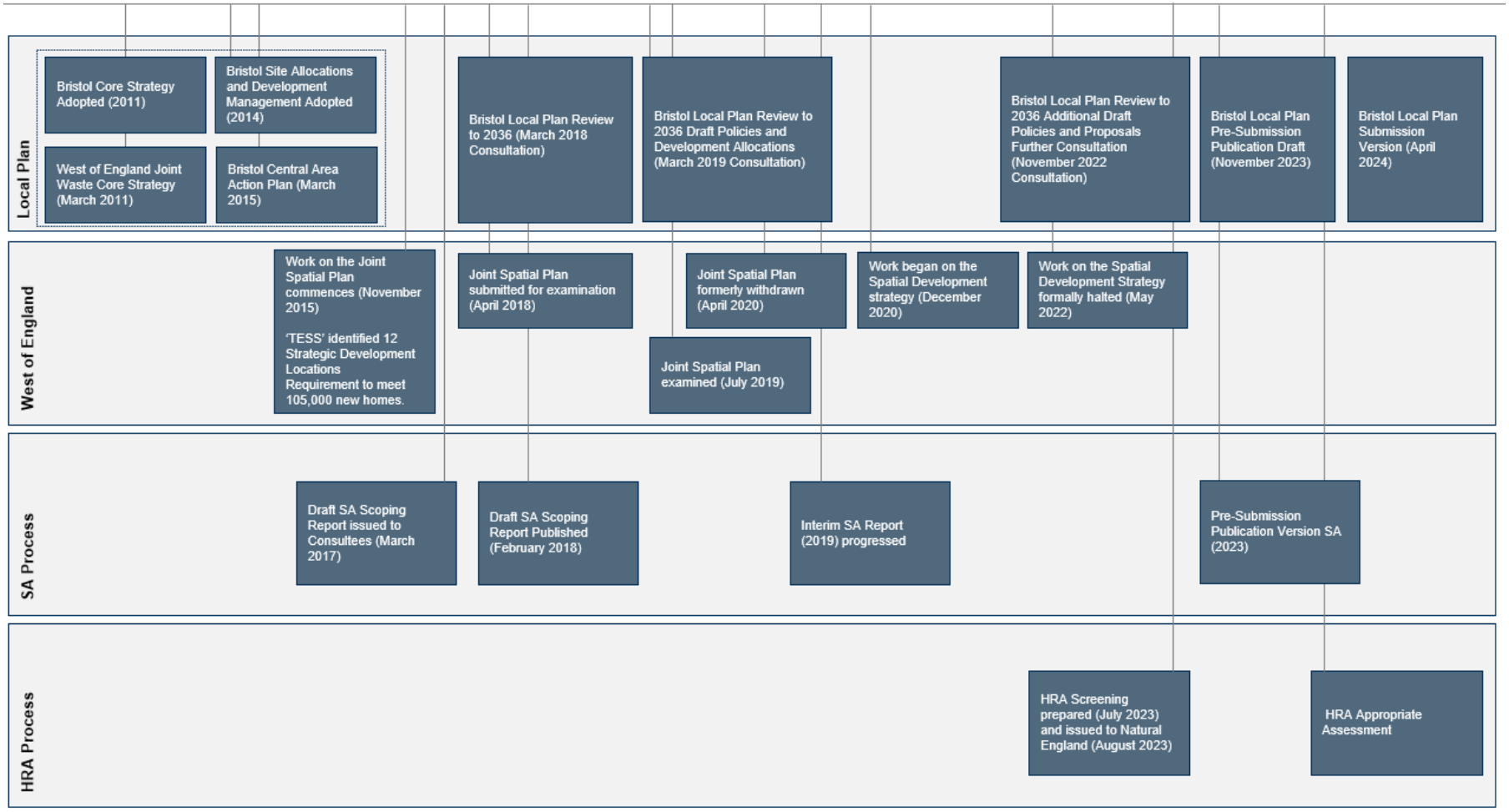
The SEA process requires that an environmental assessment is carried out during the preparation of a plan or programme, and before its submission or adoption to the legislative procedure. The requirements for SEA include baselining of the environmental characteristics of the areas likely to be significantly affected, existing environmental issues, an outline of the reasons for selecting the alternatives and measures for monitoring. It also includes requirements for consultation with the public and authorities with specific environmental responsibilities (e.g. Natural England). Post the consultation period, and once regard has been had for the environmental report, submissions from statutory bodies and the public are received, the plan may be finalised in its issue form.

A Sustainability Appraisal (SA) in line with the SEA Directive and Regulations has been undertaken alongside the Local Plan process. The SA for the Bristol Local Plan has been completed and takes into account the findings of the HRA AA where relevant and available. The SA includes a Main Report and associated appendices, which will be updated as the AA progresses.

[3] The Environmental Assessment of Plans and Programmes Regulations 2004 (Statutory Instrument 2004 No.1633).

AA Preparation and Evolution of Bristol's Local Plan

The Local Plan process includes several stages of preparation, which is mapped against the SA process and changes at a local and regional level as set out below. Figure 1 Progression of the SA and HRA process



Consultation on the new Bristol Local Plan Review commenced in February 2018. New policies related to the delivery of new homes through urban living, setting out a housing requirement, ensuring employment land and premises are available in the right places, providing new protection for open spaces, and updating current climate change and sustainability policies. At this point, a series of existing adopted policies were to be retained.

In March 2019, a second round of Regulation 18 Stage consultation[4] was undertaken by BCC on the 'Bristol Local Plan Review: Draft Policies and Development Allocations' document[5], which sought feedback on a regeneration led development strategy, 70 draft development site allocations[6] and over 50 draft policies. The then emerging Joint Spatial Plan, at that time in preparation by the four West of England authorities but now withdrawn, set out the overall strategy for how housing needs in the wider Bristol and Bath area would be met over the period to 2036. Policies in the adopted Local Plan which were consistent with the JSP and Local Plan Review, were proposed to be retained.

Changes in the approach to planning at a regional level including the withdrawal of the JSP and commencement of work on the new Spatial Development Strategy (SDS), national policy changes and the need to give even greater priority to climate and ecological emergencies resulted in further changes to the emerging Local Plan. The Further Consultation (November 2022)[7] was published by BCC which covered an additional 22 policies and changes to some development locations and allocations. At this point, the SDS was halted, and so the strategic planning context for Bristol's Local Plan was to be established through a process of cooperation with neighbouring councils, there being no strategic level plan.

The Bristol Local Plan Pre-Submission Publication Version (2023) contains a series of policies and proposals. It covers: the development strategy; infrastructure and social value; urban living; housing and economy; shopping and local centres; green infrastructure and biodiversity; transport; community facilities; net zero and climate change; design; health and wellbeing; and, utilities and minerals. It also contains a suite of development allocations.

It is intended that the Local Plan will be submitted to the Secretary of State in Spring 2024. A planning inspector will examine the plan's soundness and legal compliance. As part of the examination, the inspector may recommend main modifications to ensure soundness. Subject to the Plan being 'found sound', BCC will then formally adopt the Plan which will then become part of the statutory development plan.

Consultation with Natural England: Screening

The HRA Screening Report was issued to Natural England (NE) for comment on 2nd August 2023.

[4] The Town and Country Planning (Local Planning) (England) Regulations 2012
[5] Bristol City Council (2019) Bristol Local Plan Review, Draft Policies and Development Allocations. Accessed online: https://www.bristol.gov.uk/files/documents/2275-local-plan-review-draft-policies-and-development-allocations/file
[6] Bristol City Council (2019) Bristol Local Plan Review, Annex – Draft Development Allocations. Accessed online: https://www.bristol.gov.uk/files/documents/2278-local-plan-review-annex-draft-development-allocations/file
[7] Bristol City Council (2022) Bristol Local Plan Review, Draft Policies and Development Allocations – Further Consultation. Accessed online: https://www.bristol.gov.uk/files/documents/5446-bristol-local-plan-review-nov-22-further-consultation/file

A response was received from NE on 25th August 2023. In summary, NE agreed 'with the main outputs of the assessment and the 'likely significant effects' (LSE) on Habitats Sites that have been identified for further consideration through the Appropriate Assessment'. NE then provided detailed commentary on issues considered important in undertaking an AA. NE's full response is included in Appendix A2 and BCC's response, based upon this version of the HRA, is included in Appendix A4.

The NE response also explicitly highlights that it is not the purpose of the Local Plan to fully develop all measures that may be required but to ensure that a Plan can be adopted on the basis that a policy framework is in place that is capable of developing and delivering those measures. It also sets out how potential effects on Habitat Sites tend to be cross-boundary, and as such, often require a co-ordinated assessment and potential response with neighbouring authorities.

NE's main points for suggested inclusion at AA were:

- Consideration of Strategic Access Management and Monitoring (SAMM) options, as well as provision of Suitable Alternative Natural Greenspace (SANGs);
- Undertaking a visitor survey to gain a clearer understanding of profile of visitors, how they are using the site, where they travel from and how. This would be applicable for Avon Gorge Woodlands SAC and Severn Estuary SPA, SAC and Ramsar site;
- Cooperation and engagement with other local authorities and partners around the estuary; and
- Engagement with Environment Agency in relation to potential effects on migratory fish populations that are qualifying features of the Severn Estuary protected sites.

Consultation with Natural England: Publication Draft Consultation (November 2023)

Preparation of the AA commenced in October 2023, and therefore consultation on the Pre-Submission Publication Version of the Bristol Local Plan took place during the preparation of the AA. Natural England responded to this Publication Draft Consultation and provided an additional response.

3. Description of the Development Plan

3.1 Overview

The new Local Plan seeks to the deliver the following objectives:

- Set out an approach to inclusive and sustainable growth and development, by addressing the needs of everyone in all parts of the city;
- Enable the delivery of at least 1,925 new homes a year in Bristol up to 2040 including affordable housing and homes to meet a range of needs;
- Aim to exceed this housing target, where new infrastructure can unlock additional potential; and
- Tackle the climate and ecological emergencies as needs for sustainable development are met.

3.2 Geographic Area

The new Local Plan sets out a direction for each part of the city and identifies specific locations for change and development.

It set outs Areas of Growth and Regeneration and locations for new neighbourhoods. The approach looks at four broad areas of the city:

- Central Bristol: Bristol City Centre's role as a regional focus at the centre of a global city will be promoted and strengthened. The City Centre, Temple Quarter, St Philip's Marsh and Frome Gateway are identified as Areas of Growth and Regeneration;

- East Bristol: East Bristol will continue to be a location for urban living. A key characteristic of East Bristol is strong arterial routes such as such as Stapleton Road, Church Road and Two Mile Hill Road that extend from central Bristol towards Kingswood. Lawrence Hill and Central Fishponds are identified as Areas of Growth and Regeneration;

- South Bristol: South Bristol will remain a priority focus for development and regeneration under the new spatial strategy, including new Areas of Growth and Regeneration at Bedminster and Brislington. Hengrove and Whitchurch Neighbourhood Development Plan and the Knowle West Regeneration Framework set out a series of proposals and interventions which exist outside the scope of the Bristol Local Plan; and

- North Bristol: North Bristol will remain a location for urban living under the new development strategy, including new Areas of Growth and Regeneration at Lockleaze and Central Southmead.

4. Appropriate Assessment Process

4.1 Appropriate Assessment Stages

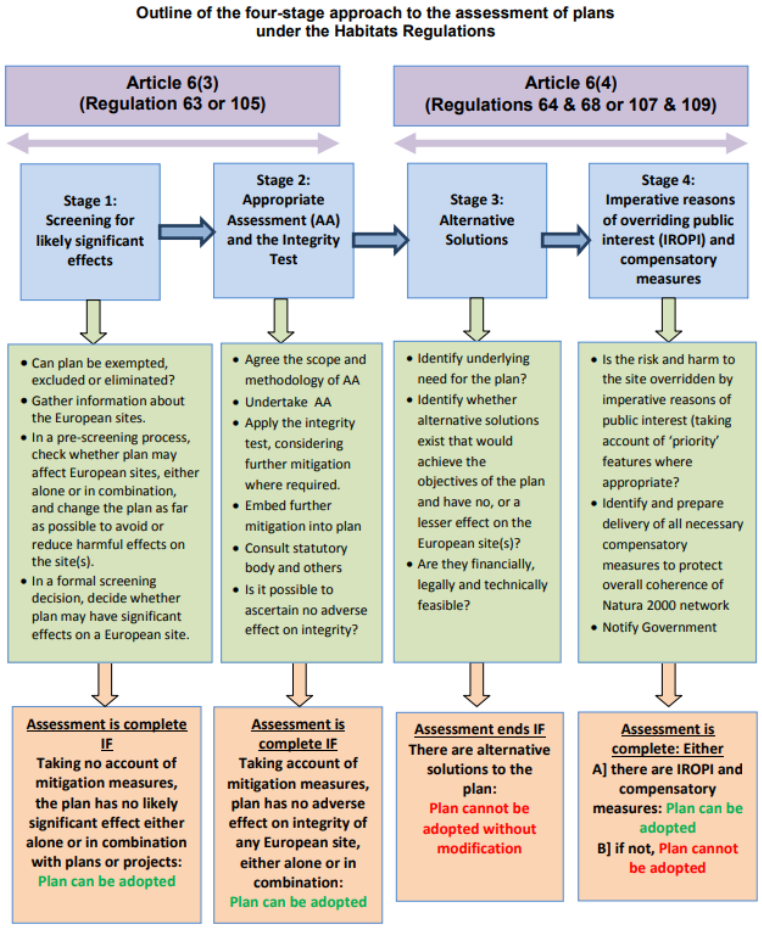
The HRA process involves a number of steps and tests that need to be applied in sequential order.

An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required (as set out in Figure 2). Stages 1 and 2 respond to the main requirements for assessment under Article 6(3) of the Habitats Directive. Stage 3 may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

AA is the second step in this process. This is required because it cannot be excluded, on the basis of objective information, that the BCC Local Plan, individually or in-combination with other plans or projects, will have a significant adverse effect on an EDS.

The AA must include a final determination by the competent authority as to whether or not a proposed plan would adversely affect the integrity of an EDS. In order to reach a final determination, the competent authority must undertake examination, analysis and evaluation, followed by findings, conclusions and a final determination.

Figure 2 Outline of the Four-Stage Approach to the Assessment of Plans Under the Habitats Regulations



4.2 Definitions

European Designated Sites

EDS include those designated as SACs, possible / proposed SACs (pSACs), SPAs or potential SPAs (pSPAs). These collectively form part of the national site network. Designated Wetlands of International Importance (known as Ramsar sites) do not form part of the national site network. Many Ramsar sites overlap with SACs and SPAs, and may be designated for the same or different species and habitats.

SACs are selected for the conservation of Annex I[8] habitats (including priority types which are in danger of disappearance) and Annex II[9] species (other than birds).

SPAs are selected for the conservation of Annex I birds and all migratory birds and their habitats.

Ramsar sites are those wetlands listed under the Ramsar convention in 1971. The convention is an intergovernmental treaty that provides the framework for national action and international cooperation for their conservation. All Ramsar sites remain protected in the same way as SACs and SPAs.

The Annex habitats and species, for which each EDS site is selected, are termed the 'qualifying features of each site'.

European Marine Sites (EMS) are any statutory EDS which have marine areas. The EMS term does not confer any additional reasons for the designation, only those habitats and species which form the basis of the SPA or SAC. In practice and by convenience, EMS often refer to the whole of the SPA or SAC, even though it strictly applies only to those areas below the mean high-water mark (theoretically). In this AA, the Severn Estuary SAC, SPA and Ramsar site form the Severn Estuary EMS, which is assessed as a single designation – the EMS – given the overlapping qualifying features between the SAC, SPA and Ramsar. These sites are joined at AA within the summary table for brevity and to avoid unnecessary duplication.

Conservation Objective

Conservation Objectives (COs) for the EDSs are defined for the relevant qualifying features. In a general sense, a CO is the specification of the overall target for the species and/or habitat types for which a site is designated, in order for it to contribute to maintaining or reaching favourable conservation status[10].

Integrity

In the context of the Habitats Regulations, the 'integrity' of an EDS is defined as 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.

[8] Annex I habitats are habitats whose conservation requires the designation of Special Areas of Conservation.

[9] Annex II species are animal and plant species whose conservation requires the designation of Special Areas of Conservation.

[10] Commission Note on Setting Conservation Objectives for Natura 2000 Sites (November 2012) European Commission, Doc. Hab.12-04/06.

The integrity of a site can also be considered to be the quality or condition of being whole or complete; or in a dynamic ecological context, as having resilience and an ability to evolve in ways that are favourable to conservation.

The integrity of a site relates to the site's COs. Taking each qualifying feature in turn, if the COs for a feature will be undermined, site integrity is necessarily adversely affected.

Zone of Influence

A Zone of Influence (ZoI) within any assessment of projects and/or plans considers the area over which ecological features may be affected by biophysical changes as a result of the proposed plan/project and associated activities. Consideration of the Source-Pathway-Receptor model has been used to establish the ZoI for this AA.

Source-Pathway-Receptor Model

The Source-Pathway-Receptor model is used to assess where a potential effect may result by examining the source, its pathway and the receptor. These can be defined as follows:

- **Source**: The origin of a potential effect which may include characteristics of a plan or project that have the potential to result in effects e.g. direct impacts such as a loss of habitat. In the case of this AA, the 'source' constitutes the Local Plan policies and site allocations screened into AA;
- **Pathway**: How the potential effect may occur on the receptor. These are identifiable through linkages that may occur through the plan or project and European sites e.g. direct pathways such as physical proximity, hydrological connections or indirect pathways such as disturbance to migrating species; and
- **Receptor**: The EDSs and respective qualifying features, their ecological condition and sensitivities e.g. freshwater pearl mussel is sensitive to siltation in water. In the case of this AA, the 'receptors' constitute the six EDSs and their respective qualifying features identified during HRA Screening of the Local Plan.

Functionally Linked Land

Functionally linked land (FLL) is a term often used to describe areas of land (or sea) occurring outside an EDS which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which that site has been designated[11].

In the context of this AA, the term FLL refers to the land beyond the boundary of an EDS that might fulfil the role of supporting the populations for which the EDS was designated or classified. Such an area is therefore linked to the EDS in question because it provides a (potentially important) role in maintaining or restoring a protected population at favourable conservation status. While areas beyond an EDS boundary might serve a function in respect of a designated habitat type, e.g. by being hydrologically linked to the qualifying habitat, in the context of this AA, FLL refers only to land (or

[11] Natural England (2021) Natural England Commissioned Reports. Identification of Functionally Linked Land supporting Special Protection Areas (SPAs) waterbirds in the North West of England (NECR361).

sea) which is linked to a qualifying species (whether an Annex II species for which a SAC has been designated, or a bird species for which an SPA has been classified)[12].

Definition of areas classified as FLL for this AA are unknown as surveys and data are unavailable to confirm their status. Subjective assessments of their potential to support qualifying features are based on professional judgement (i.e. background disturbance levels) and aerial imagery. From a precautionary perspective, land is assumed to be FLL unless further survey and/or information can indicate that it is not FLL.

[12] Chapman C. & Tyldesley D. (2016) Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions. Natural England Commissioned Reports, Number 207.

5. Appropriate Assessment Methodology

5.1 Relevant Guidance

The key guidance document referred to through undertaking this HRA, is The Habitats Regulations Assessment Handbook[13], which is compatible with all Government guidance, including that derived from the implementation of the Defra 'Habitats and Wild Birds Directives Implementation Review'. It has been updated to account for regular amendments to the Habitats Regulations and other legislation, case law in Europe and Britain, policy and good practice.

5.2 Data Sources

The ecological data reviewed to inform this document was used within relevant licence parameters, and comprises:

- MAGIC (Multi-Agency Geographic Information for the Countryside) (October 2023): access to EDS boundaries;
- Natural England Site Improvement Plans (SIP) (October 2023); and
- Joint Nature Conservation Committee (JNCC) (October 2023): access to qualifying features and conservation objectives.

Other data sources utilised are summarised within relevant footnotes.

5.3 Methodology

In line with relevant guidance and case law, this stage of the AA consists of the three main steps, many of which are iterative in nature:

- Impact prediction: Identify the aspects of the Local Plan likely to affect the conservation objectives of EDSs. The more general classification of impacts can include direct and indirect effects; short and long-term effects; construction, operational; and isolated, interactive and cumulative effects. A source-pathway-receptor model has been used to identify the ZoI and assess potential for impact. This also includes transboundary considerations.
- Assessment of effects: Assessment of whether implementation of the Local Plan is likely to result in effects on the integrity of EDSs. This requires understanding of relevant qualifying features and associated conservation objectives.
- Mitigation measures: Mitigation measures are identified to ameliorate any adverse effects on the integrity of any EDS. In determining mitigation, it is assumed that the Local Plan would be read and applied as a whole in decision-making, and the level of protection provided to EDS by any emerging new regulations following the Environment Act 2021 would not reduce the level of environmental protection currently provided by the Habitat Regulations.

[13] Tyldesley D. and Chapman C. (2013) The Habitats Regulations Assessment Handbook (October) (2023) edition UK: DTA Publications Limited.

Impact Prediction: Identifying the Zone of Influence:

The ZoI is established using the source-pathway-receptor model and takes into consideration the geographic scale of the Local Plan. A map showing the ZoI for potential impacts to qualifying features is provided in Figure 4. Details on the ZoI are provided in Section 7 for each potential effect, where appropriate[6].

1) ***Identifying the Transboundary Zone of Influence****:* Given the possibility that implementation of the Local Plan may result in adverse effects on the integrity of European Sites outside the local authority boundary for BCC, transboundary considerations form part of this AA given the ZoI of the Local Plan will extend into neighbouring authorities.

   The receptors outside of the local authority boundary have been identified through an evidence-based process, focussed on particular parameters used to identify any EDS outside of the local authority boundary that have the potential to be affected by implementation of the BCC Local Plan. The potential pathways for effect have informed the parameters used to determine possible receptors outside of the local authority boundary.

   As set out in the Screening Report, a distance of 15km was used to identify EDSs that could be subject to LSE due to implementation of the Local Plan. This distance is consistent with the now-withdrawn HRA Screening Assessment for the West of England Joint Spatial Plan Updated Habitats Regulations Assessment (2018)[14] and is considered sufficient to ensure that all EDSs, which could potentially be affected by development are identified and included for assessment. It is considered unlikely that any pathway for effect from the Local Plan could affect receptors at a distance of greater than 15km, i.e. from noise, disturbance, and/or recreational pressure. Consideration is also made on a case-by-case basis, if appropriate, for any potential pathways for impacts at a greater distance than 15km, such as through hydrological pathways.

2) ***Hydrological Connectivity:*** In terms of impact pathways for hydrological effects, arbitrary distance thresholds are generally not appropriate for HRA and it is the hydrological connection of a proposed site to the EDS that requires consideration. For the sake of this AA, we have defined the relevant types of hydrological connection as below:

   a. Directly connected (e.g. land take from allocation proposed for bankside or within construction effects ZoI of EDS boundary); or

   b. Indirectly connected (e.g. construction effects from allocations proposed bankside of waterbodies connected upstream of the EDS; proposed allocations served by wastewater treatment works which discharges into the EDS; water abstraction from an EDS to service proposed allocations elsewhere in the Local Plan area).

[14] No comments were made in relation to the HRA by Inspectors who recommended the JSP be withdrawn: https://static1.squarespace.com/static/5e7e22fea84d1844d8d7b678/t/5e9d7735554bbb3b8e3407e5/1587377980188/JSP+letter.pdf

Assessment of Effects

Understanding Qualifying Features and Conservation Objectives of Receptors: As a first step, analysis of the qualifying features of each of the EDSs within the ZoI was undertaken, and their COs understood, as well as the key sensitivities of these qualifying features.

Focusing on qualifying features and their key sensitivities, allows this AA to identify content within the Local Plan which could affect a qualifying feature at any EDS within the ZoI.

Assessment of Effects Alone: Guidance documents provide proposed criteria to determine if a proposal is likely to have adverse effects. These criteria are particularly suited to AA of individual projects, as detail on the receiving environment will be available for analysis when project locations are known.

In the case of this plan, the assessment of effects has been undertaken on a site-by-site basis, with focus on each individual receptor (EDS). The Severn Estuary SAC, SPA and Ramsar site have been grouped into the Severn Estuary EMS. Potential effects from multiple sources (policies and site allocations) and pathways for effect have been examined and discussed, and a conclusion made on whether these would result in adverse effects on site integrity, in the absence of mitigation, and then also taking into account any embedded mitigation or further mitigation.

In relation to Article 6(2) of the Habitats Directive, EDSs require not only the avoidance of 'the deterioration of habitats and the habitats of species' but also 'disturbance of the species for which the areas have been designated'. To ensure the integrity of an EDS, there must be coherence of the site's ecological structure and function. The ecological function of a site necessarily includes the interaction of relevant species with their local habitat including other flora and fauna, and where those functional relationships extend across designated boundaries.

It is therefore to be noted that effects on mobile species, which occur outside an EDS but affect the species for which the site was classified (or designated), may constitute adverse effects on that site.

Assessment of Effects In-Combination: Assessment of in-combination effects is challenging, on the basis that there is reasonably limited information to assess or quantify these.

Consultation has taken place with adjacent local authorities through the course of the preparation of the Local Plan, including notifying the LPAs of the progression of the Plan, and most recently through the Publication Version Consultation which took place between November and January 2024. Copies of the most recent adopted Local Plans have been reviewed in preparing the in-combination assessment. As set out in the guidance and within the Screening Stage, the review of in-combination effects considers: draft Local Plans where these are adopted, formally published or submitted for examination and large-scale projects where relevant.

Given the limitations outlined above, consideration of in-combination effects is therefore reasonably high-level at this stage and based on professional judgement that is proportionate to the scale and residual risks of effects on the EDSs.

Mitigation Measures

This AA outlines the relevant measures which have been included in the Local Plan to mitigate the potential adverse effects on the integrity of EDSs identified, and provides an assessment of whether,

with such mitigation, the Local Plan policies and objectives have the potential to result in adverse effects on the integrity of EDSs.

This AA distinguishes between mitigation measures already embedded within the Local Plan (hereafter referred to as embedded mitigation), and further mitigation measures, which may need to be relied on when deciding whether it can be ascertained that the plan would not have an adverse effect on site integrity. Any description of further mitigation measures will include a description of when and how these measures might be embedded into the Local Plan.

It should be noted that the plan-making body, BCC, will need to incorporate all necessary measures (if any) into the Local Plan itself, by way of modifications or additions, before the integrity test can be applied (undertaken by the competent authority), and the plan can be adopted.

Assumptions and Limitations

This AA relies on some assumptions and is inevitably subject to some limitations. Most of the assumptions and limitations do not affect the conclusions, but the following points are recorded to ensure that the basis of the assessment is clear.

Proportionality: Guidance and case studies allows for the assessment of plan components 'down the line' if the information is not available to complete a meaningful appropriate assessment. This is usually only appropriate where there is sufficient certainty that the proposals can (with the implementation of established scheme-level measures that are known to be effective) avoid adverse effects on the integrity of EDSs; and/or if appropriate investigation schemes are identified to resolve the uncertainty and commitments are made within the plan to not pursue an option if adverse effects are identified through these investigations. Typically, this is the case where the Local Plan cannot reasonably predict the effects on an EDS in a meaningful way, whereas a planning application will identify more precisely the nature, scale or location of development, and thus its potential effects; or where a HRA is required at a project level as a matter of law.

HRA AA Specific Evidence: At the time of preparation of the HRA AA, no traffic modelling, air quality monitoring, detailed assessment of habitats or functionally linked land, or assessment of recreational pressures had been undertaken. Assessments of effects are based on information that was available at the time of preparation, and as such:

- It is recommended that traffic modelling and a detailed air quality assessment, mitigation strategy and a programme for monitoring in combination with neighbouring authorities, should be undertaken to predict potential effects from air quality at designated ecological sites. This will need to allow assumptions to consider the rate of change to vehicle fleet (i.e. adoption of hybrid and electric vehicles) and the impact of the Clean Air Zone.
- Functionally linked land for both birds of the Severn Estuary SPA and Ramsar, as well as bat species of the North Somerset and Mendip Bats SAC is unknown. Assessment takes a precautionary view using information available, however ecological survey is likely to be required at the project level.
- It is recommended that consultation with Natural England should consider the principle and extent to which any assessment can defer to project-level assessment, noting also the policies of the Local Plan aimed at avoiding adverse effects on integrity of designated ecological sites.

- It is recommended that a programme of monitoring within the Bristol area for the EMS and FLL is undertaken to understand how visitor disturbance impacts qualifying birds of the SPA and Ramsar, and that impacts of wider recreational disturbance on designated ecological sites is monitored at regional level with neighbouring authorities.

6. Impact Prediction

6.1 Overview

The ZoI is considered to be all land within BCC local authority boundary, and parts of neighbouring local authorities up to 15km away from the BCC local authority boundary. The source, pathways for effect, and receptors are outlined in Section 3. Receptors specifically refer to those EDSs not screened out at Screening stage, and comprise two SPAs, three SACs, and one Ramsar site.

6.2 Source: Local Plan Policies and Allocations

The draft policies and site allocations in the Pre-Submission Publication Version Local Plan (November 2023) that were screened in for AA in the Stage 1 HRA Screening Report[1] are subject of this assessment. It is assumed that there are no material amendments to the plan between the Publication and Submission versions.

In the context of the in-combination assessment, regarding in-combination effects of the Local Plan with other plans or projects, these include the 26 plans and projects screened in for AA in the Stage 1 HRA Screening Report. Any adverse effects identified by any of these plans and projects constitute additional sources for the in-combination assessment of effects.

6.3 Pathway: Assessment of Potential Pathways for Effect

The Stage 1 HRA Screening Report identified the following key pathways for effect, which influence how a potential effect arising from implementation of the Local Plan may occur on a receptor:

- Physical proximity, which may apply when assessing direct effects arising from conversion of land-use to housing for example (land-use changes leading to habitat loss), or indirect effects arising from policies which result in changes to noise, vibration and light (pollution/non-physical disturbance);
- Hydrological connectivity, which may have implications for the hydrological regime, including surface and ground water quality, water levels, wastewater management, abstraction and flooding;
- Connective distance by road or public transport, which may apply when assessing indirect effects arising from policies which result in increases to waste from household, industrial and recreational facilities, or distances that people travel for sports, leisure and tourism, and implications for air quality; and
- Disturbance, an indirect pathway for effect, which may apply when assessing effects arising from policies that result in increased recreational pressure on both EDSs and FLL.

6.4 Receptors: European Designated Sites Under Consideration

Considering the policies and site allocations proposed in the Local Plan alone, LSE are identified in relation to the EDSs. It is noted that there are also EDSs to which there was no pathway for effect identified during Stage 1 Screening, and these EDSs have therefore not been included in this AA. Those EDSs where no LSE was assessed at Stage 1 are therefore not assessed further in this AA. Details of these sites can be found within the Stage 1 HRA Screening Report.

Where a potential for LSE on an EDS was identified at Stage 1, but the qualifying features of this site were later assessed as not being sensitive to certain pathways for effect, these pathways have been omitted from the AA. For example, the qualifying habitat features of the Severn Estuary SAC, North Somerset and Mendip Bats SAC and Avon Gorge Woodlands SAC were not found to be sensitive to non-physical disturbance, therefore these pathways have not been assessed below.

7. Assessment of Effects

7.1 Overarching Considerations

Policy H1

Policy H1 states that: *'An annual average minimum of 1,925 new homes will be delivered over the plan period to 2040. The aspiration is that this figure will be exceeded where this can be supported by service and infrastructure capacity'.*

The Screening Report considered that there was 'potential for effects relating to disturbance, recreation, air pollution and water pollution depending on specific location of new development provided for by the policy. Policy sets out a magnitude of change that, no matter where it was located, it would be likely to have a significant effect on an EDS'.

Consistent with national policy which seeks to boost rather than cap housing supply, Policy H1 states an intention for the housing requirement to be exceeded if this is supported by infrastructure. This implies that a greater number of homes could be developed leading to a greater level of environmental effects. The proposed Areas of Growth and Regeneration and the proposed allocated sites (Policy DA1) represent the spatial application of this policy, in that these seek to promote new development across the Local Plan area. These include: a total of 14 Areas of Growth and Regeneration which act as the focus for development, including residential and residential-led mixed use development (including Green Belt release of three sites for this use). A total of 59 sites are allocated for development. These allocations and broad locations for growth therefore provide the basis for assessment within the AA.

Whilst it is acknowledged that there are policy ambitions to exceed the housing target, in practical terms, a significantly higher level of development is challenging and unlikely to arise before the Local Plan is reviewed. For example, even if development were to occur in the Bristol plan area at the level indicated by the government's standard method (3,380 homes per year), it would be over 10 years before new housing development begins to exceed 34,650 homes.

On this basis, it is appropriate for the interpretation of Policy H1 within the context of the AA to be based on the allocations (Policy DA1) and broad locations for the growth, in the form of the 14 Areas of Growth and Regeneration. An assumption is made that only the average minimum of 1,925 homes will be delivered annually, which is consistent with other recently adopted Local Plans[15]. In addition, no comments were raised by Natural England specifically to Policy H1 either during Screening or the Regulation 19 Consultation.

Should the plan exceed the total proposed growth within Policy H1, the HRA AA should be reviewed to understand whether there are AEoI for any of the EDS. Throughout the Sections 8 – 12, a programme of monitoring is proposed which is recommended to be undertaken.

[15] Epping Forest (https://www.eppingforestdc.gov.uk/wp-content/uploads/2024/02/EB211A-Epping-Forest-Local-Plan-HRA-June-2021-final-for-issue_Optimized.pdf) and GMSF (https://www.greatermanchester-ca.gov.uk/media/5669/110301-pfe-hra-submission-2022.pdf).

8. Severn Estuary EMS

8.1 Local Plan Context

Local Plan proposals compared to the adopted Local Plan: Within Policy E4, the Local Plan proposes the ongoing designation and retention, development and redevelopment of land for industrial, distribution, energy and port uses at the Avonmouth Industrial Area and Bristol Port. This is alongside four greenfield sites and the reservation of habitat mitigation at Hallen Marsh, for which development within the area covered by this policy will be expected to contribute appropriately towards habitat mitigation measures proposed.

Policy E4 represents an evolution of the approach set out by the Principal Industrial and Warehousing Areas within the adopted Core Strategy (2011) Policy BCS8 *Delivering a Thriving Economy* and the Site Allocations and Development Management Plan (2014) Policy DM13 *Development Proposals on Principal Industrial and Warehousing Areas*, which in combination reserves these areas for employment uses.

A key difference since adoption of the current development plan is the identification of four allocations, amounting to 60 hectares of greenfield land adjacent to the existing industrial areas (640 hectares), which are allocated for the development of industrial and distribution uses. Land at Hallen Marsh is also identified for habitat mitigation.

Key context changes in the Avonmouth and Severnside area: Although in South Gloucestershire, outline planning permission for industrial and commercial uses was granted by Gloucestershire County Council in 1957 and 1958 under the Town and Country Planning Act (TCPA) 1947, which applied to the Severn Beach and Chittening Trading Estate (1957 consent) and the Crooks Marsh and Elmington Manor Farm (1958). As these consents have no 'time limit' in the same way that contemporary planning permission under the TCPA 1990, and since a 'saving provision' was introduced for permissions pre-1968, this approval remains valid in perpetuity. As these permissions have only been partially implemented, it is therefore intended that further industrial and commercial development would take place within the 1957 / 1958 planning consent area envelope.

The 1957/ 58[16] planning consents pre-date the Habitat Regulations. There is no requirement for development within the 1957 / 1958 planning consent area envelope to contribute to flood mitigation nor ecological mitigation. Development at Avonmouth Severnside employment area outside of the 1957/58 Planning Consent Area has secured planning permission on the basis that ecological mitigation would be provided retrospectively by local authorities.

The Avonmouth Severnside area was designated as an Enterprise Area (the 'ASEA') by the West of England Local Enterprise Partnership (LEP). In response to this designation, a study was jointly commissioned by SGC, BCC and Natural England, titled the 'Severnside / Avonmouth Wetland Habitat Project, Stage 1: Distribution of Wetland Birds within the Study Area' (2010) (or hereafter referred to as '**The Cresswell Report' Stage 1**)[17]. This study considers the impact that development

[16] https://pa.bristol.gov.uk/online-applications/files/7CA5A6B7CEEE196D5A9DA766F4E9198C/pdf/18_02847_FB-PLANNING_STATEMENT-1847003.pdf
[17] https://www.bristol.gov.uk/files/documents/2775-c1453stage-1-report-270512-final-0/file

of the entirety of the Enterprise Area designation would have on the conservation objectives of the of the Severn Estuary SPA/Ramsar; whether this impact would be deleterious and significant; and if so, how it could be overcome.

The subsequent study (the Severnside & Avonmouth Wetland Habitat Project, Stage 2: Review of Consent at Severnside and Avonmouth Impact Assessment (2011) or hereafter the '**The Cresswell Report Stage 2'**), concludes that developing out the ASEA will have a significant adverse effect on the conservation objectives of the Severn Estuary SPA/Ramsar (in terms of land take) and identifies the measures needed to be taken to overcome it.

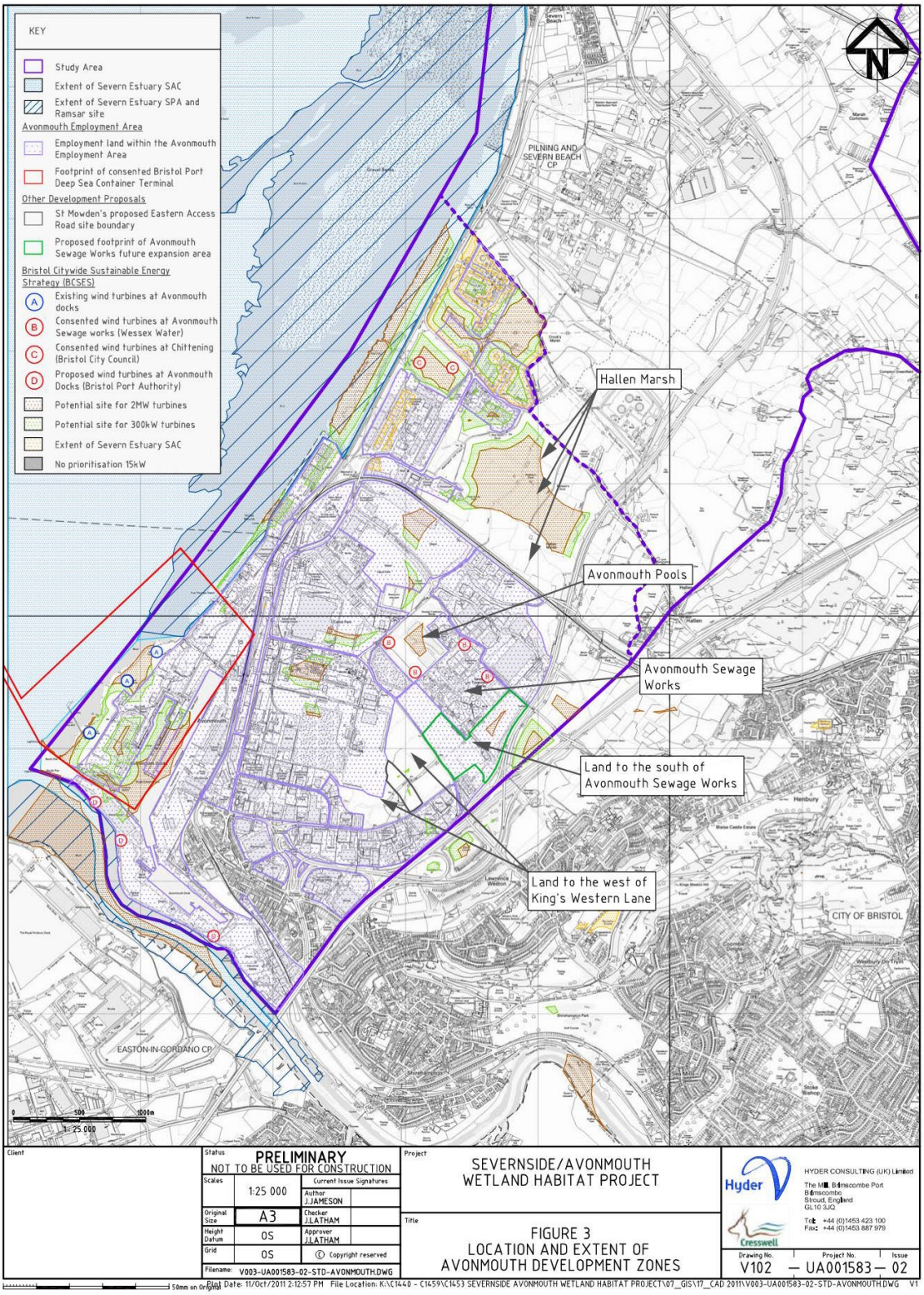
This is based on the Avonmouth employment area, defined by[18] the Bristol Local Plan 1997 Principal Industrial and Warehousing Area, consented development proposals (including the Bristol Deep Sea Container Terminal, Eastern Access Road to the Access 18 site at Kings Weston) and land identified within the Bristol Citywide Sustainable Energy Study (BCSES which identified a range of technically feasible wind farm development sites. The Study Area also identified that a small proportion of Avonmouth (see 3.3.20) falls outside of the areas covered by footprints of the employment area and the BCSES, which includes:

- The margins of Hallen Marsh;
- An area of land situated between the M49 and M5 motorway corridors;
- Avonmouth Pools;
- An area of grazing pasture/marsh to the south of the Avonmouth Sewage Works, adjacent to King's Weston Lane (see area denoted by 'Land to the south of Avonmouth Sewage Works on Figure 3)
- An area of grazing pasture to the west of King's Weston Lane (although the Eastern Access Road and its associated ecological enhancement area would be located within a proportion of this site - see area denoted by 'Land to the west of King's Weston Lane on Figure 3).

The proposals within Policy E4 of the Local Plan fall within the Study Area for the Cresswell Report.

[18] See Section 3.3 https://www.bristol.gov.uk/files/documents/2776-stage2-report-dec-2011-finalissue/file

Figure 3 Severnside/Avonmouth Wetland Habitat Project – Stage 2 Report (December 2011) (Source: The Creswell Report)



Section 1.1. of the Creswell Study Stage 2 report states *"A mitigation strategy has been developed to identify land for habitat creation / enhancement as a means of addressing these potentially*

significant impacts". This includes for new wetland habitat to off-set the potential impacts in relation to:

- Gadwall and the other wildfowl species forming part of the SPA Qualifying Assemblage: 21,990m^2 (Severnside) and 41,000m^2 (Avonmouth) (i.e. a total of 62,990m^2 of new wetland habitat).
- Waders forming part of the SPA Qualifying Assemblage: 465,900m^2 (Severnside) and 275,500m^2 (Avonmouth) (i.e. a total of 732,400m^2).
- Measures to create / enhance habitat for waders be targeted specifically towards lapwing (albeit these mitigation proposals would also be expected to confer benefits to curlew and common snipe, given the degree of overlap between these species' habitat requirements): 465,900m^2.

Section 1.1.10 goes on to advise that depending upon the nature and extent of mitigation works that are delivered in relation to habitat loss, it is possible that newly-created/enhanced habitats may be available to accommodate any waders from the following areas of land which could be subject to development-related disturbance: 267,400m^2 (Severnside); and 275,500m^2 (Avonmouth).

In summary, the Cresswell study identifies that 38ha of land will need to be identified for ecological mitigation in accordance with the s106 agreement attached to the Western Approach Phase 1 permission, and a further 95.4ha of land will need to be provided for ecological mitigation for the current anticipated development in the area.

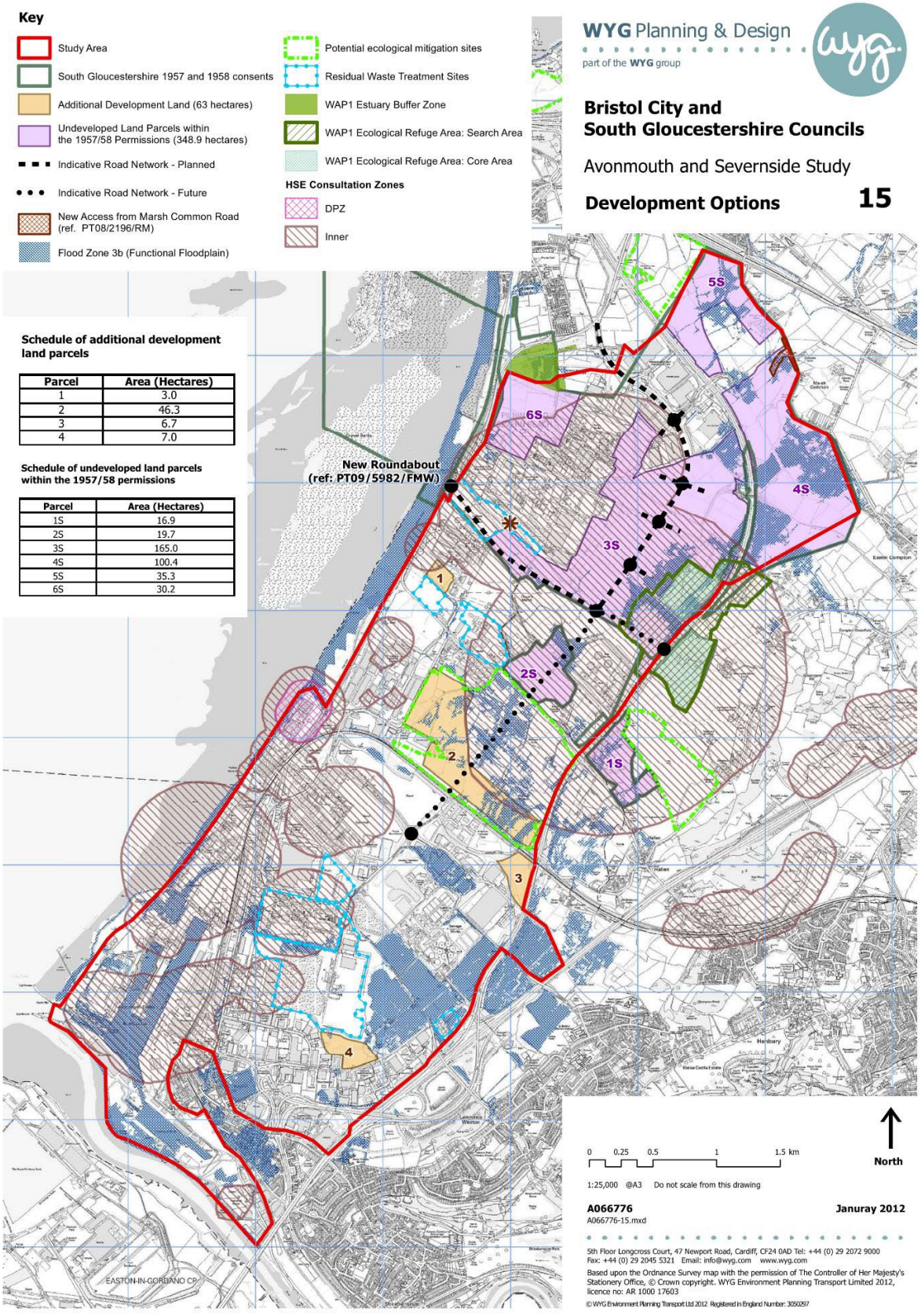
Following the preparation of the Cresswell Study, the **Avonmouth and Severnside Integrated Development, Infrastructure and Flood Risk Management Study**[19] was prepared for SGC and BCC (February 2012). The report seeks to identify an optimum development scenario for the study area in the period to 2050. Section 1.2.4 advises that '*The strategy seeks to help bring forward the economic development of the following to enable the realisation of the area's full potential:*

- *Previously developed land;*
- *The substantial parts of the area that already benefit from planning permissions; and*
- *Additional greenfield land*'.

This study highlighted development potential for a further 60ha of greenfield land within the study area (See Section 14.7.3). The study assumed that these sites would come forward at density of development of 30%, which is lower than elsewhere in the 1957 / 1957 Consent Areas. This is to allow for onsite ecological enhancements and surface water management and the retention of some existing landscape features. This has formed the basis for proposed greenfield site allocations and the mitigation area at Hallen Marsh proposed within Pre-Submission Publication Version Policy E4.

[19] https://www.bristol.gov.uk/files/documents/2766-a066776-wyg-report-final-issue-feb-2012/file

Figure 4 Appendix 11, Avonmouth and Severnside Integrated Development, Infrastructure and Flood Risk Management Study



Planning permission for the ASEA (18/02847/FB) was granted subject to conditions in 31 May 2019, and construction is underway and due to be completed in 2026 / 2027. As set out within the Planning Statement and Environment Statement for the scheme, the overarching driver for the works was to enable the ongoing development of the Avonmouth Severnside Enterprise Area to fulfil its economic potential by reducing flood risk and creating habitat for wetland birds. Indeed, since the adoption of the current development plan, several of these changes have started to be implemented. This includes the construction of a new wetland at Hallen Marsh and a combination of pre-cast concrete wall and sheet pile wall along the western-most and southern-most extent of the Avonmouth area through the Avonmouth Severnside Enterprise Area (ASEA) project.

Proposed Greenfield Development Sites: Planning permission has been granted for the largest of the proposed greenfield sites, Land at Kings Weston Lane, south of Access 18[20]. This allowed for biodiversity off-setting including a financial contribution towards the Hallen Marsh ecology and wetland project, and was considered acceptable to Natural England.

Land east of Packgate Road is subject to a screening opinion for commercial development (23/00266/SCR), which is under determination, and planning permission has been granted and implemented for a single wind turbine with a tip height of up to 150m (20/01270/F) on part of Land at Seabank Power Station.

8.2 Potential Effect on Habitats

Habitat Loss

Effect of the Local Plan and embedded mitigation: As a result of Policy BG2, it is considered there is sufficient safeguarding in place to resist development within any EDS in the Plan area. There are no allocated sites within the Severn Estuary EMS and habitats do not form a qualifying feature for the SPA. There is therefore considered to be no adverse effect on integrity to the Severn Estuary EMS from habitat loss.

Changes to Hydrology

Effect of the Local Plan: The Local Plan may result in the following changes to the hydrological regime which may pose an adverse effect on the Severn Estuary EMS:

- Changes to water demand (abstraction to fulfil supply) and therefore changes to **water quantity**, levels and dilution; and
- Changes to **water quality** from:
    - increased wastewater generation and discharge; and/or
    - direct impacts of development construction.

As determined in the Stage 1 (Screening) of this HRA, the Severn Estuary EMS is directly connected to the Local Plan area, and has both direct and indirect potential pathways for potential changes in water quantity and quality. These changes in both water quality and quantity pose a risk of undermining the extent and distribution, structure and function, and supporting processes maintaining the estuarine habitat relied upon by the population and distribution of the qualifying

[20] See 20/02903/P : Land At Access 18 Access 18 Bristol BS11 8HT

features[21]. This may be from changing water levels and associated hydrological and geomorphological processes which retains the habitat, or also through increased concentrations and / or loads of pollutants entering the Severn Estuary. This risk is now in focus, and scoped in, due to widespread water supply issues (i.e. drought, scarcity) and water quality issues (i.e. nutrients) across the UK – with European Protected Sites at risk since the previously adopted development plan.

Below, the risk of any AEoI of the COs for the Severn Estuary EMS are outlined and any mitigation required to avoid or reduce any AEoI of the designated features.

Water Quantity

Effect of the Local Plan and embedded mitigation: Increased demand for water supply in the Bristol area is projected in line with Bristol Water's Draft Water Resources Management Plan (WRMP)24[22], an update from their WRMP19[23]. As outlined above, this poses a risk of changes in the quantity of freshwater inputs into Severn Estuary, potentially affecting levels and dilution factors. In terms of embedded mitigation of the plan, Policy NZC1 reflects an overall increase in efficiency of per person household water use to meet building regulations for new development.

The HRA for the Draft WRMP24, states that there are no LSE from demand-side options on the Severn Estuary SPA. In terms of supply-side options, with the exception of P06 (Mendip Lakes catchment management) and P08 (Yield maximisation at wastewater treatment works), there are risks from construction and operation. However, due to the spatial and option-level detail required to appropriately assess the specific demand-side options, it was concluded that these risks should be managed via project-level HRA, to resolve any remaining uncertainties around risk and provide the necessary further assessment to inform specific mitigation to avoid AEoI.

Mitigation Measures: Therefore, options for supply and demand management proposed by WRMP24 do not constitute a risk of any AEoI on the Severn Estuary EMS's designated features from changes to water quantity in light of the information reviewed, subject to appropriate project-level assessment and surveys to:

- Further consider any remaining uncertainties around specific project risks due to a lack of detailed information available at this stage; and
- Ensure that best practice pollution control measures are set out in a Construction Environmental Management Plan (or similar) negate risks from construction.

As WRMP24 is in draft form, the conclusions of the HRA can only be relied upon in so far as the proposals in the WRMP24 remain the same. It is noted that this AA is subject to change if the conclusions of the HRA for the final published WRMP24 differ. Provided WRMP24 is delivered as is currently outlined in the Draft, there are no LSE expected from demand-side options, with risks of effects on the Severn Estuary EMS from construction or operational impacts of supply-side options (P06 and P08) being managed appropriately at project-level to avoid AEoI.

[21] European Site Conservation Objectives for Severn Estuary SPA - UK9015022 (naturalengland.org.uk)

[22] Water Resources (bristolwater.co.uk)

[23] Microsoft Word - Bristol Water Final WRMP 2019 (August 2019) REDACTED (hubspotusercontent30.net)

Water Quality

Effect of the Local Plan and embedded mitigation: Proposed policies and allocations within the Local Plan area, and the associated increased pressure on sewerage systems from additional residential and mixed-use occupancy, is a risk to water quality as outlined in the Stage 1 (Screening) of this HRA. In addition, the development and operation of residential and mixed-use allocations (including the Avonmouth Site Allocations) and the development and operation of industrial and distribution, and maritime industry areas poses a direct risk to the Severn Estuary EMS in terms of water quality impacts arising from construction.

Wessex Water's 2023 Drainage and Wastewater Management Plan (DWMP)[24] sets out proposals for the management of the sewerage system and associated investment programme to account for increased pressure from proposed future development in the Bristol area. This DWMP not only sets out the strategic direction and proposed measures for the Asset Management Period 2025-2030 but also Wessex Water's 25-year ambition[25]. It outlines some of their proposals to improve water quality by investing in Storm Overflows as per Government requirements[26] and additional measures to treat nutrients in wastewater in line with Natural England guidance[27]. The following was proposed in the Wessex Water's latest DWMP HRA[28] for options presented in the DWMP to manage the trajectory of increased development pressures and environmental quality requirements:

- For Drainage Areas and Water Recycling centres:
  "*None of the options are of a scale or type where adverse effects (through construction or operation) are likely to be an unavoidable consequence of their delivery...*" provided that a project or programme-level HRA which is deferred to be undertaken 'down the line', appropriately investigates and resolves any uncertainties provided by the lack of detail on options at this stage; and
- For Transfer/Outfall Relocation Schemes:
  "*There is nothing inherent in the scale (etc.) of the proposals to suggest that potential adverse effects from construction cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, pollution controls)*" and
  "*The effects of scheme operation will be neutral or positive for the receiving waterbodies, will not undermine the conservation objectives for associated European sites nor prevent the achievement of favourable conservation status.*" These avoidance and mitigation measures, again, should be provided via a project or programme-level HRA which is deferred to be undertaken 'down the line', which appropriately investigates and resolves any uncertainties provided by the lack of detail on options at this stage.

The conclusions of DWMP HRA can be relied upon to ascertain whether there are AEoI of the Severn Estuary EMS from the proposed Local Plan in relation to water quality changes as a result of additional wastewater generation and discharge. Consideration of nutrient neutrality guidance for

[24] DWMP (wessexwater.co.uk)
[25] wessex-water-strategic-direction-statement-2022.pdf (wessexwater.co.uk)
[26] Revised_Storm_Overflows_Discharge_Reduction_Plan.pdf (publishing.service.gov.uk)
[27] Natural England Water Quality and Nutrient Neutrality Advice (16 March 2022) - NE785
[28] DWMP Appendix C - Environmental report cover (wessexwater.co.uk)

the Severn Estuary EMS at this stage is not required, as established during Stage 1 (Screening) of this HRA, due to nitrogen concentrations within the Severn Estuary not currently posing a risk of undermining the COs.

Potential impacts which stem from the construction of proposed development (as a result of new Local Plan policies or allocations) directly or indirectly connected to the EDS have also been scoped in for AA as per Stage 1 (Screening) of this HRA in terms of the risk of changes to water quality. The risk of changes to water quality associated with construction effects has also been scoped into the AA. Construction effects have been viewed in terms of the proximity of site allocations to a tributary of the Severn Estuary – predominantly the River Avon. It is not considered likely that there would be an AEoI based on the embedded mitigation in the proposed Local Plan (Policy BG2) and with the expectation that best practice pollution controls and appropriate surveys and assessments are undertaken before development is permitted, including a project-level HRA if deemed necessary.

In terms of potential impacts from construction disturbance of development arising from proposed allocations and policies directly connected to the Severn Estuary EMS, a construction ZoI of 500m has been used to determine which proposed allocations pose a risk to water quality changes and should be considered on a case-by-case basis. Avonmouth Site Allocation ASA005 (Land south of Seabank Power Station) is within 500m of the EMS, in addition to development associated with Policies H1 (dealt with against Section 7.2), UM4, NZC5, E4 and FR2. The proposed allocation ASA005 is 200m from the boundary of the EMS and appears to be directly hydrologically connected via a set of reens or ditches of unknown state. This site is surrounded by existing industrial or commercial developments which likely manage water around the existing sites to allow operation (e.g. avoid persistent flooding) and potential drainage towards the Severn Estuary. Any development brought forward within allocation ASA005 would be subject to a project-level HRA due to their proximity to the boundary of the Severn Estuary EMS, including a requirement to abide by best practice pollution controls and undertake appropriate further surveys and assessments to avoid impacts to water quality. On the basis that the plan is read as a whole, Policies H1, DS4, UM4, NZC5, E4 and FR2, and their potential impact are mitigated by the requirements of Policy BG2 to ensure that development is not permitted if would have an adverse impact on internationally designated sites.

Mitigation Measures: In light of the information reviewed, there are no expected AEoI of the designated features of the Severn Estuary EMS from changes in water quality, subject to appropriate project-level assessment and further project specific surveys to:

- consider any remaining uncertainties around specific project risks due to a lack of detailed information available at this stage; and
- ensure that best practice pollution control measures are set out in a Construction Environmental Management Plan (or similar) negate risks from construction.

Air Pollution

Effect of the Local Plan and embedded mitigation: The Local Plan proposes a number of policies and allocations which may increase emissions within the Plan area, e.g. from traffic, and potentially outside the Plan boundary (namely those related to residential and industrial development, as well as Policy T2).

The Severn Estuary SIP (which is considered to apply to both the SAC and Ramsar) cites a range of potential emissions sources, of which road traffic and industry are most relevant. However, air pollution impacts from traffic emissions are considered unlikely to be significant beyond 200m from a road[29]. It is therefore considered unlikely that any associated increase in traffic would adversely affect the integrity of the Severn Estuary EMS, noting that the only road in proximity to the EMS, is the Severn Road, which only goes within 200m of the estuary for a 2km stretch of the coastline. Habitat in this area is either scrub, which is not considered as Annex I habitat, or saltmarsh, which may be Annex I habitat. Any potential Annex I saltmarsh is however exposed to tidal inundation (notably on spring tides) which is likely to reduce the impact of any atmospheric deposition.

Furthermore, the recently consented application for the M49 Link Road (which will join the previously constructed M49 Junction 1 to the Severnside Industrial Estate and wider ASEA) highlights that pollutant levels within the Estuary have been decreasing since 1970, and that the proposed development will divert existing movements from roads within 200m of the EDS[30]. The 'Report to Inform Habitat Regulations Assessment of the M49 Link Road' (June 2023), indicates that the proposed construction of the link road is:

- *'Anticipated to change travel behaviour in the area and reduce the amount of traffic using the A403 Severn Road / Govier Way junction and A403 Severn Road / Central Avenue to access the Severnside Industrial Estate'.*
- Anticipated to result in a *'reduction of vehicle movement (both HGVs and lighter vehicles) on the roads with 200 m of the Severn Estuary European Marine Site (the A403 Severn Road and Central Avenue) due to the scheme'.*

The M5 crossing of the River Avon is raised above the saltmarsh and any impact would be localised relative to the entire area of the EMS.

It is acknowledged that additional transport movements arising from development of the greenfield site allocations may result in impacts on air quality. The closest allocation is approximately 200m from the Severn Estuary EMS. Whilst there is no site-specific transport modelling for this site, in relation to the development of 'Land at Access 18' (20/02903/P, as amended by 22/05654/X) which forms one of the greenfield site allocations, Natural England[31] considered that 'the proposed development will not give rise to any likely significant effect on any qualifying feature of the Severn Estuary SPA / SAC / Ramsar site'. In line with the Cresswell Study, the proposed development has made a financial contribution to a Biodiversity Offsetting Scheme (BOS) to be put towards the off-site ecological mitigation at Hallen Marsh to meet the requirements of the Habitat Regulation Assessment.

In addition, Policies T1, T2, T3A, T4A, and T6 provide measures to further reduce traffic and facilitate lower emission modes of transport, associated with developments, and Policy HW2, in particular, outlines the introduction in 2022 of the Clear Air Zone. Policy HW2 states that development with the

[29] Highways England, 2019. Design Manual for Roads and Bridges, LA015 Air Quality.

[30] Aecom (2023) Report to Inform Habitat Regulations Assessment of M49 Link Road (June 2023) for application P23/00268/F Construction of M49 Link Road with associated works at Land Between M49 Avonmouth Junction and Goldcrest Way, Western Approach Distribution Park

[31] Report to Committee (21 July 2021) for the 20/02903/P : Land At Access 18 Bristol BS11 8HT (as varied by 22/05654/X (which varied the hybrid permission 20/02903/P as varied by 22/05297/NMA))

potential to generate significant numbers of additional journeys will be expected to provide an appropriate level of sustainable transport improvements. Furthermore, Policy HW2 also requires that development which has the potential for significant local emissions to the detriment of air quality will not be permitted unless it is essential for reasons of economic or wider social need. Policy BG2 provides overarching consideration that any development be designed and sited to avoid any harm to identified habitats, species and features of importance. In relation to the Severn Estuary EMS, development will not be permitted which would have an adverse impact in accordance with the approach in national planning policy.

Air quality impacts are typically assessed as the change in pollutant levels, relative to background levels, as provided by an Air Quality Assessment and with supporting information from APIS (Air Pollution Information System). Where the change in concentration or deposition is predicted to increase by 1% of the critical load, further assessment may be required. If the levels exceed the minimum critical load, then a negative effect on the receptor may be likely and significant effects may occur[32,33]. It is noted that:

- APIS provides a critical load range of: 10 – 20kg N/ha/yr for Atlantic salt meadows; and for supporting habitats of the Annex I estuaries habitat: 20-30 kg N/ha/yr for Salicornia and other annuals colonizing mud and sand; and more generally coastal saltmarsh, and coastal and floodplain grazing marsh both have a critical load of 20-30 kg N/ha/yr.
- The background nitrogen deposition rates in the coastal areas of the Plan around Severn Road and the M5 River Avon crossing are approximately 7.6 – 8.1 kg N/ha/yr (coastal areas). Given the minimum critical load range 10 – 20kg N/ha/yr it is assumed unlikely that any additional increase in traffic as a result of the Local Plan, would exceed this level, with incorporation of the Local Plan policies and the requirement for project-level assessments.

It should be noted that this assessment is qualitatively undertaken, based upon the gradual change in air quality values noted over the last decade from APIS and the limited growth in the Avonmouth area. It does not take into consideration any traffic increases from residential or the industrial development in the wider Bristol area; however it should be noted that the Severn Road is unlikely to be regularly used given the industrial nature of the area.

Proposed mitigation: Whilst traffic modelling and a baseline understanding of traffic movements are unavailable for the site allocation, it is assumed that with the policies discussed above (including the requirement within Policy E4 to contribute toward habitat mitigation), any development would be required to comply with air quality requirements associated with use and provide traffic modelling or mitigation at the project-level, to ensure adverse effects on the integrity of the EMS are avoided.

Recommendation: Whilst no adverse effects are concluded, from a precautionary basis, it is recommended that a programme of monitoring across the SAC and Ramsar is developed through engagement with Natural England, the Severn Estuary Partnership, South Gloucestershire Council and other partners as appropriate, to assess how air quality impacts the Annex I habitats. If negative

32 CIEEM, 2021. Advisory Note: Ecological Assessment of Air Quality Impacts. January 2021.
33 IAQM, 2019. A guide to the assessment of air quality impacts on designated nature conservation sites. Version 1.0. January 2019.

effects are identified which could lead to an AEoI, a mitigation strategy would be required to provide ways to reduce air pollution.

Recreational Disturbance

Effect of the Local Plan: The SAC/SPA SIP[34] (which is considered to also apply to the Ramsar site) notes impacts of development as a pressure / threat on the EMS and its qualifying features. Impacts to the EMS from recreational disturbance can include public access / disturbance and marine litter. Public access to habitat features of the EMS can result in habitat damage, e.g. though trampling.

Most of the Avonmouth coastline is developed and/or on private land operated by the Port and therefore not accessible to visitors. Accessible land along the River Avon includes SAC and Ramsar habitat in its downstream extent, however most of the Plan area habitat is inaccessible given the private land ownership around the Port. Indeed, since the adoption of the Core Strategy and Site Allocations and Development Management Document, the vast majority of the Bristol Port freehold has been transferred from ownership of the Council to the Port[35]. The only available areas for recreational visits within the Bristol area are associated predominantly with the coastline around Shirehampton.

With the increase in residential development associated with implementation of the Local Plan, there will however be more people living closer to the EMS within the Plan area. With the allocated sites within the 8km ZoI, there is expected to be an additional 640 dwellings (BDA0103, 105, 302, 303, 304, 305, 401, 901, 1001, 1002, 1003, 1004, 1101, 1102, 1601, 1702, 2001, 2501, 2502, 2901,2902, 3002, 3201, 2101, 2002, 2101, 801, 3301). There are a further 11,000 homes and 2,100 student bedspaces associated with a number of policies (DS1, DS1A, DS2, DS3, DS4, DS5, DS6, DS7, DS8, DS9, DS11, DS13, and DS14). This would generate an additional 11,640 homes and 2,100 student bedspaces in total.

At Screening, a 7km buffer was used from the EDS boundary as the distance to which people would travel to the EDS. However, following visitor surveys conducted by Natural England from 2009-2019, 82.3% of people travelled up to 8km within Bristol City to use the natural environment[36.] Consequently, the ZoI for the Severn Estuary SPA was increased to 8km to reflect the additional data and to be more precautionary. The band chosen to delimit distance was considered appropriate given the threshold set by similar assessments, which used the 75% percentile of visitor data[37]. *It should be noted that 47.7% of visitors only travelled <1.6km[36] in Bristol and therefore the approach is considered more precautionary.*

Assuming an average of 2.4 residents per dwelling[38], as a worst case, the 11,640 dwellings within the 8km ZoI amount to approximately 27,936 additional residents plus 2,100 students; a total of 30,036 additional residents. The average person travels to an unspecified destination up to 93 times per year from Bristol City. It can therefore be assumed that the additional allocations could generate

[34] Natural England, 2015. Site Improvement Plan: Severn Estuary Mor Hafren (SIP213). March 2015.
[35] https://democracy.bristol.gov.uk/Data/Cabinet/201506161800/Agenda/0616_3.pdf
[36] Natural England Monitoring Engagement in the Natural Environment Survey (2009-2019) Dashboard.
[37] Essex Coast Recreational Disturbance Avoidance and Mitigation Strategy. Supplementary Planning Document (SPD) May 2020.
[38] Office for National Statistics, 2023. Families and households in the UK: 2022. May 2023.

2,793,348 person visits per year. Data from 2018/2019 showed that only 1.01 % of visits from Bristol resulted in journeys to a "seaside resort" or "other seaside coastline" within Bristol itself, which is used as a proxy for the Severn Estuary in this context. Data from other years showed similar values: 2017/2018 = 6.21%, 2016/2017 = 9.13; and 2015/2016 = 3.24%. Assuming the highest figure from a precautionary basis (9.13%), the total visits of 2,793,348 would therefore reduce to 255,033 person visits per year to the areas of the coast that are indeed accessible or where there is demand for recreation (i.e outside Avonmouth) coast.

In addition, noting that 47.71% of people do not travel more than 1.6km within Bristol on a journey, this number is further reduced by 47.71% as there are no allocations within 1.6km of the coastline. This brings the person visits per year to the coast to 121,676 (or 333 extra visits per day across the year). If the coastal preference uses the latest data available (1.01%), the number decreases to 13,460 person visits per year to the coast (or 37 extra visits per day across the year).

With an increase in people visiting the Severn Estuary, the pathways for effect to habitats as qualifying features are related to public access / disturbance and marine litter, notably to estuaries, reefs, intertidal mudflats and sandflats, and Atlantic salt meadows. Reefs are excluded as these are generally excluded from the effects of recreational disturbance noting they're mostly subtidal and effects are limited due to distance.

It is important to note that whilst the number of visitors going to the coast may increase, the data relates to visits to a "seaside resort" or "other seaside coastline". A level of professional judgement is applied to this analysis, on the basis that firstly, it is not implied that any visitors to the area within Avonmouth would necessarily cause disturbance to the Severn Estuary EMS features, and secondly, this area does not function as a destination for recreational visits and indeed is largely inaccessible.

Outside the Plan area, the numbers of visitors are relatively modest when considering the potentially diffuse area covered from any visits. Furthermore, it is likely that visitors would go to areas with existing levels of high disturbance, e.g. tourist locations/coastal towns, where any effect on habitats or habitats supporting species, such as birds, is *de minimus*. Consequently, it is reasonable to conclude that there would be no adverse effect on integrity from increased visitors and recreational disturbance on the EMS from the Local Plan.

Embedded Mitigation Measures: Local Plan Policy E4 and Policy BG2 aims to also ensure avoidance of adverse impacts through project-level assessment.

8.3 Potential Effect on Species

Habitat Loss

Effect of the Local Plan and embedded mitigation: In terms of assessment, loss of land within the EMS and within FLL may directly affect qualifying features by reducing foraging and/or roosting areas (for migratory fish and birds, as applicable to EDSs); loss of these areas may undermine the structure and function of the EMS. The SAC/SPA SIP[39] (which is considered to also apply to the Ramsar site) notes impacts of development as a pressure / threat on the EMS and its qualifying features.

[39] Natural England, 2015. Site Improvement Plan: Severn Estuary Mor Hafren (SIP213). March 2015.

There are no allocated sites within the Severn Estuary EMS.

There is however the potential for loss of EMS FLL from the Local Plan. Loss of FLL for this EMS may occur from Policies E4, T2, NZC5, FR2, and UM4, and the Avonmouth Site Allocations.

Hallen Marsh is reserved as mitigation for the Local Plan, and thus any potential loss of FLL can be mitigated through the provision of this habitat for birds (as per Policy E4). Furthermore, Local Plan Policy BG2 aims to ensure avoidance of adverse impacts through project-level assessment, and thus any impacts from loss of FLL to mobile species of the EMS would be considered at this stage. Consequently, AEoI from any loss of FLL to qualifying species of the EMS can be ruled out.

Recommendation: For completeness, it is however recommended that the Plan wording in Policy BG2 be amended to reflect the need for appropriate survey and assessment, including specifically within FLL as well.

Non-physical Disturbance

Non-physical disturbance effects can arise through the creation of noise, vibration and light pollution. These effects may result from temporary construction works or operational activities. A precautionary buffer of 500m is assumed to apply to all EDSs to account for the potential for any impacts from non-physical disturbance. In accordance with the now-withdrawn West of England Joint Spatial Plan Updated Habitats Regulations Assessment 2018[40], it has been assumed that the effects of noise, vibration and light are most likely to be significant within a distance of 500m[41,42,43].

Non-physical disturbance within 500m of an EMS and within FLL may directly affect qualifying features by displacing birds from high-tide roosts or foraging locations, causing potential effects on the condition and survival of qualifying species. Whilst it is noted that large areas of semi-natural habitat around Avonmouth (within 500m of the EMS) already exhibit high baseline levels of disturbance, consideration must also be given to the presence of functionally linked intertidal habitat associated with the River Avon, which may also be impacted. There is also potential for non-physical disturbance to qualifying fish species of the SAC and Ramsar site within the EDS or utilising FLL. This includes potential disturbance to the River Avon, which is likely to be utilised by migratory qualifying fish species.

[40] West of England Joint Spatial Plan Habitats Regulations Assessment: November 2018 update
[41] Collop, C.H. (2016) Impact of Human Disturbance on Coastal Birds: Population Consequences derived from Behavioural Responses. Bournemouth University.
[42] Cutts, N., Hemingway, K. & Spencer, J. (2013) Waterbird Disturbance Mitigation Toolkit: Informing Estuarine Planning & Construction Projects. Version 3.2. Institute of Estuarine & Coastal Studies (IECS), University of Hull.
[43] Fernández-Juricic, E. & Blumstein, D.T. (2016), Database and metadata of bird flight initiation distances worldwide to assist in estimating human disturbance effects and delineating buffer areas. Journal of Fish and Wildlife Management, 7(1).

At the time of preparing this HRA, the location of all FLL associated with the Severn Estuary EMS is unknown. Policies and site allocations listed below may have the potential to cause non-physical disturbance to species utilising these supporting habitats.

Construction Disturbance: Policy E4 proposes a single allocation within 500m of the Severn Estuary EMS boundary, comprising Avonmouth Site Allocation ASA005 (Land south of Seabank Power Station). Policy E4 as a whole will also promote development within 500m of the EMS. Policies H1, DS1, DS4, UM4, NZC5, E4 and FR2 also have the potential to result in development within 500m of the Severn Estuary EMS.

Development associated with Policies E4 and NZC5 will be particularly encouraged within the Avonmouth Industrial and Bristol Port area, located partially within 500m of the Severn Estuary EMS. The provision for further development creates the potential for non-physical disturbance to both the EMS and FLL supporting migratory fish and waterbirds within the Local Plan area during construction.

Operational Disturbance: Policies E4, NZC5, DS4 and T2 have been identified as having the potential to increase disturbance during operation to both the EMS and FLL. Policies E4 and DS4 have the potential to increase noise and light pollution associated with industry, residential and mixed-use development. The expansion of the Metrobus network and proposal for a mass transit network outlined in Policy T2 has the potential to increase road traffic within 500m of the Severn Estuary EMS as well as any FLL, resulting in greater disturbance from noise, light, and vibration.

Policies E4 and NZC5 encourage further industrial and renewable energy development within the Avonmouth Industrial Area and Bristol Port, potentially creating a source of increased noise, vibration and lighting disturbance within 500m of the EMS.

The impacts of planned development within and adjacent to the estuary is identified as a key area of sensitivity within the Severn Estuary SAC and SPA SIP[44]. Given the overlapping qualifying features with Severn Estuary SPA and Ramsar site, the key sensitivities of the SAC and SPA are also assumed to be applicable for the Ramsar. Noting the presence and potential future presence of sources of non-physical disturbance within 500m of the EMS and FLL, there is a pathway for effect from non-physical disturbance to the assemblage of wintering birds, migratory birds and migratory fish.

Embedded Mitigation: Policy NZC5 includes the provision that assessment of renewable energy and energy storage development proposals put forward as part of this policy will afford significant weight to impacts on biodiversity. Policy BG2 ensures that development be designed and sited to avoid any harm to identified habitats, species and features of importance. Furthermore, any development will be expected to be informed by an appropriate survey and assessment of impacts. Under Policy BG2, development will not be permitted which would have an adverse impact in accordance with the approach set out in national planning policy. In addition, Policies T1, T2, T3A, T4A, and T6 provide measures to further reduce operational traffic levels and therefore any potential non-physical disturbance effect.

[44] Natural England, 2015. Site Improvement Plan: Severn Estuary Mor Hafren (SIP213). March 2015.

With the above policies, as well as the reservation of land at Hallen Marsh for mitigation, AEoI can be ruled out from non-physical disturbance on species of the EMS.

Changes to Hydrology

Effect of the Local Plan and embedded mitigation The risk of changes to water quantity and quality from the proposed polices and allocations of the Bristol Local Plan and the pathway of effect to the Severn Estuary EMS and its designated features are outlined in Section 8.2. In this section of the assessment, the pathways of effect are equally relevant to species rather than habitats.

It has been determined that the designated habitats for this EDS and the water quantity and quality of the Severn Estuary support the designated species under this and, therefore, the Assessment carried out in Section 8.2 applies here.

As such, there is no expected AEoI of the designated features of the Severn Estuary EMS from changes in water quantity or quality, subject to appropriate project-level assessment and further surveys to:

- consider any remaining uncertainties around specific project risks due to a lack of detailed information available at this stage; and
- ensure that Best Practice pollution control measures are set out in a Construction Environmental Management Plan (or similar) to negate risks from construction.

Air Pollution

Effect of the Local Plan and embedded mitigation: As above for habitats (Section 8.2), the Local Plan proposes a number of policies and allocations which are likely to increase traffic volumes and emissions within the Plan area, which could affect qualifying species of the Severn Estuary EMS. However, as before in the habitats section, the Plan also provides a number of policies to mitigate and control traffic and emissions, including Policies T1, T2, T3A, T4A, T6 and HW2. Policy BG2 provides overarching consideration that any development be designed and sited to avoid any harm to identified habitats, species and features of importance. In relation to the Severn Estuary EMS, development will not be permitted which would have an adverse impact in accordance with the approach in national planning policy.

The SPA/SAC SIP[45] (which is considered to also apply to the Ramsar site) cites a range of potential emissions sources, of which road traffic and industry are most relevant. Traffic and industrial emissions are a source of nitrogen and acid deposition. Details on the effect of air pollution are detailed above in the habitats section.

The impact of atmospheric nitrogen deposition is listed specifically as a pressure on the SPA, which affects the following relevant SPA features by impacting their supporting habitat: gadwall *Mareca strepera* and the waterbird assemblage. APIS infers that gadwall are associated with standing open waters and canals, which have a critical load of 3 – 10kg N/ha/yr. Locations where supporting habitat for gadwall could be affected by air quality impacts are limited to standing water and primarily coastal locations. The latter habitat are mostly at distance to emissions sources, e.g. vehicles or any

[45] Natural England, 2015. Site Improvement Plan: Severn Estuary Mor Hafren (SIP213). March 2015.

allocation, and any known roost is primarily used by waders[46]. Other supporting habitat (standing water) is limited in extent within the Plan area, and background levels of nitrogen deposition already exceed the minimum critical load with average values of approximately 7-8kg N/ha/yr for less urban areas outside Bristol.

In relation to the waterbird assemblage, APIS provides information on the critical load for some avian species and their associated broad habitat, which are sensitive to eutrophication, i.e. white-fronted goose *Anser albifrons*, shelduck *Tadorna tadorna*, and common redshank *Tringa totanus*. The critical load for these three species is 10 – 20kg N/ha/yr. Nitrogen deposition only indirectly affects birds via their habitats. Other wintering assemblage species cited for the EMS (which are listed on APIS) all have a habitat value of a minimum critical load of 10 – 20kg N/ha/yr as well. Furthermore, not all species are listed as sensitive to nitrogen impacts on their habitat. Whilst EMS habitat (primarily intertidal sandflats and mudflats, and saltmarsh) for these species is present along the coast and the River Avon, as described in the habitats section, there is limited habitat within 200m of a road or an allocated site. There are however known roosts for waterbirds outside the EMS[46] along the River Avon, although these are unlikely to be considered key foraging areas and any negative effect of nitrogen deposition is unlikely to impact upon roosting.

Furthermore, both for gadwall and the waterbird assemblage, background minimum critical loads for nitrogen deposition are on average approximately 7-8kg N/ha/yr for less urban areas outside Bristol. It is considered unlikely that with the proposed policies, project-level assessment requirements, and the limited areas for impact, that there will be an adverse effect from air quality impacts on the EMS qualifying bird species and the assemblage feature, noting the limitations of the habitat section as well.

Overall, given the limited habitat, the absence of known roosts for gadwall, background levels of nitrogen deposition and the distances involved from pollutant sources, it is considered unlikely that any increase in emissions – with incorporation of the required project-level assessment and mitigation measures from Local Plan policies – could lead to a AEoI on the EMS from negative air quality effects.

The impact of atmospheric nitrogen deposition is listed specifically as a pressure on the Ramsar, which affects the following relevant Ramsar qualifying species: gadwall, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, twaite shad *Alosa fallax*. Gadwall are not considered further for the Ramsar noting the previous assessment for gadwall from the SPA. The impact of atmospheric nitrogen deposition is listed specifically as a pressure on the SAC, which affects the following relevant SAC qualifying features: sea lamprey, river lamprey and twaite shad.

With respect to fish of the Ramsar and SAC, twaite shad, and sea and river lamprey are noted as being sensitive to the effects of nitrogen and acid deposition, due to the potential for freshwater acidification, impacts on invertebrate populations and toxicity to fish directly. Critical loads are not provided for these species nor their broad habitats (rivers and streams). Nitrogen inputs to coastal areas or the River Avon from traffic or other sources are likely to be much more influenced by marine and fluvial sources than atmospheric deposition, and given the limited roads around

[46] Cutts, N., Hemingway, K. & Spencer, J. (2013) Waterbird Disturbance Mitigation Toolkit: Informing Estuarine Planning & Construction Projects. Version 3.2. Institute of Estuarine & Coastal Studies (IECS), University of Hull

Avonmouth (apart from the A4 along the River Avon) there are few places within 200m. With incorporation of the required project-level assessment and mitigation measures from Plan policies, it is considered that AEoI from air pollutants on qualifying fish of the EMS can be ruled out.

Recreational Disturbance

Effect of the Local Plan As above for habitats (Section 8.2), the effect of recreational disturbance on features of the EMS are limited spatially. Potential effects from recreational disturbance are most notable on species feature on the SPA/Ramsar, resulting in disturbance and displacement from activities (dog walking, angling, walking etc.) when pressure is high.

Most of the Avonmouth coastline is developed and/or on private land operated by the Port and therefore not accessible to visitors. There is the potential however for visitors to cause disturbance to species outside of the EMS on FLL, notably birds. The only available areas for recreational visits within the Bristol area are associated predominantly with the coastline around Shirehampton and up-river where there are known high tide roosts[47].

Qualifying fish species of the Severn Estuary SAC and Ramsar are not listed as threatened by public access/disturbance[48]. There is therefore not considered to be a pathway for effect to the fish species of the EMS. It is therefore considered that there would not be an AEoI of the SAC from recreational disturbance as a result of increased visitor pressure from the Local Plan.

With a limited increase in people visiting the Severn Estuary, the pathways for effect to the qualifying features are related to public access / disturbance and marine litter, notably to Bewick's swan, common shelduck, gadwall, dunlin, common redshank, greater-white fronted goose, and the waterbird assemblage[49]. Gadwall is the only qualifying species which could be present away from the coast on inland waterbodies. Noting the waterbird assemblage, other species could be present away from the coast however there is little suitable habitat available in public areas. The effect on waterbirds would be the disturbance and displacement of birds away from their high tide roosts, foraging grounds and / or places of rest, including by public and dogs. This disturbance could lead to increased pressures on survival.

As above for habitats (Section 8.2), the numbers of visitors accessing the coast are relatively modest given the distance of the residential developments from the coastline. Furthermore, it is likely that visitors would go to areas with existing levels of high disturbance, e.g. tourist locations/coastal towns, where any effect on habitats or habitats supporting species, such as birds, is likely to be *de minimus*.

With the above information, application of the proposed policies with the Local Plan, such as E4 and BG2, and project-level assessment, it can be considered that AEoI from recreational disturbance on avian feature of the EMS can be ruled out.

Recommendation: Whilst no specific control measures are recommended at this policy level - as a precautionary measure - a programme of monitoring within the Bristol area for the EMS and FLL is recommended to understand how visitor disturbance impacts qualifying birds of the SPA and

[47] Archer, R., 2019. Coming Home to Roost: High-Tide Roost Monitoring Project, Severn Estuary 2016-2019
[48] Natural England, 2015. Site Improvement Plan: Severn Estuary Mor Hafren (SIP213). March 2015.
[49] Natural England, 2015. Site Improvement Plan: Severn Estuary Mor Hafren (SIP213). March 2015.

Ramsar. A mitigation strategy is recommended to provide ways to reduce visitor disturbance, if negative effects are identified, which could lead to an AEoI. Monitoring and any mitigation strategy would be required to be updated following any alteration to the Local Plan. Mitigation could include provision of monitoring information to relevant authorities, introduction of voluntary codes of conduct, awareness campaigns, review and possible amendment to existing management regimes, and zoning of any activity. A possible Strategic Access Management and Monitoring approach may be required, including a developer charging scheme.

Embedded Mitigation Measures: Local Plan Policy E4 and Policy BG2 aim to also ensure avoidance of adverse impacts through project-level assessment.

8.4 In-combination Effects

Following review of other HRAs for relevant adjacent plans and projects identified in Screening, it is considered that development within the wider Severn Estuary EMS area, including its ZoI, could give rise to pressures in-combination primarily through:

- Degradation of functionally linked land outside of Bristol for waterbirds of the Severn Estuary SPA and Ramsar site.
- Impacts on Severn Estuary SAC and Ramsar site fish and habitat features through construction disturbance and/or water quality effects.
- Air pollution effects to Severn Estuary SAC, SPA and Ramsar site.
- Recreational disturbance to Severn Estuary SAC and Ramsar site through increased visitor pressure.

Other Plan HRAs propose strategies for the identified effects on the wider EMS, i.e.

- A programme of monitoring for potential air quality and recreational disturbance effects across borders and with additional partners; and
- Potential mitigation strategies to reduce visitor disturbance.

With application of the above strategies, the distance between the EMS and the identified plans or projects, application of project-level assessment and mitigation, and with consideration for the effects of projects cumulatively, it is not considered that there will be any adverse in-combination effects on the Severn Estuary EMS.

9. North Somerset and Mendip Bats SAC

9.1 Local Plan Context

Local Plan proposals compared to the adopted Local Plan: The North Somerset and Mendip Bats SAC Supplementary Planning Guidance document[50] requires a buffer of 8km to be applied to the North Somerset and Mendip Bats SAC, which has been reflected in this assessment. Within this buffer, consideration is to be given to the potential for adverse effects resulting from physical and non-physical disturbance to SAC bat species and supporting foraging and commuting habitats. The primary reason for the designation of the bat SAC are the two Annex II species greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bats *Rhinolophus hipposideros*.

Although the Supplementary Planning Guidance adopted by North Somerset Council applies outside the Bristol Local Plan area, it does illustrate the Consultation Zones where SAC bats may be found. These screening buffers and consultation zones are precautionary areas provided to aid decision making and are designed to filter in areas where different types of development pressure should have regard for priority issues that have been identified for the EDS.

This 8km buffer does not intersect the Local Plan area, however, there is potential for negative impacts from Local Plan policies and allocations on known roosts supporting SAC bats (FLL), with Consultation Zones intersecting the Local Plan area. Development within this area could give rise to non-physical disturbance effects to bats utilising habitats within Consultation Zone band C, or other FLL within the Local Plan area.

Policy DS11 introduces the provision for development of greenfield sites which may be situated within Consultation Zone Band B of the SPD, potentially resulting in increased lighting during construction and operation. These include: Land at Ashton Vale ('Longmoor Village') and Elsbert Drive, Bishopsworth.

Key context changes in the South West Bristol area: Since the adoption of the Core Strategy, the following application has been implemented: *'South Bristol Link: Proposed highway and bus only link including bridges, structures, construction compounds, drainage and landscaping; traffic signs, lighting and bus shelters; shared cycleway and footway; works to existing highway; provision of replacement Highridge common land'* (13/03108/F). This exists to the south-western extent of both DS10 and DS11, specifically in relation to the South West Bristol area.

The assessment for the South Bristol Link road considered 'five Special Areas of Conservation (SACs) with bats as qualifying features were identified within 30 km of the Scheme'[51]. This included the North Somerset and Mendip Bats SAC. Potential impacts included the severance of bat flyways and loss of foraging habitats. However, with the provision of bat underpasses, landscaping planting design to link to habitats of value, and compensatory habitat creation, the significance of residual effects was considered to be 'not significant'.

[50] North Somerset Council, 2018. North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development: Supplementary Planning Document.
[51] South Bristol Link: Environmental Statement Volume 2: Ecological Impact Assessment, July 2013 https://pa.bristol.gov.uk/online-applications/files/B0B7871BCC4AEE68DFDAAF710AC41B27/pdf/13_03108_F-2.13_ES_CHAPTER_13_ECOLOGY-1027360.pdf

It was noted that no objection was raised by Natural England in relation to habitat regulations, SSSI and Protected Species, subject to conditions to deal with preparation of a Construction Environmental Management Plan and a Postconstruction Habitat Management and Monitoring Plan.

Recent very large applications have been submitted on greenfield land in North Somerset, adjacent to the proposed greenfield development sites within DS11, however to-date, none of these have received permission.

Proposed Greenfield Development Sites

Land at Ashton Vale: Although not available in the public domain, it is understood that an HRA has been approved setting out appropriate mitigation required for an outline application for phased residential-led development, including affordable homes and commercial spaces, amenity spaces, natural and semi-natural green space and associated infrastructure[52].

Evidence in support of the planning permission considered[53] that: *'Habitats on site were not high quality for bats, due to the urban setting and amount of artificial lighting in the area, Ramboll has undertaken extensive bat surveys at the site'.* It was also considered through the Supplementary Environmental Statement that there was a not significant effect on ecology, with no cumulative effect likely for statutory designated sites[54]. Although a comment in objection was raised by Natural England in relation to vegetation clearance[55], the application was ultimately approved based on conditions to update landscaping plans and BNG assessment to mitigate impact on horseshoe bat activity in any future reserved matters application[56].

In response to the Regulation 19 Pre-Submission Publication Draft Plan, Natural England have considered:

> *"A HRA was undertaken for this application. Planning permission has been granted for this site, if for any reason another application is submitted at this site, the proposed development will need to be assessed through a HRA".*

Elsbert Drive, Bishopsworth: Natural England note within their response to the Regulation 19 Pre-Submission Publication Draft Plan that:

> *This allocation is in proximity to several lesser horseshoe maternity roosts which are believed to be functionally linked to the North Somerset and Mendip Bats Special Area of Conservation. Furthermore, recent bat surveys for a nearby planning application in North Somerset (23/P/2185/FU2) have revealed significant greater horseshoe activity in this area, one of the*

[52] 21/03166/P
[53] Response to Comments and holding objection from Lyndon Roberts, BCC City Design/Nature Conservation, dated 25/08/2021 (Ref 1620003531)
[54] Land North of Metrobus, Ashton Vale (Longmoor) Supplementary Environmental Statement Esteban Investments Limited September 2022
[55] https://pa.bristol.gov.uk/online-applications/files/9BB0BBF373A034AC9C3F1A2471E8B237/pdf/21_03166_P-NATURAL_ENGLAND-3306296.pdf
[56] https://pa.bristol.gov.uk/online-applications/files/863D9AD12270F8B087649899EDC84B89/pdf/21_03166_P-ECOLOGY_COMMENTS_AND_CONDITIONS_03.10.22-3312519.pdf

qualifying species of the North Somerset and Mendip Bats SAC. A HRA will be required for any future planning application at this site so that any mitigation measures that are necessary can be identified. Any future planning application must be informed by ecological surveys including a full season of bat surveys to assess the potential for habitats on site to be functionally linked to the SAC.

A lighting strategy including modelling of the combined effects of internal and external light spill is likely to be required if the site is functionally linked to the SAC'.

9.2 Potential Effect on Habitats

Habitat Loss

Effect of the Local Plan The Local Plan does not propose development within the North Somerset and Mendip Bats SAC directly, noting the SAC is 8.9km from the Bristol Local Plan area.

Impacts to the Annex I habitats of the SAC from habitat loss are therefore not considered to occur.

Air Pollution

Effect of the Local Plan and embedded mitigation The North Somerset and Mendip Bats SAC SIP[57] cites atmospheric nitrogen deposition as a priority pressure on the SAC, affecting both the Annex I grassland and Annex I woodland habitats. Traffic and industrial emissions are a source of nitrogen deposition.

APIS provides a critical load range of: 10 – 20kg N/ha/yr for semi-natural dry grassland and scrubland facies on calcareous substrates; 15-20kg N/ha/yr for Tilio-Acerion forests of slopes, screes and ravines. APIS states that both features are sensitive to nitrogen and acidity, and that bryophytes and lichens are integral for semi-natural dry grassland and scrubland facies on calcareous substrates.

The background nitrogen deposition rates in the SAC area varies between 9.9kg N/ha/yr to 11.9kg N/ha/yr. It is unknown whether the Plan would increase levels of nitrogen by more than 1% or exceed the minimum critical load.

It is acknowledged that there are Local Plan proposed policies and allocations which may indirectly increase traffic volumes and industrial emissions within the Plan area, and potentially outside the Plan boundary (namely those related to residential and industrial development, as well as Policy T2). Although there is no Local Plan or HRA specific traffic modelling undertaken for the Plan to confirm effects, it is considered unlikely that the combined effect of all development would have a significant negative effect on sensitive ecological receptors at this distance.

Policy BG2 would aim to ensure that any project-level development avoids significant negative air quality effects on sensitive ecological receptors, and transport policies may mitigate levels of emissions. In addition, the implementation of Policy HW2 and reference to the Clean Air Zone in Bristol would be considered as appropriate.

Based on the information available, it is considered that AEoI of the SAC can be avoided with adoption of the embedded mitigation.

[57] Natural England, 2015. Site Improvement Plan: North Somerset and Mendip Bats. 17/04/2015.

9.3 Potential Effect on Species

Habitat Loss

Effect of the Local Plan and embedded mitigation It is acknowledged that Local Plan allocations or Areas of Growth and Regeneration may result in the loss of FLL necessary to support the COs of the Annex II species. Loss of roosts outside the SAC and within other FLL may directly affect qualifying features by reducing foraging, commuting and/or roosting areas. Loss of these areas may undermine the structure and function of the SAC, although effects are likely to be limited across the whole SAC noting the potentially smaller scale of any loss from the Plan.

No development will overlap with Juvenile Sustenance Zones[50].

It is important to note that Bands B and C of the North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development Supplementary Planning Document (SPD)[50] partially overlap with the Local Plan area, indicating the use of the south-west Bristol area as potentially supporting habitat. The overlapping bands with the Local Plan area encompass areas of the River Avon, Avon Gorge and small parts of Clifton and the surrounding areas. In addition, the SIP for the SAC states that one of the priority issues experienced on the SAC is the pressure/threat of general planning permission.

Any development from the Local Plan is however considered to be relatively small and predominantly in urban areas, which are less likely to support Annex II bats of the SAC (horseshoe species), given their sensitivity to light levels and preference for more semi-natural habitats[50]. The notable exceptions are the proposed developments in greenfield areas, as detailed above, which have highlighted that further surveys would be required to determine the usage and functionality of the site to support bats of the SAC. Other industrial areas proposed for development are already developed, with limited supporting habitat for horseshoe bats.

Nonetheless, Local Plan Policy BG2 aims to ensure avoidance of adverse impacts through project-level assessment, and thus any impacts from loss of FLL to bat species of the SAC would be considered at this stage. Any development within Band B should consider bat surveys in accordance with guidance[50], noting the difficulty in detecting greater horseshoe bat's echolocation. Consideration of hibernation roosts should also be considered.

Consequently, AEoI from any loss of FLL to bat species of the SAC can be ruled out, given the requirement of Policy BG2.

Non-physical Disturbance

As discussed above and in accordance with the North Somerset and Mendip Bats SAC Supplementary Planning Guidance document[50], a buffer of 8km has been applied to the SAC. Within this buffer, consideration has been given to the potential for adverse effects resulting from non-physical disturbance to SAC bat species and supporting foraging and commuting habitats. There is potential for negative impacts, from disturbance, arising from Local Plan policies and allocations on known roosts supporting SAC bats (FLL), with Consultation Zones intersecting the Local Plan area.

Greater horseshoe bats are taken to be the most sensitive species therefore the precautionary principle dictates that if their requirements are met, then the other SAC bat species are also likely to

be protected. Horseshoe bats are light sensitive species, and therefore light pollution from construction and operation is the form of non-physical disturbance most likely to adversely affect these species, particularly where it occurs in proximity to key foraging and commuting routes. In addition to this, moths and flying insects, which form a key component of their diet, are attracted to light and illuminated areas, resulting in adjacent habitats supporting reduced numbers of insects and impacting the ability of horseshoe bats to feed.

As discussed above, the Local Plan area does not overlap with any Juvenile Sustenance Zones. However, the Local Plan area does intersect a small area within Consultation Zone bands B and C, within which horseshoe bats utilise key foraging habitat; this is in relation to Policy DS11.

Policy DS11 and any allocation within the consultation bands B and C have the potential to generate non-physical disturbance to FLL through the construction and operation of residential and mixed-use developments. For example, there are eight existing residential and mixed-use allocations within the Local Plan within 500 m of the River Avon, which is considered highly suitable to support foraging and commuting bats. Development proposals which are not tied to specific site allocations could add to this number, resulting in non-physical disturbance during construction and operation.

Embedded mitigation Any development brought forward within Consultation Zone bands B or C should consider relevant elements of the North Somerset Council guidance as this is a proxy for assessing the extent of FLL within Bristol. This guidance recommends that developers undertake appropriate survey effort where a potential commuting route is present and/or there is suitable adjacent habitat to support prey species required for horseshoe bats. This planning guidance also stipulates development proposals will be expected to demonstrate that bats will not be prevented from using features by the introduction of new lighting or a change in lighting levels. Applicants are also expected to demonstrate that considerations have been made to avoid light spill to retained habitats. Whilst this guidance is specific to North Somerset, the recommendations made within this document pertaining to assessing survey effort and mitigating effects should be applicable to developments within Bands B and C from this Local Plan.

Any development within Consultation Zone bands B or C with the potential to increase light pollution during construction or operation would also be subject to a project-level HRA. This would consider the management of the development's construction impacts on the North Somerset and Mendip Bats SAC. Any development would be expected to abide by best practice controls to limit disturbance caused by additional light. These measures would be set out within a project-specific CEMP.

Local Plan Policy BG2 aims to ensure avoidance of adverse impacts through project-level assessment. Policies T1, T2, T3A, T4A, and T6 provide measures to reduce operational traffic levels and therefore any potential non-physical disturbance effect from vehicles.

With provision of project-level survey and assessment, consideration of the Local Plan policies, and noting the limited areas overlapping with suitable horseshoe habitat, AEoI to the SAC can be ruled out.

9.4 In-combination Effects

Following review of other HRAs for relevant adjacent plans and projects identified in Screening, it is considered that development elsewhere within the ZoI for the North Somerset and Mendips Bat SAC, including functionally linked land, could give rise to pressures in-combination primarily through non-physical disturbance to species and air quality impacts on habitats.

With the requirement for project-level survey and assessment, the distance between the EMS and any development proposed within the identified plans or projects, the limited areas overlapping with suitable horseshoe habitat, application of project-level assessment and mitigation, and with consideration for the effects of projects cumulatively, it is not considered that there will be any adverse in-combination effects on North Somerset and Mendip Bats SAC.

10. Chew Valley Lake SPA

10.1 Potential Effect on Species

Changes to Hydrology

The Local Plan proposes policies and allocations which would result in an increase in development across the Bristol Plan area in various forms as outlined in the Screening Report. This may result in the changes to the hydrological regime of Chew Valley Lake SPA, which may pose an adverse impact on its designated features via changes to the water levels in the lake due to persistent abstraction. In terms of embedded mitigation of the plan, policy NZC1 reflects an overall increase in efficiency of per person household water use to meet building regulations for new development.

As determined in the Stage 1 (Screening) of this HRA, the Chew Valley Lake SPA is indirectly connected to the proposed allocations and polices and any development arising from these via abstraction requirements to fulfil clean water demand from the Local Plan area. Therefore, an indirect potential impact pathway exists associated with any changes to abstraction requirements, specifically if there is an expected increase in abstraction. Below, the risk of any AEoI of the conservation objectives for the Chew Valley Lake SPA are outlined and any mitigation required to avoid LSEs or reduce any AEoI of the designated features.

Water Quantity

Increased demand for water supply in the Bristol area is projected in line with Bristol Water's Draft Water Resources Management Plan (WRMP) 24[58], an update from their WRMP19[59]. As outlined above, this poses a risk to water levels in the Chew Valley Lake SPA due to increased abstractions, potentially affecting water-dependent habitats that the SPA designated features rely on. The HRA for the Draft WRMP24, states that the only two water resource options with potential impact pathways to Chew Valley Lake SPA are Option P01_01R (increase performance of existing sources – Lower Springs) and Option P06 (Mendip Lakes catchment management). Having assessed the construction and operation risk of these options, the HRA for the Draft WRMP24 concluded that both these options are screened out in terms of their risk of LSE. Construction impacts being ruled out due to their proximity from the Chew Valley Lake SPA and operational impacts due to such minor additional water abstraction requirements, which satisfied the Water Framework Directive assessment for the options.

Therefore, options for supply management proposed by WRMP24 that are indirectly connected to the Bristol Local Plan area do not constitute a risk of any AEoI on the Chew Valley Lake SPA's designated features from changes to water levels.

As WRMP24 is in Draft form, the conclusions of the HRA can only be relied upon in so far as the proposals in the WRMP24 remain the same. This AA is subject to change if the conclusions of the HRA for the Final published WRMP24 differ. These conclusions are in agreement with those outlined by Natural England at Screening Stage.

[58] Water Resources (bristolwater.co.uk)
[59] Microsoft Word - Bristol Water Final WRMP 2019 (August 2019) REDACTED (hubspotusercontent30.net)

Recreational Disturbance

With the increase in residential development as a result of the Local Plan, there will be more people living closer to this EDS, noting however that the SPA is 4.4km from the Plan area. Other policies may also encourage visitors and people to the Bristol area, and also the Severn Estuary. With the allocated sites within the 8km ZoI, there is expected to be an additional 20 dwellings (BDA3201) and Policy DS11 at Elsbert Drive could generate 150 dwellings. Within the 8km recreation ZoI for Chew Valley Lake there is anticipated to be a minimum of 170 additional dwellings, as a result of the Local Plan.

Assuming an average of 2.4 residents per dwelling[60], the 170 dwellings within the 8km ZoI amount to approximately 408 additional residents. It should be noted that 47.7% of visitors only travelled <1.6km[36] in Bristol and therefore the approach is considered more precautionary. The average person travels up to 93 times per year from Bristol City. It can therefore be assumed that the additional allocations could generate 37,944 person visits per year to the countryside. This number is considered a minimum, as the additional tourism and/or commercial development from other policies could also generate further visits.

It should be noted that not all of visits are likely to result in people visiting the Chew Valley Lake SPA. Data from 2009/1010 – 2015/16 for Bath and North East Somerset (BANES) show that on average people within this area go to a "river/lake/canal", and/or a "foot/cycle path" on 34.5% of their visits. These two habitat types are used as a proxy for the variety of habitats associated and available to visitors to Chew Valley Lake SPA. The total visits of 37,944 would therefore reduce to 13,091 person visits per year to the SPA, as a minimum.

In addition, noting that 47.71% of people do not travel more than 1.6km within Bristol on a journey, this number is further reduced by 47.71% as there are no allocations within 1.6km of the SPA. This brings the person visits per year to 6,246 (or 17 extra visits per day across the year).

These numbers of visits should be viewed in the context of how many people currently visit the SPA already. Using the same calculations as above, assuming 471,200 people live in Bristol[61], 93 visits per person per year, and a 34.5% preference, the baseline number of visits per year is 15,118,452. Consequently, the additional visits from the Plan represents a 0.04% increase.

With an increase in people visiting the Chew Valley Lake SPA, the pathways for effect to the qualifying features are related to public access / disturbance to the qualifying feature: shoveler. The SIP[62] states that one of the priority issues experienced on the SPA is the pressure/threat of public access/disturbance. Pathways for effect on shoveler from recreational disturbance come from the potentially increased activity of fishing, sailing and walking in the SPA during the non-breeding season. It should be noted that growth in populations do not necessarily correlate to increased activity on Chew Valley Lake. Recreational activity on Chew Valley Lake is also managed by membership through Chew Valley Lake Sailing Club and Bristol Water Fisheries. Trespass or illegal activity resulting in disturbance to shoveler is unknown.

[60] Office for National Statistics, 2023. Families and households in the UK: 2022. May 2023.
[61] Bristol City Council. Population of Bristol (June 2021).
[62] Natural England, 2014. Site Improvement Plan: Chew Valley Lake.

Given the distance to the SPA and the small change in predicted visitor numbers, AEoI from recreational disturbance can be ruled out.

10.2 In-combination Effects

Following review of other HRAs for relevant adjacent plans and projects identified in Screening, it is considered that the main pressure potentially arising in-combination could be recreational disturbance to shoveler.

Given the distance between the SPA and any development proposed in the relevant plans and policies, the small change in predicted visitor numbers and the control of visitors to the lake by Chew Valley Lake Sailing Club and Bristol Water Fisheries, it is not considered that there will be adverse in-combination effects on Chew Valley Lake SPA.

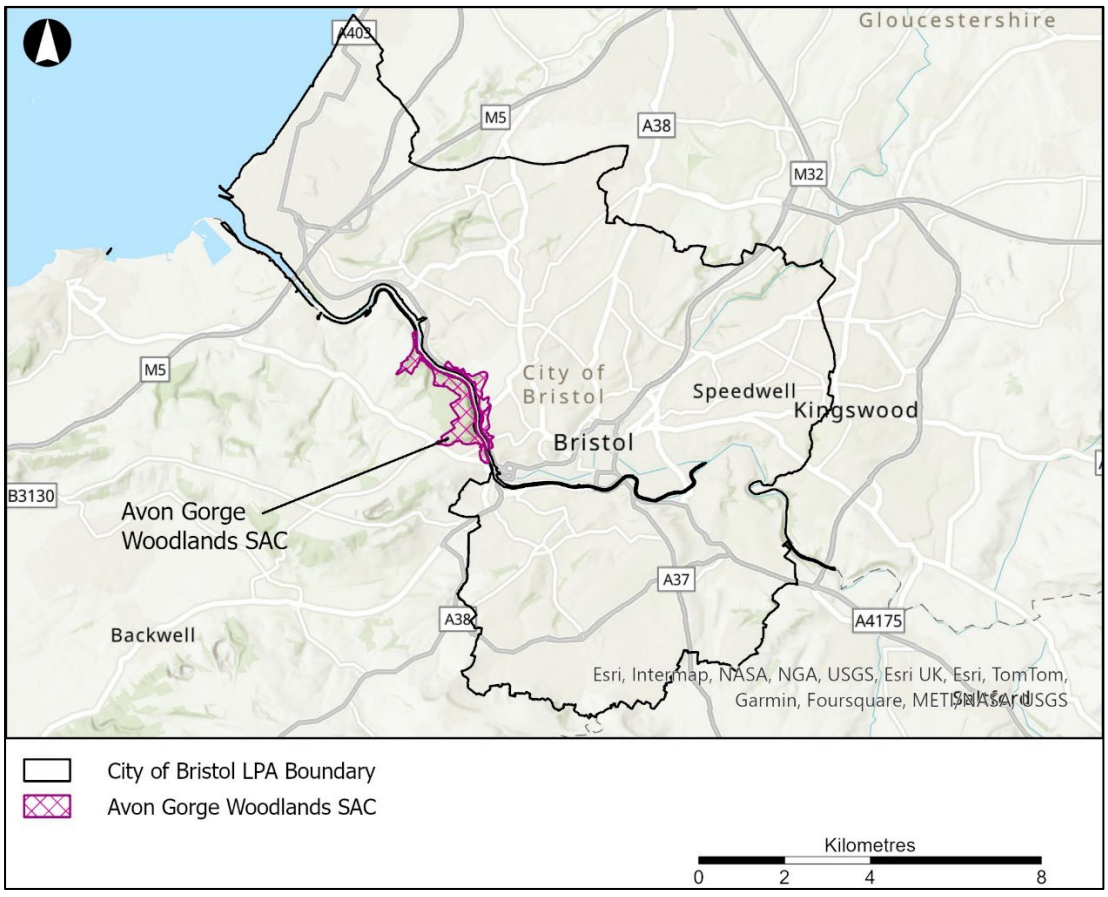
11. Avon Gorge Woodlands SAC

11.1 Local Plan Context

Local Plan proposals compared to the adopted Local Plan: As set out within the Screening Report, there are several Local Plan proposals which have the potential to have Likely Significant Effects on the Avon Gorge SAC, these include Policy DS4 Western Harbour, Policy FR2 Bristol Avon Flood Strategy and Policy T2 Transport infrastructure improvements.

Policy FR2 Bristol Avon Flood Strategy supports the Bristol Avon Flood Strategy in reducing the vulnerability of the City to flooding. In proximity to the Avon Gorge, there are Flood Defence Policy Areas. The Bristol Avon Flood Strategy will be subject to its own HRA, which will consider the potential for adverse effects on the site integrity of the Avon Gorge Woodlands SAC. A Statement to Inform an Appropriate Assessment (SIAA) was produced in September 2020, and considered that, in the absence of mitigation, there is potential for adverse effects from habitat loss and air quality impacts. Changes in water quality were considered unlikely to give rise to adverse effects on the integrity of the SAC. As Policy FR2 supports the principle of development as opposed to the detail of schemes within close proximity of the SAC, and its application would be subject to project-level assessment and appropriate mitigation, it is considered that there would be no significant effects arising from the policy.

Figure 5 Avon Gorge Woodlands SAC Location Plan



Policy T1 aims to reduce carbon emissions by locating development where travel patterns are sustainable and minimise the need to travel. Policy T2 offers general support to the principle of delivering significant improvements to transport infrastructure and sustainable travel, including public transport and a mass transit network. Although the policy does safeguard potential routes where known through designations for 'Safeguarded Transport Links', 'Rail Infrastructure' and 'Safeguarded Park and Ride Sites', these are located away from the SAC. Otherwise, the exact locations of most schemes are to be determined through separate processes, and would be subject to project-level HRA and associated mitigation to likely conclude no significant effects.

The Local Plan does not allocate residential development sites or strategic development locations in immediate proximity to the SAC; the four closest allocations are approximately 290m, 430m, 620m and 1km away. In that respect, the Local Plan is unlikely to result in any recreational or similar incursions (such as routine dog walking, casual exercise or curtilage extension) that might arise from proximate development.

However, Policies DS1 – DS14 propose development, primarily on previously development land on urban sites, which fall within the area which has been identified in this assessment as the wider Avon Gorge Woodlands SAC recreational ZoI. In particular, Policy DS4 encompasses part of the Western Harbour / Cumberland Basin area, and was noted in Natural England's Regulation 19 consultation response (A3A3) as having the potential to increase recreational pressure on the Avon Gorge Woodlands SAC due to the proximity to the EDS. Policy DS4 proposes the delivery of a new quarter of homes, workspace, retail and leisure development, infrastructure, services and community facilities and advocate a co-ordinated approach through a masterplan. Development at Western Harbour will also include the replacement of the present network of ageing and outdated roads and bridges with a simpler new system to unlock additional development potential. Development proposals will be expected to demonstrate that opportunities have been sought to progress more comprehensive or co-ordinated forms of development with other sites in the locality. The maritime industry area at the historic Underfall Yard will continue to be retained and enhanced for those uses.

Development at Western Harbour will be required to retain and enhance provision of high quality public open spaces and green infrastructure and public realm enhancements. It will also be expected to provide a network of accessible pedestrian walkways along the Cumberland Basin, including new and improved / restored crossing points, consistent with Policy BG5 'Biodiversity and access to Bristol's waterways'. This policy in turn, requires proposals to conserve and enhance the nature conservation value of waterways and adjacent land, including both habitats and species.

Key context changes in the Avon Gorge: Work on the masterplan for the Western Harbour has been in progress since 2019, when feasibility work was undertaken in relation to traffic movements around the Basin[63] and opportunities for reconfiguration of roads in the areas to free up land for

[63] Ove Arup and Partners Ltd (2019) Bristol City Council Western Harbour Feasibility Study: Final Transport Feasibility Report. Available at: https://democracy.bristol.gov.uk/documents/s42622/Appendix%20A%20-%20Arup%20Report.pdf

potential development[64]. Since, work has progressed on the vision[65], which was endorsed by Bristol City Cabinet in July 2022, and sets out key commitments that will guide the transformation of Western Harbour[66]. Whilst a masterplan is yet to be produced for the development, a team was appointed by Bristol City Council in March 2024, with the expectation that the masterplan will be completed by summer 2025[67].

In November 2022, a Clean Air Zone was introduced to the Bristol City Centre area and key arterial routes. The aim of the Bristol Clean Air Zone is to reduce public exposure to nitrogen dioxide by placing daily charges on the highest polluting vehicles, encouraging the use of cleaner vehicles and encouraging people to walk, cycle or use public transport. The boundary for the Clean Air Zone has been designed to meet air quality targets in the central area where air quality is worst in the shortest possible time. It includes a significant stretch of the Portway, Hotwell Road (A4) and Bridge Valley Road (A4176) that is within the Avon Gorge and adjacent to the Avon Gorge Woodlands SAC.

Data is available from the period December 2021 to November 2022, before the CAZ was brought in, for 169 sites where diffusion tubes were used to measure the concentrations of NO_2. Concentrations of nitrogen dioxide are reported in micrograms per cubic metre (µg/m^3). Across these sites, which cover the whole city not just the CAZ, average NO_2 concentrations fell by 9.7%, which is a reduction in annual NO_2 concentrations of 3.2µg/m^3. The measured reductions in NO_2 concentrations were greater at sites within the CAZ, which had an average reduction of 12.8% (4.3µg/m^3) in the first year of the CAZ operating. This compares to an average reduction of 7.8% (2.6µg/m^3) at sites monitored that are located outside of the CAZ. Indeed, Bristol's Clean Air Zone Cabinet report highlights that Hotwell Road was an example of a monitoring location with the greatest reduction in NO_2[68].

In relation to other development within the area, full planning permission was granted by Bristol City Council in December 2021 for the redevelopment of the former railway depot on Clanage Road into residential apartments (253 dwellings) and retail space (reference: 20/01655/F). An Appropriate Assessment undertaken to consider the effects of the development on the Avon Gorge Woodlands SAC, determined that there would be residual effects due to increased recreational pressures arising from the development. It was therefore recommended by Natural England that the development be required to make a proportionate financial contribution towards remedial measures to restore the SAC in line with its conservation objectives[69], however this did not form part of the Section 106 agreement.

11.2 Potential Effect on Habitats

Habitat Loss

As a result of Policy BG2, it is considered there is sufficient safeguarding in place to resist development within the SAC. There are no allocated sites within or immediately adjacent to the SAC.

[64] https://democracy.bristol.gov.uk/documents/s42622/Appendix%20A%20-%20Arup%20Report.pdf
[65] http://www.bristolnpn.net/wp-content/uploads/2021/04/Western-Harbour-Placeshaping-Vision-Brief-FINAL.pdf
[66] https://harbourhopes.co.uk/index.php?contentid=82
[67] https://www.bristol.gov.uk/residents/planning-and-building-regulations/regeneration/western-harbour
[68] https://democracy.bristol.gov.uk/documents/s91958/CAZ%20report%2016-1-24%20FINAL.pdf
[69] Natural England 2021, Planning Consultation: 20/01655/F Former Railway Depot, Clanage Rd, Bristol

Most residential development will be at some distance and located within the existing built-up area of the city and on previously developed land.

Therefore, AEoI from habitat loss to the SAC can be ruled out.

Changes to Hydrology

The Local Plan proposes policies and allocations which would result in an increase in development across the Bristol Plan area in various forms as outlined in the Screening Report. This may result in the following changes to the hydrological regime which may pose an adverse impact on Avon Gorge Woodlands SAC:

- Changes to the conveyance of floodwaters that may alter the frequency and/or duration of saline water inundation; and
- Changes to water quality during these flood peaks from:
    - increased wastewater generation and discharge; and/or
    - direct impacts of development hydrologically-linked construction.

As determined in the Stage 1 (Screening) of this HRA, the Avon Gorge Woodlands SAC is indirectly connected to proposed allocations and polices and any development arising within the Local Plan area, under particular conditions (e.g. high tides, peak flows). Therefore, indirect potential impact pathways exist during these conditions associated with changes to the conveyance of floodwaters and subsequent changes in the frequency and / or duration of EDS inundation and the quality of the water inundating the EDS. Extended periods of inundation and/or inundation by increasingly polluted water would undermine the extent and distribution, structure and function, and supporting processes which both qualifying habitats[70] rely on.

Water Quantity: Changes in the conveyance of floodwaters, and therefore, a change in the frequency and/or duration of inundation of the Avon Gorge Woodlands SAC.

Policy FR2 (Bristol Avon Flood Strategy) supports the implementation of the Bristol Avon Flood Strategy. Changes to the conveyance of water due to the implementation of the Bristol Avon Flood Strategy in the context of Policy FR2 pose a risk of prolonged or more frequent inundation of the Avon Gorge Woodlands SAC with brackish water. At present, however, due to the lack of detail around the specifics of the delivery of the strategy, spatially and in terms of design (informed by flood modelling), it is not feasible to understand this risk. Implementation of the Bristol Avon Flood Strategy would be subject to further project-level assessment to resolve any remaining uncertainties around risk of AEoI of the Avon Gorge Woodlands SAC.

In addition, Policy BG2 sets out that, in line with national planning policy, development will not be permitted if it would have an adverse impact on internationally designated sites. Any development to deliver the strategy (e.g. flood defence assets) would be subject to further project-level assessment to resolve any remaining uncertainties around risk of AEoI of the Avon Gorge Woodlands SAC.

[70] European Site Conservation Objectives for Avon Gorge Woodlands SAC - UK0012734 (naturalengland.org.uk)

Therefore, in light of the information reviewed, it has been determined that Policy FR2 (Bristol Avon Flood Strategy) does not constitute a risk of any AEoI on the Avon Gorge Woodlands SAC's designated features from changes to the management of flood water dynamics, subject to appropriate project-level assessment and surveys to:

- Further consider any remaining uncertainties around specific project risks due to a lack of detailed information available at this stage; and
- Ensure that Best Practice pollution control measures are set out in a Construction Environmental Management Plan (or similar) negate risks from any construction during the delivery.

Water Quality: The aforementioned inundation of the Avon Gorge Woodlands SAC occurs as a result of specific flow conditions (e.g. peak flows, high tides), which provides an indirect pathway for effects in relation to any proposed policies or allocations which may lead to development. Increased pressure on sewerage systems from additional residential and mixed-use occupancy is a risk to water quality as outlined in the Stage 1 (Screening) of this HRA. Further, the development of residential and mixed-use allocations and the development and operation of industrial and distribution, and maritime industry areas pose a direct risk to the Avon Gorge Woodlands SAC in terms of water quality impacts arising from construction.

Wessex Water's 2023 Drainage and Wastewater Management Plan (DWMP)[71] sets out proposals to strategically manage the sewerage system and associated investment programme to account for increased pressure on the sewerage system from proposed development in the Bristol Local Plan area. This DWMP not only sets out the strategic direction and proposed measures for the Asset Management Period 2025-2030 but also: Wessex Water's 25-year ambitions[72], proposals to improve water quality by investing in Storm Overflows[73] and additional measures to treat nutrients in wastewater in line with Natural England guidance[74]. The HRA conclusions of Wessex Water's latest DWMP[75] can be relied upon to ascertain whether there are AEoI on the Avon Gorge Woodlands SAC from the proposed Local Plan in relation to water quality changes as a result of additional wastewater generation and discharge. In terms of the outcomes of the DWMP HRA, the conclusions set out below demonstrate that there will be no AEoI on the designated features of the Avon Gorge Woodlands SAC, subject to project-level HRA to resolve remaining uncertainties:

- For Drainage Areas and Water Recycling centres: "*None of the options are of a scale or type where adverse effects (through construction or operation) are likely to be an unavoidable consequence of their delivery*". Provided that a project or programme-level HRA which is deferred to be undertaken 'down the line', appropriately investigates and resolves any uncertainties provided by the lack of detail on options at this stage; and
- For Transfer/Outfall Relocation Schemes: "*There is nothing inherent in the scale (etc.) of the proposals to suggest that potential adverse effects from construction cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, pollution controls)*" and

[71] DWMP (wessexwater.co.uk)
[72] wessex-water-strategic-direction-statement-2022.pdf (wessexwater.co.uk)
[73] Revised_Storm_Overflows_Discharge_Reduction_Plan.pdf (publishing.service.gov.uk)
[74] Natural England Water Quality and Nutrient Neutrality Advice (16 March 2022) - NE785
[75] DWMP Appendix C - Environmental report cover (wessexwater.co.uk)

"*The effects of scheme operation will be neutral or positive for the receiving waterbodies, will not undermine the conservation objectives for associated European sites nor prevent the achievement of favourable conservation status*". These avoidance and mitigation measures, again, should be provided via a project or programme-level HRA which is deferred to be undertaken 'down the line', which appropriately investigates and resolves any uncertainties provided by the lack of detail on options at this stage.

Potential impacts which stem from the construction of proposed development (as a result of new Local Plan policies or allocations) indirectly connected to the Avon Gorge Woodlands SAC during specific hydrological conditions (e.g. peak flows, high tides) have also been scoped in for AA as per Stage 1 (Screening) of this HRA due to the risk of changes to the quality of water inundating the EDS. For this assessment, construction effects indirectly connected to the EDS as a result of development arising from policies or site allocations have been viewed in terms of their proximity to the River Avon (500m). Policies DS1, DS2, DS3, DS4, T2 and FR2 and proposed allocations, including two maritime industry areas, five industry and distribution areas and eight residential and mixed-use areas, must be considered regarding their indirect potential AEoI on the designated features of the Avon Gorge Woodlands SAC under specific flow conditions. The operation of construction activities that may generate soil, and therefore, pollutant mobilisation, would be restricted during heavy rainfall conditions or managed in a way to prevent pollution being exported from the construction site as per best practice pollution controls. It is therefore not deemed likely that pollution from construction impacts would be mobilised during the specific hydrological conditions for the EDS to become inundated.

Development should only be permitted in line with Policy BG2 (embedded mitigation), ensuring the avoidance of adverse impacts on internationally designated sites. Also, in line with national planning policy, development should not be sited in an area at unacceptable risk of flooding or coastal erosion unless the design has taken into account and mitigated these risks sufficiently.

Further, in light of any remaining uncertainties around the location and specific detail of developments which may arise from proposed policies and allocations, these should be resolved through further surveys and assessment at the project-level, including a HRA where necessary, to ensure that there are no AEoI of the Avon Gorge Woodlands SAC's designated features.

It can be concluded that there is no expected AEoI of the designated features of the Avon Gorge Woodlands SAC from changes in the quality of the water inundating the EDS, subject to appropriate project-level assessment and surveys to:

- further consider any remaining uncertainties around specific project risks due to a lack of detailed information available at this stage; and
- ensure that Best Practice pollution control measures are set out in a Construction Environmental Management Plan (or similar) negate risks from construction.

Air Pollution

The Local Plan proposes a number of policies and allocations which are likely to increase traffic volumes and emissions within the Plan area, and potentially outside the Plan boundary (namely

those related to residential and industrial development, as well as Policy T2). The SAC SIP[76] cites atmospheric nitrogen pollution as a priority pressure on the SAC, affecting both the Annex I grassland and the Annex I woodland habitats. Traffic and industrial emissions are a source of nitrogen deposition.

APIS provides a critical load range of: 10 – 20kg N/ha/yr for semi-natural dry grassland and scrubland facies on calcareous substrates; 15-20 kg N/ha/yr for Tilio-Acerion forests of slopes, screes and ravines. APIS states that both features are sensitive to nitrogen and acidity, and that bryophytes and lichens are integral for semi-natural dry grassland and scrubland facies on calcareous substrates.

The background nitrogen deposition rates across the SAC vary between 9.5kg N/ha/yr to 9.9kg N/ha/yr. It is unknown whether the Plan would increase levels of nitrogen by more than 1% or exceed the minimum critical load, particularly in light of the implementation of the Clean Air Zone.

Given the potential increase in vehicular movements along the A4 Portway, there is a pathway for effect for emissions to negatively impact the Annex I habitats, which are within 200m of the road. Without a detailed air quality assessment, the combined effect of all development on this SAC, in response to the Local Plan, is unknown. Whilst there are policies within the plan to minimise the need to travel and reduce carbon emissions (Policy T1 and T4A, detailed further in Section 8.2) and Policy BG2 would aim to ensure that any project-level development avoids significant negative air quality effects on sensitive ecological receptors, the combined and complex effect of all developments are unknown and should be assessed.

Natural England guidance[77] (paragraph 5.26) states that existing exceedance of the critical level/load is not a legitimate basis to conclude that additional pollutants will not give rise to an adverse effect.

To align with the North Somerset Local Plan HRA, it is recommended that the following text is agreed upon to set a suitable framework for down the-line investigation of this issue for Bristol City Council:

> *'As allocations for the Bristol City Council Local Plan and Local Plans for adjacent local authorities are being developed, air quality impacts of increased traffic on the A4 within 200m of Avon Gorge Woodlands SAC will require further investigation in the form of traffic and air quality modelling and this will need to consider the effects of Local Plan growth alone and in combination with other plans and projects, including in adjacent local authorities. The developed transport and air quality model should account for vehicle fleet change over the plan period and the already identified sustainable transport interventions. Following this exercise, mitigation may be required to ensure no adverse effect on integrity arises'.*

This would be in line with the Duty to Cooperate requirement that exists for all local authorities in developing their Local Plans.

Recreational Disturbance

Avon Gorge Woodlands SAC suffers major pressures from public access, however the SIP highlights that the main issues arise from inappropriate and often illegal access[77]. For decades, the habitats at

[76] Natural England, 2015. Site Improvement Plan: Avon Gorge Woodlands.
[77] Natural England, 2018. Natural England' approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. Version June 2018.

Avon Gorge SAC have co-existed with a core city adjacent to it, however the extent of public access / disturbance impacts and issues of that co-existence are discussed in the SIP. It is for this assessment to consider whether the policies and proposals in the Local Plan materially add to those impacts and thus to determine whether AEoI arise.

There are no allocated sites within the SAC and none that are immediately adjacent. Most residential development will be at some distance (as outlined in Section 11.1) and located within the existing built up area of the city and on previously developed land. In that respect the Local Plan is unlikely to result in any increased recreational or similar incursions (such as routine dog walking, casual exercise or curtilage extension) that might arise from adjacent development.

With the increase in residential development at a plan-level, which is guided by national planning policy's expectations with regard to meeting development needs and locating such development within urban areas, there are likely to be more people living closer to this EDS over the course of the plan period, albeit within the existing built-up area.

Given the 8km recreational disturbance ZoI (noting that this is not a designation in itself) covers all of the Local Plan area, all the proposed homes in the Local Plan are considered, totalling 34,700 homes. Assuming an average of 2.4 residents per dwelling[78], the 34,700 additional dwellings within the 8km ZoI amount to approximately 83,280 additional residents. The average person travels up to 93 times per year from Bristol City to the "countryside"[36]. It can therefore be assumed that the additional homes could generate 7,745,040 person visits per year to the "countryside" by the end of the plan period.

Clearly, not all visits are likely to result in people visiting the Avon Gorge Woodlands SAC. Data from 2009/10 – 2015/16 show that on average people within Bristol go to a "woodland" on 23.1% of their visits. For the purposes of providing a broad estimate of the potential increase in trips to the SAC, "woodland" is assumed to be a proxy for the habitats present within the SAC. The total visits of 7,745,040 could therefore be assumed to include 1,781,359 person visits per year to a "woodland". It is important to note that a 23.1% preference assumes that any visitor goes exclusively to this SAC, whereas the data implies that any visitor visits any woodland within 8km, of which there are many including Blaise Estate, Oldbury Court, Manor Woods Valley, Stoke Park and numerous smaller local areas of woodland across the city. Furthermore, access is limited to the woodland as a whole with respect to the limited parking available, capacity limits within available car parks (i.e. those managed by Forestry England) and steep terrain of the majority of the Gorge. In reality, it is highly unlikely that all residents in Bristol would visit this SAC a total of 21.5 times a year (23.1% of 93 annual visits) and additionally, given a total of 47.71% of people do not travel more than 1.6km within Bristol on a journey, this number is likely to be further reduced.

These numbers of visits should be viewed in the context of how many people currently visit the SAC already. Using the same calculations as above, assuming 471,200 people live in Bristol[79], 93 visits per person per year, and a 23.1% preference for visiting a woodland, the baseline number of visits per year is 10,078,968. These data presented would indicate that approximately 27,600 visits occur per day to the woodland, which is also extremely unlikely. Additional visits as a result of population

[78] Office for National Statistics, 2023. Families and households in the UK: 2022. May 2023.
[79] Bristol City Council. Population of Bristol (June 2021).

growth associated with the Plan therefore represent a fraction of the existing visitor levels by proportion.

Even considering that fraction, various factors are likely to further limit additional visits to the SAC arising from new housing development with the Local Plan proposed:

- Parts of the SAC are largely inaccessible due to steepness of the Gorge sides.
- Most of the new development associated specifically with the Local Plan will be at some distance and the visitable portions of the SAC are not immediately accessible from most parts of the city.
- Intervening spaces and recreation areas may act as a buffer for additional visits, and it may be expected that the steep gradients leading to the popular parts of the SAC at Leigh Woods are likely to deter additional access on foot when other choices can be made.
- The SAC has limited accessibility on foot from most parts of the city where new development might arise.
- A significant proportion of new residential development will be for student accommodation.

Therefore, the character and location of new development and the characteristics of the SAC combine to have a self-limiting role on the likely increase in visitor numbers to the SAC which might arise from new development.

Whilst the visitor numbers presented reflect a high degree of uncertainty within the assumptions provided, it is conceivable that impacts to the SAC could increase with increased visitor pressure, including from developments outside of the Local Plan area. The SIP[76] states that the SAC suffers major pressures from public access. However, the SIP advises that *'Most legal access isn't a problem and the main issues result from inappropriate and often illegal access, an example of which is the use of the steep side of the Gorge on the North Somerset side for downhill mountain biking'*. The SIP also notes that '*dog fouling could lead to specific local impacts from nitrogen deposition*'.

The SIP states that there are many opportunities to improve safe multi-user access to certain areas of both sides of the Gorge, and also further possibilities to manage access sensitively. Engagement, promotion and interpretation is key to the sustainable use of the site.

It is clear from the SIP that this SAC already experiences recreational and other disturbances. Based on available information to support this HRA, it is unclear the degree to which the Local Plan in itself would exacerbate the pressures already experienced on the SAC. Subject to the agreement of the shared implementation of the management measures in the SIP and engagement with key delivery bodies and North Somerset Council (outside the plan-making process), it can be concluded that the Local Plan in itself won't give rise to an AEoI. Measures included in the SIP to implement includes dealing with public access through engagement, management and interpretation.

11.3 In-combination Effects

Following review of other HRAs for adjacent relevant plans and projects identified in Screening, it is considered that development within the ZoI for the Avon Gorge Woodlands SAC, could result in pressures in-combination primarily through:

- Air pollution effects to habitats
- Recreational disturbance through increased visitor pressure.

With the potential for development around the SAC, effects could arise through a number of sources associated with development within the relevant ZoI and vehicular emissions.

Air quality modelling will need to consider the effects of Local Plan growth alone and in-combination. Following this exercise, assessment and mitigation may be required to ensure no adverse effects occur in-combination. This is required with consideration for nearby Local Plans, e.g. North Somerset.

The increased visitor pressure, noting a major factor may be from illegal access, needs to be monitored in-combination with nearby authorities, e.g. North Somerset Council, as well as key delivery bodies, outside the plan-making process. With the former process established, application of project-level assessment and mitigation, and with consideration for the effects of projects cumulatively, any potential in-combination effect is considered to be addressed.

12. Conclusions and Recommendations

A total of 25 Local Plan policies have been screened in for AA due to their potential for LSE on EDS alone. These policies are:

- DS1
- DS2
- DS3
- DS4
- DS5
- DS6
- DS7
- DS8
- DS9
- DS10
- DS11
- DS12
- DS13
- DS14
- H1
- H5
- E4
- E5
- T2
- NZC5
- FR2
- UM4
- SA1
- BCAPSA1-SA6
- DA1

In accordance with national planning policy, these policies promote the development of predominantly urban residential and mixed-use sites through Areas of Growth and regeneration and proposed allocations, industry and distribution areas and maritime industry areas; and establish a housing requirement, transport improvements, renewable energy development and flood risk management. It is assumed that there are no material amendments to the plan between the Publication and Submission versions.

This assessment considered the potential for these policies and allocations to generate an adverse effect on the integrity of EDS through the following impact pathways:

- Physical proximity, for example leading to direct habitat loss, including functionally linked land, or indirect effects arising from changes in noise, vibration or light;
- Connective distance by road or public transport, applicable when assessing implications on waste generation, recreational pressures and air quality;
- Disturbance, which may provide an indirect pathway for effects arising from increased recreational pressure; and
- Hydrological connectivity.

Screening of EDSs at Stage 1 used the ZoI as all land within the BCC local authority boundary, and parts of neighbouring local authorities up to 15km away from the BCC local authority boundary. The source, pathways for effect, and receptors are outlined in Section 4. Receptors specifically refer to those EDSs not screened out at Screening stage, and comprise two SPAs (Severn Estuary and Chew Valley Lake), three SACs (Severn Estuary, North Somerset and Mendip Bats, and Avon Gorge Woodlands), and one Ramsar site (Severn Estuary).

Where the potential for LSEs on an EDS was identified at Stage 1, but the qualifying features of this site were later assessed as not being sensitive to certain pathways for effect, these pathways were omitted from the AA.

12.1 Conclusions

The Appropriate Assessment has considered whether the following effects identified in the Stage 1 HRA Screening Report[1] would result in AEoI to EDSs:

Potential effects on habitats:

- Habitat Loss;
- Changes to hydrology;
- Air pollution; and
- Recreational disturbance.

Potential effects on species:

- Habitat Loss (including of functionally linked land);
- Non-physical disturbance;
- Changes to hydrology;
- Air pollution; and
- Recreational disturbance.

The AA concluded that for Avon Gorge Woodlands SAC and Severn Estuary EMS negative air quality effects, in the absence of mitigation, could lead to an AEoI via habitat degradation. Proposed mitigation, as outlined in Section 8.2 and 11.2, if adopted can rule out AEoI to the Avon Gorge Woodlands SAC and Severn Estuary EMS from negative air quality effects.

AEoI created by the Local Plan alone via recreational disturbance to Avon Gorge Woodlands SAC can be ruled out, however in-combination effects cannot be ruled out when considered collectively with other adjacent authorities and the recreational disturbance generated from their areas too. Recommendations are set out in Section 12.2.

For other EDS, a conclusion that AEoI can be ruled out was reached, with respect to the potential effects on habitat and species outlined above.

12.2 Recommendations

It is recommended that the following text is agreed upon to set a suitable framework for down the-line investigation of this issue for Bristol City Council:

***'As allocations for the Bristol City Council Local Plan and Local Plans for adjacent local authorities are being developed, air quality impacts of increased traffic on the A4 within 200m of Avon Gorge Woodlands SAC will require further investigation in the form of traffic and air quality modelling and this will need to consider the effects of Local Plan growth alone and in combination with other plans and projects, including in adjacent local authorities. The developed transport and air quality model should account for vehicle fleet change over the plan period and the already identified sustainable transport interventions. Following this exercise, mitigation may be required to ensure no adverse effect on integrity arises'*.**

It is assumed unlikely that any additional increase in traffic as a result of the Local Plan, would exceed the background nitrogen deposition surrounding the Severn Estuary EMS, with incorporation of the Local Plan policies and the requirement for project-level assessments. It is assumed that any development would be required to comply with air quality requirements associated with use and provide traffic modelling or mitigation at the project-level, to ensure adverse effects on the integrity of the EMS are avoided.

Whilst no adverse effects are concluded alone, ***it is recommended that a programme of monitoring across the Severn Estuary SAC and Ramsar is developed through engagement with Natural England, the Severn Estuary Partnership, and South Gloucestershire Council, and other partners as appropriate, to assess how air quality impacts the Annex I habitats. A mitigation strategy would be required to provide ways to reduce air pollution if negative effects are identified, which could lead to an AEoI.***

The AA concluded that AEoI from any loss of FLL to qualifying species of the Severn Estuary EMS can be ruled out***.*** However, for completeness, ***it is recommended that the Plan wording in Policy reflect the need for appropriate survey and assessment, including specifically within FLL as well.***

The AA concluded that AEoI from recreational disturbance on avian features of the EMS can be ruled out within the Plan area. However, ***as a precautionary measure - a programme of monitoring within the Bristol area for the EMS and FLL is recommended to understand how visitor disturbance impacts qualifying birds of the SPA and Ramsar.*** Alongside considering in-combination effects within adjacent plan areas, a ***mitigation strategy is recommended to provide ways to reduce visitor disturbance, if negative effects are identified, which could lead to an AEoI. Mitigation could include provision of monitoring information to relevant authorities, introduction of voluntary codes of conduct, awareness campaigns, review and possible amendment to existing management regimes, and zoning of any activity.***

The recommendations outlined for in-combination effects should also be considered in relation to recreational disturbance on Avon Gorge Woodlands SAC considers that: **increased visitor pressure, noting a major factor may be from illegal access, needs to be considered further in-combination with nearby authorities, e.g. North Somerset Council, as well as key delivery bodies, outside the plan-making process. With the former process established, application of project-level assessment and mitigation, and with consideration for the effects of projects cumulatively, any in-combination effect is considered to be addressed.**

Finally, as set out in section 7, **it is recommended that through the usual programme of monitoring of the Local Plan set out within the Annual Monitoring Report, that the HRA AA should be reviewed to understand whether there are AEoI for any of the EDS should the plan exceed the total proposed growth within Policy H1.**

Appendix A Reports

A1 List of Plans and Projects Screened into Appropriate Assessment of In-Combination Effects

The 18 plans and projects identified in the Stage 1 HRA Screening Report as having potential in-combination effects, comprise:

1. South Gloucestershire Local Plan
    a. Core Strategy (2013); and
    b. Policies, Sites and Places Plan document (2017).
2. Bath and North East Somerset Local Plan
    a. Core Strategy (2014);
    b. Placemaking Plan (2017); and
    c. Local Plan 2011-2029 Partial Update (2023).
3. North Somerset Local Plan
    a. Core Strategy (2017);
    b. Sites and Policies Plan Part 1: Development Management Policies (2016); and
    c. Sites and Policies Plan Part 2: Site Allocations Plan (2018)
4. West of England Joint Local Transport Plan
5. West of England Joint Waste Core Strategy
6. Bristol Water Resources Management Plan (2019)
7. Bristol Water Drought Plan (2022)
8. Wessex Water – Water Resources Management Plan (2019)
9. Wessex Water–- Drought Plan (2022)
10. Wessex Water–- Drainage and Wastewater Management Plan (2023)
11. Severn River Basin Management Plan (2022)
12. Severn Estuary Coastal Group Shoreline Management Plan (2017)
13. Severn Estuary Flood Risk Management Strategy (2013)
14. Severn Estuary Strategy (2017)
15. Bristol Local Flood Risk Management Strategy (2023)
16. Portishead Branch Line–- MetroWest Phase 1
17. Hinkley Point C Connection Project
18. Avonmouth Severnside Enterprise Area Ecology Mitigation and Flood Defence Scheme

A2 Natural England Response to Stage 1: HRA Screening Report (Version 1, 31 July 2023)

Response from Natural England on 25th August 2023 to Screening Report issued to NE on 2nd August 2023.

Thank you for sight of the Habitats Regulations Assessment Screening report for the Bristol Local Plan.

Natural England agrees with the main outputs of the assessment and the 'likely significant effects' (LSE) on Habitats Sites that have been identified for further consideration through the Appropriate Assessment. We provide more detailed comments below – based on the impact pathways the report assesses–- on issues we consider to be important in undertaking the next stage of assessment.

It is worth noting that the role of HRA for a Local Plan is not to fully develop all measures that may be required but to ensure that a Plan can be adopted on the basis that a policy framework is in place that is capable of developing and delivering those measures.

Potential effects on Habitats Sites tend to be cross-boundary and we would also highlight the importance of co-ordinating assessment and potential responses with neighbouring authorities. In this case consultation with North Somerset Council, which is at a similar stage in Plan preparation, will be of particular value.

Recreational pressure/disturbance – Avon Gorge Woodlands and Severn Estuary

The report identifies LSE on the Severn Estuary SPA/SAC/RAMSAR and the Avon Gorge Woodlands SAC through increased recreational pressure. Many studies in the UK have compiled survey data for a range of protected sites which show that more housing means more visitors, particularly where new development is within walking distance. This pool of evidence will be important to draw upon as the HRA work progresses.

As per advice provided at previous consultation stages we would also emphasise that in terms of recreational pressure on these sites it is important to understand the unique dynamics of each and, by extension, the information needed to inform a clear understanding of what is necessary and where. This is critical, not least to help identify the extent to which 'site management' measures that are the responsibility of landowners and others outside of the Local Plan process are needed, as opposed to mitigation measures that are required to address the additional effects of development promoted by the Local Plan.

Avon Gorge Woodlands SAC

The location of the site and its proximity and accessibility to large numbers of people mean that site does experience pressures from a range of visitors and activities, and those pressures and effects appear to be increasing. The Appropriate Assessment should consider Strategic Access Management and Monitoring (SAMM) options as well as provision of Suitable Alternative Natural Greenspace (SANGs). Evidence is needed to better understand this and to

distinguish between site management requirements and mitigation measures that may be required. We consider that a visitor survey is needed to gain a clearer understanding of profile of visitors, how they are using the site, where they travel from and how. This will help ascertain the 'uplift' in effects that may arise from the Local Plan and, by extension, mitigation measures that may be required over and above site management responsibilities. The visitor survey might be done in partnership with North Somerset Council, and possibly with site owners such as the National Trust.

Severn Estuary

The scale, diverse geography, and tidal range of the Site are among the factors that make it challenging to understand the nature of recreational pressure on its features, and measures needed to address harmful effects. There are several evidence sources that provide useful insight into understanding baseline conditions and recreational pressure at the site and at similar sites in the UK. For the Severn this includes the Severn estuary High Tide Roost Study Reports, visitor surveys for Forest of Dean and Stroud, and the Forgotten Landscape high tide roost monitoring project. Information available on bird disturbance, for example, suggests that there are some locations along the coast that are relatively much more vulnerable/sensitive than others, and perhaps in some cases, not easily accessed and not heavily used. We would recommend that further consideration is given as to whether the information available is adequate to understand cause and effect and any responses that may be needed in Bristol and surrounding areas. Existing visitor survey data is patchy and further targeted survey at sensitive locations could be undertaken over the wintering/passage period for SPA birds.

Based on evidence that is available and learning from approaches elsewhere in England where mitigation is needed, it is likely that Strategic Access Management and Monitoring (SAMM) will be more important than provision of Suitable Alternative Natural Greenspace (SANGs), though the latter should not be ruled out and could be appropriate in certain locations. That said, we note that options for either SAMM or SANGS within Bristol's boundary are likely to be limited. There is some useful evidence on SAMM measures, for example, from Stroud district, that may indicate measures likely to be needed.

With reference to Zones of Influence (ZoIs) the HRA also refers should provide clear justification for distances used. While 7km has often been used for recreational pressure, we are aware of recent examples where coastal ZoIs have been set that are more bespoke, following local evidence and visitor surveys, for example, Essex Coast RAMS: essex-coast-rams-supplementary-planning-document.pdf (chelmsford.gov.uk)

It is worth noting that Stroud and Gloucester districts have commissioned Footprint Ecology to do more work on mitigation for effects on the estuary, the results of which should be available soon.

We would encourage BCC to engage and cooperate with other local authorities and partners around the estuary (including through the Severn Estuary Partnership) on looking at the issues and responses.

Habitat Loss / Physical damage

The references to functionally-linked land for bats and the North Somerset SPD are welcomed. North Somerset Council, in partnership with UWE and Natural England, has developed new evidence, using landscape-scale data and modelling, to understand how greater horseshoe bats are using the landscape. It is anticipated that this will inform a more strategic approach to development and bat mitigation and, while not as significant an issue for Bristol, it could help inform the Local Plan Appropriate Assessment. The assessment should also consider the significant roost sites for lesser horseshoe bat that are known to exist closer to Bristol, including at Ashton Court estate.

Changes to Hydrological Regime / Water Levels and Quality

We note the reference to Water Resource Management Plans (WRMPs) and the potential effects in terms of water quantity and quality on the Severn Estuary SPA/SAC/RAMSAR and Chew Valley Lake SPA. Natural England is currently advising Bristol Water and Wessex Water on the HRAs for their respective WRMPs. Assuming that results in those Plans avoiding an effect on the integrity of Habitats Sites, the Bristol Local Plan will be able to rely on that conclusion.

We would recommend that you also seek Environment Agency input through the Appropriate Assessment stage in relation to potential effects on migratory fish populations that are qualifying features of the Severn Estuary protected site.

Natural England does not consider that there is a significant impact pathway between the Plan and the qualifying feature of the Chew Valley SPA (shoveler) through water quality.

Air quality

Nothing to add.

Non-physical disturbance

Nothing to add.

A3 Natural England Regulation 19 Consultation Response

Response from Natural England on 26th January 2024 to Town and Country Planning (Local Planning) (England) Regulations 2012 Regulation 19).

Local Plans have a central role to play in delivering national and local ambitions for places and communities, supporting sustainable development, improving the natural environment and securing all the benefits for people, health and prosperity that flow from it. Nationally, the Environment Act, Environment Improvement Plan and changes to National Planning Policy Framework have all worked in tandem to signal and direct a stronger role for Local Plans in delivering better outcomes for nature, for climate adaptation and ensuring the communities benefit from those improved outcomes.

Against a background of increasing demands placed on finite land in urban areas, and the increasing financial pressure local authorities are under, it is more important than ever that the local plan sets out a clear picture of how nature recovery and green infrastructure will be delivered, managed, and improvements nurtured over the plan period. We understand the high priority afforded to housing and employment delivery in Bristol, and that demands on a limited supply of land mean that much new development will be high density. This underscores the need for high quality, connected greenspace, corridors and parks, which are capable of supporting greater numbers of people and contributing to meeting other needs of the city, now and in the future. While open space will of course play its part, innovative strategies can be used to improve access to green and blue infrastructure (GBI) and nature in urban spaces such as greening streets, pocket parks, green walls and biodiverse sustainable urban drainage systems (SuDS), including rain gardens.

The Plan indicates that a joined-up approach is needed to achieve the aspirations for the city and bring the wide variety of policy goals together to make a difference for its communities, however we would encourage this to need to be made more explicit. One means for doing that is using GBI as a means of integrating different policy aims and priorities, including those such as health inequalities, nature recovery, climate adaptation and sustainable water management.

Headline points

- **We welcome the improvements made in the draft Plan following the previous Reg 18 consultation. A number of key policy areas relating to the natural environment, such as Biodiversity Net Gain, have a clearer policy framework, though we would recommend that further changes are considered in some instances.**
- **The Plan should go further in facilitating a strategic response to the city's ecological and climate emergencies that supports better outcomes for nature, physical and mental health, water management and other priorities. This includes but goes beyond policies targeted at new development locations so that better co-ordinated networks and systems for nature, access, and climate adaptation can be delivered.**
- **A number of allocations are not supported because they involve the loss of priority habitats or important greenspace that are a finite resource in the city and would hinder the achievement of other goals in the Plan.**
- **We note that the appropriate assessment stage of the Habitats Regulations Assessment will be completed prior to examination, and be an important step in assessing the tests of soundness.** Comments on the screening report are provided in the following section.

Habitats Regulations Assessment

The Habitats Regulations Assessment (HRA) Screening Report has concluded that the plan could result in likely significant effects on Habitats Sites from the following threats/pressures:

- Habitat loss/physical damage
- Non-physical disturbance
- Changes to hydrology regime/water levels and quality
- Air pollution
- Recreational disturbance

Natural England agrees that these effects should be screened in for further assessment and consideration based on the information currently available. We have previously provided detailed comments on the HRA Screening Assessment which the Council should refer to. Further assessment of the scale and nature of these impacts should be undertaken at appropriate assessment stage to determine if mitigation is required, and sufficient supporting evidence will be required to determine the effects of the plan and any mitigation requirements. The appropriate assessment should consider the effects of the plan both alone and in-combination with other plans/projects.

Your Authority will need to satisfy itself that adverse effects on integrity can be mitigated or avoided where likely significant effects have been identified. We would be happy to discuss the HRA with the Council further in due course.

We would recommend speaking to neighbouring authorities through Duty to Cooperate discussions regarding any further evidence gathering and assessment required on the above issues, and the approach to a mitigation strategy if the evidence demonstrates that one is required. The locations of the Habitats Sites affected by these issues mean cross boundary impacts are likely and any required approach to mitigation will likely to be easier the deliver in tandem with nearby local planning authorities.

There are further comments on specific policies or allocations relevant to the HRA that are covered in the following parts of this letter.

Section 3: Development Strategy

We support the ambition to provide new open space and new and enhanced green infrastructure for key development areas, but recommend that specific priorities/ambitions for each area should be identified including quantity targets for new green infrastructure provision where possible. The plan should take the opportunity to strategically plan for nature recovery and multi-functional GBI within these areas. Key existing elements of ecological and green infrastructure networks as well as priorities/opportunities to connect and enhance these networks should be identified. Where these areas have an existing under provision of existing green infrastructure, this should be highlighted with the policy stating how this can be rectified. Mapping of existing greenspace access is available on the Natural England GI Framework website which may supplement information your Authority already holds.

Policy DS1: Bristol City Centre
Consolidation and expansion of University of Bristol and Bristol Royal Infirmary Sites provides opportunities to enhance and expand the GBI network. Access to GBI can benefit wellbeing, and

opportunities should be sought to integrate it into BRI sites to provide these benefits to patients and staff. The therapeutic value of green infrastructure in healthcare settings should be highlighted, this can include accessible green spaces for patients and staff as well as proving planting that can be seen from windows as this has been shown to reduce recovery times and medication need for patients. The Natural England GI Planning and Design Guide provides guidance on how GI can be integrated into healthcare facilities.

We welcome that the policy has recognised that regeneration of the Floating Harbour and surrounding area provides opportunities to support nature recovery. The plan could go further in identifying the types of interventions that would be supported in this area, for example provision of floating reedbeds.

Specific comments on Temple Quarter, Western Harbour, Bristol City Centre and Frome Gateway are provided in reference to the relevant policies below, please also refer to Natural England's comments on the regeneration frameworks for these areas (except Western Harbour) which provide further detail on priorities and opportunities for nature recovery and green infrastructure.

Place principles

- We welcome that development will be expected to maintain and enhance GBI. This policy should also require development to enhance the nature recovery network in line with policies BG1 and BG2.
- An additional bullet point should be included in this section requiring development to include GBI that supports the nature recovery and GBI networks, and that contributes to climate resilience/adaptation in line with policy NCZ4.

Policy DS1A: Bristol City Centre – Broadmead, Castle Park, and the Old City

Development allocations

The City Centre Development and Delivery Plan included ambitions for increasing GBI in the area which Natural England strongly supports. The policy should reflect these ambitions and the need to (and benefits of) increase accessible GBI in the policy area. We recommend that increasing GBI and natural features is included under the place principles for the area, either under the second or fifth principle.

Key opportunities to enhance GI and contribute to nature recovery in this area could be highlighted, these were identified in the CCDDP.

We welcome that the policy includes aspirations to enhance the wildlife and biodiversity value of Castle Park and specifies that developments will be expected to facilitate and contribute to these enhancements. Nearby development should also be expected to contribute to the maintenance of the park to cope with the additional visitor pressure.

Policy DS2: Bristol Temple Quarter

We welcome the reference to provision of new and enhanced green infrastructure and an accessible quayside walkway in this area. There are a number of ways in which the quayside – and in fact the wider river/waterway corridors - could be designed to meet different GBI functions, including areas that are designed to flood in some places or more of a focus on raingardens and managing surface water run-off which may allow for better accessibility and green travel routes.

Seeking opportunities for this greenspace to reduce the causes and impacts of flooding is in line with the paragraph 167 of the NPPF.

Within each area (eg.Temple Meads area and Silverthorne Island) the policy should highlight key GI and biodiversity opportunities and ambitions.

We welcome that the policy expects development sites bordering the Totterdown Basin to provide accessible natural greenspace with a wildlife function. The policy should clarify that this should provide accessibility and biodiversity improvements to the waterside. This expectation should be expanded to all waterside development sites in the area.

Policy DS3: St Philip's Marsh

Natural England supports the ambition for development to include retention, enhancement and creation of open space. The high quantum of development proposed, and the low level of existing GBI will place significant pressure on existing greenspaces. The scale of regeneration proposed provides a significant opportunity to enhance the green infrastructure network through the creation of a new park and a green grid throughout the area. We recommend that the policy includes specific requirements/targets for GBI in the area including both qualitative and quantitative targets for greenspace and green infrastructure provision.

As stated above, different options for riverside greenspaces should be considered. The policy should require these greenspaces to be biodiverse and contribute to the city's nature networks.

Policy DS4: Western Harbour

We note that this area will be subject to a masterplan, Natural England are in contact with the team leading this work in the Council and would be welcome the opportunity to discuss options as the masterplan develops.

We appreciate that full details of aspirations of the area will not be understood until a masterplan has been developed, but recommend that the policy could go further in identifying specific GBI/nature recovery ambitions such as increasing quality and quantity of multifunctional riverside parks to reduce flood risk, and the expansion of riverside habitats such as saltmarsh.

The potential for development in Bristol to increase recreational pressure on Habitats sites is being assessed through the HRA, and is particularly relevant to locations such as this that is in close proximity to the Avon Gorge Woodlands SAC**.**

Policy DS5: Frome Gateway

We welcome that the policy recognises the potential for redevelopment of this area to improve accessibility and biodiversity value of Riverside Park. The regeneration framework for Frome Gateway included a target of providing 1ha of new open space in this area, this should be referenced in the policy. The expected green infrastructure enhancements in this area that were included in the regeneration framework should also be referenced in the policy. Green infrastructure and public access improvements in this area should be designed in consultation (and is possible through a co-design process) with the local community to ensure that any enhancements response to their desires for the space.

Policy DS10: The Green Belt

The greenbelt provides strategic opportunities to contribute to nature recovery and improving access to nature. We recommend that the policy reflects opportunities to use the greenbelt more positively for environmental and social benefits. Paragraph 150 of the NPPF states that local planning authorities should plan positively to enhance the beneficial use of green belts such as enhancing biodiversity and looking for opportunities to provide access.

The greenbelt provides significant potential to contribute to the emerging Local Nature Recovery Strategy (LNRS) with opportunities to enhance and create new habitats that strengthen and expand ecological networks. There are opportunities for the greenbelt to be used to contribute to a number of strategic nature and green infrastructure opportunities around the city such as Dundry Slopes. In addition to biodiversity enhancements, improvements should be made to increase accessibility to the greenbelt. Areas of south Bristol adjacent to the greenbelt have a significant under provision of accessible greenspace and have poorer health outcomes than other areas of the city. Access improvements to the greenbelt can increase people's access to nature which has potential to improve health outcomes in these communities.

Policy DS11: Development allocations – south west Bristol

Longmoor Village, Ashton Vale
A HRA was undertaken for this application. Planning permission has been granted for this site, if for any reason another application is submitted at this site, the proposed development will need to be assessed through a HRA.

Elsbert Drive, Bishopsworth
This allocation is in proximity to several lesser horseshoe maternity roosts which are believed to be functionally linked to the North Somerset and Mendip Bats Special Area of Conservation. Furthermore, recent bat surveys for a nearby planning application in North Somerset (23/P/2185/FU2) have revealed significant greater horseshoe activity in this area, one of the qualifying species of the North Somerset and Mendip Bats SAC. A HRA will be required for any future planning application at this site so that any mitigation measures that are necessary can be identified. Any future planning application must be informed by ecological surveys including a full season of bat surveys to assess the potential for habitats on site to be functionally linked to the SAC.

The North Somerset Regulation 19 Local Plan has allocated a site adjacent to this allocation. We welcome that the policy requires a cross boundary development framework/masterplan to be developed for the site. This must be informed by the results of bat surveys. We are advising North Somerset Council that due to the potential for this site to be functionally linked to the SAC, the North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development SPD should be followed for this site, this includes a calculation of the value of existing and proposed habitats on site to horseshoe bats which must demonstrate that there will be no net loss of habitat value to horseshoe bats. While it is not a requirement for sites in Bristol to follow this guidance, for consistency we would recommend any future planning application follows the approach in the SPD including submission of the aforementioned habitat calculation. A lighting strategy including modelling of the combined effects of internal and external light spill is likely to be required if the site is functionally linked to the SAC.

Policy DS12: New neighbourhood – Bath Road, Brislington

We welcome that this policy states that any development would be expected to incorporate existing and new important trees, hedgerow and other GI and include the creation of a linear park at Scotland Bottom. This site is close to residential areas where there is an existing under-provision of greenspace. A development site of this scale provides a significant opportunity to contribute to the GI network including provision of new open space of high quality and quantity and we consider that this location provides an ideal opportunity to take a nature/GBI-led approach to master-planning and act as an exemplar for new neighbourhoods in this type of urban fringe location. We recommend the policy includes a requirement for the minimum quantum of open space/GI developments at this site are expected to deliver.

As stated in our comments on the Regulation 18 consultation, a comparison of aerial photography of this site included in the draft Local Plan and more recent aerial photography suggests the Page biodiversity baseline of this site may have been recently reduced. If habitats have been degraded on this since January 2020, the pre-degradation habitats should be taken as the baseline for Biodiversity Net Gain All features of ecological value on this site should be retained and enhanced by new development.

Policy IDC1: Development Contributions and CIL

While it is a matter for your Authority to set out its approach to use of developer contributions, we would expect any new development to contribute to the management of existing greenspaces where it would place increased visitor pressure on these spaces, and to the expansion/enhancement of the green infrastructure network.

Policy UL1: Effective and Efficient Use of Land

Whilst we understand the ambition for re-use of previously developed land, it is important to note that brownfield land can hold significant ecological value and support open mosaic habitat (a priority habitat). Where previously developed land may hold ecological value, any proposed development of that site must be informed by ecological surveys.

Whilst we understand the that higher development densities will make more efficient use of land, it means that higher quality and quantity of greenspace due to reduced access to private greenspace amongst other factors. It also means existing and any new greenspace needs to be well-connected and accessibility enhanced. Some areas identified for higher density development by Diagram 5.1 already have high population densities and comparatively lower access to greenspace. It is therefore imperative that policy for new development recognises and addresses this, whether through new greenspace, enhancing existing greenspace and its accessibility or possibly other measures like urban greening where options are known to be very limited.

Policy H7: Managing the development of purpose built student accommodation

Where comprehensive masterplans are developed for University of Bristol sites in line with this policy, this must identify how the site will contribute to nature recovery and green infrastructure networks and include sufficient greenspace provision for new residents.

Policy E4: Avonmouth Industrial Area and Bristol Port

Areas of Avonmouth and Bristol Port hold significant ecological value including local, national, and international designated sites (including the Severn Estuary SPA/SAC/Ramsar/SSSI), priority habitats, and protected species. We welcome that the supporting text recognises the importance

of Avonmouth to bird life and the Severn Estuary as well as recognising the habitat mitigation project at Hallen Marsh. It will be important for any development in this area to thoroughly assess ecological impacts.

We note the aspiration to increase renewable energy generation in this area. Impacts to the Seven Estuary SPA/Ramsar/SSSI from renewables development must be considered through the HRA. The latest evidence of the potential impacts of wind turbines on birds should be used to inform this assessment. Currently, sufficient evidence has not been provided to demonstrate large scale deployment of renewables in this area is deliverable without harm to designated sites. More evidence should be provided to justify the in principle support for renewables in this area by Policy E4. Operations to deliver renewables on building roofs and carparks should be explored to limit the potential impact of renewables development on any functionally linked land.

Furthermore, we note the policy allocates around 60ha of greenfield land in the area for industrial and distribution uses. A review of aerial imagery suggests these areas could have ecological value and could provide supporting habitat for Severn Estuary SPA/Ramsar qualifying species, particularly if they flood. Areas are also mapped as Costal Floodplain Grazing Marsh, a priority habitat, though this would need to be confirmed through up to date surveys ahead of any planning application. Currently we do not have the evidence to conclude whether these areas are functionally linked to the Severn Estuary SPA/Ramsar. Any future planning application at these sites must assess the potential for the sites to be functionally linked to the Severn Estuary SPA/Ramsar, this must be informed by wintering bird surveys that meet best practice guidance.

The policy states that:
Development in the area covered by this policy will be expected to contribute appropriately towards the habitat mitigation measures proposed for this area.
This suggests that sites in this area will be expected to contribute to the Hallen Marsh habitat mitigation. The Hallen Marsh habitat mitigation was created specifically to mitigate the loss of functionally linked land resulting from industrial development proposed under the 1957 Permission. As the allocated sites are not covered by this permission, any contribution to habitat mitigation would need to be demonstrably over and above the habitat mitigation provided for the 1957 Permission developments and the ASEA project. The policy should define what an appropriate contribution to the habitat mitigation is.

Development close to the Severn Estuary SPA/Ramsar/SSSI and functionally linked land in the area, including Hallen Marsh, must assess the potential for the development to result in disturbance of SPA/Ramsar/SSSI birds. All stages of development must be considered. Development over 200m from a sensitive area is unlikely to result in visual disturbance. Development over 500m from a sensitive area is unlikely to result in noise disturbance unless very noisy activities take place on site. Development closer to sensitive areas than these thresholds must consider and assess the potential for noise and visual disturbance of SPA/Ramsar/SSSI birds.

An area of the Avonmouth Industrial Area shown on the policy map close to the oil basin is within the Severn Estuary SSSI. Some of this area is already developed so will not support SSSI features, however there are undeveloped areas in this location which could support SSSI features. Due to the low resolution of the planning policy map, it is difficult to tell whether policy area includes any areas which could support SSSI features.

Our concern is that if areas supporting SSSI features are included in the policy area these could be developed in the future. This would not be consistent with plan policy BG2 or national planning policy. We therefore recommend the policy map is reviewed and the line amended to exclude any

areas which are not currently developed. Less preferably, if the policy map is not amended, the policy must include a requirement for any development in this area to undertake ecological surveys to assess whether SSSI features are present, if they are present these areas of the site cannot be developed.

Section 9: Biodiversity and Green Infrastructure

In line with paragraph 181 of the NPPF, the plan should take a more strategic approach to maintaining and enhancing to green infrastructure and ecological networks. The current approach is too reactive and will limit the potential for the plan to maintain and enhance GI and ecological networks.

Paragraph 181 of the NPPF requires plans to take a strategic approach to maintaining and enhancing GBI networks. In the absence of a GBI strategy, the plan does not provide enough detail to strategically plan for GBI. Whilst the JGIS provides some information on strategic GBI objectives, this does not provide the granularity of detail that is needed to identify the strategic GBI aims within Bristol City Council or inform design of developments to contribute to these aims. The lack of a strategic approach could be dealt with through an improved GBI policy or through further detail provided in a GBI strategy. Whilst it is noted that the Council will be preparing a GI strategy in due course, it is unclear how the LPA intended to deal with these strategic GBI issues in the interim period.

As identified in the plan, new development provides a significant opportunity to connect and enhance existing GBI features and provide new ones. Without a strategic plan for GBI, the potential benefits of development will not be fully realised as GBI in developments will not form part of a coherent network intended to target key urban issues such as urban heat islands and flood risk. Furthermore, a sub-optimal strategic approach also makes it difficult to inequalities in GBI access to be addressed. The BNSSG ICS Strategy and the BNSSG Joint Forward Plan both recognise that environmental conditions where people live, including access to greenspace have an impact on their wellbeing and recognises the need to reduce inequalities access to greenspace amongst social, economic and environmental factors that impact health outcomes. Paragraph 97(b) of the NPPF requires plans to take account and support delivery of local strategy to improve health and wellbeing. Paragraph 96(c) also states that policies should enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure. Ensuring everyone has access to good quality and quantity greenspace within 15 minutes' walk from their home is also one of the targets of The Environmental Improvement Plan. We therefore feel the plan should go further in identifying how inequalities in greenspace access will be addressed as part of a strategic approach to GBI.
Policy BG7: St Paul's Green Link is strongly supported, this approach will ensure join up of developments in this area to increase the contribution they can make to enhancing the green infrastructure networks. This provides a good example of how the plan can strategically plan for GBI. This approach should be expanded across the LPA area with identification of green corridors linking GBI assets throughout the city shown on the policy map.

Regarding a strategic approach to ecological networks, paragraph 185(a) of the NPPF states that plans should…

Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and

areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;

Whilst the policy map does this to a degree through mapping designated sites, these do not include all features identified in the above paragraph. We are aware of work which is being undertaken to map ecological networks in Bristol, and the Plan should be informed by this work. Specific reference should be made to this in the policy requiring site selection and design to be informed by ecological networks to ensure that new development maintains and enhances ecological networks in line with the NPPF. This approach will not only inform the approach to site selection and design but can guide contributions from development (eg. through offsite compensation and BNG) to ensure these maximise the contribution they make to enhancing ecological networks.

Local Plans and decisions will need to take account of the LNRS but further national guidelines are expected shortly on what that means in practice.

As discussed below, further detail should be provided on some elements of the GI policy to clarify the expectations for developments, this could be provided through a GI strategy but again an approach will be needed in the interim to deal with these matters.

Policy BG1: Green Infrastructure and Biodiversity in New Developments

The plan should make clear that the expectations for GBI integration extend beyond retaining and enhancing existing features on site. GI statements for proposed development should audit features on and off site and identify how connections between offsite assets can be enhanced through corridors in the development proposals including through the developable area (eg. rain gardens, street trees, biodiverse verges).

The GI statement should also identify where financial contributions are required to deal with the management pressures of new development including enhanced facilities for managing visitors on locally accessible areas of green space (eg footpath enhancement), as well as compensation for increased management costs by the site owner / manager (eg increased wardening or habitat management costs). Where limited GI and greenspace is provided offsite, financial contributions should be provided to offsite GI, for example for quality improvements to existing greenspaces to improve the accessibility and visitor capacity of these spaces, or for creating new green links between existing greenspace to increase the accessibility of these spaces.

The policy should make clear where loss of GBI assets is unavoidable, the lost must be minimised to the minimum amount possible and any loss should be mitigated through new or replacement GBI of equivalent or higher quality and value ensuring that the integrity of the GBI network is maintained. This is a set out in Standard 2 of the Natural England Green Infrastructure Framework which advises that there should be no net loss or reduction in capacity of accessible greenspace per 1,000 population at an area-wide scale.

<u>Policy Text</u>
We welcome that the policy has been expanded to include protection and enhancement of the Nature Recovery Network and the Green Infrastructure Network, and that the policy wording has been revised to ensure development take all available opportunities to deliver multifunctional benefits and connect to wider ecological networks. The requirement for developments to produce a GI statement is supported.

The policy expects habitat creation/enhancement to respond to local biodiversity priorities and ecological networks. A strategic approach to maintaining and enhancing ecological networks will guide biodiversity priorities for the plan area and help inform design and assessment of proposed developments.

As mentioned in our comments on the November 2022 Regulation 18 Plan we would recommend setting minimum numbers per dwelling for features like bird boxes and bee bricks.

Further explanation is required on what the policy means by providing appropriately for recreational access. Whilst we note the policy refers to using the GI standards to demonstrate that development provides appropriate GI, further detail is required in the policy regarding the GI standard, this is discussed below.

The reference to extending active travel links is supported, these should form green corridors that link existing GI assets to improve access to these areas.

We support that the policy identifies the need for development to make provision for long term management and maintenance of GI. This should be set out in GI statement. The policy should be clearer about the detail that is required here, in addition to management and maintenance plans, development should detail who is responsible for management and if financial contributions will be made towards management. Where specialist equipment is needed (e.g. cut and collect machines) this should be specified, and detail provided on where this equipment will be sourced.

Whilst we strongly support the inclusion of the Natural England Green Infrastructure Standards in the policy, but recommend that further consideration is given regarding the expectations for development to demonstrate that have met each of the standards. A number of the standards require the LPA to set targets which developments have to be designed to meet. This detail should be provided in the policy, or in the forthcoming GI strategy. We note that the Parks and Greenspace Strategy that has just been out to consultation proposes greenspace provision standards and it would be helpful if the final versions of the Local Plan and Parks and Greenspace Strategy are clearly linked on that matter.

We strongly support the inclusion of the Urban Greening Factor in Policy BG1. This will ensure that all developments contribute to the GBI, not just those that will be required to provide BNG. The Natural England UGF standard includes a higher target score of 0.5 for residential greenfield sites which has not been included in the policy. We would therefore encourage you to consider using the 0.5 target score for residential greenfield sites, either through inclusion in the policy or targeting to the sites of greatest size or sites in areas of greatest need for GBI. Whilst BNG will be expected to deliver more on these sites there is a potential for BNG to be delivered offsite, and it will be important to ensure that significant sites provide sufficient accessible GI.

We recommend that the policy wording below should be strengthened as follows:
• *The provision of green infrastructure in new development ~~should~~ must..*

Explanatory text
Reference could be made here to the Natural England GI Planning and Design Guide. This provides detail of good design for GI in a range of settings which can help to inform the design of GI in new developments.

Paragraph 9.1.11 has identified that Development may have potential to support plans and projects set out in the JGIS. Specific reference should be made to the strategic GBI projects

included in the JGIS such as String of Pearls and Waterspace. A map of these projects could be included in the plan to make clear which developments will have opportunities to contribute to these. The text should make clear that where development has opportunities to contribute to these projects, all available opportunities must be taken to integrate the projects into site GI.

Pollinators

Inclusion of these ambitions within the policy itself would make this stronger and be clearer what the expected aims are.

Policy BG2: Nature Recovery and Conservation

Policy Wording
We welcome the addition of the policy wording requiring developments to enhance nature recovery and GI networks and that the policy recognises the potential for previously developed land to hold ecological value. We support the revised policy wording requiring development to take all available opportunities to connect to and enhance these networks.

We welcome that the policy recognises the need to protect geodiversity through protection of SSSIs, which include geological SSSIs, and RIGS in line with NPPF paragraph 180(a).

While the hierarchy of sites has been included, the policy should make clear that potential SPAs, possible SACs, and functionally linked land have the same protection as habitats sites in line with paragraph 187 of the NPPF. Where development could harm SNCIs (including through recreational pressure), it should make contribution to the continued favourable management of site.

We welcome that the policy recognises the protection given to irreplaceable habitats. The policy should make clear that where development affects ancient woodland, ancient trees, or veteran trees, Natural England's standing advice should be followed. It should acknowledge that priority habitat should be conserved, restored, and enhanced in line with paragraph 185(b) of the NPPF.

The policy must make reference to the protections given to protected species and the need to protect and recover priority species in line with paragraph 185(b) of the NPPF. Where a proposed development has potential to affect protected species, Natural England's standing advice should be followed. Development which compromises the recovery of priority species should not be permitted. The Local Nature Recovery Strategy will identify priority species at a local level and this will be worth referring to in the Plan.

In line with paragraph 180(a) of the NPPF, the Council should consider whether a soils policy is required.

We recommend that the policy wording below is amended as follows, so that it better reflects NPPF paragraph 185(b) which requires plans to *promote the conservation, restoration and enhancement of… ecological networks.*

- *Development in Bristol will be expected to take all available opportunities to ~~connect to or enhance~~ restore, connect to and enhance the integrity of the Nature Recovery network and wider ecological networks*

We recommend the policy wording below is amended as follows:

- *Where loss of nature conservation value is unavoidable to enable development which is in accordance with the local plan, and has been agreed with the Local Authority Ecologist.*

In line with paragraph 186(a) of the NPPF, the policy must require development to follow the mitigation hierarchy. We note that Policy BG3 makes reference to the mitigation hierarchy, but the hierarchy should be followed in assessing and addressing impacts to all natural environment features, not just through the Biodiversity Net Gain process (eg. protected species and designated sites). Where offsite compensation is required, this should contribute to and enhance ecological networks, the strategic approach to ecological networks suggested will help inform appropriate locations of offsite enhancement.

Policy BG3: Achieving Biodiversity Net Gain

We note that the policy requires development to achieve a minimum of 10% BNG in line with The Environment Act. Some Local Planning Authorities, including in the south west, are setting higher requirements for BNG such as 20%. We recommend the Council explore whether this approach can be adopted in Bristol.

We recommend that the policy wording below should be amended as follows:

Biodiversity remediation and compensation (through habitat creation, restoration and enhancement) should be provided on site, avoiding, ~~where possible,~~ harm to existing designated and non designated habitat and species features of conservation value.

The protection given to designated habitats and species (including designated sites and protected species) takes precedence over the delivery of BNG. BNG delivery should not harm designated/protected habitats and species.

We welcome that the policy recognises that BNG is additional to mitigation for designated sites and that impacts to irreplaceable habitat cannot be mitigated through BNG. Mitigation for impacts to designated sites can contribute up to a point of no net loss, any net gain must be additional to mitigation for designated sites.

Policy BG4: Trees

In line with paragraph 136 of the NPPF, reference should be made to Right Tree Right Place, though we accept that this principle needs local interpretation for urban areas, where there is less natural/semi-natural habitats and greater need to consider other factors such as urban cooling and air quality. That said, air quality improvements mean that the range of native species that can thrive in urban settings is growing.

We welcome that the policy requires proposals to be set out for long term maintenance of new trees. Reference could also be made to British Standard BS 8545 which provides recommendations on transplanting young trees to result in them achieving 'eventual independence in any landscape'.

We welcome the inclusion of the requirement for new streets to be treelined in line with NPPF paragraph 136 and the requirement for long term maintenance of trees. Paragraph 136 states that existing trees are retained wherever possible, however the policy wording states that new development should retain and integrate important existing trees. The local plan policy wording suggests only important trees have to be protected whereas the NPPF suggests that all trees should be retained wherever possible. The policy wording should therefore be strengthened in this regard.

The policy could make reference to the Forest of Avon Plan and require new development, particularly offsite replacement tree planting, to support delivery of the Forest of Avon Plan.

The policy should also make reference to improving tree canopy cover and increasing tree equity across the city. This relates to the Natural England GI Standard S5: Urban Tree Canopy Cover Standard. With regard to new development, this could include a higher increase in tree cover onsite where developments are in areas of low existing tree cover, or where replacement trees are required offsite, locating these in areas of low existing tree cover. The policy wording below could be amended as follows:

- *Replacement trees should be located as close as possible to the development site, and targeted to areas of low existing tree cover*

We recommend the policy wording below is also amended as follows:

- *The size, species and placement of trees provided as part of the landscape treatment will be expected to take all practicable opportunities to*
- *Where tree loss or damage is essential to allow for appropriate development, and has been agreed with Local Authority Arboriculturist*

BG5: Biodiversity and access to Bristol's waterways

We welcome the inclusion of this policy in the Plan. Blue infrastructure provides multiple benefits including improvements to natural flood management, ecology, health (both physical and mental), cooling and can provide an active transport route where areas of riverside greenspace are connected. We welcome that development adjacent to waterways will be expected to enhance the nature conservation of waterways and adjacent land, maximise opportunities for sustainable drainage and flood resilience, enhance water quality, and accessible multifunctional green infrastructure along the water's edge.

Policy T2: Transport infrastructure improvements

We support the policy to improve public and active transport infrastructure and networks. Green Social Prescribing pilots in Bristol have highlighted that transport can be a key barrier for people to access greenspaces and nature. Where improvements to public transport networks are undertaken these should improve links to greenspace and the countryside.

Where improvements are undertaken to walking and cycling networks these should link with the green infrastructure network and including greening to provide safe, attractive, climate resilient routes for people to use.

Policy T6: Active travel routes

We welcome the plan recognises the opportunities for active travel routes to contribute to nature recovery. Where integrated with nature recovery networks and include natural landscaping, these routes can provide movement corridors for wildlife. These routes should enhance nature recovery and GBI networks.

Policy NZC1: Climate change, sustainable design and construction

We welcome that the policy identifies the need for new development to contribute to both climate mitigation and adaptation and the need for development to be adapted to changes in

local climate over the lifetime of the scheme. As the Council will be aware, there is a significant role for GI to play in climate adaptation, more comments are provided on this below in relation to Policy NZC4.

The policy should be informed by the latest draft Water Resource Management Plan which assesses water supply for the region in the future.

Policy NZC4: Adapting to a Changing Climate

We welcome that the policy recognises that different areas of the city and communities will be affected differently by climate change and that development must understand and adapt to its local context. Measures taken to adapt to climate change are often fall into the bracket of 'no regret' actions that bring other benefits for communities and development.
We support that the policy requires the assessment of context to include consideration of whether the development could exacerbate climate risks to the city and surrounding areas. As the Council will be aware, GBI can play a significant role in adaptation to climate change, providing a cool area for people to access in times of extreme heat. Development on greenspace, particularly in areas of high urban heat risk, is likely to exacerbate existing issues.

We support the role identified in the policy for blue and green infrastructure in mitigating climate change. Choice of GBI used in developments should reflect local conditions, taking into consideration future local climate projections. Species measures should be resilient to the effects of any projected changes in local climate. GBI provided for climate adaptation purposes should connect to and enhance the existing green infrastructure and ecological networks.

We recommend the explanatory text is amended as follows in line with the requirement for multifunctional GBI in Policy BG1:

- *When designing green and blue infrastructure for climate adaptation, the provision for a wide range of multifunctional benefits will be ~~encouraged~~ expected in accordance with local plan policies.*

We welcome the reference to multifunctional SuDS in the policy as this is often a missed opportunity to make limited land/water areas work harder and deliver wider benefits.

Policy NZC5: Renewable energy and energy efficient

The policy identifies Bristol Port and Avonmouth as areas with great potential for the development of renewables. Please see comments above on Policy E4 regarding the need for further evidence of renewables capacity in this area.

Policy FR1: Flood risk and water management

We welcome that the policy includes an expectation for SuDS in new development. Alongside new development, SuDS can be retrofitted into existing urban spaces, helping to solve water problems and enhance the local environment. SuDS retrofit need not always be delivered through major schemes and can be done opportunistically and efficiently as other street works, or utility upgrades are delivered.

We recommend the policy wording is revised as follows:

- *This should include the use of multifunctional sustainable drainage systems (SUDS).*

In addition to SuDS, the policy should make reference for other nature based solutions to water management such as trees and green/blue roofs. Paragraph 167 of the NPPF requires natural flood management techniques to be used as much as possible.

Furthermore, no reference is made to managing water stress or drought. The policy should refer to approaches such as using rainwater harvesting in new development or retrofitting into older development and attenuating and storing water through SuDS or appropriate habitat creation/enhancement. Harvested water can be used for non-potable needs: toilet flushing, garden watering and equipment washing. Smart technology can enhance this functionality to allow it to act as temporary flood storage.

Policy FR2: Bristol Avon Flood Strategy

We welcome the reference to creation of a multi-purpose greenway along the River Avon in this policy. The policy should make clear that all development on the Avon will be expected to contribute to this.

In line with paragraph 9.1.43, the policy or explanatory text should highlight that opportunities for GI that delivers flood mitigation benefits will be supported in line with the emerging Bristol Avon Flood Strategy. Fish eDNA in Bristol Floating Harbour and the lower Avon (bristolavonriverstrust.org).

We would highlight that the Bristol Flood Alleviation Scheme EIA Scoping Report (draft 2023) identified Avon Gorge SSSI and Severn Estuary SSSI as groundwater dependent terrestrial ecosystems. The hydrological connection to the River Avon is also noted in the local plan HRA screening report (Arup, 2023).

Paragraph 14.1.13 states that *Diffuse pollution from development close to watercourses can be reduced through filtration and interception*. The plan should make clear that development will be expected to reduce diffuse water pollution through filtration and interception including through the use of SuDS or other nature based solutions.

Policy HW2: Air Quality

We welcome that this policy has recognised the role GI can play in reducing exposure to air pollution in line with paragraph 192 of the NPPF.

Policy HW1A: Noise

We welcome the policy has recognised the potential for noise to result in adverse impacts to biodiversity. As impacts from noise often arise during construction, we recommend the policy wording is amended as follows to make clear the requirement for noise from all phases of development to be considered:

- *Development which would have an unacceptable impact on amenity or biodiversity by reason of noise in any phase of development will be expected to provide an appropriate scheme of mitigation.*

Paragraph 14.1.27 states that planning conditions may be used to require relevant assessments of noise. Where noise has potential to significantly effect a Habitats Site, a noise assessment and mitigation scheme (if necessary) will be required prior to determination of an application in order

to inform the HRA, this detail cannot be secured by condition. The policy should make clear that where noise could result in likely significant effects on Habitats Sites. A noise assessment cannot be secured by condition.

Policy HW2B: Health and development

We welcome that the policy has identified a link between health outcomes and access to the natural environment. There is a wealth of emerging evidence that accessing and connecting with nature improves both mental health and wellbeing, designing places to increase access to nature and facilitate social interaction through provision of high quality green infrastructure and open spaces provides a significant tool in developing resilient communities. Investing in parks and greenspace can also result in significant savings in health and social care services. The role for GI in supporting healthy lifestyles is recognised in paragraph 96 of the NPPF.
The policy should therefore go further in identifying the links between health and access to nature and greenspace and requiring development to provide high quality designed to reduce the causes of ill health, improve health, and reduce health inequalities. For example, green infrastructure can reduce exposure to air pollution and mitigate the urban heat island effect, both causes of ill health. and can promote and enable healthy lifestyles through proving attractive green active travel corridors and quality greenspaces that encourage recreation. Addressing inequalities in greenspace quality and quantity across the city will help to address health inequalities, this can reduce the barriers to accessing these spaces (both physical and social) through providing greenspaces closer to deprived communities to make them easier to access, and through quality enhancements co-designed with communities to ensure greenspaces serve their needs and feel safe to address the social barriers in accessing these spaces. A more equitable distribution of quality and quantity of greenspaces can ensure all communities in the cities can experience the health and wellbeing benefits of accessing greenspace.

Food Sustainability

We welcome that the plan has identified the links between food growing spaces and health and wellbeing of communities and well as the environment, protects allotments, and required food growing space to be provided in new developments. Food growing spaces can connect habitats and support nature recovery through provision of biodiverse habitats. These spaces also provide an opportunity to integrate SuDS features and mitigate the urban heat island effect. Policy FS2: Provision of food growing space in new developments could include a requirement for food growing space as part of development to be designed to take all opportunities to connect to and enhance ecological networks and maximise opportunities for climate adaptation.

Section 16: Development Allocations

BSA0103
From reviewing aerial imagery, this site appears to be broadleaf woodland, areas are mapped as priority habitat. We do not consider that allocation of this site is consistent with national policy to protect and enhance ecological networks and priority habitats or Policy BG2 of the local plan. We therefore do not support inclusion of this allocation in the plan.

BSA1101
This allocation provides natural habitat on a steep-sided slope adjacent to the River Avon SNCI. Other boundaries of the site contain mature vegetation. Allocation of this site for development is could significantly harm the River Avon SNCI and, furthermore, would compromise the maintenance and enhancement of an important ecological corridor along the

River Avon close to the city centre. We understand that your Authority is supportive of enhancing the river corridor in terms of its wildlife and other functions for local communities and this site could be an important part of a green walking and cycling route away from the Bath Road. We therefore do not support inclusion of this allocation in the plan.

BSA1109 & BSA1116
Areas of this BSA1109 are mapped as priority habitat; allocation of this site is not consistent with national policy to protect and enhance ecological networks and priority habitats or Policy BG2 of the local plan.

These allocations are within and adjacent to areas with low access to greenspace and areas of deprivation. This area is therefore a priority for interventions to increase access to greenspace. Allocation of these sites would reduce access to greenspace and nature in this area, we therefore do not support the inclusion of these allocations in the plan.

Appendix C – Bristol Heat Networks

Natural England worked with the Council on the Local Development Order for the district heat network. Through this process, the LDO excluded areas which were designated as SSSI and were within 500m of the Severn Estuary SPA/SAC/Ramsar/SSSI due to the potential for construction works to result in disturbance of SPA/Ramsar/SSSI birds. Figure C3 shows areas of the Strategic Heat Main route would be within 500m of the Severn Estuary SPA/SAC/Ramsar/SSSI and could therefore result in disturbance to SPA/Ramsar/SSSI birds.

Please contact me with any questions about this response.

Yours faithfully

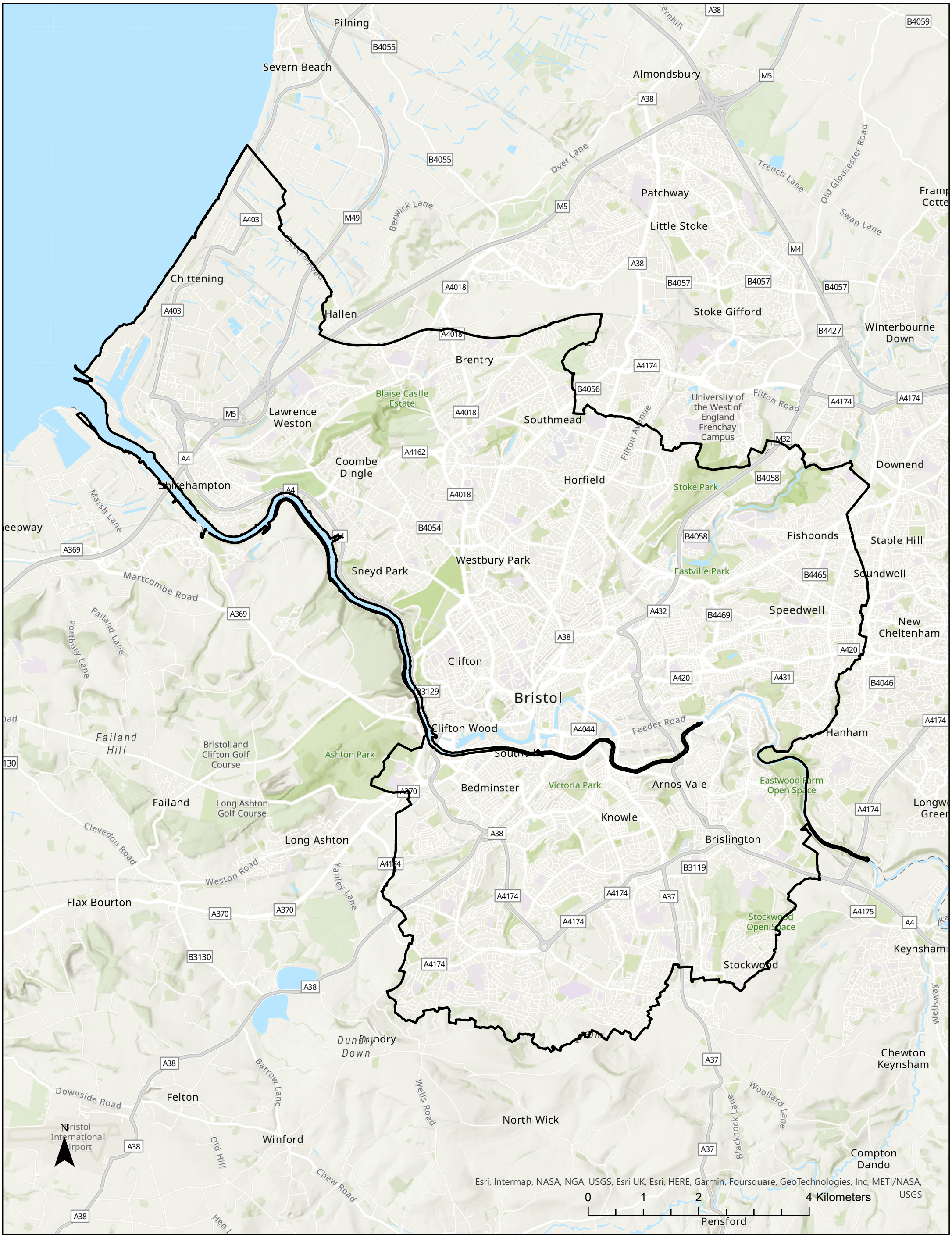
Amelia Earley
Wessex Area Team

A4 BCC Summary of Response to Natural England

Natural England Request	Summary of BCC Response
Potential effects on Habitats Sites tend to be cross-boundary and we would also highlight the importance of co-ordinating assessment and potential responses with neighbouring authorities. In this case consultation with North Somerset Council, which is at a similar stage in Plan preparation, will be of particular value.	Consultation with neighbouring authorities is recommended for this HRA.
As per advice provided at previous consultation stages we would also emphasise that in terms of recreational pressure on these sites it is important to understand the unique dynamics of each and, by extension, the information needed to inform a clear understanding of what is necessary and where. This is critical, not least to help identify the extent to which 'site management' measures that are the responsibility of landowners and others outside of the Local Plan process are needed, as opposed to mitigation measures that are required to address the additional effects of development promoted by the Local Plan.	A process for collection of further information is addressed in the assessment through consultation with local authorities, partners around the estuary, and landowners.
Avon Gorge Woodlands SAC *The location of the site and its proximity and accessibility to large numbers of people mean that site does experience pressures from a range of visitors and activities, and those pressures and effects appear to be increasing. The Appropriate Assessment should consider Strategic Access Management and Monitoring (SAMM) options as well as provision of Suitable Alternative Natural Greenspace (SANGs). Evidence is needed to better understand this and to distinguish between site management requirements and mitigation measures that may be required. We consider that a visitor survey is needed to gain a clearer understanding of profile of visitors, how they are using the site, where they travel from and how. This will help ascertain the 'uplift' in effects that may arise from the Local Plan and, by extension, mitigation measures that may be required over and above site management responsibilities. The visitor survey might be done in partnership with North Somerset Council, and possibly with site owners such as the National Trust.*	Consideration of SAMMS for Avon Gorge Woodland SAC is addressed in the assessment. Processes are discussed for relevant partnership working with North Somerset Council and potentially landowners.
Severn Estuary *The scale, diverse geography, and tidal range of the Site are among the factors that make it challenging to understand the nature of recreational pressure on its features, and measures needed to address harmful effects. There are several evidence sources that provide useful insight into understanding baseline conditions and recreational pressure at the site and at similar sites in the UK. For the Severn this includes the Severn estuary High Tide Roost Study Reports, visitor surveys for Forest of Dean and Stroud, and the Forgotten Landscape high tide roost monitoring project. Information available on bird disturbance, for example, suggests that there are some locations along the coast that are relatively much more vulnerable/sensitive than others, and perhaps in some cases, not easily accessed and not heavily used. We would recommend that further consideration is given as to whether the information available is adequate to understand cause and effect and any responses that may be needed in Bristol and surrounding areas. Existing visitor survey data is patchy and further targeted survey at sensitive locations could be undertaken over the wintering/passage period for SPA birds.*	Data has been taken from the Severn Estuary High Tide Roost Study Reports and the Forgotten Landscape high tide roost monitoring project.
Based on evidence that is available and learning from approaches elsewhere in England where mitigation is needed, it is likely that Strategic Access Management and Monitoring (SAMM) will be more important than provision of Suitable Alternative Natural Greenspace (SANGs), though the latter should not be ruled out and could be appropriate in certain locations. That said, we note that options for either SAMM or SANGS within Bristol's boundary are likely to be limited. There is some useful evidence on SAMM measures, for example, from Stroud district, that may indicate measures likely to be needed.	Matters regarding SAMM are considered within the assessment.

Natural England Request	Summary of BCC Response
With reference to Zones of Influence (ZoIs) the HRA also refers should provide clear justification for distances used. While 7km has often been used for recreational pressure, we are aware of recent examples where coastal ZoIs have been set that are more bespoke, following local evidence and visitor surveys, for example, Essex Coast RAMS: essex-coast-rams-supplementary-planning-document.pdf (chelmsford.gov.uk)	Using recent data from Natural England and adopting the methodology used from the Essex Coast RAMS, an 8km buffer has been used, which largely covers most of the BCC area.
We would encourage BCC to engage and cooperate with other local authorities and partners around the estuary (including through the Severn Estuary Partnership) on looking at the issues and responses.	Engagement with other local authorities and partners around the estuary has been recommended as part of a continuing process.
Habitat Loss / Physical damage *The references to functionally-linked land for bats and the North Somerset SPD are welcomed. North Somerset Council, in partnership with UWE and Natural England, has developed new evidence, using landscape-scale data and modelling, to understand how greater horseshoe bats are using the landscape. It is anticipated that this will inform a more strategic approach to development and bat mitigation and, while not as significant an issue for Bristol, it could help inform the Local Plan Appropriate Assessment. The assessment should also consider the significant roost sites for lesser horseshoe bat that are known to exist closer to Bristol, including at Ashton Court estate.*	If the data are available for any updated HRA this will be incorporated. The assessment considers the roosts close to Bristol, as outlined in the North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development: Supplementary Planning Document.
Changes to Hydrological Regime / Water Levels and Quality *We note the reference to Water Resource Management Plans (WRMPs) and the potential effects in terms of water quantity and quality on the Severn Estuary SPA/SAC/RAMSAR and Chew Valley Lake SPA. Natural England is currently advising Bristol Water and Wessex Water on the HRAs for their respective WRMPs. Assuming that results in those Plans avoiding an effect on the integrity of Habitats Sites, the Bristol Local Plan will be able to rely on that conclusion.* *We would recommend that you also seek Environment Agency input through the Appropriate Assessment stage in relation to potential effects on migratory fish populations that are qualifying features of the Severn Estuary protected site.*	We have used the conclusions from HRAs produced for the Draft Plans - providing the conclusions of the Final plans and associated HRAs do not change fundamentally, then our conclusions are not considered to change. Engagement is recommended as appropriate.

Appendix B Figures



Legend

City of Bristol LPA Boundary

Bristol City Council

Client:
Bristol City Council

Rev	Date	By	Chkd	Appd
Draft	24/07/23	JB	AC	DG

Project Title
Bristol City Council HRA

Drawing Title
Local Plan Boundary

Scale at A3
1:60,000

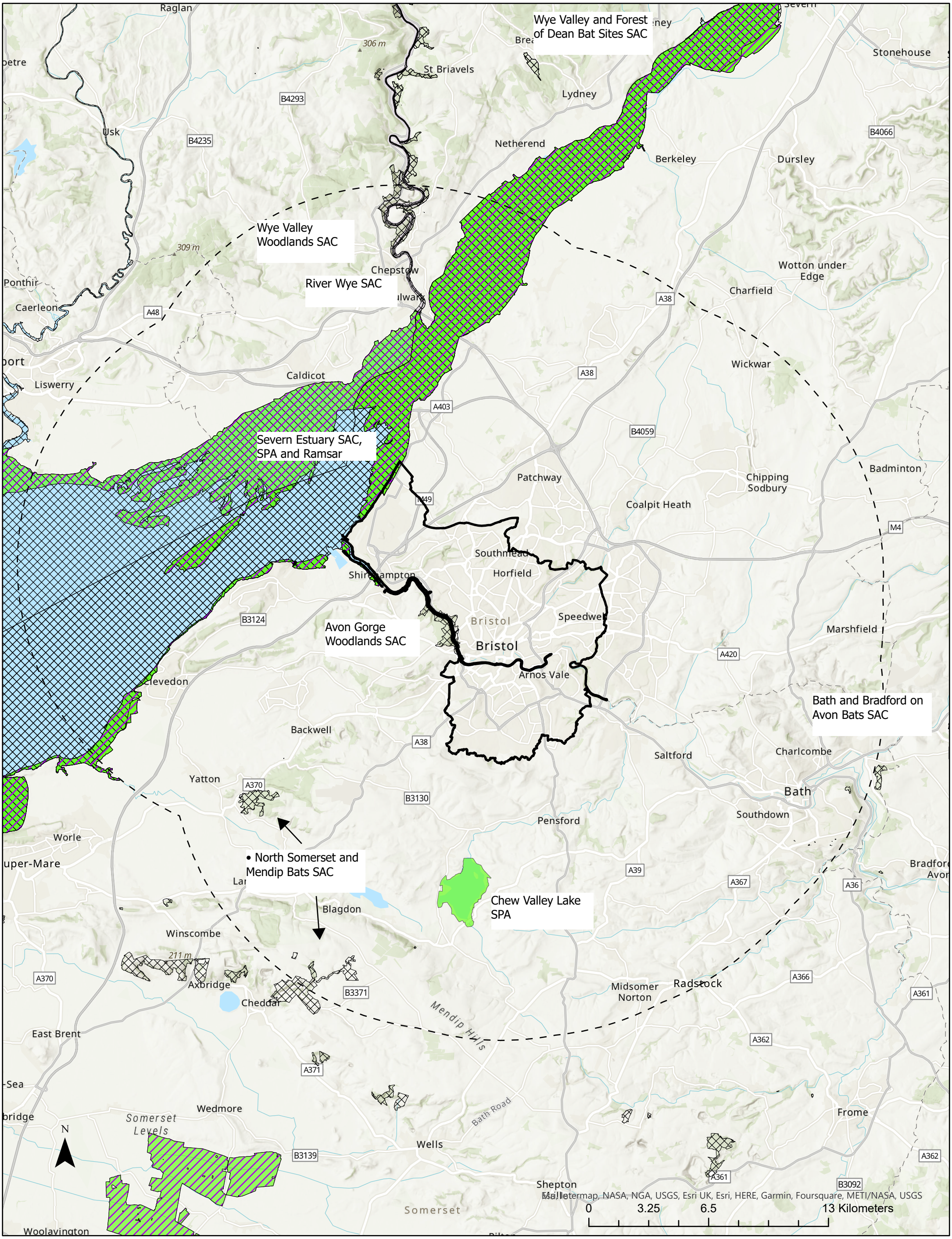
Role
Appropriate Assessment

Suitability
Issue

Arup Job No
260251-00

Rev
1.0

Drawing Number



Legend

- City of Bristol LPA Boundary
- LPA Boundary 15km Buffer
- Ramsar Sites
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)

Bristol City Council

Client:
Bristol City Council

Draft	24/07/23	JB	AC	DG
Rev	Date	By	Chkd	Appd

Project Title
Bristol City Council HRA

Drawing Title
European Sites

Scale at A3
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Role
Appropriate Assessment

Suitability
Issue

Arup Job No
260251-00

Rev
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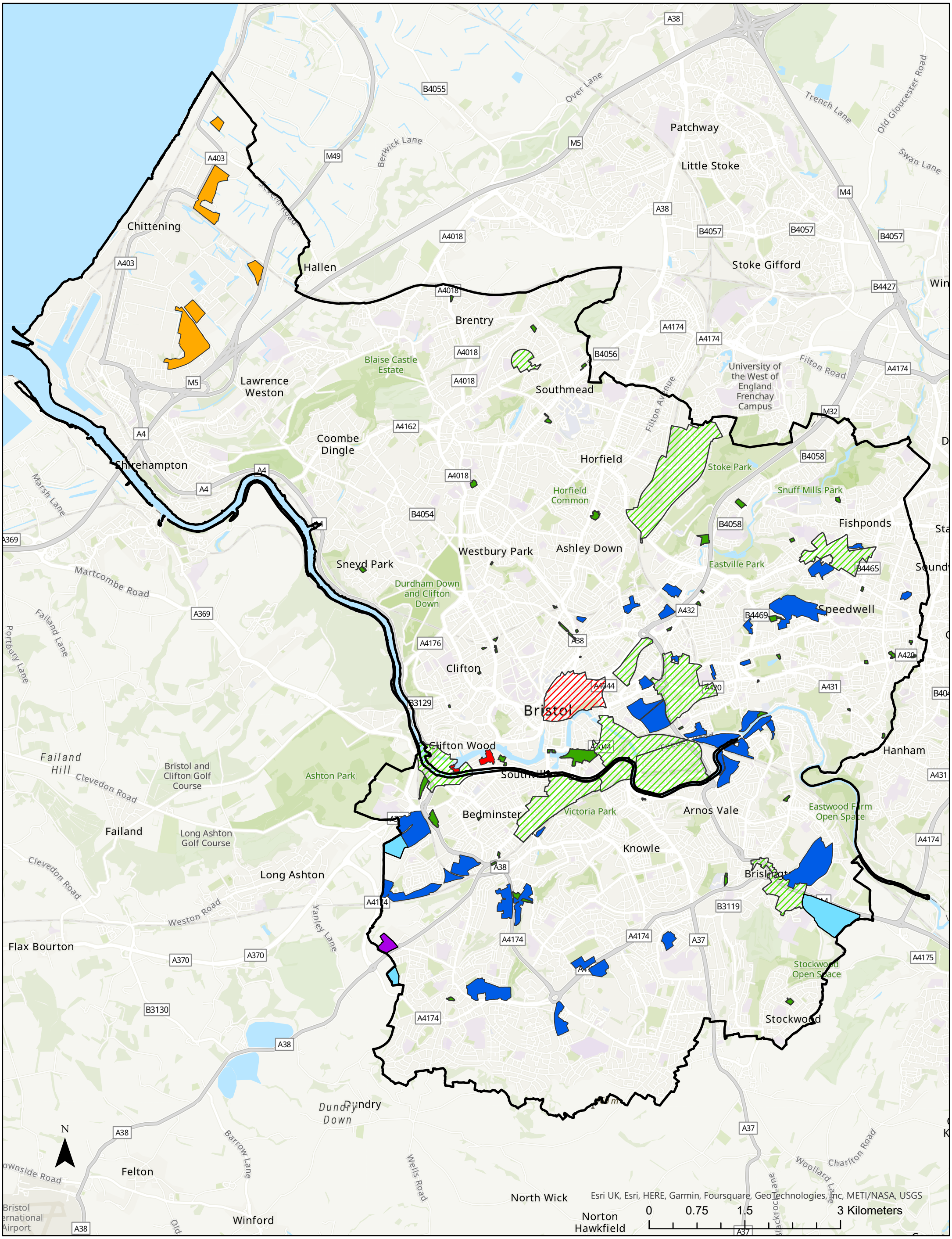

Legend

- City of Bristol LPA Boundary
- Maritime Industry Areas
- Avonmouth Site Allocations
- Industry and Distribution Areas
- Residential and Mixed-use
- Green Belt Sites
- RA Land at Yew Tree Farm
- Area of Growth and Regeneration
- City Centre DDP

Bristol City Council

Rev	Date	By	Chkd	Appd
1.0	16/10/23	JB	GT	NH

Project Title
Bristol City Council HRA

Drawing Title
Site Allocations

Scale at A3
1:52,000

Role
Appropriate Assessment

Suitability
Issue

Arup Job No
260251-00

Rev
1.0

Drawing Number

Avon Gorge Woodlands SAC 8km Buffer

Severn Estuary SAC/SPA/ Ramsar 200m Buffer

Severn Estuary SAC/SPA/Ramsar 8km Buffer

Severn Estuary SAC/ SPA/Ramsar 500m Buffer

Avon Gorge woodlands SAC 200m Buffer

Avon Gorge woodlands SAC 500m Buffer

North Somerset and Mendip Bats SAC 8km Buffer

North Somerset and Mendip Bats SAC 4km Buffer

Severn Estuary SPA 15km Buffer

Chew Valley Lake SPA 8km buffer

Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

0 1 2 4 Kilometers

Legend

- City of Bristol LPA Boundary
- Maritime Industry Areas
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- Area of Growth and Regeneration
- City Centre DDP
- Ramsar Sites
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- SPA Buffers
- SAC Buffers
- Ramsar Site Buffers
- North Somerset and Mendip Bats SAC Buffers

Bristol City Council

Rev	Date	By	Chkd	Appd
1.0	16/10/23	JB	GT	NH

Project Title
Bristol City Council LDP HRA

Drawing Title
Zones of Influence for Potential Impacts to Qualifying Features

Scale at A3
1:60,000

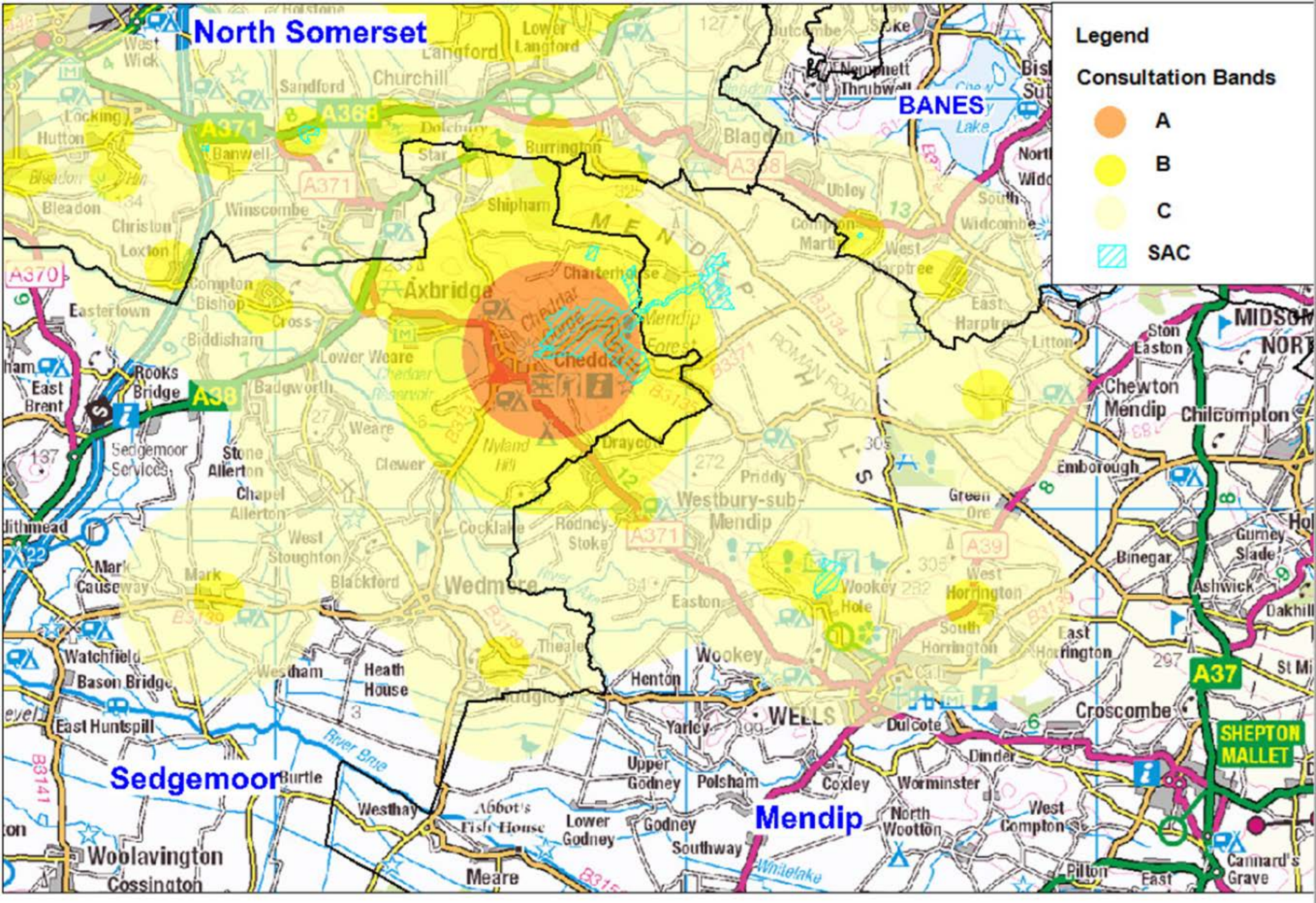
Role
Appropriate Assessment

Suitability
Issue

Arup Job No
260251-00

Rev
1.0

Drawing Number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Burrington
Blagdon
Churchill
Banwell
Winscombe
Charterhouse
Draycott
Priddy
Westbury-sub-Mendip
Rodney Stoke
Wookey Hole
Wookey
Chewton Mendip
Chilcompton
Shepton Mallet
Croscombe
Emborough
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Compton Martin
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Watchfield
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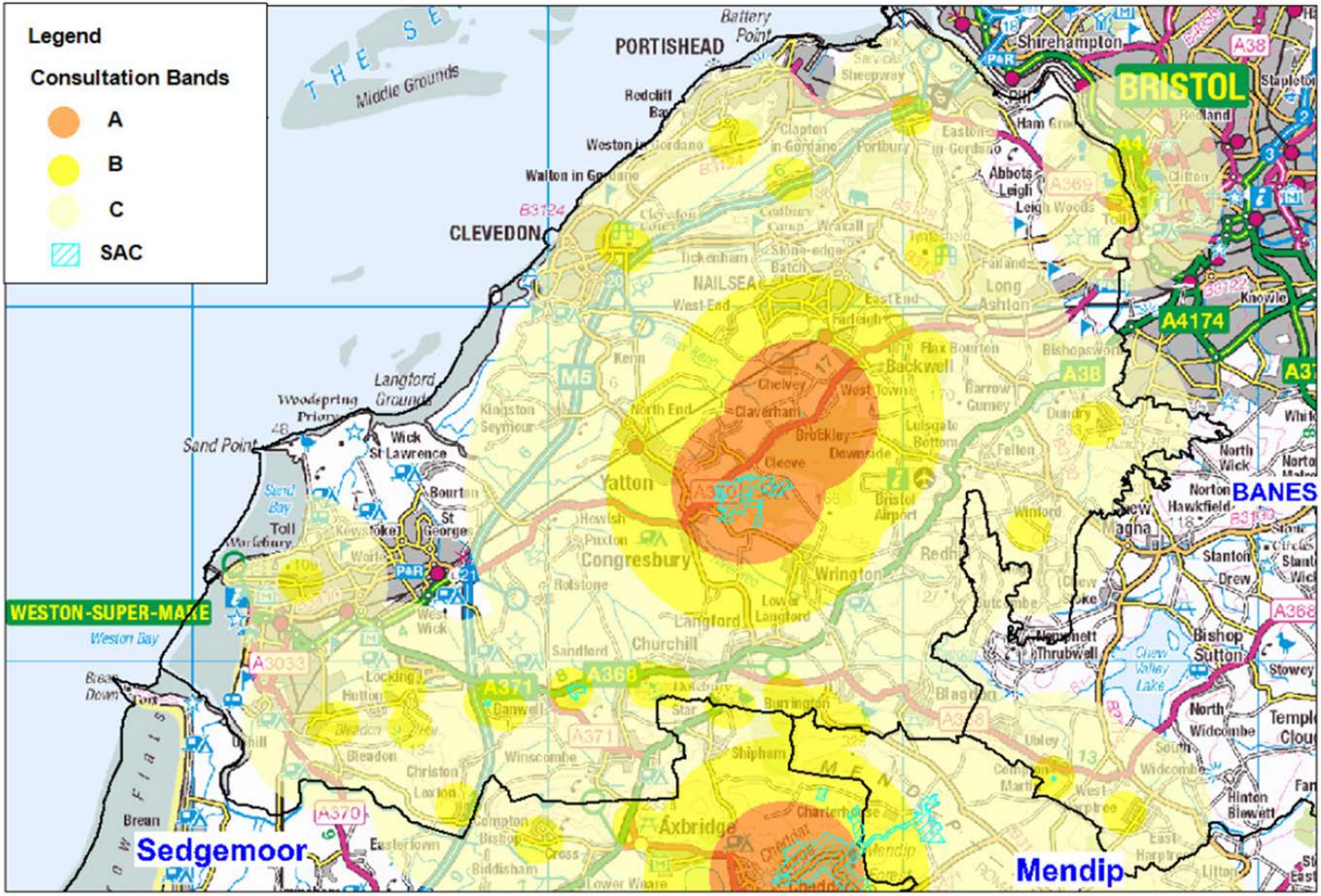
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Churchill
Axbridge
Bristol Airport
WESTON-SUPER-MARE
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Sand Point
Sedgemoor
Mendip
BANES
Chew Valley Lake
Long Ashton
Clevedon Court
Weston in Gordano
Walton in Gordano
Portbury
Redcliff Bay
Battery Point
Middle Grounds
Shirehampton
Abbots Leigh
Leigh Woods
Flax Bourton
Barrow Gurney
Dundry
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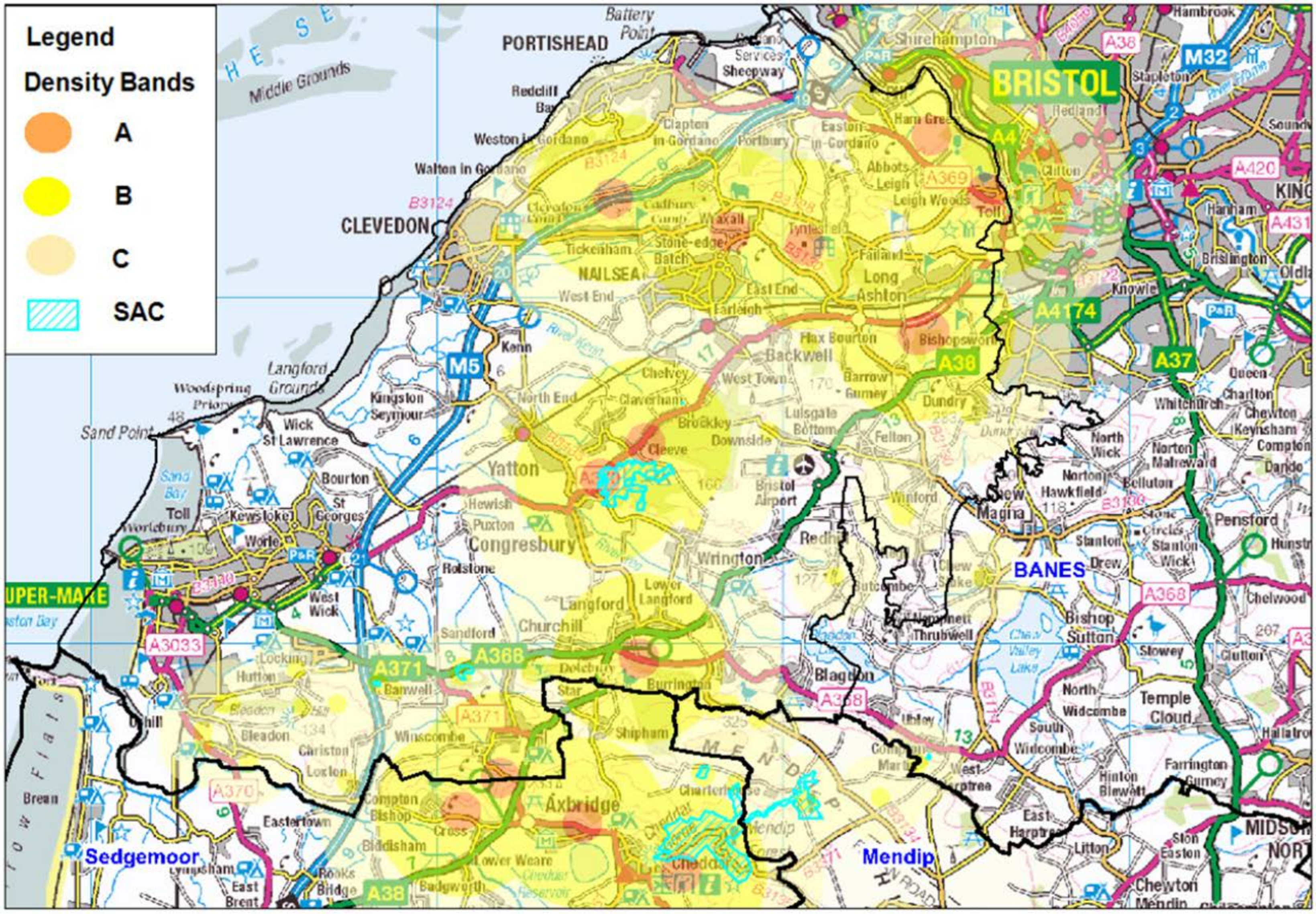
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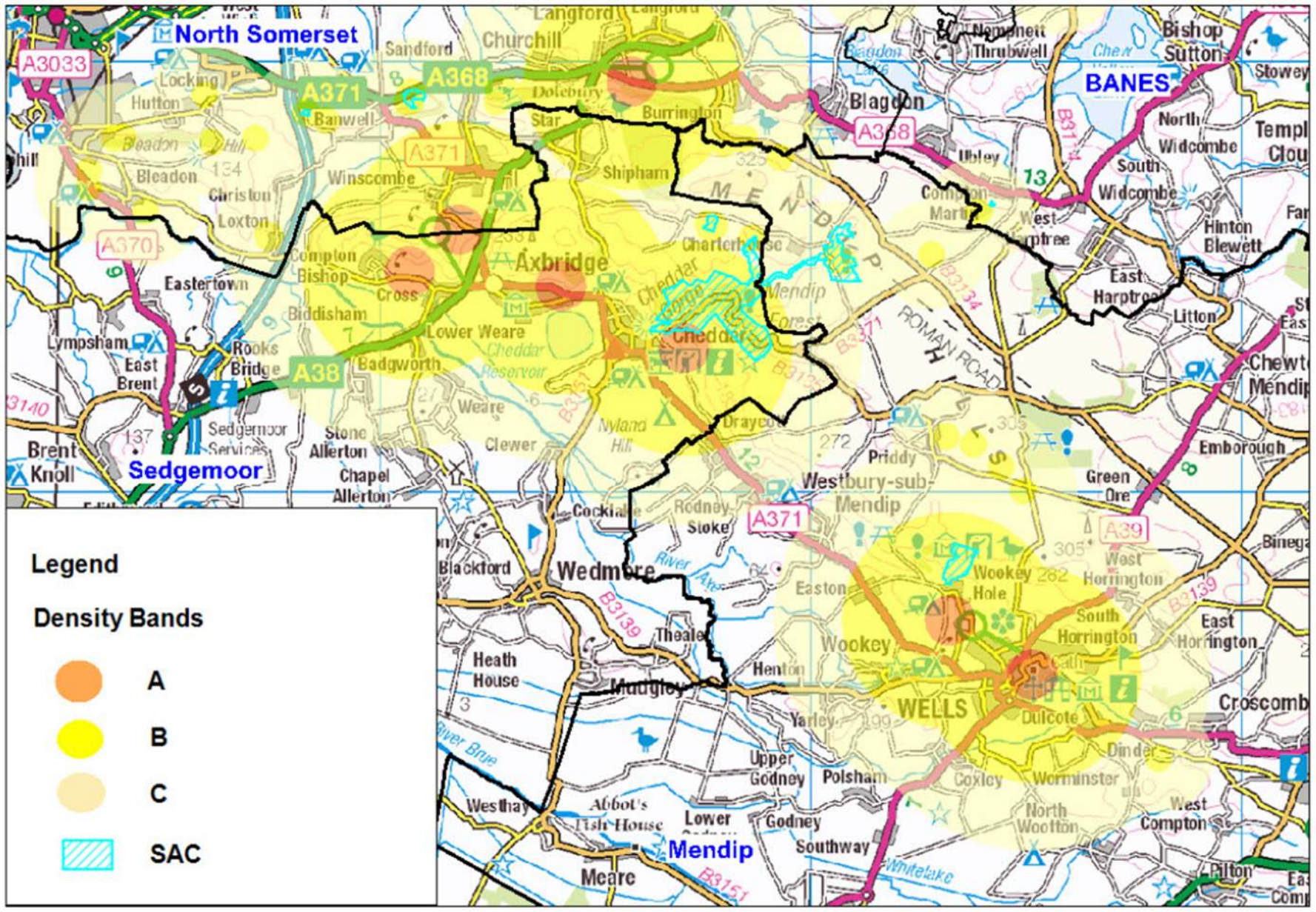
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