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# **Local Development Order**

## **Habitats Regulation Assessment – Stage I**

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## **1. Introduction**

This report presents the findings of a Stage 1 Habitats Regulations Assessment (HRA) undertaken by Mott MacDonald for Bristol City Council (BCC) in relation to the Bristol Heat Network project. This Screening (Stage 1) HRA seeks to identify whether the proposed development is likely to have any significant effects on protected Habitat Sites (which includes those designated for the presence of protected species) and whether an Appropriate Assessment (Stage 2) exercise needs to be carried out.

The Bristol Heat Network (BHN) is a new network of underground pipes that will deliver affordable, low-carbon heat and energy across the city. This Heat Network will eventually cover central Bristol and other areas across the city, and will be powered by low carbon energy centres. Heat networks replace the need for individual buildings to have their own heating systems and often use heat recovered from industry or from renewable sources, as well as producing fewer carbon emissions.

A Local Development Order (herein referred to as 'the Order') is being produced to encourage and facilitate the implementation of the BHN project, which aims to:

- deliver the infrastructure to enable the distribution of low carbon energy sources; and
- achieve reductions in the Council's CO<sub>2</sub> emissions and contribute to the city's aim of carbon neutrality by 2030.

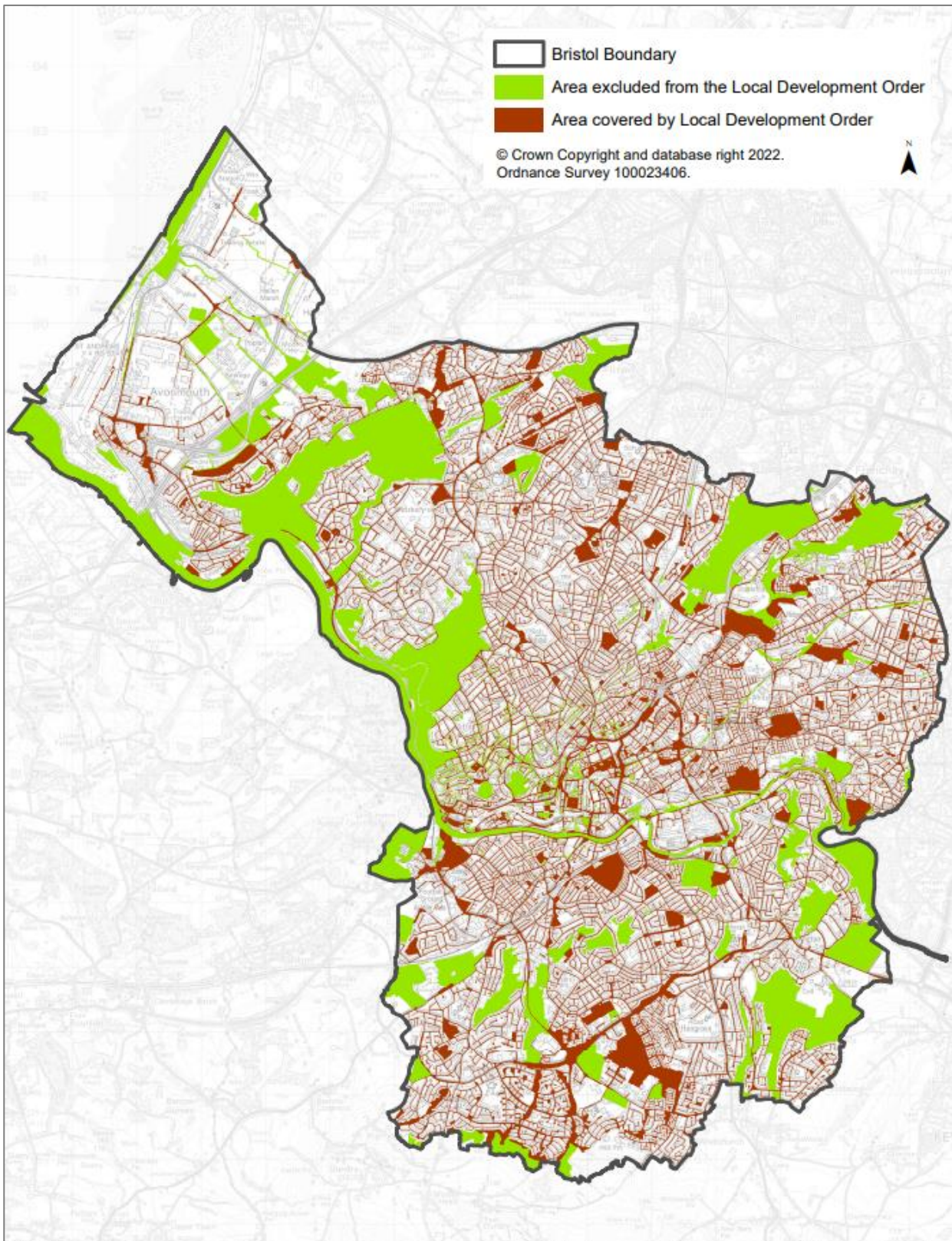
The purpose of the Order is to grant planning permission for the installation of underground pipes and cables and some minor above ground works to serve the BHN within defined areas across the City of Bristol as shown in the Order Map (see Figure 1-1 below). The Order will facilitate the installation of the BHN by providing a simplified approach to planning which reduces the regulatory processes and potential delays associated with the submission of separate planning applications for each section of the proposed network. The Order will thereby help to streamline the delivery of this project (which has been recognised as a key factor to the Council achieving emission reduction targets of net zero by 2030) whilst also regulating the installation of the infrastructure through a set of restrictions and conditions. These conditions will ensure that the development has no impact on the surrounding environment during the construction and operational phases of the BHN. The master Local Development Order (Bristol City Council, 2022) provides a full list of conditions and restrictions on the proposed development.

## **2. Description of development**

### **2.1 - Local Development Order**

The Order grants permitted development rights for the installation (whether temporary or otherwise), inspection, maintenance, alteration, replacement, repair and removal of a heating transmission, distribution and ancillary system. The infrastructure comprises of pipes, cables, wires, ducting, valve chambers and heat exchange equipment, including ancillary above ground infrastructure such as informational signage, cabinets, buildings, structures and enclosures reasonably necessary for the purpose of the development permitted. The order also allows for any engineering operations and reinstatement works reasonably necessary for the purpose of the development permitted within the defined areas of land in the City of Bristol as shown on the Order map (shown in Figure 1-1), subject to conditions.

Figure 1-1: Order Map



Source: Mott MacDonald 2022

## 2.2 - Size and design of the development

The proposed Order covers a large area of around 11,160 hectares within the administrative boundary of the City of Bristol. The areas where development is permitted (see Figure 1-1) is restricted to land within public and private highway, council-owned land and/or owned by other large institutions (e.g., hospitals and universities). The total length of public highway proposed to be incorporated within the Order calculates at 7595km.

Whilst ancillary above ground infrastructure is permitted, the development to be permitted by the Order is predominantly located underground and so, once covered, the visible infrastructure will be relatively minor in nature. Above ground infrastructure will consist of either pipework (to a limited above ground amount) or ancillary infrastructure necessary for the below ground infrastructure to be maintained. As directed by the restrictions on development within The Order, any above ground infrastructure will be limited to 1.4m in height above ground level or less than 2.5 cubic metres in external volume.

During the construction phase, the installation of above ground infrastructure as part of the proposed development, will also be subject to a series of criteria within the wording of the Order, which limits the scale and location of development that can take place. The majority of the works will occur under public highway and so any impacts from the development will be localised to this area. Construction works are also expected to be of a minor scale and subject to defined time constraints as outlined within the Construction Environment Management Plan (CEMP) conditioned within the Order.

During the operational phase, although the development permitted by the Order would result in some physical changes to the site (such as the introduction of limited above ground infrastructure), these changes would occur in a localised manner and would not be out of scale with the surrounding environment due to the existing built-up nature of the city. The Order also incorporates conditions to minimise the visual impact of above ground infrastructure within the defined area for the Order through seeking appropriate design and siting where above ground development is required. The proposed development will not result in an increase in visitor numbers or traffic as it only entails heating-related infrastructure (predominantly underground), and any roads where construction is due to take place will be returned to their original state upon the completion of the works.

It is envisaged that the proposed heating pipes to be used within the network would be 600mm diameter (or less). It is expected that two pipes (flow and return) would be laid adjacent to each other, within a maximum trench depth of around 4m and 3m in width. The construction works will be undertaken in a phased approach, with small sections completed prior to the commencement of the next section. The Order also restricts the installation of any above-ground pipework to a maximum of 5m in length.

## **3. Habitat Regulations Assessment process**

There is a requirement under the Conservation of Habitats and Species Regulations 2017 (as amended) (“the 2017 Regulations”) to determine if a plan or project may have an adverse impact on a site designated under the same (or preceding Regulations) prior to any consent or permission being determined. The process of undertaking this assessment is known as an HRA.

The 2017 Regulations include measures to establish and maintain a network of sites protecting habitats which in themselves are valuable as well as for the species they support. These sites form a network that across Europe is known as Natura 2000, and

within the UK is now known as the National Site Network (NSN). This network consists of Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), as well as proposed and candidate SPAs and SACs (pSPAs and cSACs). This network also extends to marine environments, with wetland sites of international importance (Ramsar sites) also treated equally within this assessment framework. These sites are collectively referred to in this document as ‘Habitat Sites’.

The HRA process for Local Development Orders consists of three stages, each stage being informed by the one preceding, to ensure an iterative and objective assessment. If the conclusion of Stage 1 Screening is that there will be no Likely Significant Effects (LSE) on any features of a Habitats Site, there is no requirement to undertake further stages. Similarly, if the Stage 2 Appropriate Assessment (AA) concludes there will be no adverse effect on integrity of the Habitat Site, then the assessment is concluded. The HRA stages are summarised within Table 3-1 below.

**Table 0-1: HRA Stages**

<b>Stage</b>	<b>Description</b>
<b>Screening (Stage One)</b>	<p>This is the process which identifies the potential effects upon the Habitats Sites and considers if these are likely to be significant (see definitions below). Screening is an iterative process and before moving to Stage Two it can be repeated if required.</p> <p>Proposals to mitigate any likely significant effects cannot be considered at the screening stage.</p> <p>If the Screening (Stage 1) identifies that the project or plan, alone or in combination, may have likely significant effects on a Habitats Site and/or its features of interest, or if there is uncertainty, the competent authority must undertake an Appropriate Assessment (Stage 2) of the implications for that Site in view of that Site’s conservation objectives.</p>
<b>Appropriate Assessment (Stage Two)</b>	<p>This stage involves the consideration of the predicted adverse effects of the project or plan either alone, or in combination with other projects or plans, on the integrity of the Habitats Site with respect to the Site’s structure, function and conservation objectives.</p> <p>Additionally, where mitigation has been proposed to avoid or minimise likely significant effects, this stage includes assessment of the likely effectiveness of any mitigation applied.</p> <p>A key outcome of the Appropriate Assessment is to identify whether the integrity of the Habitats Site(s) is likely to be adversely affected by the plan/project.</p>
<b>Assessment of Alternative Solutions (Stage Three)</b>	<p>If the mitigation measures applied and assessed during Appropriate Assessment cannot avoid adverse effects on the integrity of a Habitats Site, this stage examines alternative ways of achieving the objectives of the project or plan that avoid adverse effects on the integrity of the Habitats Site.</p>

Source: Mott MacDonald, 2022

The 2017 Regulations dictate that where it is determined that the development proposed to be permitted under a Local Development Order (a) is likely to have a significant effect on any Habitat Site (either alone or in combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site; an AA must be made to consider the implications of the development on the site’s conservation objectives.

### 3.1 Screening assessment methodology

The initial list of Habitat Sites for the HRA screening was derived by adopting a distance-based threshold of 10km, whilst including more distant sites subject to connected pathways (such as sites that are hydrologically connected to the proposed development). This is based on the premise that most significant effects on qualifying features of Habitat Sites will occur within a maximum of a 10km radius. This distance of 10km is defined as the Zone of Influence (ZoI) for the proposed development, which has been extended where appropriate to capture all potential significant effects on Habitats Sites.

In undertaking this HRA, a number of steps were followed to identify the relevant information to inform the assessment. Information gathered to inform the screening included the identification of:

- Any SPA/SAC/pSPA/cSAC/Ramsar sites, including any marine or marine elements of these sites within the potential Zol, and any known areas of land outside the site boundary itself, which plays an important role in supporting the site and its features of interest (functionally linked land);
- Potential effects resulting from the development;
- The Zol of these effects, noting this may extend some distance from the proposed works and are not confined to activities on or adjacent to the development area;
- Any viable pathways from the proposed works to the receptor (Habitats Sites themselves or functionally linked pathways);
- The features of interest of the Habitats Site(s) in question; and
- The conservation objectives of the Habitats Site, including any site sensitivities given within any supplementary advice, site improvement plan, or equivalent document.

The above information was reviewed in respect of each feature of interest and potential development effect/impact pathway to inform an assessment of any LSE. Key aspects and terms used in this assessment are defined below:

**Likelihood:** Where an effect was considered to be potentially significant, then the assessment of its occurrence was based on the likelihood of it occurring and not certainty that it would occur. Potential effects are scoped in unless there was evidence to the contrary demonstrating that they would not occur e.g. there being no valid pathway, or the absence of the species in that area, at that time.

**Significance:** The significance of any effect is considered objectively, against the scale and nature of the impact in relation to those of that particular feature or condition and in relation to the extent of that feature or condition over the entire Habitats Site. A significant effect within this assessment is one which, if it occurred, would lead to a decline in the quality or status of the habitats or distribution, abundance, etc. of feature(s) of interest.

In line with relevant case law, (notably that provided by the Waddenzee case (ECJ 2002) and Sweetman (ECJ 2011)) this assessment is undertaken in the absence of mitigation (including 'best practice' measures embedded into the proposed development where these are intended for the avoidance of effects).

### 3.2 Potential effects considered in this HRA

Following UK Water Industry Research (2021) guidance and the available information on the proposed BHN development, the potential effects considered in this assessment are summarised in Table 0-2. Proposed distances are also provided following the same guidance to determine if, where a pathway has been identified, the impact is likely to affect the habitats or species for which the Habitats Site(s) are designated.

**Table 0-2: Potential effects and proposed Zone of Influence**

Broad categories of potential effects on Habitats Sites (with examples)	Examples of operations resulting in effects and proposed Zol
<p><b>Physical loss</b> Destruction (including offsite effects) e.g. foraging, commuting or sheltering habitats.</p>	<p>Development of built infrastructure associated with the scheme. Physical loss is only likely to be significant where the boundary of the works extends within the boundary of the Habitats Site, or within an offsite area of known foraging, roosting, breeding habitat (that supports species for which a Habitats Site is designated or where natural processes link the works to the site, such as through hydrological connectivity downstream, or the scheme effects the linking habitat).</p>
<p><b>Physical damage</b> Habitat degradation Erosion Trampling Fragmentation Severance/barrier effects Edge effects</p>	<p>Development of built infrastructure associated with the schemes. Physical damage is only likely to be significant where the boundary of the works extends within the boundary of the Habitats Site, or within an offsite area of known foraging, roosting, breeding habitat (that supports species for which a Habitats Site is designated or where natural processes link the works to the site, such as through hydrological connectivity downstream, or the scheme effects the linking habitat).</p>
<p><b>Non-physical disturbance</b> Noise Visual presence Light pollution</p>	<p><b>Noise from construction activities.</b> Taking into consideration the noise level generated from general building activity (c. 122dB(A)) and considering the lowest noise level identified in guidance as likely to cause disturbance to waterbird species (although this guidance is designed primarily for estuarine birds it was considered appropriate to use for this plan), it is concluded that noise effects could be significant up to <b>1km</b> from the boundary of the Habitats Site. <b>Noise from vehicular traffic during construction of the scheme</b> Noise from construction traffic is only likely to be significant where the transport route to and from the scheme is within <b>500m</b> of the boundary of the Habitats Site(s). <b>Plant and personnel involved in operation of the works</b> These effects (noise, visual/human presence) are only likely to be significant where the boundary of the scheme extends within or is adjacent to an offsite area of known foraging, roosting, breeding habitat that support species for which a Habitats Site is designated. <b>Works that might include artificial lighting,</b> Effects from light pollution are more likely to be significant where the boundary of the scheme is within <b>500m</b> of the boundary of the Habitats Site</p>
<p><b>Water table/ availability</b> Drying Flooding/storm water Changes to surface water levels and flows Changes to groundwater level and flows</p>	<p>These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the Habitats Site. However, these effects are dependent on hydrological continuity between the scheme and the Habitats Site and whether the scheme is up or downstream from the Habitats Site.</p>
<p><b>Toxic contamination</b> Water pollution Soil contamination Air pollution</p>	<p>These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the Habitats Site. However, these effects are dependent on hydrological continuity between the scheme and the Habitats Site, and sometimes whether the scheme is up or downstream from that site. Air emissions associated with plant and vehicular traffic during construction and operation of the scheme. The effect of dust is only likely to be significant where the site is within or in close proximity to the boundary of a Habitats Site. Without mitigation, dust can be deposited onto the public road network and then spread by vehicles on roads up to 500m from large sites, 200m from medium sites, and 50m from small sites as measured from the site exit. Effects of road traffic emissions from the transport route to be taken by the scheme traffic are only likely to be significant where the Habitats Site falls within 200 metres of the edge of a road affected.</p>
<p><b>Non-toxic contamination</b> Nutrient enrichment (e.g. of soils and water) Algal blooms Changes in turbidity Changes in sedimentation/silting Air pollution (dust)</p>	<p>These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the Habitats Site. However, these effects are dependent on hydrological continuity between the scheme and the Habitats Site, and sometimes whether the scheme is up or downstream from that site. Emissions of dust during the earthworks, construction of plant and tunnel/pipeline</p>

Broad categories of potential effects on Habitats Sites (with examples)	Examples of operations resulting in effects and proposed Zol
<b>Biological Disturbances</b> Direct mortality Changes to habitat availability Changes in species abundance or distribution Out-competition by non-native species Introduction of disease Introduction of invasive species	<p><b>Killing or injury due to construction activity.</b>            Likely to be a risk where the boundary of the scheme extends within or is directly adjacent to the boundary of the Habitats Site, or within/adjacent to an offsite area of known foraging, roosting, breeding habitat (that supports species for which a Habitats Site is designated).</p> <p><b>Changes in habitat availability, such as reductions in wetted width of rivers from abstraction or reduced compensation flow.</b>            These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the Habitats Site. However, these effects are dependent on hydrological continuity between the scheme and the Habitats Site, and sometimes whether the scheme is up or downstream from that site.</p> <p><b>Creation of new pathway for spread of non-native invasive species.</b>            This effect is only likely to be significant where the scheme is situated within the Habitats Site or an upstream tributary of the Habitats Site</p>

Source: Adapted from: UK Water Industry Research (UKWIR, 2021). *Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans (21/WR/02/15)*.

#### 4. Screening Assessment

The Stage 1 Screening identified two Habitat Sites within the Zol of the BHN. These are the Severn Estuary Ramsar, SPA and SAC, and the Avon Gorge Woodlands SAC. An additional three sites have also been flagged in this assessment due to bat species being the main qualifying feature and reason for designation. These are the Bath and Bradford-on-Avon Bats SAC, North Somerset and Mendip Bats SAC, and Mells Valley SAC. Whilst these sites fall outside of the 10km distance threshold, they have been included within the Zol to reflect the highly mobile nature of the bat species present. Information on the Habitat Sites are included in Table 4-1 below.

##### 4.1 Severn Estuary Ramsar, SAC and SPA

As dictated by The Order, no development will be permitted within 500m of the Severn Estuary Ramsar, SAC and SPA. This distance will prevent any visual and noise disturbances caused by the proposed works on wintering bird populations within the Severn Estuary Habitats Sites. While these Habitats Sites are hydrologically linked to much of the City of Bristol via the River Avon, the development permitted under The Order is not expected to take place within or in close proximity to this river corridor as it is unsuitable for the installation the BHN works. Moreover, The Order restricts development on any site designated as a Site of Special Scientific Interest (SSSI), Site of Nature Conservation Interest and Local Nature Reserve (many of which are found within the River Avon basin and its surroundings). Where the BHN is within proximity to such designations, The Order specifically excludes any above ground infrastructure, and specifies that the works will require the Local Planning Authority's (LPA) prior written approval of appropriate surveys, scheme of mitigation and habitat reinstatement. As such, any effects during construction or operation on these Habitat Sites are deemed unlikely, and it is considered that the proposed BHN will not compromise the ability of the Habitat Sites to meet their conservation objectives.

##### 4.2 Avon Gorge Woodlands SAC

While the Avon Gorge Woodlands SAC is hydrologically linked to much of the City of Bristol via the River Avon, the development permitted under the Order is not expected to take place within or in close proximity to this river corridor as it is unsuitable for the installation the BHN works. Moreover, The Order restricts development on any site



designated as a Site of Special Scientific Interest (SSSI), Site of Nature Conservation Interest and Local Nature Reserve (many of which are found within the River Avon basin and its surroundings). Where the BHN is within proximity to such designations, The Order specifically excludes any above ground infrastructure, and specifies that the works will require the LPA's prior written approval of appropriate surveys, scheme of mitigation and habitat reinstatement. As such, any effects during construction or operation on this Habitat Site are deemed unlikely, and it is considered that the proposed BHN will not compromise the ability of the Habitat Site to meet its conservation objectives.

#### 4.3 Bath and Bradford-on-Avon Bats SAC

This site is sufficiently distant from the proposed works and not hydrologically connected to the BHN footprint. As such, any direct effects during construction or operation on this Habitat Site are deemed unlikely.

While the bat species listed as the main qualifying features for this site (see table 4-1 below) are highly mobile and could potentially come into contact with the proposed development, the BHN footprint located within the urban landscape of central Bristol offers sub-optimal habitats for these bat species to commute, forage or roost. According to Best Practice Guidelines (J. Collins, 2016), these bat species are predominantly associated with (ancient) broadleaved woodlands and cattle-grazed pastures, and favour the presence of commuting routes in the form of hedges, woodland edges and riparian trees. Since none of these habitats are present within the area covered by the Order Map, the presence of greater horseshoe (*Rhinolophus ferrumequinum*), lesser horseshoe (*Rhinolophus hipposideros*) and Bechstein's bats (*Myotis bechsteinii*) from this Habitat Site within the BHN footprint is therefore unlikely.

Moreover, the proposed works are unlikely to cause disturbances to roosting, foraging or commuting bats, as construction activities will predominantly be limited to road surfaces within an urban setting. These roads are likely to be extensively lit at night, thus further discouraging bats from utilising the areas covered under the Order Map. As such, it is considered that the proposed BHN will not compromise the ability of the Habitat Site to meet its conservation objectives.

#### 4.4 Somerset and Mendip Bats SAC

This site is sufficiently distant from the proposed works and not hydrologically connected to the BHN footprint. As such, any direct effects during construction or operation on this Habitat Site are deemed unlikely.

While the bat species listed as the main qualifying features for this site (see table 4-1 below) are highly mobile and could potentially come into contact with the proposed development, the BHN footprint located within the urban landscape of central Bristol offers sub-optimal habitat for these bat species to commute, forage or roost. According to Best Practice Guidelines (J. Collins, 2016), these bat species are predominantly associated with broadleaved woodlands and cattle-grazed pastures, and favour the presence of commuting routes in the form of hedges, woodland edges and riparian trees. Since none of these habitats are present within the area covered by the Order Map, the presence of greater horseshoe and lesser horseshoe bats from this Habitat Site within the BHN footprint is therefore unlikely.

Moreover, the proposed works are unlikely to cause disturbances to roosting, foraging or commuting bats, as construction activities will predominantly be limited to road surfaces

within an urban setting. These roads are likely to be extensively lit at night, thus further discouraging bats from utilising the areas covered under the Order Map. As such, it is considered that the proposed BHN will not compromise the ability of the Habitat Site to meet its conservation objectives.

#### 4.5 Mells Valley SAC

This site is sufficiently distant from the proposed works and not hydrologically connected to the BHN footprint. As such, any direct effects during construction or operation on this Habitat Site are deemed unlikely.

While the bat species listed as the main qualifying features for this site (see table 4-1 below) are highly mobile and could potentially come into contact with the proposed development, the BHN footprint located within the urban landscape of central Bristol offers sub-optimal habitat for these bat species to commute, forage or roost. According to Best Practice Guidelines (J. Collins, 2016), these bat species are predominantly associated with broadleaved woodlands and cattle-grazed pastures, and favour the presence of commuting routes in the form of hedges, woodland edges and riparian trees. Since none of these habitats are present within the area covered by the Order Map, the presence of greater horseshoe bats from this Habitat Site within the BHN footprint is therefore unlikely.

Moreover, the proposed works are unlikely to cause disturbances to roosting, foraging or commuting bats, as construction activities will predominantly be limited to road surfaces within an urban setting. These roads are likely to be extensively lit at night, thus further discouraging bats from utilising the areas covered under the Order Map. As such, it is considered that the proposed BHN will not compromise the ability of the Habitat Site to meet its conservation objectives.

**Table 4-3: Habitat Sites within the Zol**

Habitat Site	Qualifying Features	Description
<b>Severn Estuary Ramsar, SAC and SPA</b>	<p>The Severn Estuary SAC hosts the following habitats: estuaries, mudflats and sandflats not covered by seawater at low tide, Atlantic salt meadows (<i>Glauco Puccinellietalia maritima</i>), sandbanks which are slightly covered by sea water all the time, and reefs. The site also supports sea lamprey (<i>Petromyzon marinus</i>), river lamprey (<i>Lampetra fluviatilis</i>) and twaite shad (<i>Alosa fallax</i>).</p> <p>The Severn Estuary SPA supports overwintering Bewick's swan (<i>Cygnus columbianus bewickii</i>); on passage ringed plover (<i>Charadrius hiaticula</i>) and overwintering curlew (<i>Numenius arquata</i>), dunlin (<i>Calidris alpina alpina</i>), pintail (<i>Anas acuta</i>), redshank (<i>Tringa tetanus</i>), and shelduck (<i>Tadorna tadorna</i>). It also regularly supports at least 20,000 waterfowl.</p> <p>The qualifying features of the Severn Estuary Ramsar overlap with those of the SAC and SPA.</p> <p><b>Conservation Objectives</b></p> <p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> <li>• The extent and distribution of qualifying natural habitats and habitats of qualifying species;</li> <li>• The structure and function (including typical species) of qualifying natural habitats;</li> <li>• The structure and function of the habitats of qualifying species;</li> <li>• The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;</li> <li>• The populations of qualifying species; and</li> <li>• The distribution of qualifying species within the site.</li> </ul>	<p>The immense tidal range (the second highest in the world) and classic funnel shape make the Severn Estuary unique in Britain and very rare worldwide. The intertidal zone of mudflats, sand banks, rocky platforms and saltmarsh is one of the largest and most important in Britain. The estuarine fauna includes internationally important populations of waterfowl; invertebrate populations of considerable interest; and large populations of migratory fish, including numbers of Atlantic salmon (<i>Salmo salar</i>) and common eel (<i>Anguilla Anguilla</i>). Other species include the endangered allis shad (<i>Alosa alosa</i>), the nationally rare twaite shad, sea trout (<i>Salmo trutta</i>), sea lamprey and river lamprey.</p>
<b>Avon Gorge Woodlands SAC</b>	<p><b>Annex I habitats (primary reason for site designation)</b></p> <ul style="list-style-type: none"> <li>• Tilio-Acerion forests of slopes, screes and ravines</li> </ul> <p><b>Annex I habitats present as a qualifying feature, but not primary reason for designation:</b></p> <ul style="list-style-type: none"> <li>• Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (important orchid sites).</li> </ul>	<p>Avon Gorge is representative of Tilio-Acerion forests in south-west England on the limestone cliffs and screes of a large river gorge. It is important because of the high concentration of small-leaved lime (<i>Tilia cordata</i>) compared with other sites in the region, the presence of rare whitebeams (<i>Sorbus</i> spp.), including two unique to the Avon Gorge (<i>S. bristoliensis</i> and <i>S. wilmottiana</i>), and other uncommon plants, such as green hellebore (<i>Helleborus viridis</i>). Other characteristic species include soft shield-fern (<i>Polystichum setiferum</i>) and hart's-tongue (<i>Phyllitis scolopendrium</i>). Species-rich transitions to scrub and grasslands are associated with the woodland. Small groves of yew (<i>Taxus baccata</i>) also occur on some of the stonier situations.</p>
<b>Bath and Bradford-on-Avon Bats SAC</b>	<p><b>Annex II species (primary reason for designation)</b></p> <ul style="list-style-type: none"> <li>• Greater horseshoe bat (<i>Rhinolophus ferrumequinum</i>): This site includes the hibernation sites associated with 15% of the UK greater horseshoe bat population and is selected on the basis of the importance of this exceptionally large overwintering population; and</li> <li>• Bechstein's bat (<i>Myotis bechsteinii</i>): Small numbers of Bechstein's bats have been recorded hibernating in abandoned mines in this area, though maternity sites remain unknown.</li> </ul>	<p>This site comprises extensive networks of caves, mines and man-made tunnels which are used by bats for hibernation, mating and as a staging post prior to dispersal. It also includes areas of calcareous grassland, scrub and woodland which are used as feeding and commuting habitat by the bats.</p>

Habitat Site	Qualifying Features	Description
	<p><b>Annex II species present as a qualifying feature, but not a primary reason for designation</b></p> <ul style="list-style-type: none"> <li>Lesser horseshoe bat (<i>Rhinolophus hipposideros</i>).</li> </ul>	
	<p><b>Conservation Objectives</b></p> <p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> <li>The extent and distribution of the habitats of qualifying species;</li> <li>The structure and function of the habitats of qualifying species;</li> <li>The supporting processes on which the habitats of qualifying species rely;</li> <li>The populations of qualifying species; and</li> <li>The distribution of qualifying species within the site.</li> </ul>	
<p><b>Somerset and Mendip Bats SAC</b></p>	<p><b>Annex I habitats (primary reason for site designation)</b></p> <ul style="list-style-type: none"> <li>Semi-natural dry grasslands and scrubland facies on calcareous substrates (important orchid sites)</li> <li>Tilio-Acerion forests of slopes, screes and ravines</li> </ul> <p><b>Annex I habitats present as a qualifying feature, but not primary reason for designation:</b></p> <ul style="list-style-type: none"> <li>Caves not open to the public.</li> </ul> <p><b>Annex II species (primary reason for designation)</b></p> <ul style="list-style-type: none"> <li>Lesser horseshoe bat: The limestone caves of the Mendips provide a range of important hibernation sites for lesser horseshoe bat and 1304 greater horseshoe bat; and</li> <li>Greater horseshoe bat: This site is selected on the basis of the size of population represented (3% of the UK greater horseshoe bat population) and its good conservation of structure and function, having both maternity and hibernation sites. This site contains an exceptionally good range of the sites used by the population, comprising two maternity sites in lowland north Somerset and a variety of cave and mine hibernation sites in the Mendip Hills.</li> </ul>	<p>The Cheddar complex and Wookey Hole areas support a wide range of habitats which provide feeding grounds for bats. These include semi-natural dry grasslands of which the principal community present is sheep's-fescue – meadow oatgrass (<i>Festuca ovina</i> – <i>Helictotrichon pratense</i>) grassland which occurs on rock ledges and on steep slopes with shallow limestone soil, especially in the dry valleys and gorges and on the south-facing scarp of the Mendips. King's Wood and Urchin Wood have developed over limestone which outcrops in parts of the site and forms a steep scarp to the south-east. There is mostly oak (<i>Quercus robur</i>) and ash (<i>Fraxinus excelsior</i>) woodland, though some areas are dominated by small-leaved lime (<i>Tilia cordata</i>) with both maiden and coppice trees. The limestone caves and mines of the Mendips and the north Somerset hills provide a range of important breeding and hibernation sites for lesser horseshoe bat and greater horseshoe bat.</p>
	<p><b>Conservation Objectives</b></p> <p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> <li>The extent and distribution of qualifying natural habitats and habitats of qualifying species;</li> <li>The structure and function (including typical species) of qualifying natural habitats;</li> <li>The structure and function of the habitats of qualifying species;</li> <li>The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;</li> <li>The populations of qualifying species; and</li> <li>The distribution of qualifying species within the site.</li> </ul>	
<p><b>Mells Valley SAC</b></p>	<p><b>Annex I habitats present as a qualifying feature, but not primary reason for designation:</b></p> <ul style="list-style-type: none"> <li>Semi-natural dry grasslands and scrubland facies on calcareous substrates (important orchid sites); and</li> <li>Caves not open to the public.</li> </ul> <p><b>Annex II species (primary reason for designation)</b></p> <ul style="list-style-type: none"> <li>Greater horseshoe bat: Mells Valley is selected for the size of its exceptional breeding population. It contains the maternity site associated with a population comprising about 12% of the UK greater horseshoe bat population. A proportion of the population also</li> </ul>	<p>Mells Valley contains the maternity site associated with an exceptional breeding population of greater horseshoe bats. A proportion of the population also hibernates at the site. The bats use a network of caves, quarries and old buildings.</p> <p>An area of species-rich unimproved calcareous grassland occurs in the field to the east of Stoke Lane Quarry (in St Dunstan's Well Catchment SSSI). Sheep's-fescue (<i>Festuca ovina</i>), meadow oatgrass, crested dog's-tail (<i>Cynosurus cristatus</i>) and common bent (<i>Agrostis capillaris</i>) are the most common grasses, and glaucous sedge (<i>Carex flacca</i>) and spring sedge (<i>C. caryophylla</i>) are abundant. Herbs of interest include Lady's mantle (<i>Alchemilla filicaulis</i>), devil's-bit scabious (<i>Succisa pratensis</i>), and salad burnet (<i>Sanguisorba minor</i>) Early purple orchid (<i>Orchis mascula</i>)</p>

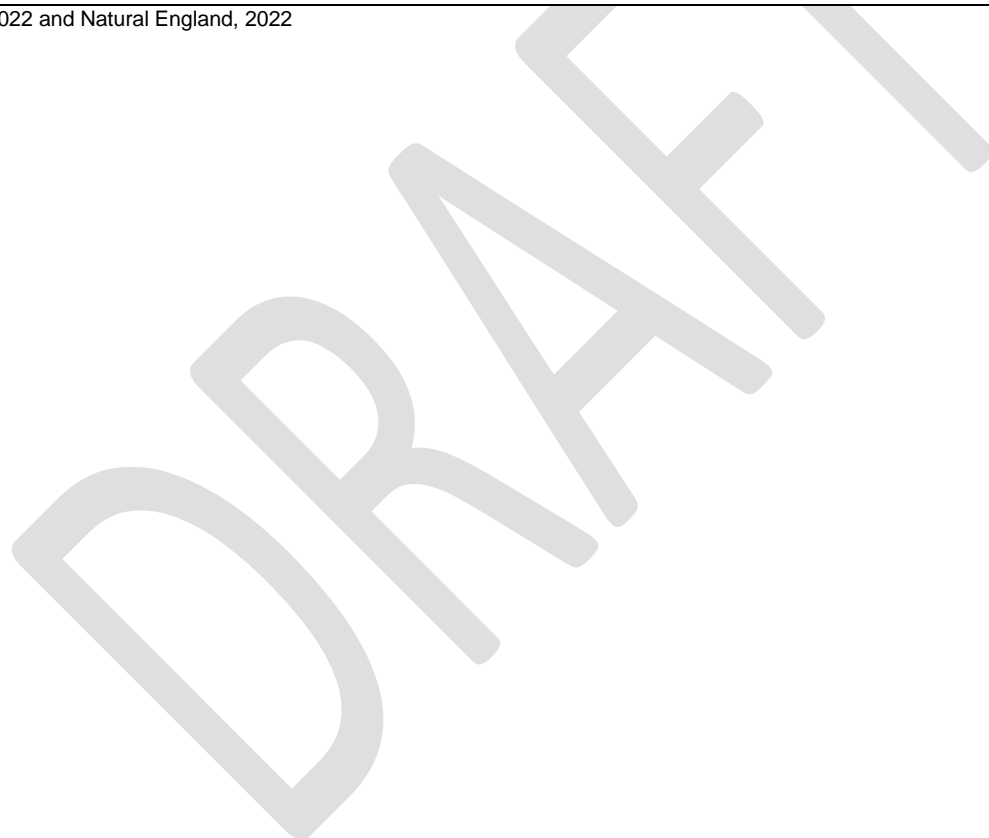
Habitat Site	Qualifying Features	Description
	hibernates at the site, though other hibernation sites remain unknown.	and common spotted orchid ( <i>Dactylorhiza fuchsia</i> ) are widespread.

**Conservation Objectives**

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

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

Source: Joint Nature Conservation Committee, 2022 and Natural England, 2022



## 5. Conclusion

This HRA finds that the proposed BHN development allowed under the Local Development Order was screened out at Stage 1 due to the likely absence of LSE (from either construction or operation) on any of the Habitat Sites identified within the ZOI. It is therefore concluded that undertaking any further stages of the HRA process will not be required for the proposed development.

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