
Bristol Heat Network (BHN)

Environmental Impact Assessment Screening Report

13 December 2022

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1 Introduction

1.1 Purpose

The Local Development Order (LDO) (the Order) for a Bristol Heat Network (BHN) in the City of Bristol has been screened in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) and the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations).

In accordance with Regulation 8(1) of the EIA Regulations, the Local Planning Authority considers the development is Schedule 2 development, necessitating an Environmental Impact Assessment (EIA) Screening Opinion be sought in respect of the Order.

This EIA Screening Report for the Bristol Heat Network Project (the development) has therefore been prepared by Mott MacDonald Ltd on behalf of Bristol City Council (the Client).

In accordance with Regulation 6(2) of the EIA Regulations, this report provides:

- A plan to identify the land;
- A description of the physical characteristics of the development;
- A description of the location of the development, with particular regard to the environmental sensitivity of geographical areas likely to be affected; and,
- A description of the aspects of the environment likely to be significantly affected by the development.

1.2 The Development

In pursuance of the powers of the Town and Country Planning Act 1990 (as amended), Bristol City Council give notice for the carrying out of the development of Bristol Heat Network (BHN) in the City of Bristol.

The Local Development Order (the Order) grants planning permission for the installation (whether temporary or otherwise), inspection, maintenance, alteration, repair and removal of a heating transmission and distribution system and ancillary infrastructure comprising pipes, cables, wires, ducting, heat exchange equipment, informational signage, and any necessary above ground infrastructure to facilitate or enable the development as permitted and ancillary engineering works and reinstatement within defined areas of land in the City of Bristol. The development boundary within the scope of the Order is shown Figure 1.1 and Figure 1.2 below.

The Order will facilitate the development 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. In addition, the Order will ensure the delivery of this project (which has been recognised as a key factor in 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.

Restrictions on the development by the Order are summarised as follows:

Development is not permitted by this Order where:

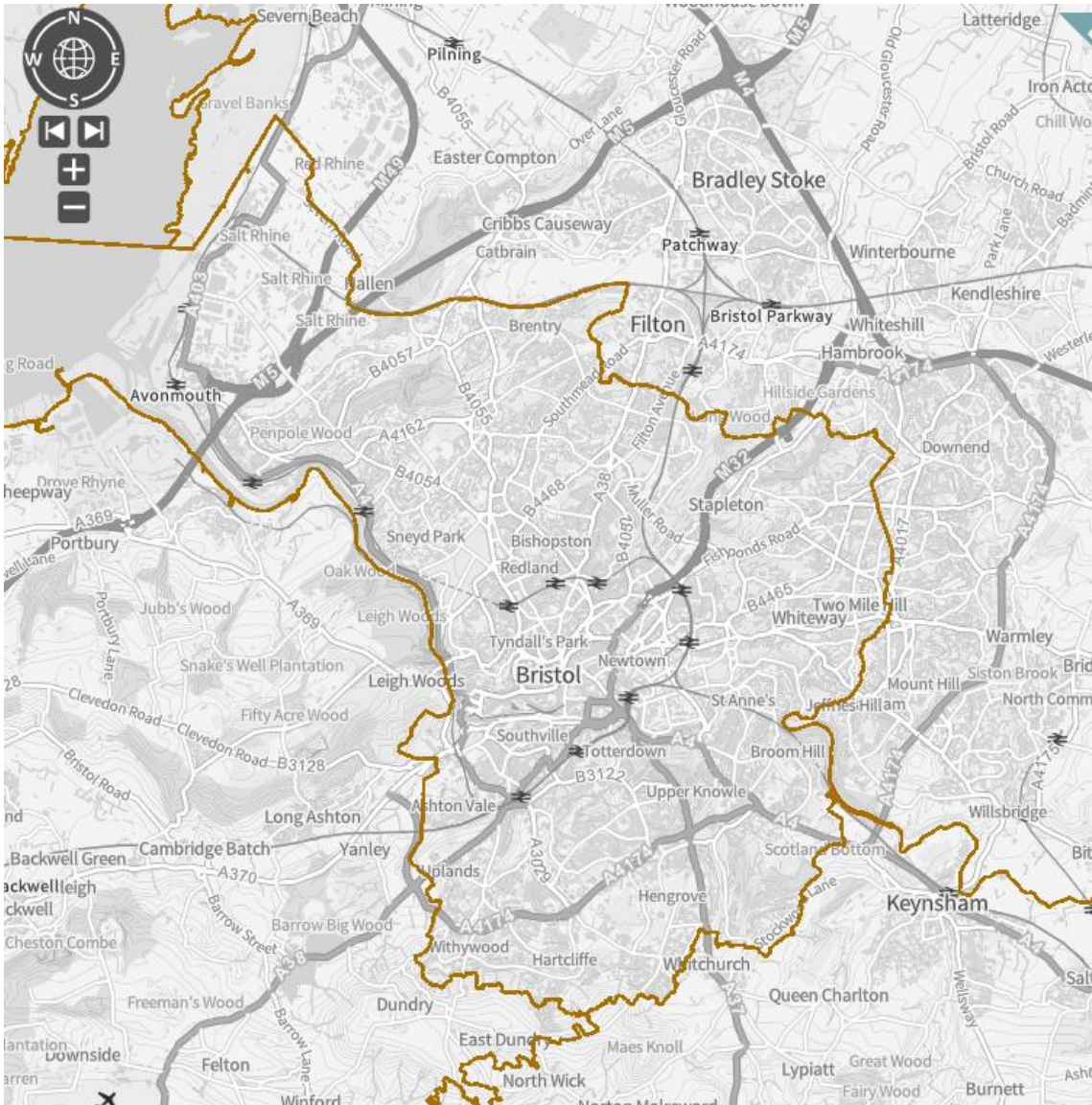
- a) any above ground cabinets, buildings, structures, or enclosures would be greater than 1.4m in height above ground level or greater than 2.5 cubic metres in external volume;
or

- b) any trench depth exceeds 4m and trench width exceeds 3m; or
- c) any pipework installed above ground is greater than 5 metres in length; or
- d) the installation constitutes EIA development as defined by Regulation 2(1) of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017; or
- e) any development is within 50m of a Site of Special Scientific Interest; or
- f) any development is on previously undeveloped land within 200m of a Site of Special Scientific Interest; or
- g) any development within 500m of the Severn Estuary Ramsar, Severn Estuary Special Area of Conservation or Severn Estuary Special Protection Area; or
- h) any above ground infrastructure would
 - i. affect a listed building; or
 - ii. be within the boundary of a Scheduled Ancient Monument, Registered Historic Park and Garden, Conservation Area, or the Curtilage of a Listed Building unless agreed in writing with the Local Planning Authority pursuant to condition [6] to this Order; or
- i) the installation would be on a site designated as a Site of Special Scientific Interest, Ramsar, Site of Nature Conservation Interest, Special Area of Conservation, Special Protection Area, Regionally Important Geological Site or Local Nature Reserve pursuant to condition [5] to this Order; or
- j) within areas to which a Direction under Article 4 of the Town and Country Planning (General Permitted Development) (England) Order 2015) is in force, the development is of a type described in that Direction.

The Order covers an area of 11,160 hectares within the administrative boundary of the City of Bristol. The areas within the City of Bristol that are required for the development are restricted to land within public and private highway, Bristol City Council-owned land. The total length of highway proposed to be incorporated within the Order calculates at 7,595 km.

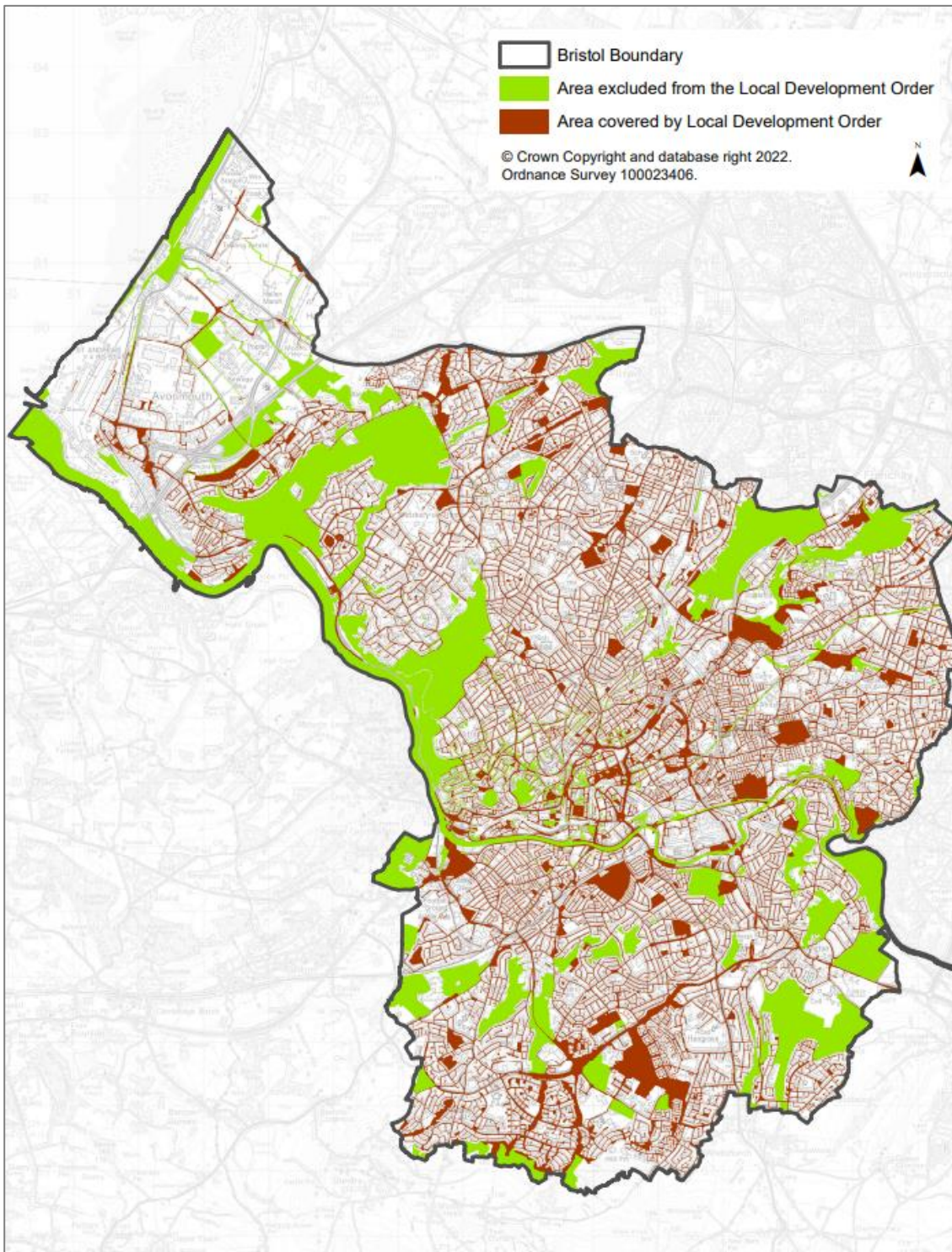
The development to be permitted by the Order is predominantly to be located underground and once covered, visible infrastructure will be relatively minor in nature.

Figure 1.1: Bristol City Council unitary authority boundary



Source: MAGIC Map Application, DEFRA, 2022 (Available online at: [MAGIC \(defra.gov.uk\)](https://www.magic.defra.gov.uk/))

Figure 1.2: Local Development Order boundary



Source: Bristol City Council, 2022

2 EIA Screening Assessment

2.1 EIA Screening Methodology

The development has been screened against the EIA Regulations to determine the need for statutory EIA. The development does not fall within Schedule 1 of the EIA Regulations, within which EIA would be mandatory. The development has been screened against the indicative thresholds criteria specified within Schedule 2 of EIA Regulations, as set out in Table 2.1.

Table 2.1: Screening Criteria

Screening Criteria	Information
EIA Regime	Town and Country Planning (Environmental Impact Assessment) Regulations 2017
Is the development type listed under Schedule 1?	No
Is the development described under Schedule 2?	Yes
Schedule 2 description of development?	Part 3(b) of Schedule 2, of the EIA Regulations, being development for industrial installations carrying hot water or steam.
Does the development exceed the applicable Schedule 2 thresholds and criteria?	No – The indicative screening threshold for this category is development that exceeds the area of 1 hectare in size. Although overall development area is 11,160 hectares, due to phased approach and restrictions in the Order, development will have less than 1 hectare footprint at any given time.
Is the development in or partially in a sensitive area (as defined in the EIA Regulations 2(1))?	No – Relevant sensitive areas are excluded by the restrictions of the Order listed in Section 1.2 Development above.
Applicable sensitive areas:	N/A

The development is an urban development and therefore considered as Listed Activity under Schedule 2, Part 3 – Energy Industry (b) Industrial installations for carrying gas, steam, and hot water. While the overall development boundary area (as shown in Figure 1.2) is 11,160 hectares, the Order does not permit the area of development to exceed 1 hectare at any one time, therefore it is less than the 1ha threshold given in Schedule 2, Part 3.

2.2 Screening against Schedule 3 criteria

Under the EIA Regulations, Schedule 2 developments require an EIA if the development is deemed “...likely to have a significant effect on the environment by virtue of factors such as its size, nature, or location”.

Schedule 3 of the EIA Regulations sets out the selection criteria for screening Schedule 2 development and requires that, in determining whether an EIA is required, the following factors be considered:

- The characteristics of the development (findings presented in Section 2.2.1);
- The location of the development and proximity to environmentally sensitive sites (findings presented in Section 2.2.2); and
- The types and characteristics of the potential impact (findings presented in Section 2.2.3).

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 a Habitats Regulations Assessment (HRA).

A Stage 1 HRA was undertaken by Mott MacDonald for Bristol City Council in relation to the development. Findings of this assessment are discussed in Section 2.2.2.3 Biodiversity, Protected Species and Protected Sites.

2.2.1 Characteristics of the development

The characteristics of the development are as follows:

- The Order grants planning permission for the installation (whether temporary or otherwise), inspection, maintenance, alteration, repair and removal of a heating transmission and distribution system and ancillary infrastructure comprising of pipes, cables, wires, ducting, heat exchange equipment, informational signage, and any necessary above ground infrastructure to facilitate or enable the development as permitted and ancillary engineering works and reinstatement within defined areas of land in the City of Bristol and shown on the Order Map in Appendices.
- During the construction phase, the installation of above ground infrastructure as part of the development will also be subject to a series of criteria within the wording of the Order which limit the scale and location of development that can take place.
- The heating pipes to be used within the network would be 600mm diameter (or less), with two pipes (flow and return) laid adjacent to each other within a trench approximately 4m deep and 3m wide. The construction works will be undertaken in a phased approach, with small sections completed prior to the commencement of the next section. The Order limits each phase to 1 hectare, when considered individually or combined with other phases at any one time, when considered individually or combined with other phases, and also restricts the installation of any above-ground pipework to a maximum of 5m in length.
- Paths, road access, and cycle ways will be reinstated, along with any associated drainage.

2.2.2 Baseline Conditions

The baseline conditions have been established predominately based on publicly available data and desk-based review followed by the assessment of types and characteristics of potential impacts of the development and mitigation measures for each baseline condition in Section 2.2.3.

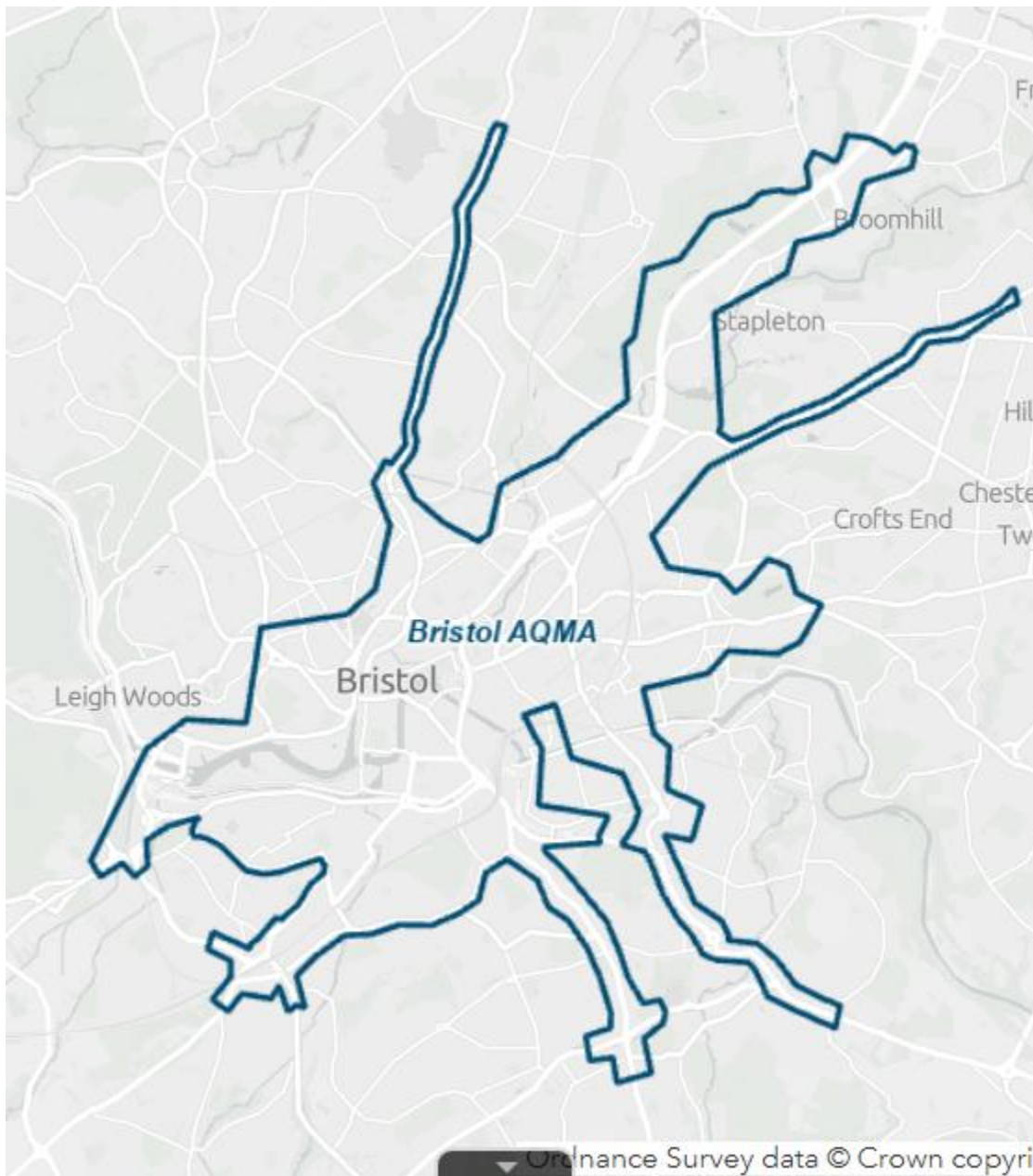
2.2.2.1 Air Quality

The development is located within the Bristol Air Quality Management Area (AQMA). This AQMA was declared in 2001 with three further amendments since in 2003, 2008, and 2011. The AQMA covers the majority of the city centre, the A38, and the A432. The main pollutant of concern according to the 2011 study is nitrogen dioxide (NO₂) and particulate matter (PM₁₀).

A major source of air pollution is road traffic; as a result, a Clean Air Zone (CAZ) has come into force in the summer of 2022. This CAZ will help improve the air quality by reducing harmful levels of air pollution caused by traffic. A detailed map of the CAZ can be found on the 'Clean Air for Bristol' website.¹

¹ Accessed online at: [CLEAN AIR FOR BRISTOL | Clean Air Zone](https://www.cleanairforbristol.co.uk/)

Figure 2.1: The location of AQMAs identified within the development boundary



Source: Great Britain Open Data Map, 2022

In 2022, there are 193 air quality monitoring sites including 11 locations added in January 2022 for the Liveable Neighbourhood Pilot scheme and 80 to monitor the impact of the Clean Air Zone.

2.2.2.2 Land Use, Geology and Land Contamination

All of the land within the development boundary is classed as 'Land predominantly in urban use'². There are 42 historical landfill sites and four authorised landfill sites within the development boundary. The majority of the historical landfill sites are located around Lawrence Weston area, south of Bedminster and north of Arnos Vale area as shown in Figure 2.2 and Figure 2.3 below.

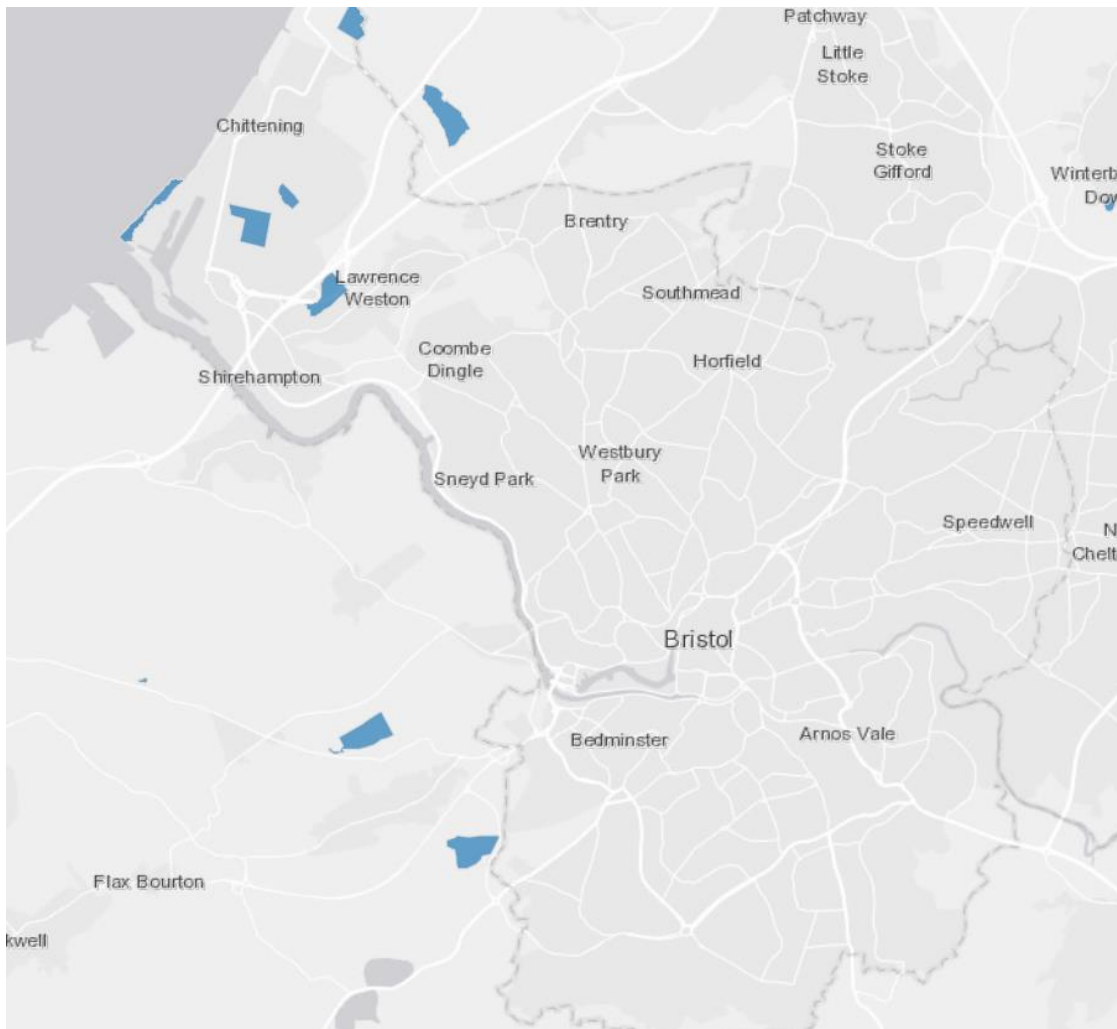
² Southwest Agricultural Land Classification (ALC) maps

Figure 2.2: Historical landfill sites within the development boundary



Source: Catchment Based Approach (CaBA), 2022

Figure 2.3: Permitted waste sites/authorised landfill sites within the development boundary



Source: Catchment Based Approach (CaBA), 2022

Table 2.2 identifies the geology (superficial and bedrock) within the development area.

Table 2.2: Geology identified within the development boundary

Name	Description
Superficial Geology	
Alluvium	Clay, silt, and sand. Superficial deposits formed up to 2 million years ago in the Quaternary Period in an environment dominated by rivers.
Bedrock Geology	
Lias Group	Mudstone, siltstone, limestone, and sandstone. Sedimentary bedrock formed approximately 172 to 204 million years ago in the Jurassic and Triassic Periods in shallow seas deposited as mud, silt, sand, and gravel.
Triassic Rocks (undifferentiated)	Mudstone, siltstone, and sandstone. Sedimentary bedrock formed approximately 200 to 251 million years ago in the Triassic Period in a mainly hot dry environment.
Triassic Rocks (undifferentiated)	Sandstone and conglomerate, interbedded. Sedimentary bedrock formed approximately 200 to 251 million years ago in the Triassic Period from rivers depositing sand and gravel detrital materials in channels.

Name	Description
Pennine Middle Coal Measures Formation and South Wales Middle Coal Measures	Mudstone, siltstone, sandstone, coal, ironstone and ferricrete. Sedimentary bedrock formed approximately 309 to 312 million years ago in the Carboniferous Period in swamps, estuaries, and deltas.
South Wales Upper Coal Measures Formation	Mudstone, siltstone, sandstone, coal, ironstone and ferricrete. Sedimentary bedrock formed approximately 309 to 312 million years ago in the Carboniferous Period in swamps, estuaries, and deltas.

Source: British Geological Society

2.2.2.3 Biodiversity, Protected Species and Protected Sites

Stage 1 HRA undertaken by Mott MacDonald in 2022 for Bristol City Council in relation to the development. The assessment seeks to identify whether the 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) is required.

HRA identified two Habitat Sites within the development boundary. These are the Severn Estuary Ramsar, Special Protection Area (SPA) and Special Areas of Conservation (SAC), and the Avon Gorge Woodlands SAC.

An additional three sites have also been flagged in the 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 Order boundary, they have been included within HRA to reflect the highly mobile nature of the bat species present.

A description of the sites and their significance is given in Table 2.3, the location of the sites is shown in Figure 2.4 below:

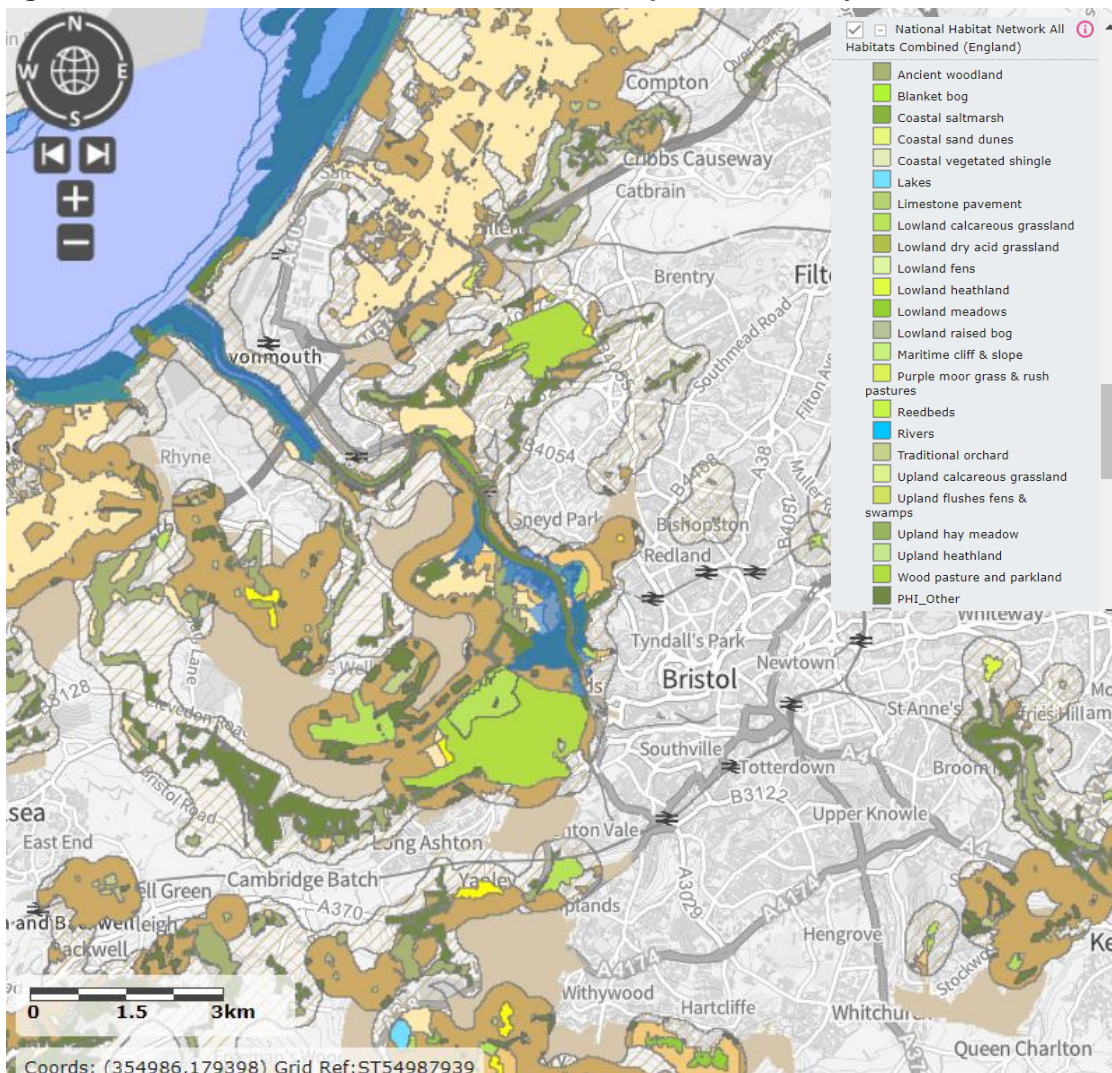
Table 2.3: Habitat sites within the development boundary

Habitat Site	Significance
Severn Estuary Ramsar, SAC and SPA	The immense tidal range 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.
Avon Gorge Woodlands SAC	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.
Bath and Bradford-on-Avon Bats SAC	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.
Somerset and Mendip Bats SAC	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 – 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</i>

Habitat Site	Significance
	<i>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.
Mells Valley SAC	<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. caryophyllea</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>) and common spotted orchid (<i>Dactylorhiza fuchsia</i>) are widespread.</p>

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

Figure 2.4: Habitat sites identified within the development boundary



Source: MAGIC Map Application, DEFRA. Available online at: [MAGIC \(defra.gov.uk\)](https://www.defra.gov.uk/magic/)

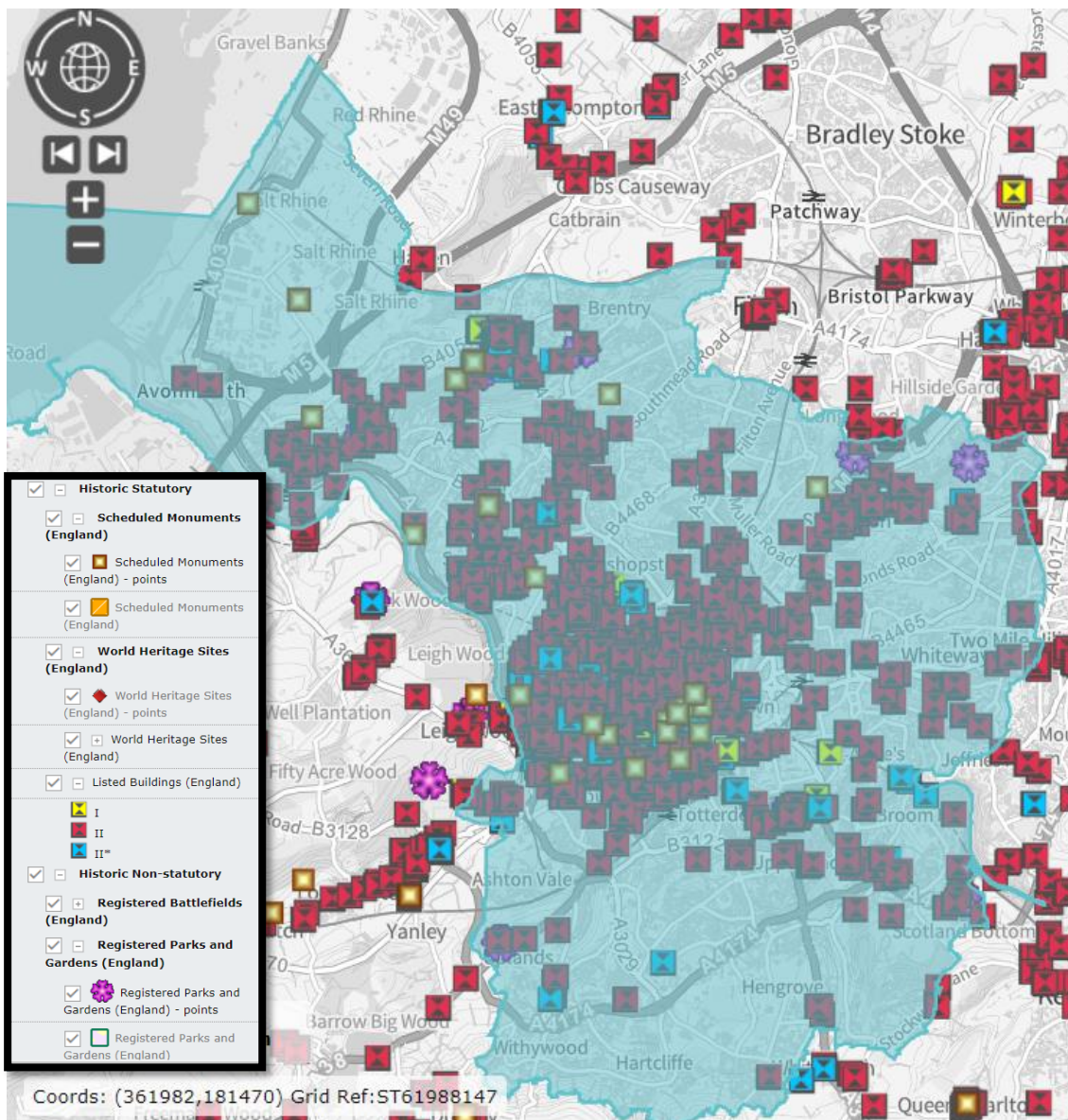
2.2.2.4 Heritage

City of Bristol is derived from the Saxon placename *BrygStow* that means the *place by the bridge* highlighting the close affinity the city has with its rivers and topography. The historic heart of the city lies between the River Frome and River Avon with reference to a central market at the confluence of these two rivers. In the 13th century the River Frome was diverted, which allowed for further expansion of the city docks and the city's population.

Bristol is considered to have the largest concentration of heritage assets of any of the core cities; over one third of the city lies within a designated conservation area, there are 4,000 listed buildings, and 99 green spaces locally designated as historic parks and gardens.

Given the historic importance of Bristol, there is a high volume of listed buildings (Grade I, II, and II*) within the development boundary with a higher concentration observed within Bristol City Centre which is shown in Figure 2.5 below:

Figure 2.5: Heritage assets within the development boundary



Source: MAGIC Map Application, DEFRA. Available online at: [MAGIC \(defra.gov.uk\)](http://MAGIC.defra.gov.uk)

A total of eight scheduled monuments were identified within the development boundary, these are as follows:

- St Mary-le-Port Church;
- Vault in High Street;
- Temple Church;
- Medieval vaults north of St Peter's Church;
- Dominican Friars (Quaker's Friars);
- Hermitage in Quaker burial ground near St Mary Redcliffe;
- Clifton Down camp; and,
- Second World War heavy anti-aircraft battery 590m northeast of Highwood House, Pur Down.

There are eighteen Conservation Areas³ which lie either entirely or partially within the development boundary, as shown in Table 2.4 below.

A total of eight scheduled monuments were identified within the development boundary in the Bristol City Council district, these are as follows:

- St Mary-le-Port Church;
- Vault in High Street;
- Temple Church;
- Medieval vaults north of St Peter's Church;
- Dominican Friars (Quaker's Friars);
- Hermitage in Quaker burial ground near St Mary Redcliffe;
- Clifton Down camp; and,
- Second World War heavy anti-aircraft battery 590m northeast of Highwood House, Pur Down.

Table 2.4: Conservation Areas within the development boundary

Name	Description
Whiteladies Road	Whiteladies Conservation Area is located to the north-west of the city centre and contains a series of irregular street grids based on Whiteladies Road, a principal shopping street and a route to the north out of the city centre. The character consists of solidly built villas and terraces in local Brandon Hill and Bathstone, well-constructed boundary walls in local stone, ground-level attractive gardens, and trees of good stature in streets and gardens.
Clifton and Hotwells	Clifton and Hotwells is located in the west of the city. The Conservation Area centres upon the development of terraces, crescents and streets that rise from Hotwells in the south to the open landscape provided by Avon Gorge and Clifton Down to the west and north. The unique character of Clifton and Hotwells is directly influenced by the local topography and geology.
Tyndall's Park	This Conservation Area is focused around the prominent hill crowned by Royal Fort House to the north-west of the medieval city. This area has evolved from the original form to become an educational precinct for the University of Bristol, containing high-quality Edwardian Buildings in a landscaped setting.
Park Street and Brandon Hill	This Conservation Area lies immediately north of the Floating Harbour, between Clifton to the west, College Green to the east, and Tyndall's Park to the south-west. The character can be broadly defined by its planned urban streets dominated by high-quality townscape; and its spacious and verdant character. This area is considered to be one of Bristol's most well-known and interesting districts.

³ **Conservation Area:** an area of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance.

Name	Description
College Green	This Conservation Area lies physically and metaphorically at the heart of Bristol and is considered one of the most historically significant parts of Bristol; an area extremely rich in heritage assets, townscape quality and important public spaces.
St Michael's Hill and Christmas Steps	This Conservation Area is located immediately to north-west of the centre of medieval Bristol and is characterised by its dramatic climb from 10m above sea level at the lowest point, to 75m towards the top of St Michael's Hill. This Conservation Area is considered one of Bristol's most charming and historic districts.
Cotham and Redland	Cotham and Redland is a large, principally residential Conservation Area characterised by a high-quality Victorian townscape. The area is a leafy suburb characterised by its individually developed urban streets, individual gardens and areas of public landscape.
Kingsdown	Kingsdown is located immediately north of Bristol City Centre and is a lozenge shape on a north-east / south-west axis centred on the early Georgian terraces that run along the south-east side of Kingsdown Parade and Somerset Street. The unique character of this Conservation Area is directly influence by the local topography and geology.
City and Queen Square	The City and Queen Square was one of the first conservation areas to be designated as 'of national significance'. The Old City is tightly packed with dense and interconnected development of various historical eras and various styles. Whilst Queen Square is a valuable open space in the heart of the City and is of considerable architectural and historical interest.
Redcliffe	This Conservation Area is located on an island bounded by the Floating Harbour to the north and west, and by the River Avon to the South. The area is steeped in history, containing two Scheduled Ancient Monuments and 80 listed buildings.
Stokes Croft	Stokes Croft Conservation Area is located towards the eastern side of Bristol City Centre, just north of the Broadmead shopping area. The area is a lively Conservation Area with a diverse character and townscape.
Portland and Brunswick Square	This Conservation Area is located in the St Paul's district of the City and represents one of the best surviving examples of formal Georgian town planning in Bristol. This Conservation Area has the highest proportion of listed buildings in the city and contains the only Grade I listed square in Bristol.
Old Market	Old Market forms the eastern gateway into the city. The Conservation Area occupies a ridge of land that falls towards the Frome flood-plane to the north and the Avon to the south. This Conservation Area contains the site of Bristol's earliest marketplace and was historically the most important gateway into the city.
Montpelier	Montpelier is located to the north-west of the city. The area has high quality-built fabric with a number of Grade II listed buildings. The pattern of the development results in larger than average garden plots for the houses, and there are a number of mature trees.
Gloucester Road	Gloucester Road lies to the north of the city and forms a major traditional shopping approach into the city centre. The predominant character of this conservation area is derived from the main retail area fronting Gloucester Road with residential streets behind.
The Downs	This Conservation Area consists of an expansive plateau of open parkland, defined by the Avon Gorge and Westbury Road to the west and east, with the slopes of Clifton and Stoke Bishop to the south and north.
Stapleton and Frome Valley	This conservation Area comprises the land immediately surrounding the River Frome from Frenchay Valley to Stapleton Bridge at Eastville Park, extending to include Fishponds Village, the estates of Glenside, Manor Park Hospitals, Stoke Park, Purdown, and Stapleton Villages.
St James Parade	This Conservation Area is located on the lower slopes of the escarpment which rises above the city centre below Kingsdown. This Conservation Area contains the precinct and setting of the Priory of St James and is believed to contain the remains of the Priory Church, the oldest Church in Bristol.
City Docks	City Docks Conservation Area centres on the low-lying land adjacent to the Floating Harbour and the New Cut, between Cumberland Basin in the west, and the Bathurst Basin in the east. This area covers the largest elements of the waterways in the centre of Bristol and the topography of the area is formed by the river valley of two rivers – River Frome and River Avon.

Source: Conservation Area character appraisals and Conservation Area enhancement statements, Bristol City Council.

2.2.2.5 Hydrology and Hydrogeology

There are two main rivers within the development boundary. The Bristol (Lower) Avon rises in the Cotswold Hills in Gloucestershire and flows south and then west through Bristol, entering the Severn Estuary at Avonmouth. Its length is approximately 121km. Along its journey, the Avon meets a number of tributaries including the River Marden, Somerset Frome, River Chew, and smaller streams such as the By Brook, Brinkworth Brook, and the River Trym. There are also numerous towns located along the length of the river including Malmesbury, Chippenham, Melksham, Bradford-On-Avon, and Keynsham as well as smaller settlements at Saltford, Avoncliffe, Freshford and Claverton. It runs along the development boundary to the south.

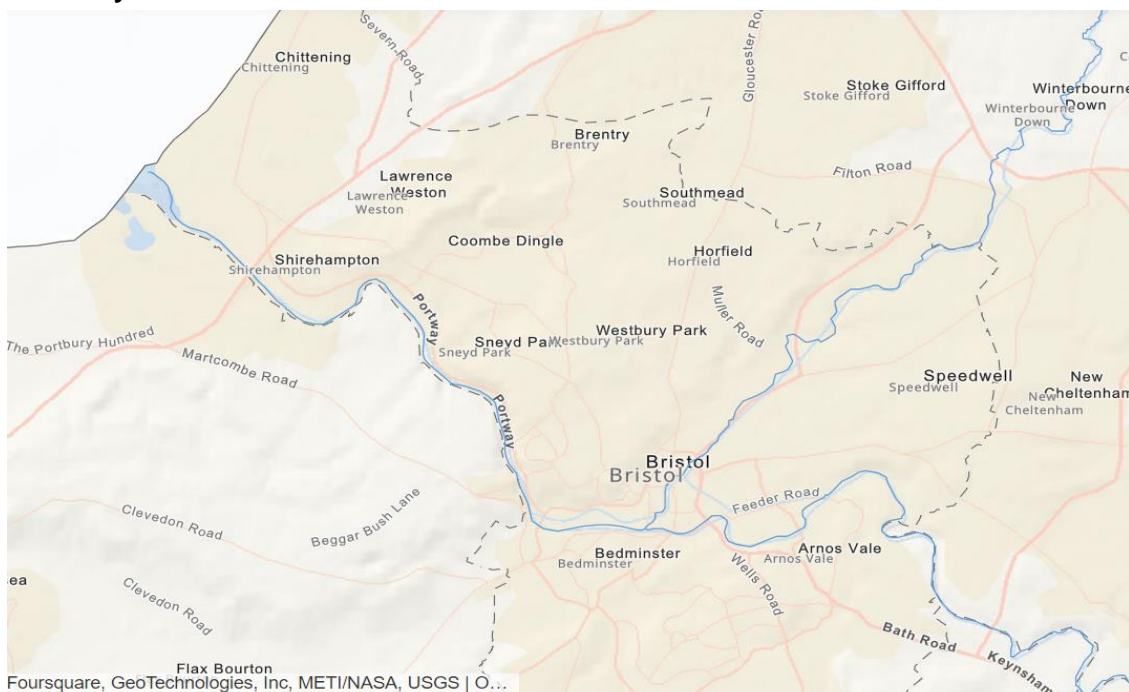
The River Frome begins in Dodington Park, South Gloucestershire and flows south-westerly through Bristol. It joins the original course of River Avon in Bristol's Floating Harbour in Southville/Bedminster. It runs along highways M432/M32 via north-south direction. The River Frome drains a catchment area of approximately 175km². The extent of Bristol (Lower) Avon and River Frome within the development boundary is shown in Figure 2.6 below:

The following Water Framework Directive (WFD) waterbodies have been identified within the development:

- One surface water WFD waterbody: Frome (Bristol) – Bradley Bk to conf Floating Hbr (GB109053027840); and,
- Two groundwater WFD waterbodies: Bristol Triassic (GB40902G804800); and Carboniferous Limestone (Bristol) (GB40901G806800)

No Nitrate Vulnerable Zones (NVZs) or Source Protection Zones (SPZs) were identified.

Figure 2.6: Extent of Bristol (Lower) Avon and River Frome within the development boundary

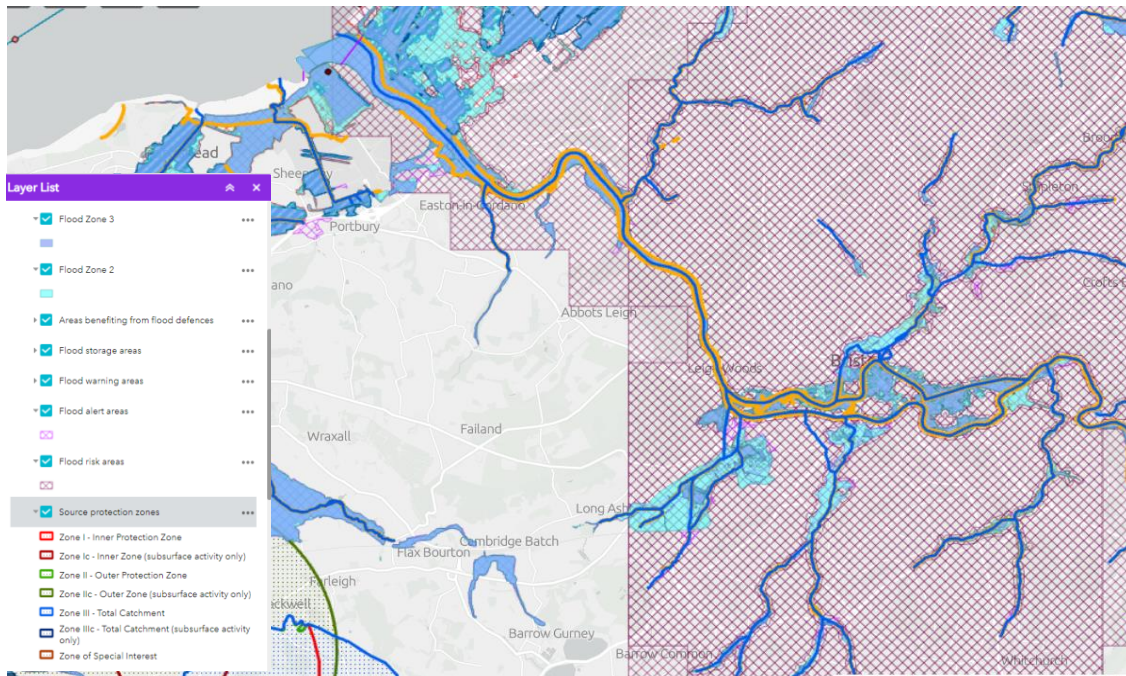


Source: Bristol River Avon Trust Map (BART). Available online at: [Bristol Avon Map - Explore our river - Bristol Avon Rivers Trust](https://www.bristol-avon-trust.org.uk/our-projects/bristol-avon-map/)

A substantial area of the development is within Flood Zone 2 and 3, as shown in Figure 2.7 below, and the north of the city centre and parts of Bedminster and Long Ashton area are

situated within Flood Zone 2. The area to the north of the development boundary around Avonmouth is identified as Flood Zone 3.

Figure 2.7: Flood Zone identification within the development boundary



Source: Great Britain Open Data Map Application, 2022. Available online at <https://atlas-nasa.mottmac.com/>

The majority of the development falls within medium priority water quality areas⁴. Although there can be some seasonal variation, all the water in the Bristol Water area is classed as hard or very hard.

2.2.2.6 Landscape and Visual

Landscape is defined in the European Landscape Convention, Council of Europe (2000), as ‘...an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.’ Visual amenity considerations relate specifically to views of the landscape afforded to people. Visual receptors, or those who may have a view of the proposed works, principally include residential properties, users of Public Rights of Way (PRoW) and users of public spaces. Landscape and visual issues are related but considered separately.

Natural England has divided England into 159 National Character Areas (NCA) which reflect broad-scale landscape character. Table 2.5 provides a brief description for NCAs within the development, further details can be found within the NCA documents.

Table 2.5: Descriptions of NCAs within the development boundary

NCA Profile Number	Reference	Description
118	Bristol, Avon Valleys, and Ridges	The area is characterised by alternating ridges and broad valleys, with some steep, wooded slopes and open rolling farmland. It has a complex geology, being rich in geomorphological features such as the Avon Gorge, and there are many designated exposures and rich fossil beds. The area is rich in history.

⁴ Countryside Stewardship Water Quality Priority Areas (England)

NCA Profile Number	Reference	Description
107	Cotswolds	The dominant pattern of the Cotswolds landscape is of a steep scarp crowned by a high, open wold; the beginning of a long and rolling dip slope cut by a series of increasingly wooded valleys. The limestone creates a strong sense of place and unity which is seen within the buildings and walls in the area.

Source: National Character Area Profiles

Bristol City Council has defined Landscape Character Areas (LCAs)⁵; some of these area boundaries have been adjusted to fit with existing Conservation Areas (as outlined in Section 2.2.2.4 Heritage). Table 2.6 provides a list of the NCA identified within the Bristol City Council district relevant to the development.

Table 2.6: NCAs within the development boundary

NCA Number	Reference	LCA Number	Reference
1	South Redcliffe	21	Park Street and College Green
2	North Redcliffe	22	Centre Promenade
3	Old City	23	Queen Square
4	Lewin-s Mead – St James Barton	24	Bathurst Basin
5	Newfoundland Way	25	University
6	Old Market	26	St Michael's Hill
9	Castle Park	27	Hospital
10	Broadmead	28	Stokes Croft
12	St Pauls	29	Portland and Brunswick Square
13	Temple Quay	30	Stapleton Road
20	Canons Marsh		

Source: Character areas, Bristol City Council

A small section of the Bristol and Bath Green Belt is located within the development boundary but there are no Areas of Outstanding Natural Beauty (AONB) within the development boundary.

2.2.2.7 Noise and Vibration

The development area is comprised of an urban setting with multiple roads within and adjacent to the boundary (A4032, M5, M32, A432, and A420). These are expected to be the main sources of noise within the development boundary.

The development includes three noise Important Areas (IAs) designated for roads (M5, A4032 and A420). These are shown in Figure 2.8 below. IAs are designated based on the strategic noise map results and highlight hotspot locations where the highest 1% of noise levels at residential locations can be found.

Table 2.7 provides information of the different road noise levels within development boundary which was shown in Figure 2.9, Figure 2.10 and Figure 2.11 below:

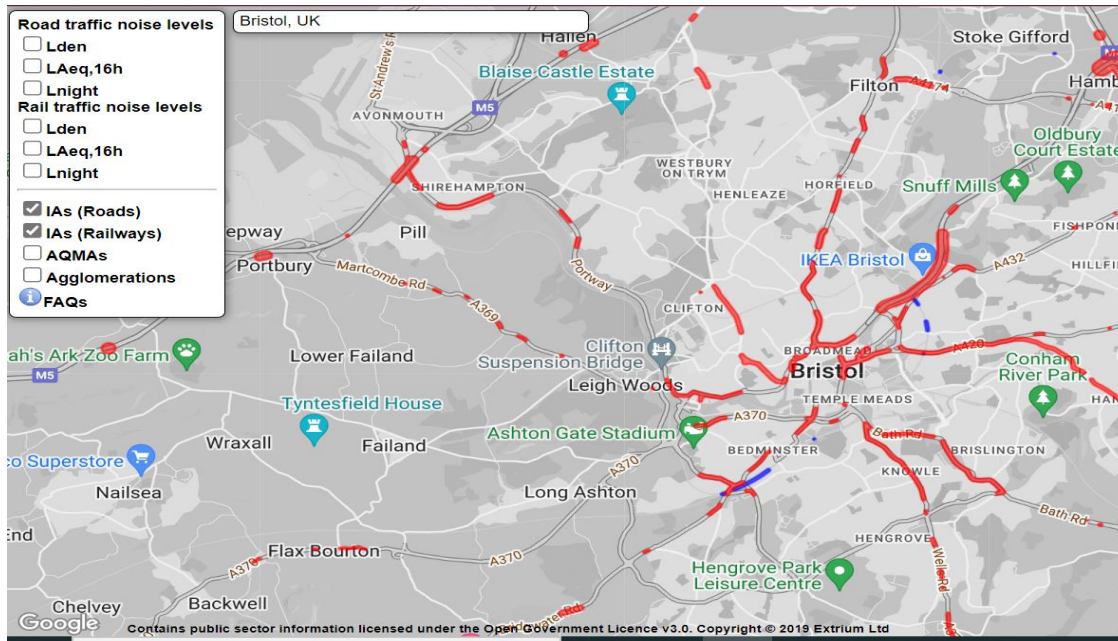
⁵ Historic England Guidance

Table 2.7: Road noise levels within the development boundary

Type	Description
L _{den} (day-evening-night) ^{6,7}	The M32/A4032, and M5 has an average noise of '75.0 and over decibels (dB)' with the noise levels dispersing outwards. The majority of the development is located within levels of '60.0-64.9 dB' with the outer edges located within levels of '55.0-59.9 dB'.
L _{Aeq,16h} ^{8,9}	The M32/A4032 and M5 has an average noise of '75.0 and over dB' with the noise levels dispersing outwards. The areas immediately adjacent to the roads are considered to have noise levels ranging between '60.0-64.9 dB' and '55.0-59.9 dB', with the outer edges being the lower noise levels. The majority of the development is located outside of the minimum noise levels recorded for this criteria.
L _{night} ^{10,11}	The M32/A4032 and M5 has an average noise of '65.0-69.0 dB' with the noise levels dispersing outwards. The areas immediately adjacent to the roads are considered to have noise levels ranging between '60.0-64.9 dB' to '50.0-54.9 dB', with the outer edges being the lower noise levels. The majority of the development is located outside of the minimum noise levels recorded for this criteria.

Source: Department for Environment Food & Rural Affairs. Data sources provided in table.

Figure 2.8: Identified Important Areas (IA) within the development boundary



Source: England Noise and Air Quality Viewer, 2022 Available online at [Extrim > England Noise and Air Quality Viewer](https://www.extrim.com/england-noise-and-air-quality-viewer)

⁶ L_{den}: a 24-hour annual average noise level in decibels with weightings applied for the evening and night periods.

⁷ Data available online from: [Defra Data Services Platform](https://www.defra.gov.uk/data-services-platform/) (L_{den})

⁸ L_{Aeq,16h}: the annual average noise level (in dB) for the 16-hour period between 0700 – 2300.

⁹ Data available online from: [Defra Data Services Platform](https://www.defra.gov.uk/data-services-platform/) (L_{Aeq,16h})

¹⁰ L_{night}: the night-time annual average noise level (in dB) where night is defined as 2300 – 0700.

¹¹ Data available online from: [Defra Data Services Platform](https://www.defra.gov.uk/data-services-platform/) (L_{night})

Figure 2.9: The average noise levels (Lden) along the main highways/roads within the development boundary

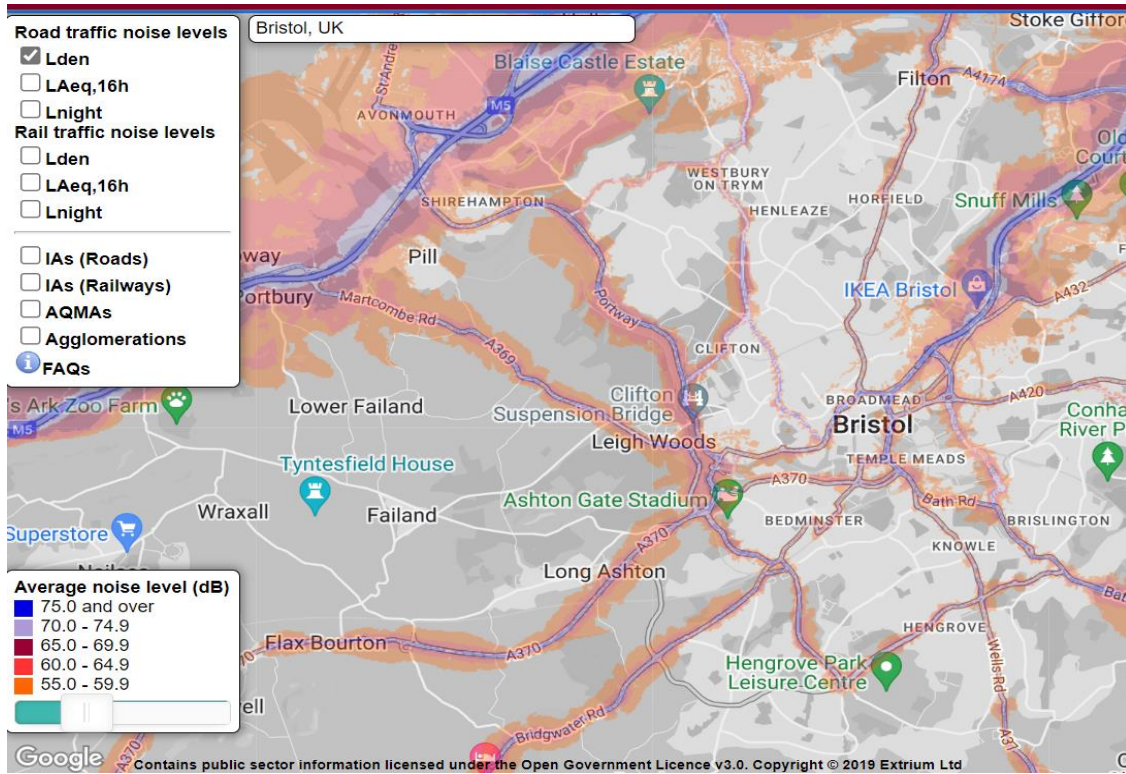


Figure 2.10: The annual average noise level (LAeq,16h) for the 16-hour period between 0700 – 2300 along the main highways/roads within the development boundary

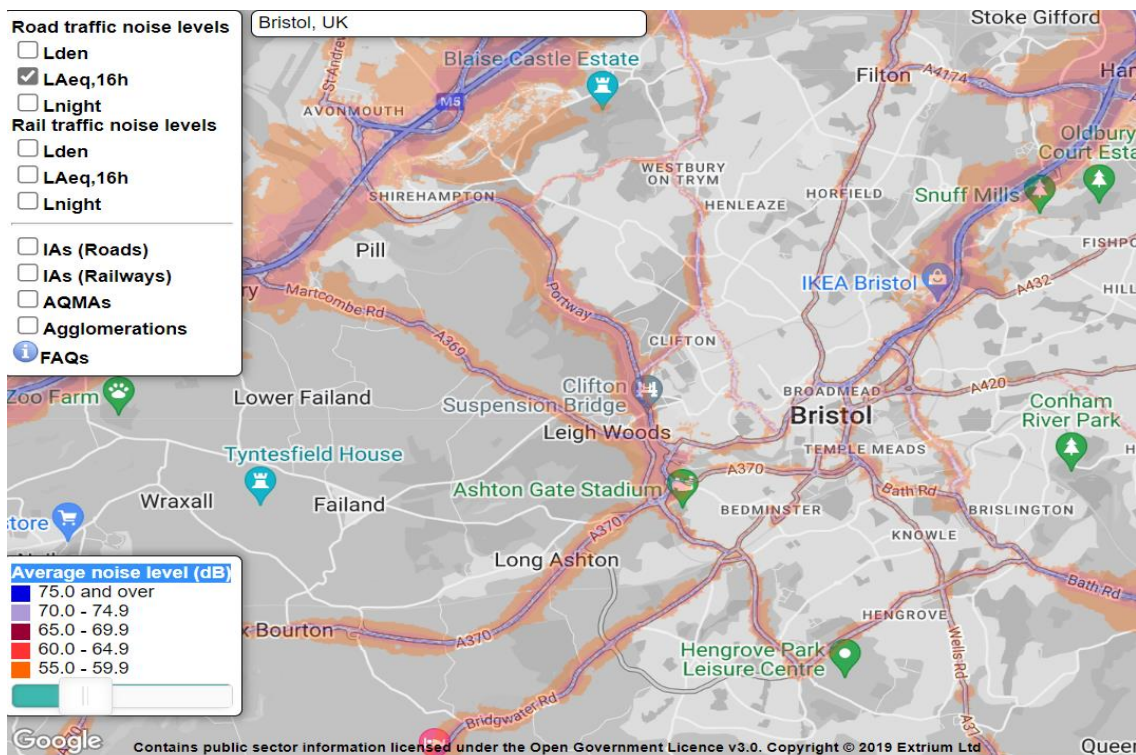
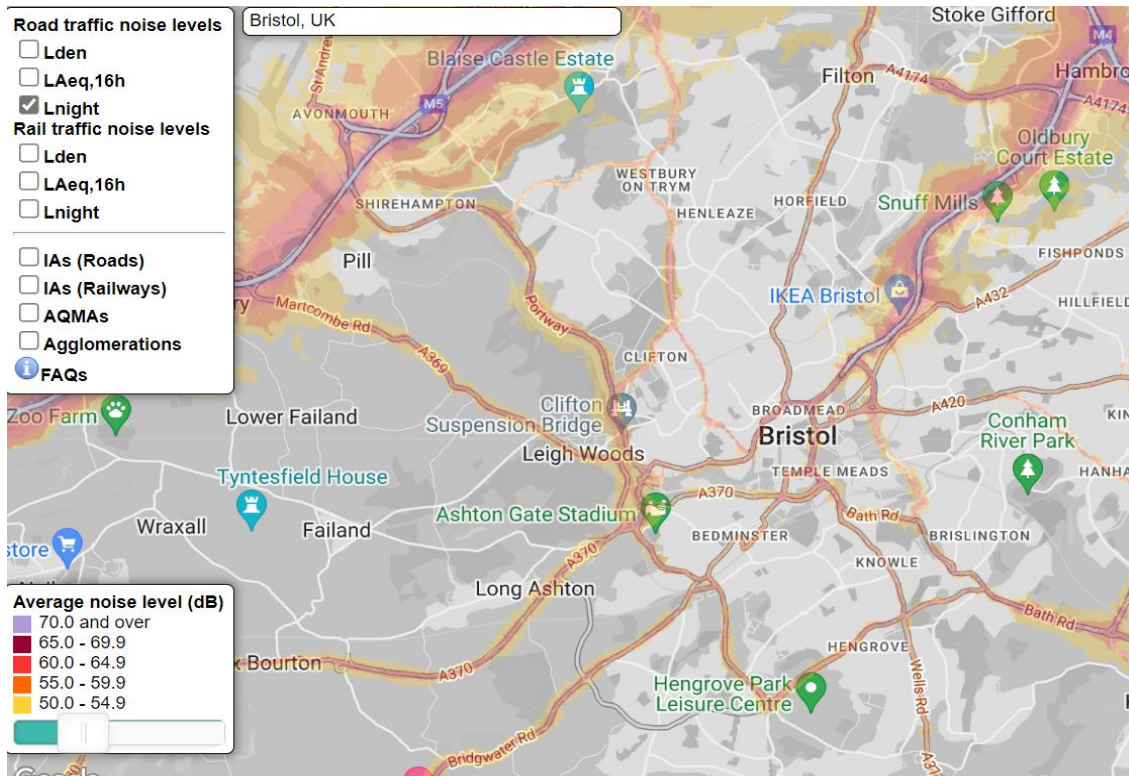


Figure 2.11: The night-time annual average noise level (L_{night}) where night is defined as 2300 – 0700 within the development boundary



Source: England Noise and Air Quality Viewer, 2022 Available online at [Extrium > England Noise and Air Quality Viewer](https://www.extrium.com/en/england-noise-and-air-quality-viewer)

Since the development is within an urban setting, the receptors include both commercial spaces and residential properties. Examples of sensitive receptor identified within the development boundary include:

- St Nicholas of Tolentine Primary School
- Rosemary Nursery School and Children’s Centre
- Ashton Gate Primary School

2.2.2.8 Traffic, Transport and Access

The development boundary is comprised of an urban setting with multiple roads within and adjacent to the boundary (A4032, M5, M32, A432, and A420). These are expected to be the main sources of traffic, transport, and access to the development.

The opportunity to strengthen the strategic active travel connection is aligned with the wider aspirations of Bristol City Council to influence travel behaviour by providing infrastructure which reduces the reliance on private car usage. By supporting residents and commuters to make use of alternative active modes of travel, well planned infrastructure has the potential to make a significant contribution to the target of Bristol becoming carbon neutral and climate resilient by 2030. The City of Bristol secured a £191m settlement over the next 5 years to improve local bus services and walking and cycling infrastructure (www.bristol.gov.uk, Bristol Key Facts, July 2022 Update)

Pedestrian Comfort guidance was produced by Transport of London (TfL) as well as trip generation calculations in combination with the view of wider use as part of strategic routes which connect the development area to surrounding neighbourhoods, facilities, and transport interchanges.

Within the development boundary, commuter miles have reduced as a result of the pandemic with 57% of respondents to a 'Travel to Work Survey' stating they envisage working from home to a greater extent than pre Covid-19. Bristolian's per capita greenhouse gas emissions are 11.96 tonnes CO₂ equivalent - the same as the UK average carbon footprint.

18% of Bristolians cycled to work in 2021, an increase of 3% on 2020. Just over 20% of residents walked to work in 2021, slightly lower than 2020. Since the development will be mostly underground, no further traffic assessment was carried out.

2.2.2.9 Socio-economic

The development covers the boundary of the City of Bristol. Bristol is the largest city in the Southwest and one of the 11 'Core Cities' in the United Kingdom. With a population of 472,400 in 2021, Bristol was the fastest growing of all the Core Cities in England and Wales over the last decade.

The current metro area population of Bristol in 2022 is 701,000, a 1.01% increase from 2021. The metro area population of Bristol in 2021 was 694,000, a 1.17% increase from 2020; whereas it was 686,000 in 2020, a 1.03% increase from 2019.

The population of Bristol has become increasingly diverse and some local communities have changed significantly. There are at least 45 religions, 187 countries of birth and 91 main languages spoken. The proportion of the population who are not 'White British' increased from 12% (2001) to 22% (2011), with 6% White Minority Ethnic, 6% Black, 6% Asian, 4% Mixed and 1% Other (all rounded to nearest 1%).

Bristol has a relatively young age profile, with more children aged 0 – 15 than people aged 65 and over. The median age of people living in Bristol is 32.4 years compared to 40.3 years in England and Wales.

Future population trends are currently uncertain both in Bristol and nationally due to the impacts of COVID-19, Brexit, the war in Ukraine and the economic crisis. The city has a bold vision to build partnerships to take on challenges such as poverty and hunger, public health and wellbeing, education, equality, clean air and water, clean energy, decent jobs, innovation, sustainable inclusive growth, climate, wildlife and habitats, justice, partnerships learning and skills to ensure everyone can share in its successes.

In December 2021, the employment rate in Bristol was 78.1% with 255,100 working age residents in employment. This represents a 2.3% increase compared to September 2021 when 248,600 residents were in employment. The employment rate in Bristol is the highest of the UK core cities and well above the national rate at 74.8%. Bristol has the lowest unemployment rate of the UK core cities.

In 2021 average earnings in Bristol were £32,885 a year (up from £31,900 in 2020) compared to £31,866 in Great Britain.

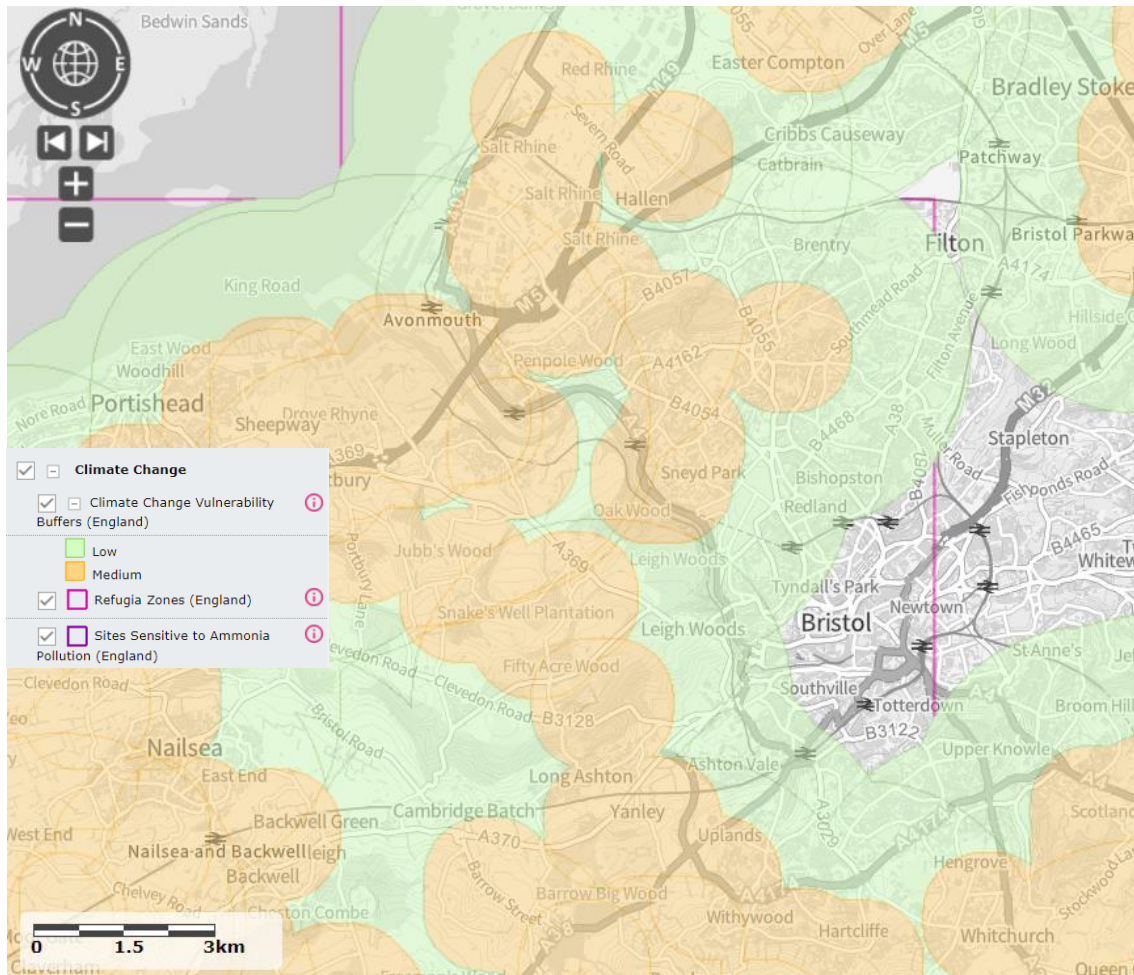
2.2.2.10 Climate change

There are number of climate change vulnerability buffers with medium level shown in light orange circles and low level shown in larger green circles in Figure 2.12 below. The Natural England's National Biodiversity Climate Change Vulnerability Model (NBCCVM)¹² aims to provide an explicit assessment of the relative vulnerability of habitats based on established climate change adaptation principles in form of map-based-GIS outputs which can be used to build biodiversity resilience. This model allows the user to incorporate locally specific datasets and select how adaptation principles are combined to reflect local circumstances and priorities.

¹² Natural England Habitat Vulnerability Zones for Climate Change Mitigation, 2022

Bristol Climate Hub was launched in November 2020 to help Bristol come together to reduce its carbon footprint. Bristol City Council continues to make substantial progress in reducing direct carbon emissions from its operations; but the impact of the pandemic on 2020/21 emissions has shown that further work is required. Overall, citywide carbon emissions have decreased by 43% since 2005; and per capita emissions have reduced by 50% within the same period.

Figure 2.12: Climate change vulnerability buffers within development boundary



Source: MAGIC Map Application, DEFRA, 2022 (Available online at: [MAGIC \(defra.gov.uk\)](https://defra.gov.uk/magic))

Bristol City Council is committed to playing its part in both the One City Ecological Emergency Strategy which seeks an ecologically resilient, wildlife-rich Bristol by 2030, and the One City Climate Strategy which aims for Bristol to be climate resilient and carbon neutral for all scopes of emissions by 2030. Bristol was named as the UK’s greenest city in 2019; and was the first city to declare a Climate and Ecological Emergency.

2.2.3 Types and characteristics of the potential impact

The potential impacts resulting from both construction and operation phases of the development could lead to environmental effects.

2.2.3.1 Air Quality

Air emissions associated with plant and vehicular traffic during construction and operation of the development are identified as the potential source of impact. The development also has the potential to cause harm and disturbance by way of additional dust. Without mitigation, dust can

be deposited onto the public road network and then spread by vehicles on roads causing safety hazard to ongoing traffic and negative visual impacts.

However, through the implementation of a Construction Environmental Management Plan (CEMP) and best industry practices, the development would not be likely to result in significant effect on air quality during construction. There would be no operational effects due to the nature of the development.

2.2.3.2 Land Use, Geology and Land Contamination

If, during development, contamination not previously identified is found to be present, no further development shall be carried out (unless otherwise agreed in writing with the Local Planning Authority) until a remediation strategy detailing how the contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved, and a verification report to be submitted for approval.

Importation of Soil

Before each phase of the development, any soil or soil-forming materials brought to site for use in soft landscaping, public open space or for filling and level raising shall be tested for contamination and suitability for use before any such materials are imported onto the site or used.

The methodology for such testing shall include information on the source of the materials, sampling frequency, testing schedules and criteria against which the analytical results will be assessed (as determined by a risk assessment) and testing shall then be carried out by a suitably qualified professional in accordance with such methodology.

Verification of compliance with the requirements of Condition 10 in the Order shall be submitted to and approved in writing by the Local Planning Authority prior to these materials being imported onto the site. The reason is to ensure that contamination soils are not imported to the construction site and that the development shall be suitable for use with respect to land contamination.

Waste Management

The construction of development permitted by the Order would lead to the use of natural resources and the generation of waste. Generated waste will include general construction waste and vegetation.

The construction and operations would also result in energy consumption. However, the development permitted by the Order is relatively modest in scale with works primarily relating to underground infrastructure, despite the Order itself covering a large area. Therefore, the volumes of waste that would be generated and the amount of natural resources that would be used are not considered to be significant and would not create likely significant effects on the environment and human health.

The development provides the opportunity for a more sustainable use of natural resources through the use of renewable and low carbon heat sources. Through the implementation of a Construction Environmental Management Plan (CEMP) and best industry practices, the development would not be likely to result in significant effect on land use, geology and would not contaminate any land during construction. There would be no operational effects due to the nature of the development.

2.2.3.3 Biodiversity, Protected Species and Protected Sites

Two Habitats Sites (Severn Estuary Ramsar, Special Protection Area (SPA) and Special Areas of Conservation (SAC), and the Avon Gorge Woodlands SAC) and three additional sites (Bath and Bradford-on-Avon Bats SAC, Somerset and Mendip Bats SAC and Mells Valley SAC) identified within the development boundary were assessed and while these 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 development.

The Order restricts development on any site designated as a Site of Special Scientific Interest (SSSI), Site of Nature Conservation Interest (SNCI) and Local Nature Reserve (LNR), many of which are found within the River Avon basin and its surroundings. As per restriction (e), no development is permitted within 50m of a SSSI, or development on previously undeveloped land within 200m of a SSSI. Above ground infrastructure is only restricted where it would affect a listed building, or be within the boundary of a scheduled monuments, Registered Historic Park and Garden, or curtilage of a listed building. The Order requires approval of development adjacent to protected sites where the installation is likely to cause an adverse impact as per Condition 5 of the Order.

Therefore, any effects during construction or operation on these Habitat Sites are deemed unlikely, and it is considered that the development would not compromise the ability of the Habitat Sites to meet their conservation objectives.

Similarly, Bath and Bradford-on-Avon Bats SAC, Somerset and Mendip Bats SAC and Mells Valley SAC are sufficiently distant from the proposed works and not hydrologically connected to the development. As such, any direct effects during construction or operation on this Habitat Site are deemed unlikely.

Moreover, the construction and operation of the development 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 development boundary. As such, it is considered that the development would not compromise the ability of the Habitat Site to meet its conservation objectives.

Stage 1 HRA concluded that the development allowed under the Order was screened out at this stage due to the likely absence of likely significant effects (from either construction or operation) on any of the Habitat Sites identified within the development boundary. It is therefore opined that undertaking any further stages of the HRA process will not be required for the development.

With the restrictions imposed by the Order listed in the Section 1.2 The Development (such as the scale of the works is limited to be less than 1 hectare at any given time) and through the implementation of CEMP and best practices; the development would not have a significant effect on biodiversity and the flora/fauna in or around the protected sites which will not be in close proximity to any works. There will be no significant effects on biodiversity and protected species and sites during the operation stage.

2.2.3.4 Heritage

Although the majority of the development area is not within close proximity to a Scheduled Monument, World Heritage Site, Area of Outstanding Natural Beauty, or any other sensitive area, the development could have visual impacts on heritage assets during construction and operation phases.

In order to minimise these impacts, in accordance with Policy BCS22 of the Bristol Core Strategy; no above ground development shall be carried out within the boundary of a Scheduled

Ancient Monument, Registered Historic Park and Garden, Conservation Area or Listed Building unless the location, design and materials of any above ground development or structures has previously been agreed in writing by the Local Planning Authority.

Similarly, the development may unearth archaeological assets that may not be previously recorded by relevant authorities. Within the scope of the Condition 7 and 8 of the Order, no works shall take place until the developer has secured the implementation of a programme of archaeological work has been submitted to and approved in writing by the Local Planning Authority.

In addition, within ninety days of the completion of each phase of development, the provision must be made to the Local Planning Authority for the analysis, publication and dissemination of results and archive deposition of the site investigation and post investigation assessment that has been completed in accordance with the programme pursuant to Condition 8 of the Order. This would ensure that archaeological remains and features are recorded and published prior to their disruption and/or destruction.

With the above measures taken, the impact of the development on the heritage assets is anticipated to be minimal during construction stage. There will be no significant effects on cultural heritage or archaeology during the operation stage.

2.2.3.5 Hydrology and Hydrogeology

The development needs to be made safe for its lifetime, taking account of the vulnerability of its users and without increasing flood risk elsewhere.

The hazard rating of the floodwater along the River Frome of the development boundary is described as significant deep and/or fast flowing¹³, so consideration will need to be given to providing safe access during construction and operation of the development if it takes place near identified flood risk areas. As per the Figure 1.2 in Section 1.2 The Development, the area along River Avon on the southern and western border of the development was excluded from the scope of the Order. Therefore, flooding risk associated with this area was not considered significant.

Given that CEMP will demonstrate how flood risk would be appropriately managed during construction; and the development will be mostly underground when it is completed; it is unlikely that the development would cause any significant effects within or without of its boundary.

The development may potentially have effect on water quality temporarily during construction phase. If any water quality issue is found (as it may relate to the land contamination); as it restricted by the Order to ensure that risks from water sources, the development will not continue until appropriate remediation strategy is approved and implemented.

With the restrictions imposed by the Order listed in the Section 1.2 The Development (such as the scale of the works is limited to be less than one hectare at any given time) and through the implementation of CEMP and best practices; the development would not have a significant effect on water sources and quality and existing water network. There would be no operational effects on water quality and network due to the nature of the development.

2.2.3.6 Landscape and Visual

The land used for the development within the City of Bristol will not change as a result of the development, nor will constraints be placed on future land uses as outlined in the Bristol Local Plan.

¹³ Frome Gateway Emerging Masterplan - review of flood risk assessment work to date – Arup, June 2020

The Order 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.

There shall be no lopping, topping, root reduction or removal of trees or hedgerows to accommodate the installation unless previously agreed in writing by the Local Planning Authority. This would ensure adequate protection of existing trees and hedgerows in line with Policy BCS9 of the Bristol Core Strategy.

Prior to the commencement of development, the colour and materials of any above ground infrastructure shall be specified and agreed in writing with the Local Planning Authority. This would ensure to minimise the visual impact of development in line with Policy BSC21 of the Bristol Core Strategy.

If within a period of ten years from the date of the planting of any tree, hedge or shrub or any replacement associated with development permitted by the Order is removed, uprooted or destroyed or dies, or becomes, in the opinion of the Local Planning Authority, seriously damaged or diseased, another tree, hedge or shrub of the same species and size as that originally planted shall be planted in the same location no later than the first available planting season, unless the Local Planning Authority agrees in writing that a different species, size and / or location may be substituted. This would ensure maintenance of a healthy landscape scheme, in accordance with Policy BCS9 of the Bristol Core Strategy.

There may be visual disturbance to landscape and the surroundings of the development during the construction. These effects would be temporary in nature and takes place in an urban environment where other developments taking place. With the restrictions imposed by the Order listed in the Section 1.2 The Development (such as the scale of the works is limited to be less than 1 hectare at any given time) and measures described above, as well as through the implementation of CEMP and best practices; the development would not have a significant effect on landscape. There would be no significant effects on landscape during operation due to the nature of the development.

2.2.3.7 Noise and Vibration

The construction phase of the development has the potential to create noise associated with the operation of construction machinery during break out of road material and pavement surfaces. These impacts will be managed and mitigated through measures including restricted working hours and, where required, acoustic screens and barriers.

In addition, vibration could occur during the construction stage. Part II of the Order includes appropriate conditions to control potential impacts associated with the vibration during the construction of the development such as no development is allowed within 50m of a SSSI, and on previously undeveloped land within 200m of a SSSI.

These effects are anticipated to be temporary during construction stage and minor in nature. As imposed by the restrictions of the Order listed in Section 1.2. The Development; through the implementation of a Construction Environmental Management Plan (CEMP) and best industry practices, the development would not have significant noise and vibration effects. Due to the nature of the development, no significant effects are anticipated during the operation of the development.

2.2.3.8 Traffic, Transport and Access

The development has the potential to cause harm and disturbance by way of additional traffic generation during construction phase of the development. Partial closings of the roads along the development works may be anticipated during this time.

Hard standing for paths, road access, and cycle ways would be built, with any associated drainage to mitigate traffic and access related impacts.

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 would be subject to defined time constraints as outlined within the CEMP conditioned within the Order. These are between 8 am – 6 pm during weekdays, between 9 am – 5 pm on Saturdays and there will be no works on Sundays. Nightworks will be extremely rare but may be required periodically for minor works where a short closure is required.

The 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. There will be traffic management measures during the construction of the development and these will be included in CEMP.

As explained above, these effects would be temporary in nature and takes place in an urban environment where other developments taking place. With the restrictions imposed by the Order listed in the Section 1.2 The Development (such as the scale of the works is limited to be less than 1 hectare at any given time) and measures described above, as well as through the implementation of CEMP and best practices; the development would not have a significant effect on traffic, transport, and access.

Due to the nature of the development (being underground and any roads will be returned to their original state), no significant effects are anticipated during the operation of the development.

2.2.3.9 Socio-economic

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. The construction of the development would also bring additional temporary construction jobs; therefore, it is anticipated there would be positive effects due to the development.

2.2.3.10 Climate Change

The development will serve to deliver the infrastructure to enable the distribution of low carbon energy sources; and to achieve reductions in the Bristol City Council's CO₂ emissions and contribute to the City's aim of carbon neutrality by 2030.

The development provides the opportunity for a more sustainable use of natural resources through the use of renewable and low carbon heat sources. Through the implementation of a Construction Environmental Management Plan (CEMP) and best industry practices during construction of the development, it would not have any significant climate change effects. There would be no operational effects due to the nature of the development.

2.2.3.11 Cumulative Effects

Considering the area surrounding the development; there will likely be combined beneficial effects such as economic development, improved air quality and reduced carbon emissions and improvement to the townscape as well as improvement in wellbeing and life standard of communities within the development boundary.

The main impacts identified would only occur during the construction period of the development and would therefore be temporary in nature. The Order also incorporates sufficient conditions

(such as phased approach to complete the development) to mitigate and control any such potential impacts. The extent of any impact is likely to be localised and for a short duration.

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.

The cumulative impacts of the development combined with other approved projects will be minimised by the Order as having the overall footprint of less than 1 hectare of any works at any time. Potential impacts would neither be trans-boundary nor overly complex. Therefore, based on the screening assessment in previous sections, it is not considered likely that significant cumulative and individual effects would arise from the development.

2.3 Mitigation

In order to prevent or decrease the potential adverse effects of the development, appropriate mitigation measures are to be embedded within the design and applied during the construction phase. Mitigation measures for each baseline area are discussed in Section 2.2.3 Types and characteristics of potential impacts.

The Order incorporates sufficient conditions as listed in Section 1.2 The Development and below to mitigate potential impact of the development:

No development shall take place until a CEMP has been submitted to and been approved in writing by the Local Planning Authority. The CEMP will set out mitigation measures, which will aim to avoid, minimise, or mitigate construction effects such as increased noise, dust, and vibration; and place emphasis on waste management due to nature of the development.

The CEMP should also set out each type of waste produced during the project, estimated quantities, and identify the planned waste management actions proposed for each different type, including its reuse, recycling, or disposal. All waste material will be appropriately handled, stored, and transported with the appropriate licences in place to limit the potential for pollution.

As a minimum, the CEMP must include individual phasing elements including;

- Extent of each phase on a scale plan
- Confirmation that no phase will exceed 1 hectare at any one time, when considered individually or combined with other phases
- Timescale for each phase
- Inclusion of any above ground infrastructure for each phase
- A programme for the anticipated start and completion dates for each phase
- Any known or anticipated highway closures or restrictions related to each phase.

In addition, within sixty working days of completion of any works, details shall be provided to the Local Planning Authority providing the date of completion and a map showing the geographical position of the completed works. This detail shall include:

- The location and route of the network;
- The depth of the network;
- The location of any above ground infrastructure; and
- The location of any chambers

The reason for this measure is to ensure of safe operation of the adopted highway and to allow the Local Planning Authority to monitor the development permitted by the Order.

3 Conclusion

This report has been compiled as the formal EIA Screening Report for Bristol City Council in accordance with the Town and Country Planning (EIA) Regulations 2017, hereafter referred to as the “EIA Regulations”, in order that a Screening Opinion can be sought from Bristol City Council as Local Planning Authority.

In pursuance of the powers of the Town and Country Planning Act 1990 (as amended), Bristol City Council give notice for the carrying out of the development of BHN in the City of Bristol. The development has been reviewed against the EIA Regulations.

The development does not fall within Schedule 1 of the EIA Regulations, within which an EIA would be mandatory. Therefore, the development has been assessed based on in accordance with Schedule 2 and Schedule 3 criteria.

The development is considered as an urban development and therefore considered as Listed Activity under Schedule 2, Part 3 – Energy Industry (b) Industrial installations for carrying gas, steam, and hot water. While the overall development boundary area (as shown in Figure 1.2) is 11,160 hectares, the Order does not permit the area of development to exceed 1 hectare at any one time, therefore it is less than the 1ha threshold given in Schedule 2, Part 3.

Under the EIA Regulations, Schedule 2 developments require an EIA if the development is deemed “...*likely to have a significant effect on the environment by virtue of factors such as its size, nature, or location*”.

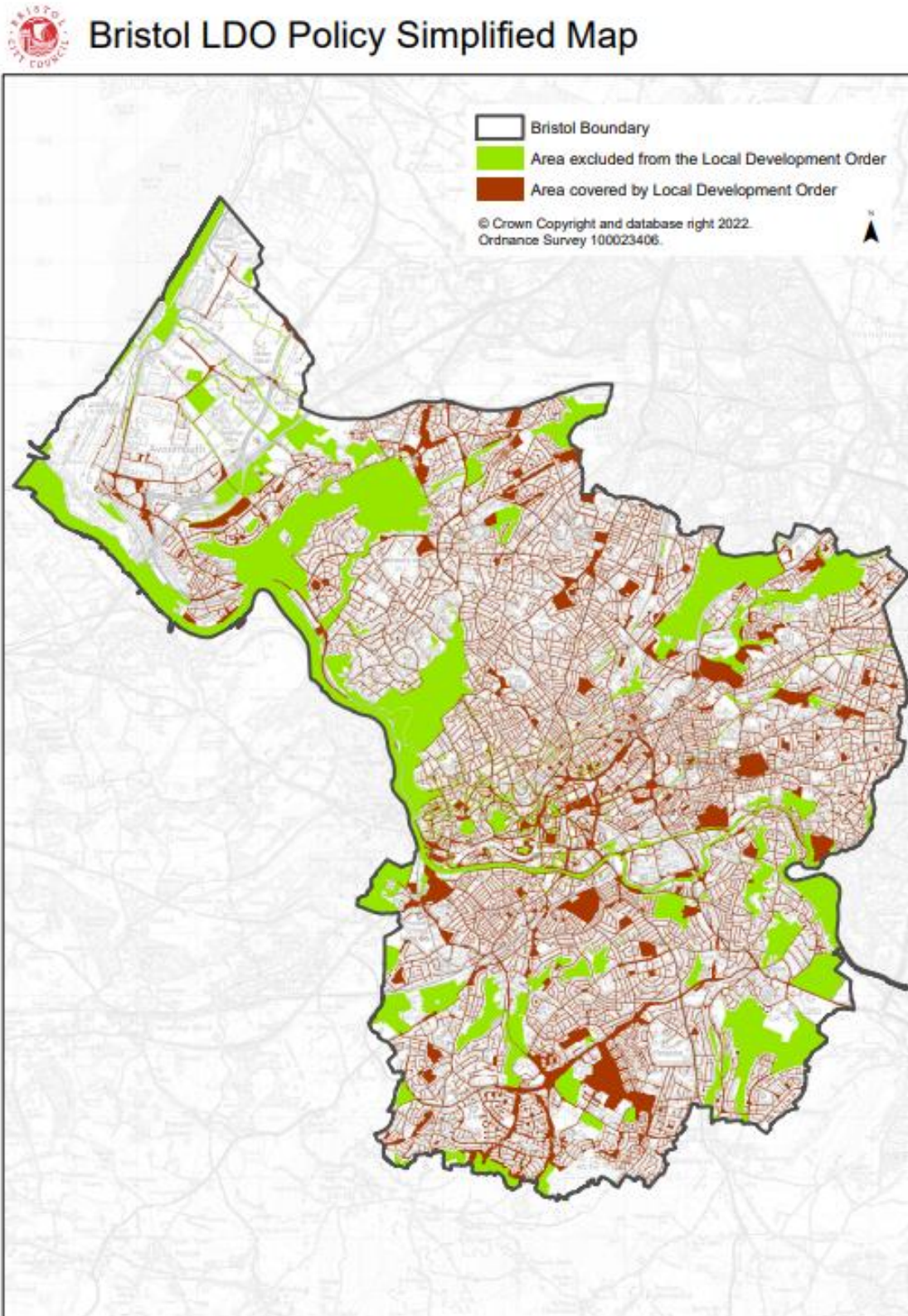
In view of this report, it is considered that any environmental effects of the development would be **not significant**. In view of the assessment within this report, given the conditions listed in the Order and mitigation measures to be taken during construction and operation of the development; it is considered the development would not have any significant effects on the environment.

From this review, the construction and operation of the development is unlikely to cause a significant effect on the environment resulting from residues, emissions, and the production of waste, or from the use of natural resources, in particular heritage, soil, land, water and biodiversity.

Any potential effects will be mitigated through design and the application of construction best practice to ensure that there are **no significant residual environmental effects**. It is, therefore considered that the development **is not EIA development** and will not require a statutory EIA.

Appendices

Figure 3.1: Bristol LDO Policy Simplified Map



Source: Bristol City Council, 2022