

Chapter 8

Water

Policy context

International

8.1 The 2030 Agenda for Sustainable Development (2015) [See reference 219]: This initiative, adopted by all United Nations Member States, provides a shared blueprint for peace and prosperity for people and the planet and includes 17 Sustainable Development Goals (SDGs), designed to achieve a better and more sustainable future for all. Relevant to this topic are:

- SDG 6: Clean Water and Sanitation
- SDG 14: Life Below Water
- SDG 15: Life on Land

National

8.2 The NPPF (2021) [See reference 220] states that planning policies and decisions should contribute to and enhance the natural and local environment by protecting and enhancing water resources. Policies should also prevent new and existing development from “contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution.” The NPPF is supported by planning practice guidance relating to:

- **Natural environment (2019) [See reference 221]** - Highlights key issues in implementing policy to protect and enhance the natural environment,

agricultural land, soils and brownfield land of environmental value, green infrastructure, biodiversity, geodiversity, ecosystems and landscapes.

- **Water supply, wastewater and water quality (2019)** [See reference 222] - Advises on how planning can ensure water quality and the delivery of adequate water and wastewater infrastructure.

8.3 The Environment Act 2021 [See reference 223] sets statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water, and resource efficiency and waste reduction. It also establishes the Office for Environmental Protection which will act as an impartial and objective body for the protection and improvement of the environment. The Act sets out legislation which covers:

- Plans and proposals for water resources, drainage and sewerage management, storm overflows, water quality and land drainage.

8.4 A Green Future: Our 25 Year Plan to Improve the Environment [See reference 224]: Sets out goals for improving the environment within the next 25 years. It details how the Government will work with communities and businesses to leave the environment in a better state than it is presently. Identifies six key areas around which action will be focused. Those of relevance to this chapter are:

- Recovering nature and enhancing the beauty of landscapes:
 - i) Respect nature by using our water more sustainably.

8.5 The Water Environment Regulations [See reference 225] protect inland surface waters, transitional waters, coastal waters and groundwater, and outlines the associated river basin management process. These Regulations establish the need to prevent deterioration of waterbodies and to protect, enhance and restore waterbodies with the aim of achieving good ecological and chemical status.

8.6 The Water Supply (Water Quality) Regulations [See reference 226] focus on the quality of water for drinking, washing, cooking and food

preparation, and for food production. Their purpose is to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring it is wholesome and clean.

8.7 Water White Paper (2012) [See reference 227]: Sets out the Government's vision for the water sector including proposals on protecting water resources and reforming the water supply industry. It outlines the measures that will be taken to tackle issues such as poorly performing ecosystems, and the combined impacts of climate change and population growth on stressed water resources.

8.8 National Policy Statement for Waste Water (2012) [See reference 228]: sets out Government policy for the provision of major waste water infrastructure. The policy set out in this NPS is, for the most part, intended to make existing policy and practice in consenting nationally significant waste water infrastructure clearer and more transparent.

8.9 Future Water: The Government's Water Strategy for England (2008) [See reference 229]: Sets out how the Government wants the water sector to look by 2030, providing an outline of steps which need to be taken to get there. These steps include improving the supply of water; agreeing on important new infrastructure such as reservoirs; proposals to time limit abstraction licences; and reducing leakage. The document also states that pollution to rivers will be tackled, while discharge from sewers will be reduced.

8.10 Environmental Protection Act 1990 [See reference 230]: makes provision for the improved control of pollution to the air, water and land by regulating the management of waste and the control of emissions. Seeks to ensure that decisions pertaining to the environment are made in an integrated manner, in collaboration with appropriate authorities, non-governmental organisations and other persons.

Regional and local

8.11 South Essex Green and Blue Infrastructure Strategy: Resilient by Nature [See reference 231]: This strategy sets out a vision for an integrated green and blue infrastructure (GBI) network across South Essex and key objectives and projects to achieve this. The protection and enhancement of GBI will help to improve air, water and soil quality throughout the region.

8.12 Green Essex Strategy [See reference 232]: This Strategy seeks to enhance, protect and create an inclusive and integrated network of high-quality green infrastructure in Greater Essex, to create a county-wide understanding of green infrastructure – its functions and values, and to identify opportunities for implementing green infrastructure. The Strategy recognises the importance of GI in terms of environmental benefits, including improving air, water and soil quality. The Strategy highlights the importance of GI in providing ecological networks of all scales, from regional to neighbourhood scale.

8.13 Thurrock Climate Change Scoping Study [See reference 233]: The Thurrock Climate Change Scoping Study was commissioned in 2019 to inform the integration of climate change into the Council's planning policy, in accordance with NPPF. The study's aims are to provide a baseline assessment of the Borough's current climate impacts (emissions) and risks (hazards); summarise existing climate change legislation and policy; review existing documents, local plan processes, policy and operation; outline initiatives to focus on in the Local Plan; and to define what the requirements should be if a climate change strategy were to be developed for the Borough. The study provides a series of recommendations and next steps for the process including stakeholder engagement and establishing timescales and accountability. It also highlights core focus areas and priorities for the Borough including land-use and access issues, carbon emissions relating to buildings, retail and industry, infrastructure, natural resources, the environment and waste.

8.14 Thurrock Local Flood Risk Management Strategy [See reference 234]: This strategy sets out how Thurrock Council, alongside other Risk Management

Authorities (RMAs), are responding to identified flood risk in Thurrock. Among other things, the strategy specifies the flood and coastal erosion risk management functions that may be exercised by RMAs, objectives and measures for managing local flood risk and implementation details for these.

8.15 Thurrock Council is currently preparing a **Climate Change Strategy**, a **Water Cycle Study**, and a **Green and Blue Infrastructure Strategy**, all of which will be taken into account in the next iteration of the SEA.

Implications of the policy review for the Interim TTS and SEA

In order to align with the international, national, regional and local policies outlined above, the Interim TTS should seek to minimise adverse impacts on the water environment from transport development. The SEA is able to respond to this through the inclusion of SEA objectives relating to the protection and enhancement of water quality and quantity.

Baseline information

8.16 Thurrock is located within the South Essex Catchment Partnership (SECP) area [\[See reference 235\]](#). The South Essex Catchment covers Mardyke Valley in the west of Thurrock, and a number of small tributaries of the Thames Estuary to the east. The SECP Plan (2021) [\[See reference 236\]](#) outlines the key features of the catchment area and the main threats it is facing. The SECP prioritises projects that seek to tackle issues involving water quality, flood risk, habitats and wildlife and health and wellbeing, aligning with improving the catchment's Water Framework Directive status. It is further supported by the Thames River Basin District River Basin Management Plan. Thurrock is also partially located within the Thames Estuary 2100 plan area [\[See reference](#)

237], which sets out how the Environment Agency and partners can work together to manage flood risk, adapt to the challenges of climate change, ensure sustainable and resilient developments, protect social, commercial and cultural value, and enhance and restore ecosystems within the Thames estuary.

8.17 Thurrock is located on the River Thames however, the main watercourse flowing through Thurrock is the River Mardyke. This flows for 11 miles from its source near little Warley, through the Borough until it meets the River Thames at Purfleet. The flow from the Mardyke to the Thames is controlled by a sluice located at the confluence of the two rivers, and the Mardyke becomes tide-locked for several hours each tidal cycle. This exacerbates the low flow conditions and can result in low dissolved oxygen concentrations during the summer months. Other watercourses in the Borough are Stanford Brook and Vange Creek/Holehaven Creek.

8.18 The Water Framework Directive, transposed by the Water Framework Regulations, aims to achieve high or good status for surface water in all members states by 2027. According to the Draft Thames River Basin Management Plan **[See reference 238]**, the Thames Lower and Thames Middle waterbodies were of 'moderate' ecological status in 2019. The chemical status for both sections of the river was 'fail'. Reasons for not achieving good ecological and chemical status are largely related to contamination from industry, landfill leaching, sewage discharge, urban development, transport, as well as physical modification from various activities. The Mardyke and its tributaries were also considered to be in 'moderate' ecological health. The chemical status for the river and its tributaries in 2019 was also 'fail'. The main reasons for the water body and its tributaries not achieving good ecological and chemical status were sewerage discharge from the water industry, physical modification of the river, land drainage, high levels of phosphate from agricultural runoff from rural areas, industry discharge and a number of other unknown activities that are pending investigation **[See reference 239]**.

8.19 Groundwater within the South Essex Catchment is held within a chalk aquifer to the south and a gravel aquifer to the north. Within Thurrock, the overall groundwater status is generally poor. Although quantitative status (the

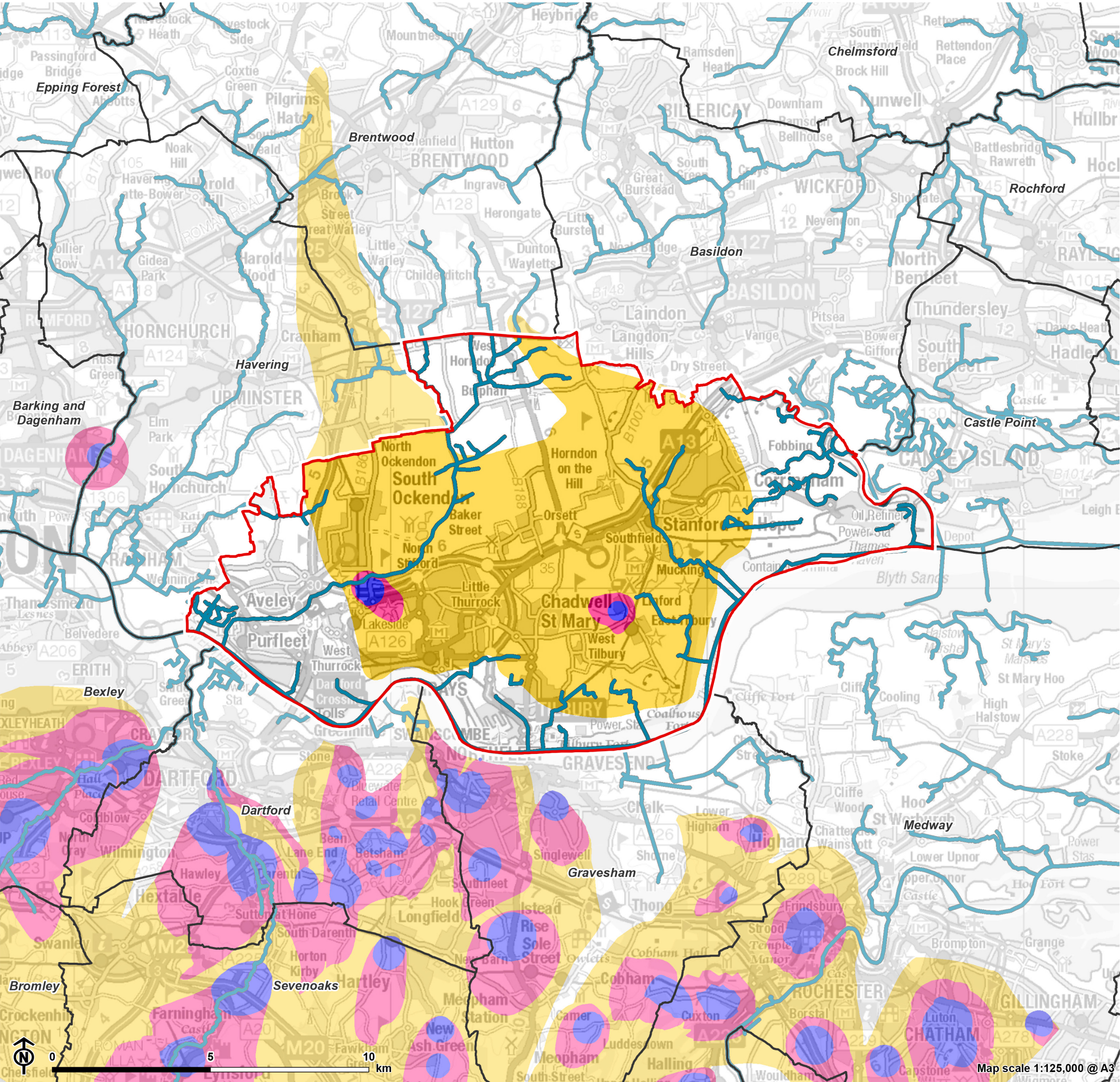
amount of groundwater) is largely good aside from the far south of the catchment, the chemical status is poor throughout.

8.20 There are a number of water-dependent Sites of Special Scientific Interest (SSSI) in the Mardyke Valley, at Grays Chalk Pit and West Thurrock Lagoon and Marshes. The coastal strip to the east of the Borough also contains a number of internationally important habitat sites, including the Thames Estuary and Marshes Special Protection Area and Ramsar site and a number of grazing marsh SSSIs.

8.21 Source Protection Zones (SPZs) are defined around large and public potable groundwater abstraction sites, and they provide additional protection to safeguard drinking water quality by constraining the proximity of an activity that can impact the quality of drinking water. There are two SPZs within Thurrock, in Linford and North Stifford. The entire catchments of these two zones fall within the Borough boundary [\[See reference 240\]](#).

8.22 The location of SPZs and the main watercourses in the Borough are shown in **Figure 8.1**.

Figure 8.1: Watercourses and Source Protection Zones



Key environmental issues and likely evolution of these issues without the Interim Thurrock Transport Strategy

8.23 The Thames and Mardyke rivers and their tributaries are failing to meet the Water Framework Directive objective of 'good' ecological and chemical status. The main reasons for the water bodies and their tributaries not achieving good ecological and chemical status are sewerage discharge from the water industry, contamination from industry, landfill leaching, urban development and transport development, physical modification, land drainage, and high levels of phosphate from agricultural runoff from rural areas. Pollution from surface water runoff from both agriculture and urban areas can occur during extreme weather events which are more likely to occur with climate change. Thurrock's groundwater status is generally poor. Water resources in the East of England, including Thurrock, will be in deficit by 1.6 billion litres per day by the 2050s [See reference 241].

8.24 Without the Interim TTS, it is possible that transport developments could be located in areas that could lead to further water quality issues and risks to the natural environment. The water environment has the potential to be both directly and indirectly affected by the Interim TTS, with both land-based and river freight transport development potentially contributing to the pollution of nearby watercourses and groundwater and adversely affecting drainage of surface water (in the case of land-based development). However, existing safeguards, such as the Water Framework Regulations, would help to reduce the potential for this to occur. The Interim TTS provides an opportunity to ensure that transport development is located and designed to take into account the sensitivities of the water environment and water-dependent protected sites. Without the Interim TTS, these sustainability issues would be less well addressed, and the opportunities may not be fully exploited.

Chapter 9

Cultural heritage, including architectural and archaeological heritage

Policy context

International

9.1 Valletta Treaty (1992) formerly the European Convention on the Protection of the Archaeological Heritage (Revisited) [\[See reference 242\]](#): Aims to protect the European archaeological heritage “as a source of European collective memory and as an instrument for historical and scientific study”.

9.2 European Convention for the Protection of the Architectural Heritage of Europe (1985) [\[See reference 243\]](#): Defines ‘architectural heritage’ and requires that the signatories maintain an inventory of it and take statutory measures to ensure its protection. Conservation policies are also required to be integrated into planning systems and other spheres of Government influence as per the text of the convention.

9.3 UNESCO World Heritage Convention (1972) [\[See reference 244\]](#): Requires signatories to identify and conserve World Heritage sites situated on its territory and protect its national heritage. The States Parties are encouraged to integrate the protection of the cultural and natural heritage into regional planning programmes, set up staff and services at their sites, and undertake scientific and technical conservation research.

National

9.4 Of relevance to the approach of the planning system to the historic environment the **NPPF** (2021) [\[See reference 245\]](#) contains an environmental objective to contribute to the protection and enhancement of the built and historic environment. The document also sets out a strategy to seek “the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay and other threats.” Such a strategy is required to take into consideration the desirability of sustaining and enhancing the significance of heritage assets and bringing them into viable use.

9.5 It should also be considerate of the wider benefits of conserving the historic environment, the contribution new development can make in terms of character and distinctiveness and the opportunity for the historic environment to contribute to this character and distinctiveness. Local authorities should also maintain or have access to a historic environment record which is to be supported by up-to-date evidence.

9.6 The NPPF is supported by planning practice guidance relating to:

- **Historic environment** (2019) [\[See reference 246\]](#) - Advises on enhancing and conserving the historic environment through planning, decision-making, designation, listed building consent processes and consultation.

9.7 The **Environment Act 2021** [\[See reference 247\]](#) sets out the UK’s new framework for environmental protection. It includes the creation of Conservation Covenant agreements between a landowner and a responsible body for the purposes of conservation. This can include to preserve land as a place of ‘archaeological, architectural artistic, cultural or historic interest.’

9.8 The **Heritage Statement 2017** [\[See reference 248\]](#): Sets out how the Government will support the heritage sector and help it to protect and care for our heritage and historic environment, in order to maximise the economic and

social impact of heritage and to ensure that everyone can enjoy and benefit from it.

9.9 Sustainability Appraisal and Strategic Environmental Assessment, Historic England Advice Note 8 [See reference 249]: Sets out requirements for the consideration and appraisal of effects on the historic environment as part of the Sustainability Appraisal/Strategic Environmental Assessment process.

9.10 The Government's Statement on the Historic Environment for England 2010 [See reference 250]: Sets out the Government's vision for the historic environment. It calls for those who have the power to shape the historic environment to recognise its value and to manage it in an intelligent manner in light of the contribution that it can make to social, economic and cultural life. Includes reference to promoting the role of the historic environment within the Government's response to climate change and the wider sustainable development agenda.

9.11 Planning (Listed Buildings & Conservation Areas) Act 1990 [See reference 251]: An Act of Parliament that changed the laws for granting of planning permission for building works, with a particular focus on listed buildings and conservation areas.

9.12 Ancient Monuments & Archaeological Areas Act 1979 [See reference 252]: a law passed by the UK government to protect the archaeological heritage of England & Wales and Scotland. Under this Act, the Secretary of State has a duty to compile and maintain a schedule of ancient monuments of national importance, in order to help preserve them. It also creates criminal offences for unauthorised works to, or damage of, these monuments.

9.13 Historic Buildings and Ancient Monuments Act 1953 [See reference 253]: An Act of Parliament that makes provision for the compilation of a register of gardens and other land (parks and gardens, and battlefields).

Regional and local

9.14 Essex Historic Landscape Characterisation Project [See reference 254]: This project seeks to characterise the distinctive historic dimension of the current rural landscape. The project identifies 54 Historic Landscape Characterisation (HLC) types across Essex which are broadly categorised into 10 categories (enclosed land, open land, woodland, parks & gardens, coastal, settlement, industrial, horticulture, military and land use).

9.15 Thames Estuary Growth Commission 2050 Vision [See reference 255]: The 2050 Vision for the Thames Estuary seeks to celebrate the character and heritage of the Thames Gateway area, including the rivers and recognises that heritage assets can help build economic prosperity and create quality of life.

9.16 South East Inshore Marine Plan [See reference 256]: The Plan introduces a strategic approach to planning within the inshore waters between Suffolk and Kent, including the Thames Estuary. This includes a policy on conserving and enhancing elements contributing to the significance of heritage assets.

9.17 Thurrock Scheduled Ancient Monuments Assessment of Settings [See reference 257]: This report provides a detailed assessment of the significance of the setting of the Scheduled Monuments in Thurrock in response to developing the Thurrock Local Plan. The monument types range from the large and imposing, as is the case with Tilbury and Coalhouse Fort, to below ground archaeological remains which have a less visual presence in the landscape.

9.18 Thurrock Unitary Historic Environment Characterisation Project: The project considers the sensitivity, diversity and value of historic environment resources within Thurrock and aims to facilitate development of positive approaches to the integration of historic environment objectives into spatial planning.

9.19 Thurrock Conservation Area Character Appraisals [See reference 258] : Character appraisals of the seven Conservation Areas in Thurrock assess the areas and evaluate their special interests and significance.

Implications of the policy review for the Interim Thurrock Transport Strategy and SEA

In order to align with the policies outlined above, the Interim TTS should seek to protect heritage and cultural assets (both designated and undesignated), and local character and distinctiveness; and to improve access to heritage assets.

The SEA Framework should include objectives relating to the conservation of the historic environment and the character of landscapes and townscapes, and the improvement of access to heritage assets.

Baseline information

Heritage assets

9.20 The Essex Historic Landscape Characterisation Project [See reference 259] identifies the predominant Historic Landscape Characterisation (HLC) types in Thurrock as 20th century agriculture; built up areas; coastal – drained enclosure; coastal – managed wetland; mineral; industry; pre-18th century enclosure; and parks and gardens.

9.21 Thurrock has a range of unique heritage assets that contribute to the character of the Borough. The assets include Scheduled Monuments, Listed

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Buildings (Grade I, Grade II* and Grade II), Conservation Areas and a Registered Park and Garden. These assets are shown in **Figure 9.1**.

9.22 Highlighted in the National Planning Policy Framework, non-designated heritage assets are singular buildings, structures and monuments or landscapes that are believed to have a degree of heritage significance and make a significant impact to local character, identity and sense of place. However, despite their level of heritage significance, these sites do not meet the criteria set out for statutory listing through Historic England **[See reference 260]**.

9.23 Thurrock contains a number of important historic assets including **[See reference 261]**:

- seven Conservation Areas:
 - Horndon-on-the-Hill
 - Corringham
 - Orsett
 - Fobbing
 - Purfleet
 - West Tilbury
 - East Tilbury
- 242 entries in the List of Buildings of Special Architectural or Historic Interest (13 Grade I, 210 Grade II and 19 Grade II*)
- 17 Scheduled Monuments
- one Registered Park and Garden at Belhus Park
- 20 ancient woodland sites
- 1,101 Archaeological records on the Essex Historic Environment Record **[See reference 262]**.

Heritage at Risk

9.24 Historic England has a Heritage at Risk Register [\[See reference 263\]](#) that includes historic buildings, listed buildings, sites and Conservation Areas at risk of being lost through neglect, deterioration or decay. The register aims to highlight those places and buildings in greatest need of repair.

9.25 East Tilbury Conservation Area, which consists of the former factory complex of British Bata Shoe Company and a large housing development in a 'garden village' setting, is included in the Heritage at Risk Register. Its condition is described as 'very bad' and 'deteriorating'.

9.26 Belhus Park is the only Registered Park and Garden in Thurrock. Its condition is described as 'generally unsatisfactory with major localised problems' and it is 'declining' in condition. The M25 cut through the east of Belhus Park and surviving features are in very poor condition. The Park supports a golf course and other formal and informal recreational uses.

9.27 Two Scheduled Monuments are included in the Register. These are:

- Crop mark complex, Orsett is 'generally unsatisfactory with major localised problems' and is 'declining' in condition; and
- Coalhouse Fort, Tilbury is a ruined C19 armoured casemate fort that is considered to be in a 'very bad' condition. The site is part occupied/part in use as a café, following repair of the generator house. Repairs of the gatehouse block were completed in 2011, subsequent site surveys completed in 2017 and repairs to make the site watertight continuing in 2020. Coalhouse Fort is highly vulnerable to current-day tidal flood risk as the low-lying embankment adjacent to the Thames Estuary has now overtopped at least once a year for the last three years [\[See reference 264\]](#).

9.28 Thurrock has one Listed Building on the Heritage at Risk Register, namely the State Cinema, George Street, Grays (Grade II*). Its condition is categorised

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as 'very bad' and it is currently unoccupied. However, a repair scheme is in progress.

9.29 The heritage assets identified on the Historic England at Risk Register are shown in **Figure 9.2**.

Figure 9.1: Designated Heritage Assets

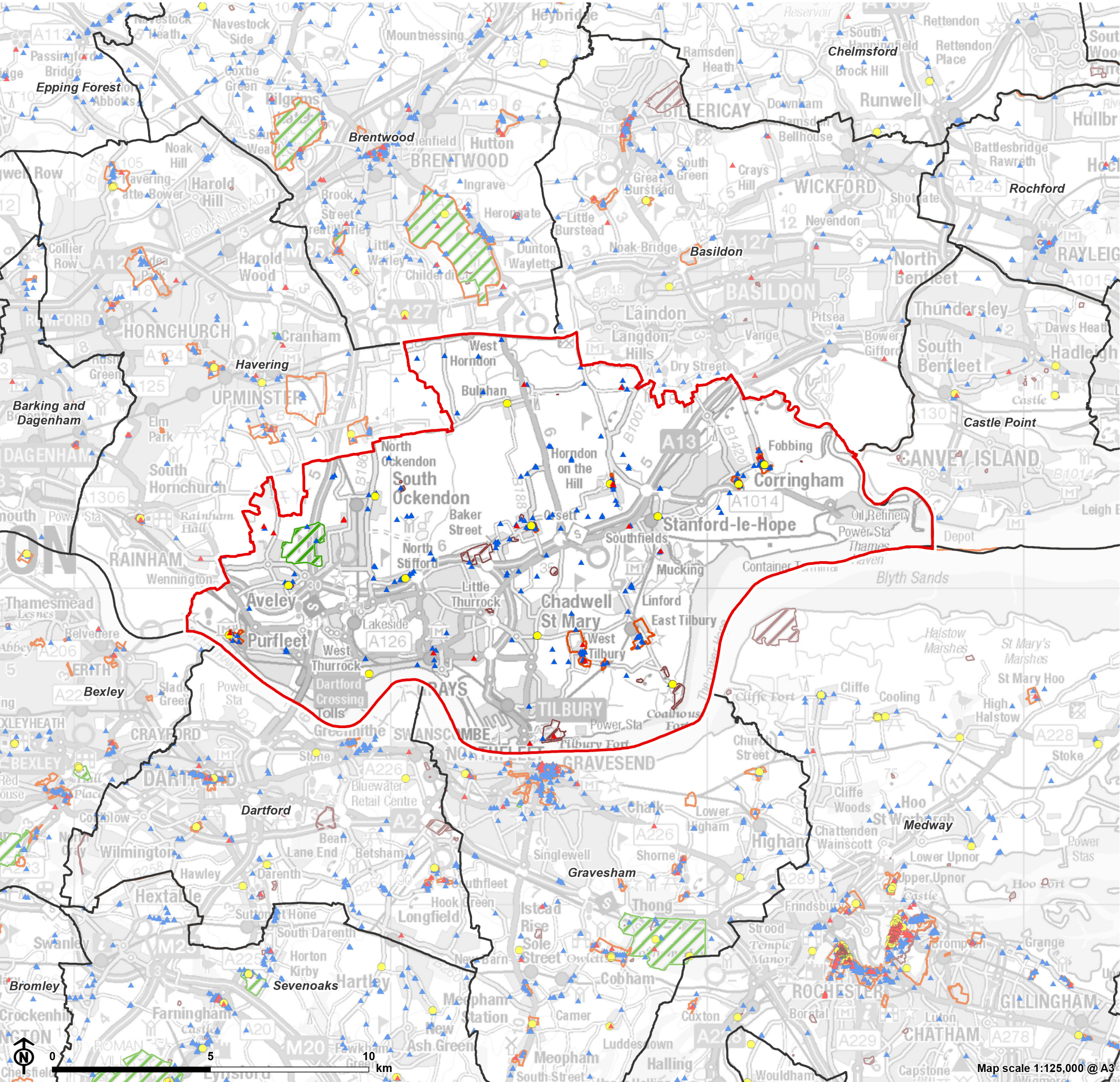
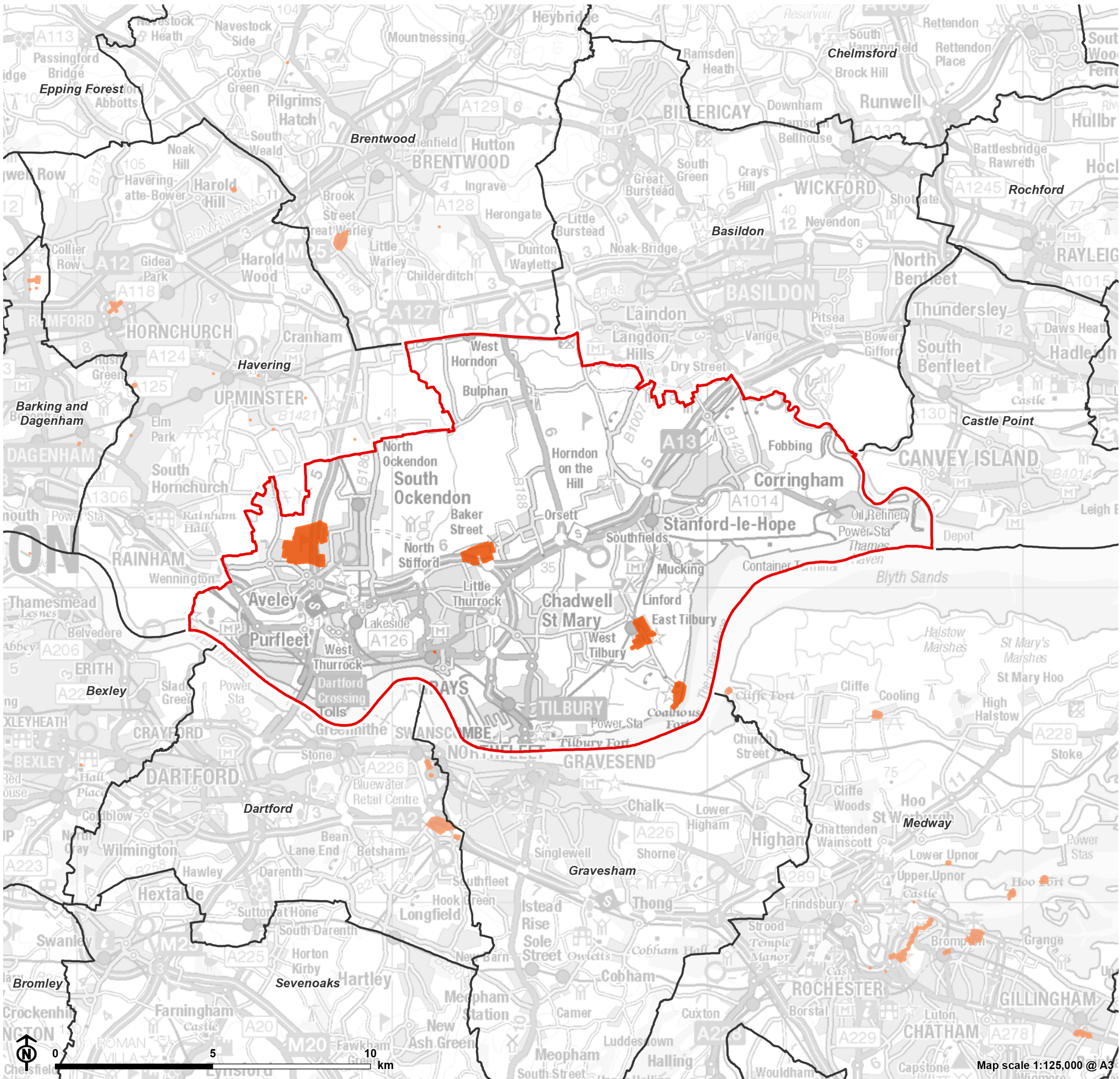


Figure 9.2: Heritage at Risk



- Thurrock Council boundary
- Neighbouring authority boundary
- Heritage at Risk

Key environmental issues and likely evolution of these issues without the Interim Thurrock Transport Strategy

9.30 There are many heritage assets and areas of historical and cultural interest in Thurrock that could be adversely affected by poorly located or designed transport development, particularly archeologically and paleo-archaeological interests. There are a number of heritage assets listed on the Heritage at Risk Register including East Tilbury Conservation Area, Belhus Park, two Scheduled Monuments and one Listed Building, some of which are deteriorating in condition. Coalhouse Fort (Scheduled Monument) and Coalhouse Fort Park will be further impacted by the impacts of climate change given its very high current-day tidal flood risk. Air pollution can contribute to the degradation of heritage assets. New transport development can have a range of direct and indirect effects on heritage assets including effects from noise and air pollution from busy traffic in close proximity to culturally significant areas which may make them less appealing to visit or decrease their visual amenity.

9.31 However, the Interim TTS provides an opportunity to protect these assets (including their settings) from inappropriate transport development. It is likely that the maintenance and management of existing transport infrastructure, and the delivery of any new transport infrastructure, would be required to consider the potential effects on any nearby heritage assets and historic areas, and to incorporate elements that help to enhance their setting. Improving the public transport and active travel connectivity of places throughout Thurrock, as proposed in the Interim TTS, could help enhance the accessibility of historic areas and heritage assets for people from all backgrounds, including local people and tourists. This would help to promote the importance of these assets and areas and could subsequently lead to new investment, such as through an increase in the number of visitors, that would help to preserve heritage assets and areas for future generations to enjoy. Furthermore, the Interim TTS provides an opportunity to reduce the need to travel by diesel and petrol vehicles; to accelerate a shift from private car to active and public transport; and

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to decarbonise road vehicles, all of which will reduce greenhouse gas emissions, thereby helping to reduce degradation of heritage assets.