REBN002

Braintree District Council Water Cycle Study

Outline Water Cycle Study

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Acronyms and Abbreviations

ALS	Abstraction Licensing Strategy
AMP	Asset Management Plan
AWS	Anglian Water Services
BAU	Business As Usual,
BAU+	Business As Usual Plus
BD	Braintree District
BDC	Braintree District Council
BELP	Braintree Emerging Local Plan
BOD	Biochemical Oxygen Demand
CAMS	Catchment Abstraction Management Strategy
CFMP	Catchment Flood Management Plan
CSO	Combined Sewer Overflow
DO	Deployable Output
DWMP	Drainage and Wastewater Management Plan
DYCP	Dry Year Critical Period
EA	Environment Agency
E&SW	Essex and Suffolk Water
ECC	Essex County Council
EFI	Environmental Flow Indicator
EP	Environmental Permits

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FRA	Flood Risk Assessment
FTFT	Flow to Full Treatment
GIS	Geographic Information System
HMWB	Heavily Modified Water Body
LHN	Local Housing Need
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
LPP	Local Planning Policy
N	Nitrogen
NaFRA	National Flood Risk Assessment
NAV	New Appointees and Variations
NBS	Nature Based Solution
NE	Natural England
NVZ	Nitrate Vulnerable Zone
ONS	Office for National Statistics
P	Phosphorus
PPC	Per Capita Consumption
PPG	Planning Practice Guidance
RAMS	Recreational disturbance Avoidance and Mitigation Strategy
RCP	Representative Concentration Pathway
SAC	Special Areas of Conservation
SFRA	Strategic Flood Risk Assessment

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SIP	Site Improvement Plan
SPA	Special Protection Areas
SS	Suspended Solids
STW	Sewage Treatment Works
SuDS	Sustainable Drainage Systems
TAL	Technical Achievable Limit
UWWTD	Urban Wastewater Directive
WAFU	Water Available for Use
WCS	Water Cycle Study
WFD	Water Framework Directive
WINEP	Water Industry National Environment Programme
WRC	Water Recycling Centre
WRE	Water Resources East
WRMP	Water Resource Management Plan
WRZ	Water Resource Zones
WTP	Water Treatment Plant
ZoI	Zone of Influence

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Non-Technical Summary

An Outline Water Cycle Study (WCS) has been commissioned by Braintree District Council (BDC) to provide evidence that the development proposed within the Braintree Emerging Local Plan (BELP) for the plan period up to 2041 (to supersede the existing Adopted Local Plan up to 2033) can be accommodated by the water and wastewater infrastructure, and wider water environment in a sustainable manner.

This Outline WCS provides a detailed assessment of the proposed development and its trajectory for the plan period up to 2041 to ensure this overarching objective can be achieved.

Therefore, the potential impact of the current development proposals has been analysed in terms of water resources, the current water and wastewater infrastructure, and the water environment. It is considered that the capacity of the existing Water Recycling Centres (WRCs) and the associated impact on the water environment are the greatest potential issues in relation to the currently proposed development aspirations within the Braintree District.

A summary is provided below for the findings of main WCS chapters.

Water Resources and Supply

Potable water within the study area is supplied by Anglian Water Services (AWS) and Essex and Suffolk Water (E&SW). As outlined in the revised Water Resources Management Plans (WRMP24), without new interventions AWS and E&SW will not have the capacity to supply their respective Water Resource Zones (WRZs) to meet the Braintree District's demand (in Central and South Essex WRZs for AWS, and Essex WRZ for E&SW). Both AWS and E&SW have current plans to achieve the required demand in their impacted WRZs through several supply and demand options, which include leakage reduction, metering and water re-use. However, with the proposed interventions in place, AWS estimates that it will have only minimal surplus headroom or no headroom in both the Essex South and Essex Central WRZ. Whereas the E&SW Essex WRZ will have a surplus of 1.5 Ml/day at the beginning, which will then rise to 64.5 Ml/day by 2049/50.

Due to the limited headroom in the AWS WRZ, it is recommended by this WCS that a tighter Per Capita Consumption (PCC) value of 90 l/p/d is implemented within the BELP as a minimum.

Water Recycling Centres, Sewerage and Water Quality

This WCS shows that out of the 20 impacted existing WRCs that are operated by AWS, 16 WRCs will exceed the permitted Dry Weather Flow (DWF) consent due to the BELP growth. This is based on conservative recorded DWF estimates from 2024 (since it was a very wet year), but only 11 WRCs will exceed the existing permit when the calculated DWF is used for the 2024 baseline. Of these 11 WRCs, four of them are also identified for implementing growth schemes (Coggeshall, Halstead, Braintree and White Notley) within the current Asset Management Period (AMP8).

An initial review of water quality compliance at the failing 16 WRCs and receiving waterbodies has been carried out in this WCS, which shows that all but one can be met by tightening the existing water quality parameters of the respecting discharge permits - i.e. without going below the Technically Achievable Limits (TALs) of the conventional wastewater treatment methods.

It however was identified by AWS that two WRCs (Bocking and Coggeshall) will have the water quality permit limits set to the TALs by the end of AMP8 in 2030, as part of the Water Industry National Improvement Programme (WINEP). Therefore, BDC must prevent development occurring ahead of additional capacity at these WRCs becoming available, either by taking a stepped approach or by redirecting some development into another WRC catchment with sufficient capacity until AWS and the Environment Agency (EA) have

reached an agreeable position on how to accommodate further development growth at these two WRC locations.

Therefore, AWS and BDC would need to work with the EA to find the most sustainable solution or combination of solutions to address the identified DWF exceedance risk at each of impacted WRCs. This WCS also recommends that further investigation is required to establish the future discharge permit values at the 16 WRCs that are shown to have DWF exceedance, including the potential use of an average of measured DWF (i.e. as opposed to the 2024 wet year or calculated DWF).

Flood Risk

A high-level assessment has been undertaken for each of the WRCs within Braintree District to determine if an increase in homes and population poses an increased flood risk from discharges into the receiving watercourses. The assessment produces a risk score based on likely increase in river flow, infrastructure crossing the river and urban infrastructure near the river. All WRCs except four discharges into the receiving watercourse are classed as a low risk for flooding impact due to the extra DWF. The four WRC, which are classed as medium, modelling was not deemed necessary, but it is recommended that the SFRA explores this further.

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1 Introduction

1.1 Study Area

Braintree District Council (BDC) (Figure 1-1) is a local authority in the county of Essex in the east of England. The area covered by the local authority is predominantly rural in nature, made up of a number of smaller villages. Braintree (with Bocking and Great Notley), Witham, and Halstead are the major towns. Key service settlements include: Coggeshall, Earls Colne, Hatfield Peverel, Kelvedon (with Ferring), and Sible Hedingham. Within the WCS, the terminology Braintree District Council administrative area and Braintree District Council Boundary will be used interchangeably and to describe the area for which Braintree District Council are responsible for.

According to the Office for National Statistics (ONS) the population of the Braintree District (BD) was approximately 155,268 in 2021. Braintree's population is continuing to grow and is predicted to increase by approximately 47,032 to 202,300 by 2041.

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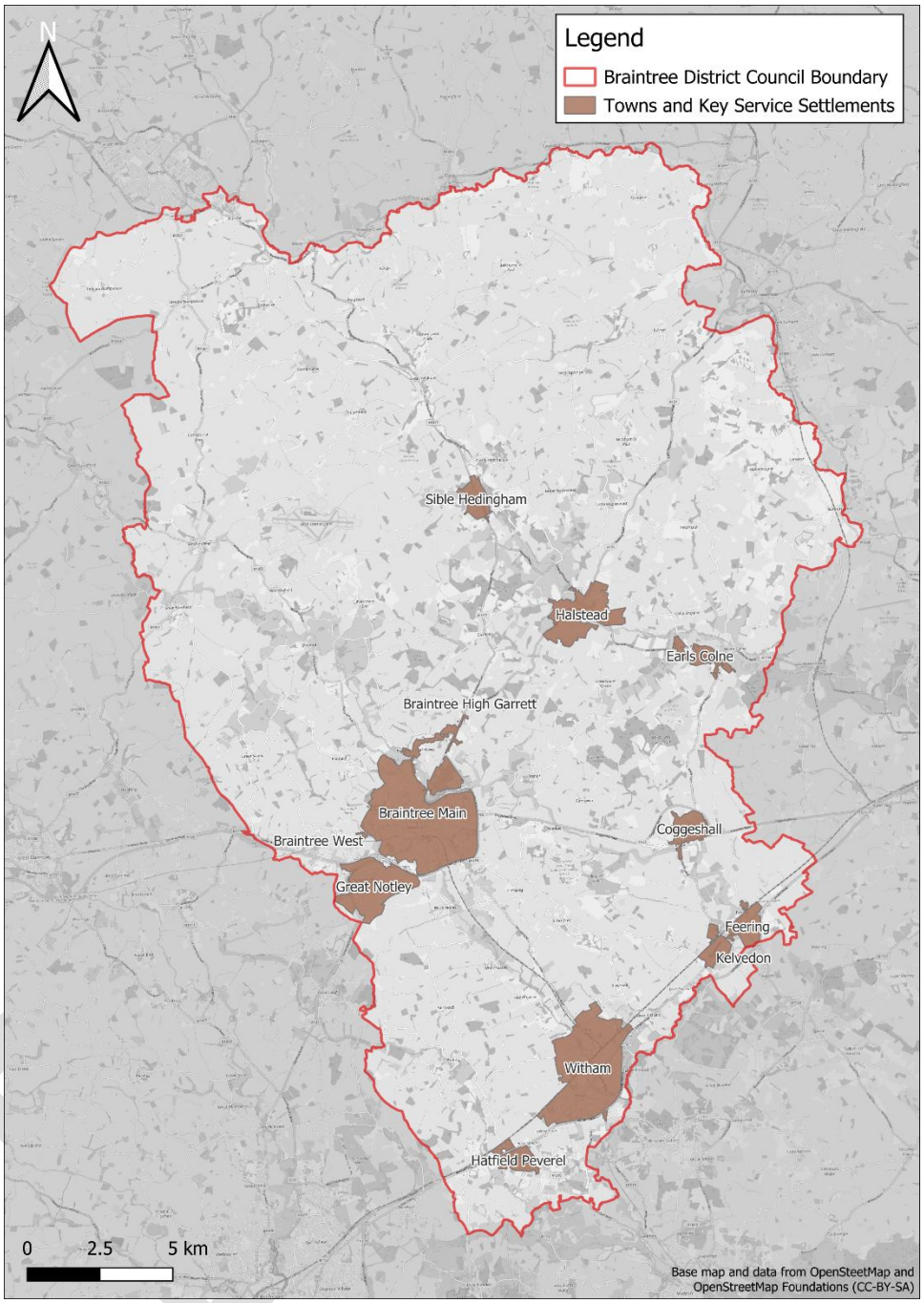

Figure 1-1: Braintree District Council Administrative Area and urban areas

The hydrological setting for Braintree is illustrated in Figure 1-2. The map shows the main rivers, ordinary watercourses, and drainage channels managed by Essex County Council as the Lead Local Flood Authority (LLFA) covering BDC.

Hydrologically, the Braintree study area is drained to the east by the River Brain, River Blackwater (a tributary of the River Brain), and River Colne. These rivers reach the coast at Maldon, and Wivenhoe respectively.

As based on information from the British Geological Survey, The northern part of the BDC boundary is underlain by bedrock geology of the Lewes Nodular Chalk Formation And Seaford Chalk Formation and Thanet Formation And Lambeth Group (Undifferentiated), with a Principal and Secondary A classification of

bedrock aquifer. The southern section is underlain by London Clay Formation-Clay comprising of silt and sand with an unproductive bedrock aquifer.

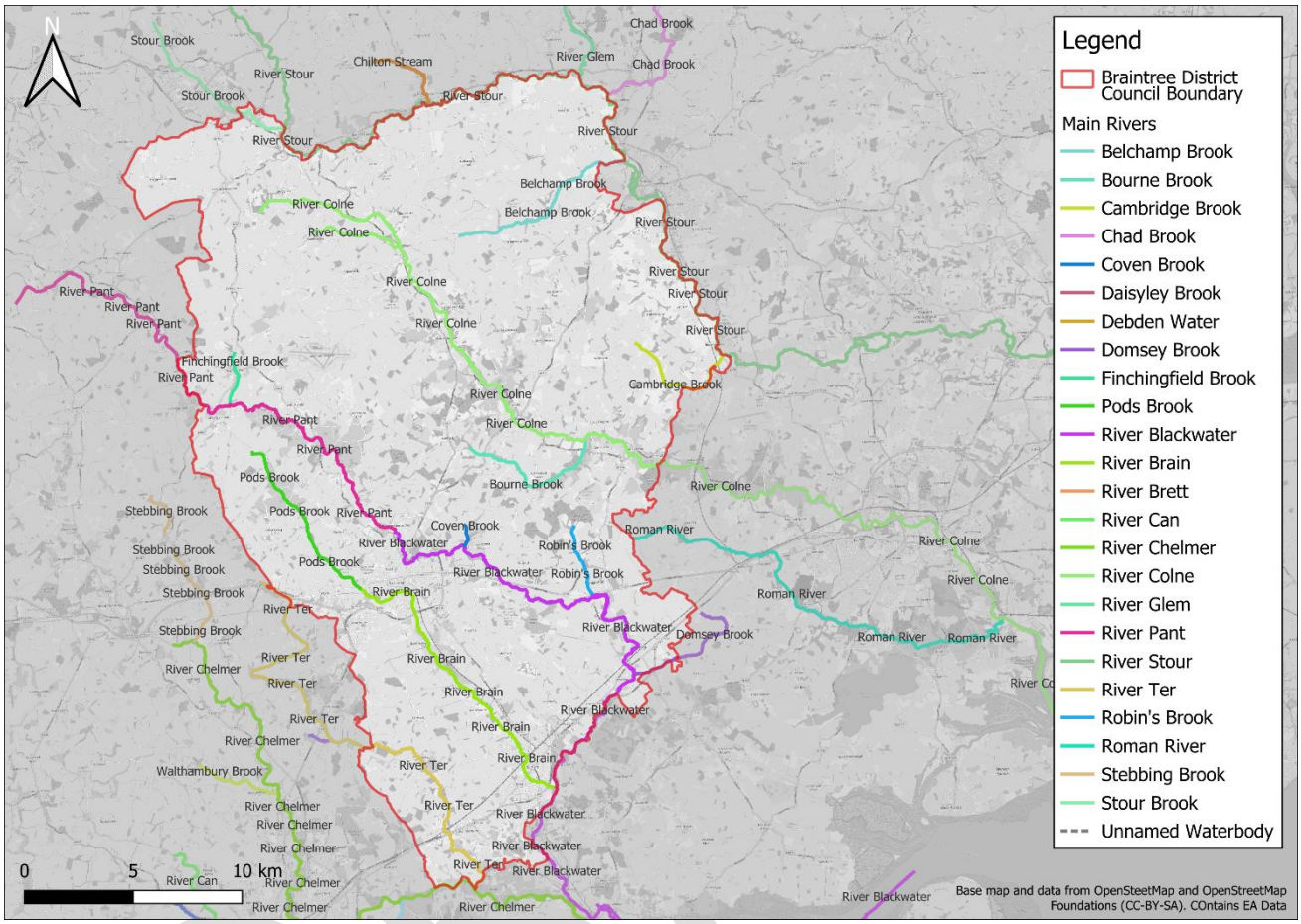

Figure 1-2: Braintree District Council hydrological setting.

Anglian Water Services (AWS) and Essex and Suffolk Water (E&SW) are the suppliers of potable water to the BDC study area. The study area is located across the Essex, Central Essex, South Essex Water Resource Zones (WRZ). The Central Essex WRZ located entirely within the BDC boundary, while the Essex WRZ extends to the south, including the Chelmsford district, and the South Essex WRZ extends to the east, including the Colchester District. A small part of the BDC boundary is located in the Bury Haverhill WRZ; however, for the sake of this report, given the small scale of this area, and the proximity to the Central Essex WRZ, the Bury Haverhill WRZ is not considered in detail. More information is included in Section 4.

AWS is responsible for collecting and treating wastewater within the Braintree administrative area. A total of 22 Water Recycling Centres (WRCs) are managed by AWS and serve the BDC area. Within this Outline WCS, the term WRC is also used to refer to Sewage Treatment Works (STWs) operated by AWS. More information is included in Section 5.

The environmental capacity of receiving waterbodies to accommodate increased foul flows from WRCs, as a result of proposed growth and population increase, is explored in Section 6.

Sources of flood risk were identified in the Braintree Strategic Flood Risk Assessment (SFRA) and key messages from this report, and other relevant flood risk policies, are highlighted and built upon in Section 0.

1.2 Local Plan Update and WCS Timescale

A new Local Plan is currently being prepared by BDC (the current Adopted Local Plan was formally adopted in July 2022), and expected to be adopted in 2026 – 2027, henceforth named the Braintree Emerging Local Plan (BELP). The Issues and Options Consultation stage closed on the 7th of March 2025.

A WCS is a key evidence base for the BELP as highlighted in Environment Agency (EA) WCS guidance. Therefore, BDC appointed Arcadis in April 2025 to prepare an Outline WCS to provide evidence to BDC of possible constraints and opportunities to proposed developments in the BDC area.

The Outline WCS (this document) assesses the proposed Strategy for development in the Preferred Options Plan, which is expected to be consulted on in February 2026, highlighting any key constraints and recommendations for addressing them. It also outlines the scope for undertaking further assessments where necessary, as part of a Detailed WCS.

This will then ensure that water supply, water quality, sewerage, and flood risk management issues can be addressed to enable the delivery of sustainable growth to 2041 and beyond for some planned sites, in a way that preserves and enhances the existing water environment.

It is recommended that prospective developers and promoters liaise with the local water and sewerage companies, EA, Essex County Council (ECC), Natural England (NE) and BDC during and following the Preferred Options Consultation, prior to the Pre-Submission stage (planned for Summer 2026). Furthermore, the WCS should be used as key reference documents during the BELP preparation and subsequent planning application stages to guide making the key development decisions.

Table 1-1 illustrates the current timescale within the context of the current schedule for delivering the BELP as per the programme published by BDC.

Table 1-1: WCS timescale within the context of the current schedule for delivering the BELP

Braintree LP timescale		**WCS component**
February – March 2025	Issues and options consultation	Outline WCS
February 2026	Preferred Options Local Plan (Reg 18) – consultation on Draft Local Plan	
Q3 2026	Pre-Submission of the Local Plan (Reg 19) – Consultation on Pre-Submission Local Plan	
Q4 2026	Submission of Local Plan – Submission to Secretary of State (Reg 20, 22, and 35)	Detailed WCS
Q4 2026 – Q2 2027	Independent examination – Examination in Public (Reg 24)	
Q2 2027	Inspectors report and Adoption of the Local Plan (2023 – 2041) (Reg 20 and 35)	

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The aims of this Outline WCS are to:

- Identify any water infrastructure services provision and usage (water consumption) constraints based on natural or anthropogenic changes, whilst testing the potential impact of BDC development plans (housing and employment) on the water environment. Includes assessment in the context of AWS and E&SW's available potable supply.
- Provide policy recommendations which will help BDC accommodate the growth within the Local Plan in line with the wider environment.
- Develop a sustainable framework that enables the phased delivery of the key infrastructure needs (including any development phasing and adaptation of future developments), in line with the aspirations and environmental demands as well as proposed development requirements of the local area.
- Inform the planning process to mitigate for any negative effects whilst maximising environmental gains through positive planning approaches.
- Promote a reduction in the risk of flooding from all sources including fluvial, surface water and groundwater, and incorporate within designs ideas such as Sustainable Drainage Systems (SuDS) to help reduce this threat and further manage the water cycle. Includes understanding the flood risk potential from increased discharge from WRCs on receiving watercourses.
- Provide an evidence base for infrastructure requirements to inform the business plans of the water companies.
- Provide a basis to implement effective solutions to reduce the water demand within the area, helping to reduce the environmental impact of over-abstraction and ease the stress on the infrastructure demands.
- Consider any water quality issues, and how the water cycle impacts upon designated sites (both now and into the future), including the capacity of watercourses and ecosystems to absorb additional discharge from new developments.
- Ensure that there is a strategic and integrated approach to the management and usage of water so that the new Local Plan is compliant with relevant legal and policy requirements.
- Consider the impact of climate change on every aspect of the WCS.

1.3 Previous Water Cycle Studies

In March 2017, BDC published a WCS (produced by AECOM) to support the Local Plan from 2018 to 2033. The WCS, with reference to wastewater, found that:

- White Notley WRC has no headroom capacity and growth upgrades will require a new dry weather flow (DWF) permit to be implemented. Treatment process upgrades will be required immediately using conventional treatment technologies to meet river quality targets.
- For Bocking WRC, treatment process upgrades will be required from 2026 using conventional treatment technologies to meet river quality targets.
- For Braintree WRC, treatment process upgrades will be required from 2024 using conventional and potentially non-conventional treatment technologies to meet river quality targets.
- For Coggershall WRC, treatment process upgrades will be required from 2019 using conventional treatment technologies to meet river quality targets.
- For the four above WRCs, permit setting is recommended for phosphate.

However, a new WCS is required because the previous 2017 WCS is now outdated due to several changes and updates which include:

- Updated Water Resource Management Plans (WRMPs)
- Additional developments and new DWF data
- A new Water Framework Directive (WFD) Cycle

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- An updated National Flood Risk Assessment (NaFRA2) data set

1.4 Key Stakeholders

Stakeholder engagement is key to informing and providing an evidence base for the WCS in terms of the wastewater treatment capacity and water environment capacity constraints. The following key stakeholders have been engaged in the preparation of this Outline WCS:

- AWS - Sewerage and Wastewater
- E&SW - Water Supply and Resources
- EA - Water Resources and Water Environment.

Consultations have been undertaken through meetings, emails, and representation provided to BDC.

1.5 The Water Cycle

The natural water cycle (Figure 1-3) is the process by which water is transported throughout a region. The process commences with precipitation (rainfall, snow, sleet or hail). This is then intercepted by the ground and either travels overland through the process of surface runoff to rivers or lakes, or percolates through the surface and into underground water aquifers.

The presence of vegetation can also intercept this precipitation through the natural processes that plants carry out, such as transpiration and evapotranspiration. The water will eventually travel through the catchment and will either evaporate back into the atmosphere or will enter the sea, where a large portion will be evaporated from the surface. This evaporated water vapour then forms into clouds and falls as precipitation again to complete the cycle. Urbanisation affects the natural water cycle in a number of ways. Traditionally permeable surfaces become impermeable due to urbanisation leading to an increase in surface water runoff. This can lead to flooding and increased peak discharges into the rivers if surface water is not managed appropriately. Abstraction of water, from both surface water and groundwater sources for potable use by the local population, interacts with the water cycle by reducing the amount of water that is naturally held within the aquifers. Abstractions from the environment require an abstraction licence granted by the EA. Current technical understanding is such that over abstraction of water within the water cycle is occurring which is leading to a deterioration in the environment. Following processing at a Water Treatment Plant (WTP) this water is now potable and is transported via trunk mains and distribution pipes to the local population in the area. The potable water is then used by the population for household, industrial and employment uses which creates large volumes of wastewater. The water will eventually travel through the catchment and will either evaporate back into the atmosphere or will enter the sea, where a large portion will be evaporated from the surface. This evaporated water vapour then forms into clouds and falls as precipitation again to complete the cycle.

Urbanisation affects the natural water cycle in a number of ways. Traditionally permeable surfaces become impermeable due to urbanisation leading to an increase in surface water runoff. This can lead to flooding and increased peak discharges into the rivers if surface water is not managed appropriately.

The wastewater created from developments is transported via the sewerage network to a WRC, where the wastewater is screened, treated, and then discharged back into the rivers or groundwater. Discharges from WRC require consent from the EA. This consent sets out the maximum volume of treated wastewater that can be discharged, and the quality standards that this discharge must meet. Typically, the consent will set limits on the concentrations of the following physiochemical determinants: Ammoniacal Nitrogen (N), Biochemical Oxygen Demand (BOD) and suspended solids in the discharge. In addition, the consent can stipulate a

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Phosphorous (P) concentration, along with limits on the concentrations of other chemicals such as iron used in the phosphorous stripping process.

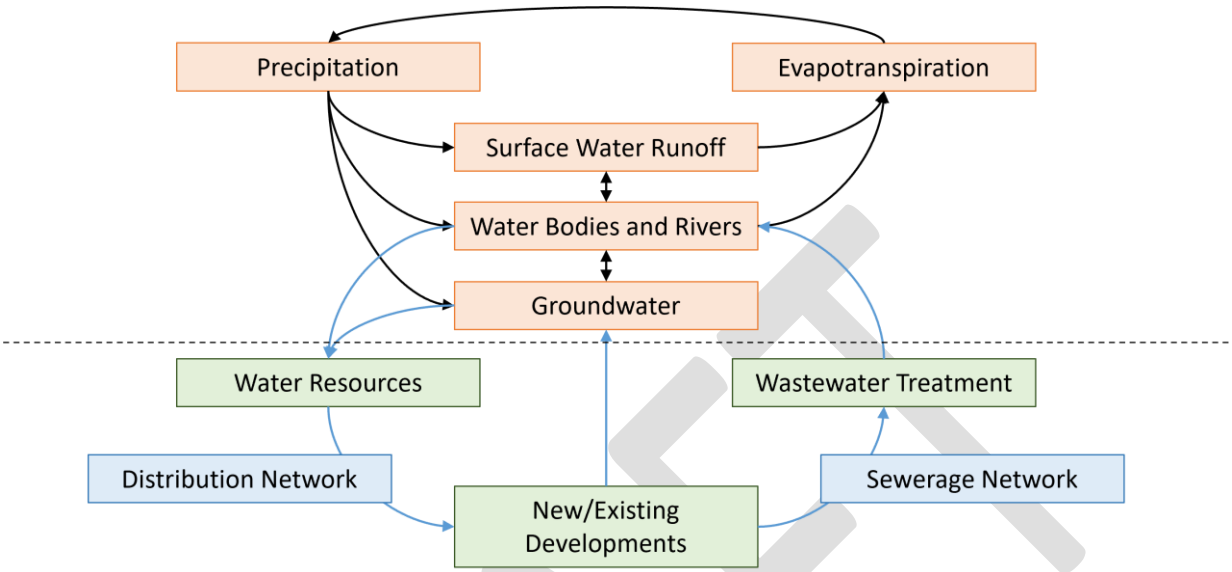

Figure 1-3: The wider water cycle

In the context of Braintree, specifically relating to the proposed growth and developments, the key elements relevant to the water cycle explored within the Outline WCS are:

- Water environment policy and evidence base (Section 2)
- Proposed growth and development (Section 3)
- Water resources, supply, and efficiency (Section 4)
- Wastewater treatment and sewerage (Section 5)
- Local environmental capacity (Section 6)
- Flood risk and surface water (Section 0)
- Climate change (Section 8)
- Integrated Water Management (Section 9)
- Conclusions and recommendations (Section 10)

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2 Water Environment Policy and Evidence Base

2.1 Policy Context

This section introduces a number of national, regional, and local policies that must be considered by BDC, water companies, and developers within Braintree. Key extracts from these policies relating to water consumption targets and mitigating the impacts on the water environment from new development are summarised below.

It should be noted that further information on legislation, policy, and guidance is given in individual sections of the report covering water resources, wastewater, local environment capacity, flood risk, and climate change.

2.2 National Policy

2.2.1 National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) was revised in December 2023 and again in February 2025 in response to the Levelling-up and Regeneration Bill (2023): reforms to national planning policy consultation and it sets out the government's planning policies for England and how these are expected to be applied. Planning practice guidance (PPG) documents are published and updated to support the NPPF. At the time of writing of this document, proposed reforms of the NPPF and planning system were in consultation.

The water supply, wastewater and water quality PPG was published in 2015 and updated in July 2019. The flood risk and coastal change PPG was published in 2014 and most recently updated in September 2025. The climate change PPG was published in June 2014 and most recently updated in March 2019.

The NPPF relies on the fact that specific details of the requirements previously obtained from national planning policy will be set out in local plans. These plans will be founded on a locally developed evidence base, including relevant technical studies, such as a WCS. By emphasising the importance of local plans, local communities will feel empowered to decide the look and feel of the local area. Local authorities should ensure that planning documents consider these policies, and they can use some of the policies contained within NPPF to make decisions on individual planning applications.

The key themes in the NPPF that are most relevant to the WCS are:

- Delivering sustainable development and climate change
- Housing
- Biodiversity and geological conservation
- Planning and pollution control
- Development and flood risk.

Relevant topics that consistently occur within the NPPF are:

- Resilience to climate change
- Conservation or biodiversity
- Sustainable use of resources
- Mitigation of flood risk and the use of sustainable drainage systems (SuDS)
- Suitable infrastructure capacity
- Protection of groundwater and freshwater

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2.2.2 Flood and Water Management Act 2010

The Flood and Water Management Act passed into statue in April 2010. It sets out a number of changes to the way that new development and water infrastructure will interact, including the proposed future mechanism for using sustainable drainage systems (SuDS) where practical. SuDS assist in reducing the rates (and potentially volumes) of surface water arising from new developments and therefore reduce the impacts on the existing water cycle. This is important in ensuring that existing flood risks do not increase as a consequence of new developments and in reducing (or even eliminating) the need to use existing sewerage systems to convey surface water.

This reduces unnecessary expenditure in the uprating of existing sewers and WRC, reduces the probability of untreated discharges of wastewater during flood events, and can delay the requirement to consent increased flows from WRCs. SuDS also provide water quality improvements by reducing sediment and contaminants from runoff either through settlement or biological breakdown of pollutants as well as other environmental and social benefits.

2.2.3 Standard method for estimating Local Housing need

In December 2024, the updates to the NPPF methodology for estimating the housing need over a five year period within a council's region was changed. This change which came into effect immediately, resulted in the increase in the Braintree housing need per year to increase from 813 to 1,098.

2.3 Local Policy

2.3.1 Braintree Adopted Local Plan Policies

Nine policies are proposed within the current Adopted Braintree Local Plan (2013 – 2033), a summary of these policies and their relevance to this WCS are given below.

Policy SP 1 summarises presumptions in favour of sustainable development. With development proposals, the Local Planning Authority will take a positive approach to reflect presumption in favour of sustainable development contained in the NPPF. The Authority will work pro-actively with applicants to find solutions so that proposals can be approved and secure developments to improve economic, social, and environmental conditions.

Policy SP2 confirms that contributions will be secured from development towards mitigation in line with the Essex Coast Recreational disturbance Avoidance and Mitigation Strategy (RAMS). This enables growth without adverse effects on the surrounding habitats.

Policy SP3 confirms the Spatial Strategy for North Essex, and that the authorities will support diversification of the rural economy as well as conservation and enhancement of natural environment beyond the main settlement.

A total minimum housing requirement between 2013 – 2033 is given for the Braintree Local Authority (LA) within Policy SP 4.

The Hectares of employment land required for offices, research & development and industrial, storage and distribution uses is presented in Policy SP 5, with a baseline of 20.9ha and a higher growth scenario of 43.3ha.

Part E of Policy SP 6 highlights that the local planning authorities will work with Anglian Water, Affinity Water, the Environment Agency (EA), and developers to ensure sufficient capacity in water supply and wastewater

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infrastructure for new developments. It confirms that required improvements of water infrastructure, wastewater treatment, and off-site drainage should be made ahead of dwelling occupation.

Policy SP 7 provides the details on place sharing principles, with all new developments expected to reflect an incorporation of biodiversity creation and enhancement. The policy also highlights the promotion of environmental sustainability including addressing water efficiency and provision of appropriate water, wastewater, and flood mitigation measures.

Policy SP 8 explores thew development of new garden communities, including the integration of climate resilient approaches, and water efficiency and re use measures.

A specific policy (SP 9) is given for the Tendring/Colchester Borders Garden Community, conveying considerations of design quality, housing, employment, transport, and infrastructure. Water efficiency/re use solutions are stated for delivery of climate resilience towards water supply, water and wastewater treatment, and flood risk management. Strategic Flood Risk Assessments (SFRAs) are also proposed, and updated Climate Projects to be used. Provisions for WRC works improvements are made, including a upgrade to the Colchester WRC. The required waste wate treatment capacity must be available ahead of the occupation of dwellings.

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3 Proposed Growth and Development

A local plan, which is informed by a Water Cycle Study (WCS), provides a vision for the growth and development of an area, and policies which set out the way that the plan aims to meet the housing, employment, social and community needs of an area while at the same time protecting and enhancing the natural, built and historic environment.

This section summarises the proposed growth and development as defined in the current Adopted Local Plan and the resultant BELP development trajectory (employment, education and residential) up to 2041, and beyond.

The future volume of water abstraction and wastewater discharge requirements (Section 4 and 5) will be determined based on these growth plans and an assessment of the impact on the existing infrastructure and environment to meet potential future requirements made. All growth plans in BD between 2025/26 and 2041 used in the capacity assessment are described in the following sections.

3.1 Local Plan Proposed Growth and Development Considerations

As discussed in Section 1.2, the BELP is currently being prepared for the 2025/26 – 2041 plan period. The BELP will provide strategic and local policies that will enable and guide the delivery of sustainable growth to 2041. The Adopted Local Plan was adopted in 2022 and spanned the period of 2013 – 2033.

Since the Local Plan was adopted, to inform the BELP, the issues and options consultation stage took place, closing in March 2025.

BDC has developed a proposed development trajectory for up to 2041. Development trajectory data was supplied by BDC at the following dates:

- **Housing:** Call for sites (spreadsheet and shapefiles) provided in April 2025, with updated proposed allocation sites shapefile provided in November 2025.
- **Education:** Details of the need for educational establishments based on policy provided in January 2026.
- **Employment:** Shapefile of proposed allocated employment areas provided October 2025.

The latest development trajectory data for the proposed growth and development (as detailed above), in conjunction with the remaining committed/ permitted sites and proposed allocation sites data, provided by BDC have been considered in this Outline WCS. Any subsequent changes to growth numbers or data have not been considered in this assessment unless where specifically highlighted in the report. At the time of writing the Outline WCS, no trajectory details for Education and Employment were provided and instead a linear increase was used, more details are given Section 3.2.

The proposed development considerations for the residential, educational and economic developments are summarised below.

3.2 Development Trajectory Assumptions

Within this Outline WCS, a number of assumptions as agreed with BDC have been taken with the supporting development trajectory data as summarised below:

- A linear employment trajectory has been assumed throughout the BELP period.
- Existing employment from the Adopted Local Plan has been assumed to be a pro-rata time slice from the entire plan period.

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- Where education locations in the proposed BELP overlap with locations from the Adopted Local Plan, it has been assumed that the sites are moving to the BELP and have yet to be completed.
- Where a breakdown of trajectory is not available for large sites in the BELP, a linear trajectory has been assumed between 2031/32 and 2040/41.
- For small sites in the BELP, a linear trajectory has been assumed between 2027/28 and 2033/34.
- Windfall for the BELP has been assumed to follow a linear trajectory between 2028/29 and 2040/41 with 75 properties per year, with windfall location assumed to be dependent on the proportion of overall development in a settlement.
- Where employment sites are shown to overlap, the larger of the areas has been assumed to be correct to avoid double counting.
- Settlement Hierarchy has been assumed based on the Adopted Local Plan.
- It is assumed that that for each new primary school there will be 278 pupils with approximately 20.8 pupils per teacher.
- This report has focused on settlements with more than 10 proposed dwellings, with less than 10 dwellings assumed to be self builds and small developments. A full list of proposed dwellings per settlement, including those with less than 10 proposed dwellings can be found in Appendix B.

3.3 Development Trajectories

BDC provided information on the expected housing growth and development trajectories up to 2041. This expected development trajectory supporting the new Local Plan is referred to as the BELP through this Outline WCS. The housing development data provided by the council consisted of:

- Committed/ Permitted Sites: Sites which are not allocated in the Adopted Local Plan but have full, outline or hybrid planning permission, but where construction has not yet started. These include: large sites, small sites and mixed-use contributions.
- Proposed Allocation Sites: Preferred Options sites which are being reviewed and additional sites submitted through the Call for Sites.
- Windfall Allowance: Potential dwellings within Braintree, not allocated in the Local Plan, which may come forward within the plan period taken. These were distributed on a settlement basis for the use in the WCS through consultation with Braintree District Council. Windfall allowance spans between 2028 and 2041.

Residential developments are referred to as housing or houses, dwellings or residential concurrently within this report.

3.3.1 Local Plan Regulation Preferred Options Consultation

The Preferred Options consultation is expected to occur in February 2026, to consult on the reviewed Local Plan and to include any updates, new policies, and set out proposed sites for new homes, jobs, and other facilities.

3.3.2 Residential development trajectory

Proposed allocation sites provided by Braintree District Council provide the baseline of the housing development trajectory used in the WCS. It should be noted that following Regulation 18 Preferred Options consultation in February updates may be required.

The housing trajectory consists of both committed (based on relevant planning applications and permissions) and proposed allocation sites. The committed sites defined are not all allocated in the Local Plan but have planning permission (full, outline or hybrid) and construction has not yet started. The committed sites defined included large sites, small sites, mixed use and residential.

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The small site, large site, and windfall trajectories of the BELP are shown in Table 3-1 for the period of 2025/26 to 2040/41. The breakdown of construction, and planning permission status for the Adopted Local Plan are shown in Table 3-2.

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Table 3-1: Housing growth and development – BELP (Up to 2041)

Housing	Year 1 26/27	Year 2 27/28	Year 3 28/29	Year 4 29/30	Year 5 30/31	Year 6 31/32	Year 7 32/33	Year 8 33/34	Year 9 34/35	Year 10 35/36	Year 11 36/37	Year 12 37/38	Year 13 38/39	Year 14 39/40	Year 15 40/41	Total
Small Sites	0	254	254	254	254	254	254	254	0	0	0	0	0	0	0	**1,777**
Large Sites	0	0	0	0	0	362	562	767	777	777	777	767	767	767	727	**7,053**
Windfall	0	0	75	75	75	75	75	75	75	75	75	75	75	75	75	**975**
Total	**0**	**254**	**329**	**329**	**329**	**579**	**779**	**984**	**740**	**740**	**740**	**730**	**730**	**730**	**690**	**9,805**

Table 3-2: Housing growth and development – Adopted Local Plan (Up to 2041)

Housing	Remainder of 2025/2026	Year 1 26/27	Year 2 27/28	Year 3 28/29	Year 4 29/30	Year 5 30/31	Year 6 31/32	Year 7 32/33	Year 8 33/34	Year 9 34/35	Year 10 35/36	Year 11 36/37	Year 12 37/38	Year 13 38/39	Year 14 39/40	Year 15 40/41	Total
Under construction	294	554	481	342	123	0	0	0	0	0	0	0	0	0	0	0	**1,794**
Full Planning Permission	22	126	192	109	79	70	64	0	0	0	0	0	0	0	0	0	**662**
Outline Planning Permission (Major and non-Major)	0	99	365	521	534	474	311	305	169	88	61	36	0	0	0	0	**2,963**
Other sites without Planning Permission	0	0	0	95	340	375	325	405	300	300	300	300	165	0	0	0	**2,905**
C2 Communal Accommodation Rooms	21	54	78	64	0	0	0	0	0	0	0	0	0	0	0	0	**217**

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Housing	Remainder of 2025/2026	Year 1 26/27	Year 2 27/28	Year 3 28/29	Year 4 29/30	Year 5 30/31	Year 6 31/32	Year 7 32/33	Year 8 33/34	Year 9 34/35	Year 10 35/36	Year 11 36/37	Year 12 37/38	Year 13 38/39	Year 14 39/40	Year 15 40/41	Total
Sites With a Resolution to Grant	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	**12**
Total	**337**	**833**	**1,116**	**1,143**	**1,076**	**919**	**700**	**710**	**469**	**388**	**361**	**336**	**165**	**0**	**0**	**0**	**8,553**

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The housing distribution based on settlement hierarchy is summarised in Table 3-3 for the BELP, between 2026 and 2041, and the Adopted Local Plan, between 2025 and 2041. These indicate that the majority of the proposed housing supply will be within towns and key service settlements.

Table 3-3: Proposed housing growth and development distribution – Braintree Adopted and Emerging Local Plans

Settlement Hierarchy	**Braintree Adopted Local Plan**	**Braintree Emerging Local Plan**		**Total**		
	Number of Dwellings	**Number of Dwellings – Small Sites**		**Number of Dwellings -Large Sites**	**Proportion of Windfall ***	**Number of Dwellings Emerging Plan- Total**
Town	3,604	544	4,080	511	**5,135**	**8,739**
Key Service Settlement	1,727	435	2,973	376	**3,784**	**5,511**
Second Tier	311	112	0	12	**124**	**435**
Third Tier	2,886	686	0	76	**762**	**3,648**
The Countryside	25	0	0	0	**0**	**25**
Total	**8,553**	**1,777**	**7,053**	**975**	**9,805**	**18,358**

**Based on proportion of dwellings in the settlement hierarchy.*

Note that the settlement hierarchy categories values in Table 3-3 refer to the settlement hierarchy provided in the Braintree Adopted Local Plan. The proposed number of dwellings per settlement (if more than 10 dwellings) is shown graphically in Figure 3-1.

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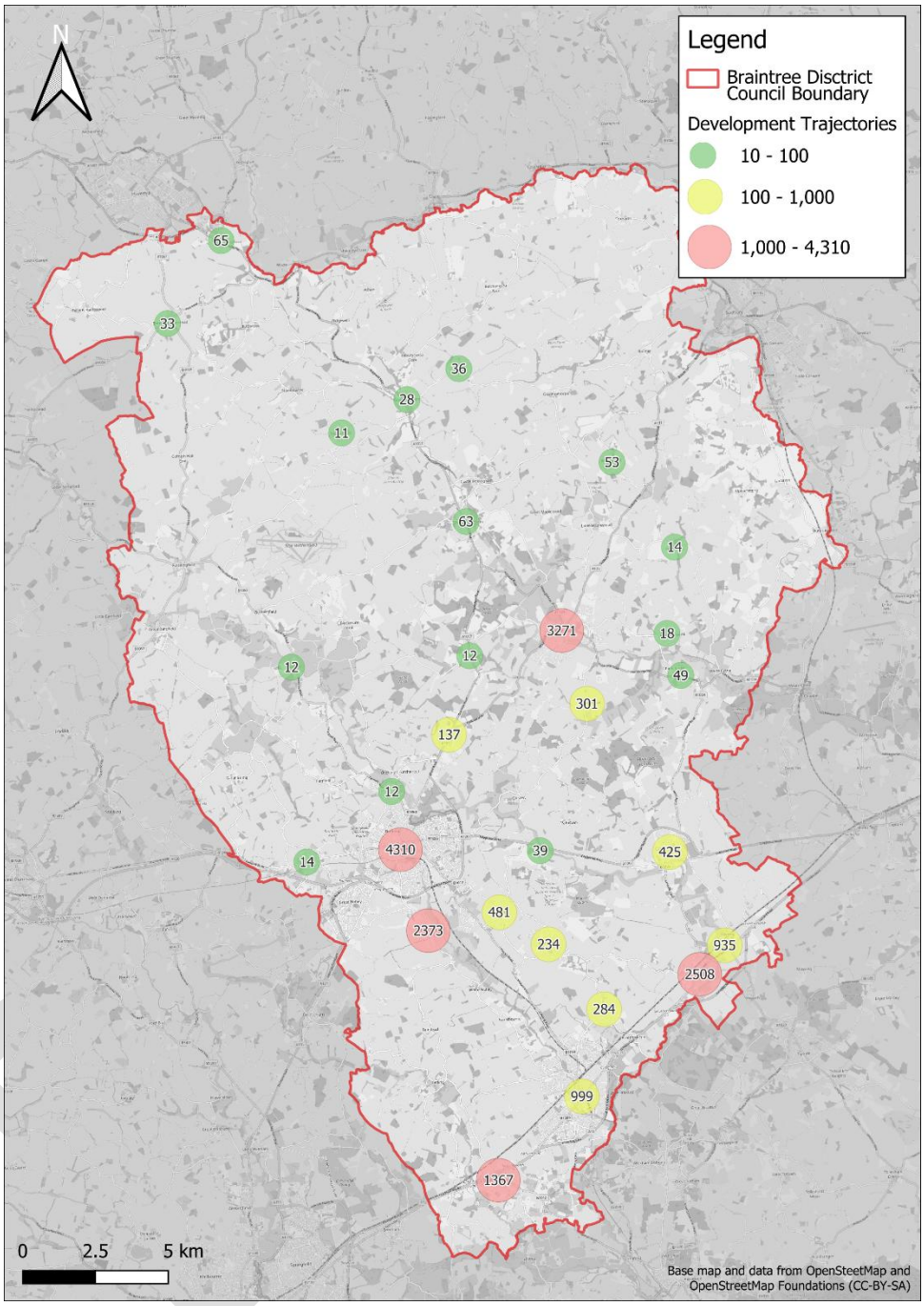

Figure 3-1: Number of proposed dwellings per settlement – Braintree Adopted and Emerging Local Plans combined since 2025

3.4 Other Proposed Growth and Development

Beyond housing developments, other developments such as new employment sites need to be reviewed as well due to their impact on the future volume of water (abstraction) and wastewater requirements. New employment sites reviewed include but are not limited to mixed-use, industrial, commercial or retail, and educational facilities.

3.4.1 Employment Areas

BDC provided information on the expected economic/ employment growth and development trajectories up to 2041. The data provided by the council consisted of:

- **Permitted / Committed Sites:** Sites which are not allocated in the Adopted Local Pan (or proposed allocation sites in the BELP), but have full, outline or hybrid planning permission, but where construction has not yet started.
- **Allocations**: Proposed employment sites allocated within the Adopted Local Plan and additional proposed allocation sites within the development trajectory.

To provide additional information for the proposed sites and to inform the distribution of type of employment sites across the district, the BDC Employment Land Review (2025) was reviewed. The Review was commissioned to update the employment uses evidence base to support the Local Plan review process. It provides calculated proposed additional land allocations needed to accommodate growth scenarios across the seven years between the completion of the Adopted Local Plan and the BELP. It also provides employment land densities (Table 3-4 which were used to estimate the number of employees for each site in the Adopted Local plan. The plot ratios were used to determine the floor area from the total site area in hectares as taken from the Employment Lane Review.

Table 3-4: Employment Land Densities

Type of employment land	Employment density value	Plot ratio
B1 or E(g)(i)	9.5 square meters of floor area per employee	0.7
E(g)(iii) or general industrial	52.6 square meters of floor area per employee	0.4

The Employment Land Review summarises the Adopted Local Plan employment area per policy as follows, with a total area of 337.7ha:

- **Policy SP5:** 42.1ha
- **Policy LPP3:** 283.1ha
- **Policy LPP6:** 12.4ha

A full list of Adopted Local Plan employment areas taken forward and to be completed was provided by BDC with a total area of 296ha with the following area per policy:

- **Policy LPP2:** 63.3ha
- **Policy LPP3:** 218.1ha
- **Policy LPP3 & LPP5:** 1.7ha
- **Policy LPP6:** 12.4ha

No trajectory was provided for these employment areas, so a linear trajectory was assumed, equivalent to 14.1ha per year between 2013/14 and 2032/33.

The following land use classes are used:

- **A1-A3:** Retail Space
- **B1:** Office Spaces and light research and development centres

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- **D1:** healthcare, creches, nurseries and day centres
- **D2:** Gyms and indoor recreation
- **Previous 'B' Uses:** Office: E(g)(i), Research and Development: E(g)(ii), Light Industry E(g)(iii)

Table 3-5: Employment land remaining to be built from Adopted Local Plan

Land Use Class	Description	Remaining Employment land (hectares)
B1 or E(g)(i) Uses	Area proposed to be allocated for economic development and regeneration. Allowance for Loss of stock (employment land).	107.84
E(g)(ii) and E(g)(iii)	Demand for light industrial, manufacturing and distribution	8.32
Other Uses	Development is uncertain and not yet designated.	0.37

From the Adopted Local Plan, a number of assumptions have been made in considering Employment data:

- The use of each site has been assumed based on the relevant Local Planning Policy (LPP).
- It was assumed that the employment land densities (Table 3-4) were suitable to estimate the number of employees from the hectares of employment land in order to determine the impact on the water and wastewater infrastructure.
- No detailed trajectory was provided hence a linear trajectory was assumed across the plan period (2013/14 to 2032/33).
- The progress on the completion of the employment sites detailed in the Adopted Local Plan is unknown, so it is assumed that there is no significant transfer of sites into the BELP.

The Call for Sites process that took place was reviewed and discussion had with Braintree District Council concerning the distributions for an updated employment development trajectory, as agreed for the Outline WCS in 2025.

The updated proposed employment distribution based on settlement hierarchy is summarised in Table 3-6 and shown geographically in Figure 3-2. This indicates that the majority of the proposed employment areas will be within towns.

Table 3-6: Proposed employment area distribution for plan period (2026 – 2041)

Settlement Hierarchy	Employment Land (hectares)
Town	10.88
Key Service Village	3.33

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Settlement Hierarchy	Employment Land (hectares)
Second Tier	2.18
Third Tier	5.32
Total	**21.72**

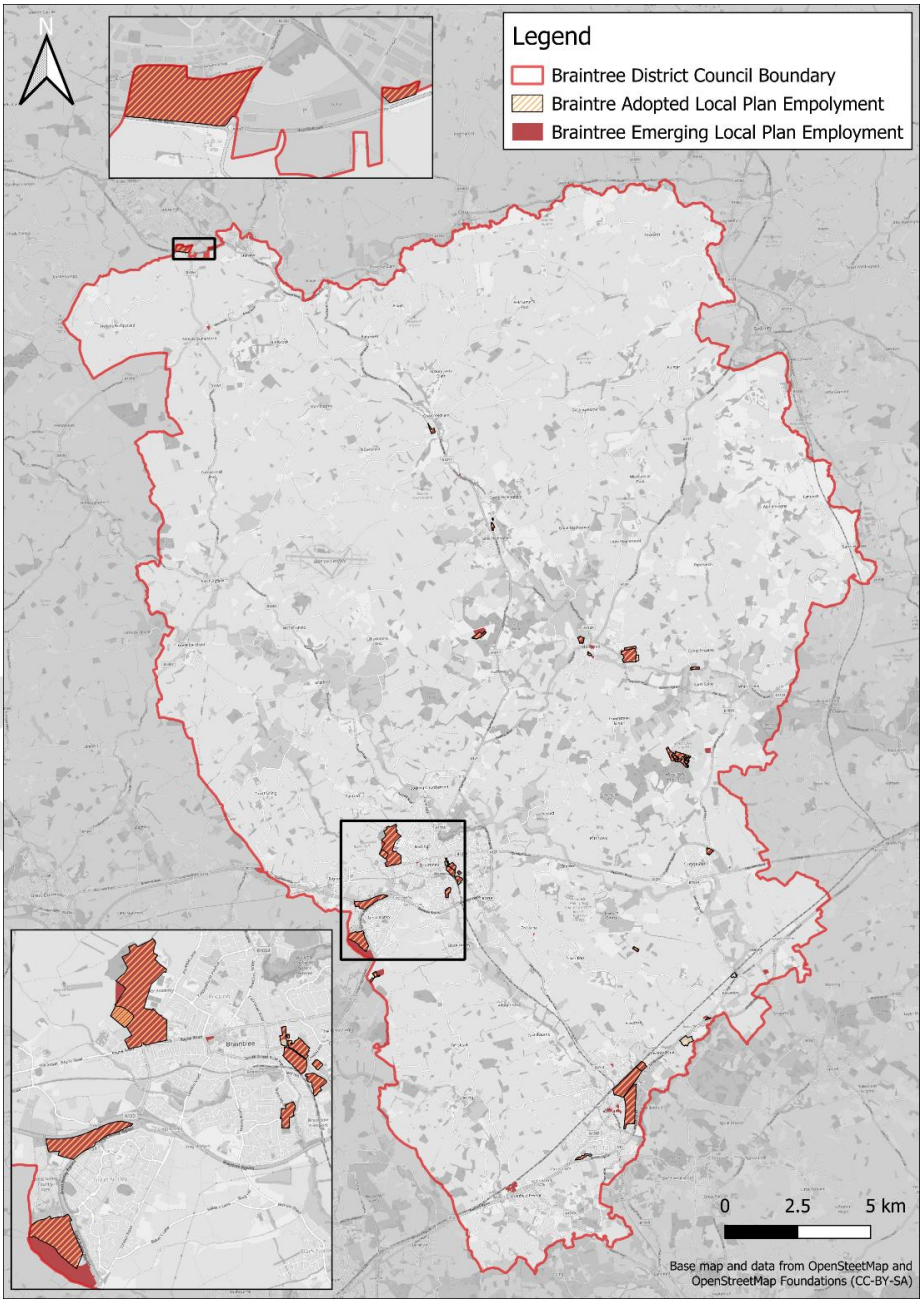

Figure 3-2: Location of employment land proposed in the plan period across Braintree District Council

3.4.2 Educational facilities

The increase in population resulting from the proposed housing developments and growth in the Braintree District means that the existing schools will not have capacity for the future additional pupils.

The BDC Infrastructure Delivery Plan, published in June 2021, was used to inform the Adopted Local Plan up until 2033, and details the educational needs for the various proposed housing developments, as well as the proposed area allocated to educational need, and the number of places required. This is detailed in Table 3-7.

Table 3-7: Required education based on education and learning infrastructure plan

Settlement hierarchy	Settlement	Adopted Local Plan number of dwellings	Generated demand	Required education based on education and learning infrastructure plan	Total Area (ha)	Total Places	Total Teachers*
Town	Great Notley	0	139 (Early Careers and Childcare)	1 Primary school and attached early years facility	2.7	278**	13
				2 Standalone early years/ nursery	0.26	168	8
Town	Braintree	2,425	195 (Early Careers and Childcare) 987 (Secondary School)***	3 Primary school and attached early years facility	6.8	834**	40
				4 Standalone early years/ nursery	0.52	224	11
Key Service Village	Feering / Kelvedon	835	66 (Early Careers and Childcare)	1 Standalone early years/ nursery	0.13	56	3
Town	Witham	400	32 (Early Careers and Childcare) 366 (Secondary School)***	1 Standalone early years/ nursery	0.065	30	1

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Settlement hierarchy	Settlement	Adopted Local Plan number of dwellings	Generated demand	Required education based on education and learning infrastructure plan	Total Area (ha)	Total Places	Total Teachers*
Town	Halstead	-	412 (Secondary School)***	-	-	-	

**The number of teachers is based on the assumption of 20.8 pupils per teacher for primary schools and nurseries.*
***The total places for each primary school is based on the national average primary school size.*
****No details on area, or Secondary Education places generated were provided.*

A number of expansions were also planned to existing schools in Coggeshall, Feering, Halstead, and Cressing.

The education call for sites provided by BDC for the BELP overlaps with the Adopted Local Plan. As confirmation of the completion of these sites has not been provided, it is assumed that the education sites above will roll into the BELP.

One new primary school and attached early years facility is proposed beyond those listed in the Adopted Local Plan at Halstead. There is also a likely need for further educational provisions in Braintree, Feering, and Hatfield Peverel; however, there are no details on these provisions to be made within the BELP Period at the time of this Outline WCS.

Table 3-8: Proposed educational facilities for Braintree Adopted and Emerging Local Plan periods (2013 – 2041)

Settlement Hierarchy	Schools planned
Town	4 Primary school and attached early years facility 7 Standalone early years/ nursery Demand for Secondary Schools* Further provisions required in BELP Period (Braintree)
Key Service Village	1 Standalone early years/ nursery Further provisions required in BELP Period (Feering and Hatfield Peverel)
Second Tier	-
Third Tier	-
Total	12 Facilities confirmed (further provisions to be confirmed)

**The Secondary School provisions have not been provided in detail.*

For the Outline Water Cycle Study (WCS), it is important to relate the number of schools to the likely number of school staff and students to determine the impact on the water and wastewater infrastructure. The assessment assumed that for each new primary school and nursery there will be 278 pupils with approximately 20.8 pupils per teacher.

Due to the number of unconfirmed education provisions within the BELP Period, is not possible to determine the exact locations of educational facilities. Until more comprehensive information is available, the assumed numbers displayed in Table 3-7 will be used to inform this Outline WCS.

3.5 Proposed Growth and Development Summary

Table 3-9 provides a per settlement summary of the residential, employment and education proposed development sites within the plan period (up to 2041). The proposed development sites include the remaining committed and permitted sites (with relevant planning permissions), proposed allocation sites (Braintree Adopted and Emerging Local Plans) and windfall sites as of November 2025. The table only includes proposed dwellings of more than 10.

Table 3-9: Proposed growth and development summary per settlement (Braintree Adopted and Emerging Local Plans from 2025)

Settlement Hierarchy	Settlement*	Proposed housing (number of dwellings)	Proposed Employment (Hectares)	Proposed Education sites (Number of facilities)**
Town	Bocking North	12	None	None
	Braintree	4,310	85.62	7
	Great Notley	0	32.93	3
	Halstead	3,271	30.17	None
	Haverhill	0	12	None
	Witham	999	91	1
Key Service Village	Coggeshall	425	4	None
	Earls Colne	49	30.96	None
	Feering	935	3	1
	Hatfield Peverel	1,367	None	TBC
	Kelvedon	2,508	5.37	None
	Sible Hedingham	63	3	None

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Settlement Hierarchy	Settlement*	Proposed housing (number of dwellings)	Proposed Employment (Hectares)	Proposed Education sites (Number of facilities)**
Second Tier	Cressing	481	0.31	None
	Great Yeldham	28	3.32	None
	Rayne	14	1.68	None
	Steeple Bumpstead	33	1.18	None
	Silver End	234	None	None
Third Tier	Black Notley	2,373	None	None
	Bradwell	39	None	None
	Colne Engaine	18	None	None
	Gosfield	12	8.98	None
	Greenstead Green	301	None	None
	High Garrett	137	None	None
	Little Yeldham	36	None	None
	Pebmarsh	14	None	None
	Rivenhall	284	None	None
	Shalford	12	None	None
	Sturmer	65	None	None
	Toppesfield	11	None	None
	Wethersfield	17	None	None

**Only settlements with more than 10 proposed dwellings, and/or proposed employment and education have been included in this table. For a full breakdown of housing trajectory see Appendix B.*

***Including Primary schools and attached early year facilities, and standalone early years/nurseries.*

BDC provided Geographic Information System (GIS) and spatial information for the proposed housing, employment and educational developments including the committed, permitted, and proposed allocation sites. The distribution of these sites is shown in Figure 3-3.

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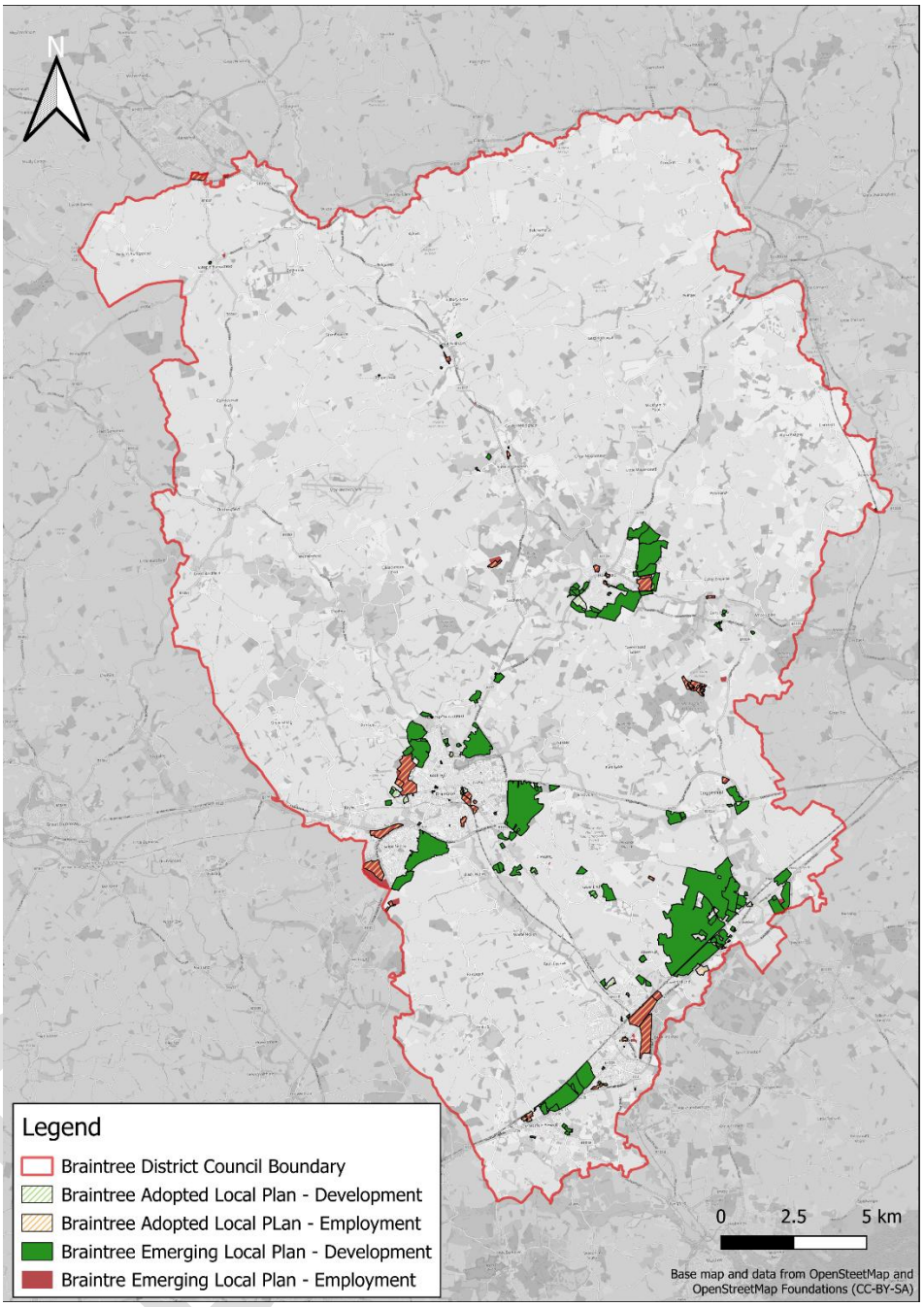

Figure 3-3: Distribution of proposed growth and development sites within BDC's administrative area – proposed allocation sites, permitted, and committed sites (plan period 2023 - 2041)

Detailed information on the housing, employment and educational sites including trajectories on a site-by-site basis are provided in Appendix A. Each of the settlements have also been extracted showing the proposed growth and development spatially in Appendix B.

4 Water Resources, Supply and Efficiency

4.1 Introduction

The aim of the water resources assessment is to ensure that sufficient water resources are available in the region to serve the proposed level of growth, without having a detrimental impact on the environment. This section outlines the key surface waterbodies and groundwater sources, and the current situation for water resources.

AWS and E&SW are the statutory suppliers of potable water to the Council's area which is located across the Essex, South Essex, Central Essex, and Bury Haverhill Water Resource Zones (WRZ).

New developments can also be supplied by alternative providers through the Ofwat New Appointees and Variations (NAV) process. A NAV is a limited company which provides water and/ or sewerage service to customers in an area; they have the same duties and responsibilities as a statutory water company.

4.2 Policy Context

Listed below are policies relevant to this water resources chapter. Details on additional policies are given in the following sections.

4.2.1 Water Recycling Long Term Plan

In 2018 AWS published a water recycling long term plan (WRLTP) to outline the investment needed over the next 25 years to balance the supply and demand for water recycling services. The plan considers risk from growth, climate change, severe drought, and customer behaviours, and covers the asset management plan periods.

The plan outlines the long-term growth strategy and expected investment. Within Essex, the plan allows for 46,871 homes planned to 2025 and a further 144,549 homes to 2045. As such, homes planned for the period up to 2041 within the BDC Adopted Local Plan are likely to have been included within the water recycling long term plan. To accommodate this growth, a £98 million investment plan is outlined to 2045. The delivery programme is adaptive, and the optimal timing of the solution delivery will be driven by regularly reviewing risk, through the collection of growth intelligence, monitoring of key indicators, and modelling the impact of growth.

4.2.2 River Basin Management Plan

River Basin Management Plan (RBMP) sets out the strategy, including a programme of measures, for each catchment to comply with the requirements of the Water Framework Directive (WFD). These plans are developed by the regional offices of the EA, and were published in 2009, with updates published in 2015 and 2022, each update is classified as a new cycle. The current Cycle 3 Anglian RBMP, covering the Council's area, was published and accepted by the Secretary of State for the Environment, Food and Rural Affairs in December 2022.

4.2.3 Sustainability Reductions

The government's 25-year environment plan aims to improve the environment with specific targets for sustainable abstractions. In 2025, the EA published the National Framework for Water Resources 2025, which builds on the 2022 Framework and builds further on water resources required to meet growing needs to 2050

and beyond. It was identified under the Water Industry National Environment Programme (WINEP), to avoid the risk of 'no deterioration' under the WFD, that a number of annual licenced quantities on current abstraction licences were unsustainable. The reduction will occur when time limited licences are due for renewal or by 2030.

4.2.4 Environmental Destination

Some abstraction licence quantities are considered unsustainable in the longer term. These licences will require reductions to enable the environment to be resilient to the effects of climate change. The longer term protection and resilience of the environment is called environmental destination. The national framework for water resources stated that environmental destination should be achieved by 2050 but does not outline how fast this should be undertaken. Environmental destination has three goals:

- Ensure no deterioration in status of water bodies.
- Address unsustainable abstraction.
- Improve environmental resilience in the face of climate change.

Environmental destination has four scenarios: business as usual (BAU), business as usual plus (BAU+), enhanced and adapt. Each scenario has different requirements and scale of reductions. As a minimum the EA require water companies to plan for BAU+. According to the AWS WRMP24, one key area which will be impacted by environmental destination is Essex, but it is also highlighted that all WRZ will be impacted.

4.2.5 Water Stressed Areas

The EA publishes (and periodically updates) a water stressed areas report, which sets out which water companies are under "Serious" or "Not Serious" water stress. Serious water stress is defined in the Water Industry (Prescribed Condition) Regulations 1999 (as amended) as: "the current household demand for water is a high proportion of the current effective rainfall which is available to meet that demand; or, the future household demand for water is likely to be a high proportion of the effective rainfall which is likely to be available to meet that demand." Local authorities can use the water stress determination to inform potential tighter standards than 110 litres per head per day (l/h/d) in new developments. In addition, the "Serious" classification can be used by water companies to implement compulsory metering as an option within the WRMP.

The EA published the classifications in 2007, with updates in 2013 and 2021. In 2013 AWS, and E&SW were classified as being under "Serious" water stress. This was not changed in the 2021 update.

4.2.6 Environmental Improvement Plan

A roadmap toward greater water efficiency in new developments was published as part of the Environmental Improvement Plan. The roadmap outlines ten goals for the environment. These include; wildlife, air quality, water, chemicals and pesticides, sustainability, climate change, reducing environmental hazards, enhancing biosecurity, and enhancing beauty. The goal which is most relevant for the water resources section is: "Goal 3 Clean and plentiful water".

4.2.7 Shared Standards in Water Efficiency for Local Plans

In June 2025 AWS published the Shared Standards in Water Efficiency for Local Plans, which outlines that new homes are built with more stringent standards than the 110 l/p/d Building Regulations. This document provides evidence that a design standard of up to 85 l/h/d for residential developments is feasible. Included with the standards is guidance for fixtures, case studies and the policy/ legislative drivers that allow for water efficiency.

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4.2.8 Water Resource Management Plan

Both AWS and E&SW are part of Water Resources East (WRE) and explore the future impacts of climate change, and population increase on their regions within the respective WRMPs. The AWS WRMP24 was revised in April 2025 and includes demand management, two new raw water reservoirs, and utilising other sources of water. The E&SW WRMP24 was published in October 2024 and sets out the plan for managing supply and demand for the next 25 years explaining strategic issues influencing water and availability.

4.3 Water Environment and Regulation Abstraction Licensing Strategy

4.3.1 Policy Context

The EA prepare an Abstraction Licence Strategy (ALS) for each sub-catchment within a the Anglian River Basin (as introduced above in Section 4.2.2) to identify what the main water resources pressures are. The strategy sets out local approaches to the sustainable management of water resources. The ALS provides an overview of the abstraction availability and management measures for unsustainable abstractions within the catchment. The aim of the ALS process is to aid in meeting of the environmental objectives under the WFD by:

- Meeting RBMP objectives for water resource activities.
- Avoiding deterioration within the catchment.

It also applies to:

- All downstream surface water bodies that may be affected by any reduction in abstraction related flow.
- Adjacent groundwater bodies affected by any reduction in groundwater level.

All new abstraction licences are time limited to a common end date dependent on area. This allows for periodic review of licences and reductions or revoking licences which pose a risk to the environment. The ALS is important for the WRMP as it outlines the availability of current and future water resources for the supply and demand balance.

4.3.1.1 Abstraction Licensing Strategy Overview

BDC is located in the Essex Abstraction Licensing Strategy (ALS) area, as shown in Figure 4-1 below. The ALS for Essex was published in 2017 superseding the Catchment Abstraction Management Strategy (CAMS) issued in 2013. The Central Essex WRZ and South Essex WRZ are located within the Essex ALS area. The Essex WRZ is located within both the Essex ALS area and the Roding, Beam and Ingrebourne ALS area.

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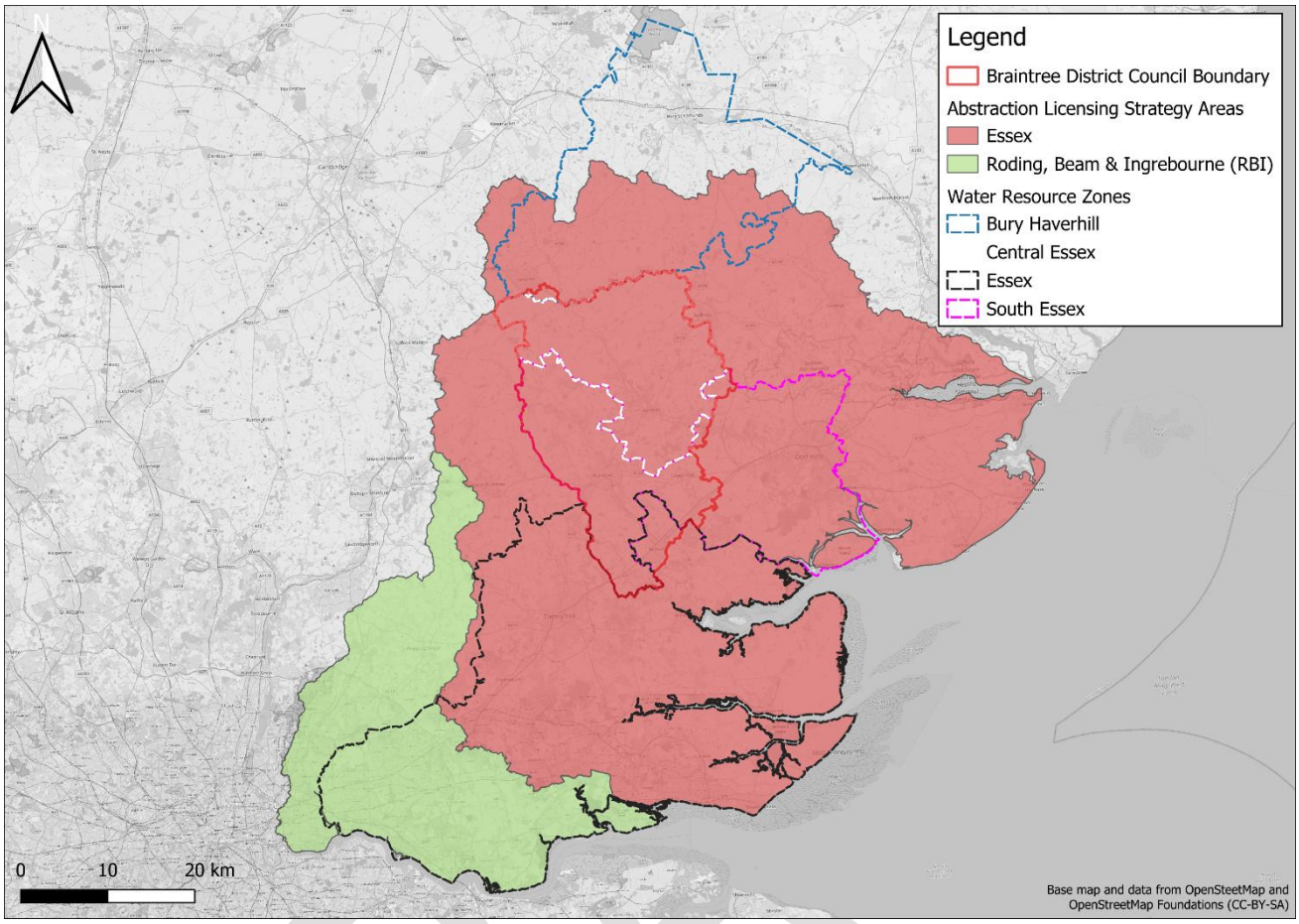

Figure 4-1: The Central Essex, South Essex and Essex and Suffolk WRZs and the two ALS areas they are located within; the Essex ALS and the RBI ALS.

The availability of water for abstraction is determined by the relationship between the fully licensed (all abstraction licences being used at full capacity) and recent actual flows (amount of water abstracted in the last 6 years) in relation to Environmental Flow Indicators (EFI). Surface water availability is calculated at selected assessment points (AP). The two ALSs consist of 30 APs in total that contribute to the Central Essex WRZ, South Essex WRZ and Essex WRZ.

Within the ALS, the EA assessment of the availability of water resources is based on a RAG classification system that states resource availability for licensing. The categories of resource availability are given in Appendix C.

Water resource availability is assessed under four different flow conditions:

- **Q95** – very low flows which are exceeded 95% of the time
- **Q70** – low flows which are exceeded 70% of the time
- **Q50** – medium flows which are exceeded 50% of the time
- **Q30** – high flows which are exceeded 30% of the time

Figure 4-2 shows the water available for licensing for each ALS within the Central Essex WRZ, South Essex WRZ, Essex WRZ under Q30, Q50, Q70 and Q95 scenarios.

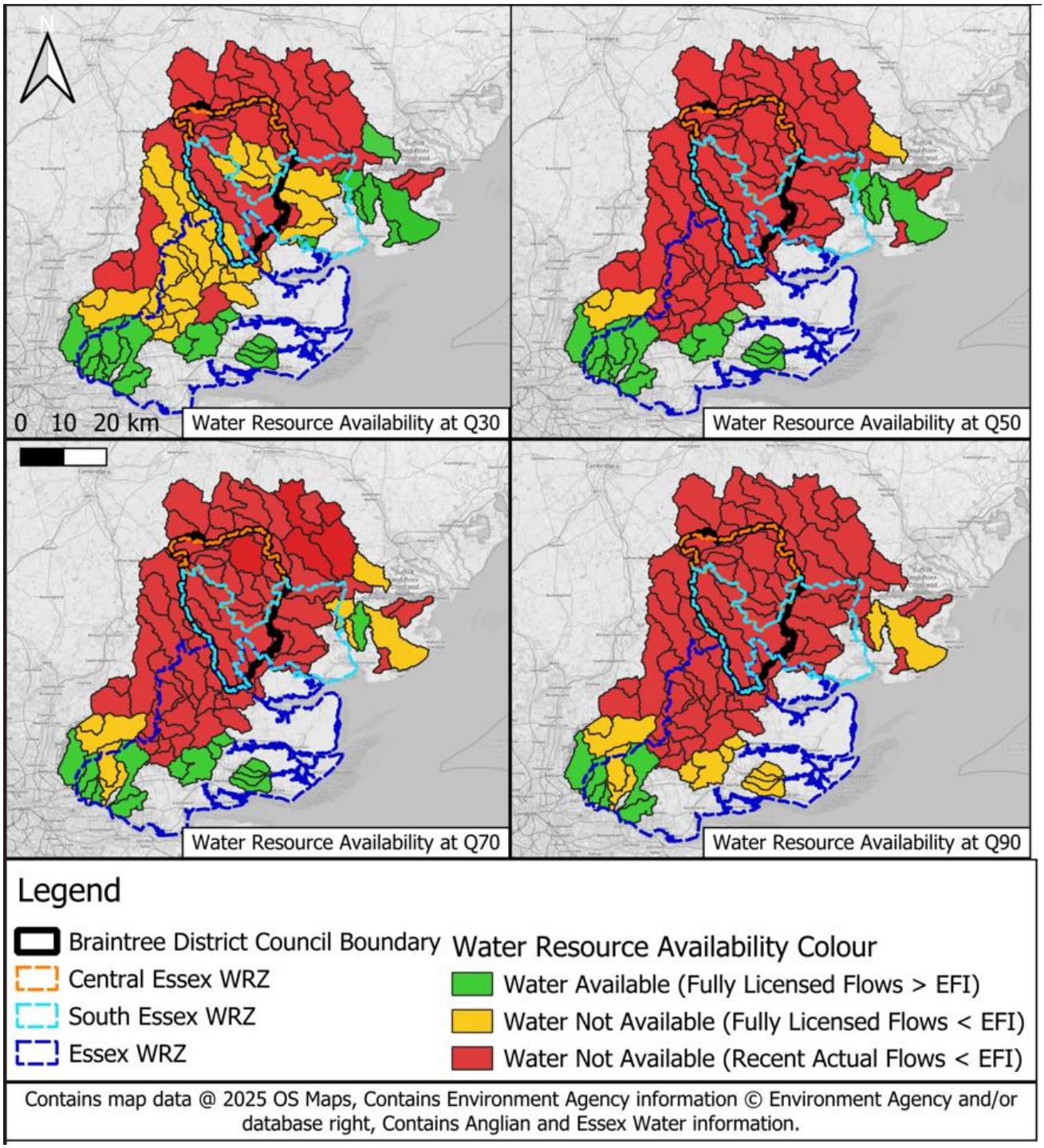

Figure 4-2: Water Resource Availability across the three WRZs.

4.3.1.2 Essex Abstraction Licensing Strategy

The Essex ALS sets out the approach to management of new and existing abstractions within the Essex catchment in the Anglian River basin district. The whole strategy focus area includes 22 APs, seven of these are within the Essex WRZ.

Within the Crouch and Roach Operational Catchment there are three APs. There is water available for licensing within the ALS under flows of Q30, Q50, and Q70.

Within the Blackwater operational catchment there is one AP. There is water available for licensing within the Virley Brook waterbody in the Blackwater catchment under Q30, and restricted water available for licensing under Q50 and Q70. For all other waterbodies within the overlap between the study area and operational catchment, and the Q90 flow rate for Virley Brook, there is no water available for abstraction under any flow rates.

Within the Chelmer operational catchment there are three APs. There is restricted water available for licensing under Q30 for all waterbodies. However, under Q50, Q70, and Q90 there is no water available for licensing. The Hanningfield Reservoir, within the southern area of the Braintree operational catchment, has no water available for licensing under any flow scenarios. This reservoir receives transfers from other rivers through a pump storage scheme hence this observation depends highly on the water availability of surrounding watercourses, and water availability for this reservoir should be confirmed with E&SW as the operators of the reservoir.

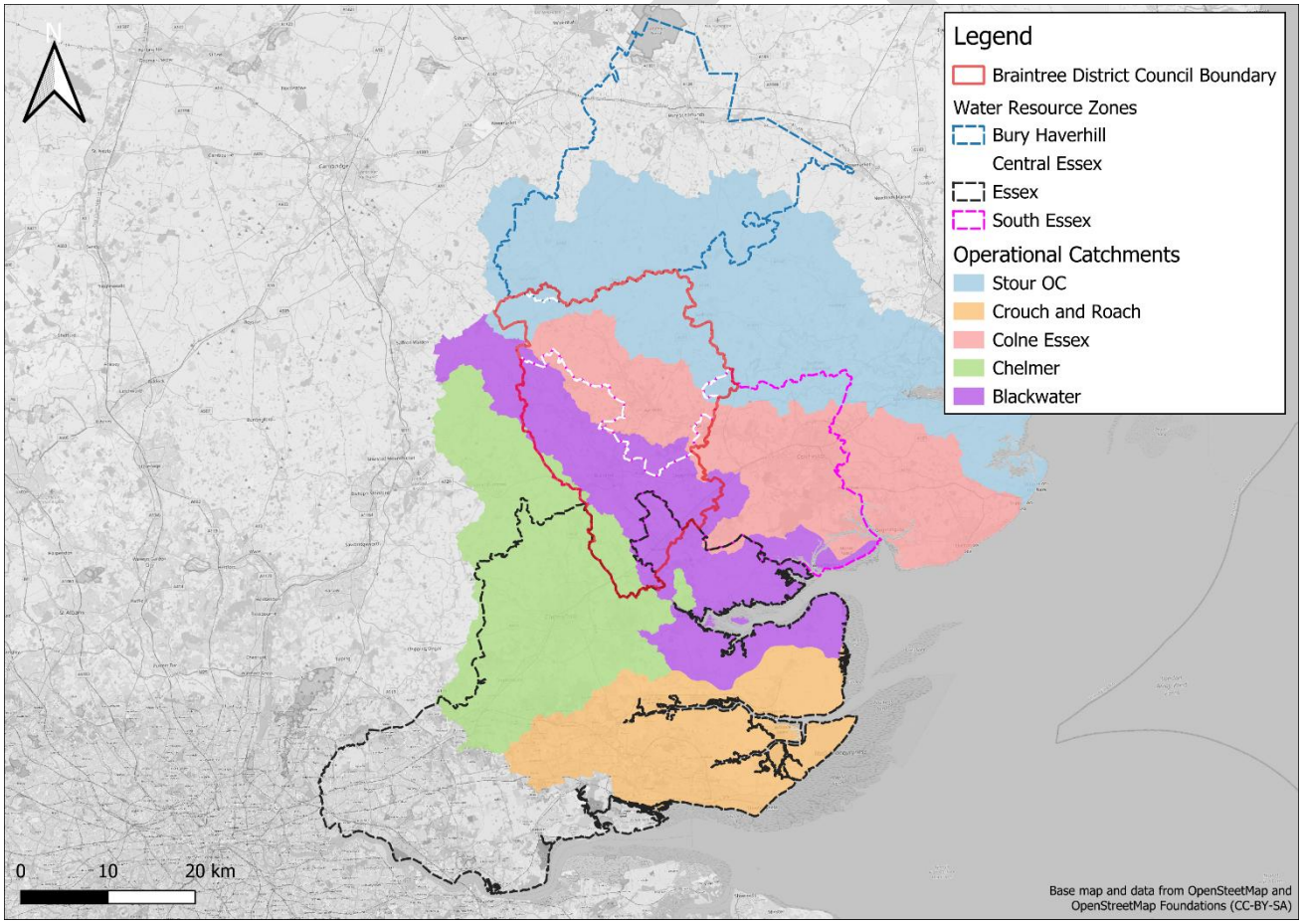

Figure 4-3: The area covered by the Essex ALS and the five Operational Catchments included in this.

4.3.1.3 Roding, Beam and Ingrebourne Abstraction Licensing Strategy

The Roding, Beam, Ingrebourne and Mardyke (RBIM) ALS sets out the approach to management of new and existing abstraction and impoundment within the RBIM catchment in the Thames River basin district. The whole strategy area includes eight APs, four of these are within the Essex WRZ.

Within the Mardyke operational catchment there is one AP. This catchment has water available for licensing under flow conditions of Q30, Q50, and Q70, while at very low flow rates, Q95, the catchment has limited water available for licensing.

Within the Roding Beam and Ingrebourne operational catchment there are three APs. Within this catchment there is restricted water available for licensing under all flow rates. However, the other waterbodies within the Essex WRZ have water available for licensing under all flow rates apart from the Rom, and Bearn and Ravensbourne waterbodies under Q70 and Q95. The waterbodies within this ALS that lie outside of the Essex WRZ and west of Braintree have either limited water available or no water available for abstraction.

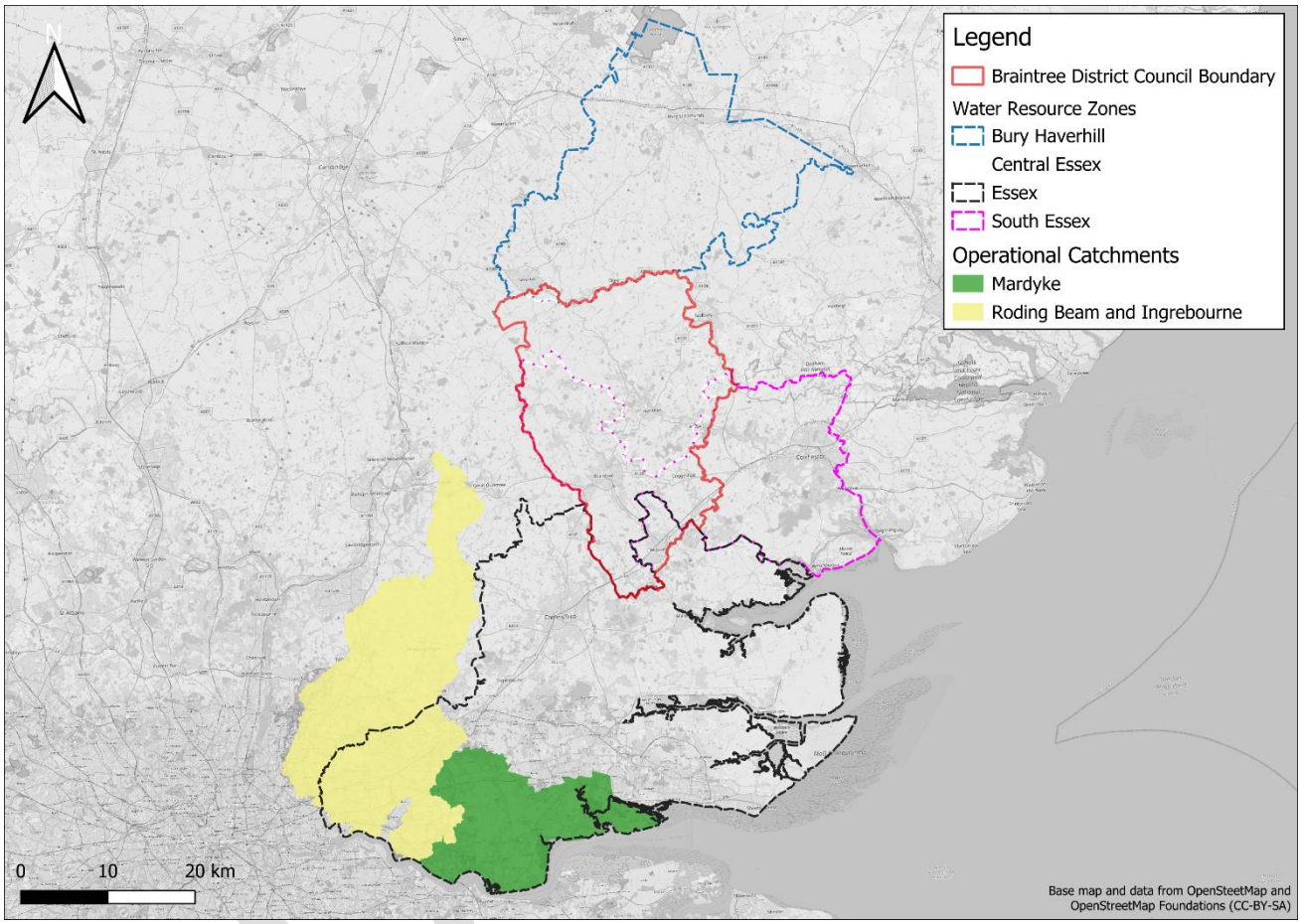

Figure 4-4: The area covered by the RBIM ALS and the Operational Catchments included in this.

4.3.2 Groundwater Management Plans

The majority of the BDC boundary in the Essex ALS area is underlain by the Essex Gravel groundwater body, which has an overall WFD status of 'Poor'. The north is underlain by the Essex North Chalk groundwater body and the Essex North Lower London Tertiaries groundwater body, both of which also have an overall status of 'Poor'. In the RBI ALS area, small areas of the BDC boundary are underlain by the Essex South Thurrock Chalk groundwater body and the Greenwich Tertiaries groundwater body, both with an overall status of 'Poor'.

According to the British Geological Survey the BDC area is predominantly underlain by London Clay Formation of clay, silt and sand. London Clay is classified as unproductive, which has negligible impacts for water supply. The superficial drift aquifer beneath the BDC area is predominantly classified as a Secondary (Undifferentiated) with some areas of Secondary A and B aquifers. As these aquifers all fall into the category

of Secondary or unproductive aquifers, groundwater does not act as a local source of water as it would with a primary aquifer.

4.4 Regional Plan

4.4.1 Supply and Demand Analysis

Both AWS and E&SW WRMPs are aligned with the Regional Plan which was published in December 2023 with an update 2025 Regional Plan Progress Report published in January 2026. This has been used to support the conclusions of this WCS.

The Regional Plan states that all water companies within WRE will start 2025 with minor surplus water in supply beyond the minimum buffer. A supply-demand deficit of approximately 730Ml/d is predicted by 2050 if no action is taken. The regional plan is proposing a 333Ml/d per day reduction in demand, and a 485Ml/d increase in supply options by 2050 to reduce the deficit.

One supply option is the Cambridgeshire Fens, South Lincolnshire reservoir, a reservoir with storage capacity of 50M m^3, and a strategic pipeline to transfer the water from the north of the Anglian Water area to the south of the Anglian Water area. Two options within the regional plan that will benefit E&SW Essex WRZ are:

- Linford water treatment plant upgrade
- Re-use scheme at Southend

The currently planned demand measures within the regional plan are in line with the demand measures proposed in the revised draft WRMP24. These include leakage reduction, increased metering penetration and reduction in household consumption through water efficiency measures.

Key updates within the progress report include:

- Gate 3 submission has been postponed to 2027 and proposed in service date is 2039.
- In 2025, regional leakage rose to 7 Ml/d, 20 Ml/d behind the planned trajectory towards regional targets.
- Increased instillation of smart meters (AWS: 290,000 in 2024/25), with all AWS and E&SW regions to be fully smart meters by 2030.
- The preferred routes and sites selected for the Grand Union Canal transfer scheme ahead of consultation in 2026.
- Household consumption has decreased to 119.7 l/p/d in 2025.
- Linford water treatment plant upgrade is aiming for a 2029/30 delivery.

4.5 Water Supply area

It should be considered that the northwestern boundary of the BDC boundary lies within the previously named Bury Haverhill WRZ, which is managed by AWS, and is now combined with Ely, Cheveley and Newmarket into one WRZ called Suffolk West and Cambridgeshire WRZ. Only 1 Employment site lies within this WRZ. Hence for this assessment and given the proximity to the Essex Central WRZ, it is assumed that water supply for this site can be grouped into consideration with the Essex Central WRZ.

4.5.1 Essex and Suffolk Water Region

E&SW is responsible for supplying approximately 1.8 million customers in the Essex and Suffolk supply areas. Each supply area is split into four water resource zones (WRZ), the Essex supply area is one WRZ (Essex

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WRZ) (see Figure 4-5), whilst the other three are located to the northeast. The Council's study area is located partially within the Essex WRZ, as shown in Figure 4-5 below.

According to the WRMP24, the Essex WRZ region's population is expected to increase by approximately 312,840 by 2050, with population growth for the whole E&SW region expected be 343,000. As of 2021, BDC had a population of approximately 155,268 which is around 10% of the population within the Essex WRZ. According to the ONS data, the population of BDC will increase by approximately 15,946 to 171,214 by 2041 which will be approximately 7% of the estimated population increase by E&SW. Based on ONS data, the population within Essex WRZ and the BDC boundary was approximately 28,618 in 2024.

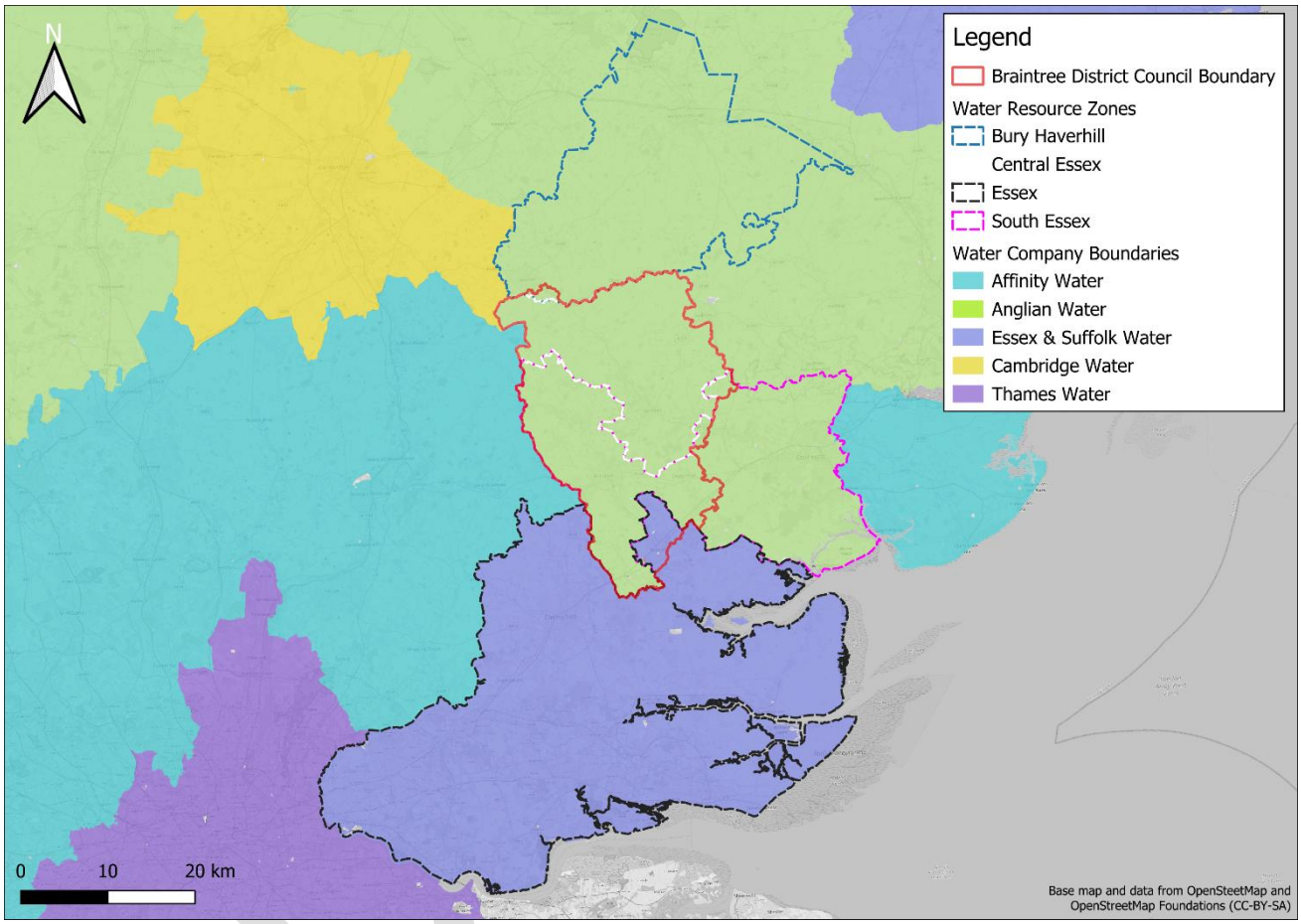


Figure 4-5: Essex WRZ in the context of the adjacent water companies.

The Essex WRZ is primarily supplied by surface water from river and reservoir abstractions, with support from groundwater (approximately 2%) in the southwest of the zone. It also has transfers from neighbouring water companies. The transfers come from two sources: the Chigwell raw water bulk supply from Thames Waters Lea Valley reservoirs and the Ely Ouse to Essex Transfer Scheme.

Figure 4-6 below provides an overview of the Essex WRZ supply network; the network primarily supplies water from north to south, with a contribution from the southwest from borehole sources and transfers from Chigwell.

Water is transferred via a pipeline from Langham water treatment works, past Abberton Reservoir into the Essex WRZ and supplied to the region alongside Hanningfield reservoir. Local authorities relying on the sources of water which supply Braintree are Maldon, Rochford, Basildon, Southend-on-Sea, Havering and Brentwood.

Figure 4-6: Essex WRZ supply network as published in the WRMP24.

4.5.2 Anglian Water Services Region

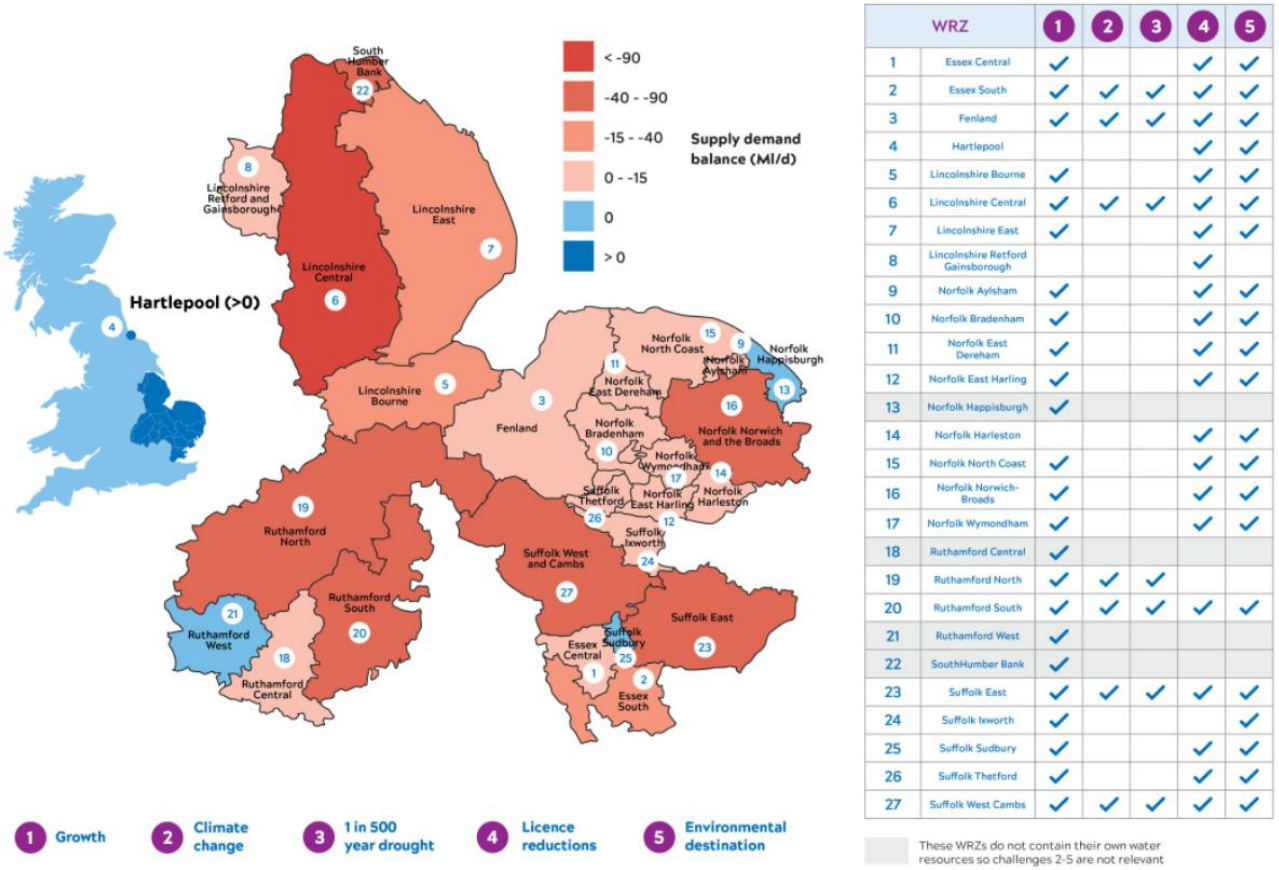
AWS is responsible for supplying approximately 4.9 million customers in the Anglian supply area. The supply area is split into 27 water resource zones (WRZ). AWS operates 27 WRZs, including the South Essex WRZ and the Central Essex WRZ (see Figure 4-7).

The Council's study area is located partially within the Essex South WRZ and entirely within the Essex Central WRZ, as shown in Figure 4-5. According to the WRMP24, the population of the Essex South and Essex Central WRZs is expected to increase by approximately 56,420 by 2049/50, an 18% increase from 2025/26.

The WRZs operated by AWS are supplied by surface water from river and reservoir abstractions (approximately 50%) and groundwater (approximately 50%). It also has transfers from neighbouring water companies and strategic resource options including the Fens and Lincolnshire reservoirs.

Figure 4-7 below provides an overview of the Anglian WRZ supply demand balance, over the WRMP24 plan period (2024/25 to 2049/50), with a breakdown of the key challenges faced by each WRZ, if no supply or demand interventions are employed. The figure details that for the South Essex WRZ, the supply demand

balance is between -15Ml/d and -40Ml/d as a result of the challenges of population growth, climate change conditions, drought conditions, licence reductions, and the environmental destination of AWS. In comparison, Central Essex WRZ is shown to have a supply demand balance of between 0Ml/d and -15Ml/d as a result of the challenges of population growth, licence reductions, and the environmental destination of AWS.



	WRZ	1	2	3	4	5
1	Essex Central	✓			✓	✓
2	Essex South	✓	✓	✓	✓	✓
3	Fenland	✓	✓	✓	✓	✓
4	Hartlepool				✓	✓
5	Lincolnshire Bourne	✓			✓	✓
6	Lincolnshire Central	✓	✓	✓	✓	✓
7	Lincolnshire East	✓			✓	✓
8	Lincolnshire Retford Gainsborough				✓	
9	Norfolk Aylsham	✓			✓	✓
10	Norfolk Bradenham	✓			✓	✓
11	Norfolk East Dereham	✓			✓	✓
12	Norfolk East Harling	✓			✓	✓
13	Norfolk Happisburgh	✓				
14	Norfolk Harleston				✓	✓
15	Norfolk North Coast	✓			✓	✓
16	Norfolk Norwich-Broads	✓			✓	✓
17	Norfolk Wymondham	✓			✓	✓
18	Ruthamford Central	✓				
19	Ruthamford North	✓	✓	✓		
20	Ruthamford South	✓	✓	✓	✓	✓
21	Ruthamford West	✓				
22	SouthHumber Bank	✓				
23	Suffolk East	✓	✓	✓	✓	✓
24	Suffolk Ixworth	✓				✓
25	Suffolk Sudbury	✓			✓	✓
26	Suffolk Thetford	✓			✓	✓
27	Suffolk West Cambs	✓	✓	✓	✓	✓

These WRZs do not contain their own water resources so challenges 2-5 are not relevant

Figure 4-7: Anglian Water supply demand balance as published in the WRMP24.

4.6 Water Resources Management Plan

4.6.1 Policy Context

WRMPs are 25-year strategies that water companies are required to prepare and update every five years. Each planning period is known as an Asset Management Plan (AMP) period. An AMP is a five-year period used by Ofwat to set the price of customer bills. Table 4-1 below outlines each of the AMP periods that the current published WRMP will cover.

Table 4-1: Years covered by AMP periods

AMP7	AMP8	AMP9	AMP10	AMP11
2020-2025	Current (2025-2030)	2030-2035	2035-2040	2040-2045

The currently published WRMP is WRMP 2024 (WRMP24), published in October 2024 for the Essex and Suffolk WRMP24 and April 2025 for the Anglian WRMP24. WRMP are required to assess:

- Future demand (due to population and business growth)
- Future water availability (including any impacts due to abstraction reductions)
- Demand management and supply options.
- How the company will address any deficits in the supply demand balance
- The impacts of climate change
- Expected per capita consumption and water efficiency measures.

When required the water company will set out additional water supply measures and demand management to meet growth within the region and describe the supply demand balance over the entire period.

As per water resource guidance, each water company must produce multiple plans when producing a WRMP, which consists of best value, least cost, central plan etc. This enables the regulator to determine whether the water company has selected the most appropriate way forward.

4.6.2 Baseline Supply Forecast

Table 4-2 summarises the AWS and E&SW baseline supply forecast for the Essex, Essex South, and Essex Central WRZ per AMP as published in the WRMP24. The total water available for use (WAFU) for E&SW remains broadly the same as at the start of the WRMP24 planning period for Essex WRZ. However, for AWS in both the South and Central Essex WRZs, there is a significant drop in WAFU between 2035/2036 and 2040/2041, as further explained below.

For E&SW there is a decrease in WAFU by 7.87Ml/d due to a combination of sustainability reductions (5Ml/d), increases to climate change impacts (with a reduction in summer flows) (2.87Ml/d) and an increase to water exported (3.14Ml/d) until 2030/31. Water exports out of the Essex WRZ will decrease from 29Ml/d in 2025/26 to 11Ml/d in 2045/46.

For AWS, water exports out of the Essex South WRZ will increase (from 11.95Ml/d in 2025/26 to 12.34Ml/d in 2030/31) before halting at 15.08Ml/d in 204/50. The WAFU is at 36.75Ml/d in 2049/50 compared to the 62.47Ml/d in 2025/26. For the Essex Central WRZ, the WAFU is at 1.75Ml/d in 2049/50 compared to the 9.29Ml/d in 2025/26 due to sustainability changes, climate change considerations, short term losses of supply, and operational use of water and water loss through abstraction.

The full supply forecast for each WRZ is shown in Appendix D.

Table 4-2: Total WAFU (Ml/d) for each WRZ in the BDC.

WRZ	2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
Essex	383.59	372.59	390.17	385.18	385.18	377.73
Essex South	62.47	62.42	62.37	36.84	36.79	36.75
Essex Central	9.29	9.30	9.30	1.75	1.75	1.75

4.6.3 Baseline Demand Forecast

The Essex WRZ has currently approximately 489,190 household properties (2025/2026) with a population of approximately 1,146,010 and 25,680 non-household (employment and education) properties. This is expected

to increase to approximately 715,760 household properties, with a population of approximately 1,731,260 and 27,680 non-household properties by 2049/2050.

The Essex South WRZ has currently approximately 98,400 household properties (2025/2026) with a population of approximately 236,830 and 5,630 non-household (employment and education) properties. This is expected to increase to approximately 131,450 household properties, with a population of approximately 303,490 and 6,130 non-household properties by 2049/2050.

The Essex Central WRZ has currently approximately 11,870 household properties (2025/2026) with a population of approximately 30,800 and 980 non-household (employment and education) properties. This is expected to increase to approximately 15,240 household properties, with a population of approximately 38,060 and 1,080 non-household properties by 2049/2050.

Table 4-3 shows the final demand (distribution input) for each WRZ, per AMP as reported in the WRMP24. The distribution input is expected to increase across the planning period for all WRZs. How each of the final distribution input for each WRZ, is made up can be found in Appendix E.

Table 4-3: Final Distribution input (Ml/d) for each WRZ in the BDC.

WRZ	2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
Essex	402.10	409.36	411.76	412.21	418.17	418.50
Essex South	61.44	62.45	63.76	65.39	67.35	69.00
Essex Central	9.42	9.36	9.49	9.70	9.94	10.15

4.6.4 Population and Property Forecast

Both AWS and E&SW WRMP24 use a combination of ONS data, adopted Local Plan evidence from all local authorities and the latest census (2021) data to estimate population and property forecasts. As part of both of their adaptive planning, three different scenarios were selected (low, medium and high).

The medium scenario is classified as the baseline forecast and uses population growth underpinned by local authority Local Plan housing growth trajectories. Following the final year of local authority data, projected housing growth in non-London areas uses ONS long term growth averages.

- The E&SW WRMP24 estimates that the Essex WRZ is expected to have an increase in population of approximately 19% over the next 25 years (forecast from 2024/25 to 2049/50). For household property, it is estimated that on average the number of properties will increase by approximately 66% over the next 25 years (forecast from 2024/25 to 2049/50).
- The AWS WRMP24 estimates that the Essex South WRZ is expected to have an increase in population of approximately 20% over the next 25 years (forecast from 2024/25 to 2049/50). For household property, it is estimated that on average the number of properties will increase by approximately 37% over the next 25 years (forecast from 2024/25 to 2049/50).
- The AWS WRMP24 estimates that the Essex Central WRZ is expected to have an increase in population of approximately 12% over the next 25 years (forecast from 2024/25 to 2049/50). For household property, it is estimated that on average the number of properties will increase by approximately 31% over the next 25 years (forecast from 2024/25 to 2049/50).

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Both AWS and E&SW use Edge Analytics to understand the growth within each WRZ from each local authority. Edge Analytics use published Local Plans and consultation to deliver growth outcomes (denoted housing Plan) and calculate the housing growth using the LHN Standard Method (denoted housing need) within a region. As detailed in Section 2.2.3, the Standard Method for housing need was changed, which led to an increase in the Braintree district. As detailed in Table 4-4 the previous housing need was planned at 858, approximately 40 homes higher than the previous LHN Standard Method. Under the new LHN Standard Method, this has increased to 1,115. The outcomes are given as a result for the council/district rather than individual settlements or WRZ; hence, the following calculated trajectories are for the whole Braintree District.

The BDC district in total, from 2022, 20,741 homes are planned, compared to the housing need of 21,018 by 2050. Table 4-4 below shows a comparison of the latest housing trajectory against the WRMP provisions until the end of AMP8 in 2030.

Table 4-4: A comparison of annualised housing numbers in BDC up to 2030 against WRMP provisions.

Data Source	2021 /22	2022 /23	2023 /24	2024 /25	2025 /26	2026 /27	2027 /28	2028 /29	2029 /30
WRMP Housing Plan	1,118	1,189	1,390	1,479	1137	990	890	718	650
WRMP Housing Need**	858	858	858	858	858	858	858	858	858
Housing Completions	1,026	869	607	475	68	-	-	-	-
Council Trajectory - Housing Completions	0	0	642	735	269	833	1,370	1,471	1,404
Difference* (WRMP Housing Plan - Council Trajectory – Housing Completions)	92	320	141	269	800	157	-480	-753	-754

** Negative indicates council trajectory exceeds Edge Analytics planed houses.*
***Assumed to be based on the previous LHN Standard Method.*

Each WRMP planning period is not independent, with planning for the next WRMP starting soon after the WRMP is published. This is to account for new information that cannot be captured within the lead up to publishing the WRMP or since its publication. Since the publication of the previous WRMP24, the government has published the new Standard Method, whilst it will not be included within WRMP24, it is expected that it will be included within the new planning cycle. As per water resources planning guidance AWS & E&SW must use Adopted Local Plans within the supply and demand balance, however it can plan for other scenarios.

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From 2027/28, the council trajectory exceeds the housing plan shown for the region, with the total council trajectory between 2019/20 and 2040/41 being 5,716 higher than that of the shown regional housing plan of 17,849.

Currently a shortfall in housing between the housing plan and housing need in the Braintree District is set to start after 2028/29, once differences between plan and the council trajectory and built developments are accounted for. The BELP exceeds the regional housing need from 2027/28, and by 2040/41, the projected housing need of 16,804 by 6,761 developments. As such, a future shortfall in housing is likely and the housing trajectory outlined within this WCS and the BELP should inform the next WRMP planning cycle (WRMP29).

4.6.5 Surrounding Local Authorities

Each of the local authorities will have growth within their respective Local Plans which will have been considered within the Edge Analytics data sources.

As shown in Figure 4-8, the local authorities bordering BDC and within the Essex, Essex South and Essex Central WRZs are Chelmsford, Colchester, and Maldon. Each of these councils are at different stages of updating their Adopted Local Plans. A comparison of the Edge Analytics housing trajectories and the published local authority plans is provided below:

- **Maldon District Council:** The Council's most recent available five year housing plan statement (Published April 2024) yearly five-year housing land supply statement provides details of the net completions of homes from 2014/2015 until 2023/24. Comparing with the E&W Essex and Suffolk Water planned values from 2019/2020 until 2022/23, shows similar values with a total deficit of 79 homes. For 2023/24 and 2024/25 E&SW are planning for more homes than Maldon District Council's trajectory however, this becomes a deficit from 2026/27 until 2028/29 with a total deficit of 457 homes. However, from 2026/27 E&SW only plan for 80 homes per annum which is below the housing need stimulated by Maldon District Council of 310 per annum.
- **Chelmsford District Council:** The Council's five year housing land supply position statement (published August 2025) provides a high level summary of housing requirements, with 1,437 dwellings per annum required, equivalent to 7,185 dwellings over 5 years. This is below the 7,754 homes between this period by E&SW.
- **Colchester City Council:** The Council's five year housing plan statement (published in April 2025), from 2024/25 to 2029/30, shows a total housing supply of 4,877 across the 5 years, with 659 in 2024/25 increasing to 962 in 2029/30. This is below the 5,948 homes between this period by AWS.

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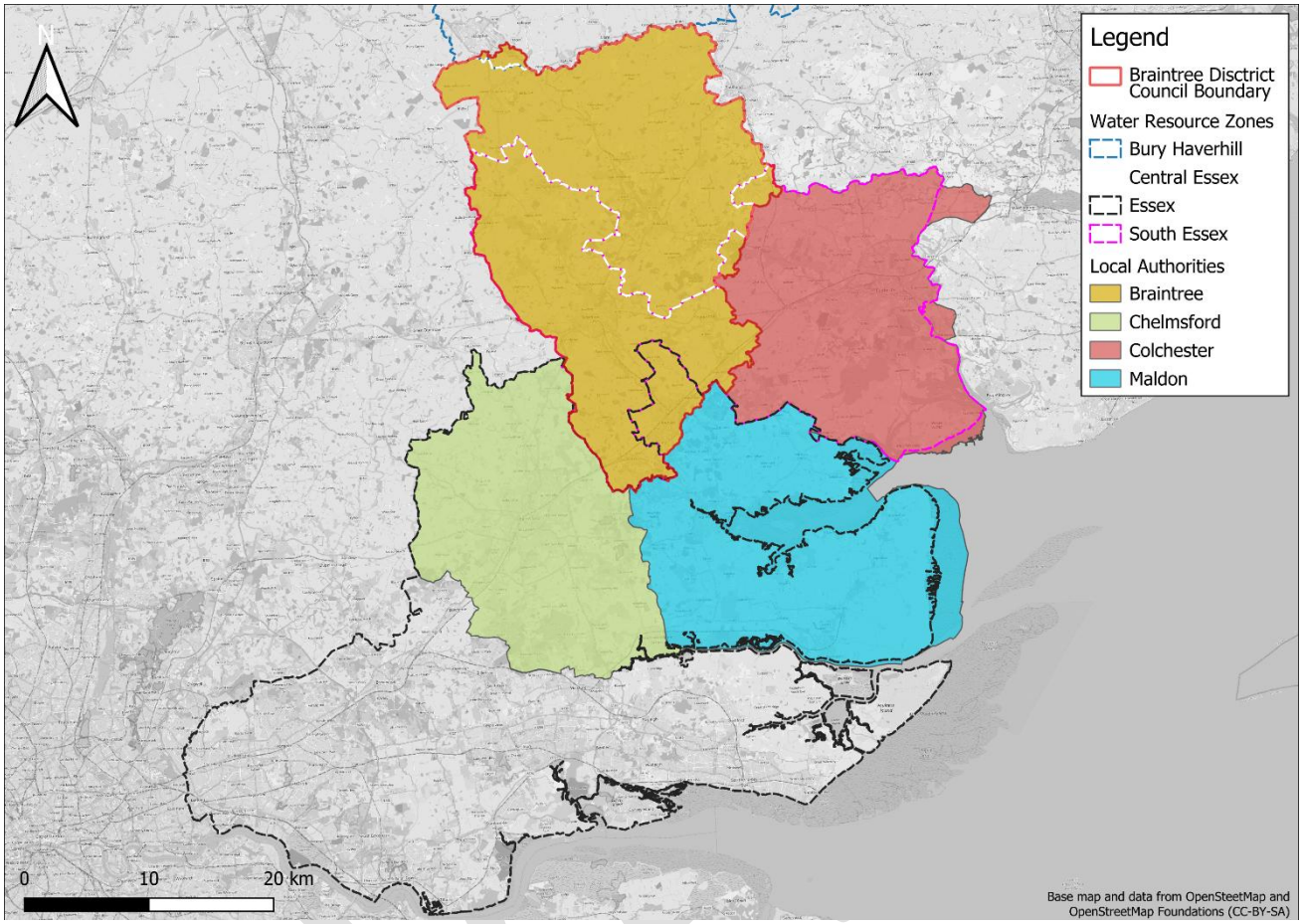

Figure 4-8: Local Authorities within the Essex, WRZ

4.6.6 Future Supply

4.6.6.1 Essex WRZ

Within the revised draft WRMP24, E&SW have assessed 127 supply options; a total of 32 options were initially rejected. Of the 95 remaining options, a strategic environmental assessment was undertaken to determine the environmental impacts the options might have. The remaining 41 options were modelled, and six options were chosen for the final WRMP. Due to sustainability reductions, there is limited potential for new river and borehole abstractions. The proposed supply options consist of:

- Water treatment works upgrades at Linford WTW
- Nitrate scheme at Langham
- Nitrate scheme at Langford WTW
- Water re-use scheme at Langford
- Ceasing of the Thames Water sharing agreement
- Upgrading of the Abberton raw water pumping station and the clarifier at Langford WTW

4.6.6.2 South Essex & Central Essex WRZ

Within the WRMP24, AWS have assessed multiple supply options, which involved a strategic environmental assessment, screening and modelling to determine the environmental impacts the options might have. The proposed supply options consist of:

- North Lincolnshire groundwater abstractions
- Essex South WTW backwash water recovery
- Holland on Sea desalination
- Lincolnshire Reservoir abstractions
- Fens Reservoir abstractions
- Colchester reuse

4.6.6.3 Supply Benefits

In addition to the supply options, the demand options consist of:

- Smart Metering
- Leakage reduction
- Water efficiency measures which are focused on the highest water users and use measures such as home flow restrictions (flow controllers), leaking toilet identification and repair alongside toilet rebates, digital engagement and national campaigns.

As per water resource guidance, each water company must produce multiple plans when producing a WRMP, which consists of best value, least cost, central plan etc. This enables the regulator to determine whether the water company has selected the most appropriate way forward.

Both AWS and E&SW are expected to start 2025/26 with deficit, with this deficit increasing up to 2049/2050. However, as outlined in Section 4.6.6, AWS and E&SW have a number of options to reduce the deficit into a surplus. Details of the supply demand balance, and final balance once interventions have been taken into account can be found below in Table 4-5 and Table 4-6.

Table 4-5: WRZ baseline supply demand balance in Essex, South Essex & Central Essex WRZs

WRZ		**2025/2026**	**2030/2031**	**2035/2036**	**2040/2041**	**2045/2046**	**2049/2050**
Essex	WAFU (Ml/d)	381.67	370.66	388.24	383.25	380.20	377.73
	Distribution input (Ml/d)	402.10	409.36	411.76	412.21	418.17	418.50
	Target Headroom (Ml/d)	6.93	3.99	1.97	1.06	1.08	1.04
	Supply demand balance (Ml/d) *	-28.05	-43.53	-26.49	-32.74	-40.68	-43.17
	WAFU (Ml/d)	62.47	62.42	62.37	36.84	36.79	36.75

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WRZ		2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
Essex South	Distribution input (Ml/d)	61.44	62.45	63.76	65.39	67.35	69.00
	Target Headroom (Ml/d)	2.32	2.40	2.28	1.09	1.02	1.07
	Supply demand balance (Ml/d) *	-2.03	-3.27	-4.60	-29.64	-31.58	-33.32
Essex Central	WAFU (Ml/d)	9.29	9.30	9.30	1.75	1.75	1.75
	Distribution input (Ml/d)	9.42	9.36	9.49	9.70	9.94	10.15
	Target Headroom (Ml/d)	0.37	0.35	0.32	0.22	0.21	0.20
	Supply demand balance (Ml/d) *	-0.50	-0.41	-0.51	-8.17	-8.40	-8.60

**Positive surplus indicates surplus but negative indicates deficit.*

Table 4-6: WRZ final supply demand balance in Essex, South Essex & Central Essex WRZs

WRZ		2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
Essex	WAFU (Ml/d)	408.17	413.09	421.15	416.75	413.70	411.23
	Distribution input (Ml/d)	398.95	386.75	367.33	351.07	346.20	343.13
	Target Headroom (Ml/d)	7.68	7.12	5.12	6.00	4.86	4.65
	Supply demand balance (Ml/d) *	1.54	21.31	49.29	59.68	62.64	63.45
	WAFU (Ml/d)	63.47	59.62	71.02	67.54	67.44	67.36

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WRZ		2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
Essex South	Distribution input (Ml/d)	60.86	60.58	60.21	59.21	58.95	59.44
	Target Headroom (Ml/d)	3.06	3.24	3.21	1.09	1.02	1.07
	Supply demand balance (Ml/d) *	0	0.30	0.30	0.30	0.30	0
Essex Central	WAFU (Ml/d)	9.71	9.44	9.30	8.97	8.72	8.72
	Distribution input (Ml/d)	9.33	9.09	8.98	8.75	8.51	8.52
	Target Headroom (Ml/d)	0.37	0.35	0.32	0.22	0.21	0.20
	Supply demand balance (Ml/d) *	0.01	0	0	0	0	0

**Positive surplus indicates surplus but negative indicates deficit.*

Table 4-5 shows that the Essex Central WRZ is planning for an increase in demand by 0.73 Ml/d and Essex South WRZ by 7.56 Ml/d. These increases are discussed in more details at the end of Section 4.7.

Table 4-6 shows that there is currently no planned excess headroom in the Essex Central or Essex South WRZ. Hence, from the higher housing requirements imposed by government's planning reforms and the BELP, there will need to be a focus on reductions in demand form current households and implementing tighter PCC limits for new developments.

4.7 Potable Water Demand Projections

To determine if the growth from the BELP is in line with the growth AWS & E&SW have currently planned for potable water, demand projections will be calculated.

4.7.1 Per Capita Consumption

The impact on water resources and infrastructure as a result of new developments in the Council's area does not solely depend upon the number of dwellings constructed. Demographic changes, i.e., changes in population and occupancy rates, will influence the impact of each new dwelling. Behavioural changes such as

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changes in Per Capita Consumption (PCC), in both new and existing dwellings, will also affect the impact that the development has on the water infrastructure.

Table 4-7 below provides a summary of the current PCC from measured and unmeasured households for 2024/25 and the 2049/50 aspiration for the Essex, South Essex, Central Essex WRZ.

Table 4-7: Table of PCC for measured and unmeasured households*

Type of Household	WRZ	PCC in 2024/25	PCC in 2049/50
Measured (l/h/d)	Essex	150.9	132.7
	South Essex	131.7	132.5
	Central Essex	123.0	128.5
Unmeasured (l/h/d)	Essex	163.9	138.8
	South Essex	183.3	177.7
	Central Essex	233.8	233.5
Average (l/h/d)	Essex	156.3	164.1
	South Essex	138.5	135.1
	Central Essex	146.3	139.9

**The Bury Haverhill WRZ also slightly overlaps with the BDC boundary; however, as none of the proposed allocation sites are within the Bury Haverhill WRZ, the PCC has not been considered in detail here.*

The proportion of domestic properties that are metered, now and by 2049/50 for each WRZ is shown in Table 4-8.

Table 4-8: The proportion of metered properties in each WRZ (%)

WRZ	2024/25 (%)	2049/50 (%)
Essex	63.45	81.23
South Essex	81.89	89.09
Central Essex	70.61	80.89

Within the WRMP for E&SW, the current planned PCC is 115l/h/d for unmetered, and 112l/h/d for metered homes, both higher than the Building Regulations optional standard of 110 l/h/d. The planned PCC value for AWS is 109.7l/h/d, slightly lower than the Building Regulations optional standard of 110 l/h/d. As such this is

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considered to be the ‘reasonable’ scenario considered for this methodology as discussed below in Section 4.7.2.

Due to the variability in usage of non-household buildings (Employment and Education), a PCC value is very difficult to estimate. We have assumed a fixed value for the calculations presented in Section 4.7.2.

4.7.2 Proposed Methodology

The future potable water demand, due to increase in demand from the proposed housing development (defined in Section 3) in the plan period up to 2041 and the change in existing dwelling demand, has been estimated using the following equation:

Future BDC potable water demand = Change in demand from existing dwellings + proposed dwellings demand

Where demand from new and existing dwellings is calculated from:

Dwellings demand = Number of dwellings x occupancy rate x PCC

Four demand scenarios have been considered within the WCS, to assess how BDC can enable the potential development and growth whilst minimising the impact on water resources. The demand scenarios are based on shared standards, consultation with AWS and E&SW and the national building regulations. The low scenario is a PCC of 85 l/h/d, which is based on the evidence provided by AWS Shared Standards in Water Efficiency for Local Plans (See Section 4.2.7 for more details). The preferred scenario is lower than the building regulations and is more in line with surrounding councils’ emerging local plans, this scenario was agreed with AWS and E&SW during consultation. The high scenario is based on the building regulations (part G) standards of 110 l/p/d this is comparable to the AWS WRMP24 such that the baseline for new developments will be 109.7 l/h/d. The worst scenario will also be informed by the estimate from AWS such that currently metered homes will have a PCC of 134.5 l/h/d as a base-line forecast from 2025. Table 4-9 below describes each of these demand scenarios.

Table 4-9: Potable demand scenarios

Scenario	Details	Litres per head per day (PCC)
Low	Based on the evidence provided within the Shared Standards in Water Efficiency for Local Plans	85
Preferred	Consultation with AWS and E&SW and in line with other Local Plans in the surrounding area.	90
High	The building regulations (part G) standard of 110 l/p/d	110
Worst	As in the AWS WRMP24 Anglian Water Demand Management Preferred Plan, base-line forecast for 2025	134.5

** Water Management to support meeting this preferred PCC is discussed in Section 9.*

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One scenario for non-household demand has been considered which will not change irrespective of the household scenario presented in Table 4-9. The non household PCCs used are highlighted in Table 4-10 as per the consultation with E&SW and published literature on non-household demand.

Table 4-10: Non-Household potable demand

Type of non-household property	Litres per head per day (PCC)
Employees and education staff	35
Education (students)	15

4.7.3 Portable Water Demand Projection Results

A summary of the increase in demand for each scenario in the entire Braintree Study Area that has been impacted by BELP also shown in Table 4-11.

Table 4-11:Summary of increased total demand across each WRZ and the entire Braintree region for a range of scenarios.

Scenario	Increase in Demand (Ml/d)			
	Essex WRZ	South Essex WRZ	Central Essex WRZ	Braintree Study Area*
Low	0.39	2.26	1.70	4.37
Preferred	0.42	2.36	1.80	4.60
High	0.51	2.79	2.19	5.51
Worst	0.62	3.31	2.68	6.64

**This also includes contributions from the Bury Haverhill WRZ.*

This shows that for the Preferred scenario, the most significant increase in demand is within the South Essex WRZ with an increase in demand of 2.26 Ml/d, equivalent to 52% of the overall increase in demand for the BDC Study Area.

Table 4-5 (the baseline WRMP24 supply and demand) also shows that for South Essex WRZ an increase in demand will be approximately 7.56 Ml/d, this when compared with the proposed increase in demand of approximately 2.4 Ml/d (under the preferred scenario) is approximately over a third. This shows that for this WRZ, if demand measures are implemented correctly the demand in Table 4-6 could be met. It is acknowledged that Colchester Council are also included within Essex South WRZ and their increase in demand is not included within this WCS.

Conversely, Table 4-5 (the baseline WRMP24 supply and demand) shows that for Essex Central WRZ an increase in demand will be of approximately 0.73 Ml/d, this is smaller than the proposed increase in demand of approximately 1.80 Ml/d. This when compared with Table 4-6 means that more demand saving measures will need to be included within the WRZ and provides further evidence that a tighter PCC value should be implemented across the WRZ.

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It should be noted that the increase in demand within the area of the Braintree District that lies within the Bury Haverhill WRZ is less than a 0.02 Ml/d for all scenarios, hence has been considered to have minimal impact on the Braintree Study Area and is not included in Table 4-11.

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5 Wastewater Treatment and Sewerage

Wastewater collection and treatment services for the Council's administrative area are provided by Anglian Water Services (AWS). Wastewater is taken to water recycling centers (WRCs) via gravity and pumped networks before being released back to the ordinary watercourses or rivers. There are both privately and AWS owned WRCs within the BDC's area.

An overview map of the AWS WRCs and the sewer network that serve BDC is provided in Figure 5-1 below:

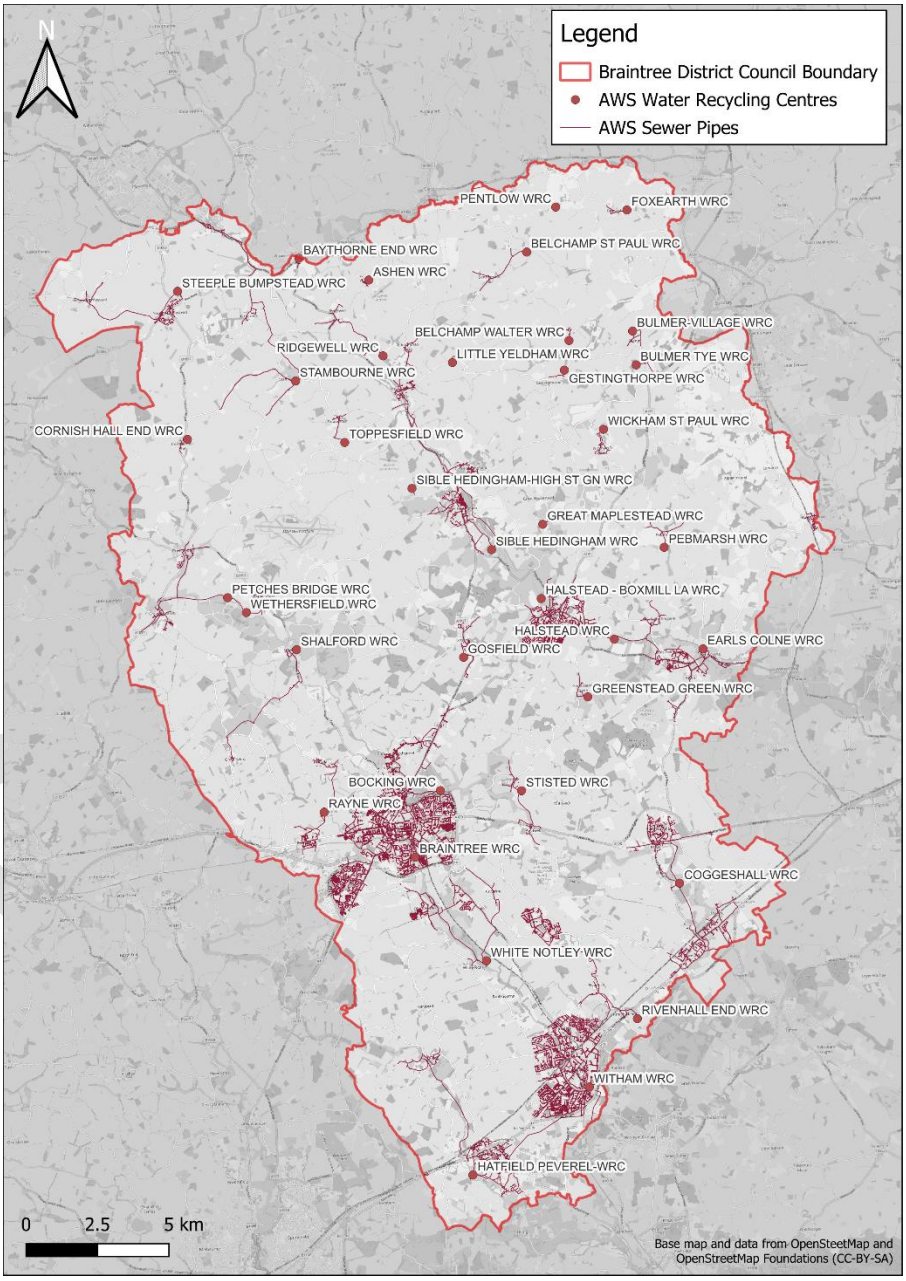

Figure 5-1: AWS WRCs and the sewer network

This section contains an assessment of the capacity of the existing wastewater infrastructure (piped network and WRCs) to accommodate the increase in foul flows from the population increase due to the planned proposed developments within BDC administrative area.

5.1 Anglian Water Services - DWMP report

Anglian Water Services (AWS) completed their Drainage and Wastewater Management Plan (DWMP) in May 2023, with AWS currently in the process of updating the plan. The document contains details regarding AWS long-term strategic plan (actions and investments) over the next 25 years (up to 2050). It contains details on how the AWS DWMP sets out a comprehensive framework for managing drainage and wastewater systems. It emphasises resilience, sustainability, and alignment with broader strategic objectives in water resource planning.

The AWS DWMP includes the integrated water management solutions along with probable Nature Based Solution (NBS) techniques, such as Sustainable Drainage Systems (SuDS), with respect to removal of surface water from the combined sewer networks to provide future resilience. The DWMP is designed to complement and align with other major planning frameworks, including the Water Resources Management Plan (WRMP), Flood Risk Management Plans (FRMP), and Local Plans. This alignment ensures consistency across water resource, flood risk, and local development strategies. It also provides information where existing WRCs are close to their discharge permits and technical achievable limits (TAL) of the existing processes (for example Ammonia or Phosphate limits).

5.2 Sewer Network Infrastructure (including pipes and pumps)

The sewerage infrastructure assessment reviewed the public foul and combined sewer systems managed by AWS, including pipes, combined sewer overflows (CSOs), and pump stations that connect developments to Wastewater Recycling Centres (WRCs). The analysis aimed to identify potential capacity issues and determine whether the network can adequately accommodate both existing and future flows. Private drainage systems were excluded, with the focus placed on AWS infrastructure across the BDC's area. Maintenance of private sewers is the responsibility of the homeowner and not the water company. Only the public sewers were assessed in this report as follows without undertaking any hydraulic modelling. Using the GIS data provided by AWS, the study examined the sewer network under dry weather conditions, meaning that surface water flows within combined systems were not considered.

5.2.1 Existing Sewer Network

The assessment of the existing combined and foul sewer network, including pipes and manholes, establishes a valuable baseline for evaluating whether future development flows resulting from population growth can be accommodated within each catchment.

5.2.2 Proposed Developments - Sewer Network Assessment

New developments within BDC's administrative area will require connection to a WRC via the sewerage infrastructure. Potential constraints to this connection include insufficient capacity within the existing network to accommodate additional flows, or the absence of sewer infrastructure in close proximity to the development site. For the purposes of the Outline WCS, developments with existing planning permissions were excluded, as these should have been appraised during the planning consultation process and incorporated into previous local plans and AWS strategies. The majority of proposed development sites are situated within, or close to, existing WRC catchments defined by AWS, indicating that most new growth can be integrated into the current sewerage framework, subject to further capacity assessments.

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Where the proposed development sites fall within existing WRC catchments, it was assumed that these sites would be able to connect to the existing sewer network (either by gravity or pumping). For the sites that fall outside existing WRC catchments, it was assumed additional infrastructure would be required to accommodate these developments.

A Red, Amber, Green (RAG) status was allocated for each of the proposed developments (Table 5-1) which were categorised as shown in

Table 5-1 below.

Table 5-1: Proposed developments: Infrastructure assessment RAG status categories

Colour	Description
Red	A greenfield site with no public sewer infrastructure close by and outside existing WRC catchment boundary. Requires major infrastructure upgrade or extension which will need to be delivered by developers and AWS.
Amber	The existing brownfield or greenfield site is just outside an existing WRC catchment boundary and infrastructure is within 100 m of the site. Requires minor infrastructure upgrade or extension which will need to be delivered by developers and AWS.
Green	The existing brownfield or greenfield site within an existing WRC catchment boundary with infrastructure within 50 m of the site. Requires no to little infrastructure upgrade or extension which will need to be delivered by developers and AWS.

In total, 6 small sites were RAG as Red, due to distance from sewer infrastructure and 3 as Amber. Of the Large sites 4 sites were RAG as Red, whereas one site was Amber. For employment land, 3 sites were RAG as red and 3 as Amber. Table 5-2 below summarises the proposed developments which were RAG as Amber or Red with the reasoning.

Table 5-2: Red and Amber proposed development from the infrastructure assessment.

Site Reference Code	Settlement	WRC Catchment	Infrastructure assessment
Small Sites			
BOCN2042	Braintree	Bocking	Greenfield Site (small area of Brownfield Site). Located within the existing Bocking sewer catchment. There are existing sewers (225mm and 300mm diameter) located to the east (>50m away) and west (along site boundary) of the site. Sewer will need to be upgraded and extended to accommodate the development.
BURE2070	Bures	Bures	Greenfield Site.

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Site Reference Code	Settlement	WRC Catchment	Infrastructure assessment
			Located outside the existing Bures-Wissington Rd sewer catchment. There are existing sewers (6mm diameter, which is likely to incorrect and should clarified with AWS) located to the north of the site (>675m away). Sewer will need to be upgraded and extended to accommodate the development.
HATF2192	Hatfield Peverel	Hatfield Peverel	Greenfield Site. Located within the existing Witham sewer catchment. There are existing sewers (150mm and 225mm diameter) located to the north west (>130m away) and east (>110m away) of the site. Sewer will need to be upgraded and extended to accommodate the development".
HATR2203	Halstead	Boxmill Lane	Greenfield Site. Partially located within the existing Halstead sewer catchment. There are existing sewers (150mm diameter) located to the east of the site (>100m away). Sewer will need to be upgraded and extended to accommodate the development.
KELV2212	Kelvedon	Coggeshall	Greenfield Site. Partially located within the existing Coggeshall sewer catchment. There are existing sewers (150mm diameter) located to the south east of the site (>190m away). Sewer will need to be upgraded and extended to accommodate the development.
PANF2508	Panfield	Rayne WRC	Greenfield Site. Located outside the existing Braintree sewer catchment. There are existing sewers (375mm and 675mm diameter) located to the south of the site (>150m away). Sewer will need to be upgraded and extended to accommodate the development.
SIBH2517	Sible Hedingham	Sible Hedingham	Greenfield Site (small area of Brownfield Site). Located within the existing Sible Hedingham sewer catchment. There are existing sewers (unknown diameter) located to the south of the site (>65m away, >5m in one small area). Sewer will need to be upgraded and extended to accommodate the development.

Site Reference Code	Settlement	WRC Catchment	Infrastructure assessment
WITN2252	Witham	Witham	Greenfield Site. Partially located within the existing Witham sewer catchment. There are existing sewers (175mm, 225mm, 300mm and 525mm diameter) located to the south east of the site (>150m away). Sewer will need to be upgraded and extended to accommodate the development.
WITC2316	Hatfield Peverel	Witham	Brownfield Site (area of Greenfield Site). Partially located within the existing Witham sewer catchment. There are existing sewers (300mm diameter) located to the north east of the site (>345m away). Sewer will need to be upgraded and extended to accommodate the development.
WITS2516	Witham South Ward	Witham	Greenfield Site. Located within the existing Maldon sewer catchment. There are existing sewers (250mm diameter) located to the south east of the site (>75m away). Sewer will need to be upgraded and extended to accommodate the development.
Large Sites			
KELV2209	Kelvedon	Coggeshall	Greenfield Site. Localised area located within the existing Coggeshall sewer catchment. There are existing sewers (9mm diameter) located to the south east of the site (>180m away). Sewer will need to be upgraded and extended to accommodate the development.
CRES2101	Braintree	Braintree	Greenfield Site (small areas of Brownfield Site). Located outside the existing Braintree, Bocking and Stisted sewer catchment. There are existing sewers (150mm diameter) located to the east of the site (>350m away). Sewer will need to be upgraded and extended to accommodate the development.
HATF2193	Hatfield Peverel	Witham	Greenfield Site Localised areas located within the existing Witham sewer catchment

Site Reference Code	Settlement	WRC Catchment	Infrastructure assessment
			There are existing sewers (150mm and 300mm diameter) located to the north east (>370m away) and south west (>80m away) of the site. Sewer will need to be upgraded and extended to accommodate the development.
FINC2502	Hatfield Peverel	Witham	Brownfield Site (areas of Greenfield Site) Located outside the existing Wethersfield sewer catchment There are existing sewers (unknown diameter) located to the south of the site (>1km away). Sewer will need to be upgraded and extended to accommodate the development.
HATF2194	Hatfield Peverel	Witham	Greenfield Site Localised area located within the existing Witham sewer catchment There are existing sewers (225mm diameter) located to the south west of the site (>85m away). Sewer will need to be upgraded and extended to accommodate the development.
Employment Land			
ELR1	Kelvedon	Coggeshall	Brownfield Site Partially located within the existing Coggeshall sewer catchment There are existing sewers (150mm diameter) located to the north of the site (>55m away). Sewer will need to be upgraded and extended to accommodate the development
ELR2	Gosfield	Gosfield	Brownfield Site Located outside the existing Gosfield sewer catchment There are existing sewers (150mm, 225mm and 300mm diameter) located to the south east of the site (>940m away). Sewer will need to be upgraded and extended to accommodate the development
GOSF2156	Gosfield	Gosfield	Greenfield Site Located outside the existing Gosfield sewer catchment There are existing sewers (150mm, 225mm and 300mm diameter) located to the south east of the site (>880m away). Sewer will need to be upgraded and extended to accommodate the development
GRNO2169	Great Notley	Braintree	Brownfield Site (areas of Greenfield Site) Partially located within the existing Braintree sewer catchment There are existing sewers (150mm, 225mm and 300mm diameter)

Site Reference Code	Settlement	WRC Catchment	Infrastructure assessment
			located to the north east of the site (>75m away). Sewer will need to be upgraded and extended to accommodate the development
GRNO2505	Great Notley	Braintree	Brownfield Site (areas of Greenfield Site) Partially located within the existing Braintree sewer catchment There are existing sewers (150mm, 225mm and 300mm diameter) located to the north east of the site (>75m away). Sewer will need to be upgraded and extended to accommodate the development
ELR1	Kelvedon	Coggeshall	Brownfield Site Partially located within the existing Coggeshall sewer catchment There are existing sewers (150mm diameter) located to the north of the site (>55m away). Sewer will need to be upgraded and extended to accommodate the development

For the existing brownfield sites, which are proposed for redevelopment, where the existing site's surface and foul drains are connected to the public combined sewer, it is assumed the redevelopment would result in the separation of surface and foul water drainage. This would increase capacity in the existing public combined sewer to accept additional foul flows from new developments.

Additionally for brownfield sites, where the land-use will only undergo minor alterations (industrial to commercial), the existing public sewers were assumed to be able to accommodate the proposed developments without requiring additional upgrades.

5.3 Water Recycling Centres

5.3.1 Existing Water Recycling Centres

The Council's administrative area is served by both privately owned and AWS owned WRCs. For the purposes of this assessment, only AWS owned WRCs with associated permits are assessed, as detailed in Table 5-3 below. It is worth noting that a number of additional smaller AWS owned WRCs are present with the Council's administrative area, however, these are descriptive WRCs and therefore do not have permit discharge conditions.

Table 5-3: WRCs serving BDC's administrative area - AWS owned.

WRC Name	
Bocking	Rivenhall End
Braintree	Shalford

WRC Name	
Coggeshall	Sible Hedingham
Earls Colne	Stambourne
Gosfield	Steeple Bumpstead
Halstead	Stisted
Little Yeldham	Toppesfield
Pebmarsh	Wethersfield
Rayne	White Notley
Ridgewell	Witham

The existing permit information for each of the WRCs serving the BDC administrative area was provided by the EA and is summarized in Appendix G.

5.3.2 Existing Dry Weather Flow

Before assessing the impact of the proposed development trajectory on the volumetric discharge in terms of dry weather flow (DWF) of the existing WRCs, the existing DWF and existing discharge consents were assessed, and any existing shortfalls identified. DWF is an estimation of the flow of wastewater to a WRC during a period of dry weather. Table 5-4 below outlines the current permitted and DWF for each of the 20 WRC owned by AWS.

Table 5-4: WRCs owned by AWS in BDC administrative area: Existing permit and measured DWF review, orange cells indicate an exceedance in the consent.

WRC	Settlements Served	Existing Consented dry weather flow (DWF) (m^3/day)	Existing DWF: Q80 measured 2023 in m^3/day	Existing DWF: Q80 measured 2024 in m^3/day
Bocking	Bocking	3,900	3,842.8	4,285.0
Braintree	Great Notley	6859	6,522.6	6,537.0
Coggeshall	Coggeshall, Kelvedon with Feering, Surrex	2235	2,489.8	2,508.0
Earls Colne	Earls Colne, White Colne	934	803.4	954.0
Gosfield	Gosfield	290	232.0	246.0
Halstead	Halstead	2900	2,920.6	2,864.0

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WRC	Settlements Served	Existing Consented dry weather flow (DWF) (m^3/day)	Existing DWF: Q80 measured 2023 in m^3/day	Existing DWF: Q80 measured 2024 in m^3/day
	Colne Engaine			
Little Yeldham	Little Yeldham	15	0.0	0.0
Pebmarsh	Pebmarsh	120	256.8	149.0
Rayne	Rayne Panfield	650	386.0	377.0
Ridgewell	Ridgewell	102	13.0	10.0
Rivenhall End	Silver End Rivenhall Rivenhall End	80	39.0	47.0
Shalford	Great Saling Shalford Shalford Church End	304	248.0	237.0
Sible Hedingham	Sible Hedingham Great Yeldham Castle Hedingham Tilbury Juxta Clare	1700	1,372.0	1,501.0
Stambourne	Stambourne Chapelend Way Stambourne Dyers End Sturmer	70	44.0	43.0
Steeple Bumpstead	Steeple Bumpstead Helions Bumpstead	320	230.0	282.0
Stisted	Bradwell Stisted	300	322.0	329.0
Toppesfield	Toppesfield	80	59.0	46.0
Wethersfield	Finchingfield Great Bardfield Wethersfield	955	658.8	888.0
White Notley	Cressing Tye Green Black Notley Cressing White Notley	660	781.0	885.0
Witham	Witham	8100	7,854.6	8,544.0

The majority of the WRCs are within their existing consented DWF permits when comparing the 2023 and 2024 measured DWF data. The WRCs which were found to have capacity issues (measured DWF above the

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permit DWF) have been listed with highlighted cells in Table 5-4. Out of 20 WRCs, only 7 are exceeding the DWF permit level as per the measured data and further calculations have been carried out based on the data presented in this table. Through consultation with AWS, they detailed that 2024 was a very wet year and so the DWF from that year might not be representative, suggesting that an average 5-year DWF is used instead. At the time of writing this Outline WCS this was not provided. Those above mentioned 7 WRCs are detailed in the Table 5-5 below.

Table 5-5: Water recycling centres that have existing capacity issues

WRC	**Analysis**
Bocking	WRC was in close proximity of failing in 2023 and it fails in 2024.
Coggeshall	WRC fails in both 2023 & 2024
Earls Colne	WRC fails by a very small margin in 2024
Pebmarsh	WRC fails in both 2023 & 2024. However, the margin gets reduced in 2024 compared to 2023
Stisted	WRC fails in both 2023 & 2024
White Notley	WRC fails in both 2023 & 2024
Witham	WRC fails in 2024

5.4 Approach to Assessing proposed Growth and Development

To provide evidence that the proposed growth and development can be accommodated, all BCC growth proposals within the AWS operational area have been reviewed. Figure 5-2 below shows the distribution of the housing and employment compared with the WRC and sewer pipes.

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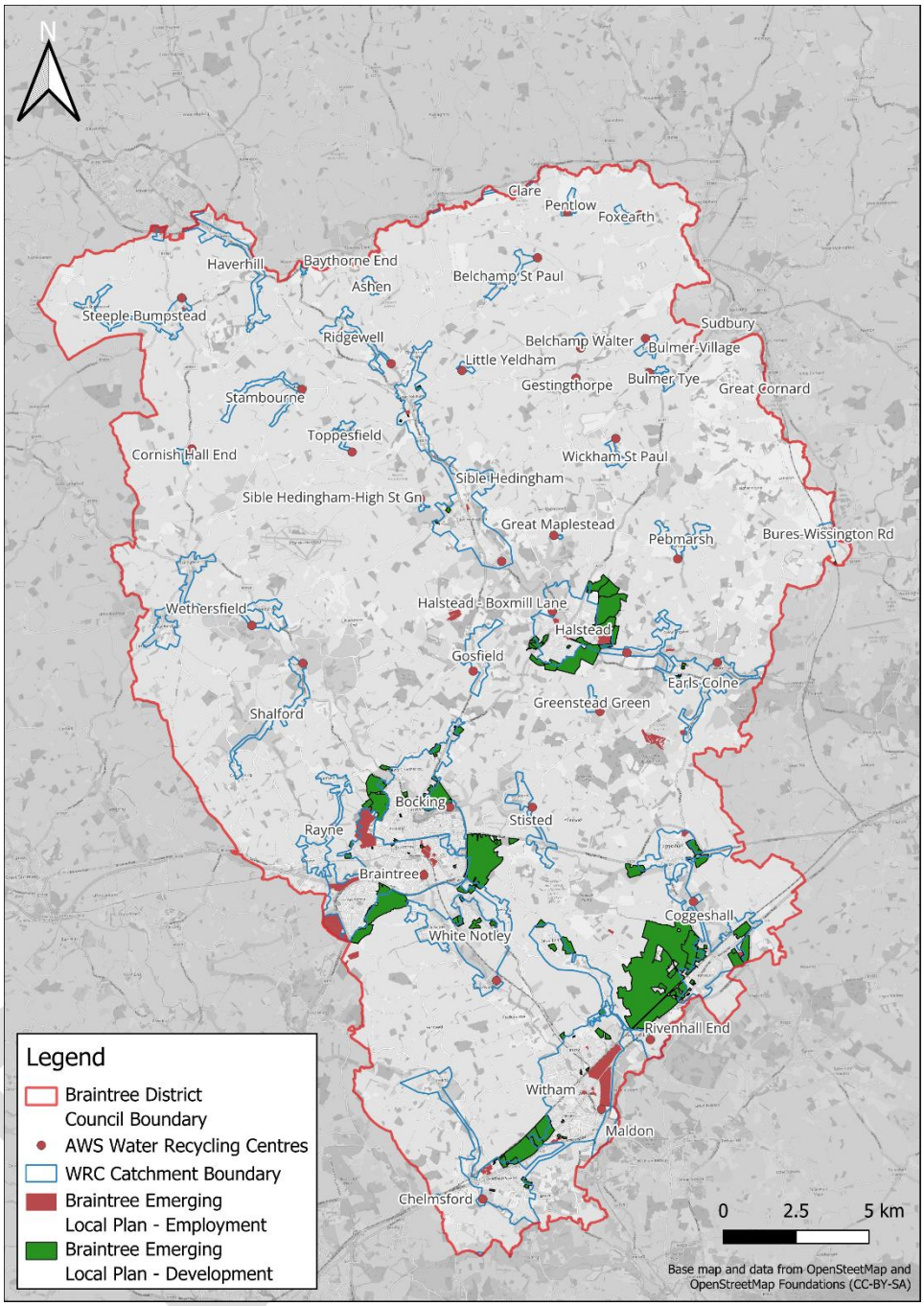

Figure 5-2: Proposed growth and development and all WRC locations for BDC

5.4.1 Trade Effluent

It's been assumed that trade effluent volumes are expected to remain broadly constant, as intensification of employment areas is unlikely to increase demand due to the gradual replacement of water-intensive industries with service-oriented businesses adopting water-efficient fittings and reuse measures. AWS is under no obligation to accept trade effluent into its wastewater systems, and where acceptance is considered, significant network or process capacity upgrades may be required, with associated capital costs forming part of financial agreements with businesses.

Future trade effluent flows cannot be reliably projected given their variability and dependence on business type, and AWS can only provide data on existing flows. Importantly, AWS's regulatory position ensures that non-household foul flows must not compromise household treatment capacity, and developers may be required to fund upgrades to Wastewater Recycling Centres (WRCs) where necessary. As such, early engagement with AWS is critical, as these upgrades can be costly and take several years to deliver. The findings highlight the need for proactive planning by businesses and developers, while reinforcing the policy direction toward service-based, water-efficient industries that align with long-term sustainability objective.

5.4.2 Dry Weather Flow (DWF) Estimation: Theoretical Flow Estimation

The future development DWF was calculated to assess the impact of the potential proposed development trajectory on the existing WRCs. The future DWF for each WRC was calculated using the formula below:

Future DWF = Existing DWF (Q80) + Future developments DWF (PG + IDWF + E)

Where:

- **Existing DWF** (Q80) is the existing 2024 measured DWF (m3/day).
- **Future developments DWF:** Calculated using the EA Calculating DWF guidance.
- **P** is the catchment or development population (number).
- **G** is the future per capita flow (litres per head per day (l/h/d)) from the new developments. It was estimated using the PCC of water which was multiplied by the percentage returned to the sewer system. It was assumed that 90% of domestic water consumption was returned to the sewer. The PCC differs depending on the type of development:
- **Domestic**: For housing developments (household consumption), domestic PCC is aligned with CCC policies. A conservative PCC of 100 l/h/d was used in the Outline WCS.
- **Employment**: For employment, commercial and industrial developments the PCC of each of the office employees and members of staff was set as 50 l/h/d day.
- **IDWF** is the dry weather infiltration (litres per day); a value of 25% was agreed with AWS. This accounts for water entering the sewerage network from incorrect or illegal connections, and through defects in the existing assets. Infiltration was not calculated on a per catchment scale.
- **E** is the trade effluent flow that could arise from proposed developments (litres per day).

Two scenarios are tested within this Outline WCS, the first is using Existing recorded Q80 DWF from the year 2024 as the Existing DWF, whilst the second is calculated using the DWF formula.

5.4.3 Future Dry Weather Flow per Water Recycling Centre

Using the above formula and assumptions, the future DWF, generated by potential future development, for each of the WRC was determined.

Table 5-6 below summarises the results of the DWF analysis for future development overview in relation to each of the WRC catchments, taking 2024 as the reference year.

A red, amber green (RAG) status was allocated for each of the WRCs with respect to their future DWF in relation to their permit, as shown in Table 5-6.

Table 5-6: RAG score for DWF exceedance in future

Colour	Description
Red	Future DWF exceeding permit due to proposed/existing development

Colour	Description
Amber	Future DWF close to exceeding permit due to proposed/existing development - headroom
Green	Future DWF not exceeding permit due to proposed/existing development - headroom >10%

With the Q80 Calculated DWF 2024 values for the reference year, Table indicate that the proposed developments (including any employment and schools) can be accommodated at nine WRCs without resulting in the existing DWF consents being exceeded by 2041. Whereas 11 WRCs exceed the existing DWF consents by 2041 with the proposed developments, and therefore the future consents in the permits need to be tightened.

Conversely, with the Measured Q80 DWF 2024 for the reference year, 16 WRC will exceed the existing DWF permit. As mentioned before, the recent consultation with AWS has also highlighted that 2024 was a very wet year and an average 5-year DWF may be used as an alternative to compare with. **However, at the time of writing this draft Outline WCS such additional DWF data was not provided by AWS, and further analysis and commentary can be provided in the final WCS, if required.**

It should be also noted that AWS has an obligation to accept domestic flows, in particular in respect of committed/ permitted housing development sites and would need to find suitable solutions to enable the development proposed at the failing or restricted capacity WRCs. BDC can place conditions on existing planning applications and proposed allocation sites, however, based on discussions with AWS it is not advocated to give pre-commencement conditions for proposed developments as it could lead to issues for various stakeholders including developers, LPA, and AWS.

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Table 5-7: WRCs: proposed development future dry weather flow calculation

WRC	Existing consented DWF (m^3/day)	Calculated DWF (m^3/day)	Q80 Measured flow 2024 (m^3/day)	Increase in dwellings (2033-2050) (m^3/day)	Increase in employment area (2025-2041) (m^3/day)	Increase in educational facilities (2025-2041) (m^3/day)	2041 DWF using calculated DWF (m^3/day)	2041 calculated DWF using Q80 measured flow (m^3/day)
Bocking WRC	3900	3392	4285	648	0	0	4040	4933
Braintree WRC	6859	4504	6537	1,502*	787	29	6823	8856
Coggeshall WRC	2235	1576	2508	1,070	34	1	2682	3614
Earls Colne WRC	934	670	954	10	0	0	680	964
Gosfield WRC	290	192	246	95	100	0	388	442
Halstead WRC	2900	2606	2864	1266*	133	0	4005	4263
Little Yeldham WRC	15	15	15**	2	0	0	17	17**
Pebmarsh WRC	120	67	149	4	0	0	71	153
Rayne WRC	650	457	377	104	486	0	1047	967
Ridgewell WRC	102	74	10	356	13	0	442	379
Rivenhall End WRC	80	23	47	78	193	0	294	318
Shalford WRC	304	106	237	8	0	0	114	245
Sible Hedingham WRC	1700	1084	1501	1	0	0	1085	1502

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WRC	Existing consented DWF (m^3/day)	Calculated DWF (m^3/day)	Q80 Measured flow 2024 (m^3/day)	Increase in dwellings (2033-2050) (m^3/day)	Increase in employment area (2025-2041) (m^3/day)	Increase in educational facilities (2025-2041) (m^3/day)	2041 DWF using calculated DWF (m^3/day)	2041 calculated DWF using Q80 measured flow (m^3/day)
Stambourne WRC	70	50	43	376	0	0	426	419
Steeple Bumpstead WRC	320	277	282	12	16	0	304	309
Stisted WRC	300	138	329	5	0	0	143	334
Toppesfield WRC	80	62	46	4	0	0	66	50
Wethersfield WRC	955	432	888	725	0	0	1157	1613
White Notley WRC	660	667	885	83	4	0	754	971
Witham WRC	8100	4761	8544	386	228	0	5375	9158

**Includes development proposals beyond 2040/41*

***Calculated DWF used.*

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5.5 Wastewater Assets: Odour Assessment

5.5.1 Odour Assessment Considerations

The strength of odours from wastewater assets such as WRCs, pump stations or combined sewer overflows (CSO) at any particular time will depend on various factors:

- Distance from the source.
- Wind strength and direction.
- Ambient temperature.

The concentration of the odour will normally diminish as the distance from the source increases. As described below, AWS recommends that a cordon sanitaire should be respected around wastewater assets, specifically WRCs, to ensure that developments which are likely to be sensitive to odours are not constructed in locations likely to be affected by odour nuisance.

5.5.1.1 Water Recycling Centres

AWS strongly recommend that LPA safeguard a cordon sanitaire of 400 m from WRC boundaries. This distance may be relaxed on a case-by-case basis depending upon the:

- Processes in place at the WRC.
- Sensitivity of its location.
- Type and scale of the proposed development.

5.5.1.2 Pumping Stations and Combined Sewer Overflows

AWS also recommends that developments are excluded from within 15 m of sewage pumping stations. As with WRCs, this distance may be reduced dependent on the location and context.

5.5.1.3 Results

Each of the proposed development and growth sites were reviewed in relation to their distance to wastewater assets, the assessment is included in Appendix H. In total, two small sites and one large site from the BELP are less than 400m from a WRC, whilst two previously proposed allocation sites from the currently adopted Local Plan are. In total two small sites are within 15m of pumping stations and one currently proposed allocation sites from the Adopted Local Plan.

Table 5-8: Red and Amber proposed development from the odour assessment.

Reference code	Settlement	WRC	WRC- Odour	Sewer Pumpstation- Odour
Small Sites				
HATF2192	Hatfield Peverel	Hatfield Peverel	WRC < 400m away from development - Odour concerns	Pumpstation > 15m away from development - No odour concerns

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Reference code	Settlement	WRC	WRC- Odour	Sewer Pumpstation- Odour
KELV2221	Kelvedon	Coggeshall	WRC > 400m away from development - No odour concerns	Pumpstation < 15m away from development - Odour concerns
FINC2135	Finchingfield	Wethersfield	WRC > 400m away from development - No odour concerns	Pumpstation < 15m away from development - Odour concerns
WETH2297	Wethersfield	Wethersfield	WRC < 400m away from development - Odour concerns	Pumpstation > 15m away from development - No odour concerns
Large Sites				
KELV2208	Kelvedon	Outlet at Grey's Mill	WRC < 400m away from development - Odour concerns	Pumpstation > 15m away from development - No odour concerns
Proposed Employment Sites				
CRES2116	Cressing	White Notley	WRC > 400m away from development - No odour concerns	Pumpstation < 15m away from development - Odour concerns
STEB2282	Steeple Bumpstead	Steeple Bumpstead	WRC < 400m away from development - Odour concerns	Pumpstation < 15m away from development - Odour concerns

5.6 Increased Dry Weather Flows: Flood Risk

The impact of additional discharge on flood risk downstream receptors has been assessed at an outline level in Section 0.

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6 Local Environmental Capacity (Water Quality)

This section contains the assessment of the environmental capacity of the receiving waterbodies or watercourses to accommodate the increase in foul flows from WRCs as a result of the planned proposed growth (including the population increase).

6.1 Water Framework Directive (WFD)

6.1.1 Water Framework Directive: Cycle 3

The WFD is a European Union (EU) directive, first published in 2000, which commits every EU member to achieve good qualitative and quantitative status of all water bodies by 2015. It was adopted into legislation in England and Wales in 2003 and amended by the Floods and Water (Amendment etc.) (EU Exit) Regulations 2019 (the 2019 Regulations), specifically Regulation 20. The WFD classified what a "good status" for environmental quality measures should be. In 2023 a review of the 25 year environment plan highlighted that only 14% of assessed rivers in England were at "good" ecological status.

The WFD sets out a strategy for protecting and enhancing the quality of groundwater, rivers, lakes, estuaries and coasts. It introduces an integrated approach to river basin management, identifying and characterising the water bodies and protected areas in each river basin, and the pressures and risks upon them. Water quality has always been an important consideration; however, more stringent standards on surface and groundwater quality (and hence discharges into rivers from WRC) are being applied by the EA, as the WFD is implemented at regional and local levels.

Discharges from WRCs, industry and surface water run-off (in particular from agricultural areas) can lead to negative and wide-ranging water quality impacts within the receiving watercourses. High levels of nutrients such as phosphates or nitrates can encourage excessive algal growth. This can adversely affect the biodiversity of the watercourse, particularly as it decreases the oxygen levels in the water that other life forms depend upon. Phosphate levels are a concern throughout the majority of the east of England, and will require on-going cooperation between water companies, the EA and other parties such as Defra to overcome this issue at a national and regional level.

The main objectives of the WFD are to prevent any deterioration in current water quality and bring all water bodies up to "Good" status by 2027. The elements most at risk from growth and in relation to WRC permitting are ammonia, phosphate and dissolved oxygen. The WFD requirements could have implications for proposed future developments.

LPA need to consider the WFD during the planning process, through assessing the impact of additional wastewater flows on local river quality.

6.1.2 WFD: Water Quality Baseline

The baseline conditions with regards to the WFD classification are outlined in Table 6-1. Detailed information relating to the WFD classifications are contained within Appendix I.

Where the existing DWF discharge consent (Section 5) is predicted to be exceeded, and the physio-chemical consent standards might require tightening to ensure no deterioration in the WFD status, the WRC has been highlighted in yellow. A conservative approach to this assessment has been undertaken such that the DWF calculated using Q80 from 2024 has been used as this generates the largest value.

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Table 6-1: WRC Receiving WFD waterbodies water quality baseline

WRC	WRC Location Easting	WRC Location Northing	Receiving WFD Waterbody	Overall WFD Classification
Bocking	577370	224290	Blackwater (Combined Essex)	Moderate
Braintree	576690	221760	Brain	Moderate
Coggeshall	221370	221370	Blackwater (Combined Essex)	Moderate
Earls Colne	586440	229220	Colne (d/s Doe's Corner)	Moderate
Gosfield	578260	228980	Bourne Brook	Poor
Halstead	583680	229670	Colne (d/s Doe's Corner)	Moderate
Little Yeldham**				
Pebmarsh	585370	232890	Pebmarsh Brook	Moderate
Rayne	223500	223500	Brain	Moderate
Ridgewell	575450	239530	Colne (u/s Gt Yeldham)	Poor
Rivenhall	584400	216510	Rivenhall Brook*	-
Shalford	572480	229350	Pant	Moderate
Sible Hedingham	576400	236900	Colne (Gt. Yeldham-Doe's Corner)	Poor
Stambourne	572350	238770	Stambourne Brook	Moderate
Steeple Bumpstead	241630	241630	Bumpstead Brook	Moderate
Stisted	580280	224330	Stisted Brook*	-
Toppesfield	574064	236544	Toppesfield Brook	Moderate
Wethersfield	570560	230590	Pant	Moderate
White Notley	579030	218230	Brain	Moderate
Witham	584140	207810	Blackwater (Transitional Water)	Moderate

**Not a WFD Waterbody.*
***Discharge location unknown.*

6.2 Existing Water Recycling Centre Consents

The EA is responsible for regulating sewage discharge releases via a system of environmental permits (EP). Permitted discharges are based on a statistic known as the DWF as discussed in the preceding sections of this report.

The EP for WRC consent is set for maximum concentrations of pollutants which, in most cases are suspended solids (SS), biochemical oxygen demand (BOD) and ammonia (NH4). Some WRCs, usually the larger WRCs, also have permits for phosphorous (P). These are determined by the EA with the objective of ensuring that the receiving watercourse is not prevented from meeting its environmental objectives, with specific regard to the chemical status element of the WFD classification

The existing permits of the WRCs within Braintree are shown in Appendix G.

6.3 Essex Coast RAMS

The Essex Coast Recreational disturbance Avoidance and Mitigation Strategy (RAMS) accounts for the 'in combination' effects of new housing development within a Zone of Influence (ZoI) of the component internationally designated sites, including a detailed programme of strategic mitigation measures. Local Planning Authorities are responsible for the delivery of the Essex Coast RAMS, including BDC.

Most of the Essex Coast is designated under the Habitats Regulations as part of the European Natura 2000 network, covering Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites. The Essex Coast RAMS calculates site specific ZoI for the Essex Coast designated sites, calculated to reflect the particular sensitivities of the features within each designated site. These range from a 4.3km ZoI for Benfleet and Southend Marshes to a 22.0km ZoI for the Blackwater Estuary.

6.4 Protected Areas

6.4.1 Urban Wastewater Directive

The urban wastewater directive (UWWTD) is designed to make sure all wastewater in the EU is treated to the appropriate standard. An essential element of the directive is that quality standards for effluent fall into categories depending on the size of the treatment works and the sensitivity of the receiving watercourse. This directive also defines sensitive areas. There are eight sensitive areas which could be affected by development in the Council's area as defined in Table 6-2.

Table 6-2: Urban wastewater directive sensitive areas

Urban Wastewater Directive Sensitive Area	**Sensitivity**
River Stour / Stour Brook	Existing Eutrophic Sensitive Areas (Rivers) Existing Nitrate Sensitive Areas
River Colne	Existing Eutrophic Sensitive Areas (Rivers)
River Brain, and Blackwater	Existing Eutrophic Sensitive Areas (Rivers) Existing Nitrate Sensitive Areas

6.4.2 Nitrates Directive

The Nitrates Directive (91/676/EEC) aims to improve water quality by protecting water against pollution caused by nitrates from agricultural sources with a key focus on promoting better management of animal manures, chemical nitrogen fertilisers and other nitrogen-containing materials spread onto land. There are six sensitive areas in BDC's administrative area:

- Sandlings and Chelmsford NVZ

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- Colne NVZ
- River Blackwater NVZ
- River Chelmer NVZ
- Lower Stour NVZ
- Roman River NVZ

The proposed growth and development do not include any agricultural sites therefore future assessment of Nitrates Directive is not required.

6.4.3 Nutrient Neutrality

Natural England has previously advised 32 Local Planning Authorities (LPA) that, where protected sites are in an unfavourable condition due to excess nutrients, development should only go ahead if it will not cause additional pollution to the protected sites. In March 2022, Natural England advised a further 42 LPAs that their areas are covered by this advice. Development achieves nutrient neutrality when the nutrient load created through additional wastewater (including surface water) from the development is mitigated.

Currently BDC's area is not located within a nutrient neutrality area even though there are several protected and nutrient sensitive areas located within the BDC's administrative area.

6.4.4 Natura 2000 Sites

Natura 2000 is the centrepiece of EU nature and biodiversity policy. It is an EU wide network of nature protection areas established under the 1992 Habitats Directive. Natura 2000 sites are the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. Natural England is the statutory nature conservation body for England and has responsibility for ensuring that England's unique natural environment including its flora and fauna, land and seascapes, geology and soils is protected and improved. This includes ensuring the protection, improvement, and management of Natura 2000 protected areas to meet the requirements of the Habitats and Wild Birds Directives.

The most recently published Natura 2000 dataset contains no data for the UK, as a result of the UK leaving the EU on January 31st, 2020. Archived data from the 'end 2019' Natura 2000 dataset has therefore been considered.

The main Natura 2000 protected areas noted which could be affected by proposed developments and growth within the Council's area are summarised in Table 6-3. As per the Essex Coast RAMS considerations, protected areas close to the BDC area were also considered due to the potential hydrological connection both above and below ground and the potential impact of the proposed growth and development in BDC's administrative area. As detailed in Section 6.3, the Essex Coast RAMS uses a range of different ZoI for the nearby designated sites. In this assessment, a 20km ZoI has been used as a conservative approach to cover the Natura 2000 designated sites.

Table 6-3: Natura 2000 Site Summary

Category	Special Areas of Conservation (SAC)	Special Protection Area (SPA)	Ramsar Sites
Sites lying partly within BDC boundary	N/A	N/A	N/A

Category	Special Areas of Conservation (SAC)	Special Protection Area (SPA)	Ramsar Sites
Sites lying outside BDC boundary but wholly or partly within a 20km ZoI	Essex Estuaries	Blackwater Estuary (Mid - Essex Coast Phase 4) Colne Estuary (Mid - Essex Coast Phase 2) Crouch & Roach Estuaries (Mid - Essex Coast Phase 3) Dengie (Mid – Essex Coast Phase 1) Stour and Orwell Estuaries Outer Thames Estuary Abberton Reservoir	Blackwater Estuary (Mid-Essex Coast Phase 4) Colne Estuary (Mid - Essex Coast Phase 2) Crouch & Roach Estuaries (Mid - Essex Coast Phase 3) Dengie (Mid – Essex Coast Phase 1) Stour and Orwell Estuaries Abberton Reservoir

Site Improvement Plans (SIP) have been developed for each Natura 2000 site in England. SIPs take into account proposed development included within approved Local Plans and are presented based on the existing condition of the site. They are used as a guide to help maintain and keep the site in a favourable condition.

The protected areas listed above are covered by two Site Improvement Plans (SIPO77 - Essex Estuaries and SIP238 – Outer Thames Estuary).

6.5 Water Quality Impact Assessment Methodology

Connecting new developments into each of the existing WRC catchments could be technically difficult to accommodate as the future DWF is predicted to exceed the currently permitted DWF. A robust assessment as part of the Outline WCS was carried out to show that the growth proposed in the Local Plan will not lead to a breach of the WFD requirements.

Developments have the potential to adversely affect water quality in two main ways with respect to foul water:

- Increases in final treated foul water or effluent load from the WRC which causes a deterioration in water quality.
- Increase in intermittent discharges from combined sewer overflows, pumping stations and storm tanks at the WRC.

A review of water quality compliance has been carried out to confirm that the planned development will not adversely affect water quality and does not hinder the ability of a waterbody to meet the requirements of the WFD.

The WCS should demonstrate that the growth proposed in the Local Plan can be accommodated without causing a deterioration in river quality or WFD status. As the permitted DWF limit is predicted to be exceeded at some WRC locations, this has the risk of deteriorating the current water quality of the receiving watercourse unless suitable actions and measures are taken to ensure legal compliance of the Local Plan with the

environmental legislation in order to demonstrate the soundness of the Local Plan. Therefore, further analysis has been undertaken to address this risk as described below.

It has been assumed that surface water runoff from all the growth and developments will be managed in separate systems from the foul water and therefore the risk of increased intermittent discharges can be discounted. Based on the impact of the proposed developments on the WRCs (Section 5), 16 WRCs are predicted to exceed their DWF consents. Further assessment of the remaining WRCs was therefore deemed unnecessary due to the significant headroom available.

To determine whether future developments or proposed growth adversely affect water quality, the load standstill has been considered to assess the WRCs and their receiving waterbodies:

6.5.1 Load Standstill

The Water Cycle Strategy (WCS) has adopted a load standstill approach to determine new WRC discharge permit requirements. Under this methodology, the total nutrient load discharged to receiving watercourses must remain constant, aligned with existing consented levels, regardless of increases in wastewater volumes. This ensures that water quality is maintained and prevents deterioration in compliance with the Water Framework Directive (WFD). By focusing on pollutant mass over time rather than solely on concentration, the approach safeguards against hidden increases in pollution and supports the achievement of Good Ecological Status. Where necessary, treatment plant upgrades will be required to meet these standards and accommodate growth without compromising environmental objectives Other Considerations

For the purposes of this Outline WCS, the limits of conventionally applied treatment processes are referred to as technically achievable limits (TAL) and are:

- 5 milligrams per liter (mg/l) for biochemical oxygen demand (BOD)
- 1 mg/l for ammoniacal-nitrogen
- 0.25 mg/l for phosphate.

Upgrading processes at the WRC to accommodate the increase in growth and to improve the quality of the discharge may require an increase in capital and operational expenditure by AWS. Operation of more advanced processes typically increases power consumption, hence increasing operational costs and environmental impact. As water company funding is primarily from consumers, and regulated by Ofwat, AWS must consider all the above factors when planning WRC upgrades to ensure the correct balance of technical feasibility, economic viability, and environmental sustainability is achieved.

Any application from AWS to increase volumetric discharge consent for a WRC will require, as a minimum, no deterioration' policy standards to be met. Regardless of development growth, the EA may also seek to further tighten consent standards in the future to assist in meeting the long-term objectives of the WFD i.e. achieving good ecological potential in all watercourses by 2027.

6.6 Water Quality Impact Assessment

Water quality impact assessment results from Load Standstill methodology are presented for 16 WRCs which currently show an exceedance of the DWF consent limits. These 16 WRCs and respective parameters are described below. To address this exceedance, a 'load standstill' methodology has been applied, ensuring that while additional flows are accommodated, pollutant loads discharged to the receiving environment do not surpass current consented levels. This approach safeguards water quality by preventing deterioration despite increased hydraulic loading. Based on current consent conditions, revised future consent limits have been

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calculated to align with the projected DWF increases, thereby providing a framework for managing growth while maintaining compliance with environmental standards.

6.6.1 Bocking WRC

The assessment of Bocking WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

Table 6-4 Potential future limits of Bocking WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		**Future consent (no headroom)**	**Future consent (10% headroom)**	**TAL**
Consented Dry Weather Flow (DWF) m^3/day	3900	4933	5426	Not Applicable
BOD (mg/l) 95 percentile	20-56 (20 used)	15.81	14.37	5
Ammonia(mg/l) 95 percentile	10-37 (10 used)	7.91	7.19	1
Phosphate (mg/l) mean	2-1 (1 used)	0.79	0.72	0.25

Based on Table 6-4 it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD, Phosphate and ammonia are tightened accordingly. However, as highlighted by AWS during consultation a scheme is currently under consideration at Bocking WRC to reduce the water quality limits to TAL by 2029/30 under the WINEP obligations. Therefore, the 'maintain permitted load' or 'load standstill' baseline consent limit for phosphate may need to be remodelled at 0.25 mg/l baseline value, with the increased flow to determine the impact. This will require the Environment Agency to model this impact and set out what the resulting future phosphate will be. This may result in a future phosphate permit below the 0.25 mg/l TAL limit to achieve 'maintenance of permitted load'. Anglian Water will review this new limit when known and may need to see additional investment in AMP9 to meet this.

6.6.2 Braintree WRC

The assessment of Braintree WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

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Table 6-5 Potential future limits of Braintree WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		Future consent (no headroom)	Future consent (10% headroom)	TAL
Consented Dry Weather Flow (DWF) m^3/day	6,859	8856	9,741	Not Applicable
BOD (mg/l) 95 percentile	8_32 (8 used)	6.2	5.63	5
Ammonia(mg/l) 95 percentile	3_12 (3 used)	2.32	2.11	1
Phosphate (mg/l) mean	2 (2 used)	1.55	1.41	0.25

Based on Table 6-5, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD, Phosphate and ammonia are tightened accordingly. Braintree WRC currently has a growth improvement scheme, which will support in addressing issues related to DWF exceedance.

6.6.3 Coggeshall WRC

The assessment of Coggeshall WRC shows existing Dry Weather Flow (DWF) is already exceeded and future growth will intensify it further.

Table 6-6: Potential future limits of Coggeshall WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		Future consent (no headroom)	Future consent (10% headroom)	TAL
Consented Dry Weather Flow (DWF) m^3/day	2235	3614	3975	Not Applicable
BOD (mg/l) 95 percentile	19_55 (19 used)	11.75	10.68	5
Ammonia(mg/l) 95 percentile	13_42 (13 used)	8.04	7.31	1
Phosphate (mg/l) mean	2	1.24	1.12	0.25

Based on Table 6-6 it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits. However, as highlighted by AWS during consultation a scheme is currently under consideration at Coggeshall WRC to reduce the water quality limits to TAL by 2029/30 under the WINEP obligations. Therefore, the 'maintain permitted load' or 'load standstill' baseline consent limit for phosphate may need to be remodelled at 0.25 mg/l baseline value, with the increased flow to determine the impact. This will require the Environment Agency to model this impact and set

out what the resulting future phosphate will be. This may result in a future phosphate permit below the 0.25 mg/l TAL limit to achieve 'maintenance of permitted load'. Anglian Water will review this new limit when known and may need to see additional investment in AMP9 to meet this.

Coggeshall WRC, currently has a growth improvement scheme, which will support in addressing issues related to DWF exceedance.

6.6.4 Earl Colne WRC

The assessment of Earls Colne WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

Table 6-7:Potential future limits of Earls Colne WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		**Future consent (no headroom)**	**Future consent (10% headroom)**	**TAL**
Consented Dry Weather Flow (DWF) m^3/day	934	964	1061	Not Applicable
BOD (mg/l) 95 percentile	20_56 (20 used)	19.37	17.61	5
Ammonia(mg/l) 95 percentile	10_37 (10 used)	9.69	8.80	1
Phosphate (mg/l) mean	0.5	0.48	0.44	0.25

Based on Table 6-7, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD, Phosphate and ammonia are tightened accordingly.

6.6.5 Gosfield WRC

The assessment of Gosfield WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

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Table 6-8: Potential future limits of Gosfield WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		Future consent (no headroom)	Future consent (10% headroom)	TAL
Consented Dry Weather Flow (DWF) m^3/day	290	442	486	Not Applicable
BOD (mg/l) 95 percentile	15	9.85	8.95	5
Ammonia(mg/l) 95 percentile	5	3.28	2.98	1
Phosphate (mg/l) mean	0.3	0.2	0.18	0.25

Based on Table 6-8, it is predicted that the proposed development cannot be accommodated using the 'load standstill' method associated with the current WRC consent limits, for Phosphate. If the DWF from observed population is used for the first 8 years (346 m3/day), the Phosphate limit will be at the TAL. This would give AWS the time to identify this WRC for a growth scheme.

6.6.6 Halstead WRC

The assessment of Halstead WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

Table 6-9: Potential future limits of Halstead WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		Future consent (no headroom)	Future consent (10% headroom)	TAL
Consented Dry Weather Flow (DWF) m^3/day	2900	4263	4690	Not Applicable
BOD (mg/l) 95 percentile	15_20 (15 used)	10.2	9.28	5
Ammonia(mg/l) 95 percentile	5_20 (5 used)	3.40	3.09	1
Phosphate (mg/l) mean	1	0.68	0.62	0.25

Based on Table 6-9, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD,

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Phosphate and ammonia are tightened accordingly. Halstead WRC currently has a growth improvement scheme, which will support in addressing issues related to DWF exceedance.

6.6.7 Little Yeldham WRC

The assessment of Little Yeldham WRC has been done based on the calculated DWF value (Q80 measured flow was not available for this WRC) and it shows it will exceed the Dry Weather Flow (DWF) in future conditions.

Table 6-10: Potential future limits of Little Yeldham WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		Future consent (no headroom)	Future consent (10% headroom)	TAL
Dry Weather Flow (DWF) m^3/day	15	17	19	Not Applicable
BOD (mg/l) 95 percentile	40	35.40	32.18	5
Ammonia(mg/l) 95 percentile	-*	-	--	1
Phosphate (mg/l) mean	-*	-	-	0.25

**No permitted values*

Ammonia and Phosphate do not have permitted values for this WRC, but proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limit for BOD is tightened accordingly.

6.6.8 Pebmarsh WRC

The assessment of Pebmarsh WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

Table 6-11: Potential future limits of Pebmarsh WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		Future consent (no headroom)	Future consent (10% headroom)	TAL
Consented Dry Weather Flow (DWF) m^3/day	120	153	168	Not Applicable
BOD (mg/l) 95 percentile	30	23.50	21.37	5
Ammonia(mg/l) 95 percentile	20	15.67	14.25	1
Phosphate (mg/l) mean	-*	-	-	0.25

**No permitted values*

Based on Table 6-11*, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD, and* A*mmonia are tightened accordingly.*

6.6.9 Rayne WRC

The assessment of Rayne WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

Table 6-12: Potential future limits of Rayne WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		**Future consent (no headroom)**	**Future consent (10% headroom)**	**TAL**
Consented Dry Weather Flow (DWF) m^3/day	650	967	1064	Not Applicable
BOD (mg/l) 95 percentile	10_45 (10 used)	6.72	6.11	5
Ammonia(mg/l) 95 percentile	3_15 (3 used)	2.02	1.83	1
Phosphate (mg/l) mean	-*	-	-	0.25

Based on Table 6-12, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD and Ammonia are tightened accordingly.

6.6.10 Ridgewell WRC

The assessment of Ridgwell WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

Table 6-13: Potential future limits of Ridgewell WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		**Future consent (no headroom)**	**Future consent (10% headroom)**	**TAL**
Consented Dry Weather Flow (DWF) m^3/day	102	379	416	Not Applicable
BOD (mg/l) 95 percentile	20	5.39	4.9	5
Ammonia(mg/l) 95 percentile	-*	-	-	1
Phosphate (mg/l) mean	-*	-	-	0.25

**No permitted values.*

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Based on Table 6-13, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits. Ammonia and Phosphate do not have permitted values for this WRC.

6.6.11 Rivenhall End WRC

The assessment of Rivenhall END WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

Table 6-14: Potential future limits of Rivenhall End WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		**Future consent (no headroom)**	**Future consent (10% headroom)**	**TAL**
Consented Dry Weather Flow (DWF) m^3/day	80	318	350	Not Applicable
BOD (mg/l) 95 percentile	70	17.60	16	5
Ammonia(mg/l) 95 percentile	35	8.8	8	1
Phosphate (mg/l) mean	-*	-	-	0.25

Based on Table 6-14, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits.

6.6.12 Stambourne WRC

Stambourne WRC does not have permitted limits for BOD, Ammonia or Phosphate and so has not been assessed in this WCS.

6.6.13 Stisted WRC

The assessment of Stisted WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

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Table 6-15: Potential future limits of Stisted WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		Future consent (no headroom)	Future consent (10% headroom)	TAL
Consented Dry Weather Flow (DWF) m^3/day	300	334	368	Not Applicable
BOD (mg/l) 95 percentile	56	50.24	45.67	5
Ammonia(mg/l) 95 percentile	48	43.06	39.15	1
Phosphate (mg/l) mean	-*	-	-	0.25

Based on Table 6-15, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD and Ammonia are tightened accordingly.

6.6.14 Wethersfield WRC

The assessment of Wethersfield WRC indicates that the forthcoming development proposals will lead to exceedance of Dry Weather Flow (DWF).

Table 6-16: Potential future limits of Wethersfield WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		Future consent (no headroom)	Future consent (10% headroom)	TAL
Consented Dry Weather Flow (DWF) m^3/day	955	1613	1774	Not Applicable
BOD (mg/l) 95 percentile	25_60 (25 used)	14.81	13.46	5
Ammonia(mg/l) 95 percentile	15_44 (15 used)	8.88	8.08	1
Phosphate (mg/l) mean	-*	-	-	0.25

**No permitted values*

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Based on Table 6-16, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD, Phosphate and ammonia are tightened accordingly.

6.6.15 White Notley WRC

The assessment of White Notley WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

Table 6-17: Potential future limits of White Notley WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		**Future consent (no headroom)**	**Future consent (10% headroom)**	**TAL**
Consented Dry Weather Flow (DWF) m^3/day	660	971	1069	Not Applicable
BOD (mg/l) 95 percentile	15_50 (15 used)	10.19	9.26	5
Ammonia(mg/l) 95 percentile	10_37 (10 used)	6.79	6.18	1
Phosphate (mg/l) mean	-*	-	-	0.25

*No permitted values

Based on Table 6-17, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD, and Ammonia are tightened accordingly.

White Notley WRC currently has a growth improvement scheme, which will support in addressing issues related to DWF exceedance.

6.6.16 Witham WRC

The assessment of Witham WRC indicates that the existing Dry Weather Flow (DWF) consent is already exceeded, and forthcoming development proposals will further intensify this exceedance.

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Table 6-18: Potential future limits of Witham WRC to accommodate additional DWF (2025/26-2040/41)

Consent Parameter		Future consent (no headroom)	Future consent (10% headroom)	TAL
Dry Weather Flow (DWF) m^3/day	8100	9158	10074	Not Applicable
BOD (mg/l) 95 percentile	20_56 (20 used)	17.69	16.08	5
Ammonia(mg/l) 95 percentile	10_37 (10 used)	8.84	8.04	1
Phosphate (mg/l) mean	-*	-	-	0.25

**No permitted values*

Based on Table 6-18, it is predicted that the proposed development can be accommodated using the 'load standstill' method associated with the current WRC consent limits, if the current consent limits for BOD, Phosphate and ammonia are tightened accordingly.

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7 Flood Risk and Surface Water

The connection of new sites to the existing sewerage network and WRCs can potentially increase the risk of flooding in two ways:

- New developments connected to the existing sewerage network may exceed the network capacity causing surcharging of sewers with a consequential risk to properties being flooding with wastewater. This risk is increased during storm events, as increased infiltration of surface water from the existing catchment area can also add to the flows. This is in addition to direct storm flows into the combined systems.
- DWF at WRCs will be increased following the connection of new dwellings to the network. Whilst some flows may be stored on site during the peak of the event, an increase in volumetric flow rate of the discharge is likely. This may be within the existing volumetric flow discharge consent, as stipulated by the EA. However, discharges in excess of this, which will require an updated consent, may increase the fluvial flood risk to properties on the watercourse downstream of the discharge point.

These risks will be more likely for the larger development sites or intensification proposals due to the larger flow increases associated with these sites. Flood risk in BDC's administrative area is described in the documents set out in Section 7.1.

7.1 Policy Context

7.1.1 Surface Water Management Plan

Surface Water Management Plans (SWMP) describe the surface water flood risk in a given area and set out options for the preferred surface water management strategy. In the context of the published SWMP, surface water flooding describes flooding from sewers, drains, groundwater, and runoff from land or small watercourses that occurs as a result of heavy rainfall.

SWMPs are undertaken when required by Local Lead Flood Authorities (LLFA) in consultation with key local partners who are responsible for surface water management and drainage in their area. They are used to identify flood risk and outline any preferred strategies to mitigate the risk. The SWMPs have been prepared by the Flood and Water Management team (Essex County Council) in consultation with local partners. The current SWMP covers Braintree and Witham and was published in September 2020, with the Braintree and Witham catchment both have a long history of significant fluvial and surface water flood events. The SWMP is based on an original study completed in 2016, including one pluvial model within the Braintree Drainage Area, and 4 within the Witham Drainage Area. The SWMP outlines that 587 properties (residential and non-residential) are at risk of surface water flooding in the 1 in 100 annual chance of flooding event. When considering the impacts of climate change this increases to between 802 properties when a lower climate change scenario defined as an additional 20% increase in peak rainfall intensity (Central allowance) is used and 1,059 properties when an upper climate change scenario defined as a 40% increase in peak rainfall intensity (Upper End allowance).

7.1.2 Flood Risk Management Plans

Flood risk management plans set out how to manage significant flood risk in nationally identified flood risk areas. The plans are divided by river basin district. The BDC administrative area is located in the Anglian river basin district for which a flood risk management plan was originally published in March 2016 and had minor updates to the statement of environmental particulars and post-adoption statement in April 2023.

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7.1.3 Local Flood Risk Management Strategy

The Local Flood Risk Management Strategy (LFRMS) is a document that is published by lead local authorities to manage the flood risk in England. These documents are published every six years or when there is significant change in policy or legislation. Essex County Council publish the LFRMS which covers the BDC administrative area. The latest report was published in October 2018.

7.1.4 Catchment Flood Management Plan

Catchment Flood Management Plans (CFMP) are high level policy documents, prepared by the EA which cover large river basin catchments. They set policies for sustainable flood risk management for the whole catchment covering the next 50 to 100 years.

The North Essex Catchment Flood Management Plan, published in December 2009, covers the BDC administrative area. The North Essex CFMP has divided the catchment into eight sub-catchments which have similar physical characteristics, sources of flooding and level of risk. Each sub-catchment has been assigned a flood risk management policy. The six policy statements are:

- Policy 1: Areas of little or no flood risk where the EA will continue to monitor and advise.
- Policy 2: Areas of low to moderate flood risk where the EA can generally reduce existing flood risk management actions.
- Policy 3: Areas of low to moderate flood risk where the EA are generally managing existing flood risk effectively.
- Policy 4: Areas of low, moderate, or high flood risk where the EA are already managing the flood risk effectively, but where the EA may need to take further actions to keep pace with climate change.
- Policy 5: Areas of moderate to high flood risk where the EA can generally take further action to reduce flood risk.
- Policy 6: Areas of low to moderate flood risk where the EA will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits.

The BDC administrative area is covered by 3 sub catchments which are shown in Figure 7-1 and described in Table 7-1.

Table 7-1: CFMP Sub Catchments and related policies

Sub catchment	Area	Policy
1. Blackwater and Chelmer, Upper Reaches and Coastal Streams	The southwestern part of the boundary, and a small area to the northwest	Policy 2
2. Lower Blackwater and Upper and Mid Tributaries, Mid Colne and Stour	Encompasses the majority of BDC, particularly the middle and eastern side	Policy 3
3. Haverhill	Small area in the northwestern corner of the boundary, south of Haverhill	Policy 3

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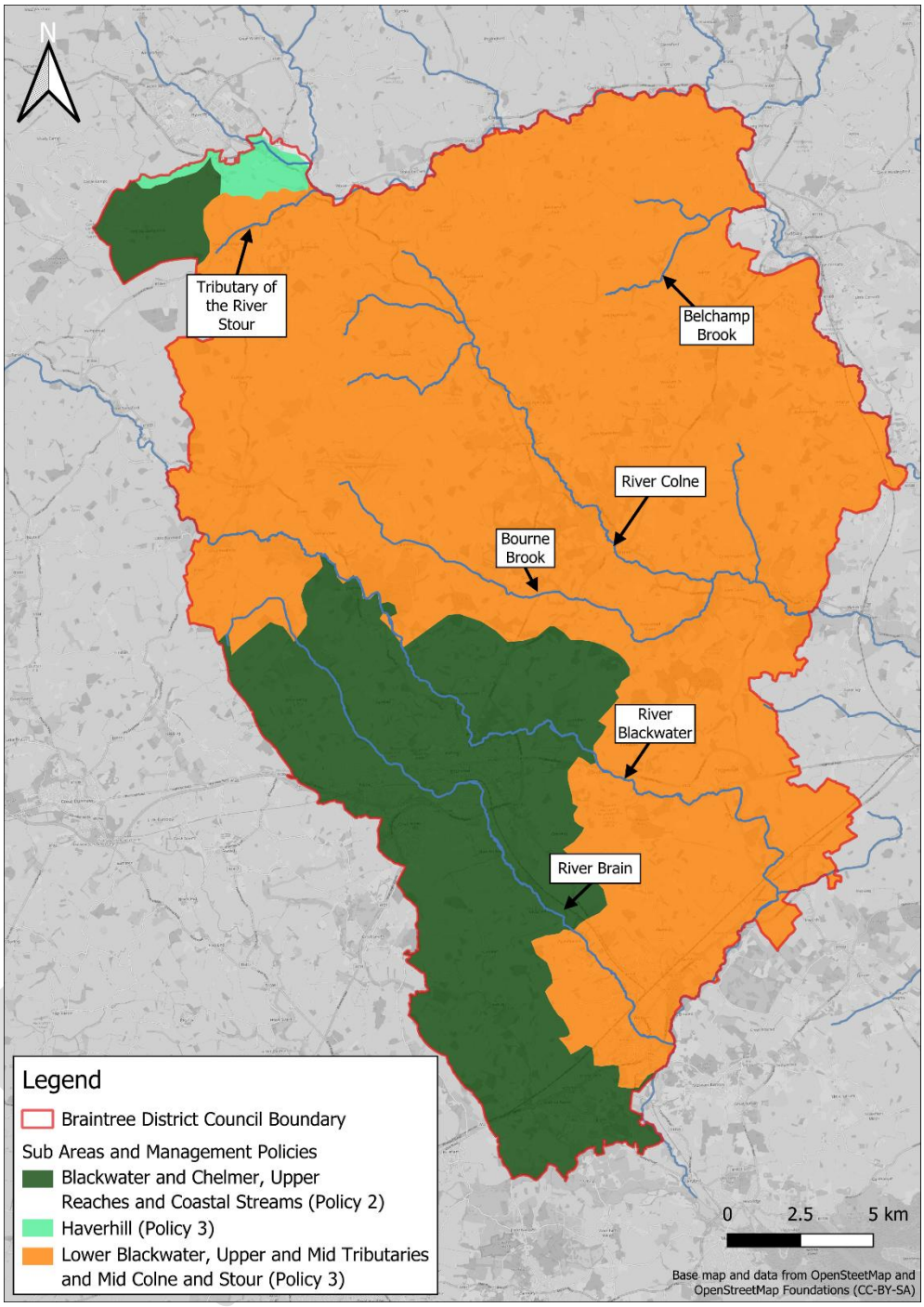

Figure 7-1: Sub catchments and relating policy numbers with watercourses

7.1.5 Strategic Flood Risk Assessment

Local Plans are supported by Strategic Flood Risk Assessments (SFRA) which assess all forms of flood risk and provide recommendations pertaining to the management of flood risk. An SFRA takes a tiered approach to risk assessment and has two levels. A Level One SFRA provides a strategic overview of all forms of current and future flood risk, whilst a Level Two SFRA provides a more detailed assessment of all sources of flood risk, providing a focus for specific sites where appropriate.

The National Planning Policy Framework (NPPF) sets out the tests needed to ensure people and property are protected from flooding. The sequential test is applied to all developments to direct development to areas at lowest risk of flooding in preference to those in areas at higher risk. If the sequential test shows that there are no suitable development sites in areas of lower flood risk, then the exception test is applied. The exception test must demonstrate that the development has wider benefits that outweigh flood risk, that the development will be safe for its lifetime, and will not increase flood risk elsewhere.

The Council published their previous Level 1 SFRA in 2016 with a Level 2 SFRA following in 2017, the focus of this Outline WCS has been to review the outcomes of the SFRA with respect to the finalised spatial strategy. Recommendations from the SFRA follow current UK guidance in terms of taking a risk-based approach to development and flood risk, assessment of cumulative impacts, requirements for site specific FRAs, and analysis of residual risks. It recommends that, where possible, SuDS should be promoted.

A new SFRA is currently being produced, the publish date of this has not been confirmed as of the issue of this Outline WCS; however, once published, the SFRA should be used to inform the assessment of flood risk in the Braintree District, and should inform any detailed Flood Risk Assessments (FRAs) of development sites.

7.2 Baseline Situation

Information from the Level 1 SFRA (2016), EA datasets and a review of available online media has been used to identify the historical flood events that have impacted the BDC administrative area. The results are collected in Table 7-2 and Figure 7-2. A full list of the BDC Flood Records can be found in Appendix B of the Level 1 SFRA. Figure 7-2 shows the flood extents of larger events as recorded by the EA. Overall, the most at-risk areas are associated with the River Colne. It should be noted that this table should be considered alongside any findings of the new SFRA currently being produced.

Table 7-2: Historical Flood Events in the BDC administrative area

Location	Date	Source	Additional Information
Various locations	1947	Level 1 SFRA (2016)	Extensive flooding of the River Blackwater, River Colne, Bourne Brook and Rivenhall Brook.
Steeple Bumpstead	January and October 1960	EA Recorded Flood Outlines	Channel capacity exceeded and no raised defences present.
Steeple Bumpstead and North of Gestingthorpe	September 1968	EA Recorded Flood Outlines	Channel capacity exceeded and no raised defences present.
Witham	1970	Level 1 SFRA (2016)	-
Various locations	February 2001	Level 1 SFRA (2016)	Finchfield Brook, north of Braintree, Halstead, Great Yeldham, Earls Colne, Coggeshall, Kelvedon, & Witham all experienced flooding. A result of short-duration, high-intensity rainfall.

Various locations	October 2001	Level 1 SFRA (2016)	Finchfield Brook, north of Braintree, Halstead, Great Yeldham, Earls Colne, Coggeshall, Kelvedon, & Witham all experienced flooding. A result of long-duration, low-intensity rainfall. 41 houses and 22 businesses were flooded in Halstead, with the flood defences within Halstead constructed in response to this incident. 21 properties were flooded in Yeldham, 58 in Bocking, 153 in Kelvedon and 55 in Witham.
Various locations	Jan 2009	Level 1 SFRA (2016)	Parts of Earls Colne, Witham, Kelvedon, Coggeshall and Great Yeldham were flooded
Braintree and Witham	June 2016	Media Article	-
Braintree	March 2019	Media Article	Result of water pipe burst rather than flood event, effected Cressing Road, Braintree
Halstead and Witham	January 2021	Media Article	Flooding of the River Colne
Various Locations	November 2022	Media Article	Associated with storm event, notable flooding in Bocking

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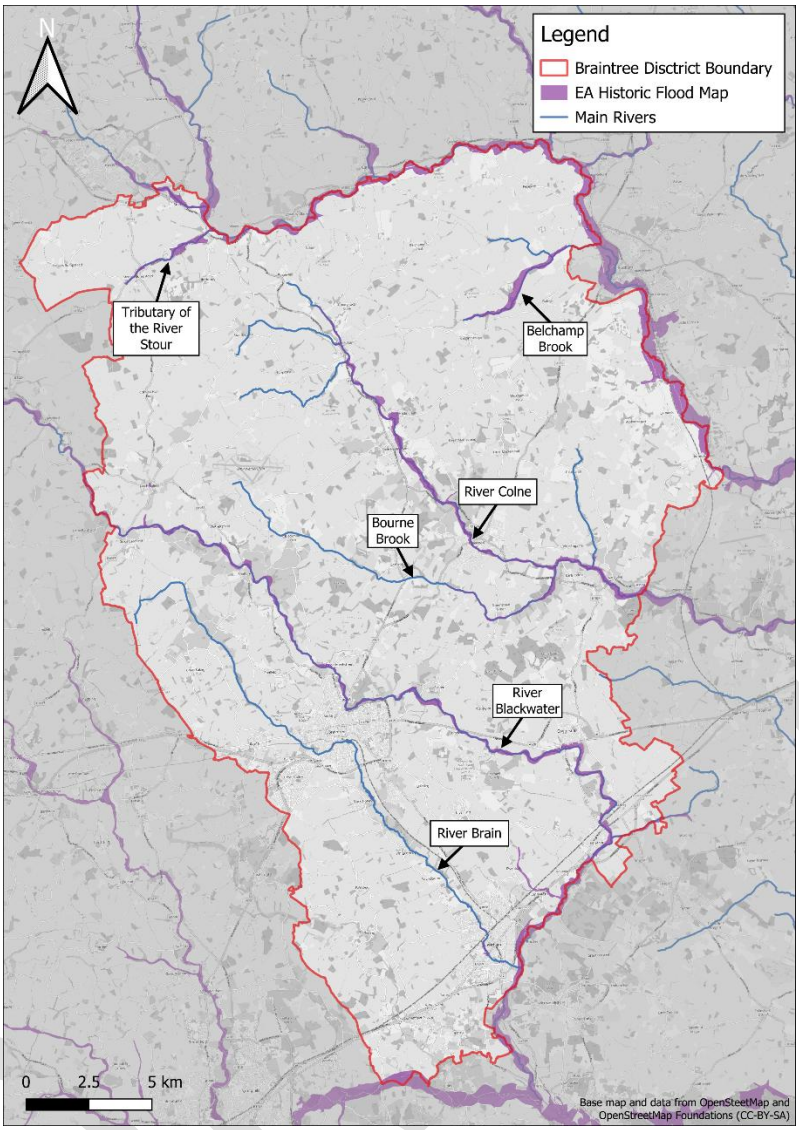

Figure 7-2: EA Historic Flood Outlines within the BDC administrative area.

7.3 Development Considerations and Impacts

Early consultation with the EA and the Lead Local Flood Authority (LLFA) is essential. Any development must pass the sequential test in line with the National Planning Policy Framework (NPPF). As set out in the Planning Practice Guidance, all forms of flooding should be considered. It is BDC's responsibility to undertake the sequential test as part of the BELP preparation process using the latest SFRA. A sequential approach to the site planning and design at the master planning stage should ensure that built development and access routes are entirely within Flood Zone 1 and should avoid impacting on surface water flow routes or ordinary watercourses. Opportunities can be explored at the master planning stage for multiple benefits in terms of a holistic and integrated approach to land use planning, sustainable drainage, water resources, flood risk, green infrastructure, amenity, biodiversity and WFD status. Construction Industry Research and Information Association (CIRIA) Report C787A provides useful guidance and physical case studies on delivering better water management through the planning system. The National Standards for SuDS were updated in July 2025 as part of the Flood and Water Management Act.

During the outline planning stage, a surface water drainage strategy must be submitted by the developer to the LPA in consultation with the LLFA and EA at an early stage to show how the impact of the development will be reduced through the use of SuDS. All major developments must carry out an FRA including an assessment of flood risk from all sources, and hydraulic modelling of any watercourses, where necessary, to better define the flood zones, water levels and the impact of climate change.

AWS and E&SW should be consulted at an early stage for major developments to ensure that there will be sufficient capacity in the wastewater system and any upgrades are carried out where necessary.

7.3.1 Fluvial Flood Risk to the Developments

The Level 1 and 2 SFRAs provided an overview of different sources of potential flooding within the council area and a detailed breakdown of potential development sites as well as sources of potential flood risk for that site. This Outline WCS builds upon this section with regards to the fluvial flood risk to all the proposed developments.

The Level 2 SFRA determined that 6 proposed development sites required additional modelling information as part of a specific FRA to determine flood risk to the site (see Table 4-1 in the Level 2 SFRA). Out of the full 17 proposed sites considered in the SFRA, 15 were considered to be in Flood Zone 1 (either entirely or largely), and one sites was considered to be in Flood Zone 2 and one in Flood Zone 3b (both in Halstead). The waterbody associated with the flooding in Halstead is primarily the River Colne.

The new SFRA will cover any update in flood risk to the Braintree District as well as a summary of the flood risk for the site locations proposed in the Adopted Local Plan allocations and the proposed allocations in the BELP. It is recommended that the new SFRA should also factor in the relevant information from this Outline WCS.

A more detailed assessment of impacts from an FRA and consultation with the EA will be required at the planning application stage. Potential onsite mitigation might be required, such as monitoring of the weather and river levels, land drainage measures and EA flood warning service where applicable. During operation of the sites specific fluvial flood mitigation measures will need to be agreed with the EA, with SuDS measures being embedded into the design to manage operational surface water runoff.

7.4 Flood Risk from Water Recycling Centre Discharges

Increased discharges from WRCs to watercourses can increase fluvial flood risk. A multi-criteria scoring system has been applied as part of the Outline WCS. This methodology was developed as part of the AWS Wastewater Environmental Capacity Assessment. The assessment uses a multi-criteria approach to assess the increase in peak flow, the sensitivity of the watercourse to changes in flood levels, and the potential impact of flooding, to determine a combined flood risk index. The evaluation of flood risk is comprised of three elements:

- Quantification of the increase in peak river flows resulting from the predicted increase in treated effluent discharges.
- Evaluation of the likely sensitivity of flood levels to increases in flood flows.
- Evaluation of the impact of increases in flood levels.

For each element the impact at each discharge site is classified as “high”, “medium”, or “low”, and the multi-criteria analysis applied to combine these elements.

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7.4.1 Methodology

The analysis was conducted using a design flood with a 1 in 2 annual chance (50% annual exceedance probability), also known as the mean annual maxima flood (QMED). The design flood in the proposed methodology was selected because:

- Increases in WRC discharge during the 1 in 2 annual chance event would contribute a greater proportion of flood flows than if a more extreme flood event (i.e. 1 in 100 annual chance event) had been used, and hence results are likely to be conservative.
- The 1 in 2 annual chance event is the smallest event which can be estimated using standard hydrological estimation techniques.

The increase in peak flow for the 1 in 2 annual chance event into the receiving waterbody will be calculated firstly, by calculating the baseflow using the Flood Estimation Handbook (FEH) method; and, secondly, by estimating the increase in DWF discharge from the WRC (see below). In accordance with National Planning Policy, climate change has been factored into the receiving watercourse based on the climate change planning guidance.

DWF received at the WRC will be increased following the connection of new dwellings to the sewerage network. Whilst some of the increases may be stored at the WRC site during peak flows, an increase in the volumetric flow rate of discharge is likely. This may be within the existing volumetric discharge consent, as stipulated by the EA, and discussed in Section 5. However, WRC typically discharge up to three times their DWF (referred to as flow to full treatment (FTFT)) at the peak. FTFT is the maximum flow a WRC can treat. An increase in FTFT, due to growth in the catchment, may increase the flood risk to properties and environmental sites on the watercourse downstream of the discharge point.

The multi-criteria analysis provides a risk score for each of the impacted discharge points. The flood risk scores are assigned to each discharge by estimating the contribution that the increased FTFT flows due to proposed development to 2050 makes to the flow in the watercourses during a 1 in 2 annual chance flood. This was then weighted to account for the sensitivity of the watercourse to flow increases, and the potential local impacts of any flooding.

The methodology compares the estimated total FTFT in 2050 from the WRC (flows from both existing and proposed dwellings) against the 1 in 2 annual chance flood events for the watercourses (including climate change), hence providing a risk score for the total predicted flows by 2050.

7.4.2 Results

If FTFT from the existing properties is considered to be an integral part of the current river flows, it can be shown that the actual increase in total peak flows in the rivers by 2050, which is solely attributable to the proposed growth, makes up a considerably smaller proportion. The risk scores and percentage increase in flow by 2050 are shown Table 7-3 below. The full calculations are reported in Appendix J.

Table 7-3: Flow to full treatment by WRC and receiving watercourse.

WRC	Discharge Point Easting	Discharge Point Northing	Receiving Watercourse	Percentage of Increased flow by 2050	Combined Risk Score	Risk Assessment
Bocking	577370	224290	River Blackwater	0.27%	3.4	Medium

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WRC	Discharge Point Easting	Discharge Point Northing	Receiving Watercourse	Percentage of Increased flow by 2050	Combined Risk Score	Risk Assessment
Braintree	576690	221760	River Brain	0.85%	2.8	Low
Coggershall	585960	221370	River Blackwater	0.13%	1.0	Low
Earls Colne	586440	229220	River Colne	0.02%	2.2	Low
Gosfield	578260	228980	Bourne Brook	0.05%	1.6	Low
Halstead Box Mill Lane	580920	231090	River Colne	0.08%	3.4	Medium
Halstead	583680	229670	River Colne	0.08%	1.6	Low
Haverhill	568080	244820	Stour Brook	0.08%	3.4	Medium
Little Yeldham*	-	-	-	-	-	-
Pebmarsh	585370	232890	Pebmarsh Brook	0.01%	1.0	Low
Rayne	573230	223500	Rods Brook	0.02%	1.6	Low
Ridgewell	575450	239530	River Colne	0.00%	1.0	Low
Rivenhall End	584400	216510	Rivenhall Brook	0.00%	1.6	Low
Shalford	572480	229350	River Pant	0.00%	2.2	Low
Sible Hedingham	579340	232970	River Colne	0.03%	2.2	Low
Stambourne	572350	238770	Tributary of Stambourne Brook	0.02%	3.4	Medium
Steeple Bumpstead	568390	241630	Bumpstead Brook	0.01%	2.8	Low

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WRC	Discharge Point Easting	Discharge Point Northing	Receiving Watercourse	Percentage of Increased flow by 2050	Combined Risk Score	Risk Assessment
Stisted	580280	224330	Stisted Brook	0.03%	2.2	Low
Toppesfield	574064	236544	Toppesfield Brook (River Colne)	0.00%	2.8	Low
Wethersfield	570560	230590	River Pant	0.01%	1.6	Low
White Notley	579030	218230	River Brain	0.16%	2.2	Low
Witham	582690	213860	River Brain	0.46%	2.2	Low

**The discharge location for Little Yeldham is unconfirmed, hence calculations have not been completed.*

Five of the WRC are classed as 'medium' in the risk assessment, all with combined risk scored of 3.4. The overall risk score is predominantly driven by the placement of infrastructure upstream and downstream of the WRC outfall with the reasons for each specific WRC given below in Table 7-4.

Table 7-4: Summary of WRC classified as 'medium' risk

WRC	Downstream	Upstream
Bocking	Constrained under a non-clear span bridge with a channel width of approx. 3.8m at the bridge.	Large Town.
Braintree	Passes below a major road, appears to be a clear span bridge but this cannot be confirmed via aerial imagery, and the channel width is constrained (potentially culverted).	Large Town.
Halstead Box Mill Lane	Large Town and constrained under non clear span bridge.	No crossings or constraints.
Haverhill	Passes below clear span bridge but seems constrained to a width of < 3m.	Large Town, and channel constrained (potentially culverted) below road.
Stambourne	No crossings or constraints.	Small Town, and channel constrained under road.

Whilst 5 WRC flagged as Medium, it is not expected that detailed hydraulic modelling will be required. However, it is still recommended that the new SFRA to consider the implications of the medium flood risk highlighted at these WRC locations accordingly.

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7.5 Suitability of Sustainable Drainage Systems

In January 2023, the government confirmed that regulations and processes for the creation of SuDS on new developments would be devised in order that Schedule 3 of the Flood and Water Management Act 2010 can be implemented. This means that SuDS will be mandatory on all new developments in England. Schedule 3 of the Flood and Water Management Act 2010 provides a framework for the approval and adoption of drainage systems covering design standards, operation and maintenance. It also makes the right to connect surface water runoff to public sewers conditional upon a drainage system being approved before construction begins. From 2024, SuDS will be mandatory for all new built developments under the Flood and Water Management Act 2010.

In 2021, the Association of SuDS Authorities (ASA) published a series of recommendations, which has informed the recently published National standards for sustainable drainage systems (last updated July 2025). The final recommendations were to replace the previous Non-Statutory SuDS standards with a new set of six standards which the Department of Environment, Food & Rural Affairs (Defra) could use to inform drainage policy development:

- Standard 1: Runoff destinations
- Standard 2: Everyday rainfall
- Standard 3: Extreme rainfall
- Standard 4: Water quality
- Standard 5: Amenity
- Standard 6: Biodiversity

The National Standards for sustainable drainage systems published in July 2015 include above six Standards as well as eight Principles, covering:

- Natural approach to managing water
- Early and integrated design
- Links with development planning

It is recommended that BDC review the above Standards and Principles and include suitable policies within the BELP, including the need for rainwater harvesting for non-potable use since the study area falls within a water stressed area.

The Level 2 SFRA (2017) provides the following recommendations on the use of SuDS within the Council's area:

- "SuDS will be used wherever possible to reduce flood risk, promote groundwater recharge, enhance biodiversity and provide amenity benefit, unless, following an adequate assessment, soil conditions and/or engineering feasibility would render application of SuDS on the site financially unviable."
- "SuDS should be used to reduce and manage surface water run-off to and from proposed developments as near to source as possible in accordance with the requirements of the Technical Standards and supporting guidance published by DCLG and DEFRA."
- "Space should be specifically set aside for SuDS and used to inform the overall layout of development sites."

This WCS broadly supports these recommendations but as highlighted above further consideration should now be given to reflect National standards for sustainable drainage systems.

Table 6-4 of the SFRA also provides a detailed breakdown of potential appropriate SuDS techniques dependent on the drift deposition in the BDC area.

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The SFRA also notes that Essex CC is a statutory consultee for surface water drainage as part of their role as LLFAs. They have particular conditions with the adoption of certain SuDS, such as permeable paving, and ponds and wetlands, which need to be taken into consideration with the implementation of SuDS.

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8 Climate Change

Climate change has an impact on the water cycle as a whole. Impacts could include a decrease in summer rainfall and an increase in temperature, which can lead to higher demand during the summer. Whilst an increase in winter rainfall can lead to more opportunities for water storage during the winter months, climate change can have several impacts on future drinking water supply and demand. The following section will examine these impacts and how AWS and E&SW are accounting for them in their Water Resources Management Plans (WRMP24). Flood risk impacts from climate change are also an important consideration for the management of water cycle and development planning, which is further discussed in the Braintree District Council Level 2 SFRA and briefly summarised below.

8.1 Climate change impacts on water resources

AWS acknowledge that operating in the driest region in the UK it is more vulnerable to the effects of climate change. AWS has included climate change in their analysis in the last three water resources management plans (WRMP15, WRMP19 and WRMP24). E&SW has also included climate change in their analysis, raising that the latest UK Climate Projections (UKCP18) have a more significant impact on summer river flows than previous projections.

8.1.1 Water resources (supply)

The water resources planning guidance (WRPG) issued by the Environment Agency sets out clear guidance on how to account and plan for climate change impacts on water supply. A baseline vulnerability analysis (BVA) for each water resource zone (WRZ) helps to determine what tier of climate change assessment needs to be undertaken.

AWS did not undertake a BVA but instead applied the highest tier (tier 3) to each WRZ, ensuring a cautionary approach to this. The approach AWS undertook to analysis future impacts of climate change was to determine the impacts in 2050 and then scale them backwards. This ensures that climate change reductions in supply are included in the headroom throughout time as opposed to a singular point in time. In the WRMP24, AWS determine that the total impact from climate change will reduce the total amount of available water by 10Ml/d by 2050.

In AWS WRMP24, establishing the new for water chapter, it outlines the key drivers behind the new for water. This includes Climate change (for more details see Section 4.5.2). The Essex South WRZ is highlighted that climate change is a driver in the requirement to additional supply.

E&SW has used the UK Climate Projections 2018 (UKCP18) Regional Climate Model (RCM) to determine the impact of climate change on supply. The dataset used Representative Concentration Pathway (RCP) 8.5, which is classified as the “high” emission scenario. Using a combination of monthly climate change factors, stochastic data, and modelling, 12 deployable outputs were produced. As per water resources planning guidance, a “medium” emission scenario needs to be considered. E&SW calculated this by scaling the “high” emission scenario. Whilst a large impact from climate change is seen, these impacts are mitigated through the supply and demand measures planned by E&SW. In the WRMP24, E&SW determine that the total reduction of Deployable Output (DO), scaled to RCP6, would be approximately 27Ml/d by 2050 for the Essex WRZ.

8.1.2 Water resource (demand)

Climate change can not only reduce the amount of water available but also increase summer demand. The impact of climate change on water demand report published by the UK water industry research (UKWIR)

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group in 2013 outlined the impacts of climate change on household and non-household demand. Concluding that there are no impacts of climate change on non-household demand, whilst providing percentage factors for household consumption for the dry year annual average and critical period scenarios. The report also states that it is reasonable to assume additional water consumption in hot, dry weather for outdoor use.

AWS developed their framework in line with the UKWIR guidance and factors.

E&SW have contracted Hydrology UK to produce demand projections for the UKCP18 projections. With the calculated increases in demand per AMP as shown in Table 8-1. Overall PCC values are also decreasing per AMP due to the demand measures introduced by E&SW.

Table 8-1: Predicted increase in household demand as a result of climate change for Essex WRZ per AMP.

Essex WRZ	**Start of AMP8 (2025/ 2026)**	**Start of AMP9 (2030/ 2031)**	**Start of AMP10 (2035/ 2036)**	**Start of AMP11 (2040/ 2041)**	**Start of AMP12 (2045/ 2046)**	**End of AMP12 (2049/ 2050)**
Climate change impact (Ml/d) – increase in demand	1.7	1.89	2.04	4.34	2.92	2.54

Whilst the impacts on demand from climate change are increasing, the overall PCC values are also decreasing per AMP due to the demand measures introduced by E&SW. The demand options proposed by E&SW in the WRMP24 aim to offset the loss in supply from climate change.

8.1.3 Impacts of climate change for Anglian Water Services conclusion

AWS conclude that the impacts of climate change would equate to a reduction of approximately 10Ml/d by 2050. AWS state that varying the climate change scenarios does not significantly change the variability in the reduction of available water from climate change in the water resources management plan 2024 (WRMP24). AWS have accounted for this reduction throughout the supply demand balance analysis. The WRMP24 shows that they will not have a deficit and have ensured sufficient supply up to 2050 with a combination of demand management options, reservoirs, existing surplus and resources, and other water reuse and desalination options. Further work is planned with the Met Office AME hydrological outputs.

8.1.4 Impacts of climate change for Essex and Suffolk Water conclusion

E&SW concluded that scaled over to the RCP6 the total reduction in DO would be approximately 27Ml/d by 2050. Compared to the WRMP19, climate change WAFU forecast for 2050 has decreased from 4.70 to -31.04 in the WRMP24 for Essex WRZ. The Essex WRZ, which is a surface water dominated supply system, is summarised to have medium resilience, with adopted headroom profile at 65% at 2050, equivalent of 4.82 Ml/d in the baseline Dry Year Annual Average scenario. The final planning scenario for Essex WRZ assumed a medium climate change impact on DO and includes demand management and supply options, such as reservoir adaption, providing 1 in 500 event resilience by 2035. This is part of a twin track approach to reduce overall demand (including leakage) and develop new water supplies.

River Restoration schemes are also being explored, and E&SW plan to be Carbon Net Zero by 2027. They acknowledge the uncertainty surrounding the impact of climate change on DO, and the resilience of the environment to climate change and if water companies will be required to reduce abstraction licenses.

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8.2 Climate change impacts on wastewater

8.2.1 Anglian Water Services

The Drainage and Wastewater Management Plan (DWMP) outlines how AWS will account for climate change over the period 2025 to 2050. The climate change scenario chosen for the DWMP was an increase in temperatures of mostly two degrees by 2050.

For each Water Recycling Centre (WRC) the DWMP outlines the key challenges and the medium and 2050 strategy. These include concerns from stakeholders that include climate change. 4 of the WRCs which the BELP developments may impact, within the Essex River Hub Catchment Based Approach areas (CaBA), were flagged as having concerns from climate change:

- Halstead WRC
- Sible Hedingham STW
- Steeple Bumpstead WRC
- Witham WRC

A key challenge due to climate change is increased rainfall, this has the risk of increased CSOs within the sewer system. One of the focus areas for 2050 is the removal of surface water from the sewerage system using SuDS and other methods. This is expected to provide resilience against climate change scenarios which include a two-degree temperature increase and, in some cases, four-degree risk.

Flood and Coastal risk prone catchments have close proximity for Phosphate limits. However, the strategy up to 2050 within the DWMP includes process optimization and increased capacity is planned to mitigate the potential risks by taking measures such as renewal of permits, network attenuation, and surface water removal.

Whilst all WRC will potentially have an impact from climate change, Rayne WRC is highlighted in the DWMP from stakeholder concerns about the impacts of climate change.

8.2.2 Climate change impacts on flood risk

Climate change is expected to increase flooding events and severity. The Braintree Level 2 SFRA explores the impact of climate change on flood risk in the 1 in 100 annual chance of flooding event. These we assessed for the higher central (plus 35%) and the upper end (plus 65%) allowances. The approach is justified through the example of three applicable sites and specific Flood Risk Assessments (FRAs) are recommended for site specific modelling scenarios and assessment of future flood risk with respect to climate change.

8.3 Climate change mitigation

This section will outline general mitigation measures the proposed developments could implement to reduce the risk of climate change and the impacts.

8.3.1 Green infrastructure

Greenspaces in residential areas can provide human and wildlife benefits but can also help to reduce the impacts from climate change. For example, the inclusion of green infrastructure such as trees, hedges and grassland, to help reduce increase shading and reducing the urban heat island effect. Green infrastructure can also include sustainable drainage systems.

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8.3.2 Climate change mitigation measures: Sustainable drainage systems

Sustainable drainage systems (SuDS) can help to enhance water resources and water efficiency, helping to reduce the impacts of climate change including flood risk. This can be achieved by improved infiltration, attenuation, and drainage provision alongside integrated rainwater harvesting measures and water management, which is further discussed in Section 9.

SuDS generally aims to mimic the natural drainage patterns and maximise source control. SuDS can be classified as ‘green’ (e.g. green spaces, filter strips, swales, wetlands or green roofs) or ‘grey’ (for example permeable paving, underground pipes or tanks). Whilst grey SuDS provide many benefits they are not as adaptable to a changing climate as green SuDS. Therefore, when incorporating SuDS into development consideration of the type is recommended.

Whilst in the past there have been challenges in the uptake of SuDS, especially green SuDS, the green infrastructure framework introduced in January 2023 shows the willingness of the UK Government to introduce green infrastructure through promotion of the green infrastructure framework amongst developers and councils. In July 2025 the Government have published the National Standards for SuDS. This provides a framework for designers, property developers, local authorities and EA etc, for the standards to design SuDS for. Including seven standards, for different aspects of the water cycle.

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9 Integrated Water Management

Integrated water management (IWM) is a collaborative approach to managing water and land that can deliver coordinated management of water storage, supply, wastewater, flood risk, water quality and the wider environment. Reports written by the Chartered Institution of Water and Environmental Management (CIWEM) (CIWEM 2011) and Construction Industry Research and Information Association (CIRIA) (CIRIA 2019) both advocate for the use of IWM. Highlighting the benefits such as cost savings, enhanced biodiversity, reduction in flood risk, increase in water efficiency and water quality improvements to the environment.

9.1 Integrated water management challenges

Several challenges exist for IWM within new developments, these include;

- Local Planning Authority not having sufficient resources (staff and budget) to develop plans, policies and engage with developers, water companies or stakeholders.
- National policy which is not applied consistently and does not promote IWM.
- A lack of up-to-date local plans.

The CIRA 2019 report outlines how each of these challenges can be addressed and how IWM can be written into local policy.

9.2 Water Efficiency

Water efficiency is the practice of reducing water usage through the implementation of efficient fixtures or capturing additional water. Water efficient measures include water efficient fixtures, rainwater harvesting, educational campaigns on the use of water, metering and greywater recycling.

9.2.1 Water Neutrality

Water neutrality is the practice for the total water use of a new development, in the wider area after the development, to be equal or less than the total water use in the wider area before development.

The wider area is an ambiguous size and so should be reflective of the development. Be this at the local authority boundary, water resource zone or water abstraction boundary. For example, if a development was in an area of water stress due to abstraction from a source, offsetting the water use in a neighbouring development that uses a different source will not be considered as water neutrality, unless the two sources are interlinked by transferring pipe network.

Water neutrality can be achieved in housing developments in a number of ways:

- Leakage reduction.
- Water efficient new developments.
- Offsetting new demand by retrofitting homes with water efficient devices.
- Implementing a smart business tariff system, such that a business that uses large amounts of water offsets household properties.

Water neutrality can be achieved by non-household use in a number of ways:

- Offsetting new demand by retrofitting commercial and business users or schools with water efficient devices.
- Leakage reduction within large buildings.

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- Reducing agricultural demand consumption through the creation of smaller water storages for local use, and single or multiple users (whilst maximising benefits of nature-based solutions).
- A water tariff system, such that a company invests in retrofits of another location to then use the additional water saved.

9.2.2 Rainwater Harvesting and Greywater Recycling

Rainwater harvesting is the process of collecting and storing rainwater to be re-used as opposed to being converted into surface runoff and discharge offsite. Rainwater harvesting is classified as a SuDS measure and is an integral part of integrated water management systems.

Greywater is water that has been used in the home in appliances such as washing machines, showers, hand basins etc. This water is then treated and can be re-used in in the home for other appliances such as the toilet. Grey water recycling requires more treatment than rainwater harvesting. Public perception is one challenge associated with the use of grey water recycling; an in-depth review conducted by Oteng-Peprah (2018) showed that members of the public in the UK are more willing to use recycled water from their own properties as opposed to unknown sources. Acceptance of using recycled water becomes less when the water is used for tasks that involve personal contact such as washing machines. Public support for greywater recycling is higher in areas which are under water stress.

It is currently UK policy that these types of water efficiency currently cannot be used in drinking water supply as there are strict rules on water company potable water use, however it can be used in other domestic systems.

9.2.3 Local SuDS Design Guide

Essex County Council are the Lead Local SuDS Authority for BDC. They have produced a guide to SuDS design within Essex. This guide outlines what is expected at each stage of the planning process, alongside guidance for water quality, maintenance, rates, and storage. SuDS can provide benefits such as:

- Water Quantity: Through controlling the quantity of runoff to support the management of flood risk and in helping to maintain and protect the natural water cycle. This is detailed further in Standard 1 and Standard 3 of the National standards for SuDS.
- Water Quality: Through managing surface water runoff such that it does not adversely impact the water quality of any receiving water bodies. This is detailed further in Standard 4 of the National standards for SuDS.
- Biodiversity: Through the creation of green spaces to create more sustainable places for nature. This is detailed further in Standard 6 of the National standards for SuDS.

SuDS measures are explored further within the Outline WCS, outlining the current policies and guidance in line with the National standards for sustainable drainage systems.

9.2.4 Environmental Incentive Scheme

From April 2025, AWS has introduced a Water Environmental Incentive Scheme in line with the Environmental Incentive Common Framework released by Ofwat in December 2024 (effective from April 2025).

A number of requirement are included to qualify for the incentive including the plot being unoccupied, connection to the water network is made after April 2025, all fixtures and fitting are fitted within the property, and the required 90l/p/d ore below is met.

For plots that meet these requirements, AWS offer a payment equivalent to the incentive value published in their charging arrangements.

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Similarly, there is a Sewerage Environmental Incentive Scheme which is only applicable to brownfield developments currently discharging surface water to a combined or foul sewer. For this incentive, one of the following methods is required to dispose of surface water:

- Rainwater harvesting re-use
- Infiltration methods
- Discharge to an open surface water body
- Discharge to surface water sewer, highway drain or other drainage system at a reduced rate

If these requirement are met, for every eligible plot an incentive of £202 is given.

9.3 Case Studies

Successful IWM can be achieved through collaboration between developers, the councils and the Environment Agency. The four case studies below show successful implementation of IWM and outline how this relates to planning policy. Further details on these can also be found in the CIRA 2019 report.

9.3.1 Clay Farm, Cambridge

Clay Farm was a mixed-use development of predominantly housing to the south of Cambridge. It featured a site wide IWM system, including rainwater harvesting and low water use fixtures and fittings. The IWM system was designed at the start of the project. The system has reduced flood risk, with ponds able to accommodate flows from a 1 in 100 annual chance rainfall event and a pipe network capable of accommodating surface water runoff from 1 in 30 annual chance rainfall events. Additional measures include permeable paving, rain gardens and canals or rills.

Clay Farm was in response to policy contained within the Cambridge local plan that required urban extensions of the city to use sustainable drainage.

Clay Farm was a collaboration between Countryside Properties, Cambridge City Council, Skanska, Bovis Homes, Crest Nicholson, Hill Residential, Cala Homes, Cambridgeshire County Council and the Parkside Federation

9.3.2 Nine Elms, London South Bank

Nine Elms is a brownfield redevelopment and has an integrated water management (IWM) strategy designed to minimise the effect on the sewer system and reduce demand on the public water supply. It is intended the IWM can reduce demand on public water supply, discharge into combined sewers, reduce local flood risk and improve the biodiversity in the city.

The water management solutions for the project were driven by London plan policy that only permits discharge of surface water into a drain or combined sewer if no other sustainable storage, infiltration or attenuation measure is possible.

Nine Elms is being delivered by VNEB Partnership, which is a collaboration between (Lambeth Council, the local authority, transport for London and local developers), Thames Water and Arup.

9.3.3 New South Quarter and Wandle Park, Croydon

A 900-unit housing development in Croydon de-culverted the River Wandle to improve the surface water environment and restore open spaces. It is intended the IWM creates wetland areas to provide flood storage, and natural banks and waterside planning to increase biodiversity and amenity.

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The benefits of the scheme were achieved by the collaboration between Barratt Developments, the Local Planning Authority (LPA) and the Environment Agency.

9.3.4 Eddington, Cambridge

A 3,000 unit housing and 100,000 square metre mixed use development northwest of Cambridge showcases an integrated water management system of sustainable drainage systems (SuDS) to reduce flows to below the greenfield runoff rates. Features such as swales, blue and brown roofs and green corridors are incorporated into the design. The water recycling system uses up to 45 per cent of rainwater to reduce potable water demand. This is achieved through the storage of rainwater in the green landscape, before it is treated by reed bed filters, ultraviolet light and chlorinated before being pumped into homes for non-potable use.

The houses within Eddington were built to level 5 and level 6 of the Code for Sustainable Homes (withdrawn in 2015) in which water consumption is no more than 80 litres per person per day. This per capita consumption (PCC) is in contrast to the average 150 litres per head per day in Cambridge currently.

The integrated scheme at Eddington is economically efficient in meeting potable water usage reductions; it was calculated as approximately 40 per cent cheaper than plot-based options (which consider black and grey water and plot-based rainwater harvesting)

9.4 Integrated water management conclusions

IWM can be achieved through working collaborative between the developers, BDC, Environment Agency and other stakeholders. It is advised that BDC include suitable policies in the emerging Local Plan and proposed Site Allocation documents to promote integrated water management (IWM), which should include rainwater harvesting. Also, BDC should engage with each of these stakeholders as early as possible to develop IWM strategies for their respective sites.

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10 Conclusions and Recommendations

The latest growth and proposed developments have been analysed as part of the Outline Water Cycle Study (WCS) to confirm and address the key environmental and water infrastructure capacity constraints. This WCS forms part of the key evidence base to assist Braintree District Council (BDC) in deciding the scale, location and delivery needs of new proposed allocation sites in the Braintree Emerging Local Plan (BELP).

In terms of the WCS, it is considered that the capacity of the WRCs and the associated impact on water quality and the unresolved water services infrastructure issues are the greatest potential issues in relation to realising the currently proposed development aspirations within BDC's administrative area.

The conclusions and recommendations of the assessment are presented in the sections below.

10.1 Water Resources and Supply

Potable water within the BDC administrative area is supplied by Anglian Water Services (AWS) and Essex and Suffolk Water (E&SW). Currently both AWS and E&SW predict a deficit in supply if no interventions are implemented, with an estimated supply demand deficit of approximately of 41.92Ml/d for Essex South and Central Water Resource Zones (WRZs) and 43.17Ml/d for Essex WRZ by 2049/50.

Both AWS and E&SW have current plans to achieve the required demand in their impacted WRZ through several supply and demand options, through a combination of water treatment works upgrades, nitrate schemes, ceasing of water sharing agreements, and a water re-use scheme. If the interventions are implemented then both the Essex South and Essex Central WRZ will have minimal or no additional headroom, whereas Essex WRZ will have an excess surplus of 1.5 Ml/day initially, rising to 64.5 Ml/day by 2049/50. The majority of the supply and demand options by the water companies is demand management options for existing households and network leakage reduction. Therefore, there is some risk in them not being delivered due to the reliance on behavioural changes related to water savings and challenges associated with eradicating leakage from aging pipe network.

The current development trajectory used within the AWS and E&SW Water Resources Management Plan 2024 (WRMP24), is using outdated housing trajectories. Since the publication of the plans, a new standard method to calculate local authority housing need has been published by the government, this increases the housing need within BDC from 858 to 1,115. As such, the BDC trajectory exceeds the housing total shown for the BDC district, with the total council forecast between 2019/20 and 2040/41 being approximately 5,716 higher than that of the equivalent housing total shown in regional water plan of 17,849 by Water Resources East (WRE). It is expected that during the next WRMP planning cycle, the councils housing needs derived from the new standard method will be used by the water companies, addressing the current discrepancies.

Due to the limited headroom and predicted deficits within the AWS and E&SW WRZ, it is recommended by this WCS that a tighter PCC value of 90 l/h/d, is implemented within the BELP as a minimum.

10.2 Wastewater, Sewerage and Water Quality

This WCS shows that out of the 20 impacted existing WRCs that are operated by AWS, 16 WRCs will exceed the permitted DWF consent due to the BELP growth. This is based on conservative recorded DWF estimates from 2024 (which was flagged by AWS as being a wet year), but only 11 of these WRCs will exceed the existing permit when the calculated DWF is used for the 2024 baseline. Through consultation with AWS, of these 11 WRCs four of them area also identified for growth schemes (Coggeshall, Halstead, Braintree and White Notley) within the current Asset Management Plan (AMP8).

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A conservative load standstill approach has been adopted in the WCS methodology to determine new WRC discharge permit requirements. This approach aims to maintain nutrient loads at existing levels in line with current discharge consents. It is also acknowledged that 2024 was a wet year and so the results presented in the WCS are conservative, and an average Q80 DWF value for the last five years could be used to recalculate DWF and future permit requirements. This should confirm if all 16 WRC will still exceed the permit limits.

An initial review of water quality compliance at the failing 16 WRCs and receiving waterbodies has been carried out in this WCS, which shows that all but one can be met by tightening the existing water quality parameters of the respecting discharge permits - i.e. without going below the Technically Achievable Limits (TALs) of the conventional wastewater treatment methods.

Gosfield WRC permit if tightened using the estimated conservative DWF total, will have a Phosphate limit which will exceed the TAL. Growth could be accommodated at this WRC, if the phasing of development is staggered and alternative treatment works identified, using the latest measured DWF figures.

However, currently two WRC (Bocking and Coggeshall) will also have the water quality permit limits set to the TALs by the end of AMP8 in 2030, as part of the Water Industry National Improvement Programme (WINEP). Therefore, BDC must prevent development occurring ahead of capacity at the WRCs, either by taking a stepped approach or by redirecting some development into another WRC catchment with sufficient capacity. However, this needs to be informed by further discussions with AWS and the Environment Agency (EA) and can inform the Pre-Submission Local Plan.

The existing sewer network has been evaluated against proposed growth and development plans. Most development sites are located within or near existing WRC catchments defined by AWS, suggesting that integration into the current sewerage framework is feasible, subject to capacity assessments. For sites outside existing sewer coverage, infrastructure requirements were assessed. Six small and four large sites will require major infrastructure due to their distance from the sewer network, while three small and one large site will need minor infrastructure.

Employment-related development sites were also reviewed. Three sites will require significant infrastructure upgrades, while another three will need minor works to connect effectively to the existing sewerage system.

Overall, the WCS demonstrates that the proposed growth trajectory can be supported within the existing wastewater and sewerage framework, contingent upon targeted infrastructure enhancements and strict adherence to consent parameters. Therefore, AWS and BDC would need to work with the EA to find the most sustainable solution or combination of solutions to address the identified DWF exceedance risk at each of impacted WRCs. This WCS also recommends that further investigation is required to establish the future discharge permit values at the 16 WRCs that are shown to have DWF exceedance, including the potential use of an average of measured DWF (i.e., as opposed to the 2024 wet year or calculated DWF).

10.3 . Flood Risk Management

A high-level assessment has been undertaken within this WCS to assess the impacts of increased WRC discharges into receiving watercourses. A multi-criteria analysis provided a risk-based score for each discharge point. The score was a combination of the impact from increase in peak river flows on the receiving watercourse, the sensitivity of the flood levels to surrounding infrastructure and the impact. Four of the risk scores for the proposed increases in WRC discharges were assessed to be medium, the rest were considered to be low.

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The five WRC considered at medium risk are Bocking, Halstead box Mill Lane, Haverhill, and Stambourne, and this assessment is predominantly driven by the placement of infrastructure upstream and downstream of the WRC outfall. It is recommended that the Level 2 SFRA explores this further.

This WCS also assessed the locations of the committed and proposed allocation sites with respect to flood zones with the most at-risk areas are associated with the River Colne.

The 2024 Level 1 SFRA, and 2017 Level 2 SFRA have been reviewed as part of this WCS and a number of policy recommendations from the document are promoted within this WCS.

A new SFRA is currently being developed which should be used to inform the BELP when it is completed.

10.4 Climate Change

Climate change has the potential to impact every aspect of this WCS therefore a climate change impact assessment was undertaken. A RAG score, based on the method used to assess the relevant climate change pressures and the impact these pressures will have, was undertaken.

Quantitative assessments were undertaken for water resources; due to the high impact of climate change on supply this was rated as amber, whilst the impact on demand was rated green.

A quantitative and qualitative assessment of the impacts of climate change on flood risk was undertaken; due to the impact of climate change on flood risk being medium this was rated as amber.

The adoption of policies that promote Integrated Water Management within the Braintree District can also help to reduce the potential impacts of climate change.

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Appendix A

Detailed Trajectory Breakdown

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Appendix A

Detailed Trajectory Breakdown

Table A-1: Trajectory breakdown of dwellings on Small & Large Sites

Reference Code	Address	Parish	Ward	Settlement	Settlement Hierarchy	WRC	WRZ	Use	Size (m^2)	Size (ha)	Capacity	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39	39/40	40/41	Total in Plan period
Small Sites																											
BCBG2010	John Pease Manor St	Braintree Central and Beckers Green Ward	Braintree Central and Beckers Green Ward	Braintree	Town	Braintree WRC	South Essex	Housing	6873	0.69	45	0	6	6	6	6	6	6	6	0	0	0	0	0	0	0	45
BCBG2500	B&M Home Bargins	Braintree Central & Beckers Green Ward	Braintree Central and Beckers Green Ward	Braintree	Town	Braintree WRC	South Essex	Housing	4576	0.46	10	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	10
BLAN2027	Land at Friers Farm	Black Notley	Great Notley and Black Notley Ward	Black Notley	Third Tier	Braintree WRC	South Essex	Housing	230866	23.09	480	0	69	69	69	69	69	69	69	0	0	0	0	0	0	0	480
BOCN2032	Land adj to the Coach House, Panfield Lane	Bocking North Ward	Bocking North Ward	Braintree	Town	Rayne WRC	South Essex	Housing	17396	1.74	44	0	6	6	6	6	6	6	6	0	0	0	0	0	0	0	44
BOCN2033	Land East of A131	Bocking North Ward	Bocking North Ward	High Garrett	Third Tier	Gosfield WRC	Central Essex	Hosing & Mixed	68525	6.85	125	0	18	18	18	18	18	18	18	0	0	0	0	0	0	0	125
BOCN2042	61 Broad Rd	Bocking North Ward	Bocking North Ward	Braintree	Town	Bocking WRC	South Essex	Housing	13140	1.31	30	0	4	4	4	4	4	4	4	0	0	0	0	0	0	0	30
BURE2070	Land at Old Barn Road Mount Butes Bures	Bures Hamlet	Stour Valley South	Bures	Second Tier	Bures WRC	South Essex	Inc in Dev Boundary	7073	0.71	8	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	8
COGG2084	Land South Colchester Rd	Coggeshall	Coggeshall Ward	Coggeshall	Key Service Village	East St Coggeshall	South Essex	Housing	127988	12.80	200	0	29	29	29	29	29	29	29	0	0	0	0	0	0	0	200
COGG2085	Land to the south of West St	Coggeshall	Coggeshall Ward	Coggeshall	Key Service Village	Coggershall WRC	South Essex	Housing/Formal Rec	23457	2.35	80	0	11	11	11	11	11	11	11	0	0	0	0	0	0	0	80
CRES2102	Land West of Mill Lane	Cressing	Silver End and Cressing Ward	Cressing	Second Tier	Braintree WRC	South Essex	Specialist Housing	91264	9.13	78	0	11	11	11	11	11	11	11	0	0	0	0	0	0	0	78
EARL2127	Land South of Morleys Road	Earls Colne	The Colnes Ward	Earls Colne	Key Service Village	Earls Colne WRC	Central Essex	Housing	7614	0.76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GGHR2143	Halstead Hall, Braintree Road, Halstead	Greenstead Green and Halstead Rural	Gosfield and Greenstead Green Ward	Halstead	Town	Boxmill Lane STW	Central Essex	Specialist Housing	30762	3.08	33	0	5	5	5	5	5	5	5	0	0	0	0	0	0	0	33
GGHR2146	Land west of Blamsters	Greenstead Green and Halstead Rural	Gosfield and Greenstead Green Ward	Halstead	Town	Boxmill Lane STW	Central Essex	Housing	55100	5.51	55	0	8	8	8	8	8	8	8	0	0	0	0	0	0	0	55
GRYE2175	Land north of Little Yeldham Road	Great Yeldham/Little Yeldham	Yeldham Ward/Stour Valley North	Little Yeldham	Third Tier	Ridegwell STW	Central Essex	Part. Housing/Landsc	18141	1.81	30	0	4	4	4	4	4	4	4	0	0	0	0	0	0	0	30
GRYE2176	Land West of Nuns Walk	Great Yeldham	Yeldham Ward	Great Yeldham	Second Tier	Ridegwell STW	Central Essex	Inc in Dev Boundary	5172	0.52	10	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	10
GRYE2177	Land Between 18 to 20 Toppesfield Road, Great Yeldham	Great Yeldham	Yeldham Ward	Great Yeldham	Second Tier	Toppesfield STW	Central Essex	Self Build & Custom	4422	0.44	5	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	5
GRYE2178	Land South of Toppesfield Road, Great Yeldham	Great Yeldham	Yeldham Ward	Great Yeldham	Second Tier	Ridegwell STW	Central Essex	Self Build & Custom	2261	0.23	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
HASA2180	The old wood yard site, Fenn Road, Halstead	Halstead St Andrews Ward	Halstead St Andrews Ward	Halstead	Town	Halstead WRC	Central Essex	Housing	21482	2.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HATF2185	Land off Maldon Road, Hatfield Peverel, CM3 2JJ	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Key Service Village	Hatfield Peverel Crabbs Hill PS	South Essex	Housing	43063	4.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HATF2192	Land Adjacent to Crabb's Hill Farm, Crabb's Hill, Hatfield Peverel	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Key Service Village	Hatfield Peverel Crabbs Hill PS	South Essex	Housing	8699	0.87	20	0	3	3	3	3	3	3	3	0	0	0	0	0	0	0	20

Reference Code	Address	Parish	Ward	Settlement	Settlement Hierarchy	WRC	WRZ	Use	Size (m^2)	Size (ha)	Capacity	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39	39/40	40/41	Total in Plan period
HATR2203	Land South West of Windmill Road, West of Mount Hill, Halstead	Halstead Trin/Greenstead Green and Halstead Rural	Halstead Trinity Ward/Gos and Greenstead	Halstead	Town	Boxmill Lane STW	Central Essex	Housing	29896	2.99	70	0	10	10	10	10	10	10	10	0	0	0	0	0	0	0	70
KELV2212	Land at Bridge Farm, Doughton Road, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Key Service Village	Coggershall WRC	South Essex	Strategic Growth Loc	4035	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KELV2214	Land to the west of St. Dominics Residential Home, London Rd, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Key Service Village	Coggershall WRC	South Essex	Specialist Housing	15794	1.58	25	0	4	4	4	4	4	4	4	0	0	0	0	0	0	0	25
KELV2215	Land North-East of Cranes Lane, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Key Service Village	Coggershall WRC	South Essex	Housing/Business	64018	6.40	100	0	14	14	14	14	14	14	14	0	0	0	0	0	0	0	100
KELV2221	Land Adj Davey House, London Road, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Key Service Village	Coggershall WRC	South Essex	Housing Part 0.4ha	4053	0.41	10	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	10
PANF2508	Land North West of Panfield Lane, Braintree	Panfield	Three Fields Ward	Panfield	Third Tier	Rayne WRC	South Essex	Potential Residential	68584	6.86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIVE2249	Land North of Rickstones Road, Rivenhall	Rivenhall	Silver End and Cressing Ward	Rivenhall	Third Tier	Rivenhall End STW	Essex	Housing	34808	3.48	45	0	6	6	6	6	6	6	6	0	0	0	0	0	0	0	45
SIBH2517	Stablebrook, Wethersfield Road, Sible Hedingham	Sible Hedingham	Hedigham Ward	Sible Hedingham	Key Service Village	High Street Green STW	Central Essex	GTTS	6943	0.69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STEB2285	Land West of North Road, Steeple Bumpstead	Steeple Bumpstead	Bumpstead Ward	Steeple Bumpstead	Second Tier	Steeple Bumpstead WRC	Central Essex	Housing	6025	0.60	10	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	10
TOPP2294	Land off Park Lane, Toppesfield, CO9 4DQ	Toppesfield	Yeldham Ward	Toppesfield	Third Tier	Toppesfield STW	Central Essex	Inc in Dev Boundary	944	0.09	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
TOPP2295	Adj 22 Park Lane, Toppesfield	Toppesfield	Yeldham Ward	Toppesfield	Third Tier	Toppesfield STW	Central Essex	Inc in Dev Boundary	1988	0.20	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
WITN2252	Land North of Witham	Witham	Witham North Ward	Witham	Town	Witham WRC	Essex	Housing	26036	2.60	125	0	18	18	18	18	18	18	18	0	0	0	0	0	0	0	125
WITN2312	Cut Throat Lane Car Park, Witham	Witham	Witham North Ward	Witham	Town	Witham WRC	Essex	Housing	7374	0.74	100	0	14	14	14	14	14	14	14	0	0	0	0	0	0	0	100
WITS2515	Land North of Gershwin Boulevard, Witham	Witham	Witham South Ward	Witham	Town	Witham WRC	Essex	Housing	9136	0.91	32	0	5	5	5	5	5	5	5	0	0	0	0	0	0	0	32
BLAN2019	Roundlay Farm, Pickocket Lane, Black Notley	Black Notley	Great Notley and Black Notley Ward	Great Notley	Town	Braintree WRC	South Essex	Housing minus road	2328	0.23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EARL2123	Earls Colne Farm, Halstead Road, Earls Colne	Earls Colne	The Colnes Ward	Earls Colne	Key Service Village	Halstead WRC	Central Essex	BNG	92097	9.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GGHR2142	Land West and North of Star Stile Cottages, Star Stile Road, Halstead	Greenstead Green and Halstead Rural	Gosfield and Greenstead Green Ward	Halstead	Town	Halstead Box Mill Lane STW	Central Essex	Strategic Growth Loc	13449	1.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GNBN2154	Land to the rear of 110 London Road, Braintree, CM7 2AS	Great Notley & Black Notley Ward	Great Notley and Black Notley Ward	Great Notley	Town	Braintree WRC	South Essex	Inc in Dev Boundary	6973	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HATR2202	Land Adjacent To Blamsters Farm, Mount Hill, Halstead	Halstead Trinity Ward	Halstead Trinity Ward	Halstead	Town	Boxmill Lane STW	Central Essex	Sp Housing - existing	17459	1.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Reference Code	Address	Parish	Ward	Settlement	Settlement Hierarchy	WRC	WRZ	Use	Size (m^2)	Size (ha)	Capacity	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39	39/40	40/41	Total in Plan period
KELV2217	Land on the north side of Church Hill, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Key Service Village	Coggershall WRC	South Essex	Strategic Growth Loc	79742	7.97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WETH2297	Gray's Farm, Gray's Lane, Wethersfield	Wethersfield	Three Fields Ward	Wethersfield	Third Tier	Wethersfield WRC	South Essex	BNG	961474	96.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WITC2316	Land at Wood End Farm, Witham	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Key Service Village	Witham WRC	Essex	Housing	26771	2.68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WITS2516	Ullswater, Maldon Road, Witham	Witham	Witham South Ward	Witham	Town	Witham WRC	Essex	Housing	1601	0.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Large Sites																											
GGHR2141	Land to South East of Halstead	Greenstead Green and Halstead Rural/Halstead StAnd	Gosfield and Greenstead Green Ward/Halstead St And	Halstead	Town	Halstead WRC	Central Essex	Large Site	13449	1.34	1100	0	0	0	0	0	50	100	120	130	130	130	120	120	120	80	1100
GGHR2416	Land East of Colchester Road, Halstead	Greenstead Green and Halstead Rural/Halstead StAnd	Gosfield and Greenstead Green Ward/Halstead St And	Halstead	Town	Boxmill Lane STW	Central Essex	Large Site	48046	4.80																	
COLE2100	Land East of Bluebridge Ind Estate	Colne Engaine	The Colnes Ward	Halstead	Town	Halstead WRC	Central Essex	Strategic Growth Location	114757	11.48	1750	0	0	0	0	0	50	100	185	185	185	185	185	185	185	185	1630
HASA2179	Land North and East of Halstead	Halstead St Andrews/Green'd Green & Halstead Rural	Halstead St Andrews Ward/Gos and Greenstead	Halstead	Town	Halstead WRC	Central Essex	Strategic Growth Location	1288857	128.89																	
KELV2209	Kings Dene at North Kelvedon (part)	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Key Service Village	Coggershall WRC	South Essex	Large Site - TBC	402952	40.30	600	0	0	0	0	0	50	50	50	50	50	50	50	50	50	50	500
CRES2101	East of Braintree	Cressing/Stisted/Bocking Blackwater Ward	Silver End and Cressing Ward/Cogg Ward/Blackwater	Braintree	Town	Braintree WRC	South Essex	Large Site	1645693	164.57	2500	0	0	0	0	0	50	100	150	150	150	150	150	150	150	150	1350
KELV2208	Kings Dene at North Kelvedon	Kelvedon/Rivenhall	Kelvedon and Feering Ward/Silv End and Cress	Kelvedon	Key Service Village	Coggershall WRC	South Essex	Strategic Growth Loc	5709844	570.98	5000	0	0	0	0	0	50	100	150	150	150	150	150	150	150	150	1350
HAT2041	Land north of A12, Hatfiled Peverel	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Key Service Village	Hatfield Peverel Crabbs Hill PS	South Essex	Potential Large Site	637275	63.73	1123	0	0	0	0	0	112	112	112	112	112	112	112	112	112	112	1123
FINC2502	Former RAF Wethersfield, Sculpins Lane,Wethersfield	Finchingfield, Toppesfield, Sib Hedingham, Wethers	Three Fields, Yeldham, and Hedingham Ward	Wethersfield	Third Tier	Wethersfield WRC	South Essex	Large Site - TBC	3223435	322.34	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
TOTAL – Small Sites									2303458	230	1777	0	254	254	254	254	254	254	254	0	0	0	0	0	0	0	1777
TOTAL – Large Sites									13165797	1316.58	12073	0	0	0	0	0	362	562	767	777	777	777	767	767	767	727	7053
WINDFALL														75	75	75	75	75	75	75	75	75	75	75	75	75	975
GRAND TOTAL												0	254	329	329	329	691	891	1096	852	852	852	842	842	842	802	9805

Table A-2: Trajectory breakdown of employees per Employment Site

Reference Code	Address	Parish	Ward	Settlement	Settlement Hierarchy	WRC	WRZ	Use	Size (m^2)	Size (ha)	No. of workers	Category	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39	39/40	40/41	Total in Plan period
CRES2116	Shardloes Workshops, Church Road, Cressing	Cressing	Silver End and Cressing Ward	Cressing	Third Tier	White Notley WRC	South Essex	Employment	3082	0.31	59	E (g)(iii)	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	59
EARL2124	Hangar Field, Earls Colne Business Park	Earls Colne	The Colnes Ward	Earls Colne	Key Service Village	Colchester WRC	Central Essex	Employment	29647	2.96	564	E or B Uses	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	564
ELR1	London Road, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Key Service Village	Outlet at Grey's Mill	South Essex	Employment	3669	0.37	70	Other Uses	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	70
ELR2	Gosfield Airfield	Gosfield	Gosfield and Greenstead Green Ward	Gosfield	Third Tier	Gosfield WRC	South Essex	Employment	20285	2.03	386	B Class	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	386
GOSF2156	Gosfield Business Park, The Old Airfield, Gosfield	Gosfield	Gosfield and Greenstead Green Ward	Gosfield	Third Tier	Gosfield WRC	South Essex	Employment	29836	2.98	567	B Class	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	567
GRNO2169	Land at Slamseys Farm, Blackley Lane, Great Notley	Great Notley	Great Notley and Black Notley Ward	Great Notley	Town	Braintree WRC	South Essex	Employment	33343	3.33	3510	E Class	234	234	234	234	234	234	234	234	234	234	234	234	234	234	234	3510
GRNO2505	Land at Slamseys Farm, Blackley Lane, Great Notley	Great Notley	Great Notley and Black Notley Ward	Great Notley	Town	Braintree WRC	South Essex	Employment	69297	6.93	7294	E Class	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	7294
GRYE2172	Land at Waterhouse, Hedingham Road, Great Yeldham	Great Yeldham	Yeldham Ward	Great Yeldham	Second Tier	High Street Green STW	Central Essex	Employment	3172	0.32	60	E or B Uses	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	60
RAYN2240	South West of Tamdown Way, Springwood Drive, Braintree	Rayne	Rayne Ward	Rayne	Second Tier	Rayne WRC	South Essex	Employment & St Land	16818	1.68	1770	B class	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	1770
STEB2282	Blois Meadow Business Centre, Steeple Bumpstead, Haverhill	Steeple Bumpstead	Bumpstead Ward	Steeple Bumpstead	Second Tier	Steeple Bumpstead WRC	Central Essex	Employment	1838	0.18	193	E Class	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	193
	Halstead Factory Lane West / Kings Road	Halstead	Halstead	Halstead	Town	Halstead WRC	Central Essex	Residential and Employment	1700	0.17	32	B1 Class	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	32
CRES2104	Site Adjacent to A120 Bypass, Braintree	Cressing	Silver End and Cressing Ward	Braintree	Town	Braintree WRC	South Essex	Transport	6188	0.62	118	E Class	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	118
TOTAL									218874.7577	21.887476	14623		975	975	975	975	975	975	975	975	975	975	975	975	975	975	975	14623

Table A-2: Potential Education site breakdown

Location	Policy No.	Number of facilities	Requirement	Area (ha)	Places	Details
Hayeswood, East of Great Notley, South of Braintree	LPR 19 SGL	3	Primary school and attached early years facility	2.7	TBC	A new primary school with co-located early years and childcare nursery on 2.7 hectares of suitable land allocated for education and childcare use. Two new 56 place stand-alone early years and childcare nurseries each on 0.13 hectares of suitable land allocated for education and childcare use. Moved from Adopted Local Plan.
			Stand alone early years/ nursery	0.13	56	
			Stand alone early years/ nursery	0.13	56	
Land East of Broad Road, Braintree	LPR 20	2	Primary school and attached early years facility	2.1	TBC	A new primary school, with co-located early years and childcare nursery on 2.1 hectares of suitable land allocated for education and childcare use. A new 56 place stand-alone early years and childcare nursery on 0.13 hectares of suitable land allocated for education and childcare use. Moved from Adopted Local Plan.
			Stand alone early years/ nursery	0.13	56	
Former Towerlands Park Site	LPR 21 SGL	1	Stand alone early years/ nursery	0.13	56	A new 56 place stand-alone early years and childcare nursery on 0.13 hectares of suitable land allocated for education and childcare use. Moved from Adopted Local Plan.
Panfield Lane, North West Braintree	LPR 22	1	Primary school and attached early years facility	2	TBC	A new primary school with co-located early years and childcare nursery on 2ha of suitable land allocated for education and childcare use. Moved from Adopted Local Plan.
East of Braintree	LPR 23 - SGL	TBC	TBC	TBC	TBC	"education"
Land South and North-East of Halstead (Within Greenstead Green and Cole Engaine Parish)	LPR 24 - SGL	1	Primary school and attached early years facility	TBC	TBC	New primary school provision with early years and childcare. Financial contributions to secondary education as required by the Local Education Authority.
Land at South East Feering	LPR 25 - SGL	2	Primary school and attached early years facility	2.1	TBC	

Location	Policy No.	Number of facilities	Requirement	Area (ha)	Places	Details
			Stand alone early years/ nursery	0.13	56	A new primary school with co-located early years and childcare nursery on 2.1 ha of suitable land allocated for education and childcare use or the expansion of Feering School. A new 56 place stand alone early years and childcare nursery on 0.13 hectares of suitable land allocated for education and childcare use or potentially co-located with any new primary school site. Moved from Adopted Local Plan.
Kings Dene - West of Feering	None	TBC	TBC	TBC	TBC	Will likely need provision but level not quantified yet.
West of Feering - Kings Dene	LPR 26 SGL	TBC	TBC	TBC	TBC	Provide or make financial contributions to Early Years Provision, Primary School Provision and Secondary School Provision as required by the Essex County Council Local Education Authority.
Wood End Farm, Witham	LPR 27 SGL	1	Stand alone early years/ nursery	0.065	30	A new 30 place stand-alone early years and childcare nursery on 0.065 hectares of suitable land allocated for education and childcare use. Financial contributions to primary education provision as required by the Local Education Authority through S106 Planning Obligations. Moved from Adopted Local Plan.
Land North of the A12, Hatfield Peverel	LPR 28	TBC	TBC	TBC	TBC	Provision of or contribution toward education and childcare use as required by the Local Education authority through S106 Planning Obligations.
TOTAL				9.615	310	

Appendix B

Settlement Trajectory Breakdown

DRAFT

Appendix B

Detailed Trajectory Breakdown

Table B-1: Trajectory breakdown of dwellings per Settlement

Settlement	Remainder of 2025/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39	39/40	40/41	Total in Plan period
Towns																	
Bocking North	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	12
Braintree	9	139	323	349	458	429	460	455	354	253	225	199	162	165	165	165	4310
Great Notley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Halstead	0	17	52	39	109	48	130	234	344	335	336	336	330	335	335	292	3271
Witham	1	112	176	213	189	145	55	70	39	0	0	0	0	0	0	0	999
Key Service Villages																	
Coggeshall	3	56	112	43	42	43	42	42	42	0	0	0	0	0	0	0	425
Earls Colne	2	27	1	3	0	16	0	0	0	0	0	0	0	0	0	0	49
Feering	0	0	3	26	106	149	106	105	105	106	107	107	16	0	0	0	935
Hatfield Peverel	1	6	17	40	33	43	135	121	121	120	120	120	121	123	123	124	1367
Kelvedon	5	91	207	114	20	21	126	178	230	213	213	213	216	220	220	221	2508
Sible Hedingham	6	6	2	24	25	0	0	0	0	0	0	0	0	0	0	0	63
Second Tier																	
Bures	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	9
Bures Hamlet	0	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7
Cressing	1	80	98	102	114	40	12	12	12	11	0	0	0	0	0	0	481
Great Bardfield	-1	2	3	3	0	0	0	0	0	0	0	0	0	0	0	0	7
Great Yeldham	0	3	2	6	6	3	2	2	2	0	0	0	0	0	0	0	28
Finchingfield	2	10	3	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Rayne	0	1	2	7	4	0	0	0	0	0	0	0	0	0	0	0	14
Silver End	0	55	65	46	0	0	0	68	0	0	0	0	0	0	0	0	234
Steeple Bumpstead	4	2	1	19	2	2	2	1	2	0	0	0	0	0	0	0	33
Third Tier																	
Belchamp Otten	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Belchamp St Paul	1	-2	6	1	0	0	0	0	0	0	0	0	0	0	0	0	6
Belchamp Walter	1	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Black Notley	1	1	71	129	236	286	284	282	282	213	213	213	162	0	0	0	2373
Bradwell	4	13	0	3	5	7	6	0	0	0	0	0	0	0	0	0	39
Bulmer	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Castle Hedingham	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Colne Engaine	2	4	8	3	2	0	0	0	0	0	0	0	0	0	0	0	18
Foxearth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gestingthorpe	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Gosfield	2	7	1	1	1	0	0	0	0	0	0	0	0	0	0	0	12
Great Maplestead	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
Greenstead Green & Halstead Rural	1	77	71	70	70	12	0	0	0	0	0	0	0	0	0	0	301
Helions Bumpstead	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9

Settlement	Remainder of 2025/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39	39/40	40/41	Total in Plan period
High Garrett	0	0	19	24	19	19	19	19	19	0	0	0	0	0	0	0	137
Little Maplestead	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Little Yeldham	2	3	4	5	5	5	5	4	5	0	0	0	0	0	0	0	36
Nounsley	0	6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	7
Panfield	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Pebmarsh	5	8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	14
Rivenhall	3	72	74	79	29	7	7	7	7	0	0	0	0	0	0	0	284
Shalford	3	1	2	6	0	0	0	0	0	0	0	0	0	0	0	0	12
Stambourne	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
Stisted	1	4	0	3	0	0	0	0	0	0	0	0	0	0	0	0	8
Sturmer	0	1	0	64	0	0	0	0	0	0	0	0	0	0	0	0	65
Tilbury Juxta Clare	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Toppesfield	1	3	1	1	1	1	1	1	1	0	0	0	0	0	0	0	11
Wethersfield	1	2	4	9	1	0	0	0	0	0	0	0	0	0	0	0	17
White Colne	1	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	7
White Notley	0	3	5	1	0	0	0	0	0	0	0	0	0	0	0	0	9
Wickham St Paul	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Countryside																	
Bardfield Saling	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Birdbrook	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Borley	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Braintree Green	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Fairstead	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Great Henny	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
Middleton	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Ovington	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Pentlow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	87	833	1368.8571	1456.2128	1478.8571	1275.8571	1391.1571	1601.1571	1565.1571	1251.4429	1213.3	1188.3	1007.3	842.3	842.3	802.3	18204.5

Appendix C

Water Resource Availability and Impact on Licensing

Water Resource Availability Class	Implication for Licensing
Water available for licencing	There is more water than required to meet the needs of the environment. New licences can be considered depending on local and downstream impacts. Some time-limited licence renewals may require changes to reflect historic annual usage in order to manage the risk of deterioration to the environment. Abstractions for non-consumptive uses can still be permissible in catchments where there are sustainability issues.
Restricted water available for licencing	Full licenced flows fall below the EFIs. If all licenced water is abstracted there will not be enough water left for the needs of the environment. No new consumptive licences would be granted. Some time-limited licence renewals may require changes to reflect historic annual usage in order to manage the risk of deterioration to the environment. It may also be appropriate to investigate the possibilities for reducing fully licenced risks. Water may be available by purchasing (known as licence trading) the amount equivalent to that recently abstracted from an existing licence holder. Abstractions for non-consumptive uses can still be permissible in catchments where there are sustainability issues.
Water not available for licencing	Recent actual flows are below the EFI. This scenario highlights water bodies where flows are below the indicative flow requirement to help support Good Ecological Status/Potential (GES/P) (as required by the Water Framework Directive). Action is being taken in water bodies that are not supporting GES/P meaning that no further consumptive licences will be granted. Some time-limited licence renewals may require changes to reflect historic annual usage in order to manage the risk of deterioration to the environment. Water may be available by purchasing (known as licence trading) the amount equivalent to that recently abstracted from an existing licence holder. Abstractions for non-consumptive uses can still be permissible in catchments where there are sustainability issues.
Heavily Modified Water Body (HMWB)s (and/or discharge rich water bodies)	These water bodies have a modified flow that is influenced by reservoir compensation releases, or they have flows that are augmented by a support scheme or large water recycling centre. These are often known as ‘regulated rivers’. They may be managed through an operating agreement, often held by a water company. The availability of water is

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Water Resource Availability Class	Implication for Licensing
	dependent on these operating agreements. Some time-limited licence renewals may require changes to reflect historic annual usage in order to manage the risk of deterioration to the environment. There may be water available for abstraction in discharge rich catchment dependent on consultation with the EA. Abstractions for non-consumptive uses can still be permissible in catchments where there are sustainability issues.

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Appendix D

The total water available for use supply forecast for each Water Resource Zone

Table 10-1: Supply forecasts for Essex WRZ (Essex and Suffolk WRMP24)

Essex WRZ	2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
DO (before forecast changes) (Ml/d)	428	428	428	428	428	428
Climate Change impact (Ml/d)	-16.73	-19.60	-22.53	-25.52	-28.57	-31.04
Sustainability Reductions (Ml/d)	0	-5	-5	-5	-5	-5
Environmental Destination (Ml/d)	0	0	0	-2	-2	-2
Outage (Ml/d)	5.70	1.85	0	0	0	0
Process Losses (Ml/d)	0	0.33	0.50	0.50	0.50	0.50
WAFU (Own sources) (Ml/d)	411.27	403.40	401.06	395.48	392.43	389.96
Water Imported (Ml/d)	1	1	1	1	1	1
Water Exported (incl. NAVs) (Ml/d)	-10.60	-13.74	-13.23	-13.23	-13.23	-13.23
Total WAFU (Ml/d)	**381.67**	**370.66**	**388.24**	**383.25**	**380.20**	**377.73**

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Table 10-2: Supply forecasts for South Essex WRZ (Anglian Water WRMP24)

South Essex WRZ	**2025/2026**	**2030/2031**	**2035/2036**	**2040/2041**	**2045/2046**	**2049/2050**
DO (before forecast changes) (Ml/d)	60.20	60.20	60.20	60.20	60.20	60.20
WAFU (Own sources) (Ml/d)	54.62	54.52	54.42	27.34	27.24	27.16
Water Imported (Ml/d)	12.40	16.84	4.90	8.48	7.95	8.23
Water Exported (incl. NAVs) (Ml/d)	-11.95	-12.34	-12.20	-15.42	-15.12	-15.08
Total WAFU (Ml/d)	**62.47**	**62.42**	**62.37**	**36.84**	**36.79**	**36.75**

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Table 10-3: Supply forecasts for Central Essex WRZ (Anglian Water WRMP24)

Central Essex WRZ	**2025/2026**	**2030/2031**	**2035/2036**	**2040/2041**	**2045/2046**	**2049/2050**
DO (before forecast changes) (Ml/d)	10.03	10.03	10.03	10.03	10.03	10.03
WAFU (Own sources) (Ml/d)	8.59	8.60	8.60	1.05	1.05	1.05
Water Imported (Ml/d)	0.15	0.54	0.40	7.62	7.37	7.37
Water Exported (incl. NAVs) (Ml/d)	0	0	0	0	0	0
Total WAFU (Ml/d)	**9.29**	**9.30**	**9.30**	**1.75**	**1.75**	**1.75**

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Appendix E

The baseline demand forecast for each WRZ, per AMP as reported in the WRMP24

Table 10-4: Demand forecasts for Essex WRZ (Essex and Suffolk Water WRMP24)

Essex WRZ	2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
Water delivered measured non-household (Ml/d)	60.09	62.84	62.95	61.23	61.19	61.17
Water delivered unmeasured non-household (Ml/d)	1.08	1.05	1.03	1.01	1.00	0.98
Water delivered measured household (Ml/d)	175.92	208.61	218.34	224.66	235.20	238.42
Water delivered unmeasured household (Ml/d)	117.29	89.07	81.82	77.95	73.73	71.14
Distribution losses (Ml/d)	37.21	37.29	37.11	36.84	36.54	36.28
Additional water (Ml/d)						
Final Distribution input (Ml/d)	402.10	409.36	411.76	412.21	418.17	418.50

Table 10-5: Demand forecasts for South Essex WRZ (Anglian Water WRMP24)

South Essex WRZ	2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
Water delivered measured non-household (Ml/d)	10.85	11.14	11.26	11.50	11.93	12.39
Water delivered unmeasured non-household (Ml/d)	0.04	0.05	0.05	0.05	0.05	0.05

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South Essex WRZ	2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
Water delivered measured household (Ml/d)	175.92	208.61	218.34	224.66	235.20	238.42
Water delivered unmeasured household (Ml/d)	32.23	34.12	36.14	38.20	40.18	41.47
Distribution losses (Ml/d)	9.83	9.83	9.83	9.83	9.83	9.83
Additional water (Ml/d)						
Final Distribution input (Ml/d)	61.44	62.45	63.76	65.39	67.35	69.00

Table 10-6: Demand forecasts for Central Essex WRZ (Anglian Water WRMP24)

Central Essex WRZ	2025/2026	2030/2031	2035/2036	2040/2041	2045/2046	2049/2050
Water delivered measured non-household (Ml/d)	1.03	1.12	1.19	1.28	1.38	1.45
Water delivered unmeasured non-household (Ml/d)	0	0	0.01	0.01	0.01	0.01
Water delivered measured household (Ml/d)	3.92	4.04	4.30	4.62	4.89	5.04
Water delivered unmeasured household (Ml/d)	1.97	1.71	1.49	1.31	1.19	1.17
Distribution losses (Ml/d)	2.27	2.27	2.27	2.27	2.27	2.27
Additional water (Ml/d)						
Final Distribution input (Ml/d)	9.42	9.36	9.49	9.70	9.94	10.15

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Appendix F

Proposed growth and development – Water Recycling Infrastructure Assessment

Table H-10-7: Proposed growth and development of proposed allocated water recycling infrastructure for developmentTable H-10-8: Proposed growth and development of proposed allocated water recycling infrastructure for development

Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
Small Sites						
BCBG2010	John Pease Manor St	Braintree	Braintree Central and Beckers Green Ward	Braintree Central and Beckers Green Ward	Braintree WRC	Brownfield Site Located within the existing Braintree sewer catchment Existing public sewers located within the site (>225mm diameter). Sewer will need to be extended to accommodate the development. The site is existing brownfield site so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
BCBG2500	B&M Home Bargains	Braintree	Braintree Central and Beckers Green Ward	Braintree Central & Beckers Green Ward	Braintree WRC	Brownfield Site Located within the existing Braintree sewer catchment Existing public sewers (>300mm diameter) located within the site. Sewer will need to be extended to accommodate the development. The site is existing brownfield site so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
BLAN2027	Land at Friers Farm	Black Notley	Great Notley and Black Notley Ward	Black Notley	Braintree WRC	Greenfield Site (small area of Brownfield Site) Localised area of the site located within the existing Braintree sewer catchment There are existing sewers (150mm diameter) located to the north of the site (>12m away some parts of site >40m away). Sewer will need to be upgraded and extended to accommodate the development
BOCN2032	Land adj to the Coach House, Panfield Lane	Braintree	Bocking North Ward	Bocking North Ward	Rayne WRC	Greenfield Site Localised area of the site located within the existing Bocking sewer catchment There are existing sewers (900mm diameter) located to the south east of the site (on the site boundary). Sewer will need to be upgraded and extended to accommodate the development
BOCN2033	Land East of A131	High Garrett	Bocking North Ward	Bocking North Ward	Gosfield WRC	Greenfield Site Localised area of the site located within the existing Bocking sewer catchment There are existing sewers (100mm, 150mm and 225mm diameter) located along the north west boundary of the site. Sewer will need to be upgraded and extended to accommodate the development)
BOCN2042	61 Broad Rd	Braintree	Bocking North Ward	Bocking North Ward	Bocking WRC	Greenfield Site (small area of Brownfield Site) Located within the existing Bocking sewer catchment There are existing sewers (225mm and 300mm diameter) located to the east (>50m away) and west (along site boundary) of the site. Sewer

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						will need to be upgraded and extended to accommodate the development
BURE2070	Land at Old Barn Road Mount Butes Bures	Bures	Stour Valley South	Bures Hamlet	Bures WRC	Greenfield Site Located outside the existing Bures-Wissington Rd sewer catchment There are existing sewers (6mm diameter) located to the north of the site (>675m away). Sewer will need to be upgraded and extended to accommodate the development
COGG2084	Land South Colchester Rd	Coggeshall	Coggeshall Ward	Coggeshall	Coggeshall WRC	Greenfield Site Localised area of the site located within the existing Coggeshall sewer catchment There are existing sewers (150mm diameter) located to the north of the site (>20m away). Sewer will need to be upgraded and extended to accommodate the development
COGG2085	Land to the south of West St	Coggeshall	Coggeshall Ward	Coggeshall	Coggeshall WRC	Greenfield Site Partially located within the existing Coggeshall sewer catchment There are existing sewers (150mm diameter) located to the north of the site (>5m away). Sewer will need to be upgraded and extended to accommodate the development
CRES2102	Land West of Mill Lane	Cressing	Silver End and Cressing Ward	Cressing	Braintree WRC	Greenfield Site Partially located within the existing White Notley sewer catchment There are existing sewers (175mm and 225mm diameter) located to the east and south of the site (>5m away). Sewer will need to be upgraded and extended to accommodate the development

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
EARL2127	Land South of Morleys Road	Earls Colne	The Colnes Ward	Earls Colne	Earls Colne WRC	Greenfield Site Located within the existing Earls Colne sewer catchment There are existing sewers (6mm diameter) located to the north and west of the site (>15m away). Sewer will need to be upgraded and extended to accommodate the development
GGHR2143	Halstead Hall, Braintree Road, Halstead	Halstead	Gosfield and Greenstead Green Ward	Greenstead Green and Halstead Rural	Boxmill Lane STW	Greenfield Site Located outside existing Halstead sewer catchment There are existing sewers (150mm and 400mm diameter) located to the south east of the site (>30m away). Sewer will need to be upgraded and extended to accommodate the development
GGHR2146	Land west of Blamsters	Halstead	Gosfield and Greenstead Green Ward	Greenstead Green and Halstead Rural	Boxmill Lane STW	Greenfield Site Localised area of the site located within the existing Halstead sewer catchment There are existing sewers (150mm diameter) located to the south east of the site (>2m away). Sewer will need to be upgraded and extended to accommodate the development
GRYE2175	Land north of Little Yeldham Road	Little Yeldham	Yeldham Ward/Stour Valley North	Great Yeldham/Little Yeldham	Ridgewell WRC	Greenfield Site Partially located within the existing Sible Hedingham sewer catchment There are existing sewers (150mm diameter) located to the south of the site (on site boundary). Sewer will need to be upgraded and extended to accommodate the development
GRYE2175	Land north of Little Yeldham Road	Little Yeldham	Yeldham Ward/Stour Valley North	Great Yeldham/Little Yeldham	Ridgewell WRC	Greenfield Site Partially located within the existing Sible Hedingham sewer catchment There are existing sewers (150mm diameter)

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						located to the south of the site (on site boundary). Sewer will need to be upgraded and extended to accommodate the development
GRYE2176	Land West of Nuns Walk	Great Yeldham	Yeldham Ward	Great Yeldham	Ridgewell WRC	Brownfield Site (small area of Greenfield site) Partially located within the existing Sible Hedingham sewer catchment There are existing sewers (300mm diameter) located to the south east of the site (>25m away). Sewer will need to be upgraded and extended to accommodate the development
GRYE2177	Land Between 18 to 20 Toppesfield Road, Great Yeldham	Great Yeldham	Yeldham Ward	Great Yeldham	Toppesfield WRC	Greenfield Site Located within the existing Sible Hedingham sewer catchment There are existing sewers (7mm diameter) located to the north of the site (>20m away). Sewer will need to be upgraded and extended to accommodate the development
GRYE2178	Land South of Toppesfield Road, Great Yeldham	Great Yeldham	Yeldham Ward	Great Yeldham	Ridgewell WRC	Greenfield Site Located within the existing Sible Hedingham sewer catchment There are existing sewers (7mm diameter) located to the north of the site (>2m away). Sewer will need to be upgraded and extended to accommodate the development
HASA2180	The old wood yard site, Fenn Road, Halstead	Halstead	Halstead St Andrews Ward	Halstead St Andrews Ward	Halstead WRC	Greenfield Site (small area of Brownfield Site) Located within the existing Halstead sewer catchment Existing public sewers located within the site (150mm and 225mm diameter). Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the south so assume an existing private

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						drain connects to the public sewer and existing connection can be reused (TBC)
HATF2185	Land off Maldon Road, Hatfield Peverel, CM3 2JJ	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Hatfield Peverel WRC	Greenfield Site (small area of Brownfield Site) Partially located within the existing Witham sewer catchment Existing public sewers located along north west boundary of the site (250mm diameter). Sewer will need to be extended to accommodate the development. The site is existing brownfield site so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
HATF2192	Land Adjacent to Crabb's Hill Farm, Crabb's Hill, Hatfield Peverel	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Hatfield Peverel WRC	Greenfield Site Located within the existing Witham sewer catchment There are existing sewers (150mm and 225mm diameter) located to the north west (>130m away) and east (>110m away) of the site. Sewer will need to be upgraded and extended to accommodate the development
HATR2203	Land South West of Windmill Road, West of Mount Hill, Halstead	Halstead	Halstead Trinity Ward/Gos and Greenstead	Halstead Trin/Greenstead Green and Halstead Rural	Boxmill Lane STW	Greenfield Site Partially located within the existing Hasltead sewer catchment There are existing sewers (150mm diameter) located to the east of the site (>100m away). Sewer will need to be upgraded and extended to accommodate the development
KELV2212	Land at Bridge Farm, Doughton Road, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	Greenfield Site Partially located within the existing Coggeshall sewer catchment There are existing sewers (150mm diameter)

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						located to the south east of the site (>190m away). Sewer will need to be upgraded and extended to accommodate the development
KELV2214	Land to the west of St. Dominics Residential Home, London Rd, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	Greenfield Site Located within the existing Coggeshall sewer catchment Existing public sewers located within the site (9mm diameter). Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the east so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
KELV2215	Land North-East of Cranes Lane, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	Greenfield Site Partially located within the existing Coggeshall sewer catchment There are existing sewers (150mm diameter) located to the east of the site (>30m away). Sewer will need to be upgraded and extended to accommodate the development
KELV2221	Land Adj Davey House, London Road, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	Greenfield Site (small area of Brownfield Site) Partially located within the existing Coggeshall sewer catchment Existing public sewers located within the site (150mm diameter). Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the north so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
PANF2508	Land North West of Panfield Lane, Braintree	Panfield	Three Fields Ward	Panfield	Rayne WRC	Greenfield Site Located outside the existing Braintree sewer catchment There are existing sewers (375mm and 675mm diameter) located to the south of the site (>150m away). Sewer will need to be upgraded and extended to accommodate the development
RIVE2249	Land North of Rickstones Road, Rivenhall	Rivenhall	Silver End and Cressing Ward	Rivenhall	Rivenhall End WRC	Greenfield Site Partially located within the existing Witham sewer catchment Existing public sewers located within the site (150mm diameter). Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the east so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
SIBH2517	Stablebrook, Wethersfield Road, Sible Hedingham	Sible Hedingham	Hedigham Ward	Sible Hedingham	Sible Hedingham WRC	Greenfield Site (small area of Brownfield Site) Located within the existing Sible Hedingham sewer catchment There are existing sewers (unknown diameter) located to the south of the site (>65m away, >5m in one small area). Sewer will need to be upgraded and extended to accommodate the development
STEB2285	Land West of North Road, Steeple Bumpstead	Steeple Bumpstead	Bumpstead Ward	Steeple Bumpstead	Steeple Bumpstead WRC	Greenfield Site Located within the existing Steeple Bumpstead sewer catchment There are existing sewers (6mm diameter) located to the east of the west (>2m away).

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						Sewer will need to be upgraded and extended to accommodate the development
TOPP2294	Land off Park Lane, Toppesfield, CO9 4DQ	Toppesfield	Yeldham Ward	Toppesfield	Toppesfield WRC	Greenfield Site Partially located within the existing Toppesfield sewer catchment There are existing sewers (150mm diameter) located to the east of the site (>40m away). Sewer will need to be upgraded and extended to accommodate the development
TOPP2295	Adj 22 Park Lane, Toppesfield	Toppesfield	Yeldham Ward	Toppesfield	Toppesfield WRC	Greenfield Site Partially located within the existing Toppesfield sewer catchment There are existing sewers (150mm diameter) located to the south east of the site (>5m away). Sewer will need to be upgraded and extended to accommodate the development
WITN2252	Land North of Witham	Witham	Witham North Ward	Witham	Witham WRC	Greenfield Site Partially located within the existing Witham sewer catchment There are existing sewers (175mm, 225mm, 300mm and 525mm diameter) located to the south east of the site (>150m away). Sewer will need to be upgraded and extended to accommodate the development
WITN2312	Cut Throat Lane Car Park, Witham	Witham	Witham North Ward	Witham	Witham WRC	Brownfield Site Located within the existing Witham sewer catchment There are existing sewers (225mm diameter) along the north and west boundaries of the site (>2m away). Sewer will need to be upgraded

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						and extended to accommodate the development
WITS2515	Land North of Gershwin Boulevard, Witham	Witham		Witham South Ward	Witham WRC	Greenfield Site Located within the existing Witham sewer catchment There are existing sewers (150mm and 525mm diameter) along the north, east and west boundaries of the site (>2m away). Sewer will need to be upgraded and extended to accommodate the development
BLAN2019	Roundlay Farm, Pickocket Lane, Black Notley	Great Notley	Great Notley and Black Notley Ward	Black Notley	Braintree WRC	Greenfield Site (small areas of Brownfield site) Partially located within the existing Braintree sewer catchment Existing public sewers located within the site (diameter unknown). Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the west so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
EARL2123	Earls Colne Farm, Halstead Road, Earls Colne	Earls Colne	The Colnes Ward	Earls Colne	Halstead WRC	Greenfield Site (small areas of Brownfield site) Localised area located within the existing Earls Colne sewer catchment There are existing sewers (375mm diameter) located to the north of the site (>10m away). Sewer will need to be upgraded and extended to accommodate the development
FINC2135	Land West of B1057	Finchingfield	Three Fields Ward	Finchingfield	Wethersfield WRC	Brownfield Site Partially located within the existing Wethersfield sewer catchment Existing public sewers (150mm, 225mm, 300mm diameter) located within the site. Sewer

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						will need to be extended to accommodate the development. The site is existing brownfield site so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
GGHR2142	Land West and North of Star Stile Cottages, Star Stile Road, Halstead	Halstead	Gosfield and Greenstead Green Ward	Greenstead Green and Halstead Rural	Halstead WRC	Greenfield Site Partially located within the existing Halstead sewer catchment Existing public sewers (225mm diameter) located within the site. Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the south east so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
GNBN2154	Land to the rear of 110 London Road, Braintree, CM7 2AS	Great Notley	Great Notley and Black Notley Ward	Great Notley & Black Notley Ward	Braintree WRC	Greenfield Site (area of Brownfield Site) Located within the existing Braintree sewer catchment There are existing sewers (375mm diameter) located to the south east of the site (>2m away, some areas >30m away). Sewer will need to be upgraded and extended to accommodate the development
HATR2202	Land Adjacent To Blamsters Farm, Mount Hill, Halstead	Halstead	Halstead Trinity Ward	Halstead Trinity Ward	Boxmill Lane WRC	Greenfield Site Located within the existing Halstead sewer catchment There are existing sewers (150mm diameter) located along the southern boundary of the site (>2m away). Sewer will need to be upgraded and extended to accommodate the development

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
KELV2217	Land on the north side of Church Hill, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	Greenfield Site Partially located within the existing Coggeshall sewer catchment There are existing sewers (6mm diameter and unknown diameter) located to the south west (> 5m away) and south east (> 65m away) of the site. Sewer will need to be upgraded and extended to accommodate the development
WETH2297	Gray's Farm, Gray's Lane, Wethersfield	Wethersfield	Three Fields Ward	Wethersfield	Wethersfield WRC	Greenfield Site Localised area located within the existing Wethersfield sewer catchment Existing public sewers (8mm diameter) located within the site. Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the south so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC). There are also existing sewers (300mm diameter) located to the south of the site (>180m away). Sewer will need to be upgraded and extended to accommodate the development
WITC2316	Land at Wood End Farm, Witham	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Witham WRC	Brownfield Site (area of Greenfield Site) Partially located within the existing Witham sewer catchment There are existing sewers (300mm diameter) located to the north east of the site (>345m away). Sewer will need to be upgraded and extended to accommodate the development
WITS2516	Ullswater, Maldon Road, Witham	Witham		Witham South Ward	Witham WRC	Greenfield Site Located within the existing Maldon sewer catchment

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						There are existing sewers (250mm diameter) located to the south east of the site (>75m away). Sewer will need to be upgraded and extended to accommodate the development
Large Sites						
GGHR2141	Land to South East of Halstead	Halstead	Gosfield and Greenstead Green Ward/Halstead St And	Greenstead Green and Halstead Rural/Halstead Stand	Halstead WRC	Greenfield Site Partially located within the existing Halstead sewer catchment Existing public sewers (150mm, 225mm, 600mm diameter) located within the site. Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the west so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
GGHR2416	Land East of Colchester Road, Halstead	Halstead	Gosfield and Greenstead Green Ward/Halstead St And	Greenstead Green and Halstead Rural/Halstead Stand	Boxmill Lane STW	Greenfield Site Partially located within the existing Halstead sewer catchment There are existing sewers (unknown diameter, 300mm and 600m diameter) located to the north (> 5m away), west (> 15m away) and south (> 60m away) of the site. Sewer will need to be upgraded and extended to accommodate the development
COLE2100	Land East of Bluebridge Ind Estate	Halstead	The Colnes Ward	Colne Engaine	Halstead WRC	Greenfield Site Localised area located within the existing Halstead sewer catchment There are existing sewers (150mm and 250mm diameter) located to the south east of the site (>15m away). Sewer will need to be upgraded

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						and extended to accommodate the development
HASA2179	Land North and East of Halstead	Halstead	Halstead St Andrews Ward/Gos and Greenstead	Halstead St Andrews/Green'd Green & Halstead Rural	Halstead WRC	Greenfield Site Localised area located within the existing Halstead sewer catchment Existing public sewers (225mm diameter and unknown) located within the site. Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the south west so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
KELV2209	Kings Dene at North Kelvedon (part)	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	Greenfield Site Localised area located within the existing Coggeshall sewer catchment There are existing sewers (9mm diameter) located to the south east of the site (>180m away). Sewer will need to be upgraded and extended to accommodate the development
CRES2101	East of Braintree	Braintree	Silver End and Cressing Ward/Cogg Ward/Blackwater	Cressing/Stisted/Bocking Blackwater Ward	Braintree WRC	Greenfield Site (small areas of Brownfield Site) Located outside the existing Braintree, Bocking and Stisted sewer catchment There are existing sewers (150mm diameter) located to the east of the site (>350m away). Sewer will need to be upgraded and extended to accommodate the development
KELV2208	Kings Dene at North Kelvedon	Kelvedon	Kelvedon and Feering Ward/Silv End and Cress	Kelvedon/Rivenhall	Coggeshall WRC	Greenfield Site Localised areas located within the existing Coggeshall sewer catchment Existing public sewers (525mm diameter and unknown diameter) located within the site. Sewer will need to be extended to

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						accommodate the development. There is an existing brownfield site to the north east of the site so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC). There are also existing sewers (150mm diameter and unknown diameter) located to the north east of the site (>125m away). Sewer will need to be upgraded and extended to accommodate the development
HATF2193	Land north of A12, Hatfield Peverel	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Witham WRC	Greenfield Site Localised areas located within the existing Witham sewer catchment There are existing sewers (150mm and 300mm diameter) located to the north east (>370m away) and south west (>80m away) of the site. Sewer will need to be upgraded and extended to accommodate the development
FINC2502	Former RAF Wethersfield, Sculpins Lane, Wethersfield	Wethersfield	Three Fields, Yeldham, and Hedingham Ward	Finchingfield, Toppesfield, Sib Hedingham, Wethers	Wethersfield WRC	Brownfield Site (areas of Greenfield Site) Located outside the existing Wethersfield sewer catchment There are existing sewers (unknown diameter) located to the south of the site (>1km away). Sewer will need to be upgraded and extended to accommodate the development
HATF2318	The Vineyards, Witham Road	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Witham WRC	Greenfield Site Partially located within the existing Witham sewer catchment Existing public sewers (150mm diameter) located within the site. Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the south

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Ref Code	Site Address	Settlement	Ward	Parish	Water recycling centre (WRC) serving development	Infrastructure assessment
						of the site so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC).
HATF2194	Land East of Yew Tree Close	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Witham WRC	Greenfield Site Localised area located within the existing Witham sewer catchment There are existing sewers (225mm diameter) located to the south west of the site (>85m away). Sewer will need to be upgraded and extended to accommodate the development
HATF2188	Land East of Waycott, Hatfield Peverel	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Witham WRC	Greenfield Site Located within the existing Witham sewer catchment Existing public sewers (150mm diameter) located within the site. Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the south of the site so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC).

Table G-10-9: Proposed growth and development of proposed allocated water recycling infrastructure for employmentTable G-10-10: Proposed growth and development of proposed allocated water recycling infrastructure for employment

Reference Code	Site Address	Settlement	Water recycling centre (WRC) serving development	Infrastructure assessment
Proposed allocation sites (adopted local plan and new spatial strategy)				
CRES2116	Shardloes Workshops,	Cressing	White Notley WRC	Greenfield Site Located within the existing White Notley sewer catchment

Reference Code	Site Address	Settlement	Water recycling centre (WRC) serving development	Infrastructure assessment
	Church Road, Cressing			There are existing sewers (unknown diameter) located to the south of the site (>15m away). Sewer will need to be upgraded and extended to accommodate the development
EARL2124	Hangar Field, Earls Colne Business Park	Earls Colne	Colchester WRC	Greenfield Site Localised area located within the existing Earls Colne sewer catchment There are existing sewers (110mm and 180mm diameter) located to the south of the site (>10m away). Sewer will need to be upgraded and extended to accommodate the development
ELR1	London Road, Kelvedon	Kelvedon	Coggeshall WRC	Brownfield Site Partially located within the existing Coggeshall sewer catchment There are existing sewers (150mm diameter) located to the north of the site (>55m away). Sewer will need to be upgraded and extended to accommodate the development
ELR2	Gosfield Airfield	Gosfield	Gosfield WRC	Brownfield Site Located outside the existing Gosfield sewer catchment There are existing sewers (150mm, 225mm and 300mm diameter) located to the south east of the site (>940m away). Sewer will need to be upgraded and extended to accommodate the development
GOSF2156	Gosfield Business Park, The Old Airfield, Gosfield	Gosfield	Gosfield WRC	Greenfield Site Located outside the existing Gosfield sewer catchment There are existing sewers (150mm, 225mm and 300mm diameter) located to the south east of the site (>880m away). Sewer will need to be upgraded and extended to accommodate the development
GRNO2169	Land at Slamseys Farm, Blackley Lane, Great Notley	Great Notley	Braintree WRC	Brownfield Site (areas of Greenfield Site) Partially located within the existing Braintree sewer catchment There are existing sewers (150mm, 225mm and 300mm diameter) located to the north east of the site (>75m away). Sewer will need to be upgraded and extended to accommodate the development
GRNO2505	Land at Slamseys Farm, Blackley Lane, Great Notley	Great Notley	Braintree WRC	Brownfield Site (areas of Greenfield Site) Partially located within the existing Braintree sewer catchment There are existing sewers (150mm, 225mm and 300mm diameter) located to the north east

Reference Code	Site Address	Settlement	Water recycling centre (WRC) serving development	Infrastructure assessment
				of the site (>75m away). Sewer will need to be upgraded and extended to accommodate the development
GRYE2172	Land at Waterhouse, Hedingham Road, Great Yeldham	Great Yeldham	High Street Green STW	Brownfield Site Located within the existing Sible Hedingham sewer catchment There are existing sewers (200mm diameter) located to the south east of the site (>20m away). Sewer will need to be upgraded and extended to accommodate the development
RAYN2240	South West of Tamdown Way, Springwood Drive, Braintree	Rayne	Rayne WRC	Greenfield Site Partially located within the existing Braintree sewer catchment There are existing sewers (150mm, 225mm and 600mm diameter) located to the north east and south east of the site (>30m away). Sewer will need to be upgraded and extended to accommodate the development
STEB2282	Blois Meadow Business Centre, Steeple Bumpstead, Haverhill	Steeple Bumpstead	Steeple Bumpstead WRC	Greenfield Site Located within the existing Steeple Bumpstead sewer catchment Existing public sewers located within the site (unknown diameter). Sewer will need to be extended to accommodate the development. There is an existing brownfield site to the south so assume an existing private drain connects to the public sewer and existing connection can be reused (TBC)
CRES2104	Site Adjacent to A120 Bypass, Braintree	Braintree	Braintree WRC	Greenfield Site Located within the existing Braintree sewer catchment There are existing sewers (750mm diameter) located along the west boundary of the site (>5m away). Sewer will need to be upgraded and extended to accommodate the development

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Appendix G

Existing Water Recycling Centres Within BDC's Administrative Area: Permit Information

Table E-1: Permit Information for Water Recycling Centers within Braintree City Council's Administrative Area and the relevant permit information.

Water recycling centre (WRC)	Dry weather flow (m^3/day)	Biochemical oxygen demand (BOD-ATU) (milligrams per litre)	Ammoniacal nitrogen (N) (milligrams per litre)	Phosphorous (milligrams per litre)
BOCKING STW	3900	20-56	10_37	2_1
BRAINTREE STW	6859	8_32	3_12	2
COGGESHALL STW	2235	19-55	13-42	2
EARLS COLNE STW	934	20_56	10_37	0.5
GOSFIELD STW	290	15	5	0.3
HALSTEAD STW	2900	15_50	5_20	1
LITTLE YELDHAM STW	15	40	0	0
PEBMARSH STW	120	30	20	0
RAYNE STW	650	10_45	3_15	0
RIDGEWELL STW	102	20	None	None
RIVENHALL END STW	80	70	35	0
SHALFORD STW	304	20	20	None
SIBLE HEDINGHAM STW	1700	10- 40	5 - 20	0.3
STAMBOURNE STW	-	-	-	-
STEEPLE BUMPSTEAD STW	320	15	None	0.6

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Water recycling centre (WRC)	Dry weather flow (m^3/day)	Biochemical oxygen demand (BOD-ATU) (milligrams per litre)	Ammoniacal nitrogen (N) (milligrams per litre)	Phosphorous (milligrams per litre)
STISTED STW	300	56	48	0
TOPPESFIELD STW	80	0	0	0
WETHERSFIELD STW	955	25_60	15_44	None
WHITE NOTLEY STW	660	15-50	10_37	None
WITHAM STW	8100	20_56	10_37	None

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Appendix H

Proposed growth and development – Water Recycling Odour Assessment

Table G-10-11: Proposed growth and development Water Recycling Centre Odour Assessment for small and large sites (Housing)

Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
BCBG2010	John Pease Manor St	Braintree	Braintree Central and Beckers Green Ward	Braintree Central and Beckers Green Ward	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
BCBG2500	B&M Home Bargains	Braintree	Braintree Central and Beckers Green Ward	Braintree Central & Beckers Green Ward	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
BLAN2027	Land at Friers Farm	Black Notley	Great Notley and Black Notley Ward	Black Notley	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
BOCN2032	Land adj to the Coach House, Panfield Lane	Braintree	Bocking North Ward	Bocking North Ward	Rayne WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
BOCN2033	Land East of A131	High Garrett	Bocking North Ward	Bocking North Ward	Gosfield WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

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Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
BOCN2042	61 Broad Rd	Braintree	Bocking North Ward	Bocking North Ward	Bocking WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
BURE2070	Land at Old Barn Road Mount Butes Bures	Bures	Stour Valley South	Bures Hamlet	Bures WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
COGG2084	Land South Colchester Rd	Coggeshall	Coggeshall Ward	Coggeshall	Coggeshall WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
COGG2085	Land to the south of West St	Coggeshall	Coggeshall Ward	Coggeshall	Coggeshall WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
CRES2102	Land West of Mill Lane	Cressing	Silver End and Cressing Ward	Cressing	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
EARL2127	Land South of Morleys Road	Earls Colne	The Colnes Ward	Earls Colne	Earls Colne WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

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Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
GGHR2143	Halstead Hall, Braintree Road, Halstead	Halstead	Gosfield and Greenstead Green Ward	Greenstead Green and Halstead Rural	Boxmill Lane STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GGHR2146	Land west of Blamsters	Halstead	Gosfield and Greenstead Green Ward	Greenstead Green and Halstead Rural	Boxmill Lane STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GRYE2175	Land north of Little Yeldham Road	Little Yeldham	Yeldham Ward/Stour Valley North	Great Yeldham/Little Yeldham	Ridgewell WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GRYE2176	Land West of Nuns Walk	Great Yeldham	Yeldham Ward	Great Yeldham	Ridgewell WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GRYE2177	Land Between 18 to 20 Toppesfield Road, Great Yeldham	Great Yeldham	Yeldham Ward	Great Yeldham	Toppesfield WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GRYE2178	Land South of Toppesfield Road, Great Yeldham	Great Yeldham	Yeldham Ward	Great Yeldham	Ridgewell WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

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Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
HASA2180	The old wood yard site, Fenn Road, Halstead	Halstead	Halstead St Andrews Ward	Halstead St Andrews Ward	Halstead WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
HATF2185	Land off Maldon Road, Hatfield Peverel, CM3 2JJ	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Hatfield Peverel WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
HATF2192	Land Adjacent to Crabb's Hill Farm, Crabb's Hill, Hatfield Peverel	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Hatfield Peverel WRC	WRC < 400m away from development - Odour concerns	Pumpstation > 15m away from development - No odour concerns
HATR2203	Land South West of Windmill Road, West of Mount Hill, Halstead	Halstead	Halstead Trinity Ward/Gos and Greenstead	Halstead Trin/Greenstead Green and Halstead Rural	Boxmill Lane STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
KELV2212	Land at Bridge Farm, Doughton Road, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
KELV2214	Land to the west of St. Dominics Residential Home, London Rd, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

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Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
KELV2215	Land North-East of Cranes Lane, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
KELV2221	Land Adj Davey House, London Road, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	WRC > 400m away from development - No odour concerns	Pumpstation < 15m away from development - Odour concerns
PANF2508	Land North West of Panfield Lane, Braintree	Panfield	Three Fields Ward	Panfield	Rayne WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
RIVE2249	Land North of Rickstones Road, Rivenhall	Rivenhall	Silver End and Cressing Ward	Rivenhall	Rivenhall End STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
SIBH2517	Stablebrook, Wethersfield Road, Sible Hedingham	Sible Hedingham	Hedigham Ward	Sible Hedingham	High Street Green STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
STEB2285	Land West of North Road, Steeple Bumpstead	Steeple Bumpstead	Bumpstead Ward	Steeple Bumpstead	Steeple Bumpstead WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

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Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
TOPP2294	Land off Park Lane, Toppesfield, CO9 4DQ	Toppesfield	Yeldham Ward	Toppesfield	Toppesfield STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
TOPP2295	Adj 22 Park Lane, Toppesfield	Toppesfield	Yeldham Ward	Toppesfield	Toppesfield STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
WITN2252	Land North of Witham	Witham	Witham North Ward	Witham	Witham WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
WITN2312	Cut Throat Lane Car Park, Witham	Witham	Witham North Ward	Witham	Witham WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
WITS2515	Land North of Gershwin Boulevard, Witham	Witham		Witham South Ward	Witham WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
BLAN2019	Roundlay Farm, Pickocket Lane, Black Notley	Great Notley	Great Notley and Black Notley Ward	Black Notley	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

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Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
EARL2123	Earls Colne Farm, Halstead Road, Earls Colne	Earls Colne	The Colnes Ward	Earls Colne	Halstead WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
FINC2135	Land West of B1057	Finchingfield	Three Fields Ward	Finchingfield	Wethersfield WRC	WRC > 400m away from development - No odour concerns	Pumpstation < 15m away from development - Odour concerns
GGHR2142	Land West and North of Star Stile Cottages, Star Stile Road, Halstead	Halstead	Gosfield and Greenstead Green Ward	Greenstead Green and Halstead Rural	Halstead Box Mill Lane STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GNBN2154	Land to the rear of 110 London Road, Braintree, CM7 2AS	Great Notley	Great Notley and Black Notley Ward	Great Notley & Black Notley Ward	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
HATR2202	Land Adjacent To Blamsters Farm, Mount Hill, Halstead	Halstead	Halstead Trinity Ward	Halstead Trinity Ward	Boxmill Lane STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
KELV2217	Land on the north side of Church Hill, Kelvedon	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

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Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
WETH2297	Gray's Farm, Gray's Lane, Wethersfield	Wethersfield	Three Fields Ward	Wethersfield	Wethersfield WRC	WRC < 400m away from development - Odour concerns	Pumpstation > 15m away from development - No odour concerns
WITC2316	Land at Wood End Farm, Witham	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Witham WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
WITS2516	Ullswater, Maldon Road, Witham	Witham		Witham South Ward	Witham WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
Large Sites							
GGHR2141	Land to South East of Halstead	Halstead	Gosfield and Greenstead Green Ward/Halstead St And	Greenstead Green and Halstead Rural/Halstead Stand	Halstead WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GGHR2416	Land East of Colchester Road, Halstead	Halstead	Gosfield and Greenstead Green Ward/Halstead St And	Greenstead Green and Halstead Rural/Halstead Stand	Boxmill Lane STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
COLE2100	Land East of Bluebridge Ind Estate	Halstead	The Colnes Ward	Colne Engaine	Halstead WRC	WRC > 400m away from development -	Pumpstation > 15m away from development - No odour concerns

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Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
						No odour concerns	
HASA2179	Land North and East of Halstead	Halstead	Halstead St Andrews Ward/Gos and Greenstead	Halstead St Andrews/Green'd Green & Halstead Rural	Halstead WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
KELV2209	Kings Dene at North Kelvedon (part)	Kelvedon	Kelvedon and Feering Ward	Kelvedon	Coggeshall WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
CRES2101	East of Braintree	Braintree	Silver End and Cressing Ward/Cogg Ward/Blackwater	Cressing/Stisted/Bocking Blackwater Ward	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
KELV2208	Kings Dene at North Kelvedon	Kelvedon	Kelvedon and Feering Ward/Silv End and Cress	Kelvedon/Rivenhall	Coggeshall WRC	WRC < 400m away from development - Odour concerns	Pumpstation > 15m away from development - No odour concerns
HATF2193	Land north of A12, Hatfield Peverel	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Hatfield Peverel WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
FINC2502	Former RAF Wethersfield,	Wethersfield	Three Fields, Yeldham, and Hedingham Ward	Finchingfield, Toppesfield, Sib Hedingham, Wethers	Wethersfield WRC	WRC > 400m away from development -	Pumpstation > 15m away from

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Reference Code	Site Address	Settlement	Ward	Proposed Allocation	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
	Sculpins Lane, Wethersfield					No odour concerns	development - No odour concerns
HATF2318	The Vineyards, Witham Road	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Hatfield Peverel WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
HATF2194	Land East of Yew Tree Close	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Hatfield Peverel WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
HATF2188	Land East of Waycott, Hatfield Peverel	Hatfield Peverel	Hatfield Peverel and Terling Ward	Hatfield Peverel	Hatfield Peverel WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

Table G-10-12: Proposed growth and development Water Recycling Centre Odour Assessment for Employment

Reference Code	Site Address	Settlement	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
Proposed Employment Sites (adopted local plan and new spatial strategy)					
CRES2116	Shardloes Workshops, Church Road, Cressing	Cressing	White Notley WRC	WRC > 400m away from development - No odour concerns	Pumpstation < 15m away from development - Odour concerns

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Reference Code	Site Address	Settlement	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
EARL2124	Hangar Field, Earls Colne Business Park	Earls Colne	Colchester WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
ELR1	London Road, Kelvedon	Kelvedon	Coggeshall WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
ELR2	Gosfield Airfield	Gosfield	Gosfield WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GOSF2156	Gosfield Business Park, The Old Airfield, Gosfield	Gosfield	Gosfield WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GRNO2169	Land at Slamseys Farm, Blackley Lane, Great Notley	Great Notley	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GRNO2505	Land at Slamseys Farm, Blackley Lane, Great Notley	Great Notley	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
GRYE2172	Land at Waterhouse, Hedingham Road, Great Yeldham	Great Yeldham	High Street Green STW	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
RAYN2240	South West of Tamdown Way, Springwood Drive, Braintree	Rayne	Rayne WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

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Reference Code	Site Address	Settlement	Water recycling centre (WRC) serving development	Water recycling centre - odour	Sewer pumpstation - odour
STEB2282	Blois Meadow Business Centre, Steeple Bumpstead, Haverhill	Steeple Bumpstead	Steeple Bumpstead WRC	WRC < 400m away from development - Odour concerns	Pumpstation < 15m away from development - Odour concerns
CRES2104	Site Adjacent to A120 Bypass, Braintree	Braintree	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns
CRES2104	Site Adjacent to A120 Bypass, Braintree	Braintree	Braintree WRC	WRC > 400m away from development - No odour concerns	Pumpstation > 15m away from development - No odour concerns

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Appendix I

WFD water cycle 3 classification

Operational Catchment	Water Body Name	Overall Water Body Class	Dissolved oxygen Class	Phosphate Class	Ammonia (Phys-Chem) Class	WRC discharging	Discharge point Easting	Discharge point Northing	Owned By
Blackwater	Blackwater (Combined Essex)	Moderate	High	Poor	High	Coggeshall WRC	585803	221271	AWS
Blackwater	Blackwater (Combined Essex)	Moderate	High	Poor	High	Bocking WRC	577622	224474	AWS
Blackwater	Brain	Moderate	Moderate	Poor	Moderate	Braintree WRC	576578	222051	AWS
Blackwater	Brain	Moderate	Moderate	Poor	Moderate	White Notley WRC	578931	218333	AWS
Blackwater	Brain	Moderate	Moderate	Poor	Moderate	Rayne WRC	573326	223511	AWS
Blackwater	Domsey Brook	Moderate	Good	Good	High	None	-	-	
Blackwater	Pant	Moderate	High	Poor	High	Wethersfield WRC	570665	230683	AWS
Blackwater	Pant	Moderate	High	Poor	High	Shalford WRC	572370	229332	AWS

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Operational Catchment	Water Body Name	Overall Water Body Class	Dissolved oxygen Class	Phosphate Class	Ammonia (Phys-Chem) Class	WRC discharging	Discharge point Easting	Discharge point Northing	Owned By
Stour OC	Belchamp Brook	Moderate	Good	Good	High	Belchamp St. Paul WRC	580500	243280	Other
Stour OC	Belchamp Brook	Moderate	Good	Good	High	Little Yeldham WRC	577900	239500	AWS
Stour OC	Bumpstead Brook	Moderate	Moderate	Bad	High	Steeple Bumpstead WRC	568282	241806	AWS
Stour OC	Stour (Lamarsh - R. Brett)	Moderate	Moderate	Bad	High	Bures WRC	590600	234100	Other
Stour OC	Stour (Wixoe - Lamarsh)	Moderate	High	Poor	High	Foxearth STW	583900	244700	Other
Stour OC	Stour (Wixoe - Lamarsh)	Moderate	High	Poor	High	Baythrone End STW	572406	243037	Other
Stour OC	Stour (Wixoe - Lamarsh)	Moderate	High	Poor	High	Ashen STW	574932	242263	Other
Stour OC	Stour Brook	Moderate	Good	Poor	High	Haverhill WRC	568156	244851	AWS

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Operational Catchment	Water Body Name	Overall Water Body Class	Dissolved oxygen Class	Phosphate Class	Ammonia (Phys-Chem) Class	WRC discharging	Discharge point Easting	Discharge point Northing	Owned By
Stour OC	Bourne Brook	Poor	Bad	Poor	Moderate	Gosfield WRC	578250	229070	AWS
Stour OC	Bourne Brook	Poor	Bad	Poor	Moderate	Greenstead Green STW	582630	227600	Other
Colne Essex	Colne (d/s Doe's Corner)	Moderate	Good	Poor	High	Earls Colne WRC	586572	229296	AWS
Colne Essex	Colne (d/s Doe's Corner)	Moderate	Good	Poor	High	Halstead WRC	583501	229681	AWS
Colne Essex	Colne (d/s Doe's Corner)	Moderate	Good	Poor	High	Boxmill Lane STW	580900	231100	Other
Colne Essex	Colne (d/s Doe's Corner)	Moderate	Good	Poor	High	Colchester WRC	587400	228700	Other
Colne Essex	Colne (d/s Doe's Corner)	Moderate	Good	Poor	High	Gt. Maplestead STW	581000	233650	Other
Colne Essex	Colne (Gt. Yeldham -	Poor	Bad	Moderate	High	Sible Hedingham WRC	579271	232892	AWS

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Operational Catchment	Water Body Name	Overall Water Body Class	Dissolved oxygen Class	Phosphate Class	Ammonia (Phys-Chem) Class	WRC discharging	Discharge point Easting	Discharge point Northing	Owned By
	Doe's Corner)								
Colne Essex	Colne (Gt. Yeldham - Doe's Corner)	Poor	Bad	Moderate	High	High Street Green WRC	576430	234980	Other
Colne Essex	Colne (u/s Gt. Yeldham)	Poor	Good	Poor	High	Ridgewell WRC	575500	239900	AWS
Colne Essex	Pebmarsh Brook	Moderate	High	Good	High	Pebmarsh WRC	585300	233200	AWS
Colne Essex	Roman River	Moderate	High	Poor	Good	None	--	--	
Colne Essex	Stambourne Brook	Moderate	Good	Moderate	High	Stambourne WRC	572350	238740	AWS
Colne Essex	Toppesfield Brook	Moderate	Bad	Moderate	High	Toppesfield WRC	573900	236600	AWS

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Appendix J

Braintree Water Cycle Study – Flood Risk Multi Criteria Assessment Site Scoring

Table 10-13-10-14: Flood risk multi-criteria assessment scoring for each Wastewater Recycling Centre within Braintree District Council's Administrative Area

WRC	Receiving Watercourse	Existing QMED Flow	Predicted Future Total Flow (River QMED CC + FFT)	Increase in Flow from WRC	Percentage of Increased Flow		Sensitivity		Impact		Total Risk Values (various weightings used)			Combined Risk Score	Risk Assessment
		(m^3/s)	(m^3/s)	(m^3/s)	Percentage	Risk Value	Assessment	Risk Value	Assessment	Risk Value	Sensitivity	Impact	Water Levels		
Bocking	River Blackwater	12.12	14.22	0.038	0.27%	1	High	5	High	5	1.5	1.5	0.4	**3.4**	Medium
Braintree	River Brain	3.24	3.97	0.034	0.85%	1	Medium	3	High	5	0.9	1.5	0.4	**2.8**	Low
Coggershall	River Blackwater	14.29	16.66	0.022	0.13%	1	Low	1	Low	1	0.3	0.3	0.4	**1.0**	Low
Earls Colne	River Colne	13.78	16.01	0.003	0.02%	1	Medium	3	Medium	3	0.9	0.9	0.4	**2.2**	Low
Gosfield	Bourne Brook	1.76	2.05	0.001	0.05%	1	Medium	3	Low	1	0.9	0.3	0.4	**1.6**	Low

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WRC	Receiving Watercourse	Existing QMED Flow	Predicted Future Total Flow (River QMED CC + FFT)	Increase in Flow from WRC	Percentage of Increased Flow		Sensitivity		Impact		Total Risk Values (various weightings used)			Combined Risk Score	Risk Assessment
		(m^3/s)	(m^3/s)	(m^3/s)	Percentage	Risk Value	Assessment	Risk Value	Assessment	Risk Value	Sensitivity	Impact	Water Levels		
Halstead Box Mill Lane STW	River Colne	10.21	11.95	0.010	0.08%	1	High	5	High	5	1.5	1.5	0.4	**3.4**	Medium
Halstead	River Colne	10.73	12.55	0.010	0.08%	1	Medium	3	Low	1	0.9	0.3	0.4	**1.6**	Low
Haverhill	Stour Brook	5.87	7.00	0.006	0.08%	1	High	5	High	5	1.5	1.5	0.4	**3.4**	Medium
Little Yeldham*															
Pebmarsh	Pebmarsh Brook	1.25	1.46	0.000	0.01%	1	Low	1	Low	1	0.3	0.3	0.4	**1.0**	Low
Rayne	Rods Brook	2.43	2.83	0.001	0.02%	1	Medium	3	Low	1	0.9	0.3	0.4	**1.6**	Low
Ridgewell STW	River Colne	2.85	3.31	0.000	0.00%	1	Low	1	Low	1	0.3	0.3	0.4	**1.0**	Low
Rivenhall End STW	Rivenhall Brook	2.39	2.77	0.000	0.00%	1	Medium	3	Low	1	0.9	0.3	0.4	**1.6**	Low

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WRC	Receiving Watercourse	Existing QMED Flow	Predicted Future Total Flow (River QMED CC + FFT)	Increase in Flow from WRC	Percentage of Increased Flow		Sensitivity		Impact		Total Risk Values (various weightings used)			Combined Risk Score	Risk Assessment
		(m^3/s)	(m^3/s)	(m^3/s)	Percentage	Risk Value	Assessment	Risk Value	Assessment	Risk Value	Sensitivity	Impact	Water Levels		
Shalford	River Pant	10.98	12.74	0.000	0.00%	1	Medium	3	Medium	3	0.9	0.9	0.4	**2.2**	Low
Sible Hedingham STW	River Colne	9.640	11.23	0.003	0.03%	1	Medium	3	Medium	3	0.9	0.9	0.4	**2.2**	Low
Stambourne STW	Tributary of Stambourne Brook	0.33	0.39	0.000	0.02%	1	High	5	High	5	1.5	1.5	0.4	**3.4**	Medium
Steeple Bumpstead	Bumpstead Brook	5.48	6.37	0.001	0.01%	1	Medium	3	High	5	0.9	1.5	0.4	**2.8**	Low
Stisted STW	Stisted Brook	0.80	0.93	0.000	0.03%	1	Medium	3	Medium	3	0.9	0.9	0.4	**2.2**	Low
Toppesfield STW	Toppesfield Brook (River Colne)	3.72	4.32	0.000	0.00%	1	High	5	Medium	3	1.5	0.9	0.4	**2.8**	Low

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WRC	Receiving Watercourse	Existing QMED Flow	Predicted Future Total Flow (River QMED CC + FFT)	Increase in Flow from WRC	Percentage of Increased Flow		Sensitivity		Impact		Total Risk Values (various weightings used)			Combined Risk Score	Risk Assessment
		(m^3/s)	(m^3/s)	(m^3/s)	Percentage	Risk Value	Assessment	Risk Value	Assessment	Risk Value	Sensitivity	Impact	Water Levels		
Wethersfield	River Pant	10.68	12.40	0.002	0.01%	1	Medium	3	Low	1	0.9	0.3	0.4	**1.6**	Low
White Notley	River Brain	4.31	5.03	0.008	0.16%	1	Medium	3	Medium	3	0.9	0.9	0.4	**2.2**	Low
Witham	River Brain	5.69	6.82	0.031	0.46%	1	Low	1	High	5	0.3	1.5	0.4	**2.2**	Low

**The discharge location for Little Yeldham is unconfirmed, hence calculations have not been completed.*

Multi-Criteria Scoring (Halcrow, 2009)

Percentage increase in flood flow due to growth:		**Risk Score**	
Flow increase between 0 and 1%:	**1**	**1**	Low
Flow increase between 1 and 3%:	**2**		
Flow increase between 3 and 10%:	**3**	**3**	Medium
Flow increase between 10 and 20%:	**4**		
Flow increase greater than 20%:	**5**	**5**	High

Figure 10-1: The Thresholds for the multi-criteria scoring from Halcrow 2009

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