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This report describes work commissioned by Solihull Metropolitan Borough Council, by an instruction dated the 3rd of June 2026. The Client's representative for the contract was David Wood of Solihull Metropolitan Borough Council. Richard Pardoe and Sofi Waterer of JBA Consulting carried out this work.

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The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

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Abbreviations

1D	One Dimensional (modelling)
AMP	Asset Management Plan
AMP7	Seventh Asset Management Plan period (runs 2020-2025)
AMP8	Eight Asset Management Plan period (runs 2025-2030)
AONB	Area of Outstanding Natural Beauty
BNG	Biodiversity Net Gain
BOD	Biological Oxygen Demand
BRE	The Building Research Establishment
BREEAM	Building Research Establishment Environmental Assessment Methodology
CaBA	Catchment Based Approach
CAMS	Catchment Abstraction Management Strategy
CIRIA	Construction Industry Research and Information Association
CIWEM	The Chartered Institution of Water & Environmental Management
CSO	Combined Sewer Overflow
DEFRA	Department of the Environment, Food and Rural Affairs (formerly MAFF)
DrWPA	Drinking Water Protected Areas
DWMP	Drainage and Wastewater Management Plan
DWF	Dry Weather Flow
DYAA	Dry Year Annual Average
EA	Environment Agency
EDM	Event Duration Monitoring
EU	European Union
FRA	Flood Risk Assessment
GIS	Geographical Information System
GEP	Good Ecological Potential
GES	Good Ecological Status
HELAA	Housing and Economic Land Availability Assessment
HoF	Hands off Flow
ID	Identifier
IWMS	Integrated Water Management Study
JBA	Jeremy Benn Associates
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority

l/p/d	Litres per person per day
Ml/d	Mega (Million) litres per day
NBS	Nature Based Solutions
NE	Natural England
NPPF	National Planning Policy Framework
OfWAT	Water Services Regulation Authority
PPG	Planning Practice Guidance
RAG	Red/Amber/Green
RBD	River Basin District
RBMP	River Basin Management Plan
RNAG	Reasons for Not Achieving Good
SAC	Special Area of Conservation
SFRA	Strategic Flood Risk Assessment
SMBC	Solihull Metropolitan Borough Council
SOAF	Storm Overflow Assessment Framework
SPA	Special Protection Area
SPG	Strategic Planning Group
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
SSD	Small Sewage Discharge
STW	Severn Trent Water or Sewage Treatment Works
SuDS	Sustainable Drainage Systems
TAL	Technically Achievable Limit
WCS	Water Cycle Study
WFD	Water Framework Directive
WINEP	Water Industry National Environment Programme
WRMP	Water Resource Management Plan
WRC	Water Recycling Centre
WRZ	Water Resource Zone
WwTW	Wastewater Treatment Works

Definitions

Term	Description
Abstraction Point	The location where water is either taken or extracted from either a surface or groundwater waterbody.
Agricultural Management	The farming techniques and practices used to produce food and manage livestock.
Abstraction Licencing Strategy	
Asset Management Plan (AMP) Period	Price limit periods in the water sector are sometimes known as Asset Management Plan (AMP) periods. The current period (2025-30) is commonly known as AMP 8 because it is the eighth price review period since privatisation of the water industry in 1989. AMP periods are five years in duration and begin on 1 April in the years ending in 0 or 5. Every five years the industry submits a Business Plan to OfWAT for a Price Review (PR). These plans set out the companies' operational expenditure (OPEX) and capital expenditure (CAPEX) required to maintain service standards, enhance service (for example where sewer flooding occurs), to accommodate growth and to meet environmental objectives defined by the Environment Agency. OfWAT assesses and compares the plans with the objective of ensuring what are effectively supply monopolies and operating efficiently.
Aquifer	An aquifer is a rock and/or sediment body that holds groundwater.
Determinand	In a water quality assessment, a water sample may be tested to determine one or more properties of the sample or the environment it is taken from. The properties measured are called determinands. A determinand defines both the result that is measured (for example a concentration of ammonia), and the method for carrying out the measurement, including its unit.
Domestic purposes	
Dry Weather Flow	Dry weather flow is the average daily flow of wastewater to a wastewater treatment works during a period without rain.
Drainage and Wastewater Management Plan (DWMP)	

Term	Description
	the measures which will allow statutory obligations to be met and their likely sequence and timing; and the relevant environmental risks and how these will be mitigated.
Effluent	Effluent discharge is the liquid waste produced from residential, commercial and industrial processes.
Environmental Flow Indicator	The Environmental Flow Indicator (EFI) is the proportion of natural flows that are required to support the environment of a waterbody.
Environmental Permit	A legal authorisation issued by the EA allowing water companies to treat and / or discharge wastewater under controlled and monitored conditions. Environmental Permits are defined by the Environmental Permitting (England and Wales) Regulations 2016.
Functional Floodplain	The land where water has to flow or be stored in times of flood.
Groundwater Body	A Groundwater Body is the management unit under the Water Framework Directive which represents a distinct body of groundwater with its own hydrogeological characteristics.
Hands off Flow	The flow rate below which abstractions cannot occur.
Lead Local Flood Authority	A county council or unitary authority which leads in managing local flood risks (i.e., risks of flooding from surface water, ground water and ordinary (smaller) watercourses). Their duties are outlined in the Flood and Water Management Act.
Natural Flood Management	Natural flood management is the use of natural processes to reduce the risk of flooding and coastal erosion.
Net zero	The balance between the amount of greenhouse gas produced and the amount removed from the atmosphere.
Per Capita Consumption	The per capita consumption is the average volume of water used by one person in a day. It is defined as the sum of the measured household consumption of clean water and unmeasured household consumption of clean water divided by the total household population. This is often expressed in litres per person per day (l/p/d).
Permitted Headroom	The difference between the volume of treated wastewater a treatment works is allowed to discharge under its environmental permit, and volume it currently discharges. It can be used to estimate the number of properties that could be connected to a WwTW catchment before a flow permit is exceeded.
Pollution load	The total amount of pollutants found in wastewater.

Term	Description
Storm Overflow 'rainfall target' (EA, 2023)	Storm overflows will not be permitted to discharge above an average of 10 rainfall events per year by 2050. "The EA will apply an industry standard measure to translate rainfall events to discharges from Storm Overflows. This means that any discharge from a Storm Overflow within a maximum of 12 hours will be counted as related to one rainfall event for the purposes of the target. For long duration discharges that occur beyond the initial 12-hour period, it will be counted as an additional rainfall event for the subsequent 24 hours and each 24 hours after that for the purposes of the target. When an overflow has ceased to discharge for a 24-hour period, the counting mechanism will reset."
Sustainable Drainage Systems (SuDS)	Sustainable drainage systems are drainage solutions that provide a natural alternative to the direct channelling of surface water through an artificial network of pipes and sewers to nearby watercourses.
Technically Achievable Limit (TAL)	The concentrations that effluent can be realistically treated to using the best available technology. For phosphates this is 0.25mg/l and nitrates 10mg/l (Nutrient Neutrality & Habitats Regulations Assessment Update letter, 2022).
Waterbodies	Water bodies constitute areas of water – both salt and fresh, large and small – which are distinct from one another in various ways. All surface waters (including rivers, lakes, estuaries and stretches of coastal water) and groundwaters have been divided up into discrete units called water bodies. Water bodies are the basic unit that are used to assess the quality of the water environment and to set targets for environmental improvements.
Water Framework Directive (WFD)	The Water Framework Directive is a river basin management planning system which was implemented to help protect and improve the ecological health of the UK's rivers, lakes, estuaries and coastal and groundwaters.
Water Framework Directive Classification Status	Rivers, lakes, estuaries and coastal waters can be awarded one of five WFD statuses: High, Good, Moderate, Poor or Bad Groundwater can be awarded one of two statuses: Good or Poor.
Water Framework Directive – Reasons for not achieving good (RNAG)	Where a WFD element is classified as being at less than good status, a reason for the failure to meet the good status is attributed, including the sector deemed responsible or a pressure affecting a biological element.
Water Framework Directive objectives	The Water Framework Directive objectives are set out in Regulation 12 and Regulation 8 of the Water Environment Regulations 2017.

Term	Description
Water Industry National Environment Programme	The Water Industry National Environment Programme is the programme of work in which water companies in England must meet their obligations from environmental legislation and UK government policy.
Water Resource Management Plan (WRMP)	Water Resource Management Plans are statutory documents that all water companies must produce at least every five years. They set out how the water company intends to achieve a secure water supply for their customers while protecting and enhancing the environment.
Water Resource Zone (WRZ)	A Water Resource Zone is an area in which the abstraction and distribution of water is self-contained and is used to meet demand within that area.
Water Treatment Works (WTW)	A Water Treatment Works is the place where raw water is treated to bring it up to a potable standard so it can be delivered into the drinking water supply.
Wastewater Treatment Works (WwTW)	A Wastewater Treatment Works receives flows from the sewerage system and treats it so it can be discharged back into a river. They may also be called Sewage Treatment Works (STWs) or Water Recycling Centres (WRCs).

Executive Summary

JBA Consulting was commissioned by Solihull Metropolitan Borough Council (SMBC) to undertake a Stage 2 Water Cycle Study (WCS).

The purpose of the WCS is to form part of a comprehensive and robust evidence base to inform the preparation of the emerging Local Plan for SMBC.

This draft WCS report is being published as part of the evidence base in order to support the preparation of the Local Plan. It is missing some sections which will be added in before Local Plan examination. Severn Trent Water (STW) have experienced delays in providing the data that is required to complete many of the assessments within the water cycle study. In particular the wastewater treatment works capacity assessment and water quality assessment. Care should be taken when using this draft report as it is subject to change in the final version.

New homes require the provision of clean water, safe disposal of wastewater and protection from flooding. The allocation of large numbers of new homes in certain locations may result in the capacity of existing available infrastructure being exceeded, a situation that could potentially cause service failures to water and wastewater customers, adverse impacts to the environment, or high costs for the upgrade of water and wastewater assets being passed on to the bill payers.

In addition to increased housing demand, future climate change presents further challenges to the existing water infrastructure network, including increased intensive rainfall events and a higher frequency of drought events. Sustainable planning for water must now take this into account.

Water resources and supply

Water resources in England are under considerable pressure. The Environment Agency has stated that "the scale of the challenge we face increases with time, and by 2050, we are looking at a shortfall of nearly 5 billion litres of water per day between the sustainable water supplied available and the expected demand."

Solihull Borough is served by STW's Strategic Grid WRZ. Growth accounted for in STW's WRMP24 is less as a percentage than is currently expected if the housing need for Solihull Borough were delivered. This is due to a misalignment in the timing of the WRMPs and the Local Plan process. WRMPs are updated every five years (with minor updates annually), and water companies must demonstrate how the supply-demand balance will be maintained in the medium and longer term. It is important to ensure that WRMP29 contains the latest growth forecasts and that water companies feedback to SMBC if there are concerns that Local Plan growth will cause a supply-demand deficit in the short term.

Part G of Building regulations currently states that new build housing should achieve a minimum of 125 l/p/d. A tighter target of 110l/p/d is allowed if the local authority can establish a clear need based on available evidence. Many LPAs are now going further than this. The Written Ministerial Statement (WMS) by the former Secretary of State for Levelling Up, Housing and Communities (DLUHC) states that:

"…in areas of serious water stress, where water scarcity is inhibiting the adoption of Local Plans or the granting of planning permission for homes, I encourage local planning authorities to work with the Environment Agency and delivery partners to agree standards tighter than the 110 litres per day that is set out in current guidance."

Solihull Borough is an area classified by the Environment Agency as being under serious water stress.

It is recommended that a water efficiency target of 100l/p/d is adopted across the Solihull Borough area. This should be achieved using a fittings-based approach and supported by an equivalent non-household target where development will aim to achieve full credits in the BREEAM water calculator with a minimum of 3 credits in WAT01. This should be aligned with a robust enforcement approach to ensure that correct fixtures and fittings are being installed at site level.

The WINEP is a set of actions that the EA have requested all water companies operating in England to complete in a particular AMP as part of their environmental commitments. WINEP actions relating to water resources in surface water and groundwater bodies in Solihull are presented in Appendix A and show action to protect/ ensure no deterioration in WFD status will be applied to the Warwickshire Avon - Coal Measures Coventry and Warwickshire Avon - PT Sandstone Warwick/ Avon Confined groundwater bodies.

The Tame Anker and Mease Abstraction Licensing Strategy (ALS) indicate varying levels of water availability across these catchments under different flow conditions (Q30–Q90), with areas of restricted or unavailable water identified in specific locations.

Severn Trent Water has reviewed its infrastructure charges for 2026/27, increasing water infrastructure charges to £385 and sewerage infrastructure charges to £499. The company continues to offer incentives for water efficiency with £350 per property offered where homes are built to use 85 litres or less per person per day.

An increase in water demand due to growth can exceed the hydraulic capacity of the existing supply infrastructure. Upgrades to the local supply network would be funded as part of the developer Infrastructure Charge. Early engagement between developers, SMBC and the water companies is recommended to ensure upgrades are in place prior to occupation.

Comments from STW on known constraints in the water supply network are expected to be included in the final version of this report.

Wastewater network and storm overflows

Development in areas where there is limited wastewater network capacity will increase pressure on the network, increasing the risk of a detrimental impact on customers, and increasing the likelihood of storm overflow operation. Early engagement with developers, SMBC and STW is required, and modelling of the network may be required at the planning application stage.

Upgrades to the wastewater network are likely to be required in order to serve the larger allocations, which would be funded as part of the developer infrastructure charge. It may be necessary for development sites to be phased in line with the provision of any network

upgrades. Early engagement between developers, the council, and Severn Trent Water is recommended to allow time for the strategic infrastructure required to serve these developments to be planned.

A site-by-site assessment of the impact of the Local Plan on the wastewater network, including known constraints from STW is expected to be included in the final version of this report.

Storm overflows are an essential component in the sewer network – however when they operate frequently, they can cause environmental damage. They occur on combined sewer systems where the sewer takes both foul flow (sewage from homes and offices) and rainwater runoff.

Further development in catchments where there are poorly performing overflows increase the risk of storm overflow operation due to increased sewage flows and surface runoff.

The Environment Act now requires water companies to report and monitor storm overflows as well as reduce the harm caused to the rivers they discharge to. There are 35 storm overflows included in our assessment, 31 on the network, and 4 at WwTWs.

The analysis identified 11 sewer network overflows and four WwTW overflows were operating above the threshold of 10 spills on average between 2023 and 2025. Eight of the overflows assessed were close to being over the threshold and were classed as amber. The Storm Overflow Reduction Plan which was published in 2022 sets an objective that "storm overflows will not be permitted to discharge above an average of 10 rainfall events per year by 2050".

There are opportunities through the planning system to ease pressure on the wastewater network by separating foul and storm flow in existing combined systems and not allowing new surface water connections. Surface water can also be better managed by retrofitting SuDS in existing residential areas, and in new development, ensuring SuDS are incorporated into designs at the master planning stage to maximise the potential benefits.

Wastewater treatment

Each Wastewater Treatment Works (WwTW) has a permit detailing how much treated effluent can be discharged either into rivers or to ground. Headroom - the different between the current discharge and the permitted discharge, can be eroded by growth in population or per-capita consumption, requiring investment in additional treatment capacity. There are eight WwTWs within or serving SMBC expected to serve growth during the Local Plan period.

The majority of the planned growth is expected to be served by Coleshill WwTW and Barston WwTW.

Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out an independent assessment of WwTW capacity. It is expected that this will be included in the final version of this report once the data is available.

Upgrades are likely to be required at some of the WwTWs in the study area during the Local Plan period to accommodate the full amount of growth. Consideration therefore needs to be given to how development is phased in order to use up existing capacity and provide time for additional capacity to be provided. Grampian conditions may need to be applied at the planning application stage to ensure this capacity is applied before occupation of developments. Engagement with water companies is essential to inform both the phasing of sites and plans to upgrade infrastructure.

In many of the catchments, the WwTW serve both SMBC and neighbouring authorities. Consideration should be given to neighbouring authority growth alongside Solihull Borough's growth when phasing development.

Water quality and environmental impact

The EA's Reasons for Not Achieving Good (RNAG) dataset indicates that sewage treatment, the urban and transport sectors (urban development), as well as agriculture and rural land management, are the main reasons for watercourses not achieving good status in this area.

Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out detailed water quality modelling. It is expected that this will be included in the final version of this report once the data is available.

Where a WwTW is shared with a neighbouring authority, coordination of growth plans in collaboration with Severn Trent Water is essential to ensure that infrastructure is in place prior to development to prevent a breach of the environmental permit.

There are three source protection zones within Solihull, each associated with a different zone classification, namely Zone 1, 2 or 3. Pollution in all three zones will reach the groundwater abstraction point however, the vulnerability of a groundwater abstraction point to a pollution source is greatest if the pollution source is located in Zone 1 (due to proximity to the abstraction site).

The potential impact of development on groundwater quality and at protected sites such as SAC and SSSIs within, or downstream of the study area should be carefully considered in future plan making.

Development sites within the study area could be sources of diffuse pollution from surface runoff. SuDS are required on all development sites. Their design should consider both water quantity and water quality and site level investigations should be undertaken to define the most appropriate SuDS types for each specific development. Opportunities exist for these SuDS schemes to offer multiple benefits of flood risk reduction, amenity value and biodiversity.

Solihull Metropolitan Borough Council as Lead Local Flood Authority (LLFA) should be consulted at an early stage of development to ensure that SuDS are implemented and designed in response to site characteristics and policy factors. In the wider area,

opportunities exist to implement NFM techniques to achieve multiple benefits of flood risk, water quality and habitat creation.

The impact of increased wastewater discharges, as a result of the growth shown in the local plan, on protected sites downstream of Solihull has been assessed.

1 Introduction

1.1 Terms of reference

JBA was commissioned by Solihull Metropolitan Borough Council (SMBC) to undertake a Water Cycle Study (WCS) for the administrative area of the metropolitan borough of Solihull.

The purpose of the WCS is to form part of a comprehensive and robust evidence base to inform the preparation of the emerging Solihull Local Plan.

Unmitigated future development and climate change can adversely affect the environment and water infrastructure capability. A WCS will provide the required evidence, together with a strategy to ensure that planned growth occurs within environmental constraints, with the appropriate infrastructure in place in a timely manner so that planned allocations are deliverable.

This draft WCS report is being published as part of the evidence base in order to support the preparation of the Local Plan. It is missing some sections which will be added in before Local Plan examination. Severn Trent Water have experienced delays in providing the data that is required to complete many of the assessments within the water cycle study. In particular, the wastewater treatment works capacity assessment and water quality assessment. Care should be taken when using this draft report as it is subject to change in the final version.

1.2 Structure of report

The requirements and objectives of the WCS are set out in the section below. Planned growth in and around Solihull is characterised in Section 2 of the report, before relevant environmental and water industry policy and legislation is presented in Section 3 to provide context for the following assessment. The report is then divided into sections assessing the impact of growth on each topic in the water cycle study.

1.3 The Water Cycle

Planning Practice Guidance on Water Supply, Wastewater and Water Quality (2019) describes a water cycle study as:

“a voluntary study that helps organisations work together to plan for sustainable growth. It uses water and planning evidence and the expertise of partners to understand environmental and infrastructure capacity. It can identify joined up and cost-effective solutions, that are resilient to climate change for the lifetime of the development.

The study provides evidence for Local Plans and sustainability appraisals and is ideally done at an early stage of plan-making. Local authorities (or groups of local authorities) usually lead water cycle studies, as a chief aim is to provide evidence for sound Local Plans, but other partners often include the Environment Agency and water companies."

The Environment Agency's guidance on WCS (2021) recommends a phased approach:

- Stage 1: Scoping study, identifies if the water infrastructure capacity could constrain growth and if there are any gaps in the evidence you need to make this assessment. The scoping study will identify:
  - The area and amount of proposed development;
  - the existing evidence;
  - main partners to work with; and
  - evidence gaps and constraints on growth.
- Stage 2: Detailed study, to provide the evidence to inform an integrated water management strategy. It will identify the water and flood management infrastructure that will mitigate the risks from too little or too much water. It will also identify what you need to do to protect and enhance the water environment.

As a WCS is not a mandatory document, Local Planning Authorities (LPAs) are advised to prioritise the stages of the WCS to integrate with their Local Plan programme. Due to the constraints of the Local Plan timetable, the Water Cycle Study will be produced in one stage combining the elements of both Stage 1 and Stage 2. Figure 1.1 below shows the main elements that the Water Cycle is comprised of.

The natural water cycle describes the continuous transfers of water around the planet, from atmosphere to surface and back via evaporation, transpiration and precipitation, and the various flows and storage processes that occur. The artificial water cycle looks at the availability of water resources for human consumption, its treatment and supply to homes and business, its use and consequently the generation of wastewater. It then looks at how wastewater is taken away, treated, and finally what happens when it is returned to the environment.

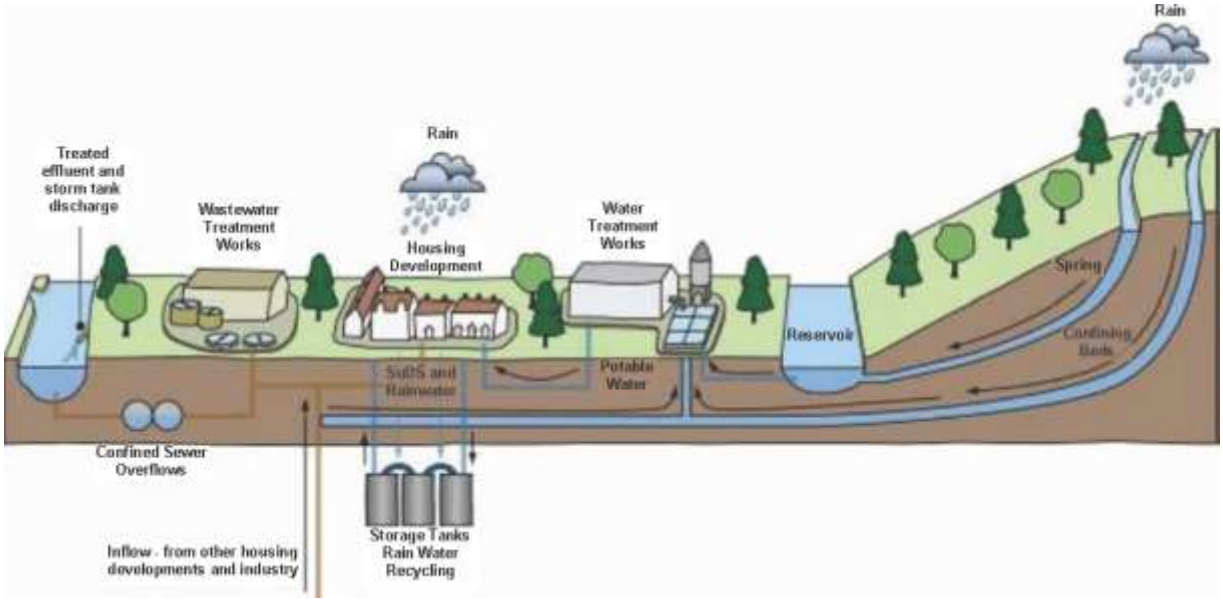


Figure 1.1 The Water Cycle

1.4 Impacts of Development on the Water Cycle

New homes require the provision of clean water, safe disposal of wastewater and limitation of flood risk. It is possible that allocating large numbers of new homes at some locations may result in the capacity of the existing available infrastructure being exceeded. This situation could potentially lead to service failures to water and wastewater customers, have adverse impacts on the environment or cause the high cost of upgrading water and wastewater assets being passed on to bill payers. Climate change presents further challenges such as increased intensity and frequency of rainfall and a higher frequency of drought events that can be expected to put greater pressure on the existing infrastructure. Development, when planned correctly, can also offer opportunities to reduce flood risk to existing properties and increase community resilience, contribute to nature recovery, and allow a collaborative approach to infrastructure.

1.5 Objectives

This WCS report is written to support the preparation of the emerging Solihull Local Plan.

The overall objective of the WCS is to understand the environmental and physical constraints of development and identify opportunities for more sustainable planning and improvements that may be required to achieve the required level of development.

This WCS will consider the following issues:

- Water resources, demand, and supply.
- Wastewater infrastructure and treatment.
- Water quality and environmental impact.

1.6 Study Area

The administrative area of the metropolitan borough of Solihull covers approximately 178.4km^2 in the West Midlands. The Local Planning Authority (LPA) for the metropolitan borough is Solihull Metropolitan Borough Council (SMBC). Solihull is a large settlement, with a population of 216,240 (based on the 2021 census data), located in the West Midlands. It is made up of both urban and rural areas.

Solihull sits within the Severn Trent Strategic Grid Water Resource Zone. Over twelve waterbodies flowing through the metropolitan borough of Solihull are designated by the Environment Agency as Statutory Main Rivers, including two rivers, the River Cole and River Blythe, and over 10 brooks, including Low Brook, Hatchford Brook, Ravenshaw Brook and Spring Brook (to name a few). The River Cole originates in the neighbouring district of Birmingham. Whilst Westley Brook and Hatchford Brook originate within the Solihull metropolitan borough, they also flowing via the neighbouring district of Birmingham before re-entering the Solihull boundary.

Water supply and wastewater services across the metropolitan borough of Solihull are provided by Severn Trent Water (STW).

1.7 Authorities responsible for Water Resources and Wastewater Management in Solihull

Within Solihull there are a number of authorities and regulators responsible or involved in supplying, managing, and overseeing water supply, wastewater and the environment. Table 1.1 below explains the responsibilities of various bodies within the local plan area.

Table 1.1 Responsibilities of authorities within Solihull

Authority Name	Key Responsibilities of Different Authorities
Environment Agency	
Natural England	Natural England are the Government's advisors on the natural environment, which they have a responsibility to protect and enhance. In a WCS they may provide information on the conservation objectives, and guidance on, the protection of designated sites.
Ofwat	
Severn Trent Water	Severn Trent Water (STW) is the water supplier for the whole study area. As the water supplier for the metropolitan borough of Solihull, STW have a responsibility to maintain an efficient and economical system of water supply. Severn Trent is also the sewerage undertaker for the study area. As the sewerage undertaker for metropolitan borough of Solihull, STW have the responsibility to improve and extend a system of public sewers (for both domestic and non-domestic flows) and to make provision for the emptying of those sewers.
Retail suppliers to non-household customers	

1.8 Record of Engagement

1.8.1 Overview

Preparation of a WCS requires significant engagement with stakeholders, within the Local Planning Authority area, with water and wastewater utilities, with the Environment Agency, and where there may be cross-boundary issues, with

neighbouring local authorities. This section forms a record of engagement for the WCS.

Further engagement will take place, if necessary, as the Local Plan progresses.

1.8.2 Engagement

The preparation of this WCS was supported by the following engagement:

Inception meeting

Engaged Parties	Details
Solihull Metropolitan Borough Council (LPA) JBA Consulting Environment Agency (EA)	Scope of works and data collection requirements.

Collaboration with Water Companies and Risk Management Authorities

Engaged Parties	Details
Severn Trent Water (STW) Environment Agency (EA) Solihull Metropolitan Borough Council (as LLFA)	Scope of works and data collection requirements.

2 Future growth in Solihull

2.1 Overview

The emerging Solihull Local Plan will direct future growth and associated infrastructure across the metropolitan borough of Solihull administrative area and will include new housing and employment requirements. The Local Plan will cover the period 2026 to 2042. The following section summarises the current planned development in Solihull, which allows a forecast to be created that can be used to predict the volume of water and wastewater required in the future and the resulting pressure on water infrastructure.

The forecast consists of:

- Commitments, completions and windfall for Solihull.
- Committed development sites with full or outline planning permission, currently in the planning system as of January 2026.
- Recent completions - sites completed from 2024 to 2025 that may not yet appear in flow data provided by the water companies.
- Neighbouring authority growth – growth served by infrastructure within or shared with the study area.
- Potential allocations

Forecasted development in Solihull as outlined above is summarised in Table 2.2.

2.2 Growth within Solihull

2.2.1 Trajectory

For residential and employment sites where a temporal projection of how the site will be developed was not available, the following assumptions were made:

- For all allocated sites, trajectory was assumed to be evenly spread across the relevant plan period from year 6 (2030/31).
- For committed sites in the planning system (both full and outline permission), trajectory was assumed to be evenly spread over the next five years (2025/26 to 2029/30).

2.2.2 Windfall

Windfall sites are sites that are not specifically allocated in the Local Plan or neighbourhood plans. Local Plans usually provide an allowance to cover this circumstance, consistent with the National Planning Policy Framework (NPPF). A windfall allowance of 3,250 over the plan period (from 2028/29) broken down by ward was advised by SMBC (Table 2.1). This may be different in the published Local Plan and may change as a result of subsequent monitoring. To assign windfall development to WwTWs in Solihull Borough, the approximate percentage of the ward covered by each WwTW catchment was used to distribute the windfall estimate between WwTWs.

Table 2.1 Windfall estimate by ward

Ward	Windfall estimate by ward (dwellings)
Meriden & Arden	345
Blythe	311
Castle Bromwich	29
Chelmsley Wood	29
Dorridge & Hockley Heath	425
Elmdon	29
Fordbridge	29
Knowle	288
Lyndon	29
Balsall & Berkswell	411
Olton	144
Shirley East & Sharman's Cross	259
Shirley South	173
Shirley West	173
Silhill	289
Kingshurst & Smith's Wood	29
St Alphege with Monkspath & Hillfield	258
Total	**3,250**

2.2.3 Summary

Table 2.2 shows a summary of growth expected during the Local Plan period.

Table 2.2 Summary of the growth forecast across the Solihull

Type of Growth	Number of Dwellings	Indicative number of employees
Adopted allocations	65	0
Potential allocation	17,553	31,168
Commitments	4,673	0

Type of Growth	Number of Dwellings	Indicative number of employees
Completions (2024 to 2025)	518	0
Windfall	3,250	0
Total	**26,059**	**31,168**

2.3 Growth outside Solihull

Utilising Severn Trent Water wastewater catchment data, 13 Local Planning Authorities (LPAs) have been identified as potentially being served by infrastructure within or shared with Solihull, see Figure 2.1. An estimate of growth in these catchments has been obtained from existing WCS.

Table 2.3 shows forecasted growth data concerning the shared treatment works obtained from the respective district councils for the Birmingham Stage 2 Water Cycle Study covering a planning period of up to 2042 (JBA, 2026).

Table 2.3: Summary of growth utilising data from the Birmingham Stage 2 Water Cycle Study (JBA, 2026).

Authority served by infrastructure shared with Solihull	WwTW	Proposed number of dwellings	Potential Employment Space ($m^{2)}$
Birmingham Council	Coleshill	849	5,299
Birmingham Council	Minworth	101,601	2,117,846
Bromsgrove District Council	Minworth	426	33,600
Coventry	Finham Coventry	10,670	352,000
Dudley District Council	Minworth	147	NA
North Warwickshire District Council	Coleshill	30	NA
North Warwickshire District Council	Minworth	189	NA
Nuneaton and Bedworth District Council	Finham Coventry	3,145	469,904
Rugby Borough Council	Finham Coventry	35	988
Sandwell District Council	Minworth	2956	395,808

Authority served by infrastructure shared with Solihull	WwTW	Proposed number of dwellings	Potential Employment Space ($m^{2)}$
Stratford-on-Avon	Norton Green	6	0
Walsall District Council	Minworth	6277	488,015
Warwick District Council	Finham Coventry	6,566	1,355,100
Warwick District Council	Rowlington	71	
City of Wolverhampton District Council	Minworth	1,528	137,924

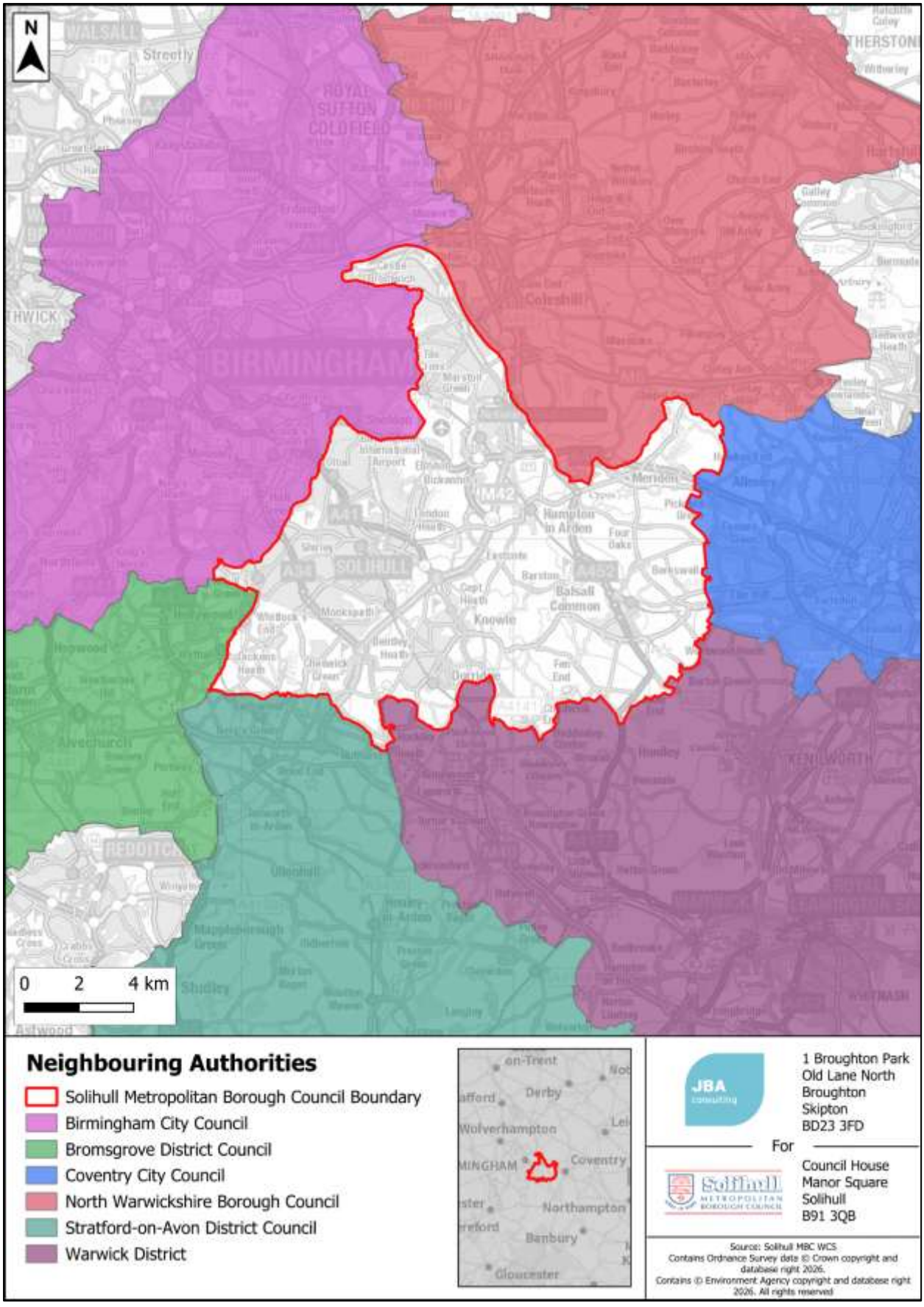


Figure 2.1 Neighbouring authorities to Solihull

2.4 Growth and Water Demand

2.4.1 Overview

A forecast of the impact of the planned housing and employment growth in and around Solihull on water demand was prepared as follows:

2.4.2 Water demand from housing

Data from Severn Trent Water's Water Resources Management Plan (WRMP24) Data Tables was used. The forecast for water demand is based on per-capita consumption for the year 2025-2026, as published in the WRMP24. As a result, the forecast represents the baseline "business-as-usual" scenario (though includes the impact of Covid), not accounting for any further water efficiency or metering interventions from 2025/26 onwards. Water efficient design is explored further in Section 3.4, while measures set out in the WRMP24 are reviewed in Section 4.2.

2.4.3 Water demand from employment sites

Demand from employment sites was calculated assuming a rate of 100l/d per employee. This value has been taken from the table of loadings for sewage treatment systems in British Water's Flows and Loads report and is the flow per person per day expected for an office with a canteen. Where the forecast number of employees for a site was not specified by the LPA, employment floorspace and assumed density based on employment use classes was used to calculate an indicative number of employees for a site. Table 2.4 below outlines the assumed densities of employment space derived from the Homes and Communities Agency (2015) Employment Density Guide 3rd edition. This guide pre-dates recent changes in working practices as a result of the Covid-19 pandemic, technological changes to support working from home and automation.

Emerging industries such as data centres and hydrogen production as well as more traditional industries such as farming can result in a large demand for water. The water companies have a statutory duty to provide a connection to supply clean water for domestic purposes (for example staff toilets), but they do not have to provide a water supply for industrial uses.

Table 2.4 Employment use classes and assumed densities used to calculate water demand

Use class	Description	Density (m^2/employee)
A1	Retail	15
A3	Restaurants and cafes	15
B1a	Offices	8
B1b	R&D space	40
B1c	Light industrial	47
B2	Industrial and manufacturing	36

Use class	Description	Density (m^2/employee)
B8	Storage and distribution	70
C1	Hotels	Requires bed count (one room treated as one dwelling)
C2	Residential institutions	Requires bed count (one room treated as one dwelling)
D1	Learning and non-residential	36
D2	Leisure	65

2.4.4 Business-as-usual water demand forecast

The impact of planned growth across the Solihull Local Plan period on water demand is summarised in Figure 2.2 below, displaying demand from each source of growth outlined in Table 2.2. Additional water demand from planned development is forecast to grow by approximately 11.4 Ml/d across the Local Plan period (2026 to 2042).

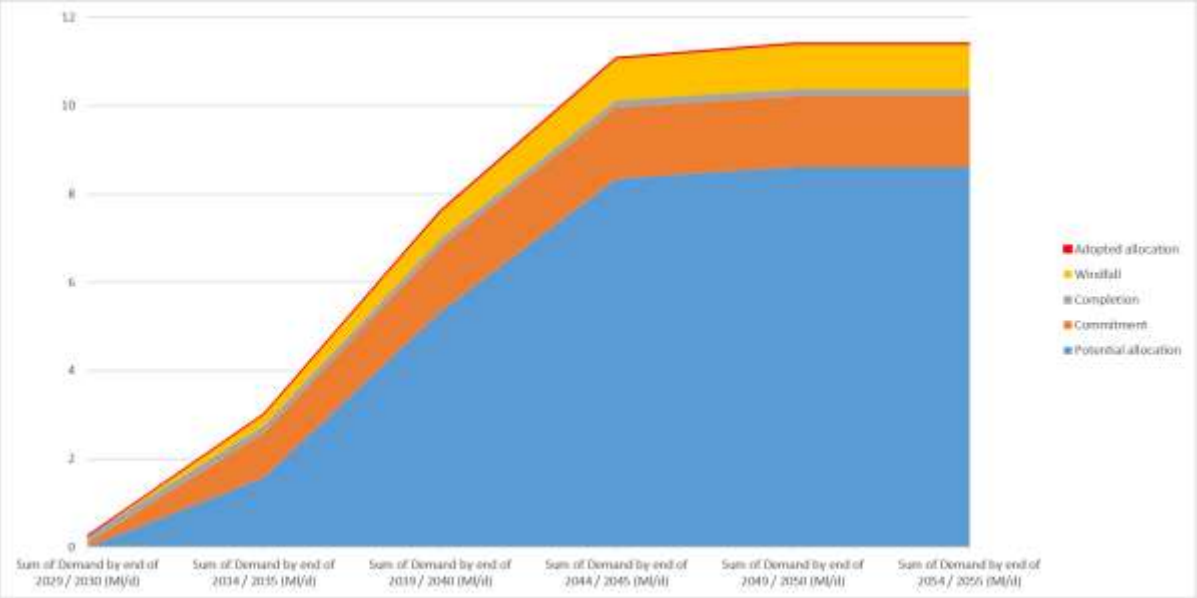


Figure 2.2: Cumulative water demand driven by additional dwellings forecast across the Local Plan period

3 Policy and legislation

3.1 Introduction

This section introduces national, regional, and local policies relevant to water and wastewater services and the water environment, that should be considered by the LPA, water companies, and developers during plan-making and planning applications. Key extracts from these policies are presented as well as links to the full text. Whilst care has been taken to ensure that the information presented in this report was up to date at the time of writing, policy and guidance can change rapidly and the reader should ensure that the most up to date information is sought.

3.2 Plan-making

The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, last updated August 2026) was originally published in 2012, as part of reforms to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth.

Local Plans are the primary mechanism by which plan-led spatial planning is implemented in England. Local Plans must be prepared by Local Planning Authorities (LPAs) and include:

- Strategic policies which set out the "overall strategy for the pattern, scale and design duality of places", including for the provision of infrastructure, transportation and community facilities.
- Non-strategic policies, which "set out more detailed policies for specific areas, neighbourhoods or types of development. This can include allocating sites, the provision of infrastructure and community facilities at a local level."

Under the Localism Act (HM Government, 2011) new rights were provided to allow local communities to come together and shape the development and growth of their area by preparing Neighbourhood Development Plans, or Neighbourhood Development Orders, where the ambition of the neighbourhood is aligned with strategic needs and priorities for the area. Neighbourhood Plans can make non-strategic policies, aligned to the strategic policies of the Local Plan. As neighbourhoods draw up their proposals, LPAs are required to provide technical advice and support to communities.

Consultation on proposed reforms and further changes to the NPPF were conducted between 16th December 2025 and 10th March 2026. At the time of writing, analysis of the consultation feedback is in progress. The draft new NPPF contains changes to the structure of the NPPF as well as additional changes to reflect updates to Planning Practice Guidance.

Guidance discussing the draft process of creating a local plan under the new plan-making system was published in November 2025. Under the new plan-making system, LPAs must prepare a single local plan and should adopt it within 30 months.

3.3 Water and the Planning System

3.3.1 National Planning Policy Framework and water

The NPPF (2026) provides guidance to planning authorities to take account of flood risk and water and wastewater infrastructure delivery in their Local Plans.

Key paragraphs include:

- Paragraph PM2c: … Plans should do this by: "Identifying the contributions expected from development towards meeting affordable housing requirements and on-and off-site infrastructure necessary to support delivery of the plan in accordance with policy PM12"
- Paragraph CC1c: …Plans should do this by: "Setting local water efficiency standards for new development where these are justified in accordance with policy PM13"
- Paragraph P1a: "…Allocate land for development where, taking into account the potential for mitigation: … Development proposals will not cause unacceptable levels of pollution, either alone or in combination with other pollution sources, taking into account communities which may be particularly vulnerable to its effects, such as children and older people, as well as habitats and species which may be vulnerable to pollution"

3.3.2 Planning Practice Guidance overview

Planning Practice Guidance (PPG) was originally issued in 2014 by the Department for Communities and Local Government, with the intention of providing guidance on the application of the NPPF. The individual guidance documents are updated periodically. The following guidance documents are particularly relevant to a WCS:

- Water Supply, Wastewater and Water Quality (HM Government, 2019)
- Housing - Optional Technical Standards (HM Government, 2015a)
- Flood Risk and Coastal Change (HM Government, 2022)

3.3.3 PPG - Water Supply, Wastewater and Water Quality

Two key passages from the water supply, wastewater and water quality (2019) guidance in the PPG (Para 002) provide an overview of what needs to be considered by plan-making authorities, and provide a basis for the work contained in a WCS or an Integrated Water Management Strategy (IWMS):

- "Early discussions between strategic policy-making authorities and water and sewerage companies can help to ensure that proposed growth and environmental objectives are reflected in company business plans. Growth that requires new water supply should also be reflected in companies' long-term water resources management plans. This will ensure that the necessary infrastructure is funded through the water industry's price review (ofwat.gov.uk)."
- "Strategic policy-making authorities will also need to consider the objectives in the government's 25 Year Environment Plan (gov.uk) to reduce the damaging abstraction of water from rivers and groundwater, and to reach or exceed objectives for rivers, lakes, coastal and ground waters that are specially protected."

A summary of the advice for plan-makers and for planning applications is contained below, but it is recommended that the full text is reviewed, particularly as it may change with future updates to the PPG.

Plan-making considerations - Infrastructure (Paragraph 005)

- Identification of suitable sites for new or enhanced infrastructure, including the location of existing and proposed development.
- Consider whether new development is appropriate near to water and wastewater infrastructure (for example due to odour concerns).
- Phasing new development so that water and wastewater infrastructure will be in place when needed. Infrastructure should also be in place before any environmental effects occur on designated sites of importance for biodiversity.

Plan-making considerations - Water quality (Paragraph 006)

- How to help protect and enhance local surface water and groundwater in ways that allow new development to proceed and avoids costly assessment at the planning application stage.
- The type or location of new development where an assessment of the potential impacts on water bodies may be required.
- Whether measures to improve water quality, for example Sustainable Drainage Systems (SuDS) schemes, can be used to address water quality in addition to flood risk.

Plan-making considerations - Wastewater (Paragraph 007)

- The sufficiency and capacity of wastewater infrastructure.
- The circumstances where wastewater from new development would not be expected to drain to a public sewer (such as via a package treatment Sewage Treatment Works (STW) or septic tank).
- The capacity of the environment to receive effluent from development in different parts of a strategic policy-making authority's area without preventing relevant statutory objectives being met.

Early engagement with the LPA, the EA, and relevant water and sewerage companies can help establish whether any particular water and wastewater issues need to be considered.

Considerations for planning applications - Water supply (Paragraph 016)

Water supply planning would normally be addressed through the LPA's strategic policies and reflected in the water companies WRMPs. Water supply is therefore unlikely to be a consideration for most planning applications. However, some exceptions might include:

- Large developments not identified in plans that are likely to require a large volume of water; and/or
- Significant works required to connect the water supply; and/or
- Where a plan requires enhanced water efficiency in new development as part of a strategy to manage water demand locally.

Considerations for planning applications - Water quality (Paragraph 016)

Water quality is only likely to be a significant planning concern where a proposal would:

- Involve physical modifications to a water body such as flood storage areas, channel diversions and dredging, removing natural barriers, construction of new locks, new culverts, major bridges, new barrages or dams, new weirs, and removal of existing weirs; and/or
- Indirectly affect water bodies, for example:
    - as a result of new development such as the redevelopment of land that may be affected by contamination, mineral workings, water and wastewater treatment, waste management facilities and transport scheme including culverts and bridges;
    - result in runoff into surface water sewers that drain directly, or via a combined sewer, into sensitive waterbodies e.g., waterbodies with local, national or international habitat designations;
    - through a lack of adequate infrastructure to deal with wastewater;
    - through a local of adequate infrastructure to deal with wastewater where development occurs in an area where there is strategic water quality plan e.g., a nutrient management plan, River Basin Management Plan (RBMP), WCS, diffuse water pollution plan or

sewerage undertakers' drainage strategy which set out strategies to manage water quality locally and help deliver new development.

3.3.3.1 PPG - Housing: optional technical standards

The guidance on Housing: optional technical standards (2015) advises planning authorities on how to gather evidence to set optional requirements, including for water efficiency. It states that (Paragraph 014):

- "All new homes already must meet the mandatory national standard set out in the Building Regulations (of 125 litres /person /day). Where there is a clear local need, LPAs can set out Local Plan policies requiring new dwellings to meet the tighter Building Regulations optional requirement of 110 litres/person/day."

Planning authorities are advised to consult with the EA and water companies to determine where there is a clear local need, and also to consider the impact of setting this optional standard on housing viability. The evidence for adopting the optional requirements is outlined in Section 4.6. Viability is reviewed in section 3.4.4.

3.3.3.2 PPG - Flood risk and coastal change

The guidance on flood risk and coastal change (2025) sets out how spatial planners, planning authorities and developers should manage flood risk to and from proposed developments, including assessing risk, avoiding flood risk, controlling, managing and mitigating flood risk.

Full details of the 2025 PPG updates are set out in the SFRA.

3.3.3.3 PPG - Climate change

The guidance on climate change (2019) advises how to identify suitable mitigation and adaptation measures in the planning process to address the impacts of climate change. Planning can help increase resilience to climate change through the location, mix and design of development. There is a statutory duty on LPAs to include policies in their Local Plan to tackle climate change and its impact.

3.3.4 Levelling-up and Regeneration Act 2023

The Levelling-up and Regeneration Act 2023 aims to support the government's commitment to reducing geographical disparities between different parts of the UK. Within the Act there are several parts relating to the water environment.

Part 7 relates to nutrient pollution standards. Where the Secretary of State considers that a habitats site that is wholly or partly in England is in an unfavourable condition by virtue of pollution from nutrients in water comprising phosphorus or compounds, or nitrogen or compounds, the Secretary of State may designate the catchment area for the habitats site as a phosphorus or nitrogen sensitive area.

It requires sewerage undertakers in England to upgrade phosphorus or nitrogen significant plants in its sewerage system by 2030 in order to meet phosphorus or nitrogen pollution standards.

A phosphorus or nitrogen significant plant is defined as one that discharges treated effluent into a sensitive catchment area and is not exempt in relation to the pollution standard. Unless otherwise defined, the treatment standard for phosphorus is 0.25 mg/l, and for nitrogen is 10 mg/l.

3.4 Water and design

3.4.1 Building Regulations

The Building Regulations (2010) Part G was amended in 2015 to require that all new dwellings must ensure that the potential water consumption must not exceed 125 litres per person per day (l/p/d), or 110 l/p/d where required under planning conditions (HM Government, 2015) (see Section 3.3.3.1).

The Environmental Improvement Plan (EIP) (2023), discussed in Section 0, contains a commitment to consider a new standard for new homes in England of 105 l/p/d and 100 l/p/d where there is a clear local need, such as in areas of serious water stress. While this new standard is only under consideration, it demonstrates the direction of travel for water efficiency standards, and it is highly likely that this or a similar standard will be adopted.

3.4.2 Building Research Establishment

The Building Research Establishment (BRE) publish an internationally recognised environmental assessment methodology for assessing, rating, and certifying the sustainability of a range of buildings.

New homes are most appropriately covered by the Home Quality Mark (BRE, 2023a), and commercial, leisure, educational facilities and mixed-use buildings by the Building Research Establishment Environmental Assessment Methodology (BREEAM) UK New Construction Standard (BRE, BREEAM, 2018b).

Using independent, licensed assessors, BREEAM/HQM assesses criteria covering a range of issues in categories that evaluate energy and water use, health and wellbeing, pollution, transport, materials, waste, ecology, and management processes.

In the Homes Quality Mark, 400 credits are available across 11 categories and lead to a star rating. 18 credits are available for water efficiency and water recycling. A greater number of credits are awarded for homes using water efficient fittings (with the highest score achieving 100l/p/d or less), and further credits are awarded for the percentage of water used in toilet flushing that is either sourced from rainwater or from grey water.

The BREEAM New Construction Standard awards credits across nine categories, four of which are related to water: water consumption, water monitoring, leak detection and water efficient equipment. This leads to a percentage score and a rating from “Pass” to “Outstanding”.

Through the Local Plan, the Council has the opportunity to seek BREEAM or HQM status for all new, residential, and non-residential buildings.

3.4.3 Energy and Water

In 2024, 17% of the UK’s domestic energy was used for water heating (Energy consumption in the UK, Department for Energy Security & Net Zero). If less water was used within the home, for instance through more water efficient showers, less water would need to be heated, and overall domestic energy usage would be reduced.

The government recently published the results of a 2023 consultation on The Future Homes and Buildings Standards which involved changes to Part 6, Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for dwellings and non-domestic buildings and seeking evidence on previous changes to Part O (overheating). Water efficiency and water scarcity were out of scope for this consultation. However, there is an important link between water use and energy use, and therefore between water use and the whole-life carbon cost of developments.

3.4.4 Viability

The evidence for the costs of meeting the optional 110l/p/d water efficiency target in new homes indicate that the costs are minimal:

- A 2014 study into the cost of implementing sustainability measures in housing found that meeting a standard of 110 litres per person per day would cost only £12 (at 2023 prices) for a four-bedroom house (EC Harris, 2014).
- The Committee on Climate Change report - UK Housing: Fit for the Future - stated that the cost of "requiring all homes in England to be built to 110 l/p/d is possible under Part G of regulations and would be no additional cost." (Committee on Climate Change, 2019)
- Heating water accounts for 17% of energy used in the home (Department for Energy Security & Net Zero, 2025) This would cost a 2-3 person, 3-bed household an average of £352 per year in energy at 2023 costs (British Gas, 2023). Water efficiency is therefore not only viable but of positive economic benefit to both private homeowners and tenants.

There is less evidence available on the costs of going below 110l/p/d. The Sussex North Water Neutrality Strategy (JBA Consulting, 2022) found that the additional cost to meet 85l/p/d using water efficient fittings would be between £349 and £431 per

dwelling, or £1,049 to £1,531 where white-goods appliances would not otherwise have been installed in the dwelling (2022 prices).

3.5 The Water Industry

3.5.1 The Water Industry in England

Water and sewerage services in England and Wales are provided by eleven Water and Sewerage Companies (WaSCs) and five 'water-only' companies. The central legislation relating to the industry is the Water Industry Act 1991. The companies operate as regulated monopolies within their supply regions, although very large water users and developments are able to obtain water and/or wastewater services from alternative suppliers - known as inset agreements.

The Water Act 2014 aims to reform the water industry to make it more innovative and to increase resilience to droughts and floods. Key measures that could influence the future provision of water and wastewater services include:

- Non-domestic customers being able to switch their water supplier and/or sewerage undertaker;
- New businesses being able to enter the market to supply these services;
- Measures to promote a national water supply network; and
- Enabling developers to make connections to water and sewerage systems.

The water industry is primarily regulated by 3 regulatory bodies:

- Economic regulation: Water Service Regulation Authority (Ofwat) are the economic regulator. They have a statutory duty to protect the interests of consumers, ensuring water companies carry out their functions (customer service standards, environmental rules, drinking water standards etc) and can finance them. Part of this role is setting the limits on pricing of water and sewerage services.
- Environmental regulation: The EA are the environmental regulator. They are responsible for monitoring the impact of the water industry (as well as others) on the environment and issuing permits for abstraction of water and discharge of wastewater.
- Drinking water regulation: Finally, the Drinking Water Inspectorate implement standards for drinking water and can take enforcement measures against water companies if those standards are not met.

As a result of the Independent Water Commission, the Government have announced that Ofwat would be abolished and replaced by a new regulator taking responsibility for water functions across Ofwat, Environment Agency, Natural England and Drinking Water Inspectorate (UK Government, 2025). This is described in more detail in Section 3.6.5.

3.6 Planning and funding of the water industry

The water industry works on a five-year cycle called the Asset Management Plan period or AMP periods. Every five years a water company submits a Business Plan to Ofwat for a Price Review. These plans set out the companies' operational expenditure (OPEX) and capital expenditure (CAPEX) required to maintain service standards, enhance service (for example where sewer flooding occurs), to accommodate growth and to meet environmental objectives defined by the Environment Agency. Ofwat assesses and compares the plans with the objective of ensuring what are effectively supply monopolies are operating efficiently, and that the company is meeting its obligations. It then sets the allowable price increase for consumers based on the retail prices index, the business plan, and taking into consideration affordability for consumers.

The current AMP period is AMP 8 (2025-2030), and the price of water for this period was set by Ofwat in 2024 in a process referred to as Price Review 24 (PR24). The new price came into effect in April 2025. The next price review will be 2029 (PR29) and will set prices from 2030 to 2035, coming into effect in April 2030. This system gives stability in pricing. Within this price review process there may also be incentives and penalties on the water company for exceeding or failing to meet targets.

When considering investment requirements to accommodate growing demand, water companies are required to ensure a high degree of certainty that additional assets will be required before funding them. Longer term growth is, however, considered by the companies in their internal asset planning processes and in their 25-year Strategic Direction Statements and WRMPs.

The Water Industry National Environment Programme (WINEP) is a set of actions that are defined by the EA and given to all water companies operating in England for completion during a particular AMP period. The aim of the programme is to support the objectives in the Environment Act, Water Framework regulations, Habitats regulations and other environmental objectives. Examples of typical actions could include investigations into the sustainability of an abstraction, a reduction in an abstraction to support river flows, or new permit limits at a WwTW.

Water and wastewater infrastructure requires significant lead-times to plan, obtain planning and other permissions, finance and construct. The time required to provide new or upgraded infrastructure to serve a development or a larger spatial plan is highly locally specific. Table 3.1 is provided as an indicative guide to lead-times.

Table 3.1: Indicative lead-times (years) for new infrastructure to serve development

Scale of development	Water supply	Water resources	Wastewater network	Wastewater treatment
Minor	1	N/A	1	N/A
Major	1-3	5-10	1-5	3-5
Strategic / Plan	3-5	10-20	5-10	5-10

3.6.1 Planning for Water

Water resource management plans

WRMPs are 25-year strategies that water companies are required to prepare, with updates every five years. In reality, water companies prepare internal updates more regularly. WRMPs are required to assess:

- Future demand (due to population and economic growth);
- Future water availability (including the impact of sustainability reductions);
- Demand management and supply-side measures (e.g., water efficiency and leakage reduction, water transfers and new resource development);
- How the company will address changes to abstraction licences;
- How the impacts of climate change will be mitigated;
- where necessary, the requirements for developing additional water resources to meet growing demand and describe how the balance between water supply and demand will be balanced over the period 2015 to 2040;
- Using cost-effective demand management, transfer, trading and resource development schemes to meet growth in demand from new development and to restore abstraction to sustainable levels; and
- In the medium to long term, that sufficient water continues to be available for growth and that the supply systems are flexible enough to adapt to climate change.

Severn Trent Water's final WRMP is published on their website (www.severntrent.com) and is discussed further in Section 4.4.3.

Drought Plan

Linked to the WRMP is a water company's drought plan. This is a requirement under the Water Industry Act 1991 (as amended by the Water Act 2003). A water company must state how it will maintain a secure water supply and protect the environment during dry weather and drought. The plan will contain:

- **Drought triggers** - these are points where a water company will take action to manage supply and demand. They are based on monitoring of rainfall levels, river flows, groundwater levels, and reservoir stocks.

- **Demand management actions** - how a water company will reduce demand for water during a drought. Actions that save water before taking more water from the environment must be prioritised. These could include:
  - reducing leakage;
  - carrying out water efficiency campaigns with customers;
  - reducing mains pressure; and
  - restricting water use, for example through temporary use band which limit hosepipe and sprinkler use.
- **Supply management actions** - how a water company will maintain water supply during a drought. Actions that have the least effect on the environment must be prioritised. This could include:
  - carrying out engineering work to improve its supply;
  - transferring water in bulk from other water companies;
  - using drought permits and drought orders to abstract more water;
  - using desalination - permanent or temporary plants; and
  - using tankers to supply customers with water directly.
- **Extreme drought management actions** - the actions it could take in an extreme drought. These could delay the need to use emergency restrictions standpipes and rota cuts.
- **Communicating during a drought** - a water company must set out how it will communicate in a clear and timely way during a drought with customers, partners or other stakeholders.
- **Environmental assessment, monitoring and mitigation** - a drought plan must include:
  - an environmental assessment;
  - an environmental monitoring plan for each supply management action; and
  - details of mitigation measures the company plans to take for each supply management action.
- **End of a drought -** a water company must explain how it will identify when a drought is over or ending and the actions it will take during this stage, communicate this information to customers, and review its performance.

Regional water resource planning

Water resource planning is taking an increasingly regional focus, recognising the need for collaboration between water companies and sectors in order to address the challenges of climate change, increasing demand for water and protecting the water environment. Five regional groupings having been formed, including the Water Resources West (WRW) group which covers the metropolitan borough of Solihull. An advisory group consisting of their regulators (Environment Agency and Ofwat) and Defra regularly attend meetings of WRW.

WRW prepared a final regional water plan, published in 2025, which will inform the latest round of company WRMPs, set to be published in 2030. As part of this process, in 2020, they published an initial resource position document which set out the water resources challenges and opportunities within the region.

3.6.2 Planning for Wastewater

21st Century Drainage

The UK Water Industry Research (UKWIR) “21st Century Drainage” programme has brought together water companies, governments, regulators, local authorities, academics, and environmental groups to consider how planning can help to address the challenges of managing drainage in the future. These challenges include climate change, population growth, urban creep and meeting the Water Framework Directive.

The group recognised that great progress has been made by the water industry in its drainage and wastewater planning over the last few decades, but that, in the future, there needs to be greater transparency and consistency of long-term planning. The Drainage and Wastewater Management Plan (DWMP) framework (Water UK, 2018) sets out how the industry intends to approach these goals. Companies were required to published finalised DWMPs in 2023 to inform their business plans for the 2024 Price Review.

Drainage and Wastewater Management Plans

Drainage and Wastewater Management Plans (DWMPs) are consistently structured plans delivered at 3 spatial scales; company-wide, regional groupings and individual wastewater catchments. The framework defines drainage to include all organisations and all assets which have a role to play in drainage, although, as the plans will be water company led, it does not seek to address broader surface water management within catchments.

The first cycle of DWMPs were published in 2023, following a consistent national framework, to inform their business plans for the 2024 Price Review.

The Environment Agency has set out new guidance for the second cycle of DWMPs to be published for public consultation in 2027.

LPAs and LLFAs are recognised as key stakeholders and are invited to join, alongside other stakeholders, the Strategic Planning Groups (SPGs) organised broadly along river basin district catchments.

DWMPs aim to provide more transparent and consistent information on sewer flooding risks and the capacity of sewerage networks and treatment works, and this should be taken into account in SFRAs, Water Cycle Studies, as well as in site-specific FRAs and Drainage Strategies.

Severn Trent Water's final DWMP is reviewed in detail for the study area in Section 6.3.

3.6.3 Developer Contributions and connection charges

A significant part of water company business is the interface with developers to facilitate connection to the public water supply and sewerage systems, through their developer services functions. Developments with planning permission have a right to connect to the public water and sewerage systems, where this is for domestic use. However, there is no guarantee that the capacity exists to serve a development.

Developers may requisition a water supply connection or sewerage system, or alternatively, self-build and offer them for adoption by the water company or sewerage undertaker. Self-build and adoption are usually practiced for assets within the site boundary, whereas requisitions are normally used where an extension of upgrading the infrastructure requires construction on third party land. The cost of requisitions is shared between the water company and developer as defined in the Water Industry Act 1991.

The above arrangements are third party transactions, because the Town and Country Planning Act Section 106 agreements and Community Infrastructure Levy agreements may not be used to obtain funding for water or wastewater infrastructure.

Ofwat published revised charging rules covering how water and wastewater companies may charge customers for new connections. (Ofwat, 2021) These rules have applied to all companies in England since April 2018. The key changes are listed below.

- Increased transparency - More charges will be fixed and published on water company websites. This will provide greater transparency to developers and will also allow alternative connection providers to offer competitive quotations more easily.
- Fixed infrastructure charges - There will be a fixed infrastructure charge for water and one for wastewater.
- Revised approach to network reinforcement costs - The costs of network reinforcement will no longer be charged directly to the developer in their connection charges. Instead, the combined costs of all of the works required on a company's networks, over a five-year rolling period, will be covered by the infrastructure charges paid for all new connections.
- Updated definition of network reinforcement - The definition of network reinforcement has changed and will now apply only to works required as a direct consequence of the increased demand due to a development. Where the water company has not been notified of a specific development, for example when developing long-term strategic growth schemes, the expenditure cannot be recovered through infrastructure charges.

Severn Trent Water (STW) publish their charging arrangements annually on their website.

For the period 1 April 2026 to 31 March 2027 the infrastructure charges per property are as follows:

- £385.36 water infrastructure charge
- £499.62 sewerage infrastructure charge
- £48.65 water environmental component
- £43.11 waste environmental component

The environmental component charges are used to fund environmental incentives to encourage good design by developers, including water efficiency and flood prevention incentives for home builders.

Water efficiency incentives can be applied for where developers can demonstrate they have built a premises with a domestic water usage of 100l/p/d or less and specified criteria are met. The incentives offered are:

- Water usage of 100 litres per person per day or less: £250 per property,
- Water usage of 90 litres per person per day or less: £300 per property,
- Water usage of 85 litres per person per day or less: £350 per property.

STW will also allow non-household premises with domestic usage only to apply for the 100 l/p/d water efficiency incentive.

STW also offer incentives for flood prevention measures. Where specified conditions are met, the following incentives are offered:

- Installation of a rain garden: £100 per property,
- Use of permeable surfaces for driveways or parking spaces that attenuate water to the sewer network: £150 per property,
- Use of permeable surfaces for driveways or parking spaces that infiltrate and do not connect to the network: £275 per property.

3.6.4 Water companies and the planning system

Water companies are currently not statutory consultees to planning applications, although they do monitor planning applications and respond to potentially significant applications, or where requested to do so by the LPA. Defra are intending to consult on making water companies statutory consultees for some applications (Department for Environment, Food & Rural Affairs, 2023).

Where a water company is concerned that a new development may impact upon their service to customers or the environment (for example by causing foul sewer flooding or pollution) they may request the LPA to impose a Grampian condition, whereby the planning permission cannot be implemented until a third-party secures the necessary upgrading or contributions.

Defra has issued National Policy Statements (NPSs) on Nationally Significant Infrastructure Projects (NSIPs) for wastewater (Department of Environment, Food &

Rural Affairs, 2012) and water (Department of Environment, Food & Rural Affairs, 2023), to be used as the primary basis when considering applications for Development Consent Orders (DCOs).

3.6.5 The Independent Water Commission

The Independent Water Commission was set up in October 2024 to provide recommendations to government on reforms to the water sector. The objectives are to ensure a sufficiently robust and stable regulatory framework in order to:

- attract the investment needed for the future;
- speed up infrastructure delivery; and
- restore confidence in the sector.

Chaired by Sir John Cunliffe, the resulting report which was published in June 2025 is often referred to as the 'Cunliffe Report'.

The full report can be found on the gov.uk website. It contains 88 recommendations centred around seven themes:

- Chapter one: Strategic direction for the water system.
- Chapter two: Planning.
- Chapter 3: Legislative framework.
- Chapter four: Regulator reform.
- Chapter five: Regulation reform.
- Chapter six: Company structures, ownership, governance, and management.
- Chapter seven: Infrastructure and asset health.

It should be noted that the recommendations in the Cunliffe report are not mandatory, and the government will respond to the report in due course. In the meantime, these recommendations should be treated with caution.

A simplification of the water planning system is recommended, with a comprehensive systems planning framework for England and Wales with responsibility for integrated and holistic water system planning. It goes on to recommend a review and update to the current legal framework, along with clearer targets to allow water companies to be held to account.

Chapter four of the Cunliffe report is designed to restore the confidence of both the public and regulated water companies in the regulatory framework. It recommends that the UK government should establish a new integrated regulator in England. This should combine the functions of Ofwat, DWI, and water functions from the EA and Natural England (NE). Changes were also recommended to economic and environmental regulations, including strengthening abstraction permitting.

Following the recommendations set out in the Cunliffe Report, the government announced that Ofwat would be abolished and replaced by 'a new, single, powerful

regulator' with the objective of cutting water pollution in England's rivers, lakes and seas, and protecting families from large increases in their water bills.

The new regulator will take responsibility for the water functions across Ofwat, EA, NE and Drinking Water Inspectorate. During the transition to the new regulator, Ofwat will remain in place, and following its creation, the EA and NE will retain their non-water role.

Until there is more information on the role of the new regulator and which other recommendations will be adopted by government, the LPA should assume the current regulatory environment will continue.

3.6.6 A New Vision for Water: White Paper

On 20 January 2026 A New Vision for Water white paper was presented to Parliament by the Secretary of State for Environment, Food & Rural Affairs. The white paper responds to the 88 recommendations made in the Cunliffe Report and puts forward a "once-in-a-generation plan to transform the water system for good".

Changes proposed in the white paper include:

- Expanding the price review system to capture the 25-year planning horizon with further details provided in five-year periods.
- A Chief Engineer will sit inside the new single water regulator. Their job will be to bring back hands-on checks of water infrastructure.
- The regulator will introduce a new inspection approach for water companies, requiring health checks on pipes, pumps, and other assets. Self-monitoring will come to an end.
- Where companies fall short, a new Performance Improvement Regime will give the regulator the power to act fast and fix failures so that underperforming water companies recover faster, protecting customers and the environment and giving stability to investors.
- The price control process will reflect a focus on maintenance and resilience. Ringfenced budgets will ensure there's enough funding for maintenance and renewal alongside building new assets.
- Improve joined-up regional planning by requiring regional plans that will set out investment priorities to meet national objectives.
- Work with existing groups such as catchment partnerships to design a new regional planning framework with Defra, set to be implemented in 2027.
- Confirms the roll out of smart metering and mandatory efficiency labels on white goods.

Recommendations in the Cunliffe Report that the white paper does not pick up include:

- Updated legislation to provide a clear framework for approving nature-based solutions.
- Mandatory SuDS for new developments in England.

It should be noted that white papers set out the Government's proposals for future legislation, providing a basis for further consultation and discussion to allow final changes to be made before a Bill is formally presented to Parliament. The white paper states that a 2026 Transition Plan will set out the path to this new system and a new water reform Bill will bring forward the legislation needed to enable the system to take effect.

3.7 Flood Risk and Surface Water

3.7.1 Flood and Water Management Act 2010

The Flood and Water Management Act (FWMA) aims to improve both flood risk management and the way water resources are managed (HM Government, 2010).

The FWMA has created clearer roles and responsibilities and helped to define a more risk-based approach to dealing with flooding. This included the creation of a lead role for LAs, as LLFAs, designed to manage local flood risk (from surface water, ground water and ordinary watercourses) and to provide a strategic overview role of all flood risk for the EA.

The content and implications of the FWMA provide considerable opportunities for improved and integrated land use planning and flood risk management by LAs and other key partners. The integration and synergy of strategies and plans at national, regional, and local scales, is increasingly important to protect vulnerable communities and deliver sustainable regeneration and growth.

Schedule 3 of the FWMA 2010 will provide a framework for the approval and adoption of drainage systems, a SuDS Approving Body (SAB) within unitary and county councils, and national standards on the design, construction, operation, and maintenance of SuDS for the lifetime of the development. The previous government affirmed its commitment for enacting Schedule 3. However, it is currently unknown whether the new government intends to do this or what the proposed timescales would be.

3.7.2 Local Flood Risk Management Strategy (LFRMS)

Local Flood Risk Management Strategies set out how Lead Local Flood Authorities (LLFA) will manage local flood risk from surface water runoff, groundwater and ordinary watercourses, for which they have a responsibility as LLFA. They also set out the work that other Risk Management Authorities are doing to manage flood risk within the area.

The Solihull Metropolitan Borough Council Local Flood Risk Management Strategy sets out the following objectives:

1: Improving the understanding and communication of flood risk in Solihull

2: Managing the likelihood and impacts of flooding

3: Helping Solihull’s citizens to manage their own risk

4: Guiding appropriate development in Solihull

5. Improving flood prediction, warning and post flood recovery

6: Working in partnership with others to deliver the Local Strategy

3.7.3 Strategic Flood Risk Assessment (SFRA)

All LPAs are required, under NPPF, to prepare a SFRA, which forms a key part of the evidence base for their Local Plan. The SFRA must consider flood risks from all sources, collating up-to-date flood risk data and in some cases developing new flood risk modelling. The SFRA is used to inform the Sequential Test, by which Local Plan allocations should be sequentially selected to direct development towards areas of lower flood risk, taking into consideration the vulnerability to flooding of the proposed land use. Solihull Metropolitan Borough Council's current SFRA was published in 2017. At the time of writing a Level 1 SFRA is in the process of being prepared to support the new Local Plan for Solihull and will be published in due course.

3.7.4 Surface Water Management Plan

Surface Water Management Plans (SWMPs) outline the preferred surface water management strategy in a given location and establish a long-term action plan to manage surface water. SWMPs are undertaken, when required, by LLFAs in consultation with key local partners who are responsible for surface water management and drainage in their area. At the time of writing a SWMP for Solihull has not been published.

3.7.5 Sustainable Drainage Systems

From April 2015, LPAs were given the responsibility for ensuring that sustainable drainage is implemented on all major developments, including developments of ten or more homes, or commercial developments creating 1,000m^2 of new floor space.

Previously SuDS guidance was developed by Defra to sit alongside the NPPF PPG and provide non-statutory standards as to the expected design and performance for SuDS.

As of July 2025, the Defra National standards for sustainable drainage systems (SuDS) were brought in to comply with the principles of surface water drainage design.

The national standards contain two sets of standards. The first type (standard one) is known as the hierarchy standard and sets the criteria for the prioritisation of final surface water runoff destinations. The other standards (standards two to seven) detail the minimum design criteria that SuDS should satisfy alongside how they are to be appropriately built, maintained, and operated.

These National Standards form a material consideration for LPAs when assessing planning applications. These standards aim to reflect and reinforce good practice and use of SuDS, reflecting the four pillars of SuDS design. All appropriate planning applications should demonstrate how the national standards have been met in the site design (principle ten).

Standard one: runoff destinations

Runoff from development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

- Priority one: collected for non-potable use (rainwater harvesting)
- Priority two: infiltrated to ground
- Priority three: discharged to an above ground surface water body
- Priority four: discharged to a surface water sewer, or another piped surface water drainage system
- Priority five: discharged to a combined sewer.

Non-potable use

There is potential for rainwater harvesting for non-potable uses to decrease the water demand from new developments and help improve water efficiency.

Rainwater harvesting shall be considered in all circumstances where any of the following apply:

- There is a demand for non-potable water and available contributing catchment area that will deliver safe and efficient water savings.
- Examples include industrial, commercial, horticultural, educational, public sector, residential and multiple-occupancy buildings.
- There is a need for landscape irrigation.
- The development is in an area identified as seriously water stressed.

Solihull Metropolitan Borough Council are the LLFA and play a key role in ensuring that the proposed drainage schemes for all new developments comply with technical standards and policies in relation to SuDS. Further information and guidance on surface water drainage can be found within SMBC's guide to sustainable drainage published in April 2023.

An updated version of the Construction Industry Research and Information Association (CIRIA) SuDS Manual was published in 2015. The guidance covers the planning, design, construction and maintenance of SuDS for effective implementation within both new and existing developments. The guidance is relevant for a range of roles with the level of technical detail increasing throughout the manual. The guidance does not include detailed information on planning requirements, SuDS approval and adoption processes and standards, as these vary by region and should be checked early in the planning process. The manual itself can be found on the CIRIA website (ciria.org).

CIRIA also published 'Guidance on the Construction of SuDS' (C768) (ciria.org), which contains detailed guidance on all aspects of SuDS construction, with specific information on each SuDS component available online as a downloadable chapter, free to CIRIA members.

Severn Trent Water provides SuDS guidance on their website including:

- General Design Manual,
- Landscape Specification,
- Planting Schedule,
- Landscape Maintenance Guidance,
- Flow Control Chamber Details,
- Sewer Connection Detail, and
- Gully Abandonment Detail.

3.7.6 Design and Construction Guidance

The Design and Construction Guidance (water.org.uk) forms part of a new Codes for Adoption covering the adoption of new water and wastewater infrastructure by water companies. The Design and Construction Guidance contains details of the water sector's approach to the adoption of SuDS, which meet the legal definition of a sewer. This replaces the formerly voluntary Sewers for Adoption. The new guidance came into force in April 2020 and compliance by water companies in England is mandatory.

The previous standards, up to and including Sewers for Adoption Version 7, included a narrow definition of sewers to mean below-ground systems comprising of gravity sewers and manholes, pumping stations, and rising mains. This excluded the adoption of SuDS by water companies, except for below-ground storage comprising of oversized pipes or chambers.

The new guidance provides a mechanism for water companies to secure the adoption of a wide range of SuDS components which are now compliant with the legal definition of a sewer. There are however several non-adoptable components such as green roofs, pervious pavements, and filter strips. These components may still form part of a drainage design so long as they remain upstream of the adoptable components.

The Design and Construction Guidance states that the drainage layout of a new development should be considered at the earliest stages of design. It is hoped that the new guidance will lead to better managed and more integrated surface water systems which incorporate amenity, biodiversity, and water quality benefits.

3.8 Environmental Protection and Biodiversity

3.8.1 The Environment Act 2021

The Environment Act (HM Government, 2021) came into UK law in November 2021 with the aim of protecting and enhancing the environment. The Act has objectives to improve air and water quality, biodiversity, waste reduction, and resource efficiency. The implementation of the policies within the Environment Act has begun, and legally binding environmental targets are being developed. This will be enforced by the Office for Environmental Protection (OEP). More information is available on the OEP website (theoep.org.uk).

The Environment Act (Part 5) contains policies concerning improvements to the water environment. These policies have the following aims:

- Effective collaboration between water companies through statutory water management plans;
- Minimise the damage that water abstraction may cause on environment; and
- Modernise the process for modifying water and sewerage company licence conditions.

Further to this, there is specific legislation regarding storm overflows aiming to reduce the discharge of untreated sewage into waterways. This plan includes requirements for water companies to:

- Report on the discharges from storm overflows;
- Monitor the quality of water potentially affected by discharges;
- Progressively reduce the harm caused by storm overflows; and
- Report on elimination of discharges from storm overflows.

3.8.2 25-year Environment Plan

The Environmental Improvement Plan (EIP) is the first revision of the 25-year environment plan (25YEP) published in 2018 and updated in 2023. It contains ten goals which are shown in Figure 3.1. The government must review and revise the plan, if needed, every five years to ensure continued progress against the ten 25YEP goals.

Of particular importance to a WCS is Goal 3 - Clean and plentiful water.

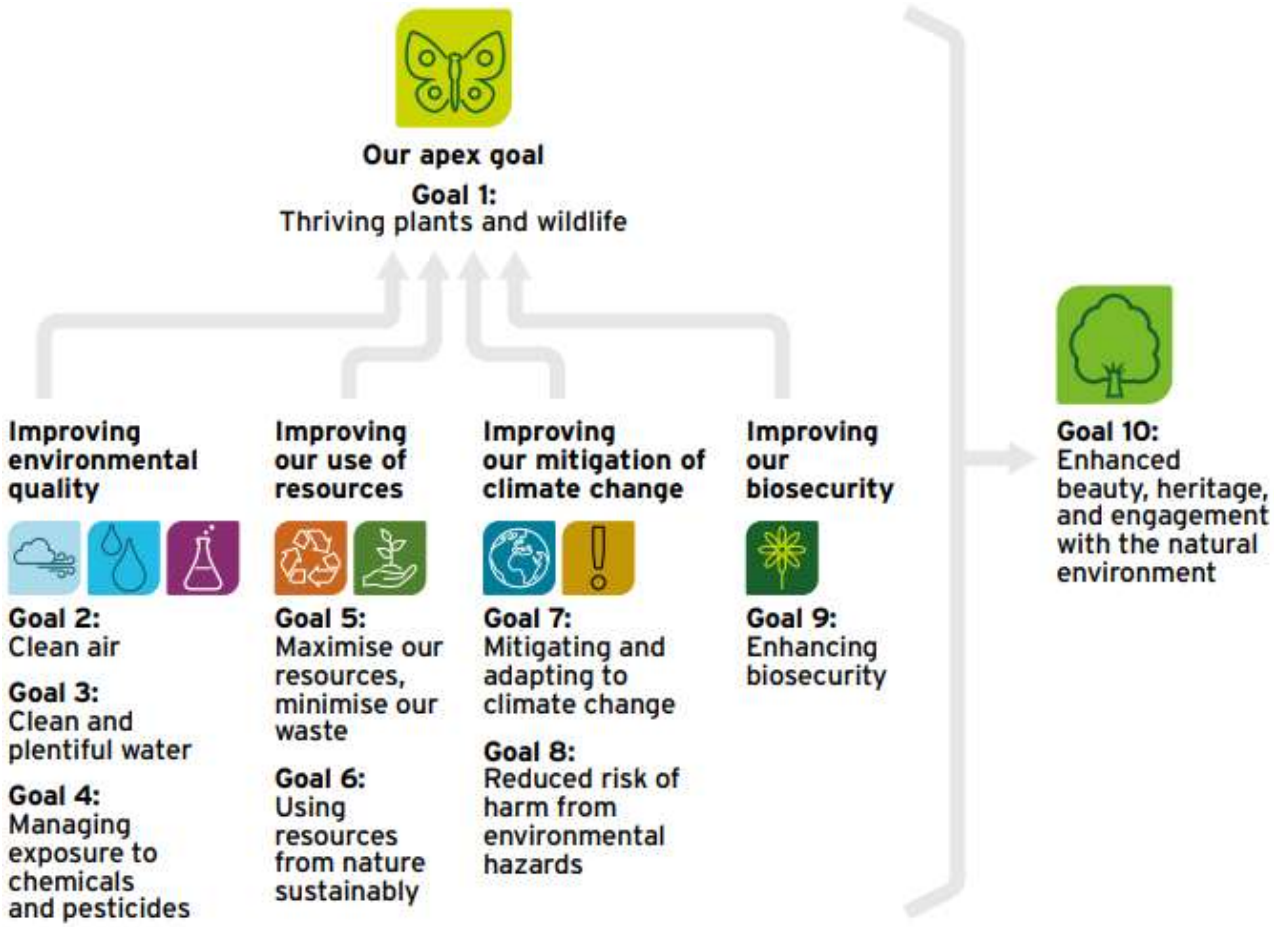


Figure 3.1 The 10 Environmental Improvement Plan goals

Under Goal 3 - Clean and plentiful water, there are eight sets of targets and commitments relating to different aspects of the water environment:

- "Reduce nitrogen, phosphorus, and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline, with an interim target of 10% by 31 January 2028, and 15% in catchment containing protected sites in unfavourable condition due to nutrient pollution by 2028.
- Reduce phosphorus loadings from treated wastewater by 50% by 2028 and 80% by 2038 against a 2020 baseline.
- Halve the length of rivers polluted by harmful metals from abandoned mines by 2038, against a baseline of around 1,500km (approximately 930 miles).
- Reduce the use of public water supply in England per head of population by 20% from the 2019-20 baseline, 2038, with interim targets of 9% by 2027 and 14% by 2032, and to reduce leakage by 20% 2027 and 30% by 2032.
- Restore 75% of our water bodies to good ecological status.

- Require water companies to have eliminated all adverse ecological impact from sewage discharges at all sensitive sites by 2035, and at all overflows by 2050.
- Target a level of resilience to drought so that emergency measures are needed only once in 500-years."

To deliver these goals, the EIP outlines action across these areas:

- Improving wastewater infrastructure and water company environmental performance;
- Reducing pressures on the water environment from agriculture;
- enabling the sustainable use of water for people, business and the environment;
- Tackling pressures from chemicals and pollutants;
- Restoring natural function and iconic water landscapes; and
- Joined-up management of the water system.

Progress towards delivering the EIP will be monitored annually.

3.8.3 Defra Plan for Water

Defra's Plan for Water (Department for Environment, Food & Rural Affairs, 2023) provides further detail on the actions towards achieving Goal 3 of the EIP23 It promotes an integrated approach to water management as the foundation of the plan. While many of the actions contained within the Plan for Water are outside of the responsibilities of areas of influence of the LPAs, the following summarises those actions that LPAs should have regard to:

- Require standardised SuDS in new housing developments in 2024, subject to final decisions on scope, threshold, and process following consultation in 2023.
- Designate all chalk catchments as water stressed and high priority under the sewer overflows reduction plan, driving action to improve water management.
- The plan reflects the predicted four billion litre per day (4,000 ml/d) gap between supply and demand across England and contains measures to both boost supply and reduce demand. Of interest to LPAs is the plan to reduce demand which will address half of the gap.
- A key component in reducing demand for water is improving water efficiency and there is a target under the Environment Act to reduce the use of public water supply in England per head of population by 20% by 2038. A road map on water efficiency in new developments and retrofits has been developed with ten actions to improve water efficiency:
    - Action one - Implement schedule 3 to the Flood and Water Management Act 2010. The 2024 consultation will consider rainwater harvesting in developing the statutory SuDS National Technical Standards.

- Action two - Review the Water Supply (Water Fittings) Regulations 1999, the Water Supply (Water Quality) Regulations 2016 and/or any other relevant legislation to address wasteful product issues with toilets and enable new water efficient technologies.
- Action 3 - Develop clear guidance on ‘water positive’ or ’net zero water’ developments and roles for developers and water companies.
- Action four - Review water efficiency options in planning, building regulations and through voluntary schemes for non-household buildings.
- Action five - Work with Ofwat to ensure the water industry can play a central role in retrofitting water efficient products in households, businesses, charities and the public sector.
- Action six - Work across government to integrate water efficiency into energy efficiency advice and retrofit programmes.
- Action seven - Review the Building Regulations 2010, and the water efficiency, water reuse and drainage standards including considering a new standard for new homes in England of 105 l/p/d and 100 l/p/d where there is a clear local need.
- Action eight - Mandatory water efficiency labelling scheme.
- Action nine - Investigate dual pipe systems (rainwater harvesting) and water reuse options for new housing development as part of the review of the planning framework.
- Action ten - Enable innovative water efficiency approaches in buildings, including technologies and approaches to funding and maintenance.

3.8.4 Biodiversity Net Gain

Biodiversity net gain (BNG) is designed to contribute to the recovery of nature while developing land. The principle is that the natural environment is in measurably better state after development than it was before. The Environment Act 2021 has, since 2024 required all planning permissions granted in England to achieve 10% BNG.

Defra publishes a biodiversity metric tool, the latest version of which must be used for calculating the BNG deriving from a proposed development.

3.8.5 Local Nature Recovery Strategy

The Environment Act (HM Government, 2021) also established a duty to prepare, by March 2025, Local Nature Recovery Strategies (LNRS), recognising that England is one of the most nature-depleted countries in the world. West Midlands Combined Authority are the local authority responsible for preparing the LNRS In the study area. They are tasked with working with local partners to agree priorities for nature recovery and identify "practical, achievable proposals" (Department for Environment Food & Rural Affairs, 2023) to address these priorities. The LNRS should also co-ordinate with neighbouring strategies to form a national Nature Recovery Network.

The West Midlands Combined Authority LNRS was published in October 2025 (West Midlands Combined Authority, Greener Together, 2025).

There is a close linkage with BNG, as developments proposing to create, enhance or recover habitat in locations mapped by the LNRS receive a higher value in the biodiversity metric calculator than in other locations.

3.8.6 Storm Overflow Reduction Plan

The Environment Act 2021 placed a legal duty on water companies to progressively reduce the adverse impacts of discharges from storm overflows. The storm overflow discharge reduction plan sets the following targets:

- By 2035, water companies will have: improved all overflows discharging into or near every designated bathing water; and improved 75% of overflows discharging to high priority sites.
- By 2050, no storm overflows will be permitted to operate outside of unusually heavy rainfall or to cause any adverse ecological harm.

There is also an expectation that water companies ensure their infrastructure keeps pace with increasing external pressures, such as urban growth and climate change, without these pressures leading to greater numbers of discharges.

3.8.7 The Water Framework Directive (WFD) and Water Environment Regulations

Introduction

The European Union WFD 2000 is currently transposed into English and Welsh law by the Water Environment Regulations 2017. They apply to all waterbodies (watercourses, canals, lakes, estuaries and coastal waters), with the objective of meeting Good Ecological Status (GES) or, where heavily modified, Good Ecological Potential (GEP). To meet GES or GEP, a water body must achieve a good or high score for all elements - in the case of surface water, these are biological, physico-chemical, specific pollutants and hydromorphology. These elements are shown in Figure 3.2, which is from the webpage on how to use the Catchment Data Explorer (environment.data.gov.uk). UK policy remains to meet GES or GEP for all waterbodies by 2027.

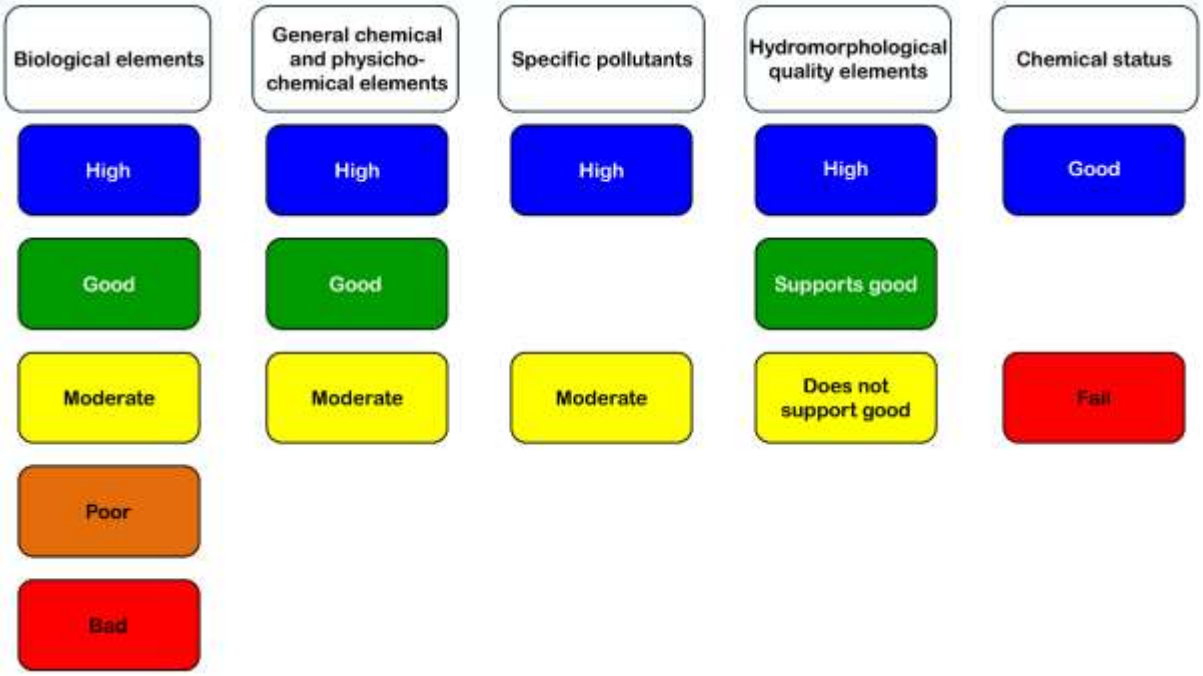


Figure 3.2: Status classification for surface water (EA, 2023)

Chemical Status is separately assessed. The WFD and the EA recognise a group of ubiquitous chemicals which are persistent, bioaccumulative or toxic (uPBT), and without which over 90% of England's waterbodies would achieve Good Chemical Status. Mercury, Perfluorooctanesulfonic acid (PFOS) and Polybrominated diphenyl ethers (PBDE) are the most ubiquitous causes of failures. Due to the persistent nature of these chemicals, the date for getting all waterbodies to Good Chemical Status is set for 2063.

River Basin Management Plans

River Basin Management Plans (RBMP) are required under the WFD and document the baseline classification of each waterbody in the plan area, the objectives, and a programme of measures to achieve those objectives. Solihull falls within the Humber RBMP- GOV.UK. The third cycle RBMPs were published in 2022. A primary WFD objective is to ensure ‘no deterioration’ in environmental status, therefore all water bodies must meet the class limits for their status class as declared in the Humber RBMP. Another equally important objective requires all water bodies to achieve good ecological status. Future development needs to be planned carefully so that it helps towards achieving the WFD and does not result in further pressure on the water environment and compromise WFD objectives.

The WFD objectives as outlined in the updated RBMP are summarised below:

- Preventing deterioration of the status of surface waters and groundwater
- Achieving objectives and standards for protected areas
- Aiming to achieve good status for all water bodies
- Reversing any significant and sustained upward trends in pollutant concentrations in groundwater

- Cessation of discharges, emissions and losses of priority hazardous substances into surface waters
- Progressively reducing the pollution of groundwater and preventing or limiting the entry of pollutants

LPAs must have regard to the WFD as implemented in the RBMP. It is of primary importance when assessing the impact of additional wastewater flows on local river quality.

Alongside the RBMP documents, the data behind them can be explored further using the Catchment Data Explorer (environment.data.gov.uk) and map viewer (environment.maps.arcgis.com).

Protected Area Objectives

The Water Environment Regulations specify that areas requiring special protection under other EU Directives, and waters used for the abstraction of drinking water, are identified as protected areas. These areas have their own objectives and standards.

Some areas may require special protection under more than one piece of European Union-derived legislation or may have additional (surface water and/or groundwater) objectives. In these cases, all the objectives and standards must be met.

The types of protected areas are:

- Areas designated for the abstraction of water for human consumption (Drinking Water Protected Areas);
- Areas designated for the protection of economically significant aquatic species (Freshwater Fish and Shellfish);
- Bodies of water designated as recreational waters, including Bathing Waters;
- Nutrient-sensitive areas, including areas identified as Nitrate Vulnerable Zones under the Nitrates Directive or areas designated as sensitive under Urban Waste Water Treatment Regulations; and
- Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection including relevant National sites.

3.8.8 Conservation of Habitats Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2010 (commonly referred to as the Habitats Regulations) consolidated the Conservation (Natural Habitats, &c.) Regulations 1994 and transposed the EU Habitats Directive in England and Wales which was aimed at protecting plants, animals and habitats that make up the natural environment. The regulations were further amended in 2017.

The Habitats Regulations define the requirement for a Habitats Regulations Assessment (HRA) to be carried out. The purpose of this is to determine if a plan or project may affect the protected features of a “habitats site”. These include:

- A Special Area of Conservation (SAC) or candidate SAC.
- A Site of Community Importance (SCI).
- A site hosting a priority natural habitat type or priority species protected in accordance with Article 5(4) of the Habitats Directive.
- A Special Protection Area (SPA) or potential SPA.
- Ramsar sites.

All plans and projects (including planning applications) which are not directly connected with, or necessary for the conservation management of a habitat site require consideration of whether the plan or project is likely to have significant effects on that site.

This is referred to as the "Habitats Regulations Assessment screening" and should take into account the potential effects of both the plan/ project itself and in combination with other plans or projects.

Part 6 of the conservation of Habitats and Species Regulations 2017 states that where the potential for likely significant effects cannot be excluded, a competent authority must make an appropriate assessment of the implications of the plan or project for that site, in view of the site's conservation objectives.

The competent authority may agree to the plan or project only after having ruled out adverse effects on the integrity of the habitats site.

If adverse effects cannot be ruled out, and where there are no alternative solutions, the plan or project can only proceed if there are imperative reasons of over-riding public interest and if the necessary compensatory measures can be secured.

The "People over Wind" ECJ ruling (C-323/17) clarifies that when making screening decisions for the purposes of deciding whether an appropriate assessment is required, competent authorities cannot take into account any mitigation measures. This must be part of the appropriate assessment itself.

The implementation of the Conservation of Habitats Regulations has had particular significant implications in two areas related to water and planning:

- Nutrient Neutrality. Natural England (NE) has identified a number of catchment areas where Habitats Sites are in unfavourable condition due to eutrophication (an excess of the nutrients phosphorous and/or nitrogen in water). NE have advised that developments in these catchments must demonstrate that they do not cause harm, and that one way to do this is to introduce mitigation measures in the catchment area which offset the additional nutrients emitted as a result of the development, an approach known as nutrient neutrality. There are no parts of the study area which are currently within a nutrient neutrality catchment area, however NE may designate additional areas in the future.
- Water Neutrality: In 2021, NE issued a position statement that it could not conclude with sufficient certainty that groundwater abstractions in the Arun Valley, West Sussex are causing no adverse effect on Habitats Sites. NE

advised that developments in Sussex North Water Resource Zone (WRZ) must demonstrate that they do not cause harm, and that one way to do this is to introduce mitigation measures in the zone which offset the additional water consumed as a result of the development, an approach known as water neutrality. The position statement was withdrawn in October 2025, following agreement that that a reduction in the licence cap on water abstraction will ensure with sufficient certainty that development will not adversely impact the protected habitats. This does, however, emphasise the requirement upon Local Planning Authorities, as competent authorities, to demonstrate no adverse impacts through their Habitats Regulations Assessments. There are no parts of the study area which are currently within a water neutrality zone, however NE may designate additional areas in the future.

Both nutrient and water neutrality designations have resulted in significant impacts on the granting of planning permission in the designated areas.

3.8.9 Wildlife and Countryside Act

Sites of Special Scientific Interest (SSSI) are designated and legally protected under the Wildlife and Countryside Act 1981, Section 28G places a duty to take reasonable steps, consistent with the proper exercise of the authority's functions, to "further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special scientific interest." (HM Government, 1981).

The Government's 25-year Environment Plan has a target of "restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term." In line with this, and the Wildlife and Countryside Act 1981, Local Authorities should look to put forward options that contribute to conservation or restoration of favourable condition, and at the very least must not introduce policies that hinder the restoration of favourable condition by increasing existing issues.

A site is said to be in "favourable condition" when the designated feature(s) within a unit are being adequately conserved and the results from monitoring demonstrate that the feature(s) in the unit are meeting all the mandatory site-specific monitoring targets set out in the favourable condition targets (FCT).

3.8.10 Ramsar

The Convention on Wetlands of International Importance, more commonly known as the Ramsar convention, aims to protect important wetland sites. Member counties commit to:

- 'Wise use' (ramsar.org) of all their wetlands, defined under the convention as 'the maintenance of their ecological character, achieved through the

implementation of ecosystem approaches, within the context of sustainable development';
- Designating sites for the Ramsar list of 'Wetlands of International Importance' (Ramsar Sites) and their conservation; and
- Cooperating on transboundary wetlands and other shared interests.
- In the UK, Ramsar Sites are designated by the Joint Nature Conservation Committee (JNCC).

In general, the designation of UK Ramsar sites is underpinned through prior notification of these areas as SSSIs. Additionally, the NPPF states, (Paragraph 194), that Ramsar sites should be given the same protection in the planning process as sites designated under the European Union Habitats Directive.

3.8.11 Bathing Water Regulations

The Bathing Water Directive was first published in 2006 and are currently transposed into English and Welsh law through the Bathing Water Regulations 2013. The aims of the directive are the protection of public health whilst bathing, standardisation of publicly available water quality information and to improve management practices at bathing waters.

The UK has over 600 designated bathing waters defined as areas of inshore waters designated for public swimming, these areas are typically characterised by large numbers of swimmers and visitors per year. The Environment Agency are required to monitor water quality at these sites regularly (usually weekly) throughout the Bathing Water season, between 15th May and 30th September.

Water quality standards are based on the incidence of potentially harmful bacteria, E. coli and intestinal enterococci and are categorised as ‘excellent’, ‘good’, ‘sufficient’ or ‘poor’ on the basis of bacteria levels. Sites are rated annually and on a short-term basis in response to any temporary pollution incidents.

Achieving compliance with the Bathing Water Directive has driven some £2.5bn of investment by UK water companies since the early 1990s to reduce the impact of sewerage systems and treated wastewater discharges. Measures have included storage and surface water management to reduce storm overflow spills, moving or extending effluent outfalls and improving wastewater treatment, including ultra-violet (UV) treatment of final effluent.

In contrast to some other European nations, the UK has not previously designated stretches of river as bathing waters. However, following consultation (gov.uk), 27 proposed sites were added to a list of designated bathing waters from the 2024 bathing season. Consultation on the designation of a further 13 proposed bathing water sites was completed in March 2026 with a conclusion being reached that all 13 locations would be designated as bathing water sites as of the 2026 bathing season. Across England there are numerous campaigns by NGOs and members of the public to designate other stretches of river. Defra has published guidance on applying for

bathing water status, including a requirement for at least 100 bathers per day during the season.

3.8.12 Environmental Permitting Regulations

Environmental permitting is a process used to manage and regulate activities which may cause harm to the environment. The Environmental Permitting Regulations 2016 were introduced in order to streamline a wide-ranging number of environmental permitting laws under one set of regulations. These include permits for emissions to air, water and land, and cover a range of industrial sectors and waste management streams.

Of particular relevance to this study are the regulations for permitting sewage effluent discharges to surface waters and groundwaters, known as water discharge activities.

- The regulations are used to permit discharges from water company and private WwTW, and for sewer overflows.
- The EA will usually object to applications for a new private Package Treatment Plan (PTP) or septic tank where it is feasible to connect the development to a public sewerage system. A general rule of 30m per dwelling is used to define a reasonable distance from the site boundary to a public sewer. Hence a development of ten homes should connect to a public sewer within 300m of the boundary, unless there are significant barriers, such as a river or motorway.
- Where an existing or new development treats its own wastewater, a PTP must be installed if the discharge is directly to surface water. Where the discharge is to ground, a PTP or septic tank may be used, but must be connected to a suitably designed drainage field.

3.8.13 Groundwater protection

Under the regulations, the EA have published a set of position statements on protecting groundwater from various activities (Environment Agency, 2018). The position statements that are relevant to this study with regard to discharges to groundwaters, include surface water drainage and the use of SuDS, discharges from contaminated surfaces (e.g., lorry parks) and from treated sewage effluent.

The EA also maintain a set of maps of Source Protection Zones (SPZs) to help identify high risk areas within which pollution prevention measures should be implemented. The SPZs show the risk of contamination to public water supplies from activities that may cause pollution in the area, the closer the activity, the greater the risk:

- Zone 1 (Inner protection zone) This zone is designed to protect against the transmission of toxic chemicals and water-borne disease. It indicates the area in which pollution can travel to the borehole within 50 days from any

point within the zone and applies at and below the water table. There is also a minimum 50 metre protection radius around the borehole.

- Zone 2 (Outer protection zone) This zone indicates the area in which pollution takes up to 400 days to travel to the borehole, or 25% of the total catchment area, whichever area is the largest. This is the minimum length of time the Environment Agency think pollutants need to become diluted or reduce in strength by the time they reach the borehole.
- Zone 3 (Total catchment) This is the total area needed to support removal of water from the borehole, and to support any discharge from the borehole.
- Zone of special interest This is defined on occasions, usually where local conditions mean that industrial sites and other polluters could affect the groundwater source even though they are outside the normal catchment.

3.9 Summary of key new and emerging policy and legislation

The policy and legislation covering the water environment, water and wastewater services and planning is wide and frequently changing. The new and emerging policy and legislation below have been identified as particularly important for consideration in the development of the Local Plan.

- In July 2024 a new Government was formed and committed to reform the planning system, including a new standardised method of calculating local housing need.
- The Water (Special Measures) Act 2025, which received Royal Assent in February 2025, gives regulators stronger powers to act swiftly against water companies that harm the environment or fail customers. It allows Ofwat to ban executive bonuses if firms fall short on environmental, customer service, or financial standards. Other measures include automatic penalties to speed up enforcement, independent monitoring of all sewage outlets, and mandatory real-time reporting of emergency overflows within an hour of a spill.
- The Storm Overflow Assessment Framework (SOAF) was updated in 2025. This guidance builds on the implementation of the SOAF during the PR19 period (2020 to 2025) to improve and make the process more effective. Changes since the first framework include: a reduction in the trigger threshold for high spill frequency overviews to reflect requirements to improve storm overflow performance; linking to the most up to date process for water quality modelling investigations; and updates to related documentation including that on the process of the cost benefit assessment.
- The Independent Water Commission report (AKA The Cunliffe Report) recommended a simplification of the water planning system is recommended, with a comprehensive systems planning framework for England and Wales with responsibility for integrated and holistic water

system planning. In response, the government announced that Ofwat would be abolished and replaced by 'a new, single, powerful regulator'.

- As of July 2025, the Defra National standards for SuDS were brought in to comply with the principles of surface water drainage design.
- Schedule 3 of the Flood and Water Management Act will designate LLFAs as SuDS Approval Bodies (SABs) with a duty to adopt new SuDS and removing the automatic right to connect to public sewers. The previous Government affirmed its commitment for enacting Schedule 3; however, it is currently unknown whether the current Government intends to do this or what the proposed timescales would be.
- Defra has recently consulted on a revised national water efficiency standard for new homes of 105 l/p/d or 100 l/p/d where there is a clear local need.
- All developments are now expected to demonstrate at least a 10% biodiversity net gain.

4 Water resources

4.1 Introduction

4.1.1 Objectives

The aim of the water resources assessment is to identify whether sufficient water is available in the region to serve the proposed level of growth, and that it can be abstracted without a detrimental impact on the environment, both during the plan period and into the future. The assessment characterises the study area, identifying the key surface water and groundwater bodies, and local geology. It highlights the pressures on water resources in the region, identifies existing constraints on abstraction, and provides evidence for adopting tighter water efficiency targets.

4.1.2 Water resources in the UK

It is important to set water resources in Solihull within the context of the overall national picture.

The EA (Environment Agency, 2024) published a summary of England's revised draft regional and water resources management plans (gov.uk) which includes their view on the overall state of water resources in the UK and the challenges the country faces. They state that:

'In England, our climate is changing, our population is growing, and as a nation we want an improved environment along with a thriving economy, enabled by resilient water supplied. Action is required now to meet these objectives'.

'The scale of the challenge we face increases with time, and, by 2050, we are looking at a shortfall of nearly 5 billion litres of water per day between the sustainable water supplied available and the expected demand.'

'Demand reductions are crucial, particularly in the short term. The Environment Act 2021 sets a target to reduce the use of public water supply in England, per head of population, by 20% by 2037-38 from the 2019-20 baseline.'

'Government will be looking to water companies to act quickly and take significant steps forward on installing smart meters and delivering on their wider water efficiency commitments and reducing leakage. This will happen alongside the introduction of a mandatory water label which will enable water efficient decisions across the country. The government has also committed to review water efficiency requirements of building regulations which will be a key action to ensure new homes are water efficient.'

There have been several important documents published in recent years, all highlighting the growing awareness and concern about this issue. The National Water Resources Framework led to the creation of the regional water resources

planning groups and defined the objective to achieve an average household water efficiency of 110 l/p/d by 2050 (including existing housing).

The Government's 2023 Environmental Improvement Plan (gov.uk) contains a roadmap for improving water efficiency in new developments and retrofits.

4.2 Environmental characteristics of the study area

4.2.1 Introduction

This section aims to review the geological and hydrogeological setting of Solihull (the "study area") and the aquifer properties of the groundwater bodies, which will both supply and receive water discharges from the area and be affected by continued development.

4.2.2 Study Area

The study area, comprising the administrative area of the metropolitan borough of Solihull covers approximately 178.4km^2 in the West Midlands. Solihull is a large settlement with a population of 221,242 (based on the 2024 ONS data).

The River Blythe flows through the central area of Solihull, exiting the metropolitan borough in the northeast just north of Hampton-in-Arden. Meanwhile, the River Cole flows in the north of Solihull, exiting the metropolitan borough southwest of Coleshill. Multiple tributaries feed these rivers. Water supply and wastewater services across Solihull are provided by Severn Trent Water (STW).

4.2.3 Topography

The topography of the study area is shown in Figure 4.1. Ground elevations decrease from around 180 metres above ordnance datum (mAOD) in the eastern highest areas (Chapel Green) and 150mAOD in the western highest areas (Major's Green, Dickens Heath), to roughly 90mAOD within the River Blythe floodplain and roughly 80mAOD within the River Cole floodplain.

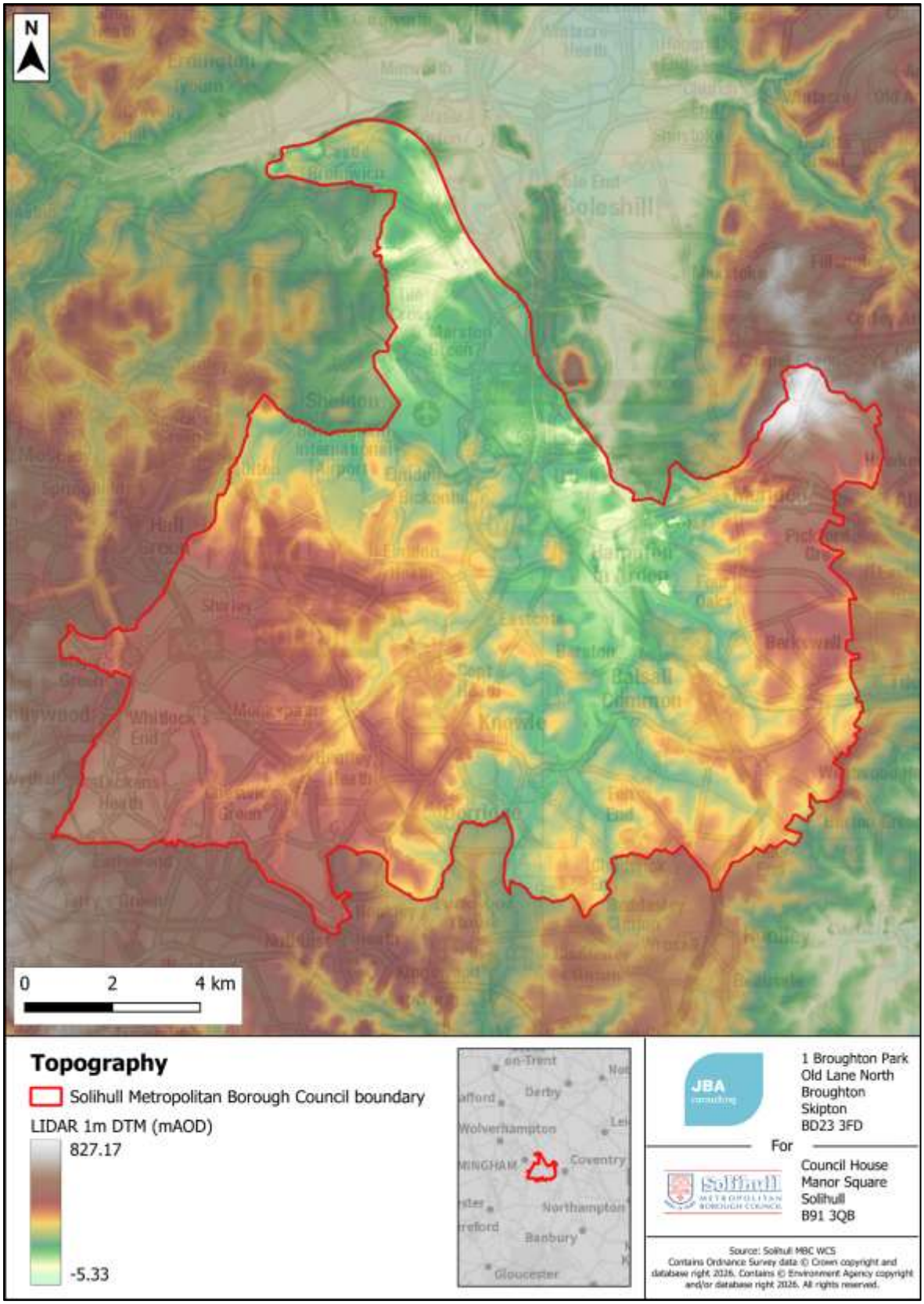


Figure 4.1: Solihull Topography

4.2.4 Catchment

There is one EA gauging station identified from the UK Hydrometric Register (2008) within the study area; on the River Cole southwest of Coleshill. The data provided by the station give the Baseflow Index (BFI) of 0.43. The Baseflow Index (BFI) is the proportion of total streamflow made up of baseflow (groundwater input). This suggests that 43% of the local watercourses near the gauge are made up of groundwater baseflow and are mostly reliant on short term surface water flow (rainfall).

The study area is largely split between the Tame Lower Rivers and Lakes Operational Catchment and Blythe River Operational Catchment within the Humber River Basin District. Both Operational Catchments have 5 individual water body catchments located within the study area. The eastern border region of Solihull is within the Avon Urban Rivers and Lakes Operational Catchment with the Severn River Basin District.

From the EA gauging station on the River Cole, the Standard Annual Average Rainfall (SAAR) is summarised in Table 4.1 below.

Table 4.1: Standard Annual Average Rainfall within study area

Gauging Station	SAAR period 1941 1970	SAAR period 1961 1990	SAAR period 1991 2020
Cole at Coleshill (Station: 28066)	732 mm/yr	723 mm/yr	756 mm/yr

The SAAR is the average rainfall across a catchment over a 30-year period derived from the National River Flow Archive. Annual rainfall has generally increased across the 3 periods, reflecting wider trends observed across the UK. Solihull receives approximately 100mm less rainfall on average a year compared to the Midlands district of the UK, according to the Met Office 30-year average annual rainfall datasets (1991-2020).

4.2.5 Surface Water Hydrology

Several Environment Agency-designated main rivers flow through the Solihull study area, forming a critical component of the district's hydrological infrastructure. Figure 4.2 shows the river waterbodies within the study area.

The source of the River Blythe is located approximately 3km south of the study area. The River Blythe flows from source to Cuttle Brook, where it is joined by Cuttle Brook it is then joined by Temple Balsall Brook and continues to flow onto Patrick Bridge where it flows from until it reaches the River Tame. This flow follows a roughly southwest to northeast orientation across Solihull, exiting the metropolitan borough just north of Hampton-in-Arden.

The source of the River Cole is located approximately 3km southwest of the study area. The River Cole flows in and out of the study area as it work its way to join the River Blythe. It first flows from its source to Springfield, during which section it runs along the Solihull Metropolitan Borough boundary for a while west of Dickens Heath before transecting the study area via Major's Green. It flows from Springfield to Hatchford-Kingshurst Brook, spending the majority of the stretch outside of the study area before re-entering for the file part of it as it approaches Hatchford-Kingshurst Brook. From the point where it converges with Hatchford-Kingshurst Brook (north of Marston Green) it flows east and exists the site, flowing northeast until it joins the River Blythe.

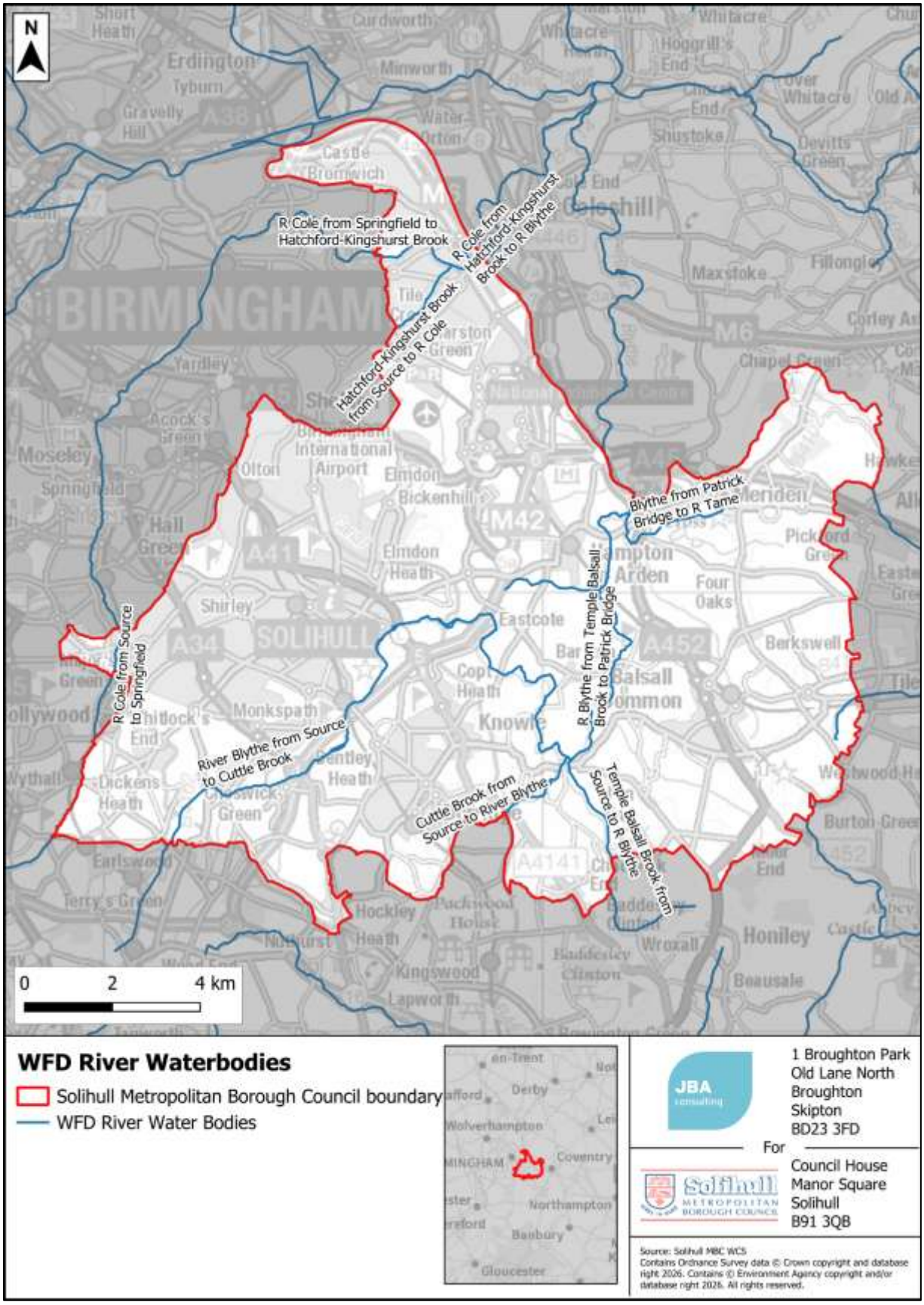


Figure 4.2: WFD River Waterbodies within Solihull

4.2.6 Groundwater Hydrology

A WFD groundwater body represents a distinct body of groundwater flow with a coherent flow unit including recharge and discharge areas with little flow across the boundaries. There are four groundwater bodies within the study area which are shown in Figure 4.3 and their corresponding WFD classification is summarised in Table 4.2 below.

The Tame Anker Mease - Secondary Combined groundwater body, Tame Anker & Mease - PT Sandstone Nuneaton & Meriden groundwater body and Warwickshire Avon - Secondary Mudrocks groundwater body have good overall status according to the WFD. However, the Warwickshire Avon - Coal Measures Coventry groundwater body registers poor Quantitative and therefore Overall Status with the WFD classification. This poor status is attributed to poor pesticide and nutrient management, general chemical pollution from livestock management within the groundwater and groundwater abstraction.

Table 4.2: WFD status of groundwater bodies

Groundwater Body	WFD Quantitative status	WFD Chemical status	WFD Overall status	Reasons for Not Achieving Good status (RNAG)
Tame Anker Mease - Secondary Combined	Good	Good	Good	N/A
Warwickshire Avon - Coal Measures Coventry	Poor	Good	Poor	Poor pesticide management, Groundwater abstraction, Groundwater, Poor nutrient management.
Warwickshire Avon - Secondary Mudrocks	Good	Good	Good	N/A
Tame Anker & Mease - PT Sandstone Nuneaton & Meriden	Good	Good	Good	N/A

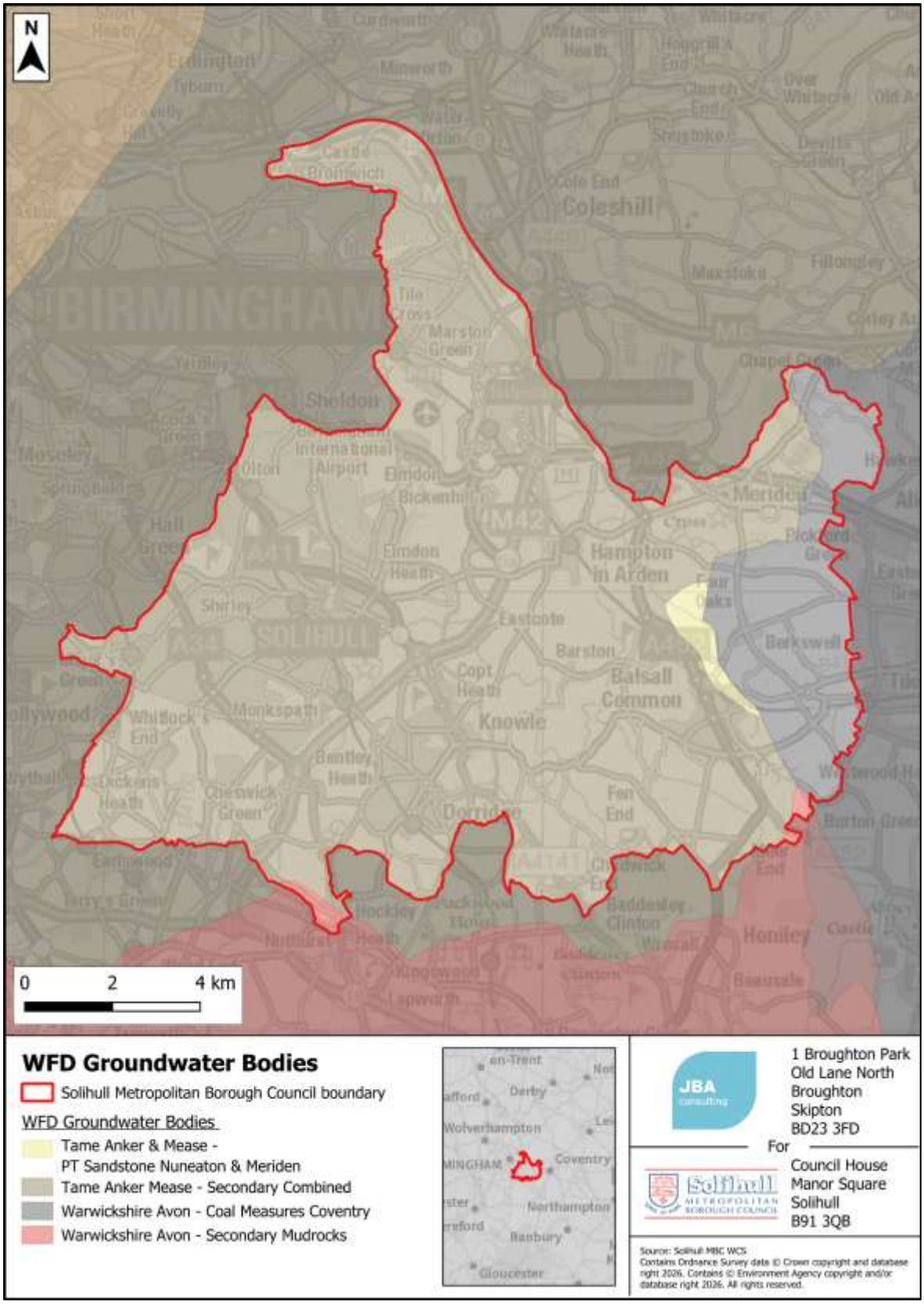


Figure 4.3: Groundwater bodies within Solihull

4.2.7 Geology Summary

The geology of catchments is an influencing factor in surface water runoff from the ground surface, and how appropriate the type of SuDS is for a development due to the variations in the permeability of surface material and bedrock stratigraphy.

Figure 4.4 shows the bedrock geology beneath Solihull. Triassic Rocks - Sandstone and Conglomerate covers the majority of the borough. Sandstone tends to have a relatively higher permeability though permeability of conglomerate varies. Warwickshire Group - Siltstone and Sandstone with Subordinate Mudstone covers the eastern side of the borough. There is a small area of Lias Group - Mudstone, Siltstone, Limestone and Sandstone in the centre of the borough, near Copt Heath. There are also two small areas of Triassic Rocks - Sandstone and Conglomerate, Interbedded within the eastern side of the borough.

Figure 4.5 shows the superficial (surface) geology of Solihull borough. Glacial Sand and Gravel covers much of the borough. Till is also present within the southern and western areas. Alluvium is present along the channels of the River Cole and River Blythe. There are some smaller areas of Lacustrine Deposits and River Terrace Deposits. Sand and Gravel tend to have higher permeability than Till which can drain slowly.

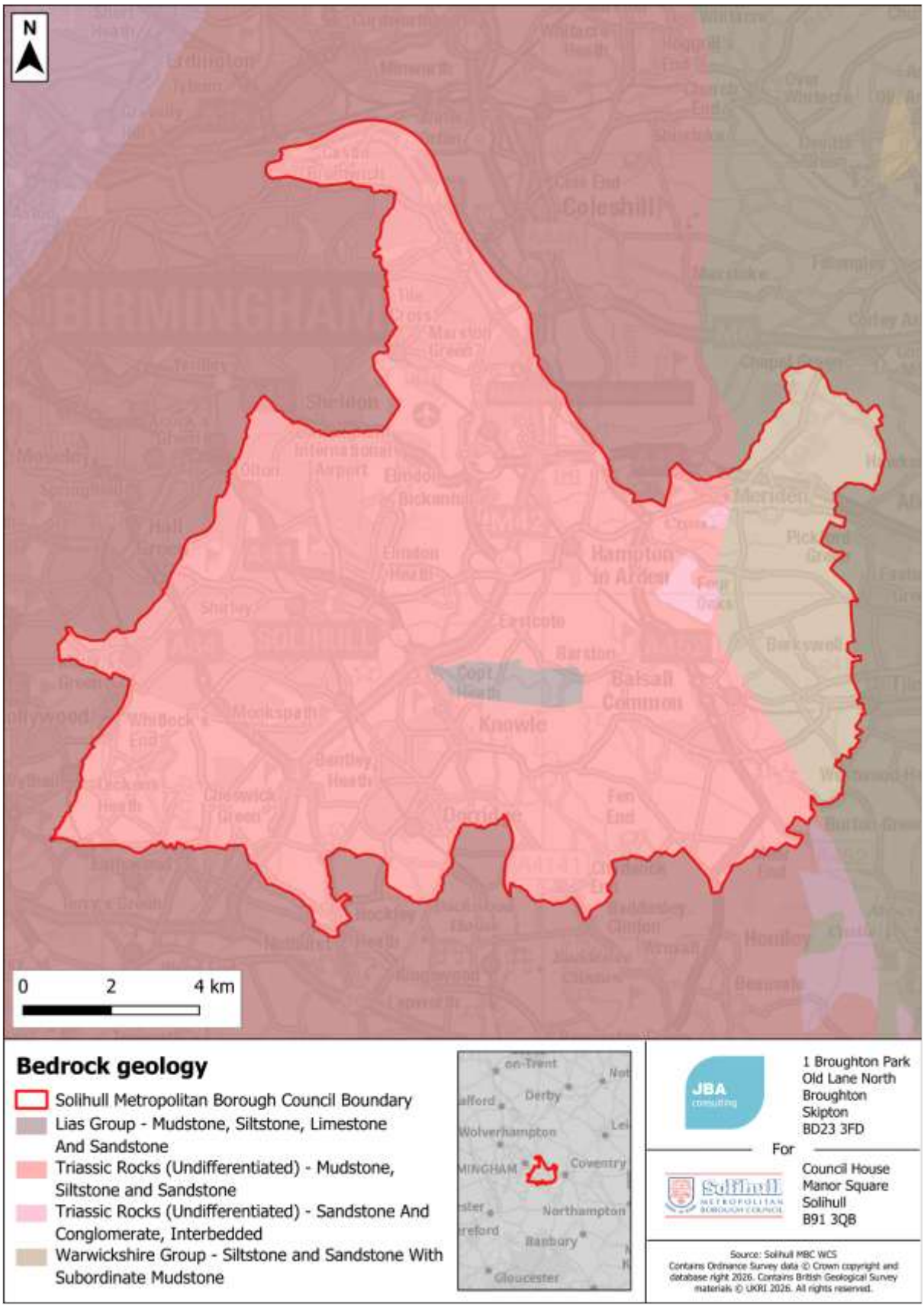


Figure 4.4: Bedrock geology in Solihull

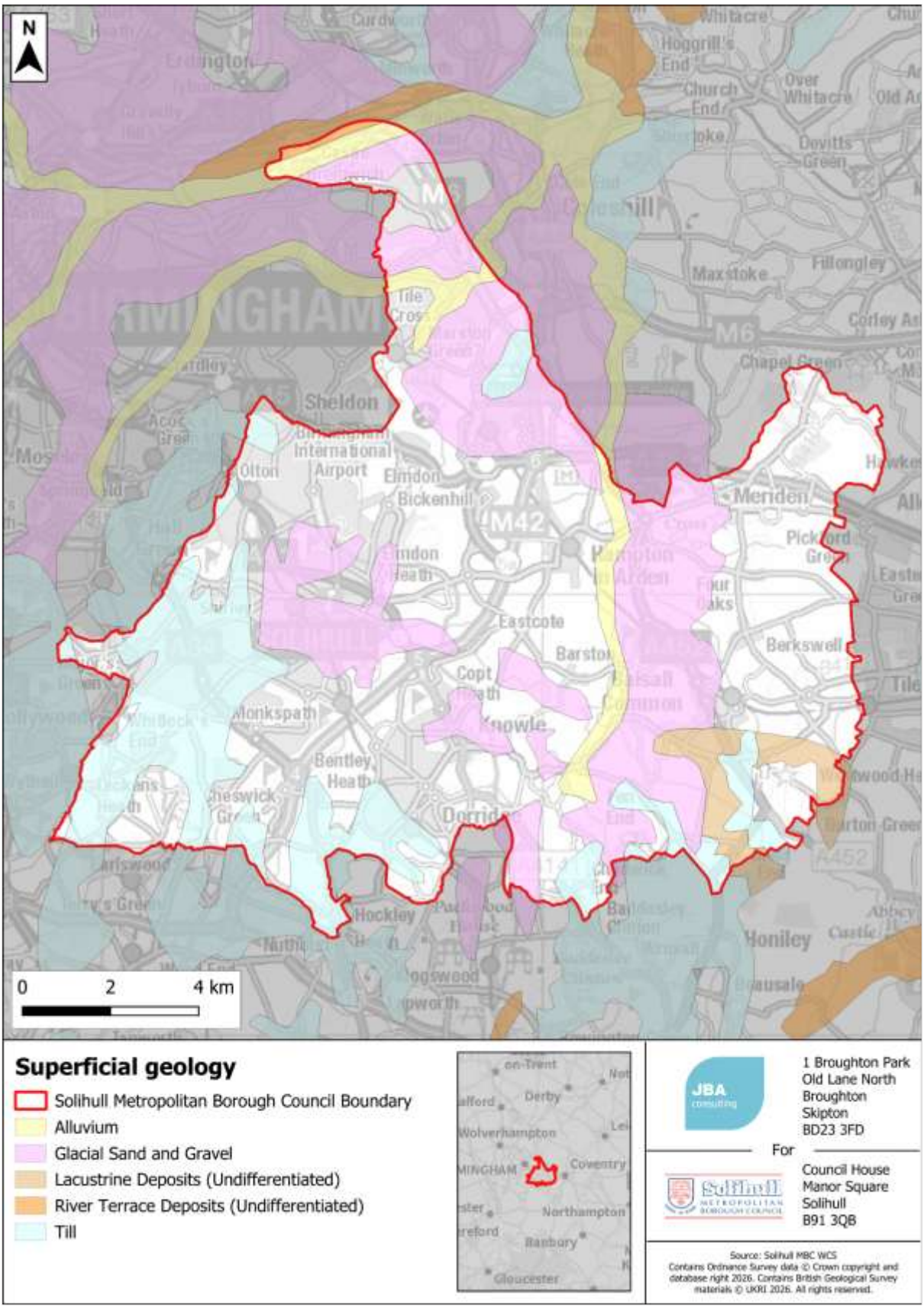


Figure 4.5: Superficial geology in Solihull

4.2.8 Hydrogeology

Figure 4.6 shows the hydrogeology of the bedrock beneath Solihull. The Triassic Rocks - Sandstone and Conglomerate which covers the majority of the borough is classified as a low productivity aquifer in which flow is virtually all through fractures and other discontinuities. The Warwickshire Group - Siltstone and Sandstone with Subordinate Mudstone which covers the eastern side of the borough is classified as a moderately productive aquifer in which flow is virtually all through fractures and other discontinuities. There is a small area of Lias Group - Mudstone, Siltstone, Limestone and Sandstone in the centre of the borough which is classified as rock with essentially no groundwater. There are also two small areas of Triassic Rocks - Sandstone and Conglomerate, Interbedded within the eastern side of the borough. These areas are classified as highly productive aquifers with significant intergranular flow.

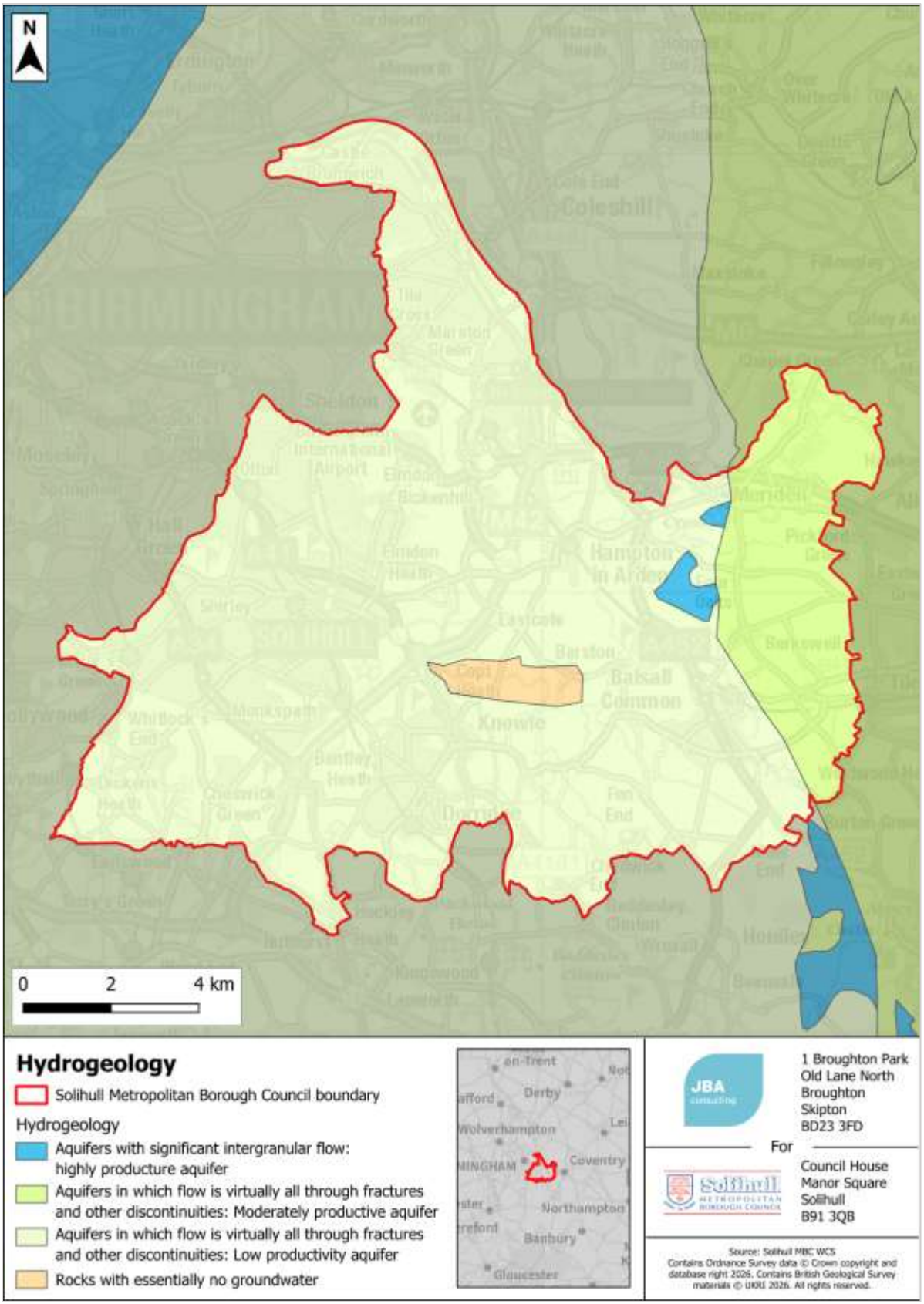


Figure 4.6: Hydrogeology in Solihull

4.3 Availability of water resources

4.3.1 Abstraction Licensing Strategy

The EA working through the Catchment Abstraction Management Strategy process, prepare an Abstraction Licensing Strategy (ALS) for each sub-catchment in a river basin. The strategy sets out how water resources are managed within England and contributes to the implementation of the WFD. The ALS report provides information on the resources available and what conditions might apply to new licences. The licences require abstractions to stop or reduce when a flow or water level falls below a specific threshold, as a restriction to protect the environment and manage the balance between supply and demand for water users.

All new licences, and some existing licences are time limited, allowing for periodic review of the area as circumstances may have changed since the licence was first issued. The duration is generally twelve years, but shorter licences may be granted if they are based on resource assessment and environmental sustainability grounds. In some cases, future plans or changes may mean that the EA will grant a shorter time limited licence, so it can be re-assessed following the change. If a licence is only required for a short time, it can be granted either as a temporary licence or with a short time limit. If a licence is considered to pose a risk to the environment it may be granted with a short time limit while monitoring is carried out. The licences are then replaced with a changed licence, revoked or renewed near to the expiry date.

The ALS are important in terms of the WRMP as this helps to determine the current and future pressures on water resources and how the supply and demand will be managed by the relevant water companies. An abstraction license is needed from the EA if abstraction is above 20m^3/ day (4,400 gallons) a day from:

- rivers or streams;
- reservoirs, lake or pond;
- canal;
- spring; or
- an underground source.

The license is granted depending on the amount of water available. The majority of Solihull is covered by the Tame Anker and Mease ALS area (Figure 4.7).

4.3.2 Resource availability assessment

To abstract surface water, it is important to understand what water resources are available within a catchment and where abstraction for consumptive purposes will not pose a risk to resources or the environment. The EA has developed a classification system which shows:

- the relative balance between the environmental requirements for water and how much has been licensed for abstraction;
- whether there is more water available for abstraction in the area; and

- areas where abstraction may need to be reduced.

The availability of water for abstraction is determined by the relationship between the fully licensed (all abstraction licences being used to full capacity) and recent actual flows (amount of water abstracted in the last six years) in relation to the environmental flow indicator. Results are displayed using different water resource availability colours, further explained in Table 4.3. In some cases, water may be scarce at low flows, but available for abstraction at higher flows. Licences can be granted that protect low flows, this usually takes the form of a Hands-off Flow, or Hands-off Level, condition on a licence. The assessment is performed at Assessment Points (APs), which are usually significant points on a river such as a confluence or gauging station.

Groundwater availability as a water resource is assessed similarly, unless better information on principle aquifers is available or if there are local issues that need to be considered.

Table 4.3: Implications of surface water resource availability colours.

Water resource availability colour	Implications for licensing
BLUE- High hydrological regime	
GREEN- Water available for licensing	There is more water than required to meet the needs of the environment. Licences can be considered depending on local/downstream impacts.
YELLOW- Restricted water available for licensing	
RED- Water not available for licensing	Recent Actual flows are below the environmental flow indicator. This scenario highlights water bodies where flows are below the indicative flow requirement to help support Good Ecological Status. No further licences will be granted. Water may be available via licence trading.
GREY- HMWBs (and /or discharge rich water bodies)	

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 – median flows which are exceeded 50% of the time
- Q30 – high flows which are exceeded 30% of the time

The resource availability for the Tame Anker and Mease ALS is summarised below, and the water resource availability in the study area is presented graphically in Figure 4.8.

In some catchments this assessment may show that there is limited or no water available for abstraction at Q50 or Q70 but show that there is water available at lower flows. This is likely to be because most abstraction licences are limited using a 'Hands off Flow' or 'Hands off Level', therefore within the catchment less water is being abstracted at very low flows and there is theoretically water available.



Figure 4.7: ALS area in and around Solihull

4.3.3 Tame Anker and Mease ALS

The Tame Anker and Mease Catchment covers an area of approximately 1,807km² (1). The catchment covers the tributaries and catchment of the Tame, Anker and Mease from the sources of the River Tame and River Mease to their confluence with the River Trent and a section of the River Trent catchment from its confluence with the River Tame to its confluence with the River Dove (Environment Agency, 2022).

At Q30, approximately 89% of the ALS area has water available (green). The overlapping area between the Tame Anker and Mease ALS and the study area (Solihull Metropolitan Borough Council) does not contain any areas of ‘water not available’ (red) nor 'restricted water availability' (yellow) (Figure 4.8). However, where the Warwickshire Avon ALS overlaps, to a minor extent, with the east of the study area there are areas of 'water not available' and 'restricted water availability' (Figure 4.8).

At Q50, approximately 78% of the ALS area has water available (green). The southern half of the study area, containing the upstream River Blythe, Cuttle Brook and Temple-Balsall Brook, changes from green to yellow, adopting 'restricted water availability' status (Figure 4.8). This status covers approximately 14% of the Tame Anker Mease ALS. Meanwhile, the classification given to the aspects of the Warwickshire Avon ALS within the site remain the same classification as that observed in Q30 (Figure 4.8).

At Q70, approximately 68% of the ALS area has water available (green). During this flow scenario the area of the site that was yellow ('restricted water availability') during Q50 becomes red, therefore meaning water is not available for licensing in that area (Figure 4.8). Such red status covers approximately 22% of the Tame Anker Mease ALS. The majority of the remaining area of the site, including the River Cole and Hatchford-Kingshurst Brook, falls into the 'restricted water availability' class (yellow) (Figure 4.8). Approximately 11% of the Tame Anker Mease ALS is classified to have 'restricted water availability for licensing'. This leaves a small area in the far north of the site, near the River Tame, where water is available for licensing (green) (Figure 4.8). As in the Q50 flow scenario, the aspects of the Warwickshire Avon ALS within the site remain the same classification as that observed in the Q30 flow scenario (Figure 4.8).

At Q95, water availability remains largely green across the whole ALS area, with approximately 60% of the Tame Anker and Mease ALS with 'water available for licensing'. However, the areas surrounding the upstream River Blythe, Cuttle Brook, Temple-Balsall Brook, the Hatchford-Kingshurst Brook and the River Cole within the study area now have 'no water availability for licensing' (red) (Figure 4.8). This is also true of the area in the east of the site, that is part of the Warwickshire Avon ALS

1 Area found using Environment Agency, 2025: Abstraction Licensing Strategy boundaries Cycle 2, shape file.

and near the River Sherbourne, which under the Q70, 50 and 30 scenarios had 'restricted water availability' (Figure 4.8).

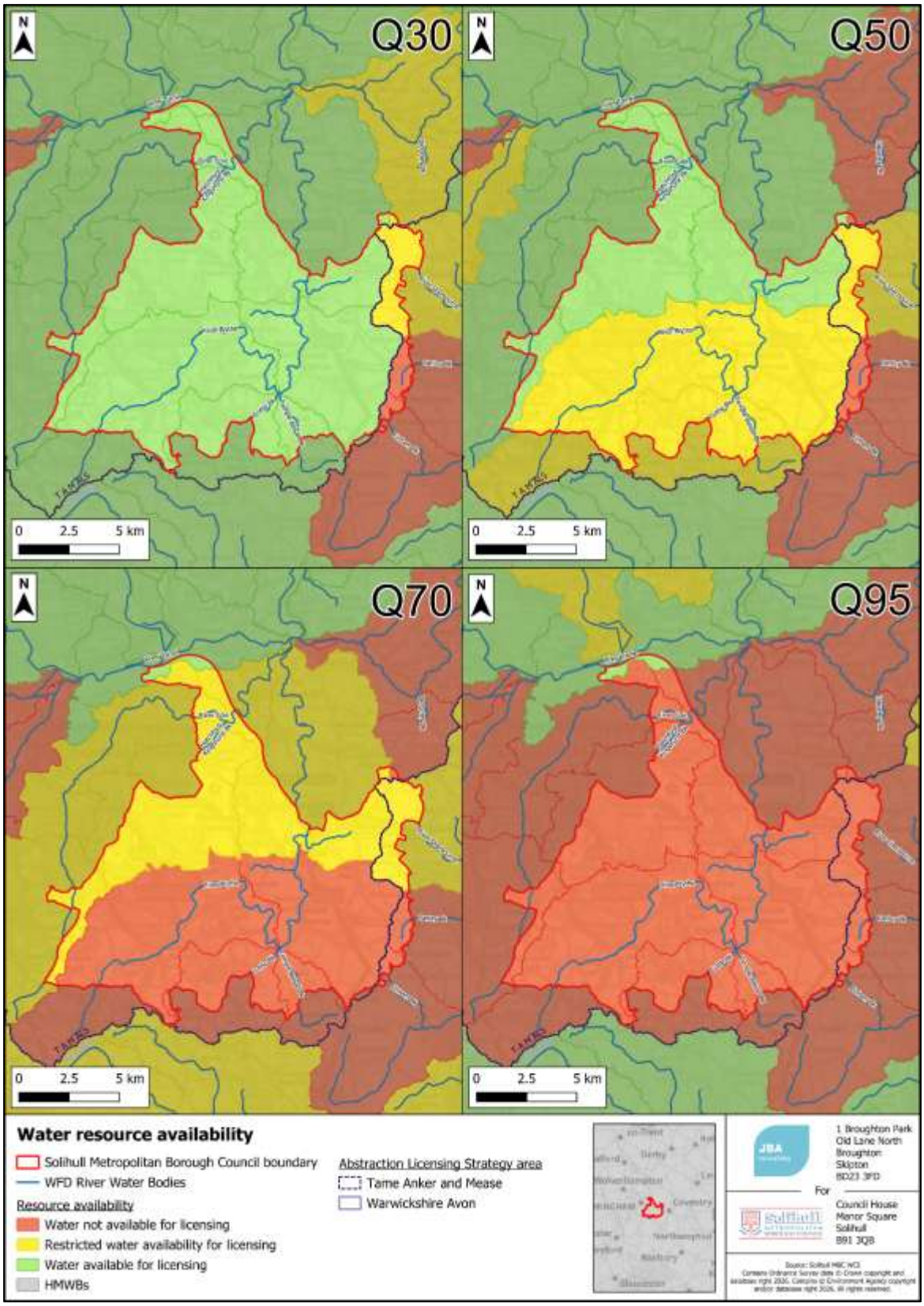


Figure 4.8: Water resource availability in Solihull

4.4 Water resources planning

4.4.1 National Water Resources Framework

An updated National Water Resources Framework was published in 2025 replacing the previous 2020 framework. The first framework described the scale of the challenge facing water resources in the UK and led to the creation of the five regional planning groups. It also set an objective for per capita consumption to be reduced to 110l/p/d on average across the UK (including existing housing). The new National Framework:

- sets out the pressures and challenges for the water environment to 2055 and beyond;
- sets the ambition for a sustainable abstraction regime and a protected and improved water environment;
- explores potential new demands for water;
- sets greater ambition for integrated, joined-up planning between water using sectors and with drainage and wastewater planning;
- proposes actions and expectations for different sectors to rise to the challenge of planning for and improving the resilience of water supplies; and
- provides a steer for regional water resources groups to evolve and continue to innovate.

The framework states that by 2055 England will need up to an additional 5 billion litres of water per day for public water supply, increased from the previous 2020 publication due to updated demand forecasts and additional reductions for the environment.

As well as the challenges of an increasing population, the 2025 Framework also outlines the challenge from non-household growth, and emerging sectors such as data centres which can require significant amounts of water for cooling servers, with large centres consuming millions of litres daily. Concrete production accounts for 9% of global industrial water withdrawals. Agriculture is significant with spray irrigation expected to increase due to the changing climate.

The new National Framework for Water Resources outlines next steps to improve water planning across all sectors. These include: continuing the Environment Agency’s strategic assessment of national water challenges; developing multi-sector plans through regional water resource groups; evaluating and identifying new solutions via regulators like RAPID; expanding engagement with other water-using sectors; and strengthening local planning efforts through groups like Water Abstractor Groups and Catchment Partnerships.

Of relevance to the WCS is the strengthening of local water resources planning which includes supporting farmers to establish Water Abstractor Groups (WAGs) and to "identify, screen and prioritise collaborative 'local resource option' solutions to improve water supply resilience".

4.4.2 The regional plan

Solihull Borough is within the Water Resources West (WRW) regional water resources planning group. WRW have published their Final Regional Plan for the west of England (Water Resources West, 2025), which covers 2025-2085. WRW relies on several major rivers such as the Severn, Dee, Trent, and Wye to supply 18 million people as well as agriculture and businesses. WRW are committed by 2050 to reduce leakage by 50% and support households to reduce their consumption to 110 litres per person per day, as well as deliver net environmental and biodiversity gain.

Figure 4.9 has been taken from the WRW website (waterresourceswest.co.uk) to illustrate the future demand for water within the area.

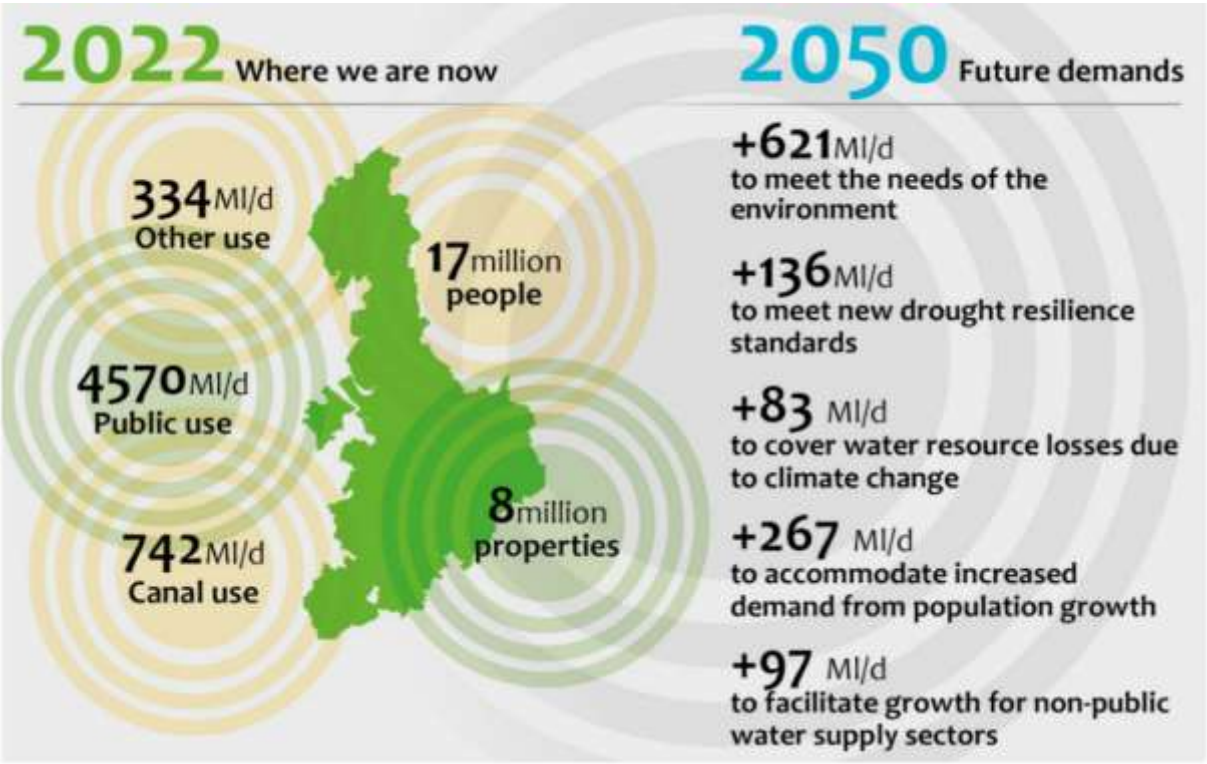


Figure 4.9: Future demands within the Water Resources West demand zone

Current consumptive water demand is around 5,645 Ml/d, with 81% used for public water supply. The Canal & River Trust accounts for the largest non-public demand at 743 Ml/d, while other sectors, industry, power, and agriculture, use about 334 Ml/d. Issues such as over abstraction, pollution, and degradation of habitats make it difficult for some watercourses in the area to achieve 'good ecological status' under the WFD. WFD status is summarised in Section 10.4.

The regional plan is shaped through collaboration among members and a broad range of stakeholders, including Local Enterprise Partnerships, Internal Drainage Boards, catchment groups, and others, across both Wales and England.

The preferred regional water plan aims to significantly reduce demand through a combination of water company initiatives and government action. Key measures

include widespread installation of smart meters, targeted water efficiency campaigns, and education programmes. A reduction in per capita consumption to 110 litres per day by 2050 is expected, supported by government-led water labelling starting in 2026. Leakage will be cut by 50% through improved pressure control, mains replacement, and smarter monitoring.

The preferred plan is designed as a "low regrets" approach, meaning it includes measures that are beneficial across most future scenarios. Despite ambitious demand management, additional supply options are needed, particularly in the Midlands, where Severn Trent plans to invest in new storage, treatment works, interconnectivity, and a transfer from the North West. United Utilities will support this with new abstraction and treatment infrastructure. In Wales, Hafren Dyfrdwy requires no new supply options, while Welsh Water will upgrade parts of its network. Water transfers and drought permits are also included as flexible tools for future adaptation.

4.4.3 Water resource assessment: Water Resources Management Plans

Water Resources Management Plans (WRMPs) are 25-year strategies that water companies are required to prepare, with full updates every five years. WRMPs are required to assess the following:

- Future demand (due to population and economic growth).
- Future water availability (including the impact of sustainability reductions).
- Demand management and supply-side measures (e.g., water efficiency and leakage reduction, water transfers and new resource development).
- How the company will address changes to abstraction licences.
- How the impacts of climate change will be mitigated.
- Where necessary, they set out the requirements for developing additional water resources to meet growing demand and describe how the balance between water supply and demand will be balanced over the next 50 years.
- Using cost-effective demand management, transfer, trading, and resource development schemes to meet growth in demand from new development and to restore abstraction to sustainable levels.
- In the medium to long term, ensuring that sufficient water continues to be available for growth and that the supply systems are flexible enough to adapt to climate change.

Water Resource Zones are the largest practical spatial area within which, managing supply and demand for water is largely self-contained (apart from defined bulk transfers of water); where the resource units, supply infrastructure and demand centres are linked so that customers within the zone experience the same risk of supply failure.

Within the zone, a customer may get their water from any of the water sources within that zone. It is therefore not possible to say that a development within a particular area will increase abstraction from a specific source.

WRMPs must plan for the next 25 years, and often much further ahead. When planning this far ahead, there is considerable uncertainty, for example demand management may not have the desired effect, the impact of climate change may be more or less than anticipated and new demands on water may emerge.

Adaptive planning allows a preferred option plan to be published, with key factors such as water demand and population growth tracked. If certain trigger conditions are met, such as population trending above forecast, the plan can adapt to a different “pathway” and the set of actions in the plan can change.

When new development within an LPA is being planned, it is important to ensure that there are sufficient water resources in the area to cover the increase in demand without risk of shortages in the future or during periods of high demand, and without causing a negative impact on the waterbodies from which water is abstracted.

The aim of this assessment was to compare the future additional demand as a result of development proposed within the emerging Local Plan, with the demand accounted for by Severn Trent Water's WRMP.

As seen in Figure 4.10 below, Severn Trent Water's Strategic Grid covers all of the study area.

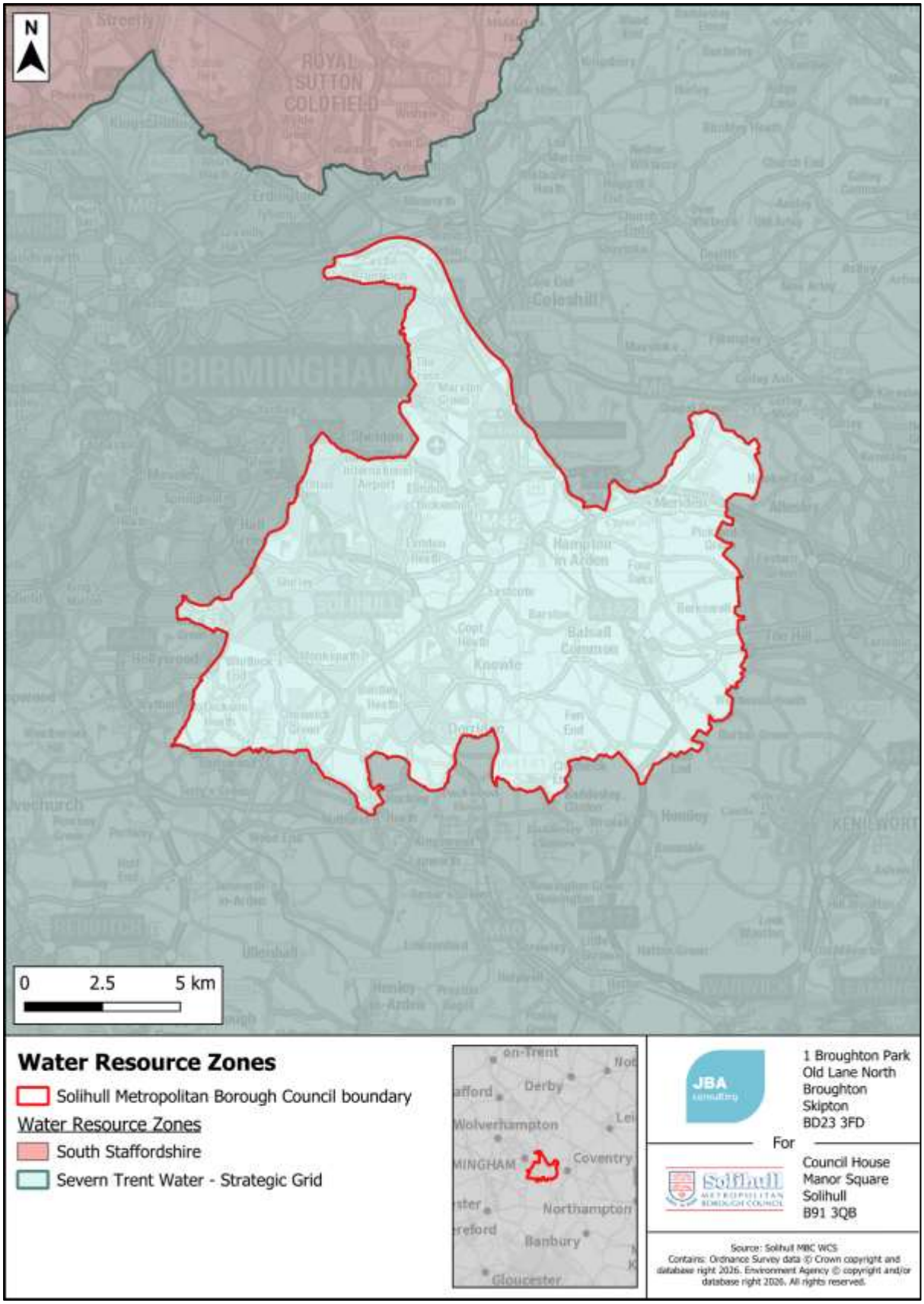


Figure 4.10 Water Resource Zones serving Solihull

Severn Trent Water's WRMP was reviewed. Attention was mainly focused upon:

- the available water resources and future pressures which may impact upon the supply element of the supply/demand balance; and
- the allowances within those plans for housing and population growth and its impact upon the demand side of the supply/demand balance.

Severn Trent Water's Final Water Resources Management Plan 2024 (WRMP24) was published in April 2025.

The Dry Year Annual Average (DYAA) Baseline Water Supply-Demand Balance can be seen in Table 4.4 and Figure 4.11. The WRMP data (as replicated from the WRMP24 Data Tables) indicates that there is a supply deficit across the whole planning period and beyond to the 2080s. The WRMP states that this is because of abstraction licence capping and the longer-term environmental destination pressures decreasing availability of groundwater sources and decreasing STW's deployable output in the baseline scenario (which includes the benefits of drought measures in a 1 in 500-year drought event). The predicted supply demand balance by the end of the Local Plan period (2042/43), with no intervention, shows that STW Strategic Grid WRZ will have a supply deficit of -199.86 Ml/d. As shown in Figure 4.12, STW Strategic Grid WRZ is expected to achieve a supply demand balance in the DYAA Final Plan scenarios beyond 2024/5. Forecast supply surplus varies across the whole WRMP period.

STW's Final Plan is designed to address the full range of challenges across the WRMP plan period using a blend of options. The main demand-side options identified were:

- To roll out universal metering by 2035
- To reduce leakage by 50% by 2045
- To deliver the Severn Trent Efficiency Plan by 2050
- To support the Government's Water Labelling program

As discussed in Section 2.4, additional water demand from planned development is forecast to grow by 11.4 Ml/d across the Local Plan period.

Table 4.4: Strategic Grid (SVTSGD) WRZ DYAA Baseline and Final Plan supply demand balance taken from WRMP

Year	End of AMP8 (2029/30)	End of AMP9 (2034/35)	End of AMP10 (2039/40)	End of AMP11 (2044/45)	End of AMP12 (2049/50)
Baseline Supply Demand Balance in Ml/d (Available Headroom - Target Headroom)	-108.41	-150.41	-174.93	-207.63	-255.35

Year	End of AMP8 (2029/30)	End of AMP9 (2034/35)	End of AMP10 (2039/40)	End of AMP11 (2044/45)	End of AMP12 (2049/50)
Final Plan Supply Demand Balance in Ml/d (Available Headroom - Target Headroom)	67.98	88.80	118.52	105.61	33.40

* Information taken from Severn Trent Water's WRMP.

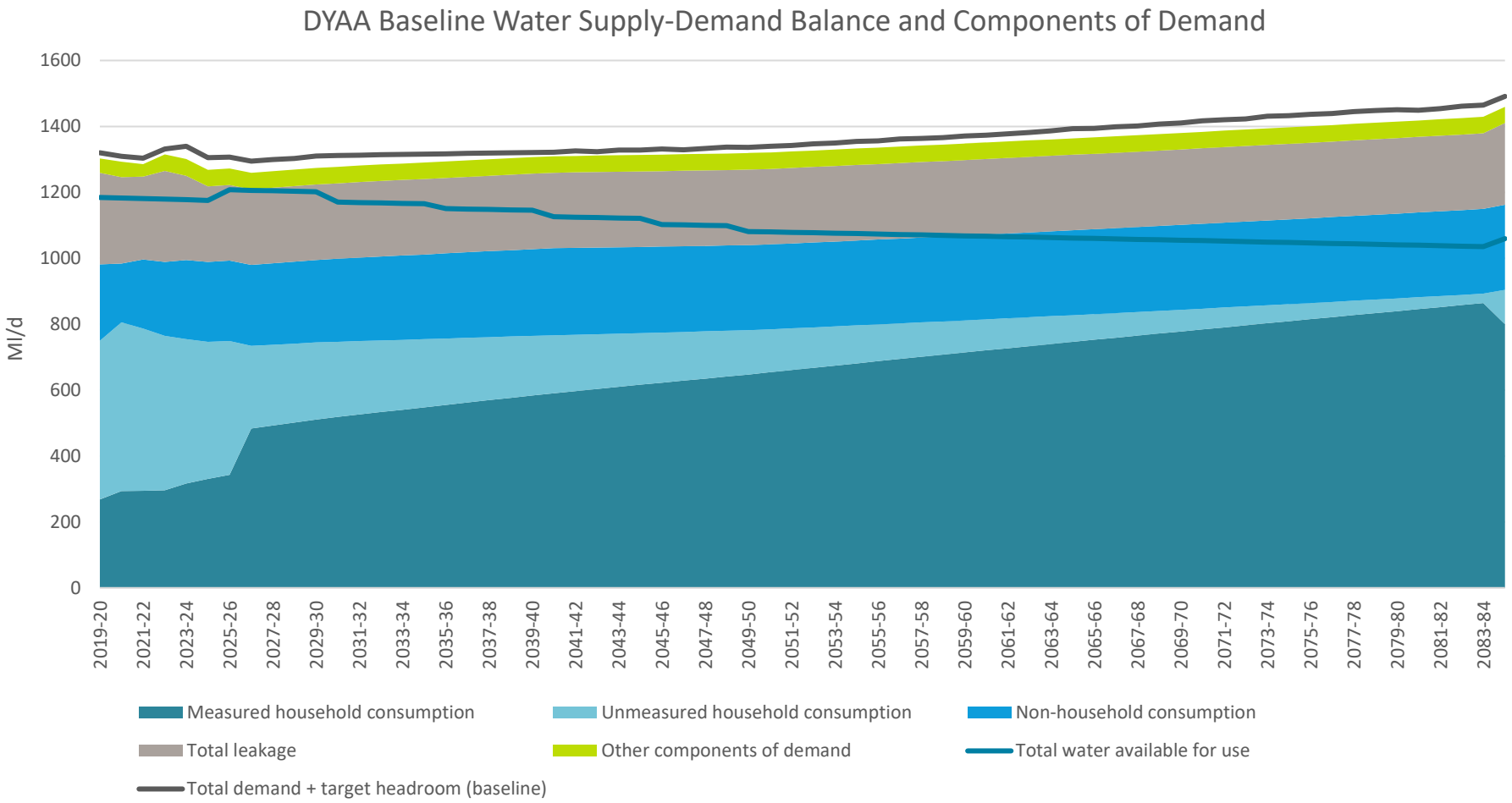


Figure 4.11: DYAA Baseline Supply Demand Balance for Strategic Grid WRZ (reproduced from STW WRMP24 Data Tables, published 2025)

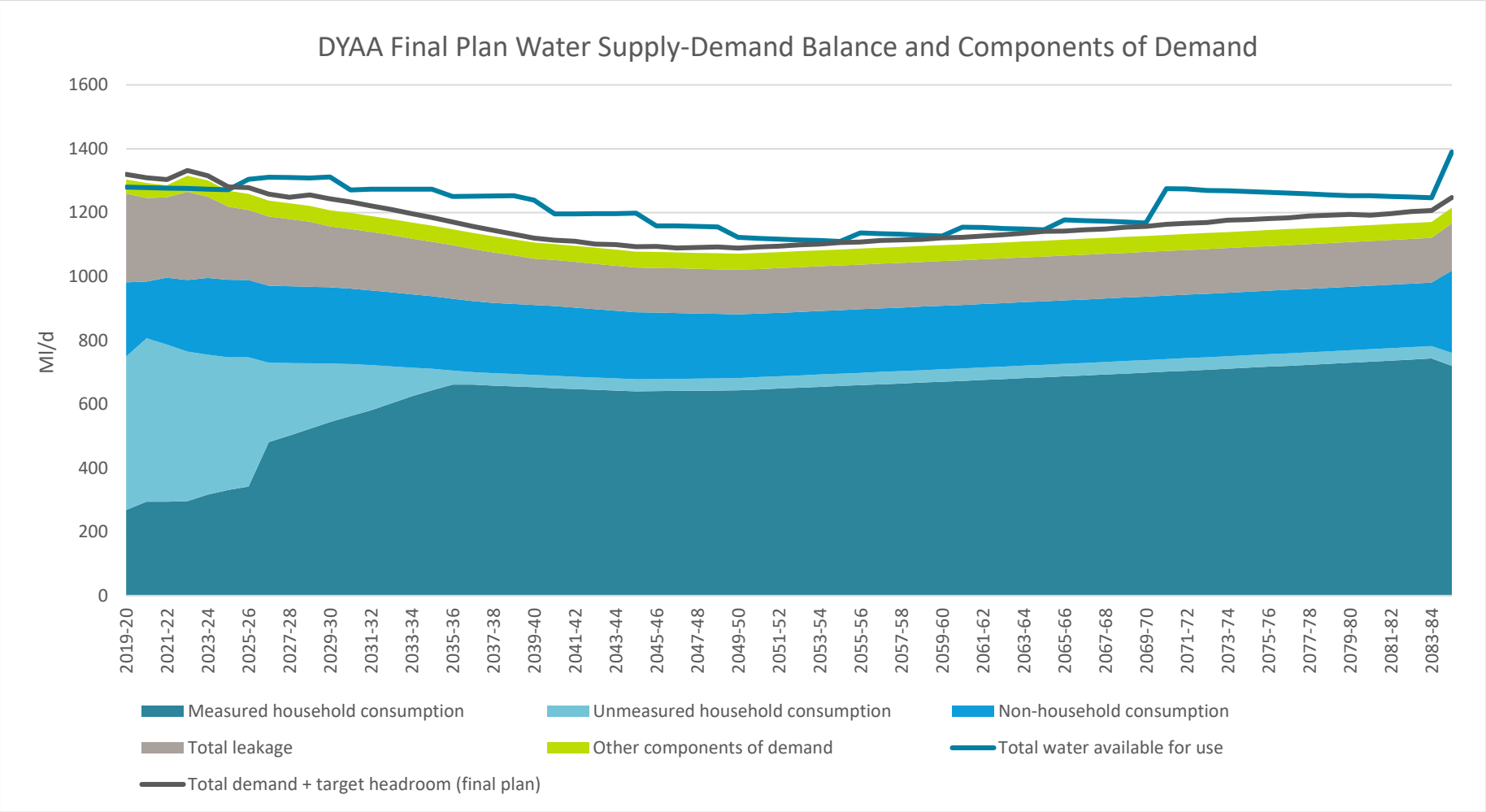


Figure 4.12: DYAA Final Plan Supply Demand Balance for Strategic Grid WRZ (reproduced from STW WRMP24 Data Tables, published 2025)

4.4.4 Population and household growth

The growth forecast used in the WRMP24 planning tables does not break down the WRZ forecast into individual LPAs. It is not therefore possible to directly compare the WRMP24 forecast with the housing need. Instead, the percentage growth in the number of households is used. Table 4.5 shows the household growth accounted for in STW's WRMP24 which predicts an increase of 14.7% on the 2026 baseline. This is slightly higher than the Office for National Statistics (ONS) household projections for England (ONS.gov.uk) - 2022 based forecast. The housing need for SMBC calculated using the Standard Method and added to the 2026 baseline number of households results in an increase in the number of household of 24%. SMBC have advised that they are planning for a slightly higher level of growth: 23,091 houses. This results in a 25% increase in the number of households during the plan period.

The percentage growth in Solihull during the plan period if the full housing need is delivered exceeds the percentage growth expected in STW's WRMP24. This difference suggests that planned combined demand from growth (including neighbouring authorities with the same WRZ) is likely to be ahead of WRMP24 demand forecasts. Further discussion with STW is required to understand if growth within the plan period can be accommodated within existing plans, and if there is sufficient time to adapt WRMP29 plans to the LPAs plans.

Table 4.5: Comparison of local Plan growth to WRMP

Forecast	Number of households 2026	Number of households 2043	Increase in households	Percentage change
Solihull Metropolitan Borough Council (Local Housing Need by Standard Method.)	91,540	113,453	21,913	23.94%
Solihull Metropolitan Borough Council (Expected Local Plan growth)	91,540	114,631	23,091	25.23%
ONS Projection	91,540	100,574	9,475	10.4%
WRMP24	2,363,020	2,712,240	349,220	14.7%

4.5 Water Environment National Environment Programme Measures - water resources

The Water Industry National Environment Programme (WINEP) is a set of actions that the EA have requested all water companies operating in England to complete in a particular AMP as part of their environmental commitments. Actions may include investigations or actual measures, examples could be reductions in abstraction in a particular river to maintain flow to support WFD objectives, or a reduction in phosphate pollution in a catchment through upgrades to a WwTW.

WINEP actions relating to water resources in surface water and groundwater bodies in Solihull are presented in Appendix A, identifying that action to protect/ ensure no deterioration in WFD status will be applied to the Warwickshire Avon - Coal Measures Coventry and Warwickshire Avon - PT Sandstone Warwick/ Avon Confined groundwater bodies.

Actions relating to water resources and water quality are presented in Appendix A, and are also discussed in Section 10.5.

Development and population growth can increase water demand and abstraction, and so Solihull Metropolitan Borough Council has an opportunity to contribute to these actions indirectly by pursuing policies that promote water efficiency in new development.

4.6 Water demand reduction

4.6.1 Water efficiency

It is widely recognised that the climate is changing. Climate change is predicted to increase pressure on water resources, increasing the potential for a supply-demand deficit in the future, and making environmental damage from over abstraction of water resources more likely. Furthermore, the delivery of water and wastewater services and the heating of water in the home require high energy inputs and therefore contribute directly to emissions of greenhouse gases. Water efficiency therefore reduces energy use and carbon emissions.

It is important therefore that new development does not result in an unsustainable increase in water abstraction. This can be done in a number of ways from reducing the water demand from new dwellings through to achieving ‘water neutrality’ in a region by offsetting a new development's water demand by improving efficiency in existing buildings.

It is for Local Authorities to establish a clear need to adopt the tighter water efficiency target through the building regulations. This should be based on existing sources of evidence such as:

- the EA classification of water stress;
- Water resource management plans produced by water companies;
- River basin management plans (RBMPs) which describe the river basin district and the pressure that the water environment faces. These include information on where water resources are contributing to a water body being classified as ‘at

risk' or 'probably at risk' of failing to achieve good ecological status, due to low flows or reduced water availability;
- Defra Plan for Water;
- consultations with the local water and sewerage company, the EA and catchment partnerships; and
- consideration of the impact on viability and housing supply of such a requirement.

This evidence is laid out below.

4.6.2 Water stress

Water stress is a measure of the level of demand for water (from domestic, business and agricultural users) compared to the available freshwater resources, whether surface or groundwater. Water stress causes deterioration of the water environment in both the quality and quantity of water and consequently restricts the ability of a waterbody to achieve a 'good' status under the WFD.

The EA has undertaken an assessment of water stress across the UK. This defines a water stressed area as where:

- 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 available to meet that demand.

The EA's assessment (2021) concluded that the Severn Trent Water supply region is seriously water stressed.

4.6.3 Environmental Improvement Plan

Through their Plan for Water, Defra has signalled their intention to review the water efficiency standards for new homes. In 2025 they consulted on a revision of Part G of the Building Regulations to include a standard of 105 l/p/d, or 100 l/p/d where there is a clear local need.

The Future Homes Hub (futurehomes.org.uk) was established to 'facilitate the collaboration needed within and beyond the new homes sector to help meet the climate and environmental challenges ahead'. It consists of representatives from the building industry, regulators, water companies, and environmental groups. Defra asked them to support them in the creation of the roadmap towards greater water efficiency. They have proposed a road map for water efficient homes in England and set out a framework for the homebuilding sector to work in partnership with other stakeholders such as the water sector, local authorities and regulators to deliver it. The proposed roadmap is shown in Figure 4.13 below and outlines a staged approach to reducing per capita consumption. It also allows for a tighter figure of 90 l/p/d by 2025 in seriously water stressed areas to enable sustainable growth.



Figure 4.13: Future Homes Hub proposed water efficiency roadmap.

Solihull Borough is classified as a water stressed area on the roadmap and this supports a tighter water efficiency standard than the 110 l/p/d target in the building regulations

The Environment Act 2021 (and Environmental Improvement Plan 2023 (EIP)) introduces a National Water Target that requires 20% reduction in public water supply in England per head of population by 2038, against a 2019 to 2020 baseline — with interim targets of 9% by 2027 and 14% by 2032. These targets cannot be achieved by new development alone. This guidance is aimed to complement other demand management measures, including leakage reduction, to support delivery of these targets alongside sustainable growth and nature recovery. The government has an ambition to tighten Building Regulations water efficiency standards.

4.6.4 Environmental obligations

Section 11 identifies protected sites in the region that may be sensitive to changes in river flow or groundwater levels and therefore could be impacted by increases in abstraction (either from surface water or groundwater) to support growth in Solihull Borough.

Natural England have a "plan-led" approach to water scarcity through which they are robustly responding to WRMPs and negotiating licence changes with the EA. The third element of their approach is to provide advice to LPAs on water efficiency, encouraging LPAs to adopt more stringent water efficiency targets.

4.6.5 Consideration of viability and feasibility

Any water efficiency target adopted has to be feasible: i.e., do the products exist that allow a particular standard to be met, and viable, i.e., can the standard be achieved without making the development financially unviable.

In the Anglian Water area in the east of England, a shared standard for water efficiency has been defined. Whilst this standard goes beyond what is currently recommended in this region, Annex C of this Shared Standard provides useful examples of products that are available on the market that can achieve an efficiency standard of 85l/p/d based on the capacity and flow rates they deliver.

The Future Homes Hub provides some indicative costs for achieving different water efficiency targets. It states that there is no additional cost to achieve 110l/p/d. The cost of achieving 100l/p/d is estimated to be £350 per unit (Future Homes Hub, 2024).

Research undertaken for the devolved Scottish and Welsh governments by the Energy Saving Trust indicated potential annual savings on water and energy bills for householders of approximately £31 per year as a result of water efficiency measures that would allow a target of 100l/p/d to be met (Energy Saving Trust, 2020). Water efficiency is therefore not only viable but of positive economic benefit to both private homeowners and tenants. In addition, financial incentives are available from the water companies to developers to encourage water-efficient design.

Research published by Building Research Establishment (BRE) on the delivery of sustainable buildings reports that the cost of achieving lower BREEAM ratings incurs little or no additional cost and targeting higher BREEAM ratings incurs a typical cost of less than 2% above the baseline for that development. The same study reports that the cost of achieving 3 credits in WAT01 (a 40% reduction in water consumption for baseline) would be £13,361 and payback could be achieved between 1 and 2.5 years depending on the price of water (BRE, 2018).

Research by Water UK (Water UK, 2022), found that the average household of four could save £472 per year by making small changes to save water. These changes include fixing leaks, taking shorter showers, washing clothes at lower temperatures, and only using appliances when full.

4.6.6 Water company advice

Severn Trent Water have published a number of water-saving tips on their website (stwater.co.uk). At home, they recommend changes like switching from baths to showers and installing dual-flush toilets or water displacement devices such as Hippo bags to reduce flush volume. For the garden, they suggest reusing domestic wastewater for watering plants and setting up a water butt to collect rainwater. They also provide advice on saving water at work and checking for leaks.

Severn Trent Water offers a range of incentives to developers to adopt water efficient fixtures and fittings which achieve per capita consumption of 100l/p/d or less (see also section 4.8).

4.7 Water neutrality concept

4.7.1 Introduction

Water neutrality is a relatively new concept for managing water resources, but one that is receiving increased interest as deficits in future water supply/demand are identified. The definition adopted by the Government and the EA is:

"For every development, total water use in the wider area after the development must be equal to or less than total water use in the wider area before development."

It is useful to also refer to the refined definition developed by Ashton (Booth and Charlesworth, 2014):

"For every new significant development, the predicted increase in total water demand in the region due to the development should be offset by reducing demand in the existing community, where practical to do so, and these water savings must be sustained over time"

This definition states the need to sustain water saving measures over time, and the wording 'predicted increase in total water demand' reflects the need for water neutrality to be designed in at the planning stage.

Both definitions refer to water use in the region or 'wider area', and the extent of this area should be appropriate to local authority boundaries, water resource zones, or water abstraction boundaries depending on what is appropriate for that particular location. For instance, if a development site is in an area of water stress relating to a particular abstraction source, offsetting water use in a neighbouring town that is served by a different water source will not help to achieve water neutrality.

In essence water neutrality is about accommodating growth in a region without increasing overall water demand.

Water neutrality can be achieved in a number of ways, including through:

- reducing leakage from the water supply networks;
- making new developments more water-efficient;
- 'offsetting' new demand by retrofitting existing homes with water-efficient devices;
- encouraging existing commercial premises to use less water;
- implementing metering and tariffs to encourage the wise use of water; and
- education and awareness-raising amongst individuals.

4.7.2 Consumer water efficiency measures

Many interventions are designed to reduce water use if operated in a particular way and so rely on the user being aware and engaged with their water use. The educational aspect is therefore important to ensure that home occupiers are aware of their role in improving water efficiency. Table 4.6 shows water efficiency measures that can be made by consumers.

Table 4.6: Consumer water efficiency measures.

Type of measure	Examples
Education and promotional campaigns	
Water-efficient measures for toilets	Cistern displacement devices to reduce volume of water in cistern. Retrofit or replacement dual flush devices. Retro-fit interruptible flush devices. Replacement low-flush toilets.
Water-efficient	Tap inserts, such as aerators.

Type of measure	Examples
measures for taps	Low flow restrictors. Push taps. Infrared taps.
Water-efficient measures for showers and baths	Low-flow shower heads. Aerated shower heads. Low-flow restrictors. Shower timers. Reduced volume baths (e.g. 60 litres). Bath measures.
Rainwater harvesting and water reuse	Large-scale rainwater harvesting. Small-scale rainwater harvesting for example with a water butt, or rainwater tank for toilet flushing. Grey water recycling.
Water-efficient measures addressing outdoor use	Hosepipe flow restrictors. Hosepipe siphons. Hose guns (trigger hoses). Drip irrigation systems. Mulches and composting.
Commercial properties	Commercial water audits. Rainwater recycling. Grey water recycling. Optimising processes. Provide water efficiency information to all newly metered businesses.
Metering	Promote water companies free meter option. Compulsory metering (in water stressed areas). Smart metering (to engage customer with their consumption). Provide interactive websites that allow customers to estimate the savings associated with metering (environmental and financial). Innovative tariffs (seasonal, peak, rising block). Customer supply pipe leakage - supply pipe repair and replacement.
Other	Household water audits, including DIY or with help of plumber. Seek-and-fix internal leaks and/or dripping taps. Water efficient white goods included washing machines and dishwashers. Ask customers to spot and report leaks.

Source: Adapted from Booth and Charlesworth 2014.

4.7.3 Rainwater and greywater recycling

Rainwater harvesting

Rainwater recycling or rainwater harvesting is the capture of water falling on buildings, roads or pathways that would normally be drained via a surface water sewer, infiltrate into the ground or evaporate. In the UK this water cannot currently be used as a drinking water supply as there are strict guidelines on potable water, but it can be used in other systems within domestic or commercial premises.

Systems for collection of rainwater can be simple water butts attached to a drainpipe on a house, or it could be a complex underground storage system, with pumps to supply water for use in toilet flushing and washing machines. By utilising rainwater in this way there is a reduced dependence on mains water supply for a large proportion of the water use in a domestic property.

Benefits of rainwater harvesting

- Rainwater harvesting reduces the dependence on mains water supply – reducing bills for homeowners and businesses.
- Less water needs to be abstracted from river, lakes and groundwater.
- Stormwater is stored in a rainwater harvesting system reducing the peak surface water runoff leaving a site providing a flood risk benefit (for smaller storms).
- By reducing surface water flow, rainwater harvesting can reduce the first flush effect whereby polluted materials adhering to pavement surfaces during dry periods are removed by the first flush of water from a storm and can cause pollution in receiving watercourses.

Challenges of rainwater harvesting

- Dependency on rainfall can limit availability of harvested rainwater during drought and hot weather events.
- Increased capital (construction) costs to build rainwater harvesting infrastructure into new housing (£900 to £3,000 for a small-scale domestic system) (Waterwise, 2020).
- Payback periods are long as the cost of water is low so there is little incentive for homeowners to invest (DCLG, 2014).
- Despite being included as priority 1 in the hierarchy of runoff destinations (Standard 1) of the National Standards for SuDS, there is currently no statutory instrument to require the inclusion of Rainwater Harvesting (RwH) in new development.
- At present, legislation does not permit water and sewerage companies to adopt rainwater harvesting and associated infrastructure.

Greywater harvesting

Greywater refers to water that has been ‘used’ in the home in appliances such as washing machines, showers and hand basins. Greywater recycling or greywater harvesting is the treatment and re-use of this water in other systems such as for toilet flushing. By their

nature, greywater harvesting systems require more treatment and are more complex than rainwater harvesting systems, and there are limited examples of their use in the UK.

Greywater re-use refers to systems where wastewater is taken from source and used without further treatment. An example of this would be water from a bath or shower being used on plants in the garden. This sort of system is easy to install and maintain, however as mentioned above the lack of treatment to remove organic matter means the water cannot be stored for extended periods.

Greywater recycling refers to systems where wastewater undergoes some treatment before it is used again. These systems are complex and require a much higher level of maintenance than rainwater harvesting or greywater re-use systems.

Domestic water demand can be significantly reduced by using greywater harvesting, and unlike with a rainwater harvesting system where the availability of water is dependent on the weather, the source of water is usually constant (for instance if it is from bathing and showering). However, the payback period for a greywater harvesting system is usually long, as the initial outlay is large, and the cost of water relatively low.

Viability of greywater systems for domestic retrofit applications is therefore currently limited. However, communal systems may offer more opportunities where the cost can be shared between multiple households particularly on larger new build developments, or in new settlements.

4.7.4 Energy and water use

17% of the UK's domestic energy usage is for water heating (Energy consumption in the UK, Department for Energy Security & Net Zero). If less water was being used within the home, for instance through more water efficient showers, less water would need to be heated, and overall domestic energy usage would be reduced.

In 2020-2021 the government consulted on a Future Homes Standard that will involve changes to Part L (conservation of fuel and power) of the Building Regulations for new dwellings. Unfortunately, this fails to identify the role of water efficiency in the home in also reducing energy usage.

4.7.5 Funding for water neutrality

Water neutrality is unlikely to be achieved by just one type of measure, and likewise it is unlikely to be achieved by just one funding source. Funding mechanisms that may be available could be divided into the following categories:

- Infrastructure-related funding (generally from developer payments).
- Fiscal incentives at a national or local level to influence buying decisions of households and businesses.
- Water company activities, either directly funded by the five-year price review or as a consequence of competition and individual company strategies.

- Joint funding through energy efficiency schemes (and possibly to integrate with the heat and energy saving strategy).
- Currently in the UK, the main funding resource for the delivery of water efficiency measures is the water companies, with some discretionary spending by property owners or landlords. For water neutrality to be achieved, policy shifts may be required in order to increase investment in water efficiency. Possible measures could include:
    - further incentivisation of water companies to reduce leakage and work with customers to reduce demand;
    - the requirement of water efficient design in new development;
    - developer funding to contribute towards encouraging water efficiency measures'
    - the requirement of water efficient design in refurbishments when a planning application is made; and
    - tighter standards on water using fittings and appliances.

4.8 Water efficiency incentives

4.8.1 Severn Trent Water

Severn Trent Water (STW) publish their charging arrangements annually on their website.

Environmental component charges are used to fund environmental incentives to encourage good design by developers, including water efficiency and flood prevention incentives for home builders.

Water efficiency incentives can be applied for where developers can demonstrate they have built a premises with a domestic water usage of 100l/p/d or less and specified criteria are met. The incentives offered are:

- Water usage of 100 litres per person per day or less: £250 per property,
- Water usage of 90 litres per person per day or less: £300 per property,
- Water usage of 85 litres per person per day or less: £350 per property.

STW will also allow non-household premises with domestic usage only to apply for the 100 l/p/d water efficiency incentive.

4.9 Impact of water efficiency standards

Table 2.2 shows that approximately 20% of the expected growth during the plan period is from commitments and completions, i.e., sites that already have already been built or already have planning permission in some form. It may not be possible for a new water efficiency policy to influence those sites if full planning permission has been granted. It is assumed in the analysis below that a tighter efficiency standard can only be applied to the potential allocations and windfall sites. Opportunities may exist on sites with outline permission for a tighter standard to be required which may result in a higher demand saving.

Five scenarios are presented in Table 4.7 with their resulting water demand saving by the end of the plan period. The first is a "business as usual" scenario based on the Building Regulations Optional Standard of 110l/p/d and no target applied for employment sites. The second, and third scenarios have residential water efficiency targets of 100l/p/d, 90l/p/d and supported by employment sites achieving three credits in Wat01 of the BREEAM New Construction Standard (a 40% reduction from the baseline). The third scenario provides for a more ambitious residential target of 80l/p/d and employment supported by employment sites achieving four credits in Wat01 of the BREEAM New Construction Standard. The last scenario represents exemplar development achieving 62l/p/d in residential developments and five credits in Wat01 of the BREEAM standard.

If a tighter water efficiency target of 100l/p/d is adopted, a saving of approx. 1.81Ml/d could be achieved by the end of the plan period compared to a "business as usual" baseline. This provides additional resilience in the water resources system. The last column, titled "percentage reduction" in Table 4.7, shows how much total water demand is reduced compared to the "Business as usual - 110 l/p/d" scenario. This column helps quantify the impact of different water use targets on overall demand.

Once a house has been built to a water efficiency standard of 110l/p/d or even 125l/p/d, it is difficult and expensive to retrospectively reduce water demand and would rely on homeowners voluntarily making changes to their property. An approach which sets the 110l/p/d target in the Local Plan will lock in a large number of new homes which will not contribute to the national target. The most cost effective and simplest stage within the life cycle of a building to implement water efficiency is during construction.

Table 4.7 Water demand under different water efficiency targets

Scenario	Residential demand (Ml/d)	Employment demand (Ml/d)	Total demand (Ml/d)	Demand saving by 2042	Percentage reduction from business as usual scenario
Business as usual - 110 l/p/d	7.74	3.12	10.86		
100 l/p/d and BREEAM WAT01 (3 credits)	7.18	1.87	9.05	1.81	22%
90 l/p/d + BREEAM WAT01 (3 credits)	6.61	1.56	8.17	2.69	33%
80 l/p/d + BREEAM WAT01 (4 credits)	6.05	1.25	7.30	3.56	44%
62 l/p/d + BREEAM WAT01 (5 credits)	5.04	1.09	6.13	4.73	58%

4.10 Conclusions and recommendations

4.10.1 Conclusions

Water resources in England are under considerable pressure. The Environment Agency has stated that "the scale of the challenge we face increases with time, and by 2050, we are looking at a shortfall of nearly 5 billion litres of water per day between the sustainable water supplied available and the expected demand."

Solihull Borough is served by STW's Strategic Grid WRZ. Growth accounted for in STW's WRMP24 is less as a percentage than is currently expected if the housing need for Solihull Borough were delivered. This is due to a misalignment in the timing of the WRMPs and the Local Plan process. WRMPs are updated every five years (with minor updates annually), and water companies must demonstrate how the supply-demand balance will be maintained in the medium and longer term. It is important to ensure that WRMP29 contains the latest growth forecasts and that water companies feedback to SMBC if there are concerns that Local Plan growth will cause a supply-demand deficit in the short term.

Part G of Building regulations currently states that new build housing should achieve a minimum of 125 l/p/d. A tighter target of 110l/p/d is allowed if the local authority can establish a clear need based on available evidence. Many LPAs are now going further than this. The Written Ministerial Statement (WMS) by the former Secretary of State for Levelling Up, Housing and Communities (DLUHC) states that:

"…in areas of serious water stress, where water scarcity is inhibiting the adoption of Local Plans or the granting of planning permission for homes, I encourage local planning authorities to work with the Environment Agency and delivery partners to agree standards tighter than the 110 litres per day that is set out in current guidance."

Solihull Borough is an area classified by the Environment Agency as being under serious water stress.

It is recommended that a water efficiency target of 100l/p/d is adopted across the Solihull Borough area. This should be achieved using a fittings-based approach and supported by an equivalent non-household target where development will aim to achieve full credits in the BREEAM water calculator with a minimum of 3 credits in WAT01. This should be aligned with a robust enforcement approach to ensure that correct fixtures and fittings are being installed at site level.

The WINEP is a set of actions that the EA have requested all water companies operating in England to complete in a particular AMP as part of their environmental commitments. WINEP actions relating to water resources in surface water and groundwater bodies in Solihull are presented in Appendix A and show action to protect/ ensure no deterioration in WFD status will be applied to the Warwickshire Avon - Coal Measures Coventry and Warwickshire Avon - PT Sandstone Warwick/ Avon Confined groundwater bodies.

The Tame Anker and Mease Abstraction Licensing Strategy (ALS) indicate varying levels of water availability across these catchments under different flow conditions (Q30–Q90), with areas of restricted or unavailable water identified in specific locations.

Severn Trent Water has reviewed its infrastructure charges for 2026/27, increasing water infrastructure charges to £385 and sewerage infrastructure charges to £499. The company continues to offer incentives for water efficiency with £350 per property offered where homes are built to use 85 litres or less per person per day.

4.10.2 Recommendations

Table 4.8: Recommendations of Water Resources

Action	Responsibility	Timescale
Continue to regularly review forecast and actual household growth across the supply region through WRMP Annual Update reports, and where significant change is predicted, engage with LPAs.	Severn Trent Water	Ongoing
Provide yearly updates of projected housing growth to water companies to inform WRMP updates.	Solihull Metropolitan Borough Council	Ongoing
The concept of water neutrality has the potential to provide a benefit in improving resilience to climate change. Explore further with the water companies and the EA how the Council's planning and climate change policies can encourage this approach. This approach could have particular application in strategic sites and new settlements.	Solihull Metropolitan Borough Council and Severn Trent Water	In Local Plan
Larger residential developments (including new settlements), and commercial developments should consider incorporating greywater recycling and/or rainwater harvesting into development at the master planning stage in order to reduce water demand.	Solihull Metropolitan Borough Council and Severn Trent Water	In Local Plan
Severn Trent Water should advise the Council of any strategic water resource infrastructure developments within the study area, where these may require safeguarding of land to prevent other type of development occurring.	Solihull Metropolitan Borough Council and Severn Trent Water	In Local Plan
The council should consider a domestic water efficiency target of 100 l/p/d for all new homes, and work with water suppliers to incentivise even lower consumption. This should be achieved via a fittings-based approach.	Solihull Metropolitan Borough Council	In Local Plan
Non-household developments meet, as a minimum, 3 credits in the BREEAM WAT01 measure (a 40% reduction in water consumption from the baseline).	Solihull Metropolitan Borough Council and developers	Ongoing

5 Water supply infrastructure

5.1 Introduction

An increase in water demand due to growth can exceed the hydraulic capacity of the existing supply infrastructure. This is likely to manifest itself as low pressure at times of high demand. An assessment is required to identify whether the existing infrastructure is adequate or whether upgrades will be required. The time required to plan, obtain funding and construct major pipeline works can be considerable and therefore water companies and planners need to work closely together to ensure that the infrastructure is able to meet growing demand.

Water supply companies make a distinction between supply infrastructure, the major pipelines, reservoirs and pumps that transfer water around a WRZ, and distribution systems, smaller scale assets which convey water around settlements to customers. This outline study is focused on the supply infrastructure. It is expected that developers should engage early with the Developer Services functions of the water and wastewater companies local to their site, and fund water company impact assessments and modelling of the distribution systems to determine requirements for local capacity upgrades to the distribution systems.

In addition to the work undertaken by water companies, there are opportunities for the local authority and other stakeholders to relieve pressure on the existing water supply system by increasing water efficiency in existing properties. This can contribute to reducing water consumption targets and help to deliver wider aims of achieving water neutrality.

A cost-effective solution can be for local authorities to co-ordinate with water supply companies and "piggyback" on planned leakage or metering schemes, to survey and retrofit water efficient fittings into homes (Waterwise, 2009). This is particularly feasible within property owned or managed by local authorities, such as social housing.

5.1.1 Location of existing supply infrastructure

No development is permitted within a specified distance of water mains. For example, there should be no building, planting or other heavy earth works within a minimum of 4m of trunk and raw water trunk mains. For other mains there is a minimum of 2-3m no dig exclusion zone, unless mains are to be diverted. The costs of diverting mains would need to be met by the developer.

A guide to working near Severn Trent Water's assets can be found here: Guidance-for-working-near-our-assets (stwater.co.uk). Local Authorities can obtain free infrastructure maps from Severn Trent Water as well as supplying infrastructure information under a non-disclosure agreement.

It is recommended that developers engage with the relevant water supply company early in the planning process to ensure that any direct impacts on the water supply network are addressed early.

5.2 Water supply infrastructure assessment results

Severn Trent Water were not able to provide comments on the potential allocations before publication of the draft WCS. It is expected that this will be available for the final version of the report.

5.3 Conclusion and recommendations

An increase in water demand due to growth can exceed the hydraulic capacity of the existing supply infrastructure. Upgrades to the local supply network would be funded as part of the developer Infrastructure Charge. Early engagement between developers, SMBC and the water companies is recommended to ensure upgrades are in place prior to occupation.

Recommendations for water supply infrastructure are provided in Table 5.1.

Table 5.1 recommendations for water supply infrastructure

Action	Responsibility	Timescale
Undertake network modelling to ensure adequate provision of water supply is feasible.	Severn Trent Water and SMBC	Ahead of planning applications
SMBC and developers should engage early with water companies to ensure supply infrastructure is in place prior to occupation.	Severn Trent Water, SMBC and developers	Ongoing
the capacity of distribution systems is adequate prior to development coming forward.	Severn Trent Water and developers	Ongoing

6 Wastewater collection

6.1 Sewage undertakers

Severn Trent Water is the main water and wastewater company that serves as the sewerage undertaker for the study area. The role of the sewerage undertaker includes the collection and treatment of wastewater from domestic and commercial premises. In some areas, it also includes the drainage of surface water from building curtilages to combined or surface water sewers. It excludes, unless adopted by the sewerage undertaker, systems that do not connect directly to the wastewater network, e.g., SuDS or highway drainage.

Increased wastewater flows into collection systems due to growth in populations or per-capita consumption can lead to an overloading of the infrastructure, increasing the risk of sewer flooding and, where present, increasing the frequency of discharges from storm overflows. Seasonal and yearly variations in weather and infiltration can reduce headroom at WwTW.

Headroom at WwTW can be eroded by growth in population or per-capita consumption, requiring investment in additional treatment capacity. As the volumes of treated effluent rises, even if the effluent quality is maintained, the pollutant load discharged to the receiving watercourse will increase. In such circumstances the EA as the environmental regulator, may tighten effluent consents to achieve a 'load standstill', i.e., ensuring that as effluent volume increases, the pollutant discharged does not increase. Again, this would require investment by the water company to improve the quality of the treated effluent. Consents can also be tightened to prevent a deterioration in water quality due to growth, or to achieve environmental objectives.

In combined sewerage systems, or foul systems with surface water misconnections, there is potential to create headroom in the system, thus enabling additional growth, by the removal of surface water connections and reducing infiltration. This can most readily be achieved during the redevelopment of brownfield sites which have combined sewerage systems, where there is potential to discharge surface waters via SuDS to groundwater, watercourses or surface water sewers.

6.2 Sewage system capacity assessment

New residential developments add pressure to existing sewerage systems. An assessment is required to identify the available capacity within the existing wastewater network, and the potential to upgrade overloaded systems to accommodate future growth. The scale and cost of upgrading works may vary significantly depending upon the location of the development in relation to the network itself and the receiving WwTW.

It may be the case that an existing sewerage system is already working at its full capacity, and further investigations must be carried out to define which solution is necessary to implement an increase in its capacity. New infrastructure may be required if, for example, a

site is not served by an existing system. Such new infrastructure will normally be secured through private third-party agreements between the developer and utility provider.

Sewerage Undertakers must consider the growth in demand for wastewater services when preparing their five-yearly Strategic Business Plans (SBPs) which set out investment for the next Asset Management Plan (AMP) period. Typically, investment is committed to provide new or upgraded sewerage capacity to support allocated growth with a high certainty of being delivered. Additional sewerage capacity to service windfall sites, smaller infill development or to connect a site to the sewerage network across third party land is normally funded via developer contributions, as third-party arrangements between the developer and utility provider.

6.3 Drainage and Wastewater Management Plan

Severn Trent Water's DWMP (Severn Trent Water, 2023) lays out eight key ambitions to:

- guarantee future water supply;
- ensure water is used wisely;
- deliver a high quality, affordable service;
- lower the risk of flooding and pollution;
- protect and enhance our environment;
- support a more circular economy;
- make a positive social difference; and
- maintain a safe, inclusive, and fair workplace

There are 2,647 storm overflows in the Severn Trent Water region. By 2050, 1,097 of the storm overflows are predicted to be classed as high-priority activating higher than ten times per year, which is above the national annual target. By 2030 Severn Trent Water aim to align to the Storm Overflow Discharge Reduction Plan by addressing 39% of high-priority storm overflows causing harm and 26% of all overflows activating more than ten times a year. Reducing storm overflow operation can be achieved by upgrading WwTWs or the sewer network, ensuring that storm overflows only operate in unusually heavy rainfall.

An assessment has been carried out using a Baseline Risk and Vulnerability Assessment (BRAVA) for a 1 in 50-year storm with various climate change scenarios taken into consideration (no temperature change, 2°C increase and 4°C increase). The scenarios looked at how many properties would be at risk of internal sewer flooding. Currently there are 112,000 properties at risk of internal flooding which amounts to 2.58% of connected properties in the Severn Trent region. If no upgrades of WwTW occur, by 2050 this percentage is expected to rise to 39% (155,998 properties), assuming a 2°C increase in temperature.

Maximising blue-green nature-based solutions was focussed on to work towards a more sustainable approach to reducing the inflow of surface water in the sewer network. The main solution for this was using SuDS.

Overall, there is a focus on reduction of storm overflow operations, upgrading WwTW and creating more sustainable water management options, such as SuDS.

6.4 Results

Severn Trent Water were not able to provide comments on the potential allocations before publication of the draft WCS. It is expected that this will be available for the final version of the report.

6.5 Conclusions

Development in areas where there is limited wastewater network capacity will increase pressure on the network, increasing the risk of a detrimental impact on customers, and increasing the likelihood of storm overflow operation. Early engagement with developers, SMBC and STW is required, and modelling of the network may be required at the planning application stage.

Upgrades to the wastewater network are likely to be required in order to serve the larger allocations, which would be funded as part of the developer infrastructure charge. It may be necessary for development sites to be phased in line with the provision of any network upgrades. Early engagement between developers, the council, and Severn Trent Water is recommended to allow time for the strategic infrastructure required to serve these developments to be planned.

6.6 Recommendations

Table 6.1 Recommendations for wastewater network

Action	Responsibility	Timescale
Early engagement between SMBC and Severn Trent Water is required to ensure that where strategic infrastructure is required, it can be planned in by Severn Trent Water and will not lead to any increase in discharges from sewer overflows.	SMBC, Severn Trent Water	Ongoing
Take into account wastewater infrastructure constraints in phasing development in partnership with the sewerage undertaker.	SMBC, Severn Trent Water	Ongoing
Developers will be expected to work with the sewerage undertaker closely and early in the planning promotion process to develop an Outline Drainage Strategy for sites. The Outline Drainage strategy should demonstrate the wastewater assets required, their locations including points of connection to the public foul sewerage, whether the site drainage will be adopted by the water company and if any sewer requisitions will be required.	SMBC, Severn Trent Water, Developers	Ongoing

Action	Responsibility	Timescale
Developers will be expected to demonstrate to the LLFA that surface water from a site will be disposed using a SuDS with connection to surface water sewers seen as the last option. New connections for surface water to foul sewers will be resisted by the LLFA.	SMBC, LLFA, developers	Ongoing

7 Storm overflows

7.1 Background

Storm overflows are an essential component in the sewer network. However, when they operate, they can cause environmental damage. They occur on combined sewer systems where the sewer takes both foul flow (sewage from homes and offices) and rainwater runoff. In normal conditions (Figure 7.1) all of this flow passes through the sewer network and is treated at a WwTW.

In periods of exceptional rainfall (Figure 7.2), the capacity in a combined sewer may be used up by the additional flow from rooftops and storm drains. Once the capacity is exceeded, wastewater would back up into homes, businesses and on to roads. A storm overflow acts as a relief valve, preventing this from happening.

Storm overflows become problematic when they operate frequently in moderate or light rainfall, or for long periods as a result of groundwater infiltration in the sewerage system – possibly in breach of their permit.

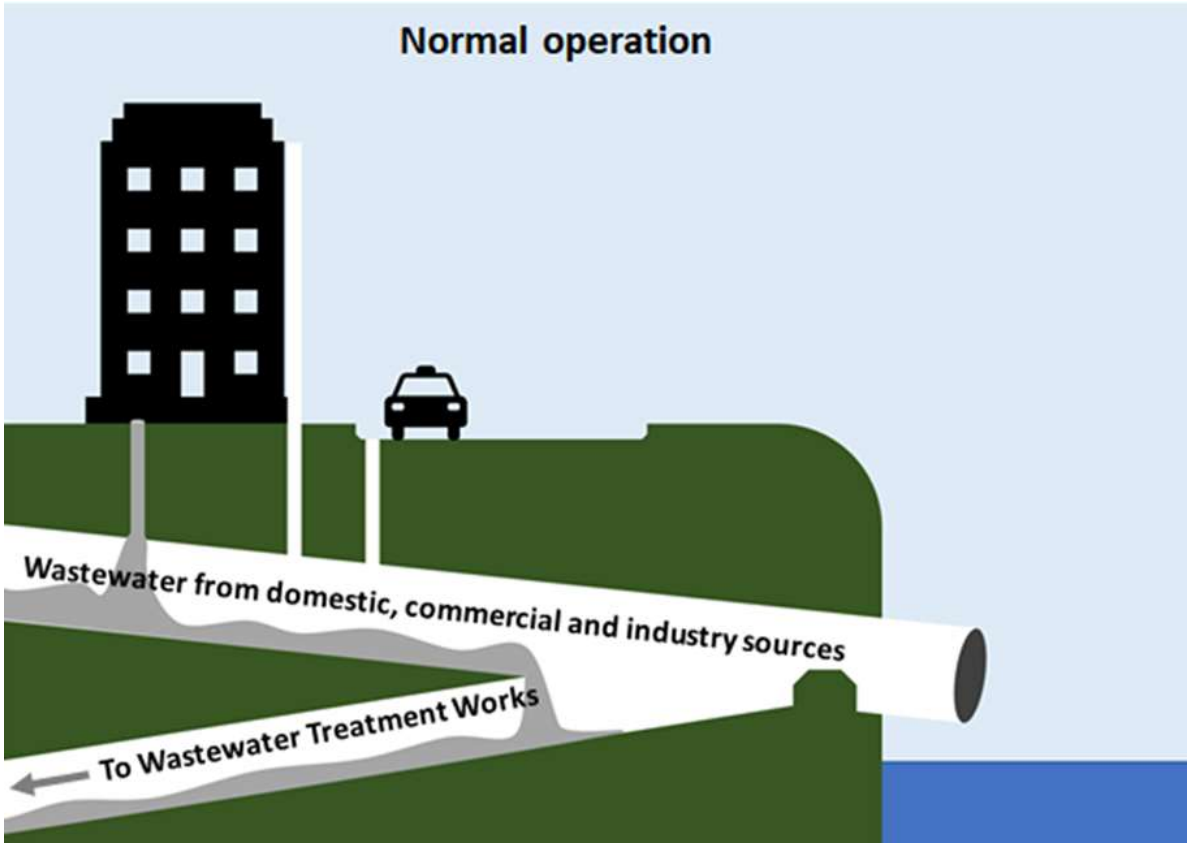


Figure 7.1: Storm overflow operation in normal conditions

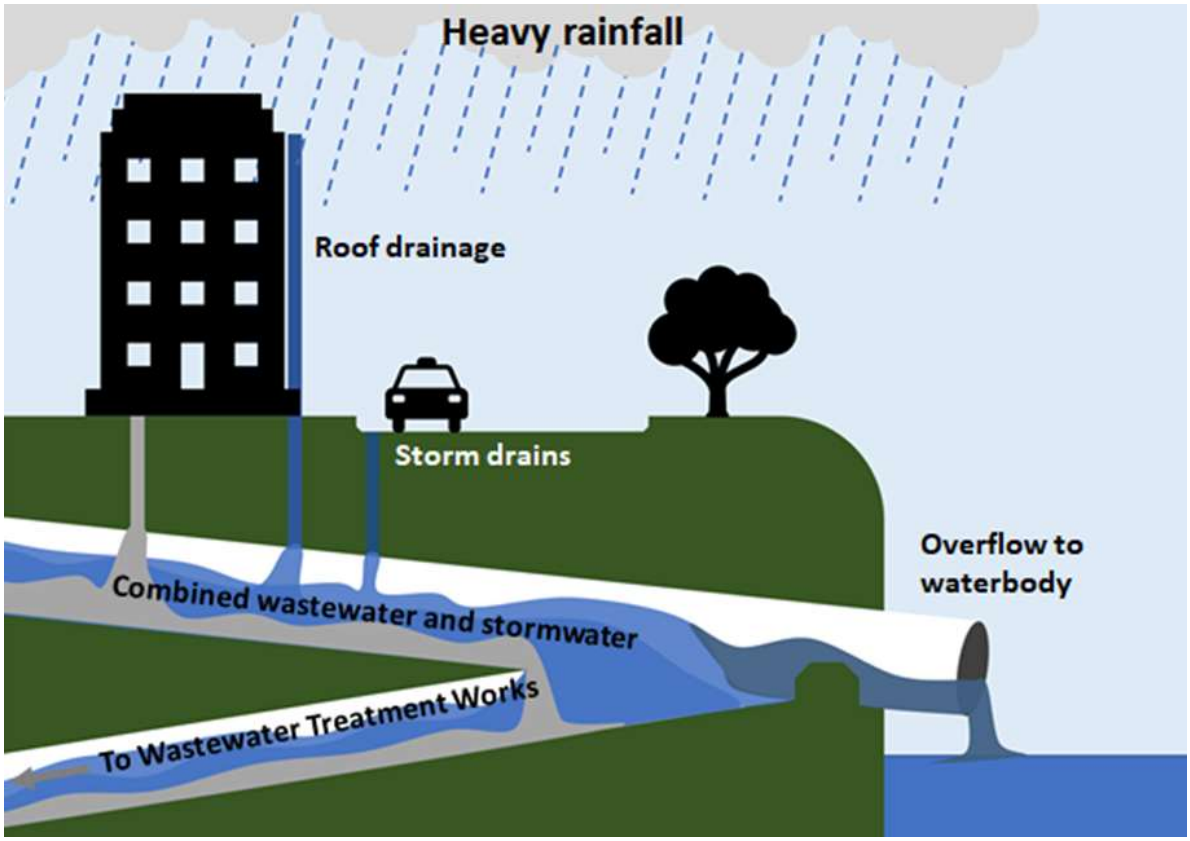


Figure 7.2: Storm overflow operation in exceptional rainfall.

7.2 Storm overflow assessment

The Environment Act now requires water companies to report and monitor storm overflows as well as reduce the harm caused to the rivers they discharge to. There are 31 storm overflows on the sewer network, and four WwTW storm tank overflows that are relevant to growth in Solihull Borough and have been assessed in this study. The location of these is shown in Figure 7.5 and Figure 7.6. Some of these overflows are outside of Solihull Borough and have been included because growth in Solihull could cause an increase in their operation. These are within Coleshill and Rowington WwTW sewer areas, growth in Solihull Borough contributes 93% and 30% of the total additional wastewater flow respectively. There is a small amount of Solihull Borough growth within the Minworth and Finham Coventry WwTW sewer areas. The overflows in these sewer networks have not been assessed, as the growth contributed little extra wastewater flow, 1% and 5% respectively.

Unmitigated development within Solihull Borough could cause the frequency or duration of operation of storm overflows to increase. There are opportunities through the planning system to ease pressure on the wastewater network by separating foul and storm flow in existing combined systems and not allowing new surface water connections. Surface water can also be better managed by retrofitting SuDS in existing residential areas, and in new development, ensuring SuDS are incorporated into designs at the master planning stage to maximise the potential benefits.

The Storm Overflow Taskforce has agreed a long-term goal to end the damaging pollution caused by the operation of storm overflows. An important component of this is the monitoring of overflows, and a target was set to monitor the frequency and duration of operation at all storm overflows by 2023. This is called Event Duration Monitoring (EDM). The EDM dataset (which contains performance data on the circa 16k storm overflows monitored) is what we use to assess overflows in the LPA area.

The SOAF 2025 set a threshold of 10 operations in a year (based on three year's data, 20 if based on two year's data, and 30 if based on one year), above which a storm overflow should be investigated. The EA state that a revised SOAF methodology will be realised to coincide with the Environment Act obligation on storm overflows, which will require all overflows to ensure that they are not causing adverse ecological harm. The Storm Overflow Reduction Plan which was published in August 2022 sets an objective that 'storm overflows will not be permitted to discharge above an average of ten rainfall events per year by 2050'. We apply a RAG score to each overflow which is outlined in Table 7.1 below.

Table 7.1: Definition of RAG scoring applied

Sewer Overflows RAG Score	Number of operations per year (average of available data)	Commentary
Green	0-4	
Amber	5-9	An investigation is not required at present, but improvements may be needed in the network and/or catchment to meet the long-term target.
Red	10+	

7.2.1 Network storm overflows

Of the 31 overflows on the network assessed, seven of these are type 'at pumping station', with 24 'on the sewer network'. The results of the storm overflow assessment can be seen in Figure 7.5 for overflows on the sewer network, with the results detailed in Table 7.2 JBA RAG assessment of storm overflows in sewer catchments that could be impacted by growth in Solihull.

Eleven of the network overflows were classed as 'Red', they had over 10 spills on average per year. Eight of the network overflows were classed as 'Amber' as they were close to 10 spills on average per year (>4 spills).

7.2.2 Wastewater treatment works storm overflows

Of the WwTWs receiving additional flow from growth in Solihull Borough, four of these have overflows that we have assessed in this study. Coleshill, Rowington, Balsall Common and Norton Green. All four are classed as 'Red' in our assessment because they have over 10 spills on average per year.

7.2.3 Water UK results for storm overflows

According to the National Storm Overflows Plan, there are 25 storm overflows in the study area of Solihull Borough (Water UK, 2026), which includes overflows on the network and at WwTW. Of the 25 identified by Water UK, 14 have improvements planned aimed at reducing the number of spills.

Six of the storm overflows in the area have the potential to be improved by a method involving nature-based solutions, which could include retrofitted sustainable drainage systems (SuDS) and wetland treatment systems. The current plan is expected to prevent 143 spills by 2030 and 211 spills by 2050, a 40% and 59% reduction respectively, relative to a 2020 baseline (Water UK, 2026).

The new minimum requirement for all overflows is that they meet a ‘rainfall target’ of 10 spills per year. Figure 7.3 shows the percentage of storm overflows in the study area meeting this target now and (forecast) in the period up to 2050 as improvements are made. Other improvements may occur at the same time, as necessary, to further reduce spills. Present-day statistics are based on EDM coverage in 2022 when 90% of storm overflows had monitoring. Coverage by monitoring in 2022 varied by water company. At the end of 2023 there was 100% coverage. Figure 7.4 shows the corresponding number of spills as improvements are made.

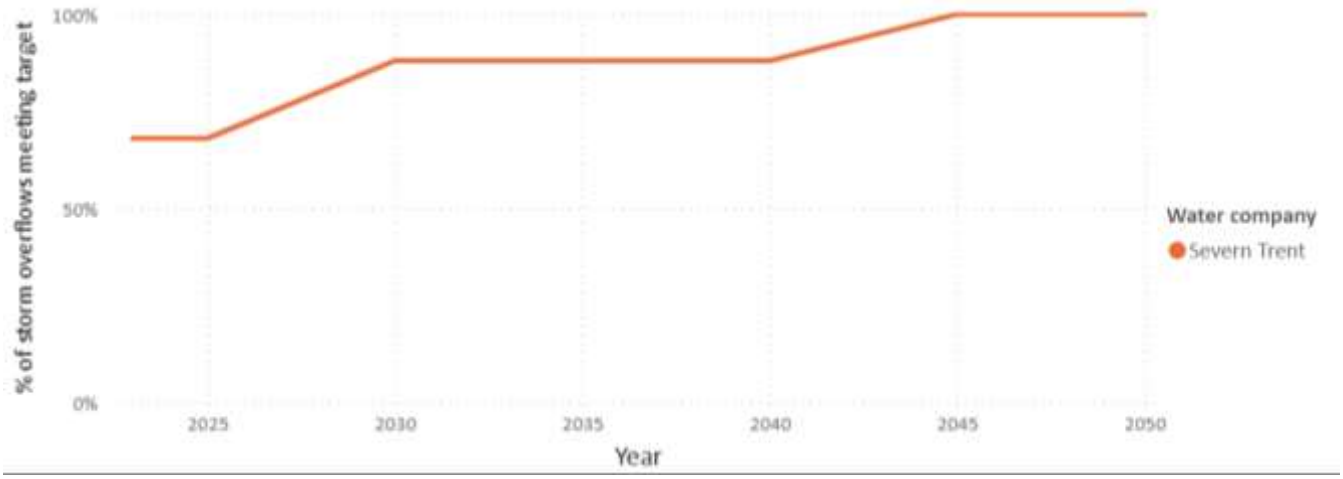


Figure 7.3 Predicted percentage of storm overflows in study area meeting annual rainfall

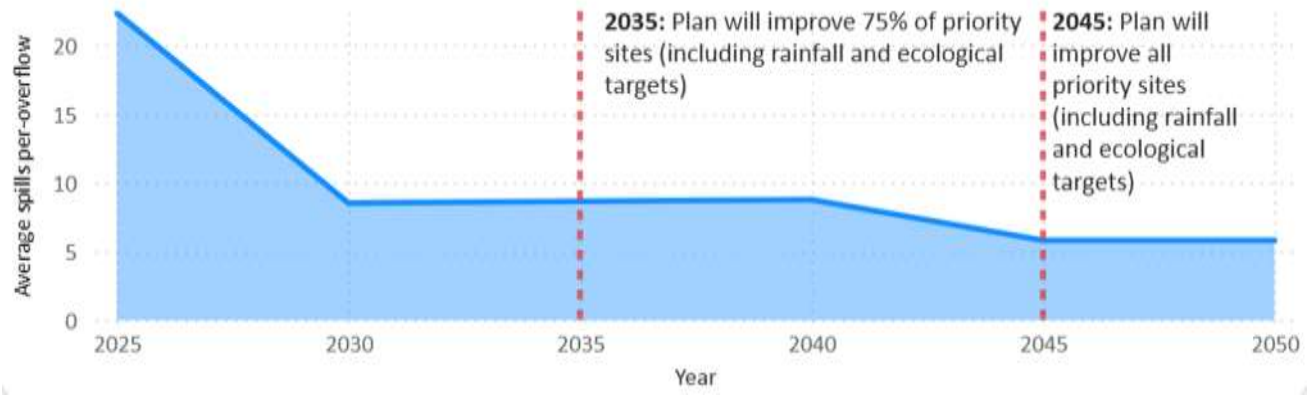


Figure 7.4: Forecast annual average number of spills in Solihull (Water UK, 2024)

Unmitigated development within Solihull could cause the frequency or duration of operation of storm overflows to increase. There are opportunities through the planning system to ease pressure on the wastewater network by separating foul and storm flow in existing combined systems and not allowing new surface water connections. Surface water can also be better managed by retrofitting SuDS in existing residential areas, and in new development, ensuring SuDS are incorporated into designs at the master planning stage to maximise the potential benefits.

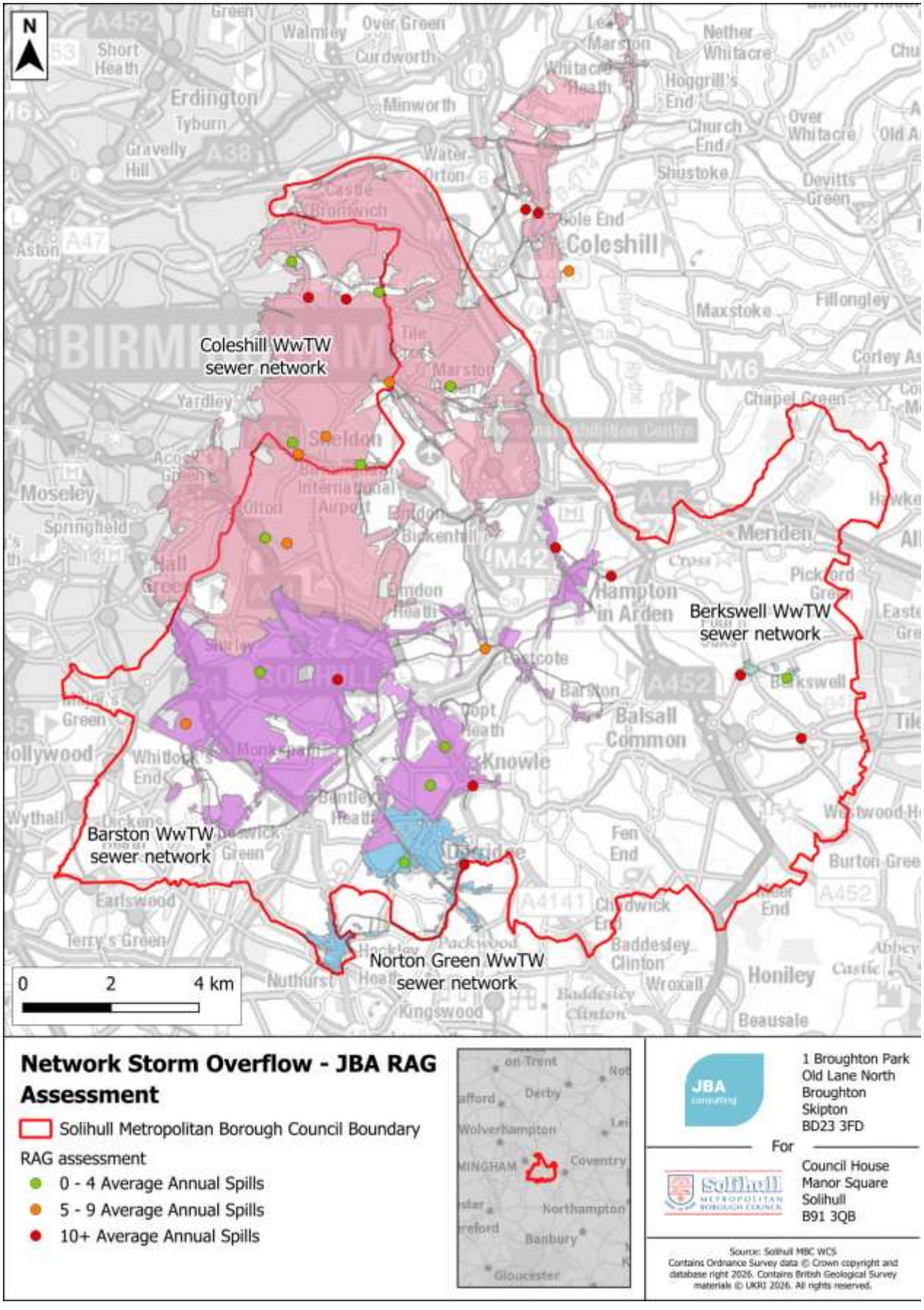


Figure 7.5: Results of the sewer network storm overflow assessment

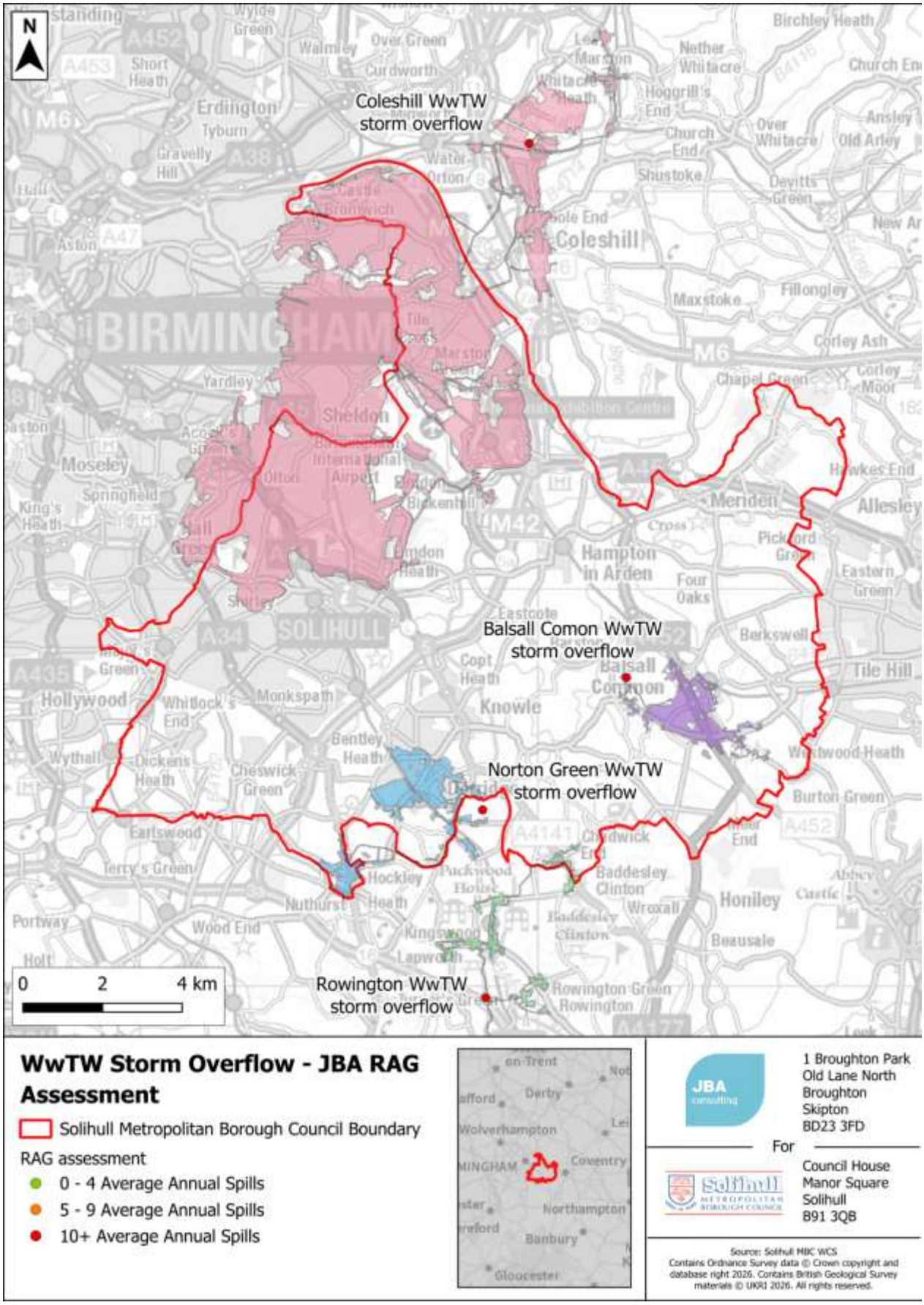


Figure 7.6 Results of the WwTW storm overflow assessment

Table 7.2 JBA RAG assessment of storm overflows in sewer catchments that could be impacted by growth in Solihull

Storm overflow name	Permit number	Type of overflow	2025 spills	2024 spills	2023 spills	Annual average number of spills	Threshold for red score	JBA RAG score
BENTON GREEN - BENTON GREEN LANE (SSO)	T/11/12330/O	Storm discharge at pumping station	0	5	0	2	10	Green
CAROL GREEN - HODGETTS LANE (SSO)	T/11/35957/O	Storm discharge at pumping station	15	34	27	25	10	Red
HAMPTON IN ARDEN - MERIDEN ROAD (SSO)	T/11/02501/O	Storm discharge at pumping station	38	77	86	67	10	Red
HAMPTON IN ARDEN - OLD STATION RD (SSO)	T/11/02379/O	Storm discharge at pumping station	18	42	37	32	10	Red
OLTON - ULVERLEY GREEN RD (SSO)	T/12/03550/O	Storm discharge at pumping station	1	2	1	1	10	Green
DORRIDGE - NORTON GREEN LANE (SSO)	T/11/35890/O	Storm discharge at pumping station	31	69	50	50	10	Red
COLESHILL - COLE END PS (CSO)	T/12/02492/O	Storm discharge at pumping station	4	39	35	26	10	Red
BERKSWELL -	Permit	SO on sewer	4	15	11	10	10	Red

Storm overflow name	Permit number	Type of overflow	2025 spills	2024 spills	2023 spills	Annual average number of spills	Threshold for red score	JBA RAG score
LAVENDER HALL LANE (CSO)	application submitted	network						
SOLIHULL - BRENTFORD ROAD (CSO)	T/11/36449/O	SO on sewer network	2	4	3	3	10	Green
SOLIHULL - CHURCH HILL ROAD (CSO)	T/11/36251/O	SO on sewer network	4	18	7	10	10	Red
CATHERINE-DE-BARNES - FRIDAY LANE (CSO)	T/11/02414/O	SO on sewer network	4	8	2	5	10	Amber
DORRIDGE - GRANGE ROAD/MANOR RD (CSO)	T/11/00523/O	SO on sewer network	2	0	1	1	10	Green
KNOWLE - HILLMORTON ROAD (CSO)	T/11/21467/O	SO on sewer network	4	7	1	4	10	Green
KNOWLE - LANGFIELD ROAD (CSO)	T/11/20992/O	SO on sewer network	3	6	0	3	10	Green
TILE CROSS - SHELDON HALL AVENUE (CSO)	T/12/22015/O	SO on sewer network	6	13	2	7	10	Amber
OLTON - ULVERLEY GREEN ROAD 47 (CSO)	EPRHB3991NS	SO on sewer network	5	n/a	n/a	5	30	Amber
SOLIHULL - MALVERN PARK (CSO)	T/11/02240/O	SO on sewer network	10	4	n/a	7	20	Amber

Storm overflow name	Permit number	Type of overflow	2025 spills	2024 spills	2023 spills	Annual average number of spills	Threshold for red score	JBA RAG score
KNOWLE - WARWICK ROAD (CSO)	T/11/01965/O	SO on sewer network	1	11	18	10	10	Red
SHELDON - COVENTRY RD/ARDEN OAK RD (CSO)	T/12/36400/O	SO on sewer network	2	1	4	2	10	Green
TILE CROSS - ALCOTT GROVE (CSO)	T/12/36417/O	SO on sewer network	0	0	n/a	0	20	Green
MARSTON GRN - BELL LA(ADJ RAILWAY) (CSO)	T/12/30280/O	SO on sewer network	4	9	8	7	10	Amber
KITTS GREEN - MIDDLE LEAFORD (CSO)	T/12/07937/O	SO on sewer network	0	0	0	0	10	Green
COLESHILL - OLD MILL ROAD 54 (CSO)	T/12/36069/O	SO on sewer network	23	31	28	27	10	Red
MARSTON GRN-COLESHILL/BICKENHILL RD (SO)	TSC534	SO on sewer network	0	0	n/a	0	20	Green
MARSTON GRN - COLESHILL RD (SO)	T/12/03702/O	SO on sewer network	0	n/a	0	0	20	Green
SHELDON - COMMON LA/BICKLEY GROVE (CSO)	T/12/36118/O	SO on sewer network	8	6	6	7	10	Amber
SHELDON - COVENTRY RD/BARROWS LANE (CSO)	TSC578	SO on sewer network	3	7	4	5	10	Amber

Storm overflow name	Permit number	Type of overflow	2025 spills	2024 spills	2023 spills	Annual average number of spills	Threshold for red score	JBA RAG score
COLESHILL - COVENTRY RD (SO)	T/13/30009/O	SO on sewer network	3	6	5	6	10	Amber
KITTS GREEN - GRESSEL LANE (CSO)	T/12/21309/O	SO on sewer network	22	17	4	14	10	Red
KITTS GREEN - KITTS GREEN ROAD (CSO)	T/12/21238/O	SO on sewer network	46	52	74	57	10	Red
OLTON - WAGON LANE (CSO)	DT/9735	SO on sewer network	2	5	5	4	10	Green

7.3 Conclusion

The Environment Act now requires water companies to report and monitor storm overflows as well as reduce the harm caused to the rivers they discharge to. There are 35 storm overflows included in our assessment, 31 on the network, and 4 at WwTWs.

Our analysis identified 11 sewer network overflows and four WwTW overflows were operating above the threshold of 10 spills on average between 2023 and 2025. Eight of the overflows assessed were close to being over the threshold and were classed as amber. The Storm Overflow Reduction Plan which was published in 2022 sets an objective that "storm overflows will not be permitted to discharge above an average of 10 rainfall events per year by 2050".

There are opportunities, through the planning system, to ease pressure on the wastewater network. Such opportunities include separation of the foul and storm flow in existing combined systems, when development sites are on previously developed land, and by not allowing new surface water connections. Surface water can also be better managed by retrofitting SuDS in existing residential areas, and in new development, ensuring SuDS are incorporated into designs at the master planning stage to maximise the potential benefits.

Early engagement between developers, the involved councils, Solihull Metropolitan Borough Council and Severn Trent Water is recommended to allow time for the strategic infrastructure required to serve these developments to be planned.

7.4 Recommendations

Table 7.3 Recommendations from storm overflow assessment

Action	Responsibility	Timescale
Developers will be expected to demonstrate to the LLFA that surface water from a site will be disposed using a SuDS with connection to surface water sewers seen as the last option. New connections for surface water to foul sewers will be resisted by the LLFA.	SMBC, Severn Trent Water	Ongoing
WaSCs should ensure that appropriate investment is available in AMP8 and AMP9 to meet SOAF commitments to be delivered by 2035 in the area.	STW	As part of PR29 planning process
Consider wastewater infrastructure constraints in phasing development in partnership with the sewerage undertaker.	SMBC, STW	Ongoing

Action	Responsibility	Timescale
Developers will be expected to work with the sewerage undertaker closely and early in the planning promotion process to develop an Outline Drainage Strategy for sites. The Outline Drainage strategy should demonstrate the wastewater assets required, their locations including points of connection to the public foul sewerage, whether the site drainage will be adopted by the water company and if any sewer requisitions will be required.	SMBC, STW and developers	Ongoing

8 Wastewater treatment

8.1 Introduction

Severn Trent Water are the wastewater provider covering Solihull. Severn Trent Water refer to their wastewater processing plants as WwTW. They may also be referred to a Sewage Treatment Works, STW, in some documents and data sources. Severn Trent Water have 11 WwTW covering Solihull. The location of the WwTW catchments that cover Solihull can be seen in Figure 8.1. Coleshill WwTW serves a large area to the north and west of the study area, whilst Barston WwTW covers much of the southern part of the study area.

Very small developments in rural areas may be suitable for on-site treatment and discharge; however, the Environment Agency will not usually permit this where there is a public sewerage system within a distance calculated as 30m per dwelling. There is therefore a localised risk to water quality if all of these small developments were to be served by septic tanks, especially where there are clusters of small-scale new development. Within Solihull a relatively large number of houses (1,300) are remote from the public sewer network.

Headroom at Wastewater Treatment Works (WwTWs) can be eroded by growth in population or per-capita consumption, requiring investment in additional treatment capacity. As the volumes of treated effluent rises, even if the effluent quality is maintained, the pollutant load discharged to the receiving watercourse will increase. In such circumstances the Environment Agency as the environmental regulator, may tighten consented effluent consents to achieve a "load standstill", i.e., ensuring that as effluent volume increases, the pollutant discharged does not increase. This would require investment by the water company to improve the quality of the treated effluent.

An assessment is required to identify the available capacity within the existing WwTWs, and the potential to upgrade overloaded systems to accommodate future growth. The scale and cost of upgrading works may vary significantly depending upon the location of the development in relation to the network itself and the receiving WwTW.

The Environment Agency is responsible for regulating sewage discharge releases via a system of Environmental Permits (EPs). Monitoring for compliance with these permits is the responsibility of both the EA and the plant operators.

Figure 8.2 summarises the different types of wastewater releases that might take place, although precise details vary from works to works depending on the design.

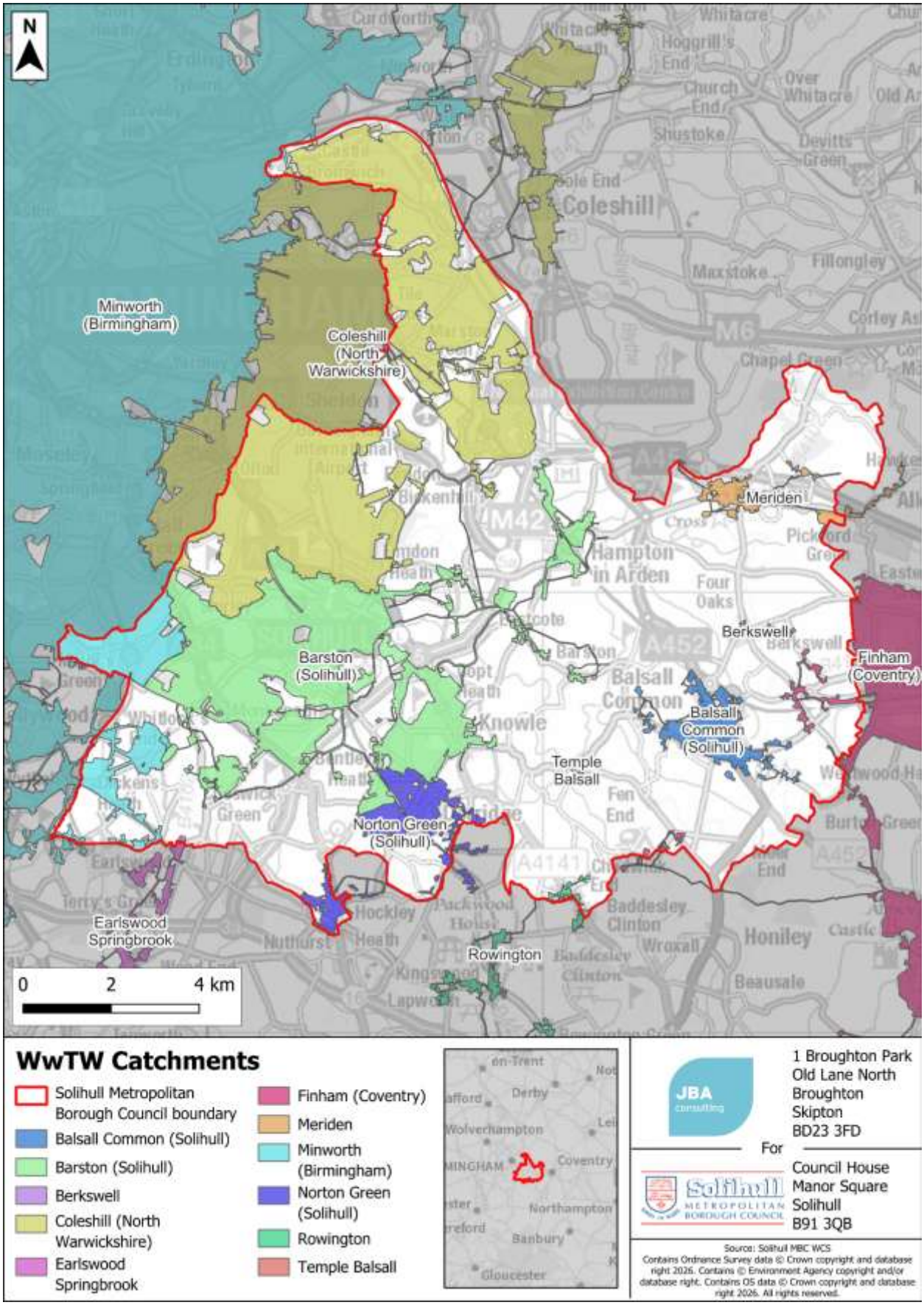


Figure 8.1: WwTW catchments serving Solihull

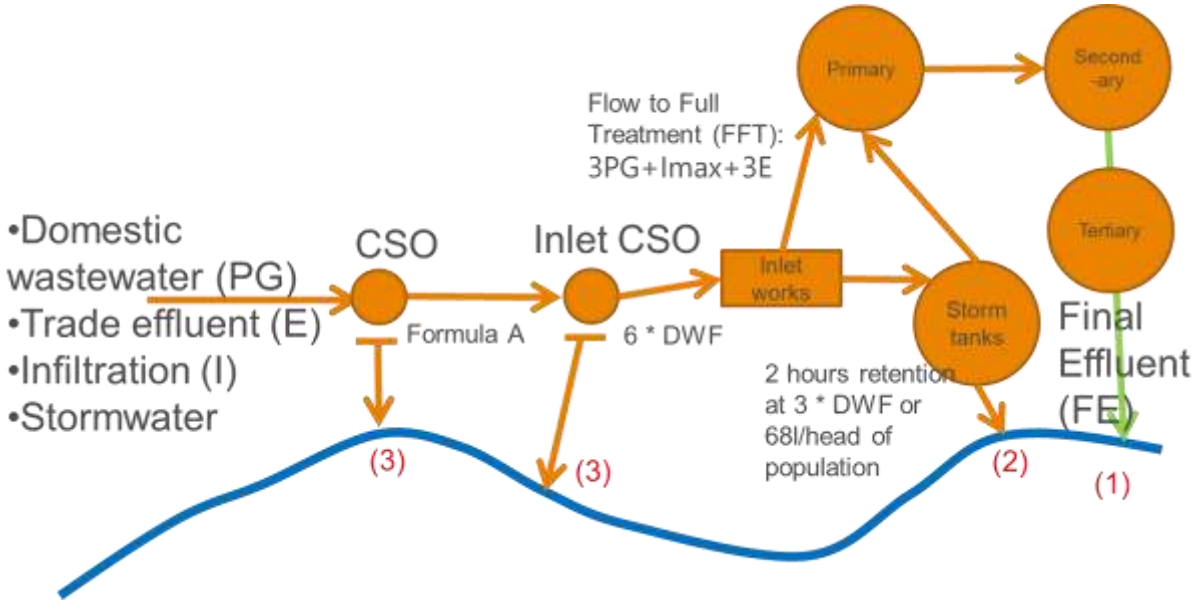


Figure 8.2 Overview of typical combined sewerage system and WwTW discharges

During dry weather flow (DWF), the final effluent from the WwTW should be the only discharge (1). With rainfall, the storm tanks fill and eventually start discharging to the watercourse (2) and Combined Sewer Overflows (CSOs) upstream of the storm tanks start to operate (3). The discharge of storm sewage from treatment works is allowed only under conditions of heavy rain or snow melt, and therefore the flow capacity of treatment systems is required to be sufficient to treat all flows arising in dry weather and the increased flow from smaller rainfall events. After rainfall, storm tanks should be emptied back to full treatment as soon as reasonably possible, freeing their capacity for the next rainfall event.

Environmental permits are used alongside water quality limits as a means of controlling the pollutant load discharged from a WwTW to a receiving watercourse. Sewage flow rates must be monitored for all WwTWs where the permitted discharge rate is greater than 50 m^3/day in dry weather.

Permitted discharges are usually based on a statistic known as the Dry Weather Flow (DWF). As well as being used in the setting and enforcement of effluent discharge permits, the DWF is used for WwTW design, as a means of estimating the ‘base flow’ in sewerage modelling and for determining the Flow to Full Treatment, (FFT), the minimum flow which must undergo full treatment, and above which additional flow is permitted to pass to the storm tanks (Figure 8.2). WwTWs may also have a "maximum permitted flow" permit, which specifies a maximum discharge. These are often used where a large proportion of the inflow to the WwTW comes from groundwater infiltration.

WwTW Environmental Permits also consent for maximum concentrations of pollutants, in most cases Suspended Solids (SS), Biochemical Oxygen Demand (BOD) and Ammonia (NH4). Some works (usually the larger works) also have permits for Phosphorous (P). These are determined by the Environment Agency 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 Water Framework Directive (WFD) classification.

Increased domestic population and/or employment activity can lead to increased wastewater flows arriving at a WwTW. Where there is insufficient headroom at the works to treat these flows, this could lead to failures in flow consents.

Areas not covered by WwTW catchments may not have an existing public sewer system. Where this is the case, small developments in more rural areas may be suitable for on-site treatment and discharge, however the Environment Agency will not usually permit this where there is a public sewerage system within a distance calculated as 30m per dwelling from any part of the site boundary.

8.2 Methodology

An independent assessment of WwTW capacity was carried out using measured flow data supplied by Severn Trent Water. The process was as follows:

- Severn Trent Water provided their DWF data for WwTW serving the study area, JBA then calculated 80th percentile exceedance flow statistic for each WwTW.
- Development sites within the growth scenario including windfall and neighbouring authority growth were assigned to a WwTW using the sewerage drainage area boundaries.
- For each site, the future DWF was calculated using the occupancy rates and per-capita consumption values obtained from the WRMPs (Section 4.4.3), and the assumption that 95% of water used is returned to sewer. Permitted headroom was used as a substitute for actual designed hydraulic capacity for each WwTW being assessed.
- For employment sites, wastewater demand was estimated based on the predicted number of new employees. Floor space, employment use types, and employment densities were used to estimate the number of employees.
- The current and estimated future flow was then compared to the permitted flow obtained from the Environment Agency “Consented Discharges to Controlled Waters with Conditions” database.
- Headroom (expressed as the number of homes that could be accommodated before the permit is exceeded) was estimated by calculating the difference between the current and permitted flow and using the occupancy and per capita consumption for the WRZ the sewer catchment is in to provide an estimate for the number of houses.
- A red/amber/green score was then assigned to each WwTW based on whether it was likely to exceed its permitted flow.
- An amber score was given where there was less than 10% headroom remaining.

8.3 Results

JBA carried out an independent assessment of capacity at WwTW in the study area. This can differ from water company assessments as the water company has access to information and long-term plans unavailable to the WCS. The JBA assessment also takes a conservative view of WwTW headroom scoring any WwTW as amber where there is less than 10% headroom remaining at the end of the plan period.

There are eight WwTWs expected to serve growth during the Local Plan period. Table 7.4 contains a summary of the expected growth.

Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out an independent assessment of WwTW capacity. It is expected that this will be included in the final version of this report once the data is available.

It is anticipated that once the assessment is complete, a number of WwTWs are expected to be close to or exceeding their permit limit by the end of the plan period. An increase in flow permit, and/or upgrades to treatment capacity will be required at these WwTW.

Where a WwTW is likely to exceed its permit, the permit would be reviewed by the EA and if a higher flow consent was agreed, a tighter permit limit for substance concentrations is very likely to be required. In some cases, this may not be technically feasibly possible if that means concentrations tighter than the Technically Accepted Limit (TAL) which is 0.25 mg/l for phosphate for example.

In addition to hydraulic capacity, it is important to consider water quality considerations which are discussed in Sections 10 and 11. For WwTW that need upgrading, typically around five years is required for permit changes to be agreed, funding obtained for the next AMP and major works upgrades to be completed. It is therefore important for SMBC to engage early with Severn Trent Water, to ensure that any required infrastructure is in place prior to development being occupied.

Table 8.1: WwTW Capacity Assessment Results

WwTW name	Predicted housing during LP period (dwellings)	Predicted employment floorspace during LP period (sqm)	Permitted Flow (Ml/d)	Observed Q80 Flow (Ml/d)	Total additional Flow during LP period (Ml/d)	Approx. headroom remaining by end of planned growth (dwellings)	JBA Capacity Assessment
Balsall Common	3,599	40,000	1.780	TBC	1.070	TBC	AMBER - TBC
Barston	10,469		14.387	TBC	3.250	TBC	AMBER - TBC
Coleshill	3,311 (plus 899 from outside SMBC)	802,200 (including 5,299 from outside SMBC)	65.000	TBC	4.222	TBC	AMBER - TBC
Finham Coventry	3,101 (plus 9,796 from outside SMBC)	(1,826,047 from outside SMBC)	115.000	TBC	11.517	TBC	AMBER - TBC
Meriden	264		0.752	TBC	0.078	TBC	AMBER - TBC
Minworth	2,725 (plus 113,124 from outside SMBC)	(3,173,193 from outside SMBC)	225.000	TBC	53.849	TBC	AMBER - TBC
No public	1312		0.000	N/A	0.390	TBC	AMBER - TBC

WwTW name	Predicted housing during LP period (dwellings)	Predicted employment floorspace during LP period (sqm)	Permitted Flow (Ml/d)	Observed Q80 Flow (Ml/d)	Total additional Flow during LP period (Ml/d)	Approx. headroom remaining by end of planned growth (dwellings)	JBA Capacity Assessment
sewerage							
Norton Green	1,249 (plus 6 from outside SMBC)		3.180	TBC	0.373	TBC	AMBER - TBC
Rowington	31 (plus 71 from outside SMBC)		0.464	TBC	0.030	TBC	AMBER - TBC

8.4 Conclusion and recommendations

There are eight WwTWs expected to serve growth during the Local Plan period. Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out an independent assessment of WwTW capacity. It is expected that this will be included in the final version of this report once the data is available.

It is anticipated that once the assessment is complete, a number of WwTWs are expected to be close to or exceeding their permit limit by the end of the plan period. An increase in flow permit, and/or upgrades to treatment capacity will be required at these WwTW.

Table 8.2: Recommendations for wastewater treatment

Action	Responsibility	Timescale
Early engagement with Severn Trent Water is required to ensure that provision of WwTW capacity is aligned with delivery of development.	SMBC	Ongoing
Provide Annual Monitoring Reports to Severn Trent Water detailing projected housing growth.	SMBC	Ongoing
	Severn Trent Water	Ongoing
The Local Plan can encourage the use of SuDS to divert storm water away from the sewer network, reducing the volume that reaches the WwTW. This opportunity is greatest at brownfield sites connected to existing combined sewerage systems.	SMBC	In SMBC's Local Plan
	SMBC and developers	Ongoing

9 Odour

9.1 Introduction

Where new developments encroach upon an existing Wastewater Treatment Works (WwTW), odour from that site may become a cause for nuisance and complaints from residents. Managing odour at WwTWs can add considerable capital and operational costs, particularly when retro fitted to existing WwTWs. National Planning Policy Guidance recommends that plan-makers consider whether new development is appropriate near to sites used (or proposed) for water and wastewater infrastructure, due to the risk of odour nuisance. Sewerage undertakers recommend that an odour assessment may be required if the site of a proposed development is close to a WwTW and is encroaching closer to the WwTW than existing urban areas. The general principle is that allocated sites should not be located where a suitable standard of amenity cannot be achieved, or the continuous operation of an existing WwTW would be prejudiced.

9.2 Methodology

Sewerage undertakers recommend that an odour assessment may be required if the site of a proposed development is close to a WwTW and is encroaching closer to the WwTW than existing urban areas. The actual odour experienced is dependent on the size of the works, the type of treatment processes present, and the age and condition of the site. There is also significant variation due to current weather conditions.

A GIS assessment was carried out to identify areas that the sewerage undertaker considers may be at risk from odour nuisance due to encroachment on an existing WwTW. For Thames Water and Southern Water, this is defined as development sites less than 400m from the WwTW and encroaching closer to the WwTW than existing urbanised areas. If there are no existing houses close to a WwTW it is more likely than an odour impact assessment is needed.

9.3 Results

No potential allocations are located within 400m of a WwTW. The location of the odour buffers around WwTWs are shown in Figure 9.1.

Should a site be identified within these buffers, an odour assessment is recommended at these sites as part of the planning process (to be funded by the developer). Consideration should also be given to the layout of this site where only part of the site boundary lies within the 800m buffer zone. In some cases, only part of a larger site may be at risk, in which case zoning of lower impact land uses (e.g., landscaping, amenity, parking) closer to sources of odour may be sufficient to address this risk.

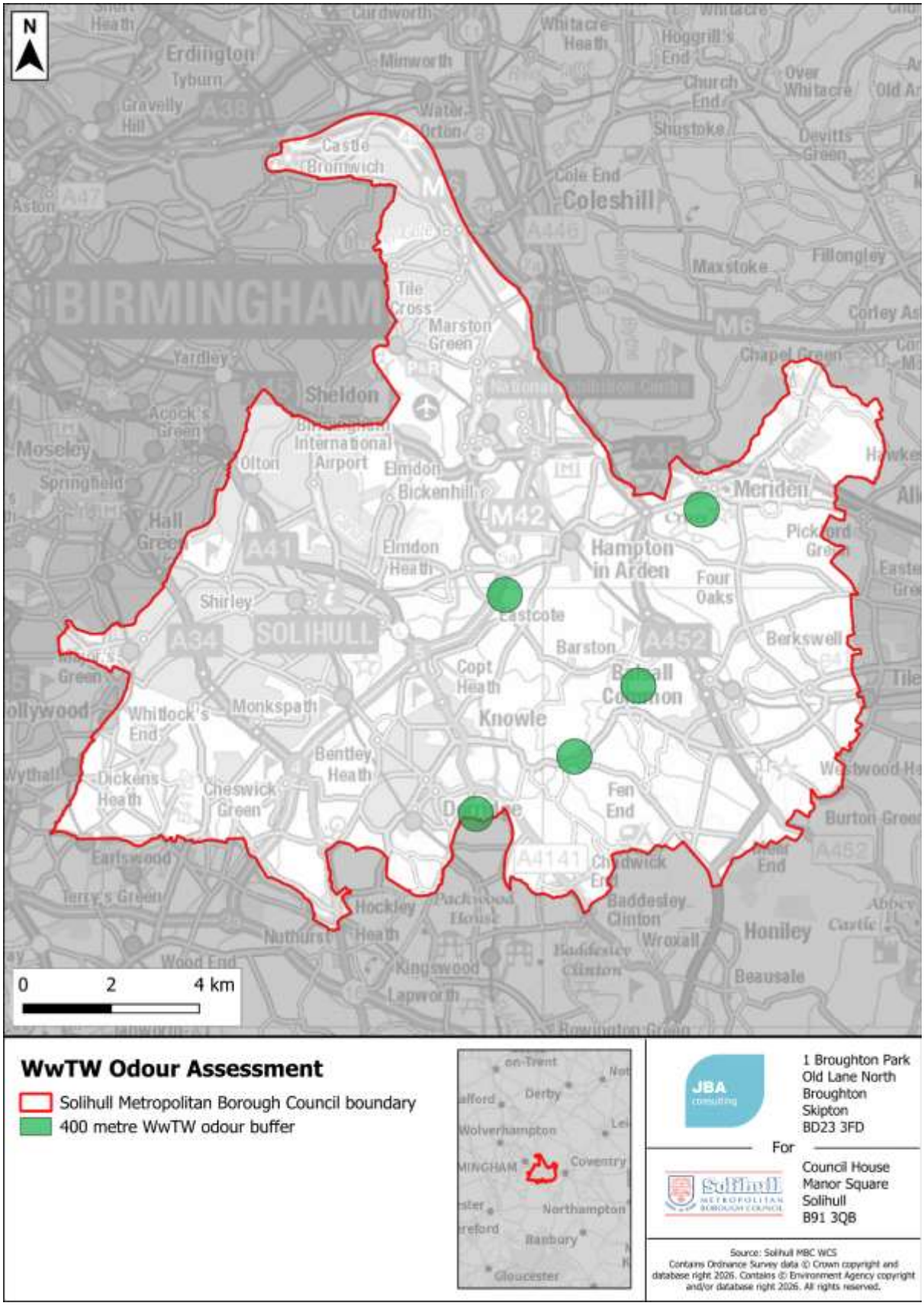


Figure 9.1 Odour buffers at WwTW in Solihull Borough

9.4 Conclusion

No potential allocations are located within 400m of a WwTW. Recommendations

Table 9.1 Recommendations form the odour assessment

Actions	Responsibility	Timescale
Consider odour risk at sites in vicinity of WwTW should further sites be identified.	SMBC, Developers	Ongoing
Carry out an odour assessment for sites identified as being at risk of nuisance odour.	Developers	Ongoing

10 Water quality

10.1 Introduction

An increase in the discharge of effluent from Wastewater Treatment Works (WwTW) because of development and growth in the area in which they serve can lead to a negative impact on the quality of the receiving watercourse. Under the Water Framework Directive (WFD), a watercourse is not allowed to deteriorate from its current WFD classification (either as an overall watercourse or for individual elements assessed).

It is Environment Agency (EA) policy to model the impact of increasing effluent volumes on the receiving watercourses. Where the scale of development is such that a deterioration is predicted, a variation to the Environmental Permit (EP) may be required for the WwTW to improve the quality of the final effluent, so that the increased pollution load will not result in a deterioration in the water quality of the watercourse. This is known as "no deterioration" or "load standstill". The need to meet river quality targets is also taken into consideration when setting or varying a permit.

The Environment Agency operational instructions on water quality planning and no-deterioration are currently being reviewed. Previous operational instructions (Environment Agency d, 2012) (now withdrawn) set out a hierarchy for how the no-deterioration requirements of the WFD should be implemented on inland waters. The potential impact of development should be assessed in relation to the following objectives:

- Could the development cause a greater than 10% deterioration in water quality? This objective ensures that all the environmental capacity is not taken up by one stage of development and there is sufficient capacity for future growth.
- Could the development cause a deterioration in WFD class of any element assessed? This is a requirement of the Water Framework Directive to prevent a deterioration in class of individual contaminants. The "Weser Ruling" (European Court of Justice, 2015) by the European Court of Justice in 2015 specified that individual projects should not be permitted where they may cause a deterioration of the status of a water body. If a water body is already at the lowest status ("bad"), any impairment of a quality element was considered to be a deterioration. Emerging practice is that a 3% limit of deterioration is applied.
- Could the development alone prevent the receiving watercourse from reaching Good Ecological Status (GES) or Potential? Is GES possible with current technology or is GES technically possible after development with any potential WwTW upgrades.

The overall WFD classification of a water body is based on a wide range of ecological and chemical classifications. This assessment focuses on three physico-chemical quality elements; Biochemical Oxygen Demand (BOD), Ammonia, and Phosphate as set out in the EA guidance (Environment Agency e, 2014).

BOD – Biochemical Oxygen Demand

BOD is a measure of how much organic material – sewage, sewage effluent or industrial effluent – is present in a river. It is defined as the amount of oxygen taken up by micro-organisms (principally bacteria) in decomposing the organic material in a water sample stored in darkness for 5 days at 20°C. Water with a high BOD has a low level of dissolved oxygen. A low oxygen content can have an adverse impact on aquatic life.

Ammonia

Nitrogen is an essential nutrient required by all plants and animals for the formation of amino acids. In its molecular form nitrogen cannot be used by most aquatic plants, and so it is converted into other forms. One such form is ammonia (NH_3). This may then be oxidized by bacteria into nitrate (NO_3) or nitrite (NO2). Ammonia may be present in water in either the unionized form NH_3 or the ionized form NH_4. Taken together these forms care called Total Ammonia Nitrogen.

Although ammonia is a nutrient, in high concentrations it can be toxic to aquatic life, in particular fish, affecting hatching and growth rates.

The main sources in rivers include agricultural sources, (fertilizer and livestock waste), residential sources (ammonia containing cleaning products and septic tank leakages), industrial processes and WwTWs.

Phosphate

Phosphorus is a plant nutrient and elevated concentrations in rivers can lead to accelerated plant growth of algae and other plants. Its impact on the composition and abundance of plant species can have adverse implications for other aspects of water quality, such as oxygen levels. These changes can cause undesirable disturbances to other aquatic life such as invertebrates and fish.

Phosphorus (P) occurs in rivers mainly as Phosphate (PO_4), which are divided into Orthophosphates (reactive phosphates), and organic Phosphates.

Orthophosphates are the main constituent in fertilizers used in agriculture and domestic gardens and provide a good estimation of the amount of phosphorus available for algae and plant growth and is the form of phosphorus that is most readily utilized by plants.

Organic phosphates are formed primarily by biological processes and enter sewage via human waste and food residues. Organic phosphates can be formed from orthophosphates in biological treatment processes or by receiving water biota.

Although it is phosphorus in the form of phosphates that is measured as a pollutant, the term phosphorus is often used in water quality work to represent the total phosphorus containing pollutants.

10.2 Water quality modelling methodology

SIMCAT is used by the EA to model water bodies and identify where permit changes are needed to prevent deterioration or improve water quality as well as supporting decision making to guide development to locations where environmental deterioration will be reduced. SIMCAT is a 1D model which represents inputs from both point-source effluent discharges and diffuse sources, and the behaviour of solutes in the river.

SIMCAT can simulate inputs of discharge and water quality data and statistically distribute them from multiple effluent sources along the river reach. It uses the Monte Carlo method for distribution that randomly models up to 2,500 boundary conditions. The simulation calculates the resultant water quality as the calculations cascade further downstream.

Once the distribution results have been produced, an assessment can be undertaken on the predicted mean and ninetieth percentile concentrations or loads compared to the Environmental Quality Standards.

Within SIMCAT, the determinands modelled were Biochemical Oxygen Demand (BOD), ammonia) and phosphorus. In fresh waterbodies, phosphate is usually the limiting nutrient for algal growth. However, in marine environments, nitrogen is considered to be the limiting nutrient. The methodology followed is summarised in Figure 10.1. In this flow chart, all of the questions in the top row must be answered.

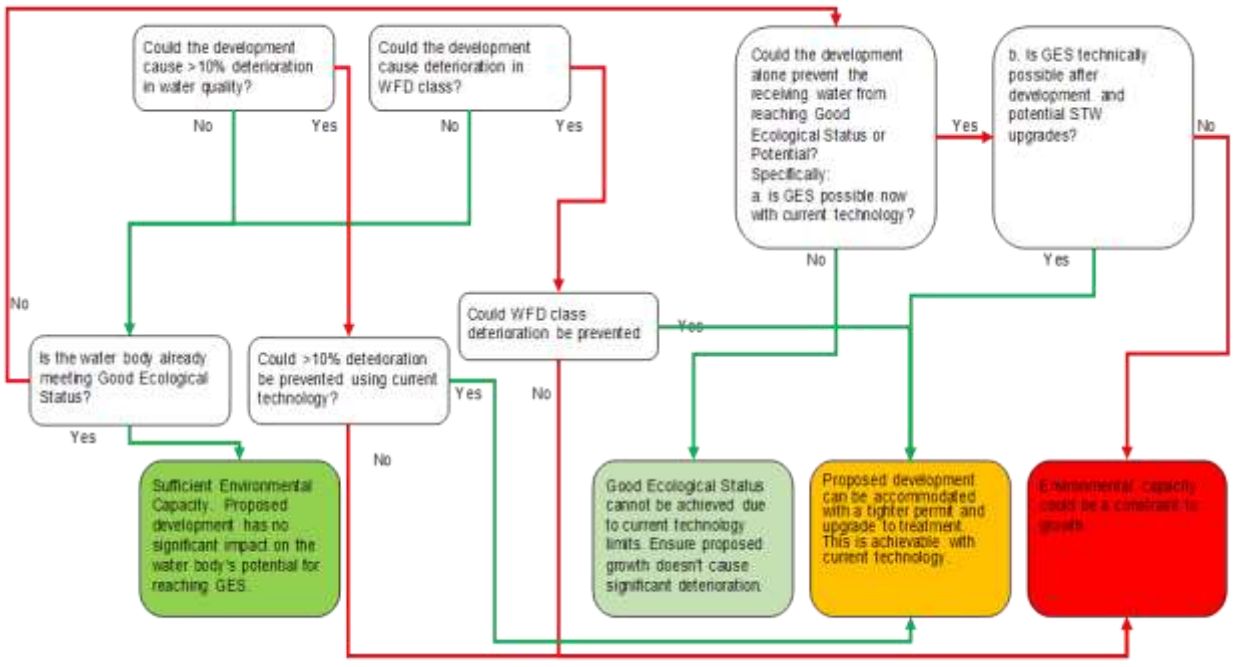


Figure 10.1 Water quality impact assessment following EA guidance

Where modelling indicated, growth may lead to a deterioration in the watercourse, or where the watercourse is not currently meeting at least a 'Good' class for each determinant, the models were used to test whether this could be addressed by applying stricter discharge limits. In such cases, a Technically Achievable Limit (TAL) was considered.

The EA advised that the following permit values are achievable using treatment at TAL, and that these values should be used for modelling all WwTW potential capacity irrespective of the existing treatment technology and size of the works:

- Ammonia (90%ile): 1 mg/l.
- BOD (90%ile): 5 mg/l.
- Phosphorus (mean): 0.25 mg/l.

This assessment did not take into consideration whether it is feasible to upgrade each existing WwTW to TAL due to constraints of costs, timing, space, carbon costs etc.

The study area is covered by the two SIMCAT models developed by the EA (Severn and Trent). These models have been largely based on observed flow and quality data for the period 2014-2020. A widespread update of the models, and the resultant recalibration were not within scope of this project. It was therefore agreed with the EA to update just the effluent flow at WwTW receiving growth in the study area. Consequently, the modelling work presented should be used to identify areas at risk of water quality deterioration, but not for permit setting.

Flow data from the last three years for each WwTW in the study area was supplied by the sewerage undertakers and used to update the model. Some of the WwTW in the study area already had upgrades completed in AMP7 or planned in AMP8, which would be expected to improve water quality at those locations. These were therefore factored into the model by applying the updated permit limit where it was less than the current discharge in the model. The model was then run in its updated form to set a 2024 baseline.

Additional effluent flow from growth during the Local Plan period was added to current flow at WwTW receiving growth and the model re-run as a future scenario.

No deterioration test

The results from the baseline and future versions of the model were compared to assess the predicted percentage deterioration for each of the modelled determinands. WFD targets for each river reach were provided by the EA and used to determine if there was a risk of a class deterioration.

Where a deterioration of 10% or greater was predicted or a change in class (considered to be a significant deterioration under WFD) a further test was conducted to see if this deterioration could be prevented by upgrades to treatment processes. This used another version of the model with each WwTW set to operate at their TAL.

Good ecological status assessment

Where treatment at TAL and reductions in diffuse sources in the present day could improve water quality to achieve GES, it is important to understand whether this could be compromised as a result of future growth within the catchment.

Guidance from the EA suggests breaking this down into two questions:

a. Is GES possible now with current technology?
b. Is GES technically possible after development and any potential WwTW upgrades?

If the answer to questions a) and b) are both 'Yes' or both 'No' then the development can be assessed as having no significant impact on the water bodies potential for reaching GES, i.e., the development alone is not preventing GES from being achieved.

If the answer to a) is 'Yes' and the answer for b) is 'No' then development is having a significant impact, i.e., before development GES could be achieved with upstream improvements, and after growth the additional effluent from growth prevents GES being achieved.

The possible answers are summarised in Table 10.1.

Run type 9 within SIMCAT was used which assumes that upstream flow at each treatment works is at GES. This simulates improvements being made in upstream water quality. The water quality of the discharge from each WwTW in order to maintain GES is then calculated by the model.

Table 10.1 Possible GES assessment results

Predicted to achieve GES after growth	Could achieve GES today with improvements in upstream water quality? (a)	Could achieve GES in the future with improvements in upstream water quality? (b)	Assessment Result
YES	N/A	N/A	GREEN - Sufficient environmental capacity. Proposed development has no significant impact on the water body's potential for meeting GES.
NO	YES	YES	AMBER - Proposed development can be accommodated with a tighter permit and upgrade to treatment. This is achievable with current technology.

Predicted to achieve GES after growth	Could achieve GES today with improvements in upstream water quality? (a)	Could achieve GES in the future with improvements in upstream water quality? (b)	Assessment Result
NO	NO	NO	YELLOW - Good ecological status cannot be achieved due to current technology limits. Ensure proposed growth doesn't cause significant deterioration.
NO	YES	NO	RED - Environmental capacity could be a constraint to growth.

If good ecological status is predicted to be achieved within the receiving waterbody following growth during the plan period, a green assessment is given. In this case, it can be said that there is environmental capacity to accommodate growth.

Where GES is not currently being achieved but could be achieved if upstream water quality were improved, then an amber score is given – growth could be accommodated without preventing a waterbody achieving GES in the future.

Where GES cannot be achieved either today or in the future, despite upgrades in treatment processes, and improvements in upstream water quality, then a yellow assessment is given – and it can be said that GES cannot be achieved due to the limits of current technology. Growth alone is not predicted to prevent GES being achieved in the future.

Should GES be achievable today, but not in the future due to growth, a red assessment would be given, and it can be said that environmental capacity could be a constraint to growth, i.e., growth alone could prevent good ecological status being achieved in the future.

10.3 Water quality modelling results

The first test applied compares the future scenario to the baseline and assesses whether a significant deterioration in water quality occurs – either a 10% deterioration in water quality or a deterioration in WFD class. Where, a significant deterioration is predicted, the TAL scenario then assesses whether this deterioration could be prevented by improvements in treatment processes.

Where a 'green' score is given, deterioration was less than 10% for each determinand, and no change in WFD class is predicted. Where an 'amber'

assessment is given, a 10% deterioration or change in WFD class is predicted, but this could be prevented by improvements in treatment technology. In these cases, upgrades may therefore be required at that WwTW or at WwTW upstream.

A 'red' assessment would be given where a significant deterioration in water quality is predicted, and it cannot be prevented by improvements in treatment processes.

In this assessment, improvements in treatment processes have been modelled by assuming the WwTW is operating at TAL. It has not investigated the feasibility of upgrading individual WwTW. This should be performed by the sewerage undertakers who have the detailed knowledge of their assets, and the EA who are responsible for setting permit limits at WwTWs.

Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out an independent assessment of WwTW capacity. It is expected that this will be included in the final version of this report once the data is available.

Table 10.2 Water quality modelling results

WwTW	Housing growth over plan period (dwellings)	Employment growth over plan period (m^2)	Could the development cause a greater than 10% deterioration in water quality for one or more of BOD, Ammonia or Phosphate?	Could the development cause a deterioration in WFD class of any element?	Can a deterioration of >10% or in class be prevented by treatment at TAL?
Balsall Common			TBC	TBC	TBC
Barston			TBC	TBC	TBC
Coleshill			TBC	TBC	TBC
Finham Coventry			TBC	TBC	TBC
Meriden			TBC	TBC	TBC
Minworth			TBC	TBC	TBC
Norton Green			TBC	TBC	TBC
Rowington			TBC	TBC	TBC

Table 10.3 GES assessment results

WwTW	Ammonia assessment	Biochemical Oxygen Demand (BOD) assessment	Phosphate assessment
Balsall Common	AMBER- TBC	AMBER- TBC	AMBER- TBC
Barston	AMBER- TBC	AMBER- TBC	AMBER- TBC
Coleshill	AMBER- TBC	AMBER- TBC	AMBER- TBC
Finham Coventry	AMBER- TBC	AMBER- TBC	AMBER- TBC

WwTW	Ammonia assessment	Biochemical Oxygen Demand (BOD) assessment	Phosphate assessment
Meriden	AMBER- TBC	AMBER- TBC	AMBER- TBC
Minworth	AMBER- TBC	AMBER- TBC	AMBER- TBC
Norton Green	AMBER- TBC	AMBER- TBC	AMBER- TBC
Rowington	AMBER- TBC	AMBER- TBC	AMBER- TBC

10.4 Water framework directive (WFD) overview

The WFD aims to ensure 'no deterioration' in the environmental status of rivers and sets objectives to improve rivers to meet 'good' status. LPAs must have regard to the WFD and associated statutory objectives as implemented in the EA's RBMPs.

Figure 10.2 shows the ecological status WFD classification (2025) for waterbodies in Solihull borough. This is broken down into the determinands usually assessed in WCSs for each of the waterbodies that are predicted to receive additional effluent from growth during the plan period. The overall WFD Classification is made of Ecological and Chemical status, which are further broken down into sub-elements, the measurement of which is prioritised for each waterbody based on its characteristics and risk, hence not all elements are reported for each river.

As shown in Figure 10.2 and Figure 10.3, all of the river waterbodies within Solihull borough have a "moderate" or "poor" overall and ecological status. For England's WFD Cycle 4 (2025) classifications, all river water bodies are recording as failing to achieve good chemical status.

10.4.1 Reasons for not achieving good

The latest WFD assessment data indicates that watercourses within Solihull borough exhibit 'moderate' to 'poor' statuses. The EA’s Reasons for Not Achieving Good (RNAG) dataset indicates that urbanisation, poor livestock management and sewage discharge (including septic tanks) are the main reasons for watercourses not achieving good status in this area. However, there are also several instances in the borough where no sector is responsible, or the sector is under investigation.

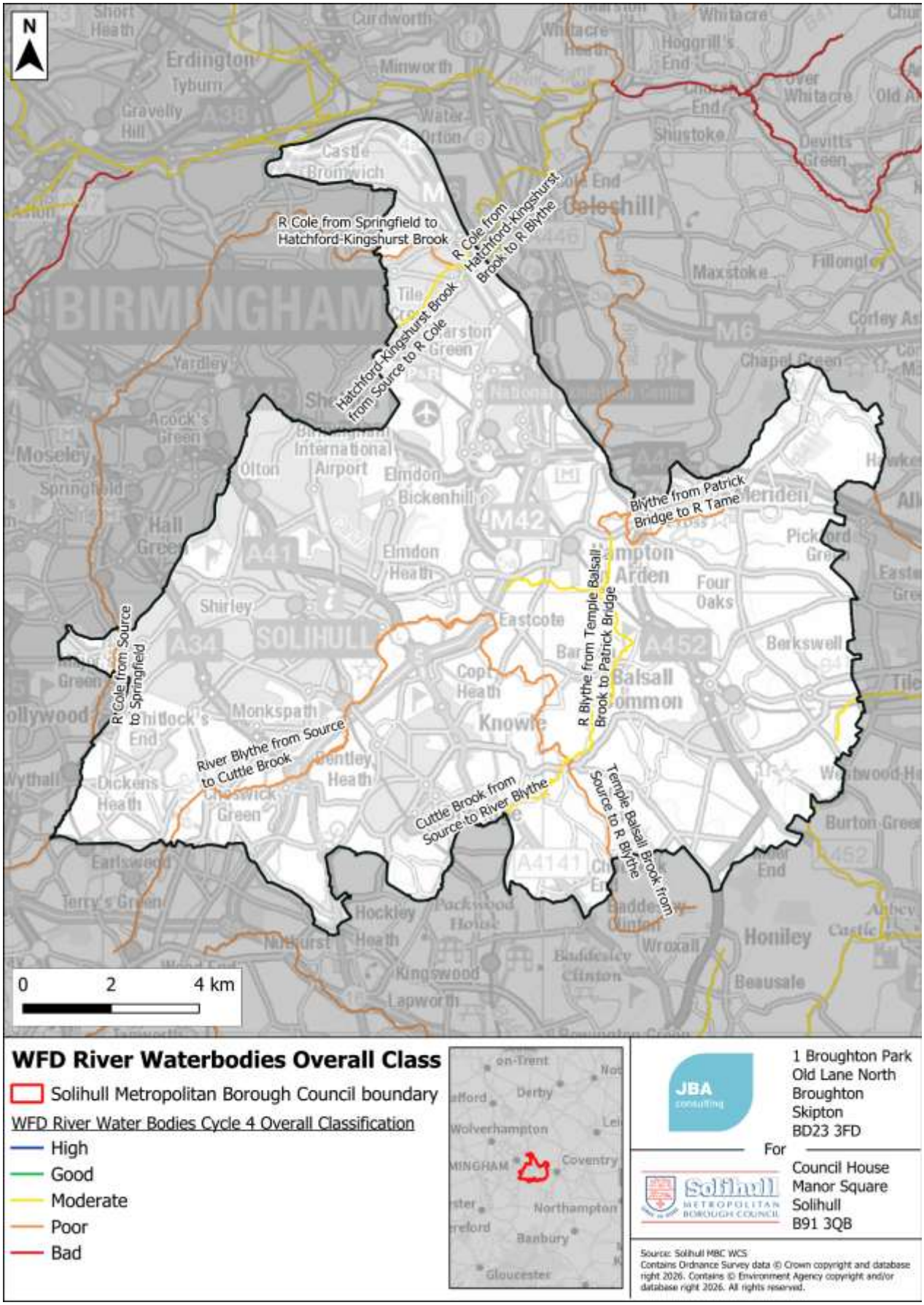


Figure 10.2 WFD Overall Classification

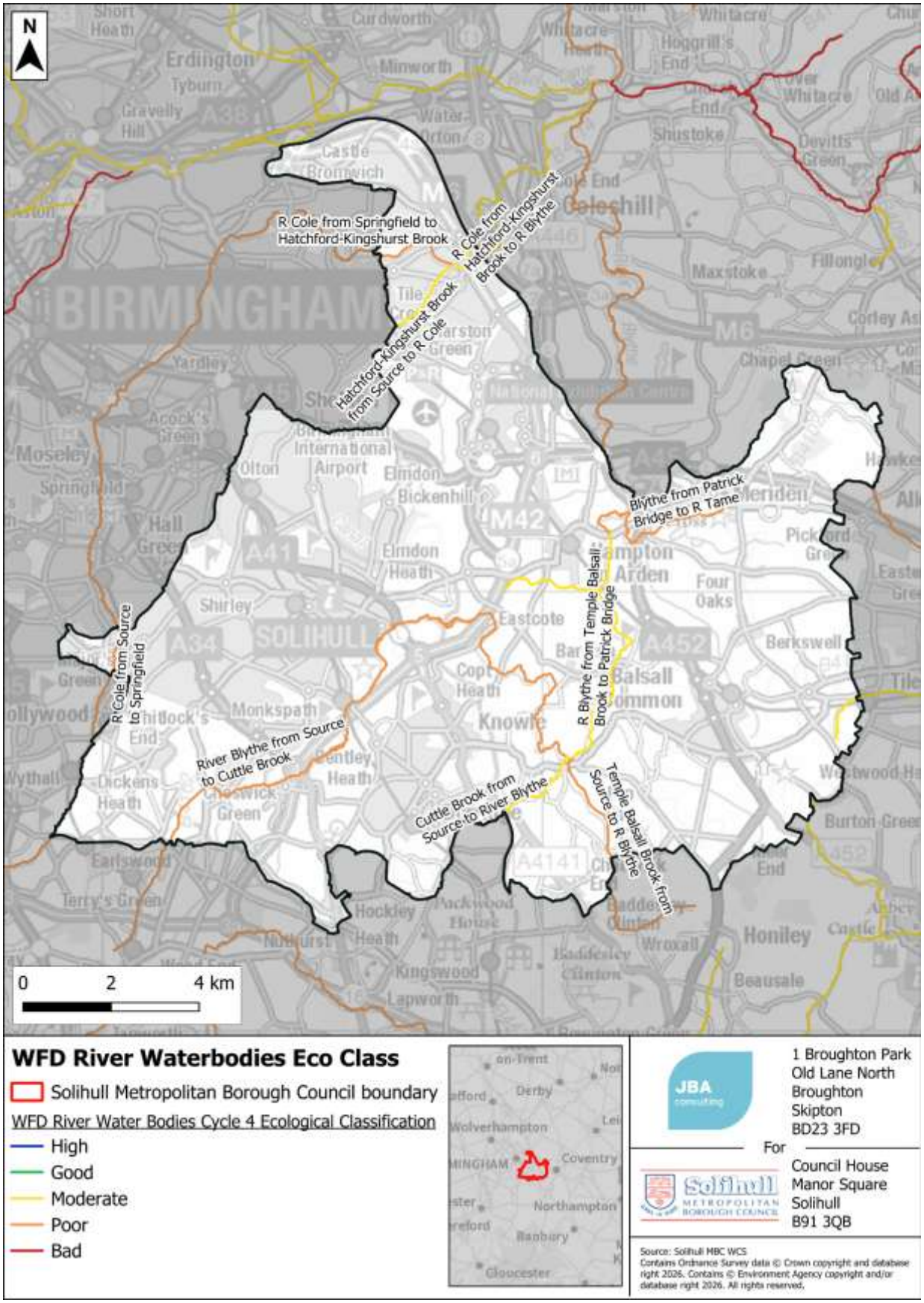


Figure 10.3 WFD Ecological Classification

10.5 Water Industry National Environment Programme (WINEP)

The Water Industry National Environment Programme (WINEP) is a set of actions that the EA have requested all 20 water companies operating in England to complete in a particular Asset Management Period (AMP) as part of their environmental commitments. Actions may include investigations or actual measures, examples could be reductions in abstraction in a particular river to maintain flow to support WFD objectives, or a reduction in phosphate pollution in a catchment through upgrades to a WwTW.

Actions relating to water quality are presented in Appendix 186A. There are 82 actions from the Water Industry National Environment Programme (WINEP) that relate to water quality in surface waterbodies in the study area. These are listed in Table 12.2 in Appendix A.3. There are no WINEP actions for water quality associated with ground water bodies in the study area.

10.6 Priority substances

As well as the physico-chemical water quality elements (BOD, Ammonia, Phosphate etc.) addressed above, a watercourse can fail to achieve GES due to exceeding permissible concentrations of hazardous substances. Currently there are 45 priority substances, of which 21 are priority hazardous substances. Such substances may pose risks both to humans (when contained in drinking water) and to aquatic life and animals feeding in aquatic life. These substances are managed by a range of different approaches, including international bans on manufacturing and use, targeted bans, selection of safer alternatives and end-of-pipe treatment solutions. There is considerable concern within the UK water industry that regulation of these substances by setting permit values which require their removal at wastewater treatment works will place a huge cost burden upon the industry and its customers, and that this approach would be out of keeping with the 'polluter pays' principle.

The following points consider how the planning system might be used to manage priority substances:

- **Industrial sources** – while this report covers potential employment sites, it does not consider the type of industry and therefore likely sources of priority substances are unknown. It is recommended that developers discuss potential uses which may be sources of priority substances from planned industrial facilities at an early stage with the EA and, where they are seeking a trade effluent consent, with the SU.
- **Agricultural sources** - there is limited scope for the planning system to change or regulate agricultural practices. UK water companies are involved in a range of 'Catchment-based Approach' schemes aimed at reducing diffuse sources of pollutants, including agricultural pesticides.
- **Surface water runoff sources** - some priority substances e.g., heavy metals, are present in urban surface water runoff. It is recommended that future developments manage these sources by using SuDS that provide water quality treatment, designed following the CIRIA SuDS Manual. This is covered in more

detail in Section 11.5.3 Retrofitting of SuDS to existing highways systems would also be recommended, where opportunity and funding allows, in order to treat heavy metal, microplastic and hydrocarbon contaminants present in highways runoff.

- **Domestic wastewater sources** - some priority substances are found in domestic wastewater as a result of domestic cleaning chemicals, detergents, pharmaceuticals, pesticides, or materials used within the home. Whilst an increase in the population due to housing growth could increase the total volumes of such substances being discharged to the environment, it would be more appropriate to manage these substances through regulation at source, rather than through restricting housing growth through the planning system.

No further analysis of priority substances has been undertaken as part of this study.

10.7 Conclusions

The EA's Reasons for Not Achieving Good (RNAG) dataset indicates that sewage treatment, the urban and transport sectors (urban development), as well as agriculture and rural land management, are the main reasons for watercourses not achieving good status in this area.

Where a WwTW is shared with a neighbouring authority, coordination of growth plans in collaboration with Severn Trent Water is essential to ensure that infrastructure is in place prior to development to prevent a breach of the environmental permit.

10.8 Recommendations

Table 10.4 Recommendations for water quality

Actions	Responsibility	Timescale
Provide annual monitoring reports to Severn Trent Water detailing projected housing growth in the Local Authority.	SMBC	Ongoing
Take into account the full volume of growth (from SMBC and neighbouring authorities) within the catchment.	SMBC and Severn Trent Water	Ongoing

11 Environmental opportunities and constraints

11.1 Introduction

Development has the potential to cause an adverse impact on the environment through a number of routes, such as worsening of air quality, pollution to the aquatic environment or disturbance to wildlife. In the context of a WCS, the impact of development on the aquatic environment is assessed. This chapter considers both water quantity (impact of abstraction) and water quality (impact of wastewater discharge and runoff) on protected sites.

A source-pathway-receptor approach can be taken to investigate the risk and identify where further assessment or action is required.

11.2 Impact of abstraction

11.2.1 Overview

Abstraction of water within a catchment, either from groundwater or surface water sources, is necessary to provide a public water supply, for industrial processes and for agriculture. When the volume of water being abstracted becomes too high, it can cause environmental damage by reducing river flow or lowering the water table.

Changes in river flow can impact sensitive ecosystems, for example Trout require a clean gravel bed to lay their eggs. A reduction in river flow can cause sediment to build up, blocking the spaces the fish require to lay their eggs, impacting their reproductive cycle. Changes in groundwater levels can also affect the flow regime in rivers and can cause drying of wetland sites.

The precise location of abstraction points for public water supply in England is not available for reasons of national security. Furthermore, water demand within a WRZ can be met by anywhere within that WRZ, or from a neighbouring WRZ if the transfer between WRZs is used to provide some of the water available for use. It is therefore not possible to trace an impact of an individual development site back to a particular water abstraction and therefore to an environmental impact. The assessments in this report therefore rely on information in the public domain.

11.2.2 Methodology

Solihull Metropolitan Borough Council receive their water from Severn Trent Water. The study area is covered by Severn Trent Water Strategic Grid WRZ.

Abstraction either from surface water sources or from groundwater sources can occur anywhere within these zones. However, the impact of the abstraction could be felt outside of the WRZ within the same groundwater body, or downstream in surface waterbodies. In both cases this could be well outside the LPA boundary.

Groundwater Dependent Terrestrial Ecosystems (GWDTE)

Figure 11.1 shows a schematic of how Groundwater Dependent Terrestrial Ecosystems (GWDTEs) were identified. The LPA boundary is within a WRZ. Water abstracted anywhere within that WRZ could be used to serve growth within the LPA. In the diagram below, there are two abstraction points. Abstraction 1 could impact an area outside of the both the LPA boundary and the WRZ. However, there are no protected sites within that groundwater body. Abstraction 2 also impacts an area both within and outside of the LPA boundary. Protected site A is within the WRZ but may not be impacted directly by an abstraction. Protected site B is outside of the WRZ and outside of the groundwater body containing an abstraction and is therefore unlikely to be impacted by growth. Protected site 3 is within a groundwater body containing an abstraction. There is a risk that an increase in abstraction could impact the protected site.

The location of abstraction points within the study area is not known, and so the approach must be taken that GWDTE anywhere within the combined extent of the WRZ and groundwater bodies overlapping the WRZ could be impacted by an increase in abstraction.

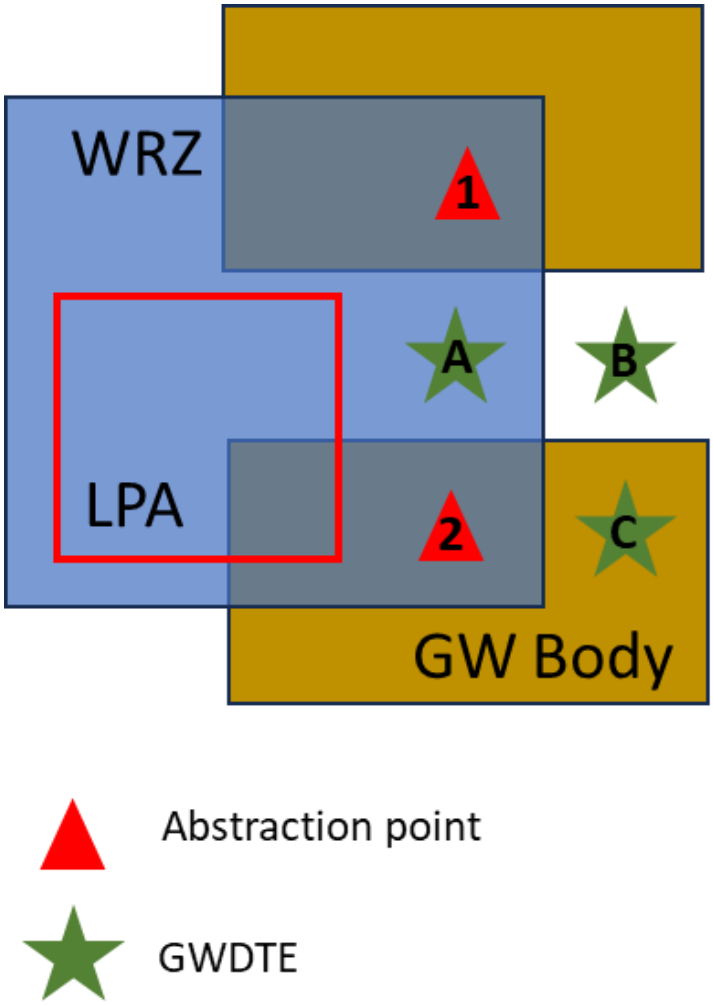


Figure 11.1: Definition of groundwater study area

The following procedure was followed:

- Define study area for Solihull based on extent of WRZ and WFD Groundwater bodies that overlap with the WRZ.
- Identify GWDTEs within the study area using the EA's GWDTE dataset.
- Identify GWDTEs that are within groundwater bodies with flow identified as a Significant Water Management Issue (SWMI).

Surface water-based ecosystems

Figure 11.2 shows a schematic of how protected sites on surface waterbodies were identified. As in the groundwater example, water could be abstracted from anywhere within the WRZ. Protected site A is downstream of an abstraction and so could be impacted by changes in river flow resulting from the abstraction. Protected site B while further downstream in the river basin, it is on a tributary not connected with the WRZ, abstraction is unlikely to have an impact. Protected site C is upstream of the abstraction so would not be impacted.

As with the groundwater abstractions, their location was not available as part of this study. The approach is therefore taken that any protected site directly on a waterbody that flows through or is downstream of the WRZ could be impacted by abstraction. Protected sites upstream or on tributaries that have not flowed through the WRZ are ignored.

In order to identify protected sites that may be at risk, Flood Zone 2 from the Risk of Flooding from Rivers and the Sea mapping was used to define an area that was either adjacent to a river or could be reasonably expected to receive surface water from a river.

The following procedure was followed:

- Define study area for Solihull - based on extent of WRZ and WFD surface water bodies that overlap with the WRZ.
- Identify protected sites within the study area.
- Filter these based on their proximity to waterbodies within the study area defined using Flood Zone 2 as a proxy.
- Identify the protected sites within a catchment where flow is recorded as a SWMI.

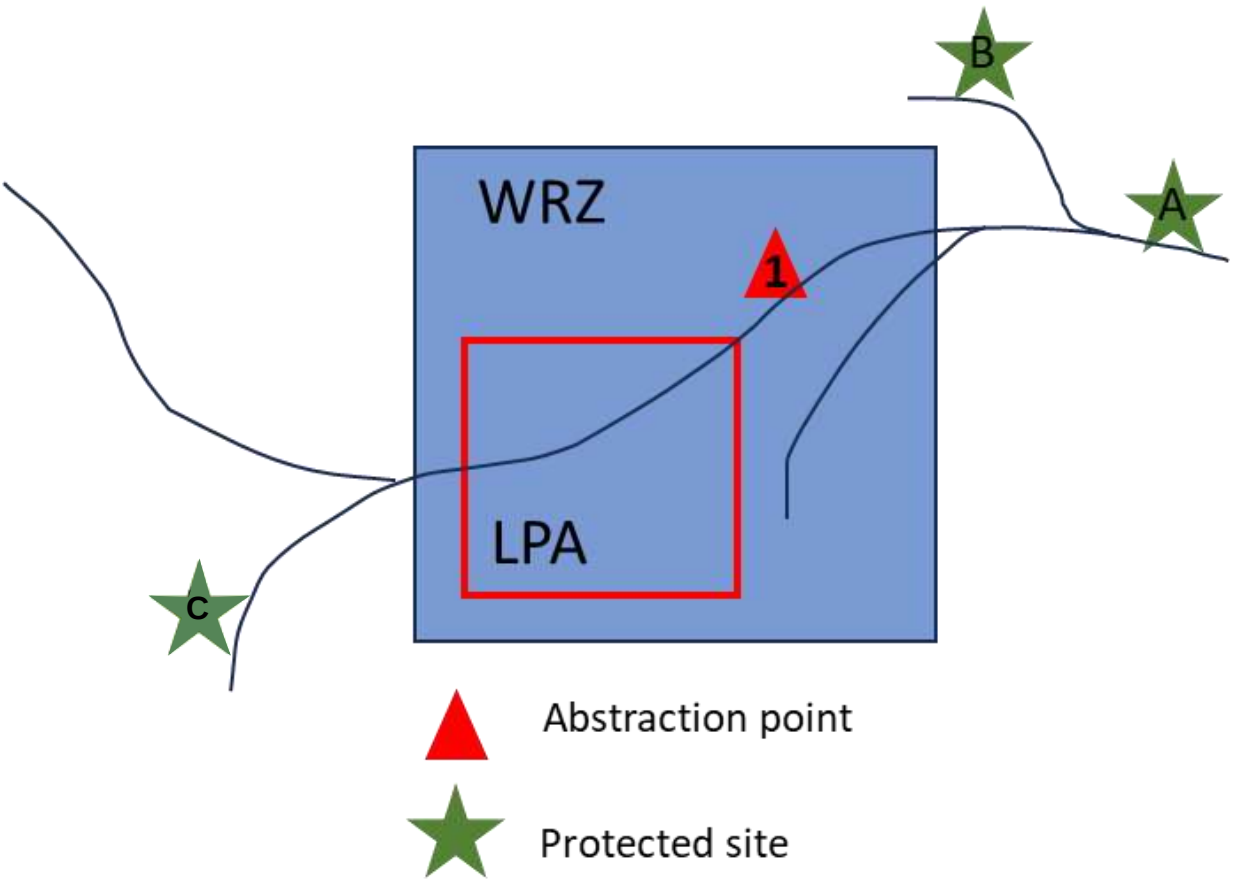


Figure 11.2: Definition of surface water study area.

11.2.3 Overview

Statutory designated sites have been identified within the study area. Sites assessed include:

- Special Protected Areas (SPA)
- Special Areas of Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)
- Ramsar
- Local Nature Reserves
- National Nature Reserves

As shown in Figure 11.3, there are no SPA, SAC, Ramsar sites or National Nature Reserves within Solihull.

There are seven SSSIs and 24 LNRs within, or overlapping with, the Solihull study area. Two of protected sites within Solihull are located downstream of a WwTW, the River Blythe SSSI and Berkswell Marsh SSSI, creating the potential for discharge to negatively impact water dependent species in such areas.

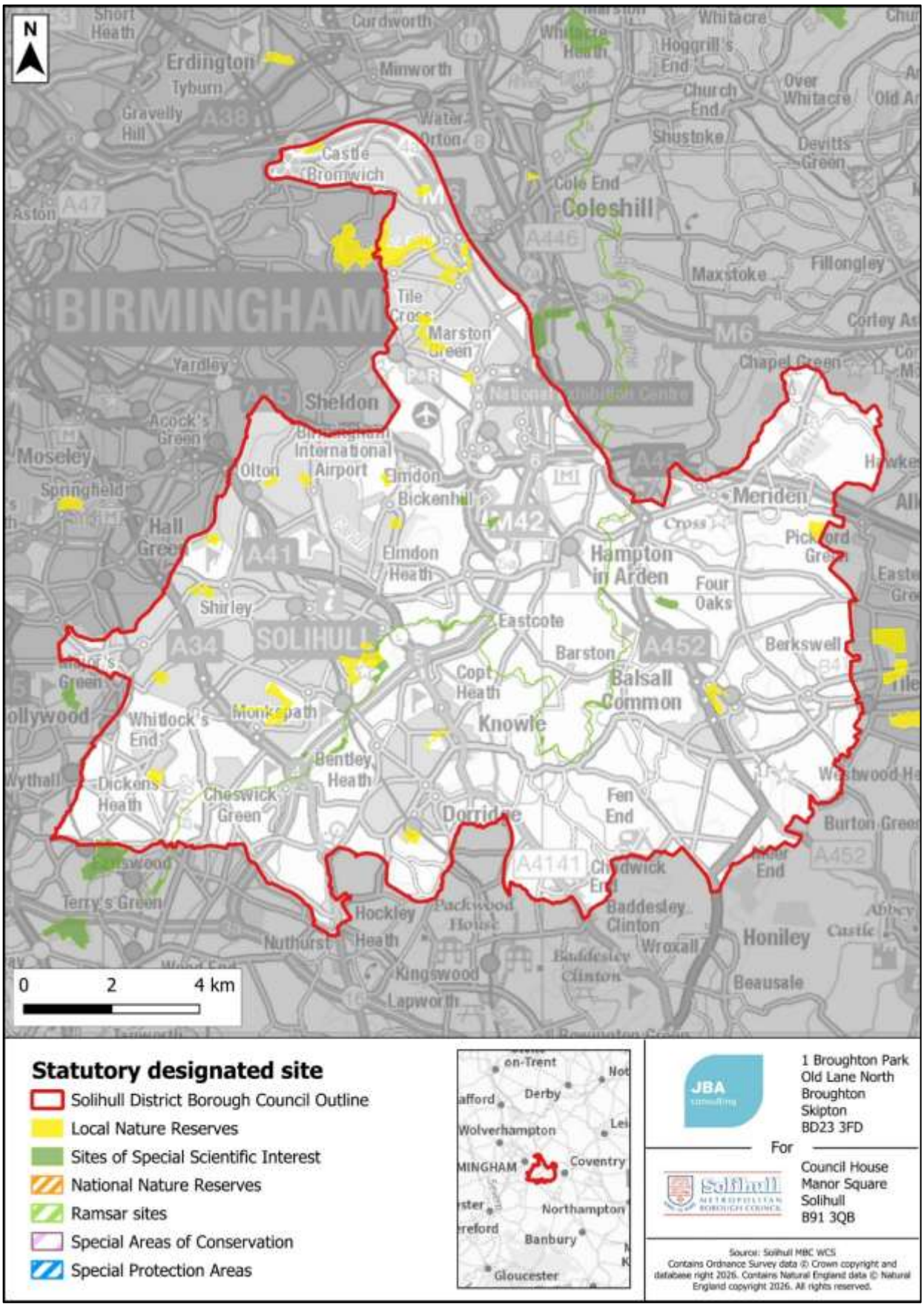


Figure 11.3 Statutory designated sites in and around Solihull study area

11.2.4 Groundwater and surface water assessment results

Figure 11.4 shows the Groundwater Dependent Terrestrial Ecosystems (GWDTEs) that intersect the groundwater bodies overlapping with the Severn Trent Water Strategic Grid WRZ (the WRZ serving Solihull). Of these GWDTEs, 39 have been identified to face Significant Water Management Issues (SWMI) due to groundwater abstraction, see Appendix B for a list.

Figure 11.5 identifies those protected sites that may be impacted by abstraction within the Severn Trent Water Strategic Grid, supplying Solihull with water. These protected sites are located within surface water body catchments within or downstream of the WFD river water body catchments that intersect the Severn Trent Water Strategic Grid. Appendix B contains tables outlining both the protected sites that are within such catchments and those protected sites that are within such catchments and have a 'flow' Significant Water Management Issue (SWMI) (thus being significantly sensitive to flow changes and therefore abstraction).

Two Ramsar, two SAC, two SPA and 33 SSSI sites were identified in to already face flow related SWMIs. More detail on these sites can be found in Appendix B.2.

This analysis demonstrates the potential for development within the study area to impact GWTDEs and protected areas beyond the boundaries of the study area. The primary process for managing or mitigating these impacts is through the WRMPs and their associated habitats regulations assessments, however this analysis underlines that planning policies promoting water efficient development in Solihull can contribute to improved water management across a much wider region.

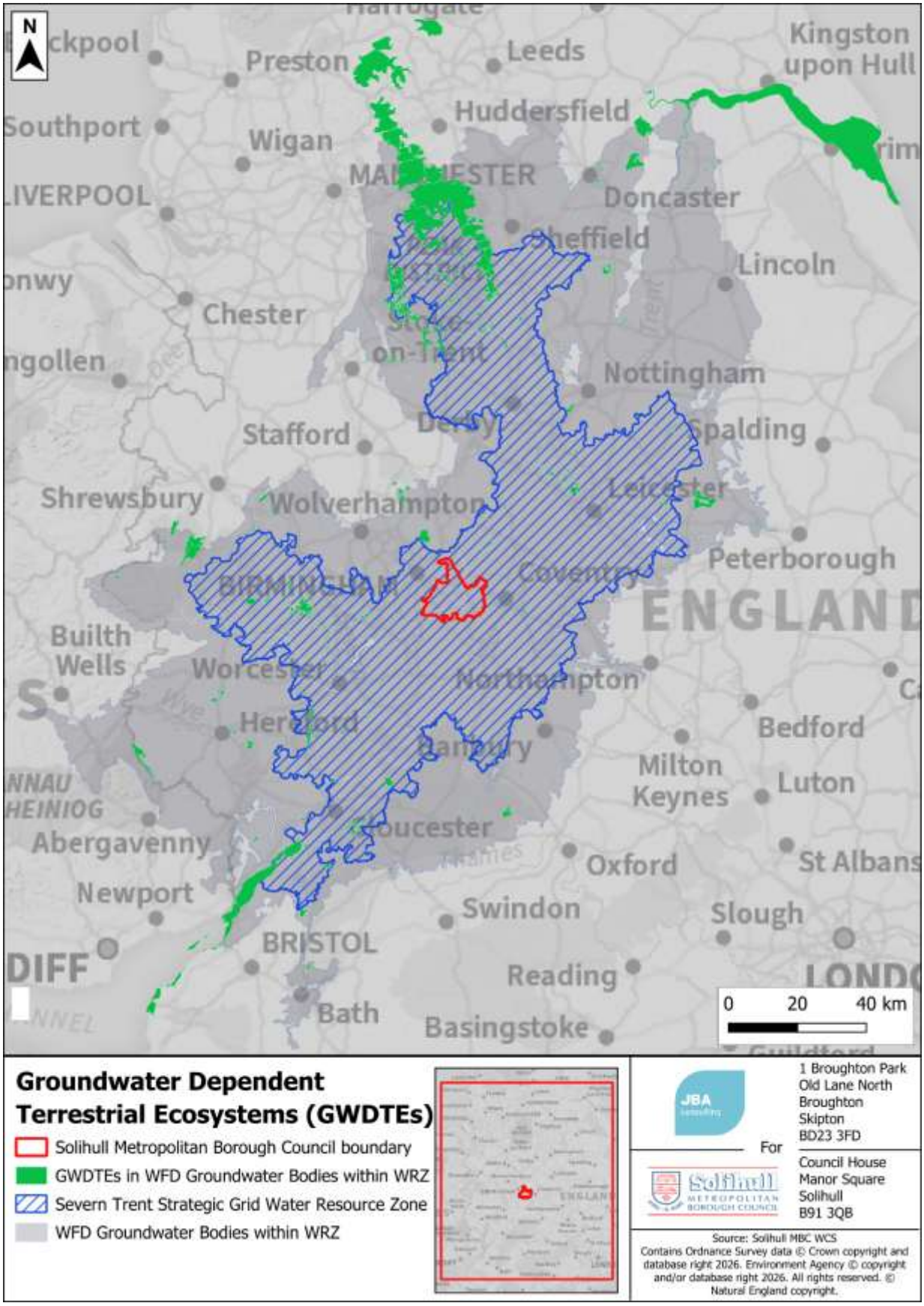


Figure 11.4: GWDTE intersecting groundwater bodies overlapping the Severn Trent Strategic Grid WRZ

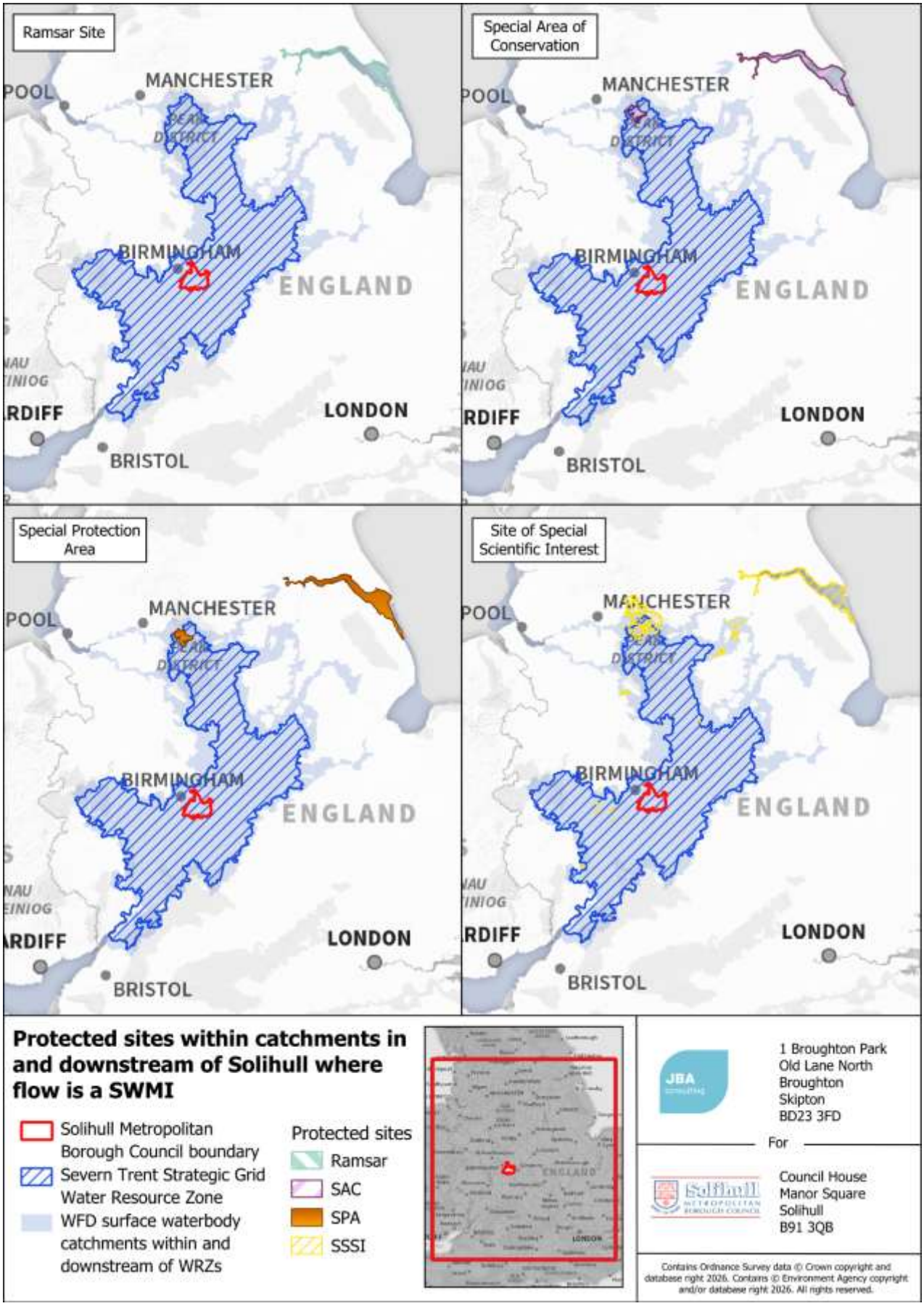


Figure 11.5: Protected areas that may be impacted by abstraction to supply STW Strategic

11.3 Water quality impact

11.3.1 Sources of pollution

Water pollution is usually categorised as either diffuse or point source. Point source sources come from a single well-defined point, an example being the discharge from a WwTW.

According to Defra (2012), diffuse pollution is defined as:

"unplanned and unlicensed pollution from farming, old mine workings, homes and roads. It includes urban and rural activity and arises from industry, commerce, agriculture and civil functions and the way we live our lives."

The most likely sources of diffuse pollution from new developments include drainage from housing estates, runoff from roads, and discharges from commercial and industrial premises. The pollution risk posed by a site will depend on the sensitivity of the receiving environment, the pathway between the source of the runoff and the receiving waters, and the level of dilution available. After or during heavy rainfall, the first flush of water carrying accumulated dust and dirt is often highly polluting.

Whilst the threat posed by an individual site may be low, a number of sites together may pose a cumulative impact within the catchment.

Runoff from development sites should be managed by a suitably designed SuDS scheme. More information on SuDS can be found in section 3.7.

Potential impacts on receiving surface waters include the blanketing of riverbeds with sediment, a reduction in light penetration from suspended solids, and a reduction in natural oxygen levels, all of which can lead to a loss in biodiversity.

11.3.2 Pathways

Pollutants can take a number of different pathways from their source to a 'receptor' – a habitat or species that can be impacted. This could be overland via surface water flow paths, via the river system, or via groundwater or a combination of all three. For the purpose of this study, it should be assumed at any protected site has the potential to be impacted by surface runoff from adjacent development sites. Linkages between development sites and protected sites will be explored further in Section 9.4.

11.3.3 Receptors

A receptor in this case is a habitat or species that is adversely impacted by a pollutant. Both the rivers and groundwater as well as being pathways, can also be considered to be receptors. Groundwater bodies are also given a status under the WFD which is reported in Section 4.2.6 for the groundwater bodies across Solihull.

Protected sites within Solihull can be seen in Section 11.2.3. All of these sites should be considered to be at risk from surface water runoff should development occur in the vicinity.

An assessment was undertaken to identify protected sites within and downstream of the Severn Trent Strategic Grid Water Resource Zone (in which Solihull sits), which may be at

risk from an increase in the discharge of treated effluent due to growth. The relevant legislation that defines and protects these sites can be found in Section 0.

Priority Habitats are available to view on the DEFRA Magic Map website.

11.4 Impact of wastewater discharges

11.4.1 Methodology

In order to identify which of the protected sites may be at risk, Flood Zone 2 from the Flood Map for Planning (FMfP) mapping was used to define an area that was either beside a river or could be reasonably expected to receive surface water from a river during times of flood. Where a WwTW serving growth in the plan period was present in the catchment upstream of the protected site, this site was taken forward for further assessment.

Where there were no WwTW serving growth upstream, these protected sites were discounted as no deterioration would be predicted in a water quality model, and the impact would be expected to be minimal.

Whilst deterioration in water quality may not always lead to a significant impact at a protected site such as a SSSI, modelled deterioration can be used to highlight areas of risk for further analysis in the Habitats Regulations Assessment.

11.4.2 Results

Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out an assessment of the impact of wastewater discharges on downstream designated sites. It is expected that this will be included in the final version of this report once the data is available.

11.5 Protection and mitigation

11.5.1 Groundwater protection

Groundwater is an important source of water in England and Wales. The EA is responsible for the protection of 'controlled waters' from pollution under the Water Resources Act 1991. These controlled waters include all watercourses and groundwater contained in underground strata.

The Source Protection Zones are based on an estimate of the time it would take for a pollutant which enters the saturated zone of an aquifer to reach the source of abstraction or discharge point (Zone 1 = 50 days, Zone 2 = 400 days, Zone 3 is the total catchment area). The EA will use SPZs alongside other datasets such as the Drinking Water Protected Areas (DrWPAs) and aquifer designations as a screening tool to show:

- Areas where the EA would object in principle to certain potentially polluting activities, or other activities that could damage groundwater,
- Areas where additional controls or restrictions on activities may be needed to protect water intended for human consumption,
- How it prioritises responses to incidents.

The EA have published a position paper (2018) outlining its approach to groundwater protection which includes direct discharges to groundwater, discharges of effluents to ground and surface water runoff. This is of relevance to this water cycle study where a development may manage surface water through SuDS.

Sewage and Trade Effluent

Discharges of treated sewage of 2m^3 per day or less to ground are called small sewage discharges (SSDs). The majority of SSDs do not require an environmental permit if they comply with certain qualifying conditions. A permit will be required for all SSDs in Source Protection Zone 1 (SPZ1).

For treated sewage effluent discharges, the EA requires the use of shallow infiltration systems, which maximise the attenuation within the drainage blanket and the underlying unsaturated zone. While some sewage effluent discharges may not pose a risk to groundwater quality individually, the cumulative risk of pollution from aggregations of discharges can be significant. Improvement or pre-operational conditions may be imposed before granting an environmental permit. The EA will only agree to developments where the addition of new sewage effluent discharges to ground in an area of existing discharges is unlikely to lead to an unacceptable cumulative impact.

Generally, the EA will only agree to developments involving release of sewage effluent, trade effluent or other contaminated discharges to ground if it is satisfied that it is not reasonable to make a connection to the public foul sewer. The EA would normally expect to only permit new private discharges where the distance to connect to the nearest public sewer exceeds the number of dwellings multiplied by 30m. So, for example, a development of 100 dwellings would need to be more than 3km from a public sewer. The developer would have to provide evidence of why the proposed development cannot connect to the

foul sewer in the planning application. This position will not normally apply to surface water run-off via SuDS and discharges from WwTW operated by sewerage undertakers with appropriate treatment and discharge controls.

Deep infiltration systems (such as boreholes and shafts) are not generally accepted by the EA for discharge of sewage effluent as they bypass soil layers and reduce the opportunity for attenuation of pollutants.

Discharges of surface water run-off to ground at sites affected by land contamination, or from sites for the storage of potential pollutants are likely to require an environmental permit. This could include sites such as garage forecourts and coach and lorry parks. These sites would be subject to a risk assessment with acceptable effluent treatment provided.

Discharge of Clean Water

'Clean water' discharges such as runoff from roofs or from roads, may not require a permit. However, they are still a potential source of groundwater pollution if they are not appropriately designed and maintained.

Where infiltration SuDS schemes are proposed to manage surface runoff they should:

- be suitably designed;
- meet government non-statutory technical standards for sustainable drainage systems – these should be used in conjunction with the NPPF and PPG; and
- use a SuDS management treatment train.
- A hydrogeological risk assessment is required where infiltration SuDS is proposed for anything other than clean roof drainage in a SPZ1.

Source Protection Zones (SPZs) in Solihull

SPZs form a key part of the EA's approach to controlling the risk to groundwater supplies from potentially polluting activities and accidental releases of pollutants.

The EA's Manual for the production of groundwater SPZs details position statements which provide information about the EA's approach to managing and protecting groundwater.

Proposed development locations within or close to SPZs, should be assessed in relation to the relevant EA position statements.

As shown in Figure 11.6, there are three SPZs within the east of the study area, these comprise Source Protection Zone categories 3, 2 and 1. Pollution in SPZ1 would either be released within 50m of a groundwater abstraction site (where water is intended for human consumption) or arrive at the abstraction site up to 50 days after release. Meanwhile, for a pollution incident to have occurred within SPZ2 it would be characterised by either having occurred within 250m of an abstraction site (where the maximum volume abstracted is less than 2,000 m3/ day), occurred within 500m of an abstraction site (where the maximum volume abstracted is equal to or exceeds 2,000 m3/ day), or having occurred where pollution would take up to 400 days to reach the abstraction site. The characteristic that creates the largest extent is used to define the SPZ for zones 1 and 2. A pollution incident within SPZ3 is one that will eventually reach the groundwater abstraction site. The type of

development informs whether or not it is permitted within each of these three zones (see the groundwater protection position statements document (Environment Agency, 2018)). The potential impact of permitted development within Solihull on groundwater quality should be carefully considered.

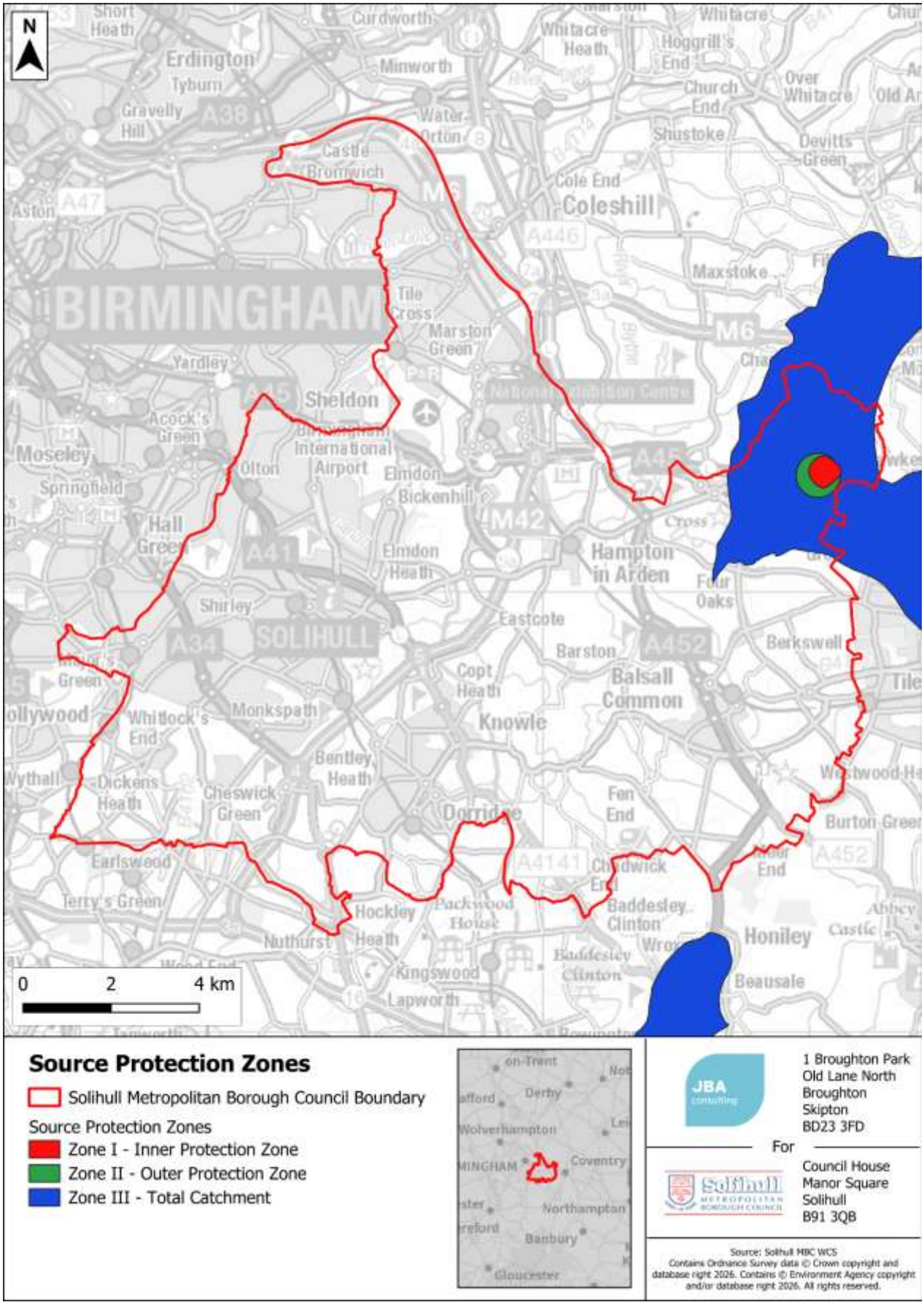


Figure 11.6: SPZs in Solihull

11.5.2 Surface water drainage

As of July 2025, the Defra National standards for sustainable drainage systems (SuDS) were brought in to comply with the principles of surface water drainage design.

The national standards contain two sets of standards. The first type (Standard 1) is known as the hierarchy standard and sets the criteria for the prioritisation of final surface water runoff destinations. The other standards (Standards 2-7) detail the minimum design criteria that SuDS should satisfy alongside how they are to be appropriately built, maintained, and operated. For more information, see Section 3.7.

Standard 4 specifically relates to water quality and details that a 'SuDS approach' should be applied by managing the quality of surface water runoff to adequately address water quality risks from a development. Standard 4 also references that SuDS management approaches should reflect industry recognised guidance (such as Chapter 4, Chapter 26 and Chapter 27 of the CIRIA SuDS Manual) or other quantitative assessment as agreed with the approving body and permitting requirements (An Environmental Permit may be required under Paragraph 3 (1) (c) of Schedule 22 of the Environmental Permitting (England and Wales) Regulations 2016 if there is a risk of mobilising existing contamination).

11.5.3 Use of SuDS in water quality management

SuDS allow the management of diffuse pollution generated by urban areas through the sequential treatment of surface water reducing the pollutants entering lakes and rivers, resulting in lower levels of water supply and wastewater treatment being required. This treatment of diffuse pollution at source can contribute to meeting WFD water quality targets, as well as national objectives for sustainable development.

This is usually facilitated via a SuDS Management Train of a number of components in series that provide a range of treatment processes delivering gradual improvement in water quality and providing an environmental buffer for accidental spills or unexpected high pollutant loadings from the site. Considerations for SuDS design for water quality are summarised in Table 11.1.

Table 11.1: Considerations for SuDS design for water quality.

Action	Considerations
Manage surface water close to source	Where practicable, treatment systems should be designed to be close to source of runoff. It is easier to design effective treatment when the flow rate and pollutant loadings are relatively low. Treatment provided can be proportionate to pollutant loadings and sensitivity receptor. Accidental spills or other pollution events can be isolated more easily without affecting the downstream drainage system. Encourages ownership of pollution. Poor treatment performance or component damage/ failure can be dealt with more effectively without impacting on the whole site.

Action	Considerations
Treat surface water runoff on the surface	Where practicable, treatment systems should be designed to be on the surface. Where sediments are exposed to UV light, photolysis and volatilisation processes can act to break down contaminants. If sediment is trapped in accessible parts of the SuDS, it can be removed more easily as part of maintenance. It enables use of evapotranspiration and some infiltration to the ground to reduce runoff volumes and associated total contamination loads (provided risk to groundwater is managed appropriately). It allows treatment to be delivered by vegetation. Sources of pollution can be easily identified. Accidental spills or misconnections are visible immediately and can be dealt with rapidly. Poor treatment performance can be easily identified during routine inspections, and remedial works can be planned efficiently.
Treat surface water runoff to remove a range of contaminants	
Minimise risk of sediment remobilisation	The SuDS design should consider and mitigate the risks of sediments (and other contaminants) being remobilised and washed into receiving surface waters during events greater than those which the component has been specifically designed for.
Minimise impacts from accidental spills	

Managing pollution close to its source can help keep pollutant levels and accumulation rates low, allowing natural processes to be more effective. Treatment can often be delivered within the same components that are delivering water quantity design criteria, requiring no additional cost or land-take.

SuDS designs should control the ‘first flush’ of pollutants (usually mobilised by the first 5mm of rainfall) at source, to ensure contaminants are not released from the site. Best practise is that no runoff should be discharged from the site to receiving watercourses or sewers for the majority of small (e.g., less than 5mm) rainfall events.

Infiltration techniques are likely to require consultation with the EA. Early consideration of SuDS within master planning will typically allow a more effective scheme to be designed.

Further guidance on designing SuDS to reduce phosphorus and nitrogen in surface water runoff can be found in the relevant CIRIA guidance documents.

11.5.4 Benefits of sustainable drainage systems

Flood risk

SuDS can be effective at reducing flood risk for relatively high intensity, short and medium duration events. They are particularly important in mitigating potential increases in surface water flooding, sewer flooding and flooding from small and medium sized watercourses resulting from development.

Water resources

A central principle of SuDS is the use of surface water as a resource. Traditionally, surface water drainage involved the rapid disposal of rainwater, by conveying it directly into a sewer or WwTW.

SuDS techniques such as rainwater harvesting, allow rainwater to be collected and re-used as non-potable water supply within homes and gardens, reducing the demand on water resources and supply infrastructure.

Climate resilience

Climate projections for the UK suggest that winters may become milder and wetter. Summers may become warmer, but with more frequent higher intensity rainfall events, particularly in the southeast. This is expected to increase diffuse pollution, reduce water availability, and increase the volume of runoff, thereby increasing the risk of surface water flooding.

SuDS offer a more adaptable way of draining surfaces. They control the rate and volume of runoff leaving urban areas during high intensity rainfall, also reducing flood risk to downstream communities through storage and controlled release of rainwater from development sites.

Through allowing rainwater to soak into the ground, SuDS are effective at retaining soil moisture and groundwater levels. This allows for the recharge of the watercourses and underlying aquifers, which is particularly important in areas where water resource availability is limited and likely to become increasingly scarce under future drier climates.

Biodiversity

The water within a SuDS component is an essential resource for the growth and development of plants and animals. Biodiversity benefits can be delivered even by very small, isolated schemes. The greatest value can be achieved where SuDS are planned as part of a wider green landscape, providing important habitat, and wildlife connectivity. With careful design, SuDS can provide shelter, food, foraging, and breeding opportunities for a

variety of species including plants, amphibians, invertebrates, birds, bats, and other animals.

Amenity

Designs using surface water management systems to help structure the urban landscape can enrich its aesthetic and recreational value, promoting health and well-being and supporting green infrastructure. Water managed on the surface rather than underground can help reduce summer temperatures and provide habitat for flora and fauna. It can also act a resource for local environmental education programmes and working groups, directly influencing the sense of community in an area. Although there are few comparative studies, the sites compared in available studies indicate that SuDS are more cost-effective than traditional drainage systems.

11.5.5 Suitable SuDS techniques

The hydraulic and geological characteristics of each property development site across Solihull should be assessed to identify the most appropriate forms of surface water management and any constraining factors to the utilisation of SuDS. These assessments are designed to inform the early-stage site planning process and should be followed up by the site-specific detailed drainage assessments.

Appropriate SuDS techniques have been categorised into five main groups, as shown in Table 11.2. Further site-specific investigation should be conducted to determine what SuDS techniques could be used on a particular development, informed by detailed hydrogeological assessments and ground investigations. The Mining Remediation Authority also provide advice regarding mining and groundwater constraints for development within coalfield areas where additional consideration to the proposed drainage and infiltration may be required.

Table 11.2: Summary of SuDS categories

SuDS Type	Technique
Source Control	Green roof, rainwater harvesting, pervious pavements, rain gardens
Infiltration	Infiltration trench, infiltration basin, soakaway
Detention	Pond, wetland, sub-surface storage, shallow wetland, extended detention wetland, pocket wetland, submerged gravel wetland, wetland channel, detention basin
Filtration	Surface sand filter, sub-surface sand filter, perimeter sand filter, bioretention, filter strip, filter trench
Conveyance	Dry swale, under-drained swale, wet swale

11.5.6 Natural Flood Management

Natural Flood Management (NFM) is used to protect, restore, and re-naturalise the function of catchments and rivers to reduce flood risk. A wide range of techniques can be used that aim to reduce flooding by working with natural features and processes in order to store or slow down flood waters before they can damage flood risk receptors (e.g., people, property, infrastructure, etc.).

Techniques and measures, which could be applied in Solihull include:

- offline storage areas;
- re-meandering streams;
- targeted woodland planting;
- reconnection and restoration of functional floodplains;
- restoration of rivers and removal of redundant structures;
- installation or retainment of large woody material in river channels;
- improvements in management of soil and land use; and
- creation of rural and urban SuDS.

In 2017, the EA published an online evidence base to support the implementation of NFM and with JBA produced maps showing locations with the potential for NFM measures. These maps are intended to be used alongside the evidence directory to help practitioners think about the types of measure that may work in a catchment and the best places in which to locate them. There are limitations with the maps; however, it is a useful tool to help start dialogue with key partners.

11.5.7 Multiple benefits of natural flood management

In addition to flood risk benefits, there are also significant benefits in other areas such as habitat provision, air quality, climate regulation and water quality.

Many NFM measures have the ability to reduce nutrient and sediment sources by reducing surface runoff flows from higher ground, reducing soil erosion, trapping sediment at the edge of agricultural land, or encouraging deposition of sediments behind natural dams upstream in watercourses.

Suitable techniques may include:

- leaky dams;
- woodland planting;
- buffer strips;
- runoff retention ponds; and
- Land management techniques (soil aeration, cover crops etc.).

Case Study - Black Brook Slow the Flow

Four engineered log dams, see Figure 11.7, were installed on Black Brook at an estimated cost of £2,000, funded by Natural England and the EA to restore Stanley Bank SSSI. The scheme aimed to improve habitat and reduce the risk of flooding. However, the scheme also resulted in reduced levels of phosphate and nitrate in Black Brook, with phosphate

concentrations falling by 3.6 mg/l. By 2035, it is predicted that 792m^3 of sediment will be stored in three ponds retained by the dams.



Figure 11.7: Photographs of leaky dams and Black Brook.

Reproduced from Case Study 17. Black Brook Slow the Flow, St Helens, Norbury, Rogers and Brown, EA WwNP Evidence Base 2017. Photograph taken on 8 May 2015; courtesy of Matthew Catherall

11.5.8 Integrated constructed wetlands

An integrated constructed wetland (ICW) is an artificial wetland created for the purpose of treating polluted water, whether this is municipal wastewater, grey water from residential properties, or agricultural runoff.

They are usually unlined, free surface flow wetlands, designed to contain and treat influents within emergent vegetated areas.

Defra carried out a systematic review of the effectiveness of various wetland types, including ICWs for mitigating agricultural pollution such as phosphate and nitrate. The overall conclusion was that all wetland types are very effective at reducing major nutrients and suspended sediments, with the exception of nitrite in ICWs. Nitrate is only reduced when passing through overland buffer strips and through constructed wetlands with vegetation, where the systematic review showed a mean reduction of 29% across the evidence included in the study. The mean reduction in Total Phosphorus across the evidence base was 78%. More information on this review can be accessed here.

It needs to be noted that in some cases where phosphorus is especially high the effectiveness of removal may be less certain. Although the reduction in total phosphorus is

beneficial, stakeholders need to ensure the excess nutrients are dealt with at source, such as storm overflows and at a policy level.

Other techniques to manage nutrients are possible such as catchment nutrient balancing, where excess nutrients are managed at a catchment level, as well as catchment permitting. These techniques are recommended where environmental capacity is restrictive to growth.

Case Study - Frogshall ICW

The Upper River Mun in Norfolk was experiencing chronic pollution, and a loss in biodiversity in the river. Investigation found that nutrients from a WwTWs upstream were contributing to this issue.

A pilot ICW was created consisting of three shallow ponds, filled with 18,000 emergent aquatic plants, and the outfall from the treatment works was diverted to pass through the wetland.

Early monitoring has shown that 90% of the phosphate is being removed by the wetland, and a large increase in biodiversity downstream observed.

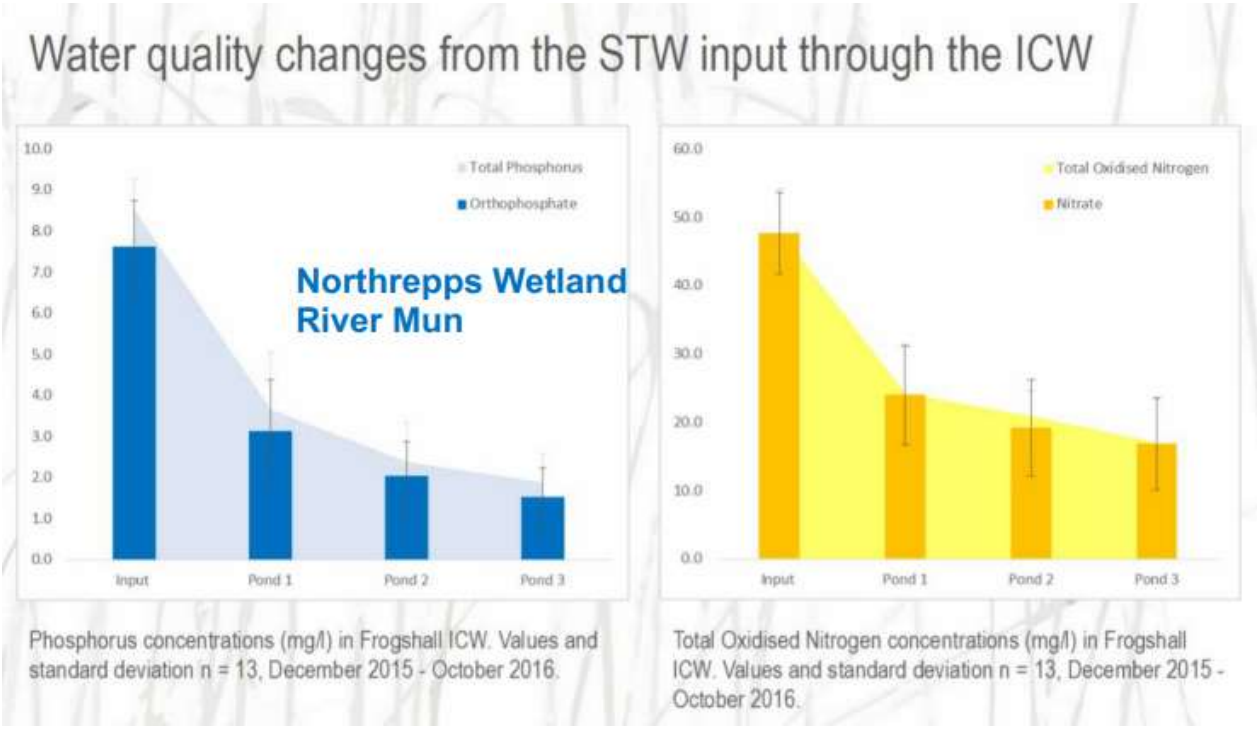


Figure 11.8: Graph of water quality changes, reproduced from 'Stripping the Phosphate', a presentation by the Norfolk Rivers Trust (2018)

The Constructed Wetland Association website contains the Constructed Wetland Hub which shows the location of constructed wetlands across the UK. The map shows a horizontal flow wetland at Birtley Wastewater Treatment Works which treats trickling filter effluent. The record shows that this wetland was established in 1999.

11.5.9 Agricultural management

The EA's RNAG database indicates that one of the reasons some of the watercourses in the area are not meeting 'Good' WFD standards can be related to agriculture and rural land use. The cause of this includes pollution from fertilisers, manures, pesticides and soils washing into streams when it rains or percolating into the groundwater. Other pressures from agriculture include deepening, widening or re-routing of streams for land drainage, gravel removal and bankside erosion.

There is a big potential to improve water quality by interventions aimed at agricultural sources, especially considering the measures already taken by the water companies to reduce their contribution to phosphate load.

Potential schemes could include:

- buffer strips;
- cross slope tree planting;
- runoff retention basins;
- contour ploughing; and
- cover crops.

There is considerable overlap with NFM measures, and the challenges are also very similar. Exact impacts are difficult to measure, although modelling tools such as Farmscoper (adas.co.uk) exist to help with this. Once a scheme is implemented it relies on the landowner to continue to maintain it in order to maintain the mitigation benefit.

Funding for agricultural interventions could come from Catchment Sensitive Farming or a Payment for Ecosystem Services approach.

Case Study - Wessex Water - EnTrade

Wessex Water catchment team used EnTrade to invite farmers to bid to grow cover crops over winter to reduce the nitrogen leaching into the watercourse.

This avoided the need to upgrade Dorchester WwTW to provide the same nitrogen removal capacity.

A trial auction was held in 2015, and two further auctions have since taken place attracting 557 bids from 63 farmers to save 153 tonnes of nitrogen.

Ruth Barden, Director of Environmental Strategy, Wessex Water, stated that:

"using EnTrade to create a market in measures to deliver reductions in nitrogen has delivered a 30% saving for Wessex Water compared to traditional catchment approaches."

11.5.10 Barriers

While there are many benefits to implementing NFM and constructed wetlands, or modifying agricultural practises, the impact of these techniques is hard to quantify. It also relies on ongoing maintenance to maintain that benefit. Where a potential scheme is not on a development site it will also require permission and support of the landowner. It may not be possible to influence this through planning policy.

11.6 Conclusions and recommendations

11.6.1 Conclusions

There are three source protection zone within Solihull, each associate with a different zone classification, namely Zone 1, 2 or 3. Pollution in all three zones will reach the groundwater abstraction point however, the vulnerability of a groundwater abstraction point to a pollution source is greatest if the pollution source is located in Zone 1 (due to proximity to the abstraction site). The potential impact of development on groundwater quality and at protected sites such as SAC and SSSIs within, or downstream of the study area should be carefully considered in future plan making. Development sites within the study area could be sources of diffuse pollution from surface runoff.

SuDS are required on all development sites. Their design should consider both water quantity and water quality and site level investigations should be undertaken to define the most appropriate SuDS types for each specific development. Opportunities exist for these SuDS schemes to offer multiple benefits of flood risk reduction, amenity value and biodiversity.

Solihull Metropolitan Borough Council should be consulted at an early stage of development to ensure that SuDS are implemented and designed in response to site characteristics and policy factors. In the wider area, opportunities exist to implement NFM techniques to achieve multiple benefits of flood risk, water quality and habitat creation.

Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out an assessment of the impact of wastewater discharges on downstream designated sites. It is expected that this will be included in the final version of this report once the data is available.

Recommendations for environmental constraints and opportunities are provided in Table 11.3.

11.6.2 Recommendations

Table 11.3: Recommendations for environmental constraints and opportunities.

Action	Responsibility	Timescale
Consider the environmental impact of development on protected sites downstream of receiving WwTW in the habitat's regulations assessment.	SMBC	Local Plan preparation
The Local Plan should include policies that require all development proposals with the potential to impact on areas with environmental designations to be considered in line with the relevant legislation and where stated, in consultation with Natural England (for national and international designations and priority habitats).	SMBC	In the SMBC Local Plan
The Local Plan should include policies that require development sites to adopt SuDS to manage water quality of surface runoff.	SMBC	In the SMBC Local Plan
In partnership, identify opportunities for incorporating SuDS into open spaces and green infrastructure, to deliver strategic flood risk management and meet WFD water quality targets.	SMBC, Severn Trent Water, EA	Ongoing
Developers should include the design of SuDS at an early stage to maximise the benefits of the scheme.	Developers	Ongoing
Work with developers to discourage connection of new developments into existing surface water and combined sewer networks. Prevent connections into the foul network, as this is a significant cause of sewer flooding.	SMBC and developers	Ongoing
Opportunities for NFM that include schemes aimed at reducing/managing runoff should be considered to reduce nutrient and sediment pollution within SMBC.	SMBC, EA, Natural England	Ongoing

12 Summary and overall conclusions and recommendations

12.1 Conclusions

12.1.1 Water resources

Water resources in England are under considerable pressure. The Environment Agency has stated that "the scale of the challenge we face increases with time, and by 2050, we are looking at a shortfall of nearly 5 billion litres of water per day between the sustainable water supplied available and the expected demand."

Solihull Borough is served by STW's Strategic Grid WRZ. Growth accounted for in STW's WRMP24 is less as a percentage than is currently expected if the housing need for Solihull Borough were delivered. This is due to a misalignment in the timing of the WRMPs and the Local Plan process. WRMPs are updated every five years (with minor updates annually), and water companies must demonstrate how the supply-demand balance will be maintained in the medium and longer term. It is important to ensure that WRMP29 contains the latest growth forecasts and that water companies feedback to SMBC if there are concerns that Local Plan growth will cause a supply-demand deficit in the short term.

Part G of Building regulations currently states that new build housing should achieve a minimum of 125 l/p/d. A tighter target of 110l/p/d is allowed if the local authority can establish a clear need based on available evidence. Many LPAs are now going further than this. The Written Ministerial Statement (WMS) by the former Secretary of State for Levelling Up, Housing and Communities (DLUHC) states that:

"…in areas of serious water stress, where water scarcity is inhibiting the adoption of Local Plans or the granting of planning permission for homes, I encourage local planning authorities to work with the Environment Agency and delivery partners to agree standards tighter than the 110 litres per day that is set out in current guidance."

Solihull Borough is an area classified by the Environment Agency as being under serious water stress.

It is recommended that a water efficiency target of 100l/p/d is adopted across the Solihull Borough area. This should be achieved using a fittings-based approach and supported by an equivalent non-household target where development will aim to achieve full credits in the BREEAM water calculator with a minimum of 3 credits in WAT01. This should be aligned with a robust enforcement approach to ensure that correct fixtures and fittings are being installed at site level.

12.1.2 Water supply

An increase in water demand due to growth can exceed the hydraulic capacity of the existing supply infrastructure. Upgrades to the local supply network would be funded as part

of the developer Infrastructure Charge. Early engagement between developers, SMBC and the water companies is recommended to ensure upgrades are in place prior to occupation.

12.1.3 Wastewater collection

Development in areas where there is limited wastewater network capacity will increase pressure on the network, increasing the risk of a detrimental impact on customers, and increasing the likelihood of storm overflow operation. Early engagement with developers, SMBC and STW is required, and modelling of the network may be required at the planning application stage.

Upgrades to the wastewater network are likely to be required in order to serve the larger allocations, which would be funded as part of the developer infrastructure charge. It may be necessary for development sites to be phased in line with the provision of any network upgrades. Early engagement between developers, the council, and Severn Trent Water is recommended to allow time for the strategic infrastructure required to serve these developments to be planned.

12.1.4 Storm overflows

The Environment Act now requires water companies to report and monitor storm overflows as well as reduce the harm caused to the rivers they discharge to. There are 35 storm overflows included in our assessment, 31 on the network, and 4 at WwTWs.

Our analysis identified 11 sewer network overflows and four WwTW overflows were operating above the threshold of 10 spills on average between 2023 and 2025. Eight of the overflows assessed were close to being over the threshold and were classed as amber. The Storm Overflow Reduction Plan which was published in 2022 sets an objective that "storm overflows will not be permitted to discharge above an average of 10 rainfall events per year by 2050".

There are opportunities, through the planning system, to ease pressure on the wastewater network. Such opportunities include separation of the foul and storm flow in existing combined systems, when development sites are on previously developed land, and by not allowing new surface water connections. Surface water can also be better managed by retrofitting SuDS in existing residential areas, and in new development, ensuring SuDS are incorporated into designs at the master planning stage to maximise the potential benefits.

Early engagement between developers, the involved councils, Solihull Metropolitan Borough Council and Severn Trent Water is recommended to allow time for the strategic infrastructure required to serve these developments to be planned.

12.1.5 Wastewater treatment

There are eight WwTWs expected to serve growth during the Local Plan period. Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out an

independent assessment of WwTW capacity. It is expected that this will be included in the final version of this report once the data is available.

It is anticipated that once the assessment is complete, a number of WwTWs are expected to be close to or exceeding their permit limit by the end of the plan period. An increase in flow permit, and/or upgrades to treatment capacity will be required at these WwTW.

12.1.6 Water quality

The EA's Reasons for Not Achieving Good (RNAG) dataset indicates that sewage treatment, the urban and transport sectors (urban development), as well as agriculture and rural land management, are the main reasons for watercourses not achieving good status in this area.

Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out an assessment of water quality as part of the draft WCS. It is expected that this will be included in the final version of this report once the data is available.

Where a WwTW is shared with a neighbouring authority, coordination of growth plans in collaboration with Severn Trent Water is essential to ensure that infrastructure is in place prior to development to prevent a breach of the environmental permit.

12.1.7 Environmental constraints and opportunities

There are three source protection zone within Solihull, each associate with a different zone classification, namely Zone 1, 2 or 3. Pollution in all three zones will reach the groundwater abstraction point however, the vulnerability of a groundwater abstraction point to a pollution source is greatest if the pollution source is located in Zone 1 (due to proximity to the abstraction site). The potential impact of development on groundwater quality and at protected sites such as SAC and SSSIs within, or downstream of the study area should be carefully considered in future plan making. Development sites within the study area could be sources of diffuse pollution from surface runoff.

SuDS are required on all development sites. Their design should consider both water quantity and water quality and site level investigations should be undertaken to define the most appropriate SuDS types for each specific development. Opportunities exist for these SuDS schemes to offer multiple benefits of flood risk reduction, amenity value and biodiversity.

Solihull Metropolitan Borough Council should be consulted at an early stage of development to ensure that SuDS are implemented and designed in response to site characteristics and policy factors. In the wider area, opportunities exist to implement NFM techniques to achieve multiple benefits of flood risk, water quality and habitat creation.

Data on the current performance of each WwTW in the study area was not made available by STW before the publication of this draft report. It was therefore not possible to carry out an assessment of the impact of wastewater discharges on downstream designated sites. It

is expected that this will be included in the final version of this report once the data is available.

12.2 Recommendations

12.2.1 Water resources

Action	Responsibility	Timescale
Continue to regularly review forecast and actual household growth across the supply region through WRMP Annual Update reports, and where significant change is predicted, engage with LPAs.	Severn Trent Water	Ongoing
Provide yearly updates of projected housing growth to water companies to inform WRMP updates.	Solihull Metropolitan Borough Council	Ongoing
The concept of water neutrality has the potential to provide a benefit in improving resilience to climate change. Explore further with the water companies and the EA how the Council's planning and climate change policies can encourage this approach. This approach could have particular application in strategic sites and new settlements.	Solihull Metropolitan Borough Council and Severn Trent Water	In Local Plan
Larger residential developments (including new settlements), and commercial developments should consider incorporating greywater recycling and/or rainwater harvesting into development at the master planning stage in order to reduce water demand.	Solihull Metropolitan Borough Council and Severn Trent Water	In Local Plan
Severn Trent Water should advise the Council of any strategic water resource infrastructure developments within the study area, where these may require safeguarding of land to prevent other type of development occurring.	Solihull Metropolitan Borough Council and Severn Trent Water	In Local Plan
The council should consider a domestic water efficiency target of 100 l/p/d for all new homes, and work with water suppliers to incentivise even lower consumption. This should be achieved via a fittings-based approach.	Solihull Metropolitan Borough Council	In Local Plan
Non-household developments meet, as a minimum, 3 credits in the BREEAM WAT01 measure (a 40% reduction in water consumption from the baseline).	Solihull Metropolitan Borough Council and developers	Ongoing

12.2.2 Water supply

Action	Responsibility	Timescale
Undertake network modelling to ensure adequate provision of water supply is feasible.	Severn Trent Water and SMBC	Ahead of planning applications
SMBC and developers should engage early with water companies to ensure supply infrastructure is in place prior to occupation.	Severn Trent Water, SMBC and developers	Ongoing
the capacity of distribution systems is adequate prior to development coming forward.	Severn Trent Water and developers	Ongoing

12.2.3 Wastewater collection

Action	Responsibility	Timescale
Early engagement between SMBC and Severn Trent Water is required to ensure that where strategic infrastructure is required, it can be planned in by Severn Trent Water and will not lead to any increase in discharges from sewer overflows.	SMBC, Severn Trent Water	Ongoing
Take into account wastewater infrastructure constraints in phasing development in partnership with the sewerage undertaker.	SMBC, Severn Trent Water	Ongoing
Developers will be expected to work with the sewerage undertaker closely and early in the planning promotion process to develop an Outline Drainage Strategy for sites. The Outline Drainage strategy should demonstrate the wastewater assets required, their locations including points of connection to the public foul sewerage, whether the site drainage will be adopted by the water company and if any sewer requisitions will be required.	SMBC, Severn Trent Water, Developers	Ongoing
Developers will be expected to demonstrate to the LLFA that surface water from a site will be disposed using a SuDS with connection to surface water sewers seen as the last option. New connections for surface water to foul sewers will be resisted by the LLFA.	SMBC, LLFA, developers	Ongoing

12.2.4 Storm overflow

Action	Responsibility	Timescale
	SMBC, Severn Trent Water	Ongoing
WaSCs should ensure that appropriate investment is available in AMP8 and AMP9 to meet SOAF commitments to be delivered by 2035 in the area.	STW	As part of PR29 planning process
Consider wastewater infrastructure constraints in phasing development in partnership with the sewerage undertaker.	SMBC, STW	Ongoing
Developers will be expected to work with the sewerage undertaker closely and early in the planning promotion process to develop an Outline Drainage Strategy for sites. The Outline Drainage strategy should demonstrate the wastewater assets required, their locations including points of connection to the public foul sewerage, whether the site drainage will be adopted by the water company and if any sewer requisitions will be required.	SMBC, STW and developers	Ongoing

12.2.5 Wastewater treatment

Action	Responsibility	Timescale
Early engagement with Severn Trent Water is required to ensure that provision of WRC capacity is aligned with delivery of development.	SMBC	Ongoing
Provide Annual Monitoring Reports to Severn Trent Water detailing projected housing growth.	SMBC	Ongoing
	Severn Trent Water	Ongoing
The Local Plan can encourage the use of SuDS to divert storm water away from the sewer network, reducing the volume that reaches the WRC. This opportunity is greatest at brownfield sites connected to existing combined sewerage systems.	SMBC	In SMBC's Local Plan
	SMBC and developers	Ongoing

12.2.6 Water quality

Actions	Responsibility	Timescale
Provide annual monitoring reports to Severn Trent Water detailing projected housing growth in the Local Authority.	SMBC	Ongoing
Take into account the full volume of growth (from SMBC and neighbouring authorities) within the catchment.	SMBC and Severn Trent Water	Ongoing

12.2.7 Environmental constraints and opportunities

Action	Responsibility	Timescale
Consider the environmental impact of development on protected sites downstream of receiving WwTW in the habitat's regulations assessment.	SMBC	Local Plan preparation
The Local Plan should include policies that require all development proposals with the potential to impact on areas with environmental designations to be considered in line with the relevant legislation and where stated, in consultation with Natural England (for national and international designations and priority habitats).	SMBC	In the SMBC Local Plan
The Local Plan should include policies that require development sites to adopt SuDS to manage water quality of surface runoff.	SMBC	In the SMBC Local Plan
In partnership, identify opportunities for incorporating SuDS into open spaces and green infrastructure, to deliver strategic flood risk management and meet WFD water quality targets.	SMBC, Severn Trent Water, EA	Ongoing
Developers should include the design of SuDS at an early stage to maximise the benefits of the scheme.	Developers	Ongoing
Work with developers to discourage connection of new developments into existing surface water and combined sewer networks. Prevent connections into the foul network, as this is a significant cause of sewer flooding.	SMBC and developers	Ongoing
Opportunities for NFM that include schemes aimed at reducing/managing runoff should be considered to reduce nutrient and sediment pollution within SMBC.	SMBC, EA, Natural England	Ongoing

A Appendix A - Water Industry National Environment Programme (WINEP)

A.1 Driver codes

- **U_MON3** - Urban Waste Water treatment Regulations - Monitoring Emissions to Air, Land and Water (MCERTS) certified Flow Pass Forward (FPF) overflow operation monitoring at WwTW or last in line Sewage Pumping Station (SPS) overflows.
  - **U_MON3a** - MCERTS certification of an AMP7 U_MON3 driver output overflow operation monitor.
  - **U_MON 3b** - MCERTS certified overflow operation monitor.
- **U_MON4** - Urban Waste Water treatment Regulations - MCERTS certified FPF flow monitoring at WwTW or last in line SPS overflows.
  - **U_MON4a** - Move AMP7 U_MON4 driver output to 2-minute flow monitoring.
  - **U_MON4b** - Move AMP7 U_INV2 driver output to 2-minute flow monitoring.
  - **U_MON4c** - PR24 U_MON4 from U_INV2 investigation.
  - **U_MON4d** - MCERTS certified Flow passed forward flow monitor
  - **U_MON4e** - MCERTS certified Flow passed forward flow monitor including civils.
- **EnvAct_IMP4** - Improvements to reduce storm overflows spills so that they do not discharge above an average of ten rainfall events per year by 2050.
- **EnvAct_INV4** - Investigations to reduce storm overflow spills to protect the environment so that they have no local adverse ecological impact.
- **WFD_IMP** - Implementation of actions to improve water quality in terms of relevant WFDR status objectives.
  - The driver WFD_IMP should have a suffix letter applied to indicate what target the measure is aimed at achieving: the status objective standard. The following are to be used:
  - h – measure to meet High status for the element
  - g – measure to meet Good status for the element
  - m – measure to meet Moderate status for the element
  - p – measure to meet Poor status for the element.
  - Potential changes to current water body objectives, as a result of PR24 planning, may be included in the 2027 river basin management plans.
  - Where a water company is willing to do more for WFDR than is required then the work should be represented on the WINEP with two driver codes; one WFD_IMP driver code to reflect the statutory work and one 25 Year Environment Plan driver code (25YEP_IMP) to reflect the discretionary work. Please see the separate driver guidance on the 25 Year Environment Plan driver.

- If we know that a water company is going to implement an action, irrespective of our economic appraisal, then we should include that action in the programme of measures and build the expected outcome into the water body objective.

- **WFD_NDLS_Chem1 -** Measures related to load standstill requirements for chemicals (where Environmental Quality Standards (EQS) exceedance is predicted, but measures fail economic assessments associated with EQS).
- **WFD_NDLS_Chem2** - Measures related to load standstill requirements for chemicals (below EQS). These are set where a WwTW is discharging significant concentrations of a chemical, but the EQS is not threatened immediately downstream. Targets are set to ensure that current effluent quality does not deteriorate and to contribute to broader aims to cease and phase out emissions, discharges and losses of priority hazardous substances and prevent pollution swapping. This driver would be used where there is no risk that growth between 2015 and 2021 would cause an actual failure of the EQS.
- **WFD_IMP_CHEM** - To meet either good ecological status or good chemical status. Needed where an EQS is exceeded downstream of a WwTW discharge. Measures that fail economic tests will receive standstill limits under WFD_NDLS_CHEM1.
- **WFD_ND_WRFlow** - Action to protect/ensure no deterioration in status (surface water).
- **WFDGW_INV** - Groundwater good status improvement action relating to water resource or water quality.
- **EDWRMP_INV** - Investigations, options appraisals or feasibility studies for measures identified within the WRMP to meet regional planning requirements that do not fit with WFD driver requirements.

A.2 WINEP actions relating to water resources

There are no surface water actions relating to water resources in the PR24 WINEP dataset.

Table 12.1: Groundwater WINEP actions relating to water resources

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Warwickshire Avon - Coal Measures Coventry	08ST100500i	Holding line awaiting outcome of AMP7 Priority A Investigation and options appraisal - Green Lane (WARWICKSHIRE)	**WFD_ND_WRFlow** Action to protect / ensure no deterioration in status (surface water)	31/03/2030
Warwickshire Avon - Coal Measures Coventry	08ST100086aa	Holding line awaiting outcome of AMP7 Priority B Investigation and options appraisal - Waveley Road (WARWICKSHIRE)	**WFD_ND_WRFlow** Action to protect/ensure no deterioration in status (surface water).	31/03/2030
Warwickshire Avon - Coal Measures Coventry	08ST100086ag	Holding line awaiting outcome of AMP7 Priority D Investigation and options appraisal - Meriden Shafts (Meriden Pumping Station) (WARWICKSHIRE)	**WFD_ND_WRFlow** Action to protect/ensure no deterioration in status (surface water).	31/03/2030
Warwickshire Avon - Coal Measures Coventry	08ST100086ah	Holding line awaiting outcome of AMP7 Priority B Investigation and options appraisal - Mount Nod (WARWICKSHIRE)	**WFD_ND_WRFlow** Action to protect/ensure no deterioration in status (surface water).	31/03/2030
Warwickshire Avon - PT Sandstone Warwick/Avon Confined	08ST100086y	Holding line awaiting outcome of AMP7 INV - Hatton (WARWICKSHIRE)	**WFD_ND_WRFlow** Action to protect/ensure no deterioration in status (surface water).	31/03/2035

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Warwickshire Avon - Coal Measures Coventry	08ST100086z	Holding line awaiting outcome of AMP7 INV - Haseley (WARWICKSHIRE)	**WFD_ND_WRFlow** Action to protect/ensure no deterioration in status (surface water).	31/03/2035

A.3 WINEP actions relating to water quality

There are no groundwater actions relating to water quality in the PR24 WINEP dataset.

Table 12.2: Surface water WINEP actions relating to water quality

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Cole from Springfield to Hatchford-Kingshurst Brook	08ST100169	Address harm caused by sewer overflows in the river Cole catchment	**EnvAct_IMP2** KITTS GREEN ROAD CSO	31/03/2030
Cole from Springfield to Hatchford-Kingshurst Brook	08ST100169	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Cole catchment	**EnvAct_INV4** KITTS GREEN ROAD CSO	30/04/2027
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100071b	Nitrate removal Trial	**WFD_INV_N-Tal** Denitrifying Nereda unit at Barston.	30/04/2027
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100161a	Cypermethrin Load Standstill permitting	**WFD_NDLS_Chem2** Barston STW	31/03/2027
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168a	Address harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_IMP2** CAROL GREEN - HODGETTS LANE SPS	31/03/2030

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168l	Address harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_IMP2** BALSALL COMMON WWTW (overflow 1)	31/03/2030
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168m	Address harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_IMP2** BALSALL COMMON WWTW (overflow2)	31/03/2030
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168n	Address harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_IMP2** BARSTON SEWAGE TREATMENT WORKS	31/03/2030
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168p	Address harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_IMP2** BENTON GREEN LANE SPS	31/03/2030
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168q	Address harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_IMP2** BERKSWELL VILLAGE	31/03/2030
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100450hj	BALSALL COMMON (STW)	**U_MON3** MCERTS certification of an AMP7 U_MON3 driver output overflow operation monitor (U_MON3a)	31/12/2025
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100450hm	BARSTON (STW)	**U_MON3** MCERTS certification of an AMP7 U_MON3 driver output overflow operation monitor (U_MON3a)	31/12/2025
Blythe from Temple Balsall	08ST100451ej	BALSALL COMMON (STW)	**U_MON4** Move AMP7	31/12/2025

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Brook to Patrick Bridge			U_MON4 driver output to 2-minute flow monitoring (U_MON4a)	
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100451ek	BARSTON (STW)	**U_MON4** Move AMP7 U_MON4 driver output to 2-minute flow monitoring (U_MON4a)	31/12/2025
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168t	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_INV4** CAROL GREEN - HODGETTS LANE SPS	30/04/2027
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168ae	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_INV4** BALSALL COMMON WWTW (overflow 1)	30/04/2027
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168af	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_INV4** BALSALL COMMON WWTW (overflow2)	30/04/2027
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168ag	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_INV4** BARSTON SEWAGE TREATMENT WORKS	30/04/2027
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168ai	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Blythe SSSI	**EnvAct_INV4** BENTON GREEN LANE SPS	30/04/2027

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
		catchment		
Blythe from Temple Balsall Brook to Patrick Bridge	08ST100168aj	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_INV4** BERKSWELL VILLAGE	30/04/2027
Cuttle Brook from Source to River Blythe	08ST100450eo	NORTON GREEN (STW)	**U_MON3** MCERTS certification of an AMP7 U_MON3 driver output overflow operation monitor (U_MON3a)	31/12/2025
Cuttle Brook from Source to River Blythe	08ST100453cz	NORTON GREEN (STW)	**U_MON4** U_MON4c - install flow meter inc civils	31/12/2026
Cuttle Brook from Source to River Blythe	08ST100819b	Address harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_IMP2** Spill Reduction at KNOWLE - WARWICK ROAD (CSO) to address harm.	31/03/2030
Cuttle Brook from Source to River Blythe	08ST100836a	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Blythe SSSI catchment	**EnvAct_INV4** Investigation at KNOWLE - WARWICK ROAD (CSO) to inform scheme.	30/04/2027
Cuttle Brook from Source to River Blythe	08ST100855h	Investigation of intermittent discharges from DORRIDGE - NORTON GREEN LANE (SSO) into RNAG Waterbody (Cuttle Brook from Source to River Blythe catchment)	**EnvAct_INV4** Catchment-wide Investigation to assess potential impact of intermittent discharges on the water quality in waterbodies with RNAGS.	30/04/2027

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Cuttle Brook from Source to River Blythe	08ST100855i	Investigation of intermittent discharges from DORRIDGE - GRANGE ROAD/MANOR RD (CSO) into RNAG Waterbody (Cuttle Brook from Source to River Blythe catchment)	**EnvAct_INV4** Catchment-wide Investigation to assess potential impact of intermittent discharges on the water quality in waterbodies with RNAGS.	30/04/2027
Cuttle Brook from Source to River Blythe	08ST100870o	Investigation of intermittent discharges from NORTON GREEN STW (SSTO) into RNAG Waterbody (Cuttle Brook from Source to River Blythe catchment)	**EnvAct_INV4** Catchment-wide Investigation to assess potential impact of intermittent discharges on the water quality in waterbodies with RNAGS.	30/04/2027
Hatchford-Kingshurst Brook from Source to R Cole	08ST100169d	Address harm caused by sewer overflows in the river Cole catchment	**EnvAct_IMP2** WAGON LANE AREA	31/03/2030
Hatchford-Kingshurst Brook from Source to R Cole	08ST100169f	Address harm caused by sewer overflows in the river Cole catchment	**EnvAct_IMP2** A45 - COVENTRY ROAD CSO	31/03/2030
Hatchford-Kingshurst Brook from Source to R Cole	08ST100169g	Address harm caused by sewer overflows in the river Cole catchment	**EnvAct_IMP2** COVENTRY ROAD	31/03/2030
Hatchford-Kingshurst Brook from Source to R Cole	08ST100169k	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Cole catchment	**EnvAct_INV4** WAGON LANE AREA	30/04/2027

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Hatchford-Kingshurst Brook from Source to R Cole	08ST100169l	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Cole catchment	**EnvAct_INV4** A45 - COVENTRY ROAD CSO	30/04/2027
Hatchford-Kingshurst Brook from Source to R Cole	08ST100169m	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Cole catchment	**EnvAct_INV4** COVENTRY ROAD	30/04/2027
Hatchford-Kingshurst Brook from Source to R Cole	08ST100873u	MARSTON GRN - BELL LA(ADJ RAILWAY) (CSO)	**EnvAct_INV4**	30/04/2027
Hatchford-Kingshurst Brook from Source to R Cole	08ST100873v	MARSTON GRN-COLESHILL/BICKENHILL RD (SO)	**EnvAct_INV4**	30/04/2027
Hatchford-Kingshurst Brook from Source to R Cole	08ST100873w	MARSTON GRN - COLESHILL RD (SO)	**EnvAct_INV4**	30/04/2027
Hatchford-Kingshurst Brook from Source to R Cole	08ST100873x	SHELDON - COMMON LA/BICKLEY GROVE (CSO)	**EnvAct_INV4**	30/04/2027
Hatchford-Kingshurst Brook from Source to R Cole	08ST100873y	OLTON - ULVERLEY GREEN RD (SSO)	**EnvAct_INV4**	30/04/2027
Hatchford-Kingshurst Brook from Source to R Cole	08ST100873z	MARSTON GREEN - HOLLY LANE (CSO)	**EnvAct_INV4**	30/04/2027

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Hatchford-Kingshurst Brook from Source to R Cole	08ST100874a	SHELDON - COVENTRY RD/BARROWS LANE (CSO)	**EnvAct_INV4**	30/04/2027
Cole from Hatchford-Kingshurst Brook to R Blythe	08ST100169a	Address harm caused by sewer overflows in the river Cole catchment	**EnvAct_IMP2** COLESHILL - OLD MILL ROAD CSO	31/03/2030
Cole from Hatchford-Kingshurst Brook to R Blythe	08ST100169h	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Cole catchment	**EnvAct_INV4** COLESHILL - OLD MILL ROAD CSO	30/04/2027
Cole from Springfield to Hatchford-Kingshurst Brook	08ST100169c	Address harm caused by sewer overflows in the river Cole catchment	**EnvAct_IMP2** KITTS GREEN ROAD CSO	31/03/2030
Cole from Springfield to Hatchford-Kingshurst Brook	08ST100169j	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Cole catchment	**EnvAct_INV4** KITTS GREEN ROAD CSO	30/04/2027
Tame - R Rea to R Blythe	08ST100130a	Ammonia removal in the river Tame	**WFD_IMPg** Ammonia removal at Coleshill STW.	31/03/2030
Tame - R Rea to R Blythe	08ST100644a	PFOS OTA permitting	**WFD_NDLS_Chem2** Minworth STW Measures related to load standstill requirements for chemicals (below EQS).	31/03/2027
Tame - R Rea to R Blythe	08ST100604a	Cypermethrin Load Standstill permitting	**WFD_NDLS_Chem2** Minworth STW Measures related to load standstill	31/03/2027

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
			requirements for chemicals (below EQS).	
Tame - R Rea to R Blythe	08ST100183a	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** MINWORTH SEWAGE TREATMENT WORKS	31/03/2030
Tame - R Rea to R Blythe	08ST100183b	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** CHIPPERFIELD ROAD CSO	31/03/2030
Tame - R Rea to R Blythe	08ST100451ad	COLESHILL (STW)	**U_MON4** Move AMP7 U_MON4 driver output to 2-minute flow monitoring (U_MON4a)	31/12/2025
Tame - R Rea to R Blythe	08ST100451cb	MINWORTH (STW)	**U_MON4** Move AMP7 U_MON4 driver output to 2-minute flow monitoring (U_MON4a)	31/12/2025
Tame - R Rea to R Blythe	08ST100450it	COLESHILL (STW)	**U_MON3** MCERTS certification of an AMP7 U_MON3 driver output overflow operation monitor (U_MON3a)	31/12/2025
Tame - R Rea to R Blythe	08ST100450lp	MINWORTH (STW)	**U_MON3** MCERTS certification of an AMP7 U_MON3 driver output overflow operation monitor (U_MON3a)	31/12/2025

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Tame - R Rea to R Blythe	08ST100183d	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** NANSEN ROAD CSO	31/03/2030
Tame - R Rea to R Blythe	08ST100183e	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** COLESHILL WASTEWATER TREATMENT WRKS	31/03/2030
Tame - R Rea to R Blythe	08ST100183f	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** FOXTON ROAD-WARD END PARK ROAD CSO	31/03/2030
Tame - R Rea to R Blythe	08ST100183g	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** HARTS ROAD COMBINED SEWER OVERFLOW	31/03/2030
Tame - R Rea to R Blythe	08ST100183h	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** KIMBLE GROVE COMBINED STORM O'FLOW	31/03/2030
Tame - R Rea to R Blythe	08ST100183j	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** RADSTOCK AVENUE	31/03/2030
Tame - R Rea to R Blythe	08ST100183k	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** WASHWOOD HEATH/WARD END PARK RD CSO	31/03/2030
Tame - R Rea to R Blythe	08ST100183l	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** WHEELWRIGHT RD/ALLEYNE RD CSO	31/03/2030

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Tame - R Rea to R Blythe	08ST100183m	Address harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_IMP2** WOODCOTE ROAD CSO	31/03/2030
Tame - R Rea to R Blythe	08ST100183n	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** MINWORTH SEWAGE TREATMENT WORKS	30/04/2027
Tame - R Rea to R Blythe	08ST100183o	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** CHIPPERFIELD ROAD CSO	30/04/2027
Tame - R Rea to R Blythe	08ST100183p	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** NANSEN ROAD CSO	30/04/2027
Tame - R Rea to R Blythe	08ST100183q	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** COLESHILL WASTEWATER TREATMENT WRKS	30/04/2027
Tame - R Rea to R Blythe	08ST100183r	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** FOXTON ROAD-WARD END PARK ROAD CSO	30/04/2027

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Tame - R Rea to R Blythe	08ST100183s	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** HARTS ROAD COMBINED SEWER OVERFLOW	30/04/2027
Tame - R Rea to R Blythe	08ST100183t	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** KIMBLE GROVE COMBINED STORM O'FLOW	30/04/2027
Tame - R Rea to R Blythe	08ST100183u	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** RADSTOCK AVENUE	30/04/2027
Tame - R Rea to R Blythe	08ST100183v	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** WASHWOOD HEATH/WARD END PARK RD CSO	30/04/2027
Tame - R Rea to R Blythe	08ST100183w	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** WHEELWRIGHT RD/ALLEYNE RD CSO	30/04/2027
Tame - R Rea to R Blythe	08ST100183x	Investigation to inform scheme to eliminate harm caused by sewer overflows in the River Tame (river rea to Blythe) WB	**EnvAct_INV4** WOODCOTE ROAD CSO	30/04/2027

Waterbody name	Action unique ID	Scheme name(s)	Primary driver code and action description	Completion date
Tame - R Rea to R Blythe	08ST100881f	WATER ORTON - BIRMINGHAM ROAD (CSO)	**EnvAct_INV4**	30/04/2027
Tame - R Rea to R Blythe	08ST100881g	CURDWORTH PUMPING STATION (CSO)	**EnvAct_INV4**	30/04/2027
Tame - R Rea to R Blythe	08ST100881h	BORDESLEY GREEN - FORDROUGH LA (CSO)	**EnvAct_INV4**	30/04/2027
Tame - R Rea to R Blythe	08ST100881i	WASHWOOD HEATH - BROMFORD LANE (CSO)	**EnvAct_INV4**	30/04/2027
Tame - R Rea to R Blythe	08ST100881j	WASHWOOD HEATH - BROMFORD ROAD (CSO)	**EnvAct_INV4**	30/04/2027
Tame - R Rea to R Blythe	08ST100881k	BROMFORD - SPITFIRE ROAD (CSO)	**EnvAct_INV4**	30/04/2027
Cole from Source to Springfield	08ST100169b	Address harm caused by sewer overflows in the river Cole catchment	**U_IMP4** SAREHOLE ROAD 323 CSO	31/03/2028
Cole from Source to Springfield	08ST100169e	Address harm caused by sewer overflows in the river Cole catchment	**EnvAct_IMP2** Catchment measures to reduce storage requirements.	31/03/2030
Cole from Source to Springfield	08ST100169i	Investigation to inform scheme to eliminate harm caused by sewer overflows in the river Cole catchment	**EnvAct_INV4** SAREHOLE ROAD CSO	30/04/2027

B Groundwater and surface water assessment

B.1 GWDTEs present in SvT Strategic Grid with flow identified as a SWMI

GWDTE Name	Water Body	Water Body ID	SSSI Code
Stowe Pool and Walk Mill Clay Pit (SSSI)	Tame Anker Mease - PT Sandstone Birmingham Lichfield (TAM - PTSBL)	GB40401G301000	2000245
Chasewater And The Southern Staffordshire Coalfield Heaths (SSSI)	TAM - PTSBL	GB40401G301000	2000693
Gentleshaw Common (SSSI)	TAM - PTSBL	GB40401G301000	1005764
Sutton Park (SSSI)	TAM - PTSBL	GB40401G301000	1001574
Edgbaston Pool (SSSI)	TAM - PTSBL	GB40401G301000	1001509
Bittell Reservoirs (SSSI)	TAM - PTSBL	GB40401G301000	1000942
Sellers Wood (SSSI)	Lower Trent Erewash - PT Sandstone Wollaton	GB40401G301400	1001822
Rainworth Lakes (SSSI)	Idle Torne - PT Sandstone Nottinghamshire & Doncaster (IT - PTSND)	GB40401G301500	1001706
Hills & Holes & Sookholme Brook, Warsop (SSSI)	IT - PTSND	GB40401G301500	1000771
Thoresby Lake (SSSI)	IT - PTSND	GB40401G301500	1001902
Clumber Park (SSSI)	IT - PTSND	GB40401G301500	1000664
Mattersey Hill Marsh (SSSI)	IT - PTSND	GB40401G301500	1000999
River Idle Washlands (SSSI)	IT - PTSND	GB40401G301500	1001749
Misson Line Bank (SSSI)	IT - PTSND	GB40401G301500	1001020
Sandall Beat (SSSI)	IT - PTSND	GB40401G301500	1000680
Hatfield Moors (SSSI)	IT - PTSND	GB40401G301500	1000536
Thorne, Crowle & Goole Moors (SSSI)	IT - PTSND	GB40401G301500	1001467
Hatfield Chase Ditches (SSSI)	IT - PTSND	GB40401G301500	2000213
Potteric Carr (SSSI)	IT - PTSND	GB40401G301500	1000669
Hewell Park Lake (SSSI)	Warwickshire Avon - PT Sandstone Bromsgove South	GB40401G305600	1000092

GWDTE Name	Water Body	Water Body ID	SSSI Code
Moor Closes (SSSI)	Witham Limestone Unit A	GB40501G444800	1004087
Rutland Water (SSSI)	Welland Limestone Unit A (WLUA)	GB40501G445900	1001220
Greetham Meadows (SSSI)	WLUA	GB40501G445900	1001247
Empingham Marshy Meadows (SSSI)	WLUA	GB40501G445900	1004415
Bulwick Meadows (SSSI)	WLUA	GB40501G445900	1004276
Porter's Lodge Meadows (SSSI)	WLUA	GB40501G445900	1000412
Shacklewell Hollow (SSSI)	WLUA	GB40501G445900	1001268
Tickencote Marsh (SSSI)	WLUA	GB40501G445900	1004378
Bonemills Hollow (SSSI)	WLUA	GB40501G445900	1000112
Whitewater Valley (SSSI)	WLUA	GB40501G445900	1003241
West, Abbot's & Lound Woods (SSSI)	WLUA	GB40501G445900	1003851
Wansford Pasture (SSSI)	WLUA	GB40501G445900	1003825
Southorpe Meadow (SSSI)	WLUA	GB40501G445900	1002139
Southorpe Paddock (SSSI)	WLUA	GB40501G445900	1003893
Sutton Heath & Bog (SSSI)	WLUA	GB40501G445900	1002363
Shrawley Wood (SSSI)	Worcestershire Middle Severn - PT Sandstone (WMS - PTS)	GB40901G300800	1002918
Hartlebury Common & Hillditch Coppice (SSSI)	WMS - PTS	GB40901G300800	1000046
Stourvale Marsh (SSSI)	WMS - PTS	GB40901G300800	1003010
Hurcott & Podmore Pools (SSSI)	WMS - PTS	GB40901G300800	1000702
Checkhill Bogs (SSSI)	WMS - PTS	GB40901G300800	1000001
Puxton Marshes (SSSI)	WMS - PTS	GB40901G300800	1002234
Wilden Marsh & Meadows (SSSI)	WMS - PTS	GB40901G300800	1003227

B.2 Protected sites within England impacted by abstraction within the Water Resource Zone supplying Solihull.

Where there is a 'challenges' record, some water bodies have a SWMI value of 'unknown (pending investigation)' or 'suspect data'. This lack of clarity over the SWMI means that the significant water management issue for that water body could be flow or could be something else. However, as the SWMI does not state 'flow' the protected site within the water body is classed as not having a flow SWMI and thus not being impacted by surface water abstraction within the Water Resource Zone supplying Solihull. Some protected sites (/sections of protected sites) overlap with water bodies that are not included in the 'challenges' record and there is therefore no record of SWMI. Such protected site (/area of protected site) that overlaps an unrecorded water body (in relation to challenges data) are marked as having no flow SWMI although they may have a flow SWMI but the data is not available to confirm this.

SSSI

SSSI Name	SSSI code	Water Body ID	Water Body	Flow SWMI (Y/N)
Allington Meadows SSSI	1002825	GB105030056740	Foston Beck	Y
Berry Mound Pastures SSSI	1006881	GB104028042501	R Cole from Source to Springfield	Y
Checkhill Bogs SSSI	1002231	GB109054044740	Philley Bk - source to conf Smestow Bk	Y
Checkhill Bogs SSSI	1002231	GB109054044781	Smestow Bk - Wom-Penn Bk to conf R Stour	Y
Chesterfield Canal SSSI	1002908	GB104028058092	Idle from Tiln to Ryton	Y
Chesterfield Canal SSSI	1002908	GB104028058110	River Idle from River Ryton to River Trent	Y
Churnet Valley SSSI	1002020	GB104028052651	Churnet from Endon Brook to Consall	Y
Clumber Park SSSI	1002885	GB104028058140	River Poulter from Millwood Brook to River Maun	Y
Collinpark Wood SSSI	1002570	GB109054032511	Leadon - conf Preston Bk to conf R	Y

SSSI Name	SSSI code	Water Body ID	Water Body	Flow SWMI (Y/N)
			Severn (W Channel)	
Compstall Nature Reserve SSSI	1003799	GB112069061050	River Etherow (Glossop Brook to Goyt)	Y
Dark Peak SSSI	1002023	GB104028057910	River Ashop from R Alport to R Derwent	Y
Dark Peak SSSI	1002023	GB104028057930	River Ashop from Source to R Alport	Y
Dark Peak SSSI	1002023	GB104028057890	River Noe from Source to Peakshole Water	Y
Eastnor Park SSSI	1002249	GB109054039620	Glynch Bk - source to conf R Leadon	Y
Edale SSSI	1002367	GB104028057890	River Noe from Source to Peakshole Water	Y
Feckenham Forest SSSI	1006643	GB109054044180	Hadley Bk - source to conf R Salwarpe	Y
Hartlebury Common and Hillditch Coppice SSSI	1002489	GB109054044460	Hartlebury Bk - source to conf R Severn	Y
Hewell Park Lake SSSI	1002490	GB109054043860	Batchley Bk - source to conf R Arrow	Y
Humber Estuary - 2000480 SSSI	1009830	GB530402609202	HUMBER MIDDLE	Y
Humber Estuary - 2000480 SSSI	1009830	GB530402609203	HUMBER UPPER	Y
Juniper Hill, Edgeworth SSSI	1002591	GB109054032470	R Frome - source to conf Slad Bk	Y
Lockington Marshes SSSI	1003043	GB104028047410	Hemington Brook Catchment (trib of the Soar)	Y
Lower Hollins SSSI	1475890	GB104028057890	River Noe from Source to Peakshole Water	Y
Misson Line Bank SSSI	1002902	GB104028058110	River Idle from River Ryton to River Trent	Y
Mother Drain, Misterton SSSI	1002709	GB104028058110	River Idle from River Ryton to River Trent	Y

SSSI Name	SSSI code	Water Body ID	Water Body	Flow SWMI (Y/N)
Old River Dove, Marston On Dove SSSI	1002254	GB104028052420	Dove - R Churnet to R Trent	Y
River Idle Washlands SSSI	1002915	GB104028058110	River Idle from River Ryton to River Trent	Y
Rowlee Bridge SSSI	1002379	GB104028057910	River Ashop from R Alport to R Derwent	Y
Sutton and Lound Gravel Pits SSSI	1008725	GB104028058091	Idle from Maun/Poulter to Tiln	Y
Sutton and Lound Gravel Pits SSSI	1008725	GB104028058092	Idle from Tiln to Ryton	Y
Upton Warren Pools SSSI	1002544	GB109054044200	R Salwarpe to conf Elmbridge Bk	Y
Welbeck Lake SSSI	1002923	GB104028058140	River Poulter from Millwood Brook to River Maun	Y
Wilden Marsh and Meadows SSSI	1002547	GB109054044530	Hoo Bk - source to conf R Stour	Y

SAC

SAC Name	SAC Code	Water Body ID	Water Body	Flow SWMI (Y/N)
Humber Estuary	UK0030170	GB530402609202	HUMBER MIDDLE	Y
Humber Estuary	UK0030170	GB530402609203	HUMBER UPPER	Y
South Pennine Moors	UK0030280	GB104028057890	River Noe from Source to Peakshole Water	Y
South Pennine Moors	UK0030280	GB104028057910	River Ashop from R Alport to R Derwent	Y
South Pennine Moors	UK0030280	GB104028057930	River Ashop from Source to R Alport	Y

SPA

SPA Name	SPA Code	Water Body ID	Water Body	Flow SWMI (Y/N)
Humber Estuary	UK9006111	GB530402609202	HUMBER MIDDLE	Y
Humber Estuary	UK9006111	GB530402609203	HUMBER UPPER	Y
Peak District Moors (South Pennine Moors Phase 1)	UK9007021	GB104028057890	River Noe from Source to Peakshole Water	Y
Peak District Moors (South Pennine Moors Phase 1)	UK9007021	GB104028057910	River Ashop from R Alport to R Derwent	Y
Peak District Moors (South Pennine Moors Phase 1)	UK9007021	GB104028057930	River Ashop from Source to R Alport	Y

Ramsar

Ramsar Name	Ramsar Code	Water Body ID	Water Body	Flow SWMI (Y/N)
Humber Estuary	UK11031	GB530402609202	HUMBER MIDDLE	Y
Humber Estuary	UK11031	GB530402609203	HUMBER UPPER	Y

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