

The Wessex area Drainage and wastewater management plan (DWMP)

Appendix C – Environmental report

Wessex Water

May 2023

This appendix contains two reports:

1. DWMP Strategic Environment Assessment –
Post Adoption Statement (produced by WSP for Wessex Water)
2. DWMP Habitats Regulations Assessment (produced by WSP for Wessex Water)



Wessex Water

Drainage and Wastewater Management Plan Strategic Environment Assessment

Post Adoption Statement



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May 2023



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1. Introduction

1.1 Wessex Water Drainage and Wastewater Management Plan

1.1.1 Wessex Water provides water and wastewater services to some 2.8m customers in the South West of England with assets and infrastructure including some 35,000km sewers, 2,100 pumping stations and 398 water recycling centres (WRC).

1.1.2 The Drainage and Wastewater Management Plan (DWMP) sets out how Wessex Water intends to extend, improve and maintain a robust and resilient drainage and wastewater system. The final DWMP feeds into the investment programme for 2025 to 2030 and establishes the approach for achieving their outcomes and aims for the next 25 years, as set out in Wessex Water's strategic direction statement. Collectively the plan contains measures to achieve 12 planning objectives. Six of these planning objectives are nationally set:

- internal sewer flood risk;
- pollution risk;
- sewer collapse risk;
- risk of sewer flooding in a 1 in 50-year storm;
- storm overflow performance; and
- risk of water recycling centre quality compliance.

1.1.3 The remaining six planning objectives were created by Wessex Water in consultation with stakeholders and they are:

- risk of water recycling centre flow compliance failure;
- blockage risk;
- waterbodies (river water quality) improved;
- groundwater infiltration reduction;
- partnership working opportunities; and
- sustainable drainage.

1.1.4 **Figure 1.1** identifies the outcomes these planning objectives should achieve.

Figure 1.1 Wessex Water Planning Objectives¹

Unconstrained mapping of DWMP planning objectives to outcomes

	Outcomes							Theme
	An effective sewerage system	Greater customer experience	Good environmental water quality	Increased biodiversity	Water resource benefits	Net zero carbon	Affordable bills	
WRC quality compliance	✓✓	✓	✓✓	✓	✓			Environmental
WRC flow compliance	✓✓	✓	✓✓	✓	✓			
Environment improved	✓✓	✓✓	✓✓	✓				Effective sewerage
Storm Overflows	✓✓	✓✓	✓✓	✓	✓			
Internal flooding	✓✓	✓✓	✓	✓	✓			
Flooding in a storm	✓✓	✓✓	✓	✓				
Blockages	✓✓	✓✓	✓			✓		Asset health
Pollutions	✓✓	✓✓	✓✓			✓		
Sustainable drainage	✓✓	✓✓	✓✓	✓✓	✓	✓✓		
Partnership working	✓✓	✓	✓✓	✓✓	✓	✓	✓	
Collapses	✓✓	✓✓	✓			✓		
Groundwater inundation	✓✓	✓	✓		✓			

Note: Bold planning objectives are common (national)

1.1.5 The DWMP operates at the following spatial levels:

- **Level 1 (L1): Wessex regional area** - Over-arching companywide plan which sets out key company objectives, risks faced and summarises investment needed.
- **Level 2 (L2): Catchment partnership areas** - Catchment plans co-created with stakeholders through strategic planning groups at a River Basin level. There are five catchment partnership areas in the Wessex Water DWMP area: Bristol Avon, Hampshire Avon, Somerset and under Dorset, Poole Harbour and the Stour. At the time that Wessex Water prepared the strategic context for the DWMP it decided to have four catchment areas, so combined the two catchment initiatives in Dorset into one Level 2 area (see **Figure 1.2**).
- **Level 2b: Lead Local Flood Authority** – There are ten Lead Local Flood Authorities (Councils) across the Wessex Area (see **Figure 1.3**). Councils are required to help reduce flood and other water related risks within their operational area. Wessex Water works alongside them to help address water based issues.
- **Level 3 (L3): Water Recycling Centre catchments** – There are 398 Water Recycling Centres (WRCs) in the Wessex area. The area that each WRC serves (i.e. all the sewers that flow to the treatment works) is known as the WRC catchment area. WRC catchments with risks identified now or in the future have Drainage Strategies summary reports, which sets out Wessex Water’s plans for the short, medium and long term (see **Figure 1.4**)
- **Level 4 (L4): Local Areas** – Where flooding affects individual customers. Wessex Water is committed to engaging with customers affected by flooding and develop and implement solutions to prevent flooding the future.

¹ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 43.

Figure 1.2 Level 2 - Wessex Water Catchment Partnership Areas²

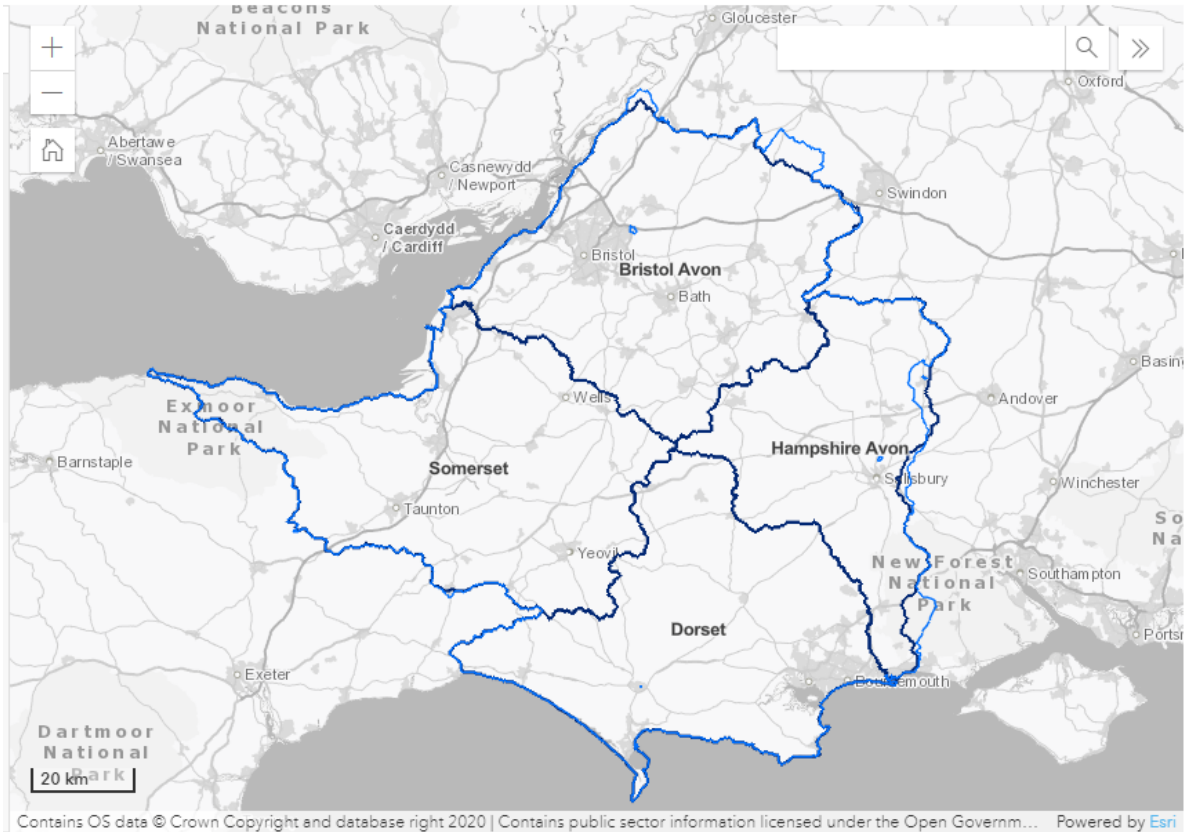
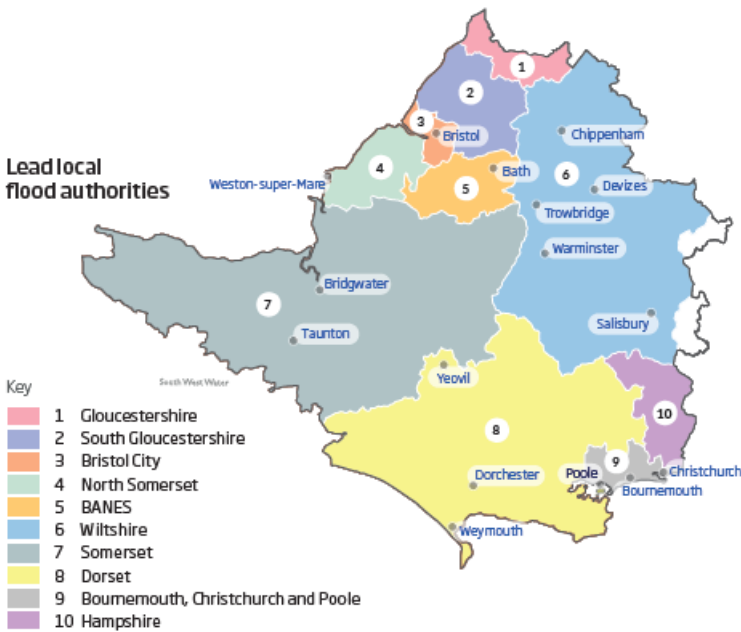


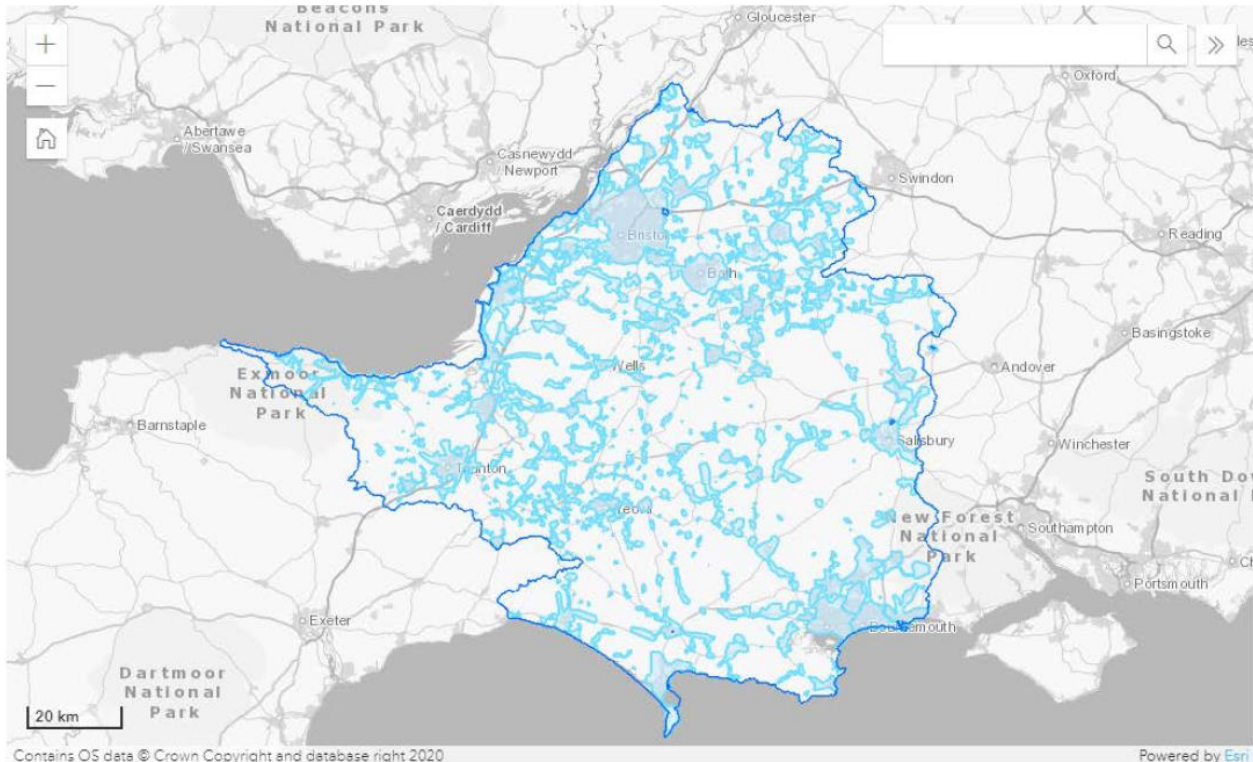
Figure 1.3 Level 2b DWMP Planning Area - Council Areas³



² Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 37.

³ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final DWMP for consultation. [Accessed May 2023]. Page 3.

Figure 1.4 Level 3 DWMP planning area - water recycling centre (WRC) boundaries
4



1.1.6 Following the completion of a Risk Based Catchment Screening (RBCS) and Baseline Risk and Vulnerability Assessment (BRAVA) process, Wessex Water determined those drainage areas where drainage, flooding, pollution and treatment risks have been identified now or in the future. Short, medium and long-term interventions have been developed to address the identified risks at the L2/L3 level and to deliver one or more of the planning objectives. The range of options developed were organised around the following type of intervention:

- Combined and Foul Sewer Systems;
- Customer Side Management;
- Indirect Measures;
- Surface Water Management; and
- Wastewater Treatment.

1.1.7 Modelling, engineering and optioneering work was undertaken across each level to determine the most appropriate, effective response. The outputs of the optioneering enabled the selection of the preferred programme of options set out in the Draft DWMP published for public consultation.

1.1.8 The final DWMP includes the following investment by 2030:

- Continue to maintain and operate Wessex Water assets to high standard;
- Improving WRCs by investing £1,400 million to ensure Wessex Water treat the effluent to the tightening standards and accommodate growth;

⁴ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 39.

- Improving the performance of 148 storm overflows by investing over £500m, using nature based solutions where best value;
- Monitoring the water quality impact of WRC and storm overflow discharges, which could cost almost £100m;
- Significantly increase in investment to reduce groundwater from inundating sewers and manholes;

1.1.9 The DWMP notes that there is significant uncertainty of the long term requirement and so Wessex Water has ensured the DWMP is flexible by having adaptive plans to allow it to accommodate change.

Preparation of the Drainage and Wastewater Management Plan

1.1.10 Water and sewerage companies (WaSCs) have been asked to produce DWMPs for the first time, following the guidance of the Water UK DWMP Framework (the Framework)⁵. This Framework has been developed in collaboration with other regulating bodies that serve to protect communities and the environment. Consistent with the Framework, Wessex Water has completed the following stages during the development of the DWMP:

- Strategic Context;
- Risk Based Catchment Screening (RBCS);
- Baseline Risk and Vulnerability Assessment (BRAVA);
- Problem Characterisation;
- Options Development and Appraisal;
- Programme Appraisal; and
- Final DWMP Programme.

1.1.11 This work has led to the following:

- The publication of a Draft DWMP for public consultation;
- The publication of a Statement of Response describing the consultation on the Draft DWMP and how the company took into account the comments received in the preparation of the Final DWMP; and
- The publication of a Final DWMP.

1.1.12 The Draft DWMP was published for public consultation for 12 weeks from 30th June to 1st October 2022. Wessex Water received 19 responses from regulators, stakeholders, and customers in addition to feedback from three interactive stakeholder workshops.

1.1.13 The main changes made to the final DWMP have been to:

- Increase the investment for nutrient neutrality, and other phosphorus-related improvements;
- Increase the investment in storm overflow improvements by 2030 to ensure delivery of the government's storm overflow discharge reduction plan;

⁵ Water UK in collaboration with Defra, Welsh Government, Ofwat, Environment Agency, Natural Resources Wales, Consumer Council for Water, ADEPT and Blueprint for Water (2019) *A framework for the production of Drainage and Wastewater Management Plans*

- Include more detail of the quantum of known environmental improvements for the period 2025 to 2030;
- Improve the focus on nature based solutions;
- Provide more detail on the potential for partnership working schemes for the short to medium term;
- Include adaptive planning and common reference scenarios to provide more detail on climate change sensitivity; and
- Replace the Draft DWMP scenarios with the Best Value (core) plan and adaptive plans.

Strategic Environmental Assessment and the Drainage and Wastewater Management Plan

- 1.1.14 DWMPs are not currently a statutory requirement, and as such, they do not fall within the scope of Strategic Environmental Assessment (SEA) regulations.⁶ However, completing such assessment is best practice, informs option assessments and is recommended in the Framework. The SEA process identifies, describes and evaluates potential effects; proposing where appropriate, mitigation and/or enhancement measures.
- 1.1.15 Consultation on the scope of the SEA was undertaken by Wessex Water when the Scoping Report for the SEA of the Draft DWMP⁷ was issued to the SEA consultation bodies in April 2022 for a consultation period of five weeks (29th April to 3rd June 2022). Consultation responses were used to refine the proposed scope and approach to the SEA.
- 1.1.16 The Draft DWMP was then subject to SEA. This assessed the likely significant effects on the environment of the Draft DWMP including an assessment of all high-level interventions, the preferred programme of interventions and alternatives. The findings of the assessments were presented in the Environmental Report⁸ that was published for consultation alongside the Draft DWMP in July 2022.

1.2 Purpose of the Post Adoption Statement

- 1.2.1 Regulation 16 (4) of the SEA Regulations require that when a plan or programme is adopted (in this case, the DWMP), the consultation bodies and the public consulted on the Environmental Report are informed and the following specific information is made available:
- the plan as adopted;
 - a statement summarising:
 - ▶ how environmental considerations have been integrated into the DWMP;
 - ▶ how the Environmental Report has been taken into account;

⁶ *Statutory Instrument 2004 No. 1633 – The Environmental Assessment of Plans and Programmes Regulations 2004*. The regulations translated EU law into UK regulations. EU law has ceased to apply in the UK under the terms of the Withdrawal Agreement and EU Treaties. The European Union (Withdrawal) Act 2018 (EUWA) has established a new body of domestic law known as retained EU law.

⁷ Wood (2022) Wessex Water Drainage and Wastewater Management Plan Strategic Environmental Assessment Scoping Report Final (April 2022)

⁸ Wessex Water (2022) Drainage and wastewater management plan Appendix C – Environmental Report. Available at: <https://www.wessexwater.co.uk/environment/drainage-and-wastewater-management-plan> [Accessed March 2023].

- ▶ how opinions expressed in response to the consultation on the Draft DWMP and the Environmental Report have been taken into account;
- ▶ the reasons for choosing the DWMP, as adopted, in the light of the other reasonable alternatives dealt with; and
- ▶ the measures that are to be taken to monitor the significant environmental effects of the implementation of the DWMP.

1.2.2 The purpose of this Post Adoption Statement is to provide the specific information outlined under each of the points listed above and which is presented in the following sections of this statement.

2. How environmental considerations have been integrated into the DWMP

2.1 Environmental considerations in the DWMP

2.1.1 The subsections that follow set out how environmental considerations have been taken into account by Wessex Water during the following key stages of the development of the DWMP:

- Risk Based Catchment Screening;
- Baseline Risk and Vulnerability Assessment;
- Options identification, appraisal and selection; and
- Consultation and engagement.

Risk Based Catchment Screening (RBCS)

2.1.2 Wessex Water utilised Risk Based Catchment Screening (RBCS) to understand risk across the region and its catchments. 18 indicators were identified which encompassed elements such as flooding, frequent spilling overflows and other known drainage issues as outlined below:

- Intermittent discharges impact upon bathing or shellfish waters;
- Continuous or intermittent discharges impact upon other sensitive receiving waters;
- Storm overflow assessment framework;
- Capacity assessment framework;
- Internal sewer flooding;
- External sewer flooding;
- Pollution incidents (categories 1, 2 and 3);
- WRC quality compliance;
- WRC dry weather flow compliance;
- Storm overflows needing improvement;
- Risks from interdependencies between RMA systems (partnership schemes);
- Planned residential new development;
- WINEP;
- Sewer collapses;
- Sewer blockages; and
- Groundwater infiltration risk.*

* The groundwater infiltration risk is a bespoke indicator that was added to the list to include the risks for catchment that are vulnerable to groundwater inundation.

- 2.1.3 RBCS was utilised in order to identify which Water Recycling Centres (WRC) Level 3 catchments required further assessment through the DWMP process due to triggering one or more of the 18 indicators. This also included taking into account the WINEP.
- 2.1.4 It is important to note that the breaching of just one indicator is sufficient for further assessment through the Baseline Risk and Vulnerability Assessment (BRAVA) in some instances, whilst other indicators need to be breached multiple times before progressing to the BRAVA stage. It was identified that 228 WRC catchments required to be reviewed at the BRAVA stage⁹.

Baseline Risk and Vulnerability Assessment

- 2.1.5 BRAVA allowed Wessex Water to model baseline and future performance, taking into account factors such as climate change and population growth, to understand where there is likely to be a deficit in achieving the long-term planning objectives if no action is taken. Bespoke BRAVA assessments were undertaken of 228 WRC catchments (99% of the population). It assessed existing and future needs of:
- Population growth;
 - Urban creep; and
 - Climate change.
- 2.1.6 From the assessment of existing and future needs, the DWMP identified that the Wessex region will continue to experience steady growth in its population, which will result in more development being needed to accommodate their needs¹⁰. Whilst new development can create opportunities for the better management of their local water environment, the DWMP identifies that most development will place further pressure on the local sewage network and associated WRC.
- 2.1.7 The DWMP BRAVA also took into account urban creep which is where the risk of flooding due to an increase in impermeable areas due to property owners paving over permeable surfaces¹¹. This is being exacerbated by the rise in home charging stations for cars, as cars need to be parked closer to homes so that they can be recharged. Impermeable areas and their increase will lead to further pressure on local combined sewers, surface water sewers, highway drains and/or soakaways, leading to an overall increase in flood risk for the area¹².
- 2.1.8 The ongoing effects of climate change are expected to increase in frequency and severity. For the 2050 time horizon, the DWMP applies a 20% uplift of rainfall intensity for climate change allowance¹³. The Wessex region experiences seasonal groundwater infiltration problems. Climate change is predicted increase the probability of wet winters which is therefore problematic for the Wessex region and the DWMP notes that the effects of climate change may already affecting the Wessex region. In previous decades, the DWMP notes that the Wessex region would experience only one year of seasonal groundwater inundation, but this has risen to at least three cases of seasonal groundwater

⁹ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 116.

¹⁰ Ibid. Page 118.

¹¹ Ibid. Page 120.

¹² Ibid. Page 120.

¹³ Ibid]. Page 120.

inundation since 2010¹⁴. Future DWMP cycles will include more assessment of climate change in relation sea level rise risks, for catchments including Weymouth and Poole.

- 2.1.9 Through the BRAVA process Wessex Water was able to identify that *“predicted flooding in 2050 being 57% higher than the 2025 results for the 1 in 30-year (worst case duration) results¹⁵.”*
- 2.1.10 The BRAVA stage also assumed that the current infrastructure is maintained at the current maintenance investment levels, with no improvements or further investment being carried out to improve said infrastructure. The BRAVA process therefore identified that the situation of 214 out of the 228 WRC catchments assessed would experience a steady decline in service quality over time without intervention. 214 of the identified WRC catchments therefore progressed to the Options Development and Appraisal (ODA) stage of the DWMP to help further assess the risks present within these catchments.

Problem Characterisation

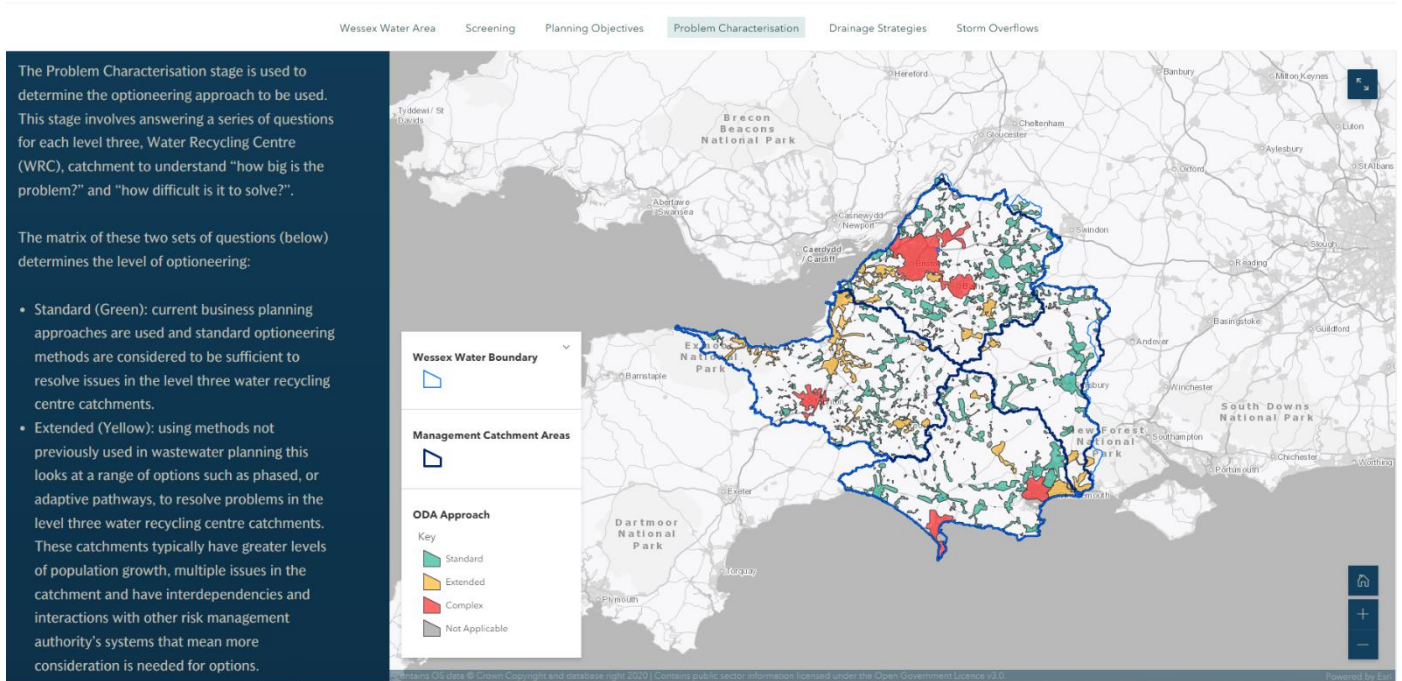
- 2.1.11 The problem characterisation stage ensures an appropriate level of assessment and reporting for each catchment. It follows the process set out by the UKWIR report, ‘WRMP 2019 Methods – Decision Making Process: Guidelines’ and applies it to the sewerage business. It is a further level of assessment before the ODA stage of assessment but helps to inform it along with the findings from the BRAVA. Two elements comprised the problem characterisation assessment and catchments are scored against these elements to help identify problems they face:
- *“how big is the problem?” (strategic needs) - a high level assessment of the scale of need for interventions to address near, medium and long-term performance concerns; and*
 - *“how difficult is the problem to solve?” (complexity factors) - an assessment of the complexity of issues that affect investment in a drainage and wastewater planning area¹⁶.”*
- 2.1.12 At this stage, Wessex Water identified 189 standard catchments, 20 extended catchments and 5 complex catchments, with 14 catchments dropping out at the BRAVA stage (no risks identified). **Figure 2.1** below provides an example of the results of problem characterisation.

¹⁴ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 120.

¹⁵ Ibid. Page 117.

¹⁶ Ibid. Page 124.

Figure 2.1 Example Result of Problem Characterisation¹⁷



Options Development and Appraisal (ODA)

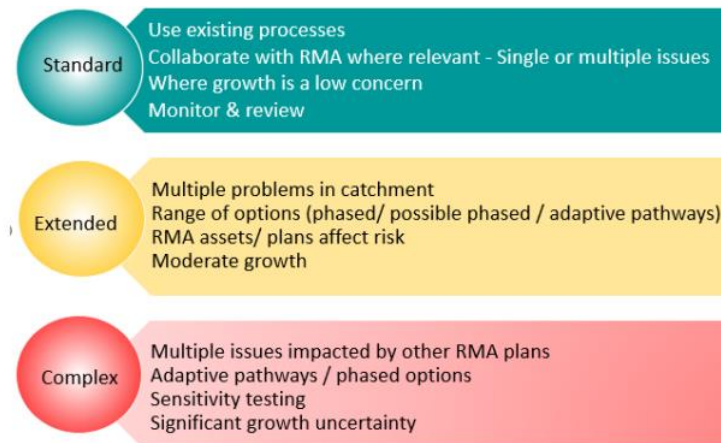
2.1.13 Following the completion of the RBSC, BRAVA and Problem Characterisation processes, Wessex Water identified 214 WRC catchments that needed further assessment due to the risks from flooding, pollution and treatment risks they faced. Wessex Water then categorised the 214 WRC catchments against a ‘standard’, ‘extended’ or ‘complex’ approach as identified below and in **Figure 2.2**:

- **“Standard** – process defaults to company’s existing investment planning practices to maintain or enhance existing levels of service.
- **Extended** – the Options Development and Appraisal (ODA) process builds upon standard processes to provide extended analytical approaches in support of investment planning practice (where DWMP minimum requirements are not met).
- **Complex** – the ODA process considered a wide range of tools and approaches to explore:
 - ▶ *Uncertainties in the forecasts.*
 - ▶ *The likely complexity of the interventions required to meet all planning objective exceedances is high, involving multiple options and / or stakeholders and the potential lead in times are long.¹⁸*

¹⁷ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 125.

¹⁸ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 130.

Figure 2.2 Extended and complex catchments¹⁹



- 2.1.14 Within the Wessex area, 5 catchments were categorised as complex, 20 extended, and 189 catchments standard²⁰. Following consultation, a fourth category evolved from the 'standard' category identified above called 'Standard Plus' where partners had identified these as partnership priority areas. This was applied to 14 'standard' catchments. Detailed modelling and optioneering was used to identify the most cost-effective solutions and ensure that the rectifying of the issues was feasible and achievable for all catchments with identified needs.
- 2.1.15 The preferred programme of interventions was selected following a rigorous process of options identification and appraisal, environmental assessment, and stakeholder engagement, including consultation on the Draft DWMP.
- 2.1.16 Environmental assessments, including a SEA and Habitats Regulations Assessment (HRA) were carried out on the preferred programme of interventions, to ensure environmental considerations were considered and measures identified to minimise or mitigate environmental harm. Environmental metrics were also incorporated into Wessex Water's screening processes.

Resilience

- 2.1.17 A resilience assessment of WRC and pumping stations was undertaken for all level 3 catchments by taking a sample number of sites and extrapolating to the Wessex area. Wessex Water commissioned Mott MacDonald to conduct the DWMP flood resilience assessments at 125 wastewater sites, including water recycling centre (WRC) sites and sewage pumping station (SPS) sites²¹. The project undertook high level flood risk assessments for the sample sites, considering flood risk up to the 1 in 1000-year event and climate change impacts. The flood risk assessments were used to inform the DWMP and Wessex Water's business plans for what mitigation measures are needed.

Consultation and engagement

- 2.1.18 Wessex Water has undertaken extensive stakeholder and customer engagement during the preparation of the DWMP. This has included ongoing engagement with the statutory

¹⁹ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 120.

²⁰ Ibid. Page 131.

²¹ Ibid. Page 126-127.

SEA consultation bodies, consultation with its Customer Challenge Group and DWMP consultation workshops²².

2.2 Environmental considerations in the Strategic Environmental Assessment

- 2.2.1 To provide the context for the SEA, and in compliance with the SEA Regulations, the relevant aspects of the current state of the environment and its evolution without the DWMP were considered at the outset of the SEA process, along with the environmental characteristics likely to be significantly affected by the plan. This information was contained in the SEA Scoping Report and subsequently updated as part of the Environmental Report.
- 2.2.2 The key environmental, social and economic issues identified in Wessex Water's operational area and subsequently reflected in the assessment of DWMP options are summarised in **Table 2.1**.

Table 2.1 Key environmental, social and economic issues relevant to the Draft DWMP

Topic Area	Key Environmental, Social and Economic Issues Relevant to the DWMP
Biodiversity	<p>The need to protect, restore and enhance sites designated for nature conservation.</p> <p>The need to continue to increase and improve the condition of priority habitats and habitats of priority species and restore populations of these species and other specially protected species.</p> <p>The need to avoid activities likely to cause irreversible damage to natural heritage.</p> <p>The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors.</p> <p>The need to control the spread of Invasive Non-Native Species (INNS).</p> <p>The need to recognise the importance of allowing wildlife to adapt to climate change.</p> <p>The need to protect, restore and enhance natural capital and ecosystem services.</p>
Geology Land use and Soils	<p>The need to influence how land is managed, promoting sustainable patterns of land use including the use of previously developed land.</p> <p>The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources).</p> <p>The need to protect and avoid damage to geodiversity and conserve and enhance sites designated for geological interest.</p> <p>The need to manage impacts on soil resources, including control of pollution and remediation of contaminated land, and minimise the loss of the best and most versatile agricultural land.</p>
Water	<p>The need to recover, maintain and further improve the quality of the rivers, estuarine and coastal waters taking into account WFD/RBMP objectives.</p> <p>The need to maintain and further improve the quantity and quality of groundwater resources taking into account WFD/RBMP objectives.</p> <p>The need to ensure the continued risk of flooding is mitigated effectively.</p>

²² Wessex Water (2023) DWMP Consultation Summary. [Accessed May 2023]. Page 2-3.

Topic Area	Key Environmental, Social and Economic Issues Relevant to the DWMP
	<p>The need to improve the resilience, flexibility and sustainability of water resources in the region, particularly in light of potential climate change impacts on surface water and groundwaters.</p> <p>The need to ensure that people understand the value of water.</p>
Air Quality	<p>The need to minimise emissions of pollutant gases and particulates to comply with air quality standards.</p> <p>The need to enhance air quality.</p>
Climate Change	<p>The need to reduce greenhouse gas emissions arising from implementation of the DWMP.</p> <p>The need to take into account, and where possible adapt to, the current and future effects of climate change.</p> <p>The need to increase environmental resilience to the effects of climate change.</p>
Human Environment	<p>The need to ensure drainage and wastewater services remain affordable, especially for deprived or vulnerable communities.</p> <p>The need to ensure water quantity and quality is maintained for a range of uses including tourism, recreation, navigation and other use such as agriculture.</p> <p>The need to ensure a balance between the built and natural environment that will help to provide opportunities for local residents and tourists for access to green infrastructure and the natural and historic environment, as well as protecting and enhancing recreational resources.</p> <p>The need to ensure that the DWMP measures do not adversely affect the health and well-being of any member of the community.</p> <p>The need to ensure that the DWMP measures do not have an adverse economic impact and that benefits are maximised.</p> <p>The need to ensure that sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way contribute to recreation and tourism opportunities and subsequently health and wellbeing and the economy.</p>
Material Assets and Resource Use	<p>The need to minimise the demand for water resources through water efficiency measures (including metering) and the reduction of leakage in the region.</p> <p>The need to address groundwater infiltration into the sewerage system.</p> <p>The need to reduce energy consumption.</p> <p>The need to ensure the sustainable and efficient use of resources such as construction materials.</p> <p>The need to minimise waste arisings, promote reuse, recovery and recycling and minimise the impact of waste on the environment and communities.</p>
Cultural Heritage	<p>The need to conserve and enhance the historic significance of buildings, monuments, features, sites, places, areas of archaeological and cultural heritage interest, particularly those which are sensitive to the water environment.</p> <p>The need to conserve and enhance World Heritage Sites within the Wessex Water area.</p> <p>The need to avoid damage to important wetland areas with potential for paleoenvironmental deposits, for example within the Avon Valley National Character Areas.</p> <p>The need to avoid harm to or loss of the significance of heritage assets where possible, and to minimise and then mitigate harm, while maximising positive impacts and enhancements.</p>

Topic Area	Key Environmental, Social and Economic Issues Relevant to the DWMP
Landscape	<p>The need to conserve and enhance landscape and seascape character, taking into account the effects of climate change and recommendations for managing change in the profile of relevant NCAs.</p> <p>The need to ensure the special qualities of designated landscapes including Exmoor National Park and AONBs in the Wessex Water sewerage services area are protected.</p> <p>The need to avoid or, if not possible, minimise any adverse impacts upon landscape and seascape that may result from measures in the DWMP.</p>

2.2.3 The issues listed above were reflected in the objectives and guide questions that collectively comprised the framework used to assess the DWMP (see **Table 2.2**).

Table 2.2 SEA Assessment Framework

Topic	Objective	Guide Questions
Biodiversity, Flora and Fauna	1. To protect, restore and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species, enhanced ecosystem resilience, habitat connectivity and creation and contribute to the sustainable management of natural habitats and ecosystems.	<p><i>Will it protect, restore and enhance where possible, the most important sites for nature conservation (e.g., internationally or nationally designated conservation sites such as SACs, SPAs, Ramsar and SSSIs)?</i></p> <p><i>Will it protect, restore and enhance non-designated sites and local biodiversity?</i></p> <p><i>Will it lead to a change in the ecological quality of habitats due to changes in water quality and/or quantity?</i></p> <p><i>Will it alter geomorphological forms and processes which underpin physical habitat for aquatic ecosystems?</i></p> <p><i>Will it provide opportunities for new terrestrial and aquatic habitat creation or restoration and/or link existing habitats as part of the development process?</i></p> <p><i>Will it protect, and enhance where appropriate, coastal and marine habitats and species?</i></p> <p><i>Will it maintain and enhance the green infrastructure network and the biodiversity it supports?</i></p> <p><i>Will it protect, restore or enhance natural capital and ecosystem services?</i></p> <p><i>Will it provide opportunities for climate adaptation and protect the climate resilience of vulnerable and priority sites?</i></p> <p><i>Will it support nature based solutions, where possible?</i></p>
Soils, Land Use and Geology	2. To protect and enhance soil quantity, quality and functionality and geodiversity and ensure the appropriate and efficient use of land.	<p><i>Will additional land be required for the development or implementation of the intervention or will it require below ground works leading to land sterilisation?</i></p> <p><i>Will it avoid damage to, protect and enhance where possible protected sites designated for their geological interest (GCR sites, SSSI and RIGS) and features of wider geodiversity interest?</i></p> <p><i>Will it avoid adverse effects on other land uses?</i></p> <p><i>Will it minimise land contamination?</i></p> <p><i>Will it ensure efficient use of land (e.g., make use of previously developed land and minimise the loss of best and most versatile agricultural land)?</i></p> <p><i>Will it contribute towards a catchment-wide approach to land management?</i></p>

Topic	Objective	Guide Questions
Water – Quantity and Quality	3. To protect and enhance the quality and quantity of surface and groundwater resources.	<p><u>Quantity</u> <i>Will it minimise the customer demand for water resources?</i> <i>Will it result in unsustainable changes to river flows, channel morphologies, wetted width or river levels?</i> <i>Will it support the achievement of relevant environmental objectives set out in the SW River Basin Management Plan?</i></p> <p><u>Quality</u> <i>Will it prevent pollution and protect and improve surface, groundwater, estuarine and coastal water quality?</i> <i>Will it prevent the deterioration of Water Framework Directive (WFD) waterbody status (or potential)?</i> <i>Will it support the achievement of WFD protected area objectives?</i> <i>Will it ensure a new activity or new physical modification does not prevent the future achievement of good status for a water body?</i> <i>Will it support the achievement of relevant environmental objectives set out in River Basin Management Plans?</i> <i>Will the option prevent nutrient loading in water bodies?</i></p>
Water – Flood Risk	4. To minimise, reduce or manage the risk and effects of flooding..	<p><i>Will it be at risk of flooding now or in the future?</i> <i>Will it have the potential to help alleviate or mitigate flooding in the catchment area including to people and property now or in the future? E.g., will it avoid reducing flood plain storage, or provide opportunities to improve flood risk management?</i> <i>Will it promote the use of sustainable drainage systems?</i> <i>Will it promote opportunities for collaborative working with other risk management authorities?</i></p>
Air	5. To minimise emissions of pollutant gases and particulates and enhance air quality.	<p><i>Will it reduce or minimise pollutant emissions to air?</i> <i>Will it maintain or enhance ambient air quality, keeping pollution below Local Air Quality Management thresholds (e.g., in Air Quality Management Areas (AQMAs) or sensitive habitats)?</i></p>
Climatic Factors	6. To reduce embodied and operational greenhouse gas emissions.	<p><i>Will it have a low level of embodied carbon?</i> <i>Will it reduce or minimise greenhouse gas emissions?</i> <i>Will it provide new infrastructure that is energy efficient and/or minimises the use of energy?</i> <i>Will it provide new infrastructure that could contribute or make use of renewable energy sources?</i> <i>Will the option affect carbon sequestration?</i></p>
	7. To adapt and improve resilience to the threats of climate change.	<p><i>Will it improve resilience and/or adaptability to the likely effects of climate change, e.g., by increasing resilience of water supplies or catchments?</i> <i>Will it increase environmental resilience to the effects of climate change including to impacts on flood risk and water quality?</i></p>
Population	8. To promote a sustainable economy and maintain and enhance the economic	<p><i>Will it ensure that sufficient wastewater treatment capacity is in place to support predicted increases in population (including any seasonal changes)?</i></p>

Topic	Objective	Guide Questions
	and social well-being of local communities.	<p><i>Will it help to meet the employment needs of local people?</i></p> <p><i>Will it contribute to sustaining and growing the local and regional economy?</i></p> <p><i>Will it avoid disruption through effects on the transport network?</i></p> <p><i>Will it avoid negative effects on built assets/ existing infrastructure including transport?</i></p>
Human Health	9. To protect and enhance human health and well-being.	<p><i>Will it maintain surface water and bathing water quality within statutory standards?</i></p> <p><i>Will it help to promote healthy communities and avoid risks to health and wellbeing (for example, due to noise resulting from construction traffic or disruption to safe and reliable water/sewerage services)?</i></p> <p><i>Will it protect and enhance public access to, and enjoyment of, green and blue infrastructure, open space/recreational facilities and the natural and historic environment, and in doing so help promote healthy lifestyles including mental well-being?</i></p>
Material Assets - Water Resources	10. To promote and enhance the sustainable and efficient use of resilient water resources.	<p><i>Will it improve efficiency in water consumption?</i></p> <p><i>Will it increase the resilience of water resources, now and into the future?</i></p> <p><i>Will it contribute towards improving the awareness of water sustainability?</i></p>
Material Assets – Waste and Resource Use	11. To minimise waste, promote resource efficiency and move towards a circular economy.	<p><i>Will it make use of existing infrastructure?</i></p> <p><i>Will it promote the re-use and recycling of waste materials and reduce the proportion of waste sent to landfill?</i></p> <p><i>Will it help to encourage sustainable design or use of sustainable materials (e.g., supplied from local resources)?</i></p>
Cultural Heritage	12. To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeological important sites.	<p><i>Will it avoid damage to, conserve or enhance the historic environment, including heritage assets and their settings such as historic buildings, conservation areas, features, places and spaces, that enhance local distinctiveness?</i></p> <p><i>Will it avoid or minimise damage to archaeologically important sites?</i></p> <p><i>Will it avoid damage to important wetland areas with potential for paleoenvironmental deposits?</i></p> <p><i>Will it improve access, value, understanding or enjoyment of heritage assets and culturally/historically important assets in the region?</i></p>
Landscape	13. To conserve, protect and enhance landscape and townscape character and visual amenity.	<p><i>Will it avoid adverse effects to, and enhance where possible, protected/designated landscapes and the settings of designated landscapes (including woodlands) such as National Parks or AONBs?</i></p> <p><i>Will it help to protect and improve non-designated areas of natural beauty and distinctiveness (e.g., woodlands) and avoid the loss of landscape features and local distinctiveness?</i></p> <p><i>Will it protect and enhance landscape character, townscape, seascape and green infrastructure?</i></p>

Topic	Objective	Guide Questions
		<i>Will it minimise adverse visual impacts?</i>

2.2.4 The effects of the DWMP were assessed in a staged process as set out below.

High-level interventions

2.2.5 The assessment provided an indication of the effects arising from the broad option types proposed. The assessment covered 16 generic option types across five generic option themes:

- Combined and Foul Sewer Systems (5 options);
- Customer Side Management (1 option);
- Indirect Measures (2 options).
- Surface Water Management (3 options);
- Wastewater Treatment (5 options).

2.2.6 The options assessed are set out in **Table 2.3**.

Table 2.3 DWMP Generic Options

Generic Option Theme	DWMP Generic Option Title	Description
Combined and Foul Sewer Systems	Intelligent network operation	Controlling flow movement in reaction to the current situation. Allows the system to be operated proactively, maximising the use of existing assets. These options cover a range of different approaches e.g. modifying the start-stop levels at strategic pumping stations, creation of new network control points which allow for flow to be temporarily held back in the catchment.
Combined and Foul Sewer Systems	Increase the capacity of existing foul / combined networks	Replace sewer with a large diameter sewer to increase capacity.
Combined and Foul Sewer Systems	Wastewater transfers	The movement of flow to another area, or company.
Combined and Foul Sewer Systems	Sewer groundwater infiltration reduction	Infiltration sealing
Combined and Foul Sewer Systems	Attenuation	Creation of additional volume to reduce storm impact

Generic Option Theme	DWMP Generic Option Title	Description
Customer Side Management	Domestic and business customer education	A roll out of an education programme to improve understanding of the importance of reduced flows and mis-use of the system, and the impact this has on the environment and sewerage system.
Indirect measures	Influencing policy	Growth and planning, surface water management etc.
Indirect measures	Investigate and monitor	Understand root cause and risk
Surface Water Management	Surface water source control measures	Managing surface water and maximising its potential for re-use. Opportunities for large-scale source control installation such as retrofitting in highways and around buildings, as well as aligning with ongoing programmes like local authority highway upgrades or major opportunity area developments.
Surface Water Management	Surface water pathway measures	The need to provide safe conveyance (as opposed to storage) for floodwater during an extreme rainfall event (when the capacity of the sewer network is exceeded). Could, significantly mitigate the risk of considerable damage to public and private property and even loss of life that could result from an extreme rainfall event
Surface Water Management	Separate flows	Separate surface water from combined systems by constructing new surface water networks
Wastewater treatment	Treatment at overflows	Use of reedbeds / wetlands to provide treatment for spills
Wastewater treatment	Increase treatment capacity	Increase the efficient use of the existing capacity with the existing assets or invest in new assets (grey or green) to provide additional capacity.
Wastewater treatment	Rationalisation / centralisation	Close smaller treatment works and transfer flows to a larger one
Wastewater treatment	Catchment management initiatives	These options are concerned with treating either diffuse or point-source non-domestic elements of wastewater before they enter the sewer system, or by treating and controlling the other contributors to the environment.
Wastewater treatment	Effluent re-use	Recycle wastewater treatment works flow within the catchment

2.2.7 The assessment identified the neutral, minor, moderate and significant positive and negative effects for construction and operation of each generic option against the 13 SEA assessment objectives.

- 2.2.8 Wessex Water then identified various combinations of ‘feasible’ options to deliver required solutions within selected catchment areas. The Draft DWMP also included a series of commitments outlined in Infiltration Reduction Plans²³.
- 2.2.9 The construction and operational effects of those selected options of each programme of interventions were assessed against all of the SEA objectives that comprise the assessment framework. The assessment of effects included consideration of the following:
- the nature of the potential effect (what is expected to happen);
 - the timing and duration of the potential effect (e.g., short, medium or long term);
 - the geographic scale of the potential effect (e.g., local, regional, national);
 - the location of the potential effect (e.g., whether it affects rural or urban communities, or those in particular parts of a water company area); and
 - the potential effect on vulnerable communities or sensitive sites.
 - Any mitigation measures with the potential to avoid, minimise, reduce, mitigate or compensate for the identified effect(s) with evidence (where available) was included in supporting commentary.
- 2.2.10 The completion of these assessments also demonstrated that the alternative options (to the preferred programme of interventions) were considered and assessed with likely effects evaluated.

Preferred programme of interventions

- 2.2.11 The detailed modelling and optioneering works identified the preferred ‘blends’ (or programme) of option interventions for each L2 catchment areas (Bristol Avon, Dorset, Hampshire Avon and Somerset). These provided the best value solutions to address the identified risks and contribute towards meeting the relevant planning objectives.
- 2.2.12 The construction and operational effects of the feasible options selected for the L2 catchments were assessed against the SEA objectives that comprised the assessment framework using the generic interventions. This was a high level, qualitative assessment, proportionate to the information available.
- 2.2.13 It is important to note that specific detail of option combinations will not be confirmed until detailed design is undertaken (which was outside the scope of the DWMP and therefore the SEA).

Infiltration Reduction Plans

- 2.2.14 The Draft DWMP includes a series of commitments outlined in Infiltration Reduction Plans. These are specific operational plans that include a series of measures such as investigation of sewer capacity, modelling, and monitoring in catchments identified as being vulnerable to groundwater inundation²⁴.
- 2.2.15 It is noted that they are commitments within the Draft DWMP and were therefore also subject to a high level assessment in the SEA. The assessment was informed by the

²³ These are specific operational plans that include a series of measures such as investigation of sewer capacity, modelling, and monitoring. See Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 188.

²⁴ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 156.

generic options assessment. The infiltration Reduction Plans set out in the Draft DWMP were²⁵:

- Bagstone and Tytherington Infiltration Reduction Plan;
- Barton Lane Ruishton Infiltration Reduction Plan;
- Barton St David Infiltration Reduction Plan;
- Bleadon Infiltration Reduction Plan;
- Brent Knoll Infiltration Reduction Plan;
- Cerne Abbas Infiltration Reduction Plan;
- Charlton Adam Infiltration Reduction Plan;
- Collingbourne Ducis Infiltration Reduction Plan;
- Compton Dundon Infiltration Reduction Plan;
- Cromhall Infiltration Reduction Plan;
- Downton Infiltration Reduction Plan;
- Edington Infiltration Reduction Plan;
- Frome Infiltration Reduction Plan;
- Hurdcott Infiltration Reduction Plan;
- Long Sutton Infiltration Reduction Plan;
- Lower Stanton St Quinton Infiltration Reduction Plan;
- Meare Infiltration Reduction Plan;
- Melksham Infiltration Reduction Plan;
- Milborne St. Andrew Infiltration Reduction Plan;
- Muckleford Infiltration Reduction Plan;
- Oaksey and Eastcourt Infiltration Reduction Plan;
- Orcheston Infiltration Reduction Plan;
- Piddle Valley Inflow Management Report;
- Puddletown Infiltration Reduction Plan;
- Sutton Benger Infiltration Reduction Plan;
- Sturminster Marshall and Shapwick Infiltration Reduction Plan;
- Sydling St Nicholas Infiltration Reduction Plan;
- Wishford Infiltration Reduction Plan;
- Wookey Infiltration Reduction Plan.

²⁵ Wessex Water (2021) Groundwater Infiltration Reduction Plan Summary. Available online: <https://www.wessexwater.co.uk/environment/drainage-and-wastewater-management-plan/infiltration-reduction-plans> (Accessed 30/03/2023)

Alternative plan assessments

- 2.2.16 An important part of the SEA process is the assessment of reasonable alternatives. The assessment of all reasonable alternative generic option types ensured that consideration was given to all potential interventions.
- 2.2.17 SEA Regulation 12(2) requires the identification, description and evaluation of *“the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme”*. The EC guidance on the SEA Directive discusses possible interpretations of handling ‘reasonable alternatives’. It states that *“The alternatives chosen should be realistic. Part of the reason for studying alternatives is to find ways of reducing or avoiding the significant adverse effects of the proposed plan or programme. Part of the reason for studying alternatives is to find ways of reducing or avoiding the significant adverse effects of the proposed plan or programme”*. Echoing this, Government guidance of the SEA states *“Only reasonable, realistic and relevant alternatives need to be put forward. It is helpful if they are sufficiently distinct to enable meaningful comparisons to be made of the environmental implications of each”*. It is an area of plan making that has received considerable scrutiny and challenge.
- 2.2.18 For the purposes of the SEA, any other proposed programmes of interventions for each drainage area were considered as reasonable alternatives to the preferred programme.

3. How the findings of the Environmental Report have been taken into account

3.1 Overview

3.1.1 The SEA Environmental Report and DWMP have been developed in tandem. **Table 3.1** details key stages of the SEA and its relationship with the development of the DWMP.

Table 3.1 Key stages in the development of the Environmental Report and its relationship with the DWMP

Strategic Environmental Assessment	DWMP	Relationship
Scoping		
<p>The scoping stage of the SEA identified other relevant plans, programmes and environmental protection objectives which could be affected by, or which could affect, the DWMP.</p> <p>The scoping stage also characterised the relevant aspects of the current state of the environment and its evolution without the DWMP.</p>	<p>The DWMP used the plans and programmes identified to ensure that it was fully in compliance with local, national and international policy and legislation.</p> <p>Baseline information supported early optioneering.</p>	<p>The links between the other relevant plans, programmes, policies and strategies that were applicable to the DWMP and its Environmental Report were outlined. These included plans and programmes at an international, European or national level covering a variety of topics.</p> <p>Information on environmental issues helped determine constraints on the suitability of certain options.</p> <p>The SEA objectives ensured that the full range of social, economic and environmental issues was considered in the DWMP's development.</p>
Assessment		
<p>Testing the plan or programme objectives against the SEA objectives</p>	<p>The Environment Report and the DWMP were developed together.</p>	<p>The Environmental Report and option appraisals were jointly used to derive the DWMP.</p>
	<p>The DWMP considered generic options and high-level interventions.</p>	<p>Assessment of the high-level interventions helped to refine those taken forward in the DWMP.</p>
<p>The SEA assessed 16 generic option interventions including consideration of construction and operational effects</p>	<p>The range of generic interventions were considered for implementation in the DWMP.</p> <p>The option development process</p>	<p>The generic options were subject to a range of assessments including SEA, HRA and an appraisal of costs and benefits.</p>

Strategic Environmental Assessment	DWMP	Relationship
	mirrors the WRMP process, with unconstrained, feasible and preferred options being developed and subject to appraisal.	The findings of the SEA helped to identify the preferred programme of interventions.
The SEA assessed the likely range of feasible options for each L2 catchment area (Bristol Avon, Dorset, Hampshire Avon and Somerset). However, specific detail of option combinations will not be confirmed until detailed design is undertaken (which is outside the scope of the DWMP).	The preferred programme of interventions was identified to help address the identified risks (utilising the generic interventions previously assessed).	The preferred programme of feasible options for the L2 areas was subject to a range of assessments including SEA, HRA and an appraisal of costs and benefits.
The SEA included an assessment of plan alternatives comprised of any other programmes of intervention for each drainage area (incorporated through assessment of the 16 generic option types)	Consultation was undertaken on the DWMP to incorporate the opinions of stakeholders and customers on economic, customer and financial aspects of the DWMP.	The consideration of plan alternatives within the SEA helped to identify the preferred programme of interventions in the DWMP.
Reporting		
The key findings of the Environmental Report are presented along with Wessex Water's response in Table 3.2 below. The extent to which the findings have informed the final DWMP is detailed in Section 5 of this Post Adoption Statement.		
Consultation		
Responses to consultation on the Environmental Report are presented along with the Wessex Water's responses in Section 4 and Appendix B . The extent to which the consultation has informed the final DWMP is detailed in Section 5 of this Post Adoption Statement.		
Monitoring		
Proposals for monitoring identified in Section 6 of this Post Adoption Statement will be implemented by Wessex Water.		

3.2 Key findings of the SEA

- 3.2.1 As demonstrated in **Table 3.1** above, the SEA process has played an important role in the development of the DWMP. The key findings of the Environmental Report are summarised in **Table 3.2** together with Wessex Water's response.

Table 3.2 Key findings of the Environmental Report

SEA Objective	Key Environmental Report Findings	Response
1. To protect, restore and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species, enhanced ecosystem resilience, habitat connectivity and creation and contribute to the sustainable management of natural habitats and ecosystems.	<p>Given the high-level and strategic nature of the assessment, none of the blends of options identified would have effects on a designated site of nature conservation.</p> <p>The various combinations of feasible options seek primarily to increase treatment capacity and/or address surface water control measures. Such options therefore would result in an improvement in local water quality with some localised positive effects on water dependent designated conservation sites (if present) and biodiversity. Most of the options were identified as having a neutral effect.</p>	<p>The results of the findings are noted.</p> <p>Schemes will be designed to avoid potential habitat features. Where this is not possible, mitigation for locational specific effects on biodiversity will be considered during the planning phases of each of the individual schemes. Best practice procedures will be followed for all construction works and opportunities will be sought to go above and beyond standards set down in guidance. These issues would also be considered further at the project stage as part of the EIA process (as required).</p>
2. To protect and enhance soil quantity, quality and functionality and geodiversity and ensure the appropriate and efficient use of land.	<p>It is envisaged that many of the schemes required to deliver the blend of feasible options will require works within urban settings, with activities on existing developed areas and previously developed land (e.g. relaying/resizing of pipes/sewers) and relative to many other plans for new infrastructure will be more compatible with the SEA objective (both individually and cumulatively) for the preferential use of previously developed land. Where greenfield sites are affected, these are likely to be urban fringe sites, typically with poor soil quality, which the creation of new habitats associated with SuDs schemes, may help, over time to improve.</p>	<p>The results of the findings are noted.</p> <p>Future Wessex Water DWMPs will include the consideration of more detailed design and siting/screening opportunities, including the consideration of soil resources, land use and habitat creation.</p>
3. To protect and enhance the quality and quantity of surface and groundwater resources.	<p>Cumulative effects are most likely where schemes are located within the same L3 drainage area or L2 catchment.</p> <p>Many of the L2 feasible options have potential for improvement of the quality of receiving water during operation. In many instances, from the operation of the schemes, the cumulative effects of operating the schemes will be positive on water quality and quantity (by, for example, reducing nutrient load on rivers, improving bathing water quality and reducing risk of sewer flooding).</p>	<p>The results of the findings are noted.</p> <p>Uncertainty around this will be addressed during subsequent investigations under cycle 2 of the DWMP.</p>
4. To minimise, reduce or manage the risk and effects of flooding.	<p>Although there is uncertainty on the location of schemes at this stage (and therefore whether any are located in areas of flood risk that would require mitigation through appropriate measures) a range of options</p>	<p>The results of the findings are noted.</p> <p>Mitigation for flood risk will be considered during the planning phases of each of the individual schemes. Best practice</p>

SEA Objective	Key Environmental Report Findings	Response
	<p>identified for L2 catchments in the DWMP related to reducing flood risk, including from sewers, and surface water management would actively seek to reduce the risk of flooding. Cumulative positive effects are therefore likely.</p>	<p>procedures & Considerate Constructors Schemes will be followed for all construction works and opportunities will be sought to go above and beyond standards set down in guidance. These issues would also be considered further at the project stage as part of the EIA process (as required).</p>
<p>5. To minimise emissions of pollutant gases and particulates and enhance air quality.</p>	<p>Cumulative effects will occur within each L2 catchment with the more infrastructure schemes that are implemented within an area, the greater the potential for emissions, associated with construction of the proposed schemes. Cumulative effects on air quality will need to take into account the coincidence of proposed activities with locations designated as AQMAs (associated with either NO_x or PM₁₀), noting that for some locations the scale of additional vehicle movements may be incompatible with the requirements of the AQMA.</p>	<p>The findings of the assessment are noted.</p> <p>Mitigation will be considered during the planning phases of each of the individual schemes. Best practice procedures and Considerate Constructors Schemes will be followed for all construction works and opportunities will be sought to go above and beyond standards set down in guidance. Detailed air quality and transport assessments will be undertaken as part of the Environmental Impact Assessment (EIA) process (if/as required).</p> <p>Measures to mitigate air quality impacts arising from construction activities will be considered within a Construction and Environmental Management Plan. These measures may include, for example, dust suppression, use of lower emissions plant, and monitoring.</p>
<p>6. To reduce embodied and operational greenhouse gas emissions.</p>	<p>Effects are additive; the more schemes implemented within an area, the greater the amounts of materials and energy used (and the embodied and operational carbon emitted) and the greater the effects against this SEA objective. Cumulatively, and associated with the scale of future investment (although not fully clear at this stage), it is estimated that embodied carbon associated with all measures would involve substantial quantities of concrete and steel used. However, for many of the proposed schemes, once in use, it is anticipated that the energy use (and the associated operational carbon emissions) is likely to be relatively modest (within the context of Wessex Water's current energy use).</p>	<p>The findings of the assessment are noted.</p> <p>Measures to reduce greenhouse gas emissions during construction will be considered including, for example, the use of low(er) embodied carbon materials (including material reuse), low emission plant as well as consideration given to scheme design to lower operational energy use.</p>
<p>7. To adapt and improve resilience to the threats of climate change.</p>	<p>The Draft DWMP sets out how Wessex Water intends to extend, improve and maintain a robust and resilient drainage and wastewater system. It takes a long-term view, setting out a planning period that is appropriate to the risks faced, covering 25 years. The preparation of the DWMP has included taking into account flood risk</p>	<p>The findings of the assessment are noted.</p>

SEA Objective	Key Environmental Report Findings	Response
	<p>resilience. Many of the options seek to reduce the incidences of flooding through approaches to combined and foul sewer systems and surface water management, which will cumulatively support a positive effect on addressing the threats of climate change (SEA Objective 7).</p>	
<p>8. To promote a sustainable economy and maintain and enhance the economic and social well-being of local communities.</p>	<p>The DWMP covers a 25-year period. Cumulatively, if all feasible options are implemented this would have a significant cumulative capital expenditure value (although all scheme values are not known at this stage pending detailed design). Cumulatively, it is likely to represent a significant investment in essential infrastructure which would, given its longevity, create long term economic benefits and employment opportunities in the water and construction sectors across the Wessex Water area. Direct, indirect and induced employment opportunities, given the focused areas of investment could also be beneficial to the communities within the L2 catchments.</p>	<p>The findings of the assessment are noted.</p> <p>To maximise benefits to the local economy, Wessex Water will seek, where possible, to appoint local contractors/sub-contractors and use locally sourced materials.</p>
<p>9. To protect and enhance human health and well-being.</p>	<p>The DWMP, by reducing flooding and ensuring surface water and bathing water quality is maintained within statutory limits will also contribute cumulative to communities' health in the catchment areas. Additional greenspace areas created as the result of the implementation of SuDS infrastructure such as swales and wetlands, as part of the sustainable option type, may also lead to additional positive effects on community health and social wellbeing.</p>	<p>The findings of the assessment are noted.</p> <p>Best practice procedures (including the use of Considerate Constructors Schemes) will be followed for construction works and opportunities will be sought to go above and beyond standards set down in guidance.</p>
<p>10. To promote and enhance the sustainable and efficient use of resilient water resources.</p>	<p>The DWMP includes a range of measures aimed at increasing the resilience of the water and sewerage network, reducing spill frequencies, reducing the risk of flooding, addressing bathing water quality issues, and increasing wastewater treatment capacity across the Wessex Water. There are opportunities within these measures to contribute to surface and ground water flows, increasing resilience of the water resources available.</p>	<p>The findings of the assessment are noted.</p>
<p>11. To minimise waste, promote resource efficiency and move towards a circular economy.</p>	<p>Effects are additive; the more measures implemented within an area, the greater the amounts of materials and energy used and the greater the effects against this SEA objective.</p>	<p>The findings of the assessment are noted.</p> <p>Opportunities to utilise reused/recycled materials will be considered where appropriate. Construction wastes will also be reused/recycled where possible. Material will be sourced locally where possible.</p>

SEA Objective	Key Environmental Report Findings	Response
12. To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeological important sites.	Potential for cumulative effects on heritage assets where measures are located in close proximity to each other.	<p>The findings of the assessment are noted.</p> <p>Mitigation will be considered during the planning phases of each of the individual schemes and may include Heritage Impact Assessment at early design stages. Best practice procedures (including the use of Considerate Constructors Schemes) will be followed for construction works and opportunities will be sought to go above and beyond standards set down in guidance. These issues would also be considered further at the project stage as part of the EIA process (as required).</p>
13. To conserve, protect and enhance landscape and townscape character and visual amenity.	Potential for cumulative effects where measures are located in close proximity to each other. Effects will be greater for measures requiring new infrastructure in sensitive landscapes (AONB, National Parks).	<p>The findings of the assessment are noted.</p> <p>Mitigation will be considered during the planning phases of each of the individual schemes. Best practice procedures (including the use of Considerate Constructors Schemes) will be followed for construction works and opportunities will be sought to go above and beyond standards set down in guidance. These issues would also be considered further at the project stage as part of the EIA process (as required).</p>

4. How the opinions expressed in response to the consultation have been taken into account in preparing the Final Plan

4.1 Overview

4.1.1 Consultation has been an integral part of the SEA of DWMP. This has included the following main stages of consultation:

- consultation with the statutory SEA bodies on the scope of the SEA; and
- formal public consultation on the SEA Environmental Report of the Draft DWMP.

4.1.2 Consultation on the DWMP has included:

- numerous surveys, technical stakeholder groups, customer research and engagement activities throughout the process of developing the DWMP;
- working closely with the Wessex Water's independent customer and stakeholder challenge group 'the Customer Challenge Group';
- formal consultation on the Draft DWMP (alongside which the SEA Environmental Report was published); and
- publication of a Statement of Response, outlining how the comments received on the Draft DWMP have been considered in the development of the final DWMP.

4.1.3 A summary of the outcomes of the consultation on the SEA and Draft DWMP are provided in the sections that follow.

4.2 SEA Consultation

SEA scoping consultation

4.2.1 The first stage of the SEA was the production of a Scoping Report. This reviewed plans and programmes that could affect the DWMP or be affected by it, outlined baseline information for the plan area and set out the proposed framework for assessing potential environmental effects. The SEA Scoping Report²⁶ for the DWMP was issued for consultation to the statutory consultation bodies (the Environment Agency, Historic England, Natural England, Cadw, Natural Resources Wales, Welsh Government) for a five-week period ending 3rd June 2022.

4.2.2 Only two respondents responded to the consultation request, which was Historic England and Natural England. Their responses resulted in amendments to the baseline information and assessment framework that was used to assess the Draft DWMP (a schedule of

²⁶ Wood (2022) Drainage and Wastewater Management Plan Strategic Environmental Assessment Scoping Report (April 2022)

consultation responses to the Scoping Report was contained in Appendix B of the Environmental Report for the Draft DWMP).

Public consultation on the Environmental Report

- 4.2.3 Wessex Water published an Environmental Report alongside the Draft DWMP for consultation for 12 weeks from 30th June to 1st October 2022. The Environmental Report indicated that Wessex Water welcomed, in particular, views on whether consultees agreed:
- that the Environmental Report had correctly identified the likely significant effects of the Draft DWMP and if not, what other significant effects consultees thought had been missed, and why;
 - with the conclusions of the Environmental Report and the recommendations for mitigation and enhancement of significant effects; and
 - with the proposed arrangements for monitoring the significant effects of the implementation of the DWMP and if not, what measures would consultees propose.
- 4.2.4 Responses were received to the consultation from the Environment Agency, Historic England, Natural England and other organisations (a schedule of consultation responses to the Environmental Report of the Draft DWMP is set out in **Appendix B** of this report).

4.3 Consultation on the Draft DWMP

- 4.3.1 Wessex Water completed an extensive pre-consultation phase with regulators, stakeholders and customers prior to consultation on the Draft DWMP. Wessex Water engaged with the established Customer Challenge Group. Wessex Water engaged with stakeholders and customers throughout the development of the DWMP including setting the long-term targets, identifying areas of shared risks or opportunities, and determining options for the preferred plan.
- 4.3.2 The Draft DWMP was issued for public consultation for 12 weeks from 30th June to 1st October 2022. During the consultation process Wessex Water:
- Invited customers, partners and stakeholders make comments on the plan;
 - publicised the consultation on the Wessex Water corporate website;
 - held workshops with stakeholders and partners;
 - had ongoing 'business as usual' engagement with stakeholders and regulators within which the consultation was promoted and there were opportunities to discuss the plan.
- 4.3.3 In total, 22 consultation responses were received to the DWMP. The themes raised in the responses to the consultation are summarised in **Table 4.1** below. A summary of the responses received, and Wessex Water's replies is available in the Statement of Response document. The Statement of Response to the consultation describes how the responses to the consultation were taken into account and has been published alongside the final DWMP.

Table 4.1 Summary of Draft DWMP consultation feedback

Key themes arising from consultation	Summary of feedback received
Stakeholder Engagement	<ul style="list-style-type: none"> • Praise was given by a number of consultees for the level of information made available during consultations and housed on the online portal. It was noted that such information was often too technical to be easily interpreted. • Consultation materials relied upon water industry terminology and processes that obfuscate consultees understanding the material. • Several consultees identified a need for any stakeholder engagement carried out between the Draft DWMP and final DWMP to be quantified and recorded. • A number of consultees identified a need for Wessex Water to demonstrate how the DWMP has evolved based on the consultation it has received. • More targeted stakeholder engagement should be carried out for future DWMP cycles, especially with relevant local authorities & drainage boards.
Adaptive Planning	<ul style="list-style-type: none"> • Feedback on this topic was from Ofwat, which advised Wessex Water needed to demonstrate how uncertainties across the wider DWMP would be managed. They advised using scenario testing and adaptive planning to show how the final DWMP would adapt to changes in key factors. • They note the DWMP clearly demonstrates some use of adaptive planning, but that its use is currently lacking in detail.
Affordability / Investment Scenarios	<ul style="list-style-type: none"> • Greater clarity on how costs of upgrading/implementing and managing infrastructure would effect bills and associated costs should be clearly stated. • How increased costs will result in meeting/exceeding customer service expectations should be stated more clearly (value for money made clearer). • Improvements in asset maintenance should be categorised against base expenditure and be reflected in the DWMP, unless it can be evidenced such expenditure could be classed as enhancement activities.
Storm Overflows & Monitoring	<ul style="list-style-type: none"> • Wessex Water's commitment to monitoring all storm overflows by the end of 2023 was welcomed and supported. • Final DWMP should contain a more detailed and robust timeline (showing milestones and prioritisation) and evidence on the costs for storm overflow schemes and be aligned with Defra's Storm Overflow Discharge Reduction Plan timelines. • The final DWMP should identify how greening infrastructure/nature-based and low-carbon solutions to mitigating risks are maximised, in-line with DWMP Guiding Principles and Defra's Storm Overflow Discharge Reduction Plan guidance. • It was noted that high priority overflow areas need to be addressed now and the current timeline within the DWMP is not fast enough in addressing such concerns. • The DWMP should therefore show how the risk screening analysis for storm overflows impacting protected sites prepared by Natural England for Wessex Water has been considered.

Key themes arising from consultation	Summary of feedback received
Assurance	<ul style="list-style-type: none"> • DWMP should be bold and seize any and all opportunity to increase the effectiveness and delivery of SuDS schemes and maximise this delivery through alignment with the Partnership Programmes. • The demand for more wild water swimming opportunities within the Wessex region should factor into considering and prioritising storm overflow areas.
Cost Benefit	<ul style="list-style-type: none"> • Concern was expressed due to the cost benefits contained within the Draft DWMP resulted in few nature-based solutions being identified as the most cost effective. It was requested that this be re-examined.
Base vs Enhancement Activities (Asset Management)	<ul style="list-style-type: none"> • Need for the final DWMP to better identify how asset management and optimisation (base expenditure activities) can address some of the plans identified risks, before recommending enhancement schemes. • Draft DWMP was overly focused upon hydraulic capacity and enhancement and does not include or cover base capital maintenance expenditure, base operational expenditure and has no consideration of improving resilience through asset maintenance or optimisation. • Request for the final DWMP to consider the environmental impact of existing assets, particularly those which do not have schemes or interventions planned, is made clearer.
Cost Refinement	<ul style="list-style-type: none"> • The final DWMP should provide further refinement of when different schemes will come online to improve maturity of the cost profile within it.
Options Appraisal	<ul style="list-style-type: none"> • The final DWMP should more clearly identify and providing reason for why solutions are chosen or rejected and further detail of any underpinning methodology (i.e. what constitutes carbon or natural capital benefits). • The final DWMP should contain more detailed cost benefits analysis against the options and scenarios presented to better identify what solution is appropriate. • Nature-based solutions/options should be given greater importance within the final DWMP or at least further reason given for why such solutions/options were not picked as the preferred option. • It was noted that Wessex Water's decision-making was well developed within the Draft DWMP and the use of corporate decision-making tools to prioritise investment needs was appropriate.
Partnership Working	<ul style="list-style-type: none"> • Further detail was requested regarding how likely it was for the Draft DWMP's identified partnership schemes to occur would be and for timelines to be provided to help identify how such partnerships would progress/evolve. Such detail would then likely help Wessex Water be able to reason for why certain

Key themes arising from consultation	Summary of feedback received
	<p>partnerships more are stopped at certain stages, not progressed, or receive more investment than others.</p> <ul style="list-style-type: none"> It was noted that Wessex Water's approach and commitment to consultation has likely improved the success rate of the partnerships it is seeking to create during the implementation of the final DWMP (consultation with local authorities etc). Further praise was given regarding Wessex Water's partnership building and consultation, though it was noted by a number of consultees that the value of such work would be seen by how much the final DWMP achieves through implementing actual, physical improvements within the Wessex region. A number of consultees encouraged Wessex Water to share more of the underlying, unpublished data underpinning the DWMP to help in the building of further partnerships/informed partnerships. It was noted that the final DWMP should refer to the Local Flood Risk Management Strategy as creating potential partnership working opportunities. The final DWMP should increase the effective use of SuDS. Further communication/deeper relationships are needed with certain key consultees/partners such as the Somerset Catchment Partnership.
Nature Based Solutions / SuDS	<ul style="list-style-type: none"> Final DWMP should better clarify that tried-and-tested solutions would be deployed in parallel with encouraging innervation and newer, more natural solutions. Praise for the Draft DWMP considering nature based solutions. Concern expressed by a number of consultees that the chosen solution is primarily the default 'grey' solution and not a nature based solution.
Heritage, Environmental Impact & Climate Change	<ul style="list-style-type: none"> It was noted that potential effects on heritage assets identified through the SEA process would likely be mitigatable in reality, especially through the use of Heritage Impact Assessments to help inform development. Historic England does not monitor the condition of all designated heritage assets within England and the heritage records of local authorities should be consulted.
Infiltration	<ul style="list-style-type: none"> A list of the infiltration reduction plans and how to access them should be provided. Final DWMP should contain information regarding how water moves besides through ground water infiltration (i.e. contamination of groundwater from leaking sewers). Such scenarios should be considered. A list of infiltration reduction plans should be provided within the final DWMP and further explanation given regarding these plans.
Planning Policy	<ul style="list-style-type: none"> Praise was given for Wessex Water considering the growth of the Wessex region within the Draft DWMP. It was requested for Wessex Water to go further and do more to influence planning policy on national and local level to help ensure wider development appropriately uses elements such

Key themes arising from consultation	Summary of feedback received
Nutrient Neutrality	<p>as SuDS (for example) and manage their potential effects on the water environment better.</p> <ul style="list-style-type: none"> It was welcomed by consultees where the Draft DWMP referred to mitigating phosphorous in the Somerset WRC and the importance of chalk streams etc. A number of consultees identified that they expected nutrient neutrality to be mentioned/considered more often and in greater detail throughout the Draft DWMP. The final DWMP is expected to identify how it would reduce potential impacts on protected sites that are subject to nutrient-neutrality requirements. It was noted by consultees that delivering nutrient neutrality can be difficult. The final DWMP to prioritise chalk streams and designated waterbodies for the implementation of identified solutions over other elements, to ensure such assets are better protected/enhanced.
Drainage Strategies	<ul style="list-style-type: none"> Recommended that the final DWMP should identify opportunities to encourage a reduction in water use by residents, in line with the various Drainage and Wastewater Strategies that operate within the Wessex region. WRCs within the Wessex region that are at or close to capacity should be part of the short-term strategy of the DWMP, as such WRC's are likely to face issues sooner than others.
DWMP Report / Portal Improvements	<ul style="list-style-type: none"> Praise was given due to the quantity and quality of the information made available on the online portal. Information on the online portal was observed to often be very technical and not very friendly for lay-persons to read and understand. Further work to make more accessible documents/information available on the online portal would be valuable.
Other / General Comments	<ul style="list-style-type: none"> Potential for surface water drains to extend further out to sea should be considered.

4.3.4 The Statement of Response to the consultation describes how the responses to the consultation were considered in formalising the Final DWMP.

5. The reasons for choosing the DWMP as adopted, in light of the other reasonable alternatives dealt with

5.1 Reasons for the selection of the final DWMP

- 5.1.1 Wessex Water has chosen the final DWMP using industry good practice methods. This includes consideration of technical feasibility, financial costs and benefits, and quantified impacts on the environment and community, taking into account the findings of the SEA and HRA as well as ongoing engagement and input from customers and key stakeholders.
- 5.1.2 The overarching approach in the DWMP is set out in the established 12 Planning Objectives which set out the long term objectives. The 12 Planning Objectives form the broader context within which the consideration of options took place.
- 5.1.3 Through the options development phase of the DWMP process Wessex Water looked to mitigate the risks identified to customers through the Baseline Risk and Vulnerability Assessment (BRAVA). In recognition of the nature of drainage and wastewater, Wessex Water used an iterative screening process and approached options in a holistic way. Wessex Water developed option blends comprised of different options to address the identified challenges and risks within the L2 areas. The range of high-level interventions considered included (inter alia):
- Combined Foul and Sewer Systems;
 - Customer Management;
 - Indirect Measures;
 - Surface Water Management; and
 - Wastewater Treatment.
- 5.1.4 This approach to optioneering allowed Wessex Water to meet multiple performance targets and regulatory requirements even if all risks could not be resolved. The investment requirements through the Water Industry National Environment Programme (WINEP) were also explicitly considered through the RBCS process.

Finalisation of the DWMP

- 5.1.5 The Statement of Response sets out how the finalisation of the DWMP has taken into account feedback on the Draft DWMP. The final DWMP identifies the following key evolutions that have taken place since consultation on the Draft DWMP:
- Increased investment for nutrient neutrality, and other phosphorus-related improvements, which has increased investment by 2030.
 - investment in storm overflow improvements by 2030 has been increased to ensure Wessex Water deliver the government's storm overflow discharge reduction plan.
 - updated the reports and strategies to include more detail of the quantum of known environmental improvements for the period 2025 to 2030.

- More focus on nature based solutions.
- Adaptive planning and common reference scenarios have been incorporated, including more detail on climate change sensitivity.
- More detail on partnership working schemes potential for the short to medium term.
- Replaced the Draft DWMP scenarios and replaced with Best Value (core) plan and adaptive plans.
- Updated the environment report.
- Included initial feedback about affordability from new customer engagement.

5.1.6 The final DWMP has two scenarios, the core scenario and one to completely eliminate untreated discharges by 2050. Adaptive planning has been applied to the core scenario to consider the effects of uncertainty using Ofwat's common reference scenarios.

5.1.7 The core scenario has been increased from the Draft DWMP plan to be sufficient to outperform delivery of the government's storm overflow discharge reduction plan (SODRP) improvements to the Environment Act's requirements. This improves storm overflows to discharge no more than 10 times per year on average by 2050, with a prioritised programme. Overflows discharging to environmentally sensitive waterbodies (e.g. Bathing water, shellfish waters, chalk streams, designated environmental sites) need improving by 2045 and may require a higher standard so that the overflow has no local ecological harm. There is still some uncertainty with this aspect and Wessex Water is committed to ensure it undertakes detailed investigations by 2027 and for the Storm Overflow Assessment Framework (SOAF) is updated²⁷.

5.1.8 The DWMP will be renewed on a five yearly basis. Wessex Water will continue to develop the DWMP into Cycle 2. Wessex Water has already identified that Cycle 2 of the DWMP should include more information regarding adaptive plans, especially adaptive plans relating to rising sea levels and new technology and how its application can help to address identified/evolving issues.

²⁷ Wessex Water (2023) The Wessex Area Drainage and Wastewater Management Plan Final Plan. [Accessed May 2023]. Page 6.

6. The measures decided concerning monitoring

6.1 Monitoring the effects of the DWMP

- 6.1.1 The SEA Regulations require the significant environmental effects of implementing a plan to be monitored. Monitoring the effects of the DWMP can help to answer questions such as:
- Were the SEA predictions of effects accurate?
 - Is the DWMP contributing to the achievement of the SEA objectives?
 - Are mitigation measures performing as well as expected?
 - Are there any adverse effects? Are these within acceptable limits, or is remedial action desirable?
- 6.1.2 Wessex Water expects to monitor the effects of the DWMP alongside the other impacts of its operations, and as such, is likely to rely on existing sources of information that are collected either by Wessex Water or by other relevant organisations such as the Environment Agency, Natural England or Natural Resources Wales. For example, Wessex Water already collects certain data for an annual review process (the Annual Performance Report) that is submitted to the Office of Water Services (Ofwat) and their own environmental reporting.
- 6.1.3 Consistent with the proposals of the Environmental Report, potential effects against all the SEA objectives have been included in the monitoring framework, which is set out in **Table 6.1**. Wessex Water will take a broad view of the findings of their ongoing monitoring processes to identify whether the DWMP has any significant unforeseen effects. Where these are identified, Wessex Water may be required to put in place specific monitoring arrangements and will consider how best to mitigate or avoid the adverse consequences. The Annual Performance Report is key to this as it will:
- Collate information on any material changes in the area, arising from new evidence or expert knowledge that changes our forecasts.
 - Consider the progress of any projects, or other expected information to support the next iteration of the plan.
 - Assess whether the material changes or the anticipated progress on initiatives will influence the conclusions of the published plan²⁸.

Table 6.1 Indicators for Monitoring Effects

Objective	Indicator	Source of Information	Commentary
1. To protect, restore and enhance biodiversity, including designated sites of	Condition of specific protected sites (e.g. SACs, SPAs, SSSIs)	Wessex Water, Environment Agency (EA) Natural England (NE),	Additionally, open communication between EA, NE and Wessex Water results in up-to-

²⁸ Ibid, page 146.

<p>nature conservation interest and protected habitats and species, enhanced ecosystem resilience, habitat connectivity and creation and contribute to the sustainable management of natural habitats and ecosystems.</p>			<p>date information and identification of any potential issues.</p>
	<p>Biological monitoring (macroinvertebrates, macrophytes, fisheries, bird surveys)</p>	<p>Wessex Water, EA, NE</p>	<p>Monitoring/investigations support this indicator.</p>
<p>2. To protect and enhance soil quantity, quality and functionality and geodiversity and ensure the appropriate and efficient use of land.</p>	<p>Area of previously undeveloped land used during construction</p>	<p>Wessex Water</p>	<p>Wessex Water could record the area of previously undeveloped land that is built on as a result of the DWMP scheme, linked to biodiversity net gain/resilience.</p>
	<p>Condition of sites designated for geological interest (e.g. geological SSSIs) on water industry land holdings</p>	<p>Wessex Water, NE</p>	<p>Previous studies may also be used to inform monitoring and assessment.</p>
<p>3. To protect and enhance the quality and quantity of surface and groundwater resources.</p>	<p>River flows, river levels, lake and reservoir levels. Water quality of surface waters. Groundwater levels, recharge characteristics and abstracted groundwater quality</p>	<p>Wessex Water, EA</p>	<p>Previous studies may also be used to inform monitoring and assessment.</p>
<p>4. To reduce or manage flood risk.</p>	<p>Internal Sewer Flooding External Sewer Flooding Risk of sewer flooding in a storm</p>	<p>Wessex Water, EA</p>	<p>Wessex Water measure the number of incidents per year and keep a record of all flooding incidents per year.</p>
<p>5. To minimise emissions of pollutant gases and particulates and enhance air quality.</p>	<p>Number of vehicle movements/distance travelled</p>	<p>Wessex Water</p>	<p>Wessex Water could consider recording the number of vehicle movements and distance travelled as an indicator of air quality impacts during implementation.</p>

<p>6. To reduce greenhouse gas emissions.</p>	<p>Quantity of greenhouse gas emissions per megalitre of water supplied.</p>	<p>Wessex Water</p>	<p>Wessex Water energy managers can use company data, and guidance from the UKWIR greenhouse gas workbook and BEIS (Department for Business, Energy & Industrial Strategy) conversion factors to derive this information.</p>
	<p>Energy use used in the operation of options.</p>	<p>Wessex Water</p>	<p>Wessex Water should hold and record energy consumption data e.g. via accounts / invoices.</p>
	<p>Renewable energy generated or purchased.</p>	<p>Wessex Water</p>	<p>Wessex Water should record renewable energy generation data, in addition to data on renewable energy purchased e.g. via accounts / invoices.</p>
<p>7. To adapt and improve resilience to the threats of climate change.</p>	<p>Internal Sewer Flooding External Sewer Flooding</p>	<p>Wessex Water, EA</p>	<p>Wessex Water measure the number of incidents per year and keep a record of all flooding incidents per year.</p>
<p>8. To promote a sustainable economy and maintain and enhance the economic and social well-being of local communities.</p>	<p>Number of Wessex Water sites with public access which provide sporting, recreational and leisure resources and number of visits per year.</p>	<p>Wessex Water</p>	<p>Wessex Water hold information on the number of annual visitors to sites where specific visitor facilities. These could be analysed to determine effects of operation on visitor use.</p>
	<p>Planned residential new development (informing predicted growth forecast to target catchments requiring investigations for potential future capacity constraints).</p>	<p>Wessex Water</p>	<p>Wessex Water examine information on planned growth and forecasts across LPA within the area.</p>
<p>9. To protect and enhance human health and well-being.</p>	<p>Compliance with drinking water standards at customers' taps (%).</p>	<p>Wessex Water</p>	<p>Wessex Water reports these data to Ofwat as part of the statutory returns process (Annual Performance Report) and to the Drinking Water Inspectorate.</p>

	Compliance with water quality standards under the EC Bathing Waters Directive.	EA	EA monitors the compliance of bathing waters and report this annually.
	Number of nuisance-related complaints e.g. noise, dust.	Wessex Water	Wessex Water could record the number of nuisance-related complaints made in relation to implementation of the DWMP.
	Pollution Incidents Internal Sewer Flooding External Sewer Flooding Sewer Collapses Sewer Blockages	Wessex Water, EA	Wessex Water measure the number of pollution incidents per year and keep a record of all flooding incidents per year and maintain a list of intermittent discharges.
10. To promote and enhance the sustainable and efficient use of resilient water resources.	Leakage Water saved through demand management/ water efficiency measures	Wessex Water	Wessex Water report these data to Ofwat as part of the annual returns process.
11. To minimise waste, promote resource efficiency and move towards a circular economy.	Amount of recycled / reused materials used	Wessex Water (contractors/consultants)	Information on the use of recycled / reused materials should be held by construction managers and accounts (contractors / consultants accounts, waste or procurement records).
	Proportion of waste sent to landfill	Wessex Water (services data)	Information on waste disposal to landfill should be held by Wessex Water.
	Chemicals Use in Water Treatment	Wessex Water (services data)	Information (quantities, composition) on chemical use should be held in accounts.
12. To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeological important sites.	Loss / damage or discovery / protection of cultural, historic and industrial heritage features.	Wessex Water, Historic England, relevant local planning authorities (LPAs)	Historic England and LPAs monitor the condition of statutorily protected monuments. This is supplemented by information held by local authority conservation and archaeological advisers.

13. To conserve, protect and enhance landscape and townscape character and visual amenity.

Loss or damage to landscape character and features of designated sites.

Wessex Water

Wessex Water could record the number and size of infrastructure built within designated landscape sites.

Appendix A

SEA Quality Assurance Checklist

Table A.1 details the SEA Regulations' requirements of the Post Adoption Procedures and indicates where relevant information required can be found in this report.

Table A.1 Compliance of this report with the requirements of the SEA Regulations

SEA Regulations Requirement	Location in the Post Adoption Statement (where appropriate)
Information as to adoption of plan or programme (SEA regulation 16)	
<p>(1) As soon as reasonably practicable after the adoption of a plan or programme for which an environmental assessment has been carried out under these Regulations, the responsible authority shall -</p> <p>(a) make a copy of the plan or programme and its accompanying environmental report available at its principal office for inspection by the public at all reasonable times and free of charge; and</p> <p>(b) take such steps as it considers appropriate to bring to the attention of the public</p> <p style="padding-left: 20px;">(i) the title of the plan or programme;</p> <p style="padding-left: 20px;">(ii) the date on which it was adopted;</p> <p style="padding-left: 20px;">(iii) the address (which may include a website) at which a copy of it and of its accompanying environmental report, and of a statement containing the particulars specified in paragraph (4), may be viewed or from which a copy may be obtained;</p> <p style="padding-left: 20px;">(iv) the times at which inspection may be made; and</p> <p>(v) that inspection may be made free of charge.</p>	<p>A copy of the DWMP and accompanying reports and documentation is available at:</p> <p>https://corporate.wessexwater.co.uk/our-future/our-plans/drainage-and-wastewater-management-plan</p> <p>A paper copy of the DWMP, Environmental Report and this Post Adoption Statement are available for public viewing on request at:</p> <p>Wessex Water Claverton Down Bath BA2 7WW</p> <p>The office is open from 9am until 5pm Monday to Friday.</p>
<p>(2) As soon as reasonably practicable after the adoption of a plan or programme -</p> <p>(a) the responsible authority shall inform—</p> <p style="padding-left: 20px;">(i) the consultation bodies;</p> <p style="padding-left: 20px;">(ii) the persons who, in relation to the plan or programme, were public consultees for the purposes of regulation 13; and</p>	<p>A copy of the DWMP and accompanying reports and documentation is available at:</p> <p>https://corporate.wessexwater.co.uk/our-future/our-plans/drainage-and-wastewater-management-plan</p> <p>This Post Adoption Statement addresses (iii) and contains particulars specified in paragraph (4) as outlined below.</p>

SEA Regulations Requirement	Location in the Post Adoption Statement (where appropriate)
<p>(iii) where the responsible authority is not the Secretary of State, the Secretary of State;</p> <p>and</p> <p>(b) the Secretary of State shall inform the Member State with which consultations in relation to the matters referred to in paragraph 3.</p> <p>(3) The matters are -</p> <p>(a) that the plan or programme has been adopted;</p> <p>(b) the date on which it was adopted; and</p> <p>(c) the address (which may include a website) at which a copy of—</p> <p>(i) the plan or programme, as adopted,</p> <p>(ii) its accompanying environmental report, and</p> <p>(iii) a statement containing the particulars specified in paragraph (4), may be viewed, or from which a copy may be obtained.</p>	
<p>(4) The particulars referred to in paragraphs (1)(b)(iii) and (3)(c)(iii) are -</p>	
<p>(a) how environmental considerations have been integrated into the plan or programme;</p>	Section 2
<p>(b) how the environmental report has been taken into account;</p>	Section 3
<p>(c) how opinions expressed in response to -</p> <p>(i) the invitation referred to in regulation 13(2)(d);</p> <p>(ii) action taken by the responsible authority in accordance with regulation 13(4),</p> <p>- have been taken into account;</p>	<p>Section 3 and Wessex Water Statement of Response, available at:</p> <p>https://corporate.wessexwater.co.uk/our-future/our-plans/drainage-and-wastewater-management-plan</p>
<p>(d) how the results of any consultations entered into under regulation 14(4) have been taken into account;</p>	Not applicable - no transboundary consultation with EU Member States took place
<p>(e) the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with; and</p>	Section 5
<p>(f) the measures that are to be taken to monitor the significant environmental effects of the implementation of the plan or programme.</p>	Section 6.
<p>Monitoring of implementation of plans and programmes (SEA regulation 17) Content</p>	

SEA Regulations Requirement	Location in the Post Adoption Statement (where appropriate)
(1) The responsible authority shall monitor the significant environmental effects of the implementation of each plan or programme with the purpose of identifying unforeseen adverse effects at an early stage and being able to undertake appropriate remedial action.	Monitoring procedures are set out in Section 6. Wessex Water will identify effects and undertake remedial action (as necessary) as the DWMP is implemented.
(2) The responsible authority's monitoring arrangements may comprise or include arrangements established otherwise than for the express purpose of complying with paragraph (1).	The monitoring procedures set out in Section 6 will complement existing monitoring arrangements where possible.

Appendix B

Consultation responses

Table B.1 Summary of the consultation responses (on the Environmental Report accompanying the Draft DWMP)

Respondent ID/Name	Consultee Response Summary	Response/Action
Environment Agency	Acknowledges the limitations of the SEA due to the lack of specific details on options and the need for further modelling. This further modelling should be identified within the proposed monitoring of the plan.	<p>Comment noted.</p> <p>Wessex Water, as stated within this PAS document, is committed to monitoring the effects of the final DWMP. As part of this, Wessex Water will monitor whether the effects predicted within the Environmental Report are accurate and update future cycles ('cycle 2') of the DWMP as needed to ensure environmental effects are identified and addressed.</p>
Environment Agency	Clarification of whether EA did or did not provide comments on the scoping report and if they did, how have they been addressed. The Draft DWMP suggests there have been comments provided but none are listed in the scoping report consultation response in Appendix B.	<p>Comment noted.</p> <p>The EA did not provide comments on the Scoping Report. Appendix B of the Environmental Report is correct. The respondents are clarified in Section 4.2 of the PAS.</p>
Environment Agency	Figures showing the boundaries of the Level 1 and Level 2 management catchments need to be provided in the introductory chapter (currently there is only a very small non-labelled figure).	<p>Comment noted.</p> <p>Figures have been provided within the introductory section (Section 1) of this PAS that meets the requirements of this request.</p>
Environment Agency	A table summarising Key Policy Objectives Identified in Other Plans and Programmes relevant to the Assessment of the DWMP is needed in Chapter 3 as this summary is currently missing so it is not clear how the review of other plans and programmes have informed the assessment.	<p>Comment noted.</p> <p>Section 2 of the Environmental Report presents an overview of the more than 200 international/European, national, regional/sub-regional and local level plans and programmes that have been reviewed. Appendix C of the Environmental Report contains a record of these plans and programmes, outlining how they have been considered within the assessment. Text within the Environmental Report (Section 2.1 and 4.3) also outline how the plans and programmes have influenced the assessment. A further summary of the plans and programmes within the main report is noted as being complementary to the approach already taken but is not a requirement in the SEA regulations.</p>
Environment Agency	The methodology for the assessment of infiltration reduction plans (L3) needs to be provided in Section 4 (and referred to in the relevant part of the NTS) as this is currently missing. A list of the infiltration reduction plans should also	<p>Comment noted.</p> <p>Section 4.4 of the Environmental Report presents the approach to the assessment. This has been consistently applied to the elements included in the</p>

Respondent ID/Name	Consultee Response Summary	Response/Action
	be provided in the main text for clarity and the URL link to where they can be accessed (this appears in footnote 100).	Draft DWMP. There are no specific amendments made to the assessment of the Infiltration Plans. For the purposes of clarity, a list of the Infiltration Reduction Plans has been provided within Section 2.2.18 of the PAS document and a reference to the source of these plans is provided at the end of this response ²⁹ .
Environment Agency	A careful proof reading is needed to ensure that the correct Appendix is being referred to in the main text.	Comment noted.
Natural England	<p>The government has set out the priorities and expectations for drainage and wastewater management plans. One of the six key guiding principles was to “Consider the impact of drainage systems on immediate and wider environmental outcomes including habitats and in developing options for mitigation to include consideration of environmental net gain and enhancement”.</p> <p>Further to this, Governments’ 16 March 2022 policy paper Nutrient pollution: reducing the impacts on protected sites makes clear the importance of DWMPs in addressing pollution on protected sites subject to nutrient-neutrality requirements.</p> <p>There should be a clear overview of the impact of Wessex Water’s drainage system on the environment, particularly protected sites and priority 25 Year Environmental Plan objectives.</p> <p>Greater emphasis should be placed within the DWMP in addressing pollution on protected sites and for the SEA commentary on this issue to provide greater detail and consideration of the potential effects.</p>	<p>Comment noted.</p> <p>Section 5.1 of the DWMP sets out the six planning objectives that were agreed to be investigated by all water companies. These include pollution risk and water recycling centre compliance. Wessex Water has worked with key stakeholders in the selection of six additional bespoke planning objectives, which has included waterbodies (river water quality) improvements. These objectives have then been reflected in the development and refinement of the DWMP, which has followed the application of the DWMP framework.</p> <p>Pollution was identified as a key environmental issue within Table 3.15 of the Environmental Report, with information presented in Section 3 (notably 3.2 and 3.4, which summarises the WINEP). Consistent with the requirements of SEA regulation 12 (2), the Environmental Report has then identified, described and evaluated the likely significant effects of the DWMP proposals (and any reasonable alternatives).</p> <p>A summary of likely effects is provided within Section 5.3.7 of the Environmental Report, with potential cumulative effects summarised within Table 5.8.</p>

²⁹ Wessex Water (2021) Groundwater Infiltration Reduction Plan Summary. Available online: <https://www.wessexwater.co.uk/environment/drainage-and-wastewater-management-plan/infiltration-reduction-plans> (Accessed 30/03/2023)

Respondent ID/Name	Consultee Response Summary	Response/Action
Natural England	The Draft DWMP, including the associated environmental reports, does not consider the impact of current drainage systems on the environment. Instead, it considers only the impact of the interventions and schemes proposed in the drainage strategies.	<p>Comment noted.</p> <p>Consistent with the requirements of SEA regulation 12 (2), the Environmental Report has then identified, described and evaluated the likely significant effects of the DWMP proposals (and any reasonable alternatives). Section 3.4 of the Environmental Report does establish a baseline for the water environment for the Wessex region.</p>
Natural England	It is unclear to us whether surface water draining into Wessex Water infrastructure and then into the environment becomes Wessex Water's responsibility to manage, where significant environmental risks or impacts are demonstrated. This issue should be addressed within the DWMP and relevant environmental requirements, such as HRA and 25 Year Environment Plan objectives should be taken into account.	<p>Comment noted.</p> <p>Consistent with the requirements of SEA regulation 12 (2), the Environmental Report has then identified, described and evaluated the likely significant effects of the DWMP proposals (and any reasonable alternatives).</p>
Natural England	Clarity is needed regarding how protected sites have had their sensitivity and degree of impact from Wessex Water assets assessed and how a strategic approach can contribute towards a recovery of such sites. This would be needed to meet HRA requirements.	<p>Comment noted.</p> <p>The SEA and HRA of the DWMP are strategic assessments, proportionate to the level of detail available. For example, Section 3.2 of the Environmental Report presents an overview of the designated sites and features within the Wessex operation area, included figures that delineate the sites and areas designated. Section 4 sets out the approach to assessment which includes designated conservation sites. Where location specific information has then be identified, this has been then reflected in the assessment of likely significant effects.</p>
Natural England	Assessments should further consider the effects of the drainage system as a whole.	<p>Comment noted.</p> <p>Consistent with the requirements of SEA regulation 12 (2), the Environmental Report has then identified, described and evaluated the likely significant effects of the DWMP proposals (and any reasonable alternatives). Section 3.4 of the Environmental Report does establish a baseline for the water environment for the Wessex region.</p>

Respondent ID/Name	Consultee Response Summary	Response/Action
Historic England	Historic England welcome the responses to our previous comments at SEA scoping stage in June 2022 as set out in Table B1 of the SEA Environmental Report.	Support noted.
Historic England	Historic England is pleased to see that the SEA Environmental Report has sought to appraise the likely effects on cultural heritage/historic environment of interventions (high level generic options and feasible options 'blends' at catchment area levels), reasonable alternatives, as well as cumulative and other effects. This work has then informed the preferred programme of options presented in the Draft DWMP and the associated investment needs.	Support noted.
Historic England	Acknowledged the difficulty of undertaking an SEA without detailed information and notes the SEA identified some adverse and uncertain effects on heritage assets. Historic England noted that such adverse / uncertain effects could be managed/mitigated as schemes develop and though the use of Heritage Impacts Assessment which should be developed at the early design phase.	Comment and advice noted. The potential for the use of Heritage Impacts Assessments (where relevant) to help inform early detailed scheme development is noted in Table 3.2 of this document.
Historic England	Section 6.4 Monitoring the Effects of the DWMP and in particular, Table 6.1 Potential Indicator for Monitoring Effects. Objective 12 (historic environment) may unintentionally convey that Historic England monitors the condition of all designated heritage assets.	Comment noted. The monitoring indicator text (Table 6.1) has been revised to reflect the comment.
Dorset Catchment Partnership	Requests the DWMP to further consider Bathing Waters (e.g. Fiddleford Manor, Eyebridge, and Stour Valley Nature Reserve on the Dorset Stour, or Moreton Ford and Wareham Bridge on the Dorset Frome).	Comment noted. The baseline for the water environment within the Wessex Region is identified within Section 3.4 of the Environmental Report and bathing waters within Section 3.8. Bathing waters were also included as part of an assessment guide question under SEA Objective 9 (Human Health). The final DWMP includes information on bathing waters.

Respondent ID/Name	Consultee Response Summary	Response/Action
Somerset Catchment Partnership	Suggests further mitigation for water assets on a local level (e.g. at a waterbody level).	<p>Comment noted.</p> <p>The DWMP is high level in nature. Section 5.6 of the Environmental Report contains identified and considered mitigation. Section 6 of the Environmental Report identified the next steps for the DWMP and how its potential effects will be monitored and reviewed in the future.</p>
Somerset Catchment Partnership	Requests a stronger focus on aquatic biodiversity, with greater consideration of biodiversity targets and Local Nature Recovery Strategies.	<p>Comment noted.</p> <p>The DWMP is high level in nature but has been informed by legislation, guidance and local Plans and Programmes. SEA Objective 1 included consideration of effects on biodiversity.</p>
Somerset Catchment Partnership	Requests DWMP makes reference to invasive non-native species and their prevention.	<p>Comment for the DWMP noted.</p> <p>The SEA considered potential for effects under SEA Objective 1 (Biodiversity). This included a guide question: The need to control the spread of Invasive Non-Native Species (INNS).</p>
Somerset Catchment Partnership	Suggests further emphasis and prioritisation on protecting designated sites, such as RAMSARs, Sites of Special Scientific Interest etc.	<p>Comment noted.</p> <p>The DWMP is high level in nature but potential effects on designated sites have been considered within the Environment Report, linked to the application of SEA Objective 1 (Biodiversity) in the assessment.</p>
BACP	Any pre and post development monitoring must be robust and focus on aquatic biodiversity.	<p>Comment noted.</p> <p>Section 6 of the Environmental Report identifies the next steps and monitoring for the DWMP. This includes monitoring for biodiversity impacts. The SEA process is necessarily at a high level at this stage of the DWMP with monitoring reflective of that process. It is noted that future cycles of the DWMP will contain detailed scheme implementation information that would allow for potential monitoring of specific matters.</p>

Respondent ID/Name	Consultee Response Summary	Response/Action
Drainage Board	Requests DWMP makes reference to invasive non-native species and their prevention.	Comment for the DWMP noted. The SEA considered potential for effects under SEA Objective 1 (Biodiversity). This included a guide question: The need to control the spread of Invasive Non-Native Species (INNS).





Wessex Water

Drainage and Wastewater Management Plan

Habitats Regulations Assessment





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1. Introduction

1.1 Wessex Water's Drainage and Wastewater Management Plan

- 1.1.1 Wessex Water as one of the thirteen UK's water and sewerage companies (WaSCs) is currently preparing its first Drainage and Wastewater Management Plan (DWMP). The DWMP is new, and whilst not currently a statutory obligation¹, Wessex Water has committed to produce a DWMP in accordance with the Water UK DWMP Framework² (the Framework).
- 1.1.2 The DWMP sets out how Wessex Water intends to extend, improve and maintain a robust and resilient drainage and wastewater system. The plan takes a long-term view, setting out responses to challenges over a planning period of at least 25 years. The draft DWMP was published for consultation and has now been finalised to support business plans for the 2024 Price Review. DWMPs are not currently a statutory requirement, and so this issue of the plan is being treated as a 'dry-run' to refine the approaches used for the DWMP development and the associated environmental assessments.

1.2 Habitats Regulations Assessment

- 1.2.1 Regulations 63 and 64 of *The Conservation of Habitats and Species Regulations 2017* (as amended) (the 'Habitats Regulations')³ transpose the provisions of Articles 6(3) and 6(4) of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') as they relate to plans or projects in England and Wales.

¹ Section 78 (1) of the Environment Bill states that "Each sewerage undertaker must prepare, publish and maintain a drainage and sewerage management plan". The Bill is at report stage, with the third reading and royal assent awaited.

² Water UK in collaboration with Defra, Welsh Government, Ofwat, Environment Agency, Natural Resources Wales, Consumer Council for Water, ADEPT and Blueprint for Water (2019) A framework for the production of Drainage and Wastewater Management Plans

³ The 2017 Regulations have been amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 to reflect the UK's exit from the EU, although these largely carried forward the provisions and terminology of the 2017 Regulations and do not fundamentally alter their interpretation. The following sections therefore refer to the 2017 Regulations and (where appropriate for clarity) the relevant provisions of the Habitats Directive.

- 1.2.2 Regulation 63 states that if a plan or project is “(a) is likely to have a significant effect on a European site⁴ or a European offshore marine site⁵ (either alone or in combination with other plans or projects); and (b) is not directly connected with or necessary to the management of the site” then the competent authority must “...make an appropriate assessment of the implications of the plan or project for that site in view of that site’s conservation objectives” before undertaking, consenting or permitting the plan or project. The plan or project can only be given effect if it can be concluded (following an ‘appropriate assessment’) that it “...will not adversely affect the integrity” of a site, unless the provisions of Regulation 64 are met.
- 1.2.3 The process by which Regulation 63 is met is known as Habitats Regulations Assessment (HRA)⁶. An HRA determines whether there will be any ‘likely significant effects’ (LSE) on any European site as a result of a plan or project’s implementation (either on its own or ‘in combination’ with other plans or projects)⁷ and, if so, whether there will be any ‘adverse effects on site integrity’⁸.

1.3 This Report

- 1.3.1 As noted, DWMPs are not currently a statutory requirement. Wessex Water has agreed to informally apply the principles of HRA (and Strategic Environmental Assessment, SEA) to this version of the plan to test suitable approaches for future DWMPs, and has therefore appointed Wood Group UK Limited (Wood) to assist with its assessment of the DWMP against the provisions of Regulations 63 and (if required) 64.
- 1.3.2 DWMPs are novel plans and there is currently no guidance or case-practice to suggest a suitable approach for their assessment against the Habitats Regulations. Whilst they will have some developmental similarities to Water Resource Management Plans (WRMPs) there are several critical differences that inhibit the direct application of established WRMP assessment practices. In particular, the ‘options-led’ iterative assessment approach that is common to WRMP HRAs is not easily transferrable to DWMPs due to the number of catchments and options, and the absence of substantive detail on many options.

⁴ The term ‘European site’ is currently retained by the *Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019* and for all practical purposes the definition is essentially unchanged. European sites are therefore: any Special Area of Conservation (SAC) from the point at which the European Commission and the UK Government agreed the site as a ‘Site of Community Importance’ (SCI) (if this was before 31 Jan 2020); any classified Special Protection Area (SPA); and any candidate SAC (cSAC). However, the term is also commonly used when referring to potential SPAs (pSPAs), to which the provisions of Article 4(4) of Directive 2009/147/EC (the ‘new wild birds directive’) are applied; and to possible SACs (pSACs) and listed Ramsar Sites, to which the provisions of the Habitats Regulations are applied a matter of Government policy (NPPF para. 181) when considering development proposals that may affect them. This also applies to areas identified, or required, as compensatory measures for adverse effects on any of the above sites. “European site” is therefore used in this document in its broadest sense, as an umbrella term for all of the above designated sites. Note, it is likely that this term will be supplanted at some point in the future although an appropriate UK-wide alternative has not yet been agreed (e.g. the NPPF in England has adopted the term ‘Habitats sites’ to refer collectively to those sites defined by Regulation 8; the *Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019* has renamed the Natura 2000 network of sites as the ‘National Site Network’).

⁵ ‘European offshore marine sites’ are defined by Regulation 18 of *The Conservation of Offshore Marine Habitats and Species Regulations 2017*; these regulations cover waters (and hence sites) over 12 nautical miles from the coast.

⁶ The term ‘Appropriate Assessment’ has been historically used to describe the process of assessment; however, the process is more accurately termed ‘Habitats Regulations Assessment’ (HRA), with the term ‘Appropriate Assessment’ limited to the specific stage within the process.

⁷ Also referred to as the ‘test of significance’.

⁸ Also referred to as the ‘integrity test’.

1.3.3 This report applies the tests within Regulation 63 to the DWMP; the remainder of this report sets out:

- a brief summary of the DWMP and options (**Section 2**);
- the approach to HRA of the DWMP, including the key issues for these strategic plans (**Section 3**);
- a summary of the options screening and appropriate assessment (**Section 4**); and
- the conclusion of the HRA of Wessex Water's DWMP (**Section 5**).

2. Summary of the DWMP

2.1 Drainage and Wastewater Management Plans

2.1.1 WaSCs have been asked to produce DWMPs for the first time, following the guidance of the Framework⁹. This Framework has been developed in collaboration with other regulating bodies that serve to protect communities and the environment. In supporting the business planning process, the Framework has been developed such that, through DWMPs, companies:

- set out the company's assessment of long-term drainage and wastewater capacity and the drivers, risks and scenarios being planned for;
- assess where (largely drainage) infrastructure managed by other stakeholders may impose additional risks to drainage and wastewater services; and
- identify those options that offer best value to customers and the environment, ensuring robust, resilient and sustainable drainage and wastewater services in the long-term.

2.1.2 The Framework outlines the following stages for DWMP development:

- Strategic Context;
- Risk Based Catchment Screening (RBCS);
- Baseline Risk and Vulnerability Assessment (BRAVA);
- Problem Characterisation;
- Options Development and Appraisal;
- Programme Appraisal; and
- Final DWMP Programme.

2.1.3 These have then been consistently and systematically applied by WaSCs to develop the first cycle of DWMPs.

⁹ Water UK in collaboration with Defra, Welsh Government, Ofwat, Environment Agency, Natural Resources Wales, Consumer Council for Water, ADEPT and Blueprint for Water (2019) *A framework for the production of Drainage and Wastewater Management Plans*.

2.2 Wessex Water's DWMP

Overview

2.2.1 Wessex Water provides water and wastewater services to around 2.8m customers in the South West of England with assets and infrastructure including 35,000km sewers, 2,100 pumping stations and 400 water recycling centres (WRC).

2.2.2 In developing the DWMP, and consistent with the approach outlined in the Framework, Wessex Water has identified that the plan operates at the following spatial levels:



- **Level 1: Wessex regional area** - Over-arching companywide plan which sets out key company objectives, risks faced and summarises investment needed.
- **Level 2: Catchment partnership areas/ Level 2b: Lead Local Flood Authority areas** - Catchment plans co-created with stakeholders through strategic planning groups at a River Basin level. There are four catchment partnership areas in the Wessex Water DWMP area, Bristol Avon, Somerset, Hampshire Avon and Dorset. There are ten Lead Local Flood Authorities (LLFA) in the Wessex area.
- **Level 3: Water Recycling Centre catchments** - Drainage area plans which assess how future changes will affect catchment performance and the steps that are needed to be put in place to manage risks.
- **Level 4: Customers / community / parish council(s) / town council(s) areas.**

2.2.3 Following the completion of the RBCS and BRAVA process, Wessex Water has identified drainage areas where drainage, flooding, pollution and treatment risks have been identified now or in the future. Short, medium and long-term interventions have been developed to address the identified risks at the L2/L3 level and to deliver one or more of the planning objectives. The range of options developed are outlined below:

- **Customer Side Management:**
 - ▶ Domestic and business customer education.
- **Surface Water (SW) Management:**
 - ▶ SW source control measures;
 - ▶ SW pathway measures;
 - ▶ Separate flows.
- **Combined and Foul Sewer Systems:**
 - ▶ Storm overflow improvements;
 - ▶ Intelligent network operation;
 - ▶ Increase capacity existing foul/combined networks;
 - ▶ Removal of SW runoff from foul / combined sewers;
 - ▶ Wastewater transfers;

- ▶ Sewer groundwater infiltration reduction;
- ▶ Attenuation.
- **Wastewater Treatment:**
 - ▶ Treatment of overflows;
 - ▶ Increase treatment capacity (grey or green);
 - ▶ Rationalisation/centralisation;
 - ▶ Catchment management initiatives;
 - ▶ Effluent reuse.
- **Indirect measures Influencing policy**
 - ▶ Influencing policy;
 - ▶ Investigate and monitor.

2.2.4 Modelling, engineering and optioneering works has been undertaken across each level to determine the most appropriate, effective response. The outputs of the optioneering have enabled the selection of the preferred programme of options set out in the DWMP.

Plan Objectives and Intended Outcomes

2.2.5 The overarching framework for the DWMP is provided by the planning objectives. These require performance improvements in the following areas:

- WRC quality compliance;
- WRC flow compliance;
- Environment improved;
- Storm overflows;
- Internal flooding;
- Flooding in a storm;
- Blockages;
- Pollutions;
- Sustainable drainage;
- Partnership working;
- Collapses;
- Groundwater inundation.

2.2.6 Wessex Water has grouped these into themes, one of which is 'Environmental'. The environmental theme aims for good water quality, which is driven by the Water Industry National Environment Programme (WINEP) process. Wessex Water is currently in discussion with the Environment Agency and Natural England to agree the scale of WRC and Storm overflow improvements that will be included on the WINEP for PR24 investment (2025-2030).

2.2.7 The overarching objectives are important since they indicate the direction of travel and provide the framework for developing the options. The precise outcomes of a particular

option may not be identifiable at the DWMP level in the planning hierarchy, but an option that does not meet the plan objectives would not be compliant; so, for example, an option that reduces storm overflows would not be considered a solution if it reduced WRC quality compliance.

Drainage Areas and Options

2.2.8 Wessex Water has identified **241** drainage areas with drainage, flooding, pollution and treatment risks that require some form of improvement. Of these 241 catchments:

- 214 require network improvements;
- 161 require improvements to the drainage area's water recycling centres (WRCs).

2.2.9 Short, medium and long-term interventions for these areas have been identified based on 16 generic options (see **Table 2.1**). These are categorised according to one of the following five key management areas:

- Combined and Foul Sewer Systems (5 options);
- Customer Side Management (1 option);
- Indirect Measures (2 options);
- Surface Water Management (3 options);
- Wastewater Treatment (5 options).

Table 2.1 Generic options

Generic Option Theme	DWMP Generic Option Title	Description
Customer Side Management	Domestic and business customer education	A roll out of an education programme to improve understanding of the importance of reduced flows and mis-use of the system, and the impact this has on the environment and sewerage system.
Surface Water Management	Surface water source control measures	Managing surface water and maximising its potential for re-use. Opportunities for large-scale source control installation such as retrofitting in highways and around buildings, as well as aligning with ongoing programmes like local authority highway upgrades or major opportunity area developments.
Surface Water Management	Surface water pathway measures	The need to provide safe conveyance (as opposed to storage) for floodwater during an extreme rainfall event (when the capacity of the sewer network is exceeded). Could, significantly mitigate the risk of considerable damage to public and private property and even loss of life that could result from an extreme rainfall event.
Surface Water Management	Separate flows	Separate surface water from combined systems by constructing new surface water networks.

Generic Option Theme	DWMP Generic Option Title	Description
Combined and Foul Sewer Systems	Intelligent network operation	Controlling flow movement in reaction to the current situation. Allows the system to be operated proactively, maximising the use of existing assets. These options cover a range of different approaches e.g. modifying the start-stop levels at strategic pumping stations, creation of new network control points which allow for flow to be temporarily held back in the catchment.
Combined and Foul Sewer Systems	Increase the capacity of existing foul / combined networks	Replace sewer with a large diameter sewer to increase capacity.
Combined and Foul Sewer Systems	Wastewater transfers	The movement of flow to another area, or company.
Combined and Foul Sewer Systems	Sewer groundwater infiltration reduction	Infiltration sealing.
Combined and Foul Sewer Systems	Attenuation	Creation of additional volume to reduce storm impact.
Wastewater treatment	Treatment at overflows	Use of reedbeds / wetlands to provide treatment for spills.
Wastewater treatment	Increase treatment capacity	Increase the efficient use of the existing capacity with the existing assets or invest in new assets (grey or green) to provide additional capacity.
Wastewater treatment	Rationalisation / centralisation	Close smaller treatment works and transfer flows to a larger one.
Wastewater treatment	Catchment management initiatives	These options are concerned with treating either diffuse or point-source non-domestic elements of wastewater before they enter the sewer system, or by treating and controlling the other contributors to the environment.
Wastewater treatment	Effluent re-use	Recycle wastewater treatment works flow within the catchment.
Indirect measures	Influencing policy	Growth and planning, surface water management etc.
Indirect measures	Investigate and monitor	Understand root cause and risk.

2.2.10 The generic options are tailored to each drainage area catchment but remain high-level and defined in outline only. With the possible exception of interventions that relate to the water recycling centres in some drainage areas (for which the location is known, and the type of scheme (e.g. phosphorus stripping) may have in implicit scale associated with it), **there is no additional information on the location or scope of schemes and actions that make up the options.** This is illustrated by **Table 2.2**, which shows the proposed options for six drainage areas of varying sizes.

- 2.2.11 The absence of detail on the schemes, including any locational information, places some fundamental limits on the scope of the associated environmental assessments, including HRA.
- 2.2.12 Wessex Water has identified three specific schemes where some additional detail on the proposals (including intended location and an outline of operation of the schemes) is available:
- a proposed WRC transfer from Lytchett Minster into the catchment of Poole WRC (hereafter 'Lytchett Minster Transfer');
 - a proposed outfall relocation at Shrewton on the River Till (hereafter 'Shrewton Outfall Relocation'); and
 - a proposed outfall relocation at Ratfyn WRC on the Hampshire Avon (hereafter 'Ratfyn Outfall Relocation').

Table 2.2 Examples of options / interventions for various drainage areas

Drainage Area and Proposed Interventions
<p data-bbox="136 375 2072 438">Bradford-on-Avon WRC Catchment</p> <p data-bbox="136 438 2072 478">Short term</p> <ul data-bbox="136 478 2072 758" style="list-style-type: none"> • Deliver first time sewerage scheme to connect private network to the public sewer system. • Clear blockages to restore service and where necessary, assess the causes of blockages and if applicable, identify and implement solutions to reduce the risk of blockages and flooding in the future. • Continue to assess the need for sewer inspection and rehabilitation as per Wessex Water's risk-based policies to improve asset health condition and reduce the risk of future collapses. • Following the Storm Overflow Assessment Framework methodology, investigate and, if applicable, identify solutions to improve the frequent spilling overflows. • Deliver improvements to one of the frequent spilling storm overflows to reduce its operation. • Monitor the performance of storm overflows. • Investigate pollution incidents and, if applicable, identify and implement solutions to reduce the risk of pollutions in the future. <p data-bbox="136 758 2072 798">Medium term</p> <ul data-bbox="136 798 2072 1037" style="list-style-type: none"> • Assess the performance of high priority storm overflows and if necessary, identify and implement improvements to reduce storm overflow operation in alignment with Defra's Storm Overflows Discharge Reduction Plan. Preferred options are to implement SuDS and nature-based solutions for reducing flows in our sewerage systems, implement attenuation measures to reduce peak flows in the network, undertake customer engagement to reduce water consumption and increase the capacity of the existing sewer network. • Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change. • WRC quality enhancement to increase treatment to achieve tightened phosphorus permit. • WRC inlet works enhancements to improve operation. <p data-bbox="136 1037 2072 1077">Long term</p> <ul data-bbox="136 1077 2072 1418" style="list-style-type: none"> • Assess the performance of any remaining storm overflows and if necessary, identify and implement improvements to reduce storm overflow operation in alignment with Defra's Storm Overflows Discharge Reduction Plan. • We currently plan to improve 1 storm overflow in Bradford on Avon by 2050. • Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change. • Increase capacity at the WRC to accommodate development in the catchment. • Implement storm storage improvements at the WRC. • Deliver enhancements at the WRC to improve operation. • If risk of flooding increases, implement measures to reduce the risk of flooding in the long term, the preferred option is to increase the capacity of the existing sewer network. • Implement WRC storm storage improvements (related to DWF permit).

Dorchester WRC Catchment

Short term

- Assess flood incidents and, if applicable, identify solutions to reduce flood risk from hydraulic incapacity.
- Inspect the sewer network for evidence of groundwater infiltration, and if required, re-line sections of the sewer network to improve capacity.
- Clear blockages to restore service and where necessary, assess the causes of blockages and if applicable, identify and implement solutions to reduce the risk of blockages and flooding in the future.
- Monitor the performance of storm overflows.
- Install enhanced phosphorus removal at the WRC to improve river water quality.
- Deliver nitrogen offsetting in the river catchment to improve river water quality.
- Investigate pollution incidents and, if applicable, identify and implement solutions to reduce the risk of pollutions in the future.
- WRC capacity enhancement to increase capacity at the WRC to accommodate development in the catchment.
- WRC inlet works enhancements to improve operation.

Medium term

- Continue to monitor the impact of groundwater infiltration on the performance of the catchment and if necessary, inspect and re-line sections of the sewer network to improve capacity.
- Assess the performance of high priority storm overflows and if necessary, identify and implement improvements to reduce storm overflow operation in alignment with Defra's Storm Overflows Discharge Reduction Plan. The preferred option is to increase the capacity of the existing sewer network.
- We currently plan to improve 3 storm overflows in Dorchester by 2030.
- Investigate internal flooding incidents as a priority and if appropriate, implement improvements or provide mitigation measures.
- Continue to monitor the performance of the WRC and network, and any changes in expected future development or climate change and if necessary, identify and implement solutions to accommodate additional foul flows from developments.

Long term

- Continue to monitor the impact of groundwater infiltration on the performance of the catchment and if necessary, inspect and re-line sections of the sewer network to improve capacity.
- Assess the performance of any remaining storm overflows and if necessary, identify and implement improvements to reduce storm overflow operation in alignment with Defra's Storm Overflows Discharge Reduction Plan.
- Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change.
- If risk of flooding increases, implement measures to reduce the risk of flooding in the long term, preferred options are to implement SuDS and nature-based solutions for reducing flows in our sewerage systems, re-line sections of sewer in order to reduce the levels of groundwater infiltration in the network, undertake customer engagement to reduce water consumption and increase the capacity of the existing sewer network.
- Implement WRC storm storage improvements (related to DWF permit).

Lydford WRC Catchment

Short term

- Investigate flood incidents and, if applicable, identify solutions to reduce flood risk from hydraulic incapacity.
- Continue to assess the need for sewer inspection and rehabilitation as per Wessex Water's risk-based policies to improve asset health condition and reduce the risk of future collapses.

Medium term

- Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change.
- WRC capacity enhancement to increase capacity at the WRC to accommodate development in the catchment.

Long term

- Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change.

Nynehead WRC Catchment

Short term

- Assess the causes of blockages and, if applicable, identify and implement solutions to reduce the risk of blockages and flooding in the future.

Medium term

- Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change catchment.
- WRC capacity enhancement to increase capacity at the WRC to accommodate development in the catchment.

Long term

- Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change.

Podimore WRC Catchment

Short Term

- Investigate pollution incidents and, if applicable, identify and implement solutions to reduce the risk of pollutions in the future.

Medium Term

- Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change.

Long Term

- Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change

Warminster WRC Catchment

Short term

- Investigate flood incidents and, if applicable, identify solutions to reduce flood risk from hydraulic incapacity.
- Clear blockages to restore service and where necessary, assess the causes of blockages and if applicable, identify and implement solutions to reduce the risk of blockages and flooding in the future.
- Following the Storm Overflow Assessment Framework methodology, investigate and deliver improvements to the frequent spilling overflow to reduce its operation.
- Monitor the performance of storm overflows.
- Monitor the performance of the WRC and network, and any changes in expected future development or climate change and if necessary, identify and implement solutions to accommodate additional foul flows from developments.
- WRC quality enhancement to increase treatment to achieve tightened phosphorus permit.
- WRC capacity enhancement to increase capacity at the WRC to accommodate development in the catchment.

Medium term

- Assess the performance of high priority storm overflows and if necessary, identify and implement improvements to reduce storm overflow operation in alignment with Defra's Storm Overflows Discharge Reduction Plan. Preferred options are to implement SuDS and nature-based solutions for reducing flows in our sewerage systems, implement attenuation measures to reduce peak flows in the network, undertake customer engagement to reduce water consumption and increase the capacity of the existing sewer network.
- We currently plan to improve one storm overflow in Warminster by 2030.
- Investigate internal flooding incidents as a priority and if appropriate, implement improvements or provide mitigation measures.
- Continue to monitor the performance of the WRC and network, and any changes in expected future development or climate change and if necessary, identify and implement solutions to accommodate additional foul flows from developments.

Long term

- Assess the performance of any remaining storm overflows and if necessary, identify and implement improvements to reduce storm overflow operation in alignment with Defra's Storm Overflows Discharge Reduction Plan.
- Continue to monitor the performance of the WRC and the network, and any changes in expected future development or climate change.
- Implement storm storage improvements at the WRC.
- If risk of flooding increases, implement measures to reduce the risk of flooding in the long term, preferred options are to implement SuDS and nature-based solutions for reducing flows in our sewerage systems, implement attenuation measures to reduce peak flows in the network, optimise the operation of the network to utilise capacity, undertake customer engagement to reduce water consumption and increase the capacity of the existing sewer network.

Uncertainties

- 2.2.13 At the time of development of this draft final DWMP there still remains significant uncertainty regarding both the scope and scale of the WINEP for AMP8 and beyond. Wessex Water is very aware of nutrient (phosphorus and nitrogen) issues, particularly in relation to the following designated sites within its areas.
- Hampshire Avon SAC;
 - Poole Harbour SPA;
 - Poole Harbour Ramsar;
 - Somerset Levels and Moors Ramsar;
 - Chesil and the Fleet SAC;
 - Chesil Beach and the Fleet Ramsar;
 - Chesil Beach and the Fleet SPA.
- 2.2.14 Any development within these catchments is required to be nutrient neutral. Wessex Water are working with the Environment Agency and Natural England in the development of the AMP8 WINEP on best value solutions at/linked with WRCs (and any other discharges to the environment, such as storm overflows) as part of its 'fair share' in helping address this issue.
- 2.2.15 Based on the draft of the Levelling Up and Regeneration Bill (LURB) currently going through Parliament, it is anticipated that the LURB will place a new statutory duty on water companies to upgrade WRCs $\geq 2,000$ population equivalent to achieve 'technically achievable limits' (TAL) for phosphorus and/or nitrogen in these nutrient neutrality areas. The TAL has been determined by the EA as 0.25mg/l for phosphorus and 10mg/l for nitrogen.
- 2.2.16 Wessex Water is already investing heavily in the Somerset area in AMP7 to meet agreed phosphorus limits with the Environment Agency and Natural England. In many cases, however, these improvements may not be appropriate should Wessex Water be required to achieve more stringent permits. are not to achieve more stringent permits required under the LURB, and Wessex Water will need to revisit WRCs to re-upgrade. To assist developers and other stakeholders, Wessex Water has indicated on its DWMP portal whether WRC discharges have an impact on the sensitive areas alongside our current and future nutrient permit limits at all our WRCs (as per the agreed approach to delivering the AMP7 WINEP requirements, and the latest draft of the Levelling Up and Regeneration Bill).
- 2.2.17 With the exception of the Poole WRC upgrade scheme which includes for tightened nitrogen and new phosphorus limits, the options developed for the DWMP have only been to ensure either quality or flow compliance with existing (at the end of AMP7) permit limits, or pro-rata tightening of existing limits (under a maintenance of load approach). Cost allowances have been made for assumed WINEP requirements (not just limited to nutrients), and – subject to WINEP publication timing – options and costs will be refined and included in the final DWMP.
- 2.2.18 At the time of writing, a number of key WINEP guidance documents are outstanding (such as sanitary/nutrient determinands, fair share calculations and storm overflows). Many of the options developed for this DWMP – particularly those where needs have been identified in the medium to long term – may be completely superseded as they either may not be suitable to achieve other future objectives, or a better value solution may be more appropriate given both growth and quality enhancement drivers. The options developed

for the draft DWMP were principally to ensure either quality or flow compliance with existing (at the end of AMP7) permit limits, or pro-rata tightening of existing limits (under a maintenance of load approach), with cost allowances for assumed WINEP requirements. We are continuing to engage with the Environment Agency in the development of the WINEP for AMP8, and have refined these cost allowances for this final DWMP, but emphasise that many WRC-related aspects are subject to change. Indeed, many of the options developed for this DWMP – particularly those where needs have been identified in the medium to long term – may be completely superseded as they either may not be suitable to achieve other future objectives, or a better value solution may be more appropriate given both growth and quality enhancement drivers.

3. Approach to HRA

3.1 Overview

- 3.1.1 European Commission guidance¹⁰ suggests a four-stage process for HRA, although not all stages will necessarily be required (see **Box 1**).

Box 1 – Stages of HRA

Stage 1 – Screening or ‘Test of significance’

This stage identifies the likely effects of a project or plan on a European site, either alone or ‘in combination’ with other projects or plans, and considers whether these effects are likely to be significant. The ‘screening’ test or ‘test of significance’ is a low bar, intended as a trigger rather than a threshold test: a plan should be considered ‘likely’ to have an effect if the competent authority is unable (on the basis of objective information) to exclude the possibility that the plan or project could have significant effects on any European site, either alone or in combination with other plans or projects; an effect will be ‘significant’ simply if it could undermine the site’s conservation objectives. Note that mitigation measures should not be taken into account at the ‘screening’ stage, in accordance with the People over Wind (Court of Justice of the European Union (ECJ) Case C-323/17); this reinforces the idea of screening as a ‘low bar’ and makes ‘appropriate assessments’ more common.

Stage 2 – Appropriate Assessment (including the ‘Integrity test’)

An ‘appropriate assessment’ (if required) involves a closer examination of the plan or project where the effects on relevant European sites are significant or uncertain, to determine whether any sites will be subject to ‘adverse effects on integrity’ if the plan or project is given effect. The scope of any ‘appropriate assessment’ stage is not set, and the assessments will not be extremely detailed in every case (particularly if mitigation is clearly available, achievable, and likely to be effective). The assessments must be ‘appropriate’ to the effects and proposal being considered, and sufficient to ensure that there is no reasonable doubt that adverse effects on site integrity will not occur (or sufficient for those effects to be appropriately quantified should Stages 3 and 4 be required).

Stage 3 – Assessment of Alternative Solutions

Where adverse effects remain after the inclusion of mitigation, Stage 3 examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of European sites. A plan or project that has adverse effects on the integrity of a European site cannot be permitted if alternative solutions are available, except for imperative reasons of overriding public interest (IROPI; see Stage 4).

Stage 4 – Assessment Where No Alternative Solutions Exist and Where Adverse Impacts Remain

This stage assesses compensatory measures where it is deemed that there are no alternatives that have no or lesser adverse effects on European sites, and the project or plan should proceed for imperative reasons of overriding public interest (IROPI). The EC guidance does not deal with the assessment of IROPI, although the IROPI need to be sufficient to override the adverse effects on European site integrity, taking into account the compensatory measures that can be secured (which must ensure the overall coherence of the ‘national site network’).

¹⁰ *Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (EC 2002).

- 3.1.2 The stages in Box 1 (if required) are used to ensure compliance with the Regulations and principally reflect the legislative tests applied to the final, submitted project or plan; there is no statutory requirement for HRA to be completed for draft plans or similar developmental stages. However, it is generally best-practice for the HRAs of strategic plans to be run as an iterative process alongside plan development, helping to inform the selection of preferred options.
- 3.1.3 The approach summarised in **Box 1** works well at the project-level where the scheme design is usually established and possible effects on European sites can be assessed (usually quantitatively) using a stepwise process and detailed scheme-specific data. In contrast, the fundamental nature of the DWMP presents a number of distinct challenges for a 'strategic' HRA and it is therefore important to understand how the DWMP is developed, its objectives, and hence how it might consequently affect European sites.

3.2 Key Challenges and Assumptions for HRA of the DWMP

Option Location and Characteristics

- 3.2.1 Information on the DWMP options is provided by Wessex Water, although it should be noted that this is essentially limited to the information provided in **Table 2.1** (Section 2) and the drainage-area specific application of these options (see **Table 2.2** for examples).
- 3.2.2 As noted, for this iteration of the DWMP Wessex Water has identified 241 drainage areas with preferred 'option blends'. These drainage areas are geographically defined (insomuch as they relate to specific WRC catchments) but (with the exception of some WRC-related options) there are no additional geographical references that might allow the approximate location of the option (or at least the issue requiring resolution) to be identified.
- 3.2.3 As noted, there are two principal exceptions to this, where some additional detail on the proposals is available:
- a proposed WRC transfer from Lytchett Minster into the catchment of Poole WRC;
 - a proposed outfall relocation at Shrewton on the River Till.
- 3.2.4 Given the nature of the problems that the options are typically aiming to resolve, it is very likely that that the non-defined schemes that make up the options will be located within or very close to the drainage strategy area. In some instances it is conceivable that a solution may be located outside these units (e.g. if the relevant risk area for which a solution is proposed is located close to the margins of the drainage area, or perhaps where larger catchment management options are considered), but these will typically be rare and are not in any case identifiable at this stage in the planning process.
- 3.2.5 As a result, the smallest geographical units that can be applied to the HRA are:
- for options relating to WRCs, or the transfer / outfall relocation options noted above, the locations of those assets (recognising that there will be several potential solutions for delivering an option, and that these might not be constrained by the existing asset boundaries); and
 - for all other options, the drainage area boundary.
- 3.2.6 Furthermore, whilst the type of intervention is sometimes evident (for example, the Dorchester options include "*Inspect the sewer network for evidence of groundwater infiltration, and if required, re-line sections of the sewer network to improve capacity*") the scale of any works required to deliver the options is not stated or implied. However, it is

evident that the schemes required to deliver the options will invariably involve essentially unexceptional construction works at or near existing Wessex Water assets that will be similar to schemes that have been successfully implemented through previous investment cycles without adverse effects on European sites.

- 3.2.7 Similarly, specific information on the operation of options is not available since this will form part of the lower tier planning and detailed design; the options are all designed to meet one or more of the WRMP objectives, but beyond this it is not possible to identify or quantify the outcomes (intended and incidental). The objectives of the DWMP options and the assumptions that are inherent to the option development and modelling therefore have some relevance for the HRA, particularly in relation to operational effects.
- 3.2.8 The current iteration of the DWMP is therefore fundamentally different from other water company plans (e.g. WRMPs or Drought Plans) and identifying plan aspects that can be meaningfully assessed is therefore challenging.

Comparable Plans and Assessment Approaches

- 3.2.9 HRAs of plans and strategies typically have to deal with a degree of uncertainty; very often, it is not possible to provide a detailed assessment of the effects of a proposal as many aspects of the proposal simply cannot be fully defined at the strategy-level in the planning hierarchy.
- 3.2.10 In many respects therefore the DWMP is more similar to a Local Plan or a Flood Risk Management Plan (FRMP) than a WRMP, and so it is appropriate to apply techniques and protocols used for HRA of these plans to the DWMP. In particular:
- Case-practice in the assessment of Local Plans typically involves a screening step (sometimes referred to as ‘pre-screening’) that aims to filter out those plan aspects that cannot be assessed as part of an HRA; various criteria are used to identify such aspects, but broadly these would include the following (note, some plan aspects might meet several of these):
 - ▶ general statements of policy or general aspirations (this might include the objectives of the DWMP, notwithstanding that these will be positive for the environment);
 - ▶ general design / guidance criteria (e.g. on signage – note, this would be unusual within the DWMP);
 - ▶ or policies that cannot lead to or trigger development or other changes (e.g. commitments to investigate issues and solutions (which would then be subject to assessment), and where these investigations do not provide a ‘trigger’ for a specific development);
 - ▶ proposals referred to but not proposed by the plan (e.g. existing sewerage schemes that are ongoing or imminent, that are included for completeness);
 - ▶ general plan-wide environmental protection (etc.) policies;
 - ▶ policies or proposals which steer change in such a way as to protect European sites from adverse effects (e.g. options that encourage reduced water usage might fall into this category).

- Similarly, HRAs of recent FRMPs¹¹ have typically ‘screened out’ “*measures that would not have physical effects*” (e.g. reducing the impacts of flooding through land use and development policy, improving awareness of flood risk, or engaging with partners) and measures from existing plans or projects that have been subject to HRA.
- HRAs of Local Plans do not generally involve speculative assessment development-supporting policies that are not related to a specific location, or which do not have an inherent scale associated with them that would make effects on European sites unavoidable irrespective of location; for example, a policy supporting the delivery of cycle paths might result in a cycle path being constructed adjacent (or even within) a European site, but the assessment of that policy would not attempt to explicitly assess all possible effects from such a development on all European sites within the Local Plan area.
- Guidance and case-practice also allows for the assessment of plan components ‘down the line’ at a lower tier in the planning hierarchy if the information available at the higher-tier is fundamentally insufficient to complete a meaningful appropriate assessment. This is usually only appropriate where there is sufficient certainty that the proposals can (with the implementation of established scheme-level measures that are known to be effective) avoid adverse effects on the integrity of European sites; and/or if appropriate investigation schemes are identified to resolve the uncertainty and commitments are made within the plan to not pursue an option if adverse effects are identified through these investigations. Typically this requires that:
 - ▶ the higher tier plan appraisal cannot reasonably predict the effects on a European site in a meaningful way; whereas;
 - ▶ a lower tier plan, which will identify more precisely the nature, scale or location of development, and thus its potential effects, retains enough flexibility within the terms of the higher tier plan over the exact location, scale or nature of the proposal to enable an adverse effect on site integrity to be avoided; and
 - ▶ HRA of the plan at the lower tier is required as a matter of law or Government policy

3.2.11 Note, this is not intended to provide a mechanism for the inclusion of options where there appears to be no reasonable way of avoiding adverse effects. However, it is important to note that some uncertainties will remain (particularly with regard to ‘in combination’ effects) and for some options it will only be possible to fully assess any potential effects at the pre-project planning stage, when certain specific details are known; for example: construction techniques; site specific survey information; the precise timing of implementation; or the status of other projects that may operate ‘in combination’. In addition, it may be several years before an option is employed, during which time other factors may alter the baseline or the likely effects of the option.

3.2.12 It should also be noted that the DWMP does not specify or constrain exactly how or where solutions are implemented (even, arguably, for WRC upgrades, since many solutions may be available at or near a site and transferring sewerage to another WRC for treatment would almost always be an option), and there will always be some flexibility over delivery at the scheme stage. To some extent, therefore, the assessment must aim to determine whether there are any reasons to suggest that effects might be unavoidable at the scheme level (i.e. identify substantive uncertainties), rather than attempt to quantify

¹¹ For example, the *Severn River Basin District Flood Risk Management Plan 2015-2021* [available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/505387/LIT_10247_S_EVERN_FRMP_HRA.pdf]

effects that cannot be meaningfully assessed at the plan level with the option data available.

- 3.2.13 It should be noted that deferral 'down the line' is typically done at the appropriate assessment stage (as it may require the identification of mitigation at the plan level) rather than as part of a 'screening', although practice in this area is variable (for example, the FRMP HRAs typically deferred 'down the line' as part of the screening process).

Key Assumptions and Implications for HRA

- 3.2.14 There are a number of assumptions inherent in the HRA and DWMP development.
- 3.2.15 The options within the current iteration of the DWMP are fundamentally aiming to improve the condition of the environment and reduce property flooding, principally by implementing measures to reduce volumes entering the network, improve flow-management within the network, and ensuring that volumes passed to the relevant wastewater treatment works are treated in accordance with the wastewater treatment works' permits. They are not aiming to prevent all flooding and spills that may occur within a drainage area, nor necessarily solve wider drainage and wastewater issues within the drainage area or the associated surface water catchment (although they will ultimately contribute to solutions for these issues).
- 3.2.16 The modelling underpinning the option selection incorporates a large number of assumptions; however, the following are particularly relevant to the HRA:
- The modelling takes account of predicted local and regional growth when identifying risk areas and potential solutions, based (*inter alia*) on Local Plans and population growth models. 'In combination' effects with respect to land-use plans and specific options are therefore inherently considered and accounted for as part of the DWMP option development process (i.e. an option that does not account for local growth is not a solution).
 - Likewise, the modelling accounts for climate change when predicting future spills / flooding (etc.).
 - The model assumes (based on best-available data on wastewater treatment works capacity, headroom and permitting) that flows passed to the wastewater treatment works by the option will be treated in accordance with the various operational permits and consents required either currently or in the future (since the option would otherwise be non-compliant, and it would not be appropriate to assess the option whilst assuming it will be non-compliant). There is inherent uncertainty around this, however, as it is likely that amendments to the pass-forward flows would require amendments to permits (etc.) at the wastewater treatment works and associated modelling, which cannot be completed at this stage of the DWMP process. However, it is reasonable to assume that existing permits can be met, and/or that any wastewater treatment works capacity improvements required are technically achievable; in addition, if detailed design demonstrates that an option cannot be completed without a wastewater treatment works upgrade then the option will not proceed until that upgrade has been completed.
 - The DWMP modelling takes account of the existing permitting or consents regime, and any known (or reasonably anticipated) amendments that are likely to be required (e.g. following Water Industry National Environment Programme (WINEP) investigations or similar) since there must be a starting point / basis for the assessment (i.e. the modelling / optioneering process cannot start with the assumption that no current consents are reliable). It is recognised that there are several challenges relating to water quality at the moment, particularly 'in combination' with agricultural inputs and

nutrient neutrality, although the effect of the current DWMP on these will be either neutral (i.e. effectively no change from baseline) or minor positive.

- The options developed for the draft DWMP were principally to ensure either quality or flow compliance with existing (at the end of AMP7) permit limits, or pro-rata tightening of existing limits (under a maintenance of load approach), with cost allowances for assumed WINEP requirements. We are continuing to engage with the Environment Agency in the development of the WINEP for AMP8, and have refined these cost allowances for this final DWMP, but emphasise that many WRC-related aspects are subject to change. Indeed, many of the options developed for this DWMP – particularly those where needs have been identified in the medium to long term – may be completely superseded as they either may not be suitable to achieve other future objectives, or a better value solution may be more appropriate given both growth and quality enhancement drivers.

- 3.2.17 The HRA therefore recognises that whilst there may be some atypical or unusual indirect effects (for example, transferring wastewater to a different treatment works might conflict with flow targets within the original receiving watercourse), **the overall and intended operational effect of most options will be neutral or positive on the water quality of the receiving watercourses, and options are assessed with this in mind.**
- 3.2.18 The DWMP aims resolve specific identified local issues, and so the HRA necessarily focuses on the additional effects introduced by the options selected to resolve these issues, taking into account the assumptions noted above that are inherent to the modelling process. The HRA is therefore downstream of the DWMP modelling process: as with the modelling, the HRA requires a point of reference baseline and cannot assume that all existing permits (etc.) affecting a watercourse (discharges and abstractions, consented and unconsented) are entirely unsound and attempt to quantify the effects of these before considering the additional effects of the DWMP.
- 3.2.19 The examination of existing individual consents was undertaken by the EA and NRW through the Review of Consents (RoC) process, and subsequently through a range of past and ongoing reviews (e.g. WFD, WINEP), and whilst the DWMP may in future form part of this review process it does not at the moment. This is not to say that a historical (and potentially out-of-date) baseline is relied on; rather that there are existing established processes for updating this baseline and making required amendments to permits or licences (e.g. WINEP), and the DWMP modelling and the HRA of the DWMP necessarily reflects this. The existing process for reviewing and amending licences and permits are the primary mechanism by which Wessex Water meets its obligation to ‘have regard’ to the Habitats Regulations in its operations.
- 3.2.20 Note, the assessment also assumes that all normal licensing, consenting and management procedures will be employed at option delivery and throughout operation, and that established best-practice avoidance and mitigation measures will be employed throughout scheme design and construction to safeguard environmental receptors, including European site interest features. The HRA does not therefore assess speculative or hypothetical effects based on assumptions of non-compliance (e.g. accidental spillages of treatment chemicals from an upgraded wastewater treatment works).
- 3.2.21 It should also be noted that **the DWMP does not constrain exactly how or where solutions are implemented**, and there will always be flexibility over delivery at the scheme stage. To some extent, therefore, the assessment may aim to determine whether there are any reasons to suggest that effects might be unavoidable at the scheme level (i.e. identify substantive uncertainties), rather than attempt to quantify effects that cannot be meaningfully assessed at the plan level with the option data available.

3.3 Options Assessment

Geographical Scope

- 3.3.1 A key issue for the HRA is the level at which assessment can be reasonably and meaningfully undertaken. As noted, for this iteration of the DWMP, Wessex Water has identified 241 drainage areas (of which 161 will have improvements at the WRC) but for many options no further information on the approximate or specific location of schemes that make up the option is provided (this would be completed as part of future planning stages and option / scheme delivery).
- 3.3.2 However, it is evident that the schemes required to deliver the options are invariably unexceptional construction works at or near existing Wessex Water assets that will be similar to schemes that have been successfully implemented through previous investment cycles without adverse effects on European sites. Given the scale and type of schemes that will make up the options, the HRA therefore initially considers:
- All European sites that are within 5km of the Wessex Water area;
 - All European sites that are downstream of the relevant drainage area and hydrologically linked (no distance threshold).
 - All European sites upstream of the relevant drainage area that support fish (i.e. potentially exposed on migration).
 - Any other sites over 5km where evidence suggests a mobile feature might be exposed to significant effects due to the construction or operation of the option that cannot be avoided through the normal project design and planning process (although note that these sites are not systematically documented in the screening).
- 3.3.3 The 5km buffer¹² is relatively small for a strategic plan. This reflects the reality of most small-scale construction schemes in terrestrial environments, where environmental changes (e.g. noise, light intrusion, dust, etc.) are very rarely measurable or otherwise notable over ~1km from a construction site boundary; and the temporary nature and small-scale of such works ensures there is very low likelihood of terrestrial mobile species being unavoidably affected by an option¹³ (such that conservation objectives might be undermined).
- 3.3.4 Sites not included above are considered sufficiently remote that any environmental changes will be effectively nil, and so there will be 'no effects' on these sites (and so no possibility of 'in combination' effects). Wide-ranging marine / marine dependent species

¹² 'Arbitrary' buffers are not generally appropriate for HRA. However, as distance is a strong determinant of the scale and likelihood of effects the considered use of a suitably precautionary search area as a starting point for the screening (based on a thorough understanding of both the options and European site interest features) has some important advantages. Using buffers allows the systematic identification of European sites using GIS, so minimising the risk of sites or features being overlooked, and also ensures that sites where there are no reasonable impact pathways can be quickly and transparently excluded from any further screening or assessment. When assessing multiple options it also has the significant advantage of providing a consistent point of reference for consultees following the assessment process, and the 'screening' can therefore focus on the assessment of effects, rather than on explaining why certain sites may or may not have been considered in relation to a particular option.

¹³ Pathways for effects on mobile features associated with some sites (e.g. bats, wintering birds) are imaginable; for example, a construction area might be located adjacent to a maternity roost used by bats associated with an SAC that is designated for its hibernation roosts; however, in almost all instances assessing effects on 'functional habitat' such as this at the plan level is entirely speculative (as information on what habitat might be important to the functional integrity of a site is rarely available without scheme-specific studies, and the options are unscoped at this stage in the delivery process so subject to future refinement), and in any case the small scale of the works associated with the DWMP options ensures that mitigation or avoidance measures are always likely to be achievable at scheme delivery.

associated with marine sites that are downstream receptors are not typically considered to be both sensitive and exposed to the effects of the options.

- 3.3.5 The European sites and qualifying features considered potentially exposed to the outcomes of the DWMP are listed in **Appendix A**.

Data Collection

European site data collection and conservation objectives

- 3.3.6 The screening and appropriate assessment stages take account of the baseline condition of the European sites and their interest features¹⁴, including (where reported) data on
- the site boundaries and the boundaries of the component SSSIs;
 - the conservation objectives;
 - information on the attributes of the European sites that contribute to and define their integrity;
 - the condition, vulnerabilities and sensitivities of the sites and their interest features, including known pressures and threats
 - the approximate locations of the interest features within each site (if reported); and
 - designated or non-designated 'functional habitats' (if identified).
- 3.3.7 These data were derived from:
- the most recent JNCC-hosted GIS datasets;
 - the Standard Data forms for SACs and SPAs and Information Sheets for Ramsar sites;
 - Article 12 and 17 reporting;
 - the published site Conservation Objectives;
 - Supplementary Advice to the conservation objectives (SACO) where available¹⁵;
 - Site Improvement Plans (SIPs);
 - Core Management Plans (Wales); and
 - the supporting Site of Special Scientific Interest's favourable condition tables where relevant and where no SACOs applicable to the features are available.
- 3.3.8 Note:
- For SPAs, the qualifying features are taken as those identified on the most recent JNCC datasets and citations where these post-date the 2nd SPA Review (i.e. it will be assumed that any amendments suggested by the SPA review have been made) unless otherwise identified to us by NE or NRW; any site-specific issues relating to the

¹⁴ The interest features are taken to be the qualifying features; and other site features that may be relevant to site integrity, particularly 'typical species' (for SACs) and within-site supporting habitats for SPAs.

¹⁵ NE has published '*Supplementary advice on conserving and restoring site features*' for most European sites in England which describe in more detail the range of ecological attributes which are most likely to contribute to a site's overall integrity, and the targets each qualifying feature needs to achieve in order for the site's conservation objectives to be met.

SPA Review can be addressed in the screening and appropriate assessment of the preferred options (see below).

- The conservation objectives for Ramsar sites are taken to be the same as for the corresponding SACs / SPAs (where sites overlap); SSSI Definition of Favourable Condition (FCTs) will be used for those features not covered by SAC/SPA designations.

- 3.3.9 Where possible the site data is used to identify other features that may be relevant to site integrity, particularly '**typical species**' (for SACs), within-site **supporting habitats**, and designated or non-designated '**functional habitats**'.
- 3.3.10 A '**typical species**' is broadly described by EC guidance as being any species (or community of species) which is particularly *characteristic* of, confined to, and/or dependent upon the qualifying Annex I habitat feature at a particular site. This may include those species which:
- are critical to the composition or structure of an Annex I habitat (e.g. constant species identified by the National Vegetation Classification (NVC) community classification);
 - exert a critical positive influence on the Annex I habitat's structure or function (e.g. a bioturbator (mixer of soil/sediment), grazer, surface borer or predator);
 - are consistently associated with, and dependent upon, the Annex I habitat feature for specific ecological needs (e.g. feeding, sheltering), completion of life-cycle stages (e.g. egg-laying) and/or during certain seasons/times; or
 - are particularly distinctive or representative of the Annex I habitat feature at a particular site.
- 3.3.11 Within-site **supporting habitats** are those which support the population(s) of the qualifying species and which are therefore critical to the integrity of the feature.
- 3.3.12 '**Functional habitats**' are generally taken to be habitats or features outside a European site boundary that are important or critical to the functional integrity of the site habitats and / or its interest features. These might include, for example:
- 'buffer' areas around a site (e.g. dense scrub areas preventing public access; areas of land that reduce the effects of agricultural run-off; etc.);
 - specific features or habitats relied on by mobile species during their lifecycle (e.g. high-tide roosts for waders; significant maternity colonies for bats known to hibernate within an SAC; areas that are critical for foraging or migration; etc).
- 3.3.13 **Conservation Objectives** benchmark Favourable Conservation Status (FCS) for each feature. Guidance¹⁶ from the UK Statutory Nature Conservation Bodies (SNCBs) provides a broad characterisation of FCS, stating that it "*relates to the long-term distribution and abundance of the populations of species in their natural range, and for habitats to the long-term natural distribution, structure and functions as well as the long-term survival of its typical species in their natural range. It describes a situation in which individual habitats and species are maintaining themselves at all relevant geographical scales and with good prospects to continue to do so in the future*".

¹⁶ JNCC (2018). *Favourable Conservation Status: UK Statutory Nature Conservation Bodies Common Statement* [online]. Available at: <https://data.jncc.gov.uk/data/b9c7f55f-ed9d-4d3c-b484-c21758cec4fe/FCS18-InterAgency-Statement.pdf>. [Accessed March 2022].

- 3.3.14 The conservation objectives for European sites in England have been revised by Natural England in recent years to improve the consistency of assessment and reporting. As a result, the high-level conservation objectives for all sites are effectively the same:
- 3.3.15 For SACs:
- *With regard to the SAC and the natural habitats and/or species for which the site has been designated (the ‘Qualifying Features’...), and subject to natural change; ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring [as applicable to each site];*
 - ▶ *The extent and distribution of the qualifying natural habitats;*
 - ▶ *The extent and distribution of the habitats of qualifying species;*
 - ▶ *The structure and function (including typical species) of the qualifying natural habitats;*
 - ▶ *The structure and function of the habitats of qualifying species;*
 - ▶ *The supporting processes on which the qualifying natural habitats rely;*
 - ▶ *The supporting processes on which the habitats of qualifying species rely;*
 - ▶ *The populations of qualifying species; and,*
 - ▶ *The distribution of qualifying species within the site.*
- 3.3.16 For SPAs:
- *With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the ‘Qualifying Features’...), and subject to natural change; ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:*
 - ▶ *The extent and distribution of the habitats of the qualifying features;*
 - ▶ *The structure and function of the habitats of the qualifying features;*
 - ▶ *The supporting processes on which the habitats of the qualifying features rely;*
 - ▶ *The population of each of the qualifying features; and*
 - ▶ *The distribution of the qualifying features within the site.*
- 3.3.17 The conservation objectives for Ramsar sites are taken to be the same as for the corresponding SACs / SPAs (where sites overlap). The conservation objectives are considered when assessing the potential effects of plans and policies on the sites; information on the sensitivities of the interest features also informs the assessment.
- 3.3.18 NE has published ‘*Supplementary advice on conserving and restoring site features*’ for most sites, which describe in more detail the range of ecological attributes which are most likely to contribute to a site’s overall integrity, and the minimum targets each qualifying feature needs to achieve in order to meet the site’s conservation objectives. These are considered at the screening and appropriate assessment stages, as necessary.

DWMP Option Data

- 3.3.19 Information on the DWMP options is provided by Wessex Water, although it should be noted that this is essentially limited to the information provided in DWMP option lists.

Similarly, specific data on the operation of options is not available since this will form part of the lower tier detailed design, and options that do not meet the objectives at this point will not be considered ‘solutions’ to the identified issue.

- 3.3.20 Some options associated with WRCs may require additional land take, although this will invariably be small-scale, adjacent to the WRC, and subject to detailed planning and design. The possibility of extension is taken into account when identifying European sites potentially exposed to works at or near the site.
- 3.3.21 A small amount of additional information is available for the Lytchett Minster Transfer, the Shrewton Outfall Relocation and the Ratfyn Outfall Relocation (see **Appendix E**).

Options assessment

- 3.3.22 The assessment comprises:
- a ‘screening’ to identify those generic options that cannot have significant effects due to the fundamental nature of the option (taking into account the DWMP objectives and hence intent and purpose of such options);
 - a ‘screening’ of European sites within the geographical scope to identify those sites and features where there will self-evidently be ‘no effect’, ‘no likely significant effects’, or positive effects due to the option¹⁷, and those where significant effects are likely or uncertain; and
 - an ‘appropriate assessment’ of any sites where significant effects cannot be excluded (this may include ‘down-the-line’ deferral in accordance with established HRA practice, where appropriate).
- 3.3.23 The conservation objectives are taken into account at the screening and appropriate assessment stages.
- 3.3.24 Note that the ‘low-bar’ principle is used for the screening of the preferred options; in general, unless the possibility of significant effects can be simply and self-evidently excluded (i.e. due to an absence of reasonable impact pathways) then a more detailed ‘appropriate assessment’ is completed (rather than a more detailed ‘secondary screening’ or similar).
- 3.3.25 The ‘low bar’ approach is consistent with the ‘People Over Wind’¹⁸ case law, which requires that mitigation not be considered at screening. Historically, HRAs of plans typically assumed that established best-practice avoidance and mitigation measures (see **Appendix D**) would be employed at the project level to safeguard environmental receptors, including European site interest features, and accounted for this at the screening stage. However, it is arguable that an assumption such as this, albeit in relation to a lower-tier project that would itself be subject to HRA, might constitute an ‘avoidance measure’ that the DWMP is effectively relying on to ensure that significant effects do not occur.
- 3.3.26 In this instance, therefore, mitigation measures (including the established best-practice avoidance and mitigation measures noted in **Appendix D**) are not taken into account at screening, but are instead introduced at the ‘appropriate assessment’ stage (if required).
- 3.3.27 Consequently, the appropriate assessments are ‘appropriate’ to the nature of the DWMP, the option under consideration, and the scale and likelihood of any effects; exhaustive examination of hypothetical effect pathways is not undertaken if there is a high degree of

¹⁷ Note, for options with ‘no effects’ or positive effects there is no possibility of ‘in combination’ effects.

¹⁸ Case C 323/17 Court of Justice of the European Union: People Over Wind

confidence in the mitigation measures (and, from experience, virtually all potentially adverse effects for small-scale schemes can be avoided or mitigated).

In combination effects

- 3.3.28 HRA requires that the effects of other projects, plans or programmes be considered for effects on European sites 'in combination' with the DWMP. There is limited guidance on the precise scope of 'in combination' assessments for strategies, particularly with respect to the levels within the planning hierarchy at which 'in combination' effects should be considered. The 'two-tier' nature of the DWMP (i.e. a plan with specific schemes) also complicates this assessment.
- 3.3.29 Broadly, it is considered that the DWMP could have the following in combination effects:
- within-plan effects - i.e. separate options or option-mixes within the DWMP affecting the same European site(s), although it should be noted that these effects should almost always be positive;
 - between-plan water quality effects - i.e. effects in association with or driven by other plans (for example, other water company DWMPs);
 - other between-plan effects - i.e. 'in combination' with activities promoted by other plans – for example, with flood risk management plans.
 - between-project effects – i.e. effects of a specific option with other specific projects and developments.
- 3.3.30 In undertaking the 'in combination' assessment it is important to note the following:
- The DWMP explicitly accounts for land-use plans, growth forecasts and population projections when determining future treatment and water management requirements.
 - The detailed examination of non-water company discharge consents for 'in combination' effects can only be undertaken by the Environment Agency or NRW through their permitting procedures.
 - Known major projects are also taken into account during the development of the DWMPs.
- 3.3.31 Therefore:
- It is considered that (for the HRA) potential 'in combination' effects in respect of wastewater treatment associated with known plans or projects will not occur since the requirements for additional capacity are explicitly considered when developing the DWMP.
 - With regard to other strategic plans, the list of plans included within the SEA is used as the basis for a high-level 'in combination' assessment. The SEA is used to provide information on the themes, policies and objectives of the 'in combination' plans, with the plans themselves examined in more detail as necessary. Plans are obtained from the SEA datasets or internet sources where possible.

4. Assessment

4.1 Screening

Review and Screening of Generic Options

- 4.1.1 The screening of the generic options is summarised in **Table 4.1**. The principles outlined in **Section 3.2** are used to identify those options that cannot have significant effects on European sites due to their fundamental characteristics, principally (in this instance) because they relate to interventions or activities that will not lead to development (e.g. investigation schemes, stakeholder engagement) and which will (in the context of the DWMP objectives) not have any mechanisms for significant effects on European sites.

Table 4.1 Screening of Generic Options

DWMP Generic Option Title	Description	Screen out?	Notes
Domestic and business customer education	A roll out of an education programme to improve understanding of the importance of reduced flows and mis-use of the system, and the impact this has on the environment and sewerage system.	Y	Education options will not themselves lead directly to development or similar outcomes.
Surface water source control measures	Managing surface water and maximising its potential for re-use. Opportunities for large-scale source control installation such as retrofitting in highways and around buildings, as well as aligning with ongoing programmes like local authority highway upgrades or major opportunity area developments.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).
Surface water pathway measures	The need to provide safe conveyance (as opposed to storage) for floodwater during an extreme rainfall event (when the capacity of the sewer network is exceeded). Could, significantly mitigate the risk of considerable damage to public and private property and even loss of life that could result from an extreme rainfall event.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).

DWMP Generic Option Title	Description	Screen out?	Notes
Separate flows	Separate surface water from combined systems by constructing new surface water networks.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).
Intelligent network operation	Controlling flow movement in reaction to the current situation. Allows the system to be operated proactively, maximising the use of existing assets. These options cover a range of different approaches e.g. modifying the start-stop levels at strategic pumping stations, creation of new network control points which allow for flow to be temporarily held back in the catchment.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).
Increase the capacity of existing foul / combined networks	Replace sewer with a large diameter sewer to increase capacity.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).
Wastewater transfers	The movement of flow to another area, or company.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant; effects on flow targets).
Sewer groundwater infiltration reduction	Infiltration sealing.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be

DWMP Generic Option Title	Description	Screen out?	Notes
			identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).
Attenuation	Creation of additional volume to reduce storm impact.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).
Treatment at overflows	Use of reedbeds / wetlands to provide treatment for spills.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).
Increase treatment capacity	Increase the efficient use of the existing capacity with the existing assets, or invest on new assets to provide additional capacity within site footprint.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).
Rationalisation / centralisation	Close smaller treatment works and transfer flows to a larger one.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving

DWMP Generic Option Title	Description	Screen out?	Notes
			waterbodies, although other operational effects are possible (e.g. noise or vibration from plant; effects on flow targets).
Catchment management initiatives	These options are concerned with treating either diffuse or point-source non-domestic elements of wastewater before they enter the sewer system, or by treating and controlling the other contributors to the environment.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant).
Effluent re-use	Recycle wastewater treatment works flow within the catchment.	N	Involves unspecified construction within the drainage area that may require mitigation / avoidance measures that can only be identified at a lower planning / design tier. Operation will have neutral or positive effects on water quality in receiving waterbodies, although other operational effects are possible (e.g. noise or vibration from plant; effects on flow targets).
Influencing policy	Growth and planning, surface water management etc.	Y	These options will not themselves lead directly to development or similar outcomes.
Investigate and monitor	Understand root cause and risk.	Y	Investigation options will not themselves lead directly to development or similar outcomes.

4.1.2 These options are applied to each drainage area but there is no additional specificity over delivery or outcomes; therefore the assessment outlined in **Table 4.1** applies to the specific option blends for each drainage area also. In summary, therefore, options that direct or trigger some form of development are ‘screened in’ for all catchments, with other options (specifically investigation only options, education programmes, and policy interventions) excluded from further assessment.

Drainage Area and WRC Screening

4.1.3 The options involve interventions (typically requiring modification of an existing asset and hence usually some type of construction scheme (although some ‘process’ interventions associated with Intelligent network operation might not require construction)) to deliver changes in the operational regime of the assets and hence improvements in one or more metrics – i.e. quality of receiving waters, or the number of overflows or property flooding events (see Section 2).

Table 4.2 Typical effect pathways and environmental changes associated with terrestrial development

Pressure / Threat	Common environmental changes	Notes re. construction of DWMP options	Notes re. operation of DWMP options
Hydrological changes	<ul style="list-style-type: none"> • Temperature changes • Salinity changes • Water flow changes • Flood regime changes 	Hydrological changes as a result of water industry construction schemes would not generally be expected, or would be temporary only (e.g. temporary dewatering or over-pumping affecting flows in watercourses); direct hydrological changes on European sites would typically be avoided (and be avoidable) using appropriate measures (e.g. directional drilling under watercourses rather than open cut / over-pumping).	Hydrological changes are possible for some options as they will affect discharges to watercourses. In most cases these changes are likely to be an incidental and minor consequence of a beneficial operational change (i.e. water quality improvements), but the scale and scope of these changes can only be identified at the scheme level. Potentially significant effects are most likely for effluent re-use schemes (although none are proposed in the current plan) or transfers to other WRCs for treatment and discharge (if these are within separate river catchments, although it should be noted that the SAC waterbodies in the region are typically middle and lower course rivers or coastal waters).
Pollution and other chemical changes	<ul style="list-style-type: none"> • Non-synthetic and synthetic compound contamination • Radionuclide contamination • Introduction of other substances (solid, liquid or gas) • De-oxygenation • Nutrient enrichment • Organic enrichment 	Pollution and other chemical changes as a result of water industry construction schemes are certainly possible, but are clearly avoidable with established construction mitigation measures.	In broad terms, the intent and objectives of the options is to improve the quality of receiving waters in the south-west and so negative effects from pollution and other chemical changes would not be a likely operational outcome. There will be elements of some schemes that may have the potential to affect water quality negatively but these can only be identified and addressed at the scheme level, and negative water quality changes would not be a systematic consequence of the plan.

Pressure / Threat	Common environmental changes	Notes re. construction of DWMP options	Notes re. operation of DWMP options
Physical loss	<ul style="list-style-type: none"> Physical loss of habitat Physical change to another habitat 	<p>Physical loss of habitat is possible as a result of construction. Substantive permanent direct effects on European sites would not be expected (i.e. it is difficult to conceive of a scenario whereby a large part of a European site might be used for construction) but smaller-scale direct effects (for example, to access outfalls or pipework near European sites) or effects on functional land are conceivable; these would almost certainly be considered 'significant' although they may not necessarily affect the site integrity.</p>	<p>Physical loss of habitat would not typically be expected as an outcome of operation, although scenarios are conceivable (e.g. transfers of flows for treatment at separate sites might alter discharge volumes and hence habitats at both locations). However, these pathways can only be identified and addressed at the scheme level, and physical loss of habitat would not be a systematic or unavoidable consequence of the plan.</p>
Physical damage	<ul style="list-style-type: none"> Habitat structure changes Changes in suspended solids Siltation rate changes 	<p>Physical damage is possible as a result of construction, although such effects are clearly avoidable with established construction mitigation measures.</p>	<p>Physical damage to habitats would not typically be expected as an outcome of operation, and many of the options will moderate or reduce the likelihood of physical damage as a result of water company operations (e.g. by reducing suspended solids). However, these pathways can only be identified and addressed at the scheme level, and physical damage would not be a systematic or unavoidable consequence of the plan.</p>
Other physical pressures	<ul style="list-style-type: none"> Litter Electromagnetic changes Noise changes Introduction of light Barrier to species movement Death or injury by collision 	<p>Other physical pressures affecting sites or (more commonly) species interest features are possible as a result of construction, although such effects are clearly avoidable with established construction mitigation measures.</p>	<p>Other physical pressures affecting sites or (more commonly) species interest features are also possible as a result of option operation; for example, new pumping equipment may introduce pathways for displacement effects due to noise or vibration. However, these pathways can only be identified and addressed at the scheme level, and such changes would not be a systematic or unavoidable consequence of the plan implementation.</p>

Pressure / Threat	Common environmental changes	Notes re. construction of DWMP options	Notes re. operation of DWMP options
Biological pressures	<ul style="list-style-type: none"> • Visual disturbance • Genetic modification and translocation of indigenous species • Introduction or spread of non-indigenous species • Introduction of microbial pathogens • Exploitation / harvesting of species • Removal of non-target species during exploitation / harvesting 	<p>Biological pressures would not generally be expected during construction, with the possible exceptions of visual disturbance (e.g. of bird interest features associated with an SPA or functional land) or the introduction of invasive non-native species (INNS); these pathways can clearly be avoided with established construction mitigation measures, however.</p>	<p>Likewise, pathways for biological pressures would not typically be an expected outcome of the options, although scenarios are conceivable depending on the specifics of the scheme (e.g. transfers of flows for treatment might also assist the transfer of some invasive species). However, these pathways can only be identified and addressed at the scheme level, and physical loss of habitat would not be a systematic or unavoidable consequence of the plan.</p>

- 4.1.1 European sites within 5km of the Wessex Water area are identified in **Appendix A**. These are subject to a coarse screening to identify those where any effects will self-evidently be nil or not significant (either because the features are not exposed and/or not sensitive to the anticipated outcomes of the options screened out (for example, terrestrial sites without mobile features, that are not hydrologically connected)). This screening is applied cautiously to anticipated construction and operational outcomes, recognising that no information is available on the precise nature of the schemes that will be employed to deliver the options. In summary, very few sites in or near the Wessex area can be entirely excluded due to uncertainties over the precise locations of the schemes and interventions that will be required to deliver the options – i.e. effects on most sites are conceivable and cannot be objectively excluded with the information available.
- 4.1.2 Appendix B identifies those European sites that are within 1km of each WRC, which may therefore be particularly exposed to effects associated with any construction required to deliver WRC upgrades. The approaches for delivering the WRC-related options are not defined; for example, the option “*Install phosphorus removal at the WRC to improve river water quality*”, which is proposed for several WRCs, might be achieved in a number of ways although ‘traditional’ engineering schemes within the existing site boundaries (rather than non-traditional interventions such as reedbeds or similar) are most likely. As before, therefore, the absence of detail on the scheme requirements ensures that effects on the identified European sites cannot be robustly excluded at the screening stage without relying on mitigation measures.
- 4.1.3 Appendix C identifies those European sites that are within 1km of each drainage area, or which are downstream of the drainage areas (and hence potentially vulnerable to operational effects on receiving waters, including in combination). Again, the absence of detail on the scheme requirements ensures that effects on the identified European sites cannot be robustly excluded at the screening stage without relying on mitigation measures.
- 4.1.4 Consequently, likely significant effects cannot be categorically excluded for any of the sites identified in Appendices B and C due to the inherent uncertainties over the precise characteristics and delivery of most options. This includes effects from both construction and operation of the options, although it is arguable that operational effects on the water quality of the receiving waterbodies should be neutral or positive (alone and in combination) considering the intended outcomes of the options and the overarching objectives of the DWMP (although possible adverse effects in relation to the operation of specific options (or components of options) may be identified as scheme design is advanced – for example, new pumping stations might affect interest features through noise or vibration).

Transfer / Outfall Relocation Screening

- 4.1.5 The screenings for the Lytchett Minster Transfer and the Shrewton Outfall Relocation (are summarised in Appendix E). In summary, significant effects cannot be excluded for the following European sites:
- Lytchett Minster Transfer (effects on Dorset Heaths SAC, Dorset Heathlands SPA, Dorset Heathlands Ramsar, Poole Harbour SPA, Poole Harbour Ramsar).
 - Shrewton Outfall Relocation (effects on River Avon SAC).
 - Ratfyn Outfall Relocation (effects on River Avon SAC).

4.2 Appropriate Assessment

Drainage Catchment / WRC Level

- 4.2.1 The appropriate assessment are driven by the identification of potential pathways for effects at the plan level, due to the need for construction and hence a reliance on project-level avoidance or mitigation measures to be confident that adverse effects will not occur; and because the inherent uncertainties within the option scopes that mean that much of the assessment must necessarily be deferred 'down the line' to lower tiers in the planning and design stages (it is generally accepted that assessment deferral 'down the line' should be undertaken at the appropriate assessment stage, rather than at screening).
- 4.2.2 In summary, whilst hypothetical scenarios for effects might be identified for all options and sites that are 'screened in', there is insufficient information or detail available on the specific schemes that will be required to deliver the options to enable the potential effects on the European sites to be meaningfully identified or assessed at this stage, and any such line-by-line assessment would be largely generic and speculative. This includes those options that are locationally specific (i.e. wastewater treatment works upgrades), as whilst the location can be approximately defined, the precise requirements of any upgrades are not; for example, there may be several approaches for upgrading treatment works, some of which may be accommodated within the existing site boundary (e.g. new filters) and some of which may require additional land-take (e.g. reedbed provision). However, the following is clear:
- With regard to construction, the schemes required to implement the options will mostly involve relatively small-scale and/or unexceptional construction works at or near existing Wessex Water assets that will be similar to schemes that have been successfully implemented through previous investment cycles. As a result, there is a high degree of confidence that possible adverse effects on European sites can be avoided using established best-practice (see Appendix D) through the design and planning process, and scheme-level avoidance or mitigation measures that are known to be available, achievable and effective. Adverse effect scenarios are of course imaginable (for example, a sewer requiring removal or modification might be located under a European site with sensitive habitats) but the DWMP does not create a strategic framework that ensures that such effects are an unavoidable consequence of implementing the plan.
 - Some options inherently involve impacts on larger areas (for example, catchment-scale land-management interventions) but these are not defined in any way that allows potential effects on European sites to be identified or assessed, and as with the asset-focused interventions (see above) any assessment would be entirely speculative. However, as before the DWMP does not create a strategic framework that ensures that adverse effects from such options are an unavoidable consequence of implementing the plan, and the objectives of the DWMP.
 - Similarly, with regard to operation, specific effects on specific European sites cannot be identified or quantified based on the option scopes identified by the DWMP. However, implementation of the options must be consistent with the DWMP objectives, which are intended to improve water quality in the south-west. Operational effects on water quality would therefore be neutral or positive both collectively and for individual schemes (as a scheme that, for example, solves property flooding by discharging to a European site would not be compliant with the DWMP objectives and hence not a solution). Other operational effects are conceivable (for example, new pumping stations may introduce noise and vibration effects; transfer schemes may affect flow targets), but these will be scheme-specific and not systematically driven by the options in the DWMP. As with construction effects there is a high degree of

confidence that possible adverse effects on European sites from scheme operation can be avoided through normal best-practice design processes.

- 4.2.3 In addition, the DWMP does not fundamentally constrain the delivery in relation to the exact location, scale or nature of the schemes that will be employed to deliver the options, so 'no adverse effect' solutions should always be available.
- 4.2.4 Therefore, for the options 'alone' the appropriate assessment stage can conclude that the DWMP will have no adverse effects on the integrity of any European sites, subject to appropriate consideration of residual uncertainties 'down the line' through the design and planning process and, ultimately, at project level.

Transfer / Outfall Relocations

- 4.2.5 The transfer and outfall relocation schemes have been subject to an appropriate assessment (reflecting the limited information available on scheme design, and taking into account the intent and hence likely operation of the schemes). In summary:

Lytchett Minster Transfer

- 4.2.6 The Lytchett Minster transfer is essentially a short (1.5km) pipeline located in existing roads that transfers wastewater from Lytchett Minster WRC for treatment at Poole WRC. The European sites potentially exposed to environmental changes as a result of this scheme are:
- Dorset Heaths SAC / Dorset Heathlands SPA / Dorset Heathlands Ramsar (hereafter 'the Dorset Heaths sites'; units of these sites are immediately adjacent to Lytchett Minster WRC);
 - Poole Harbour SPA / Poole Harbour Ramsar (hereafter 'the Poole Harbour sites'; downstream receptor for construction and operation).
- 4.2.7 The Dorset Heaths sites are only potentially exposed to environmental changes associated with construction (e.g. noise / visual disturbance in respect of bird species; and exposure to construction-derived pollutants). However, there is nothing inherent in the scale (etc.) of the proposals to suggest that adverse effects cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, pollution controls).
- 4.2.8 The Poole Harbour sites may also be exposed to the environmental changes associated with construction noted above; adverse effects can be reliably avoided for the same reasons previously noted.
- 4.2.9 With regard to operation, the scheme will improve the quality of wastewater discharges to the Poole Harbour sites due to the higher quality treatment available at Poole WRC. There will consequently be no adverse effects on the water quality of the Poole Harbour sites.
- 4.2.10 Lytchett Minster WRC currently discharges to the Poole Harbour sites via a creek running into Lytchett Bay that also receives surface run-off from Upton. Data on flows in this creek (and hence the contribution of the WRC discharges) are not available without detailed site survey, although it is possible that the cessation of the WRC discharge may result in changes to the physio-chemistry (e.g. salinity profile) or morphology of this creek. Any such changes will be very minor and are very unlikely to affect the ecological condition of the creek as it relates to the conservation status of the European sites; however, if project-level investigations suggest that these changes might be notable then mitigation will

almost certainly be available (for example, it would be theoretically possible to return treated flows to Lytchett Minster for discharge, so maintaining flows in the channel).

- 4.2.11 On this basis, there is nothing inherent in the scale or type of scheme that would suggest that potential adverse effects on the above European sites cannot be avoided through project design, using established measures.

Shrewton Outfall Relocation

- 4.2.12 The Shrewton Outfall Relocation essentially involves the construction of a short (1.8km) pipeline and a new outfall on the River Till, which part of the River Avon SAC (it is uncertain whether the existing outfall would be removed or simply abandoned, although the assessment has assumed removal as a worst-case). The current discharge is to an ephemeral reach; the relocation moves this discharge downstream, to a point outside the ephemeral reach, so improving water quality within the ephemeral reach.
- 4.2.13 Only the River Avon SAC is likely to be exposed to environmental changes as a result of this scheme.
- 4.2.14 With regard to operation, the scheme will improve water quality within the ephemeral reach by removing all discharges to this section of river; there will be essentially no change in the water quality downstream of the new outfall compared to baseline.
- 4.2.15 The river will be exposed to environmental changes associated with construction (principally noise / vibration disturbance in respect of some fish species; and exposure to construction-derived pollutants). However, there is nothing inherent in the scale (etc.) of the proposals to suggest that adverse effects cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, pollution controls), and adverse effects are not an unavoidable consequence of scheme delivery.

Ratfyn Outfall Relocation

- 4.2.16 The Ratfyn Outfall Relocation essentially involves the construction of a short (1km) pipeline and a new outfall on the River Avon (it is uncertain whether the existing outfall would be removed or simply abandoned, although the assessment has assumed removal as a worst-case). The new discharge would be located upstream of the abstraction point for Durrington Water Treatment Centre (WTC), so helping to maintain flows in the river below the abstraction.
- 4.2.17 Only the River Avon SAC is likely to be exposed to environmental changes as a result of this scheme.
- 4.2.18 With regard to operation, the scheme will have no net change on water quality within the river.
- 4.2.19 The river will be exposed to environmental changes associated with construction (principally noise / vibration disturbance in respect of some fish species; and exposure to construction-derived pollutants). However, there is nothing inherent in the scale (etc.) of the proposals to suggest that adverse effects cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, pollution controls), and adverse effects are not an unavoidable consequence of scheme delivery.

Inter-Option In Combination Effects

- 4.2.20 Most drainage areas have multiple options and so 'in combination effects on European sites within those drainage areas are possible. **Appendices B and C** identify those European sites that have two or more drainage areas within 1km, and so may be exposed to 'in combination' effects between options in different drainage areas.
- 4.2.21 As with the alone assessment, there is insufficient information available on the specific schemes that will be required to deliver the options, and the identification and assessment of theoretical pathways and effects would be largely generic and speculative. However, given the timescales over which the plan will be implemented it is unlikely that many options will have temporally or spatially coincident construction effects, and adverse in combination effects from operation would not be expected for the same reasons as the alone assessment above. Note, this assessment applies to the transfer and outfall relocation schemes also.
- 4.2.22 At a catchment level the following groups of European sites are downstream receptors for multiple drainage areas and options, and hence potentially exposed to in combination effects (although, as noted, operational effects (alone or in combination) on these sites should be neutral or positive for water quality):
- Severn Estuary Ramsar
 - Severn Estuary/ Môr Hafren SAC
 - Severn Estuary SPA
 - Somerset Levels and Moors Ramsar
 - Somerset Levels and Moors SPA
 - Lyme Bay and Torbay SAC
 - Studland to Portland SAC
 - Solent and Dorset Coast SPA
 - Poole Harbour Ramsar
 - Poole Harbour SPA
 - River Avon SAC
 - Avon Valley SPA
 - Avon Valley Ramsar
- 4.2.23 Drainage areas that are upstream of these sites are identified in Appendix C.

4.3 Plan-level In Combination Assessment

Overview

- 4.3.1 The extent to which the DWMP options can act 'in combination' is dependent on a number of variables. These include nature, location and timing of implementation of options, the number of options that are ultimately implemented, and the interaction of these options with other plans or programmes. The effects are also dependent on the sensitivity of receptors to the effects of the options acting alone and in combination.

Effects with major projects

- 4.3.2 The Planning Inspectorate website has been examined to identify known major projects that might interact with options within the relevant drainage areas. Several major projects are identified:
- Hinkley Point C (determined; under construction);
 - Hinkley Point C Grid Connection (determined; under construction);
 - A303 Sparkford to Ilchester Dualling (determined);
 - A358 Taunton to Southfields (not yet submitted);
 - The West Somerset Tidal Lagoon (not yet submitted);
 - Portishead Branch Line - MetroWest Phase 1 (being determined);
 - Seabank 3 CCGT (not yet submitted);
 - Avon Power Station 950 MW output (not yet submitted).
- 4.3.3 The requirements of Hinkley Point are factored in to the DWMP process; the remaining major projects may interact 'in combination' with DWMP options, although any assessment at this stage (in the absence of detail on the options) is somewhat speculative and it must be noted that many of these projects will have been delivered by the time that specific options are implemented (due to the long-term and phased nature of the DWMP). In reality, however, the effects of the DWMP options are likely to be too minor for adverse 'in combination' effects to be likely.

Minor projects

- 4.3.4 It has not been possible to produce a definitive list of existing (minor) planning applications near the DWMPs zone of influence and, in reality given the uncertainty over the option implementation, generating a list at this stage would be of little value. It is possible that there will be 'in combination' scheme-specific construction effects associated with future planning applications, although this can only be assessed at the time of any application.

Water Resources Management Plans

- 4.3.5 Wessex Water published its current WRMP in August 2019 and has started working towards the preparation of the WRMP24. Wessex Water's WRMP explicitly accounts for growth forecasts when calculating future water demand (and hence areas with potential deficits). This means that 'in combination' effects with growth promoted by other plans or projects are considered and accounted for during the WRMP development process.
- 4.3.6 There is commonality between some of the schemes considered in the DWMP and those within the WRMP (e.g. measures to aimed at reducing domestic and business water use through a variety of education and behavioural measures), albeit that the WRMP seeks to reduce per capita water use, whereas the DWMP is seeking to reduce water entering the wastewater network and increase treatment capacity. The plans are therefore complementary and the 'in combination' operational effects of the WRMP and DWMP at a strategic level (i.e. the catchment scale) on water-resource or water-quality sensitive sites will be neutral or positive.
- 4.3.7 It is possible that construction associated with the WRMP options may interact with that required for the DWMP options, although this can only be assessed when option details

are known, and in practice virtually all such effects will be avoidable at the scheme level with established measures.

- 4.3.8 West Country Water Resources is one of five regional groups established to develop regional water resources plans, to ensure the continuous provision of resilient, efficient and sustainable water supplies for the future. The requirement was established by the National Framework for Water Resources. West Country Water Resources includes three water companies (Bristol Water, South West Water and Wessex Water). The Regional Plan describes the potential strategic supply-side options that are being investigated in the West Country alongside demand reduction options as part of a twin track approach to meeting the future water needs and plugging any deficit in water availability within the region. Similar to the WRMP24 there is likely to be overlap between likely measures that will be forthcoming within the Regional Plan and the DWMP and therefore likely to be cumulative effects where the plans work together.

Effects with other strategic plans and development pressure

- 4.3.9 Regional and local plans have been reviewed at a high level to determine whether there are any likely significant 'in combination' effects, although the absence of specific locational detail for the DWMP options ensures that specific 'in combination' effects (e.g. with Local Plan allocation sites) cannot be identified. This aspect can only be assessed when option details are known, and in practice virtually all such effects will be avoidable at the scheme level with the application of established measures.
- 4.3.10 However, it is important to recognise that Local Plans (and the development and population growth inherent within them) are taken into account during the development of the DWMP, and the DWMP includes a large number of measures explicitly intended to manage some of the water quality aspects associated with this growth. The DWMP therefore accounts for and complements these plans and so 'in combination' operational effects at a strategic level (i.e. the catchment scale) on water-resource or water-quality sensitive sites will be neutral or positive.
- 4.3.11 It is recognised that there are challenges regionally with water quality (particularly in relation to 'nutrient neutrality'; see Section 2) but the DWMP will not amplify these issues or prevent the achievement of favourable conservation status.

5. Conclusion

5.1 Drainage Areas / WRCs

- 5.1.1 For this iteration of the DWMP Wessex Water has identified 16 generic options that have been applied to 241 drainage areas.
- 5.1.2 The drainage areas are geographically defined but (with the exception of options relating to the relevant WRC) no further information on the approximate location of an option (or individual schemes that might make up the option) is provided; nor is information on other option characteristics (e.g. scale, construction requirements, operational outcomes). This would be completed as part of future planning stages and option / scheme delivery.
- 5.1.3 This presents a number of challenges for the HRA of the DWMP, and in many respects the DWMP is more similar to a Local Plan or a Flood Risk Management Plan (FRMP) than a WRMP, and so it is appropriate to apply techniques and protocols used for HRA of these plans to the DWMP.
- 5.1.4 The HRA therefore comprises:
- a 'screening' to identify those generic options that cannot have significant effects due to the fundamental nature of the option (taking into account the DWMP objectives and hence intent and purpose of such options);
 - a 'screening' of European sites that are within 5km of the Wessex Water area, or downstream, or upstream with migratory fish, to identify those sites and features where there will self-evidently be 'no effect', 'no likely significant effects', or positive effects due to the option¹⁹, and those where significant effects are likely or uncertain; and
 - an 'appropriate assessment' of any options where significant effects cannot be excluded (which includes 'down-the-line' deferral in accordance with established HRA practice, where appropriate).
- 5.1.5 The European site conservation objectives are taken into account at the screening and appropriate assessment stages as necessary.
- 5.1.6 In summary, three option types are screened out due to their fundamental characteristics, principally (in this instance) because they relate to interventions or activities that will not lead to development (e.g. investigation schemes, education programmes) and which will (in the context of the DWMP objectives) not have any mechanisms for significant effects on European sites.
- 5.1.7 With regard to the remaining options, the European sites potentially exposed to the outcomes of the options (including those potentially exposed to changes in more than one drainage area) were identified. Where possible European sites were 'screened out' if significant effects as a result of the DWMP could be self-evidently excluded based on the characteristics of the interest features and their sensitivity and exposure to the likely outcomes of the options. For precautionary reasons this inevitably excluded few sites due to the inherent uncertainties over the delivery of most options. All European sites in or near the drainage areas were therefore taken forward to an 'appropriate assessment' stage.

¹⁹ Note, for options with 'no effects' or positive effects there is no possibility of 'in combination' effects.

- 5.1.8 The level of assessment achievable at the ‘appropriate assessment’ stage is heavily constrained by the limited information available on the options. This is not uncommon for some plans and strategies, where the intent and objectives of the plan are clear but the details of options or schemes proposed to meet those objectives may not be precisely defined (and would not be defined until much later in the planning and design process in any case).
- 5.1.9 Guidance and case-practice allows for the assessment of plan components ‘down the line’ at a lower tier in the planning hierarchy if the information available at the higher-tier is fundamentally insufficient to complete a meaningful appropriate assessment. This is usually only appropriate where there is sufficient certainty that the proposals can (with the implementation of established scheme-level measures that are known to be effective) avoid adverse effects on the integrity of European sites; and/or if appropriate investigation schemes are identified to resolve the uncertainty and commitments are made within the plan to not pursue an option if adverse effects are identified through these investigations. Typically this requires that:
- ▶ the higher tier plan appraisal cannot reasonably predict the effects on a European site in a meaningful way; whereas;
 - ▶ a lower tier plan, which will identify more precisely the nature, scale or location of development, and thus its potential effects, retains enough flexibility within the terms of the higher tier plan over the exact location, scale or nature of the proposal to enable an adverse effect on site integrity to be avoided; and
 - ▶ HRA of the plan at the lower tier is required as a matter of law or Government policy.
- 5.1.10 The DWMP does not specify or constrain exactly how or where measures are implemented (even for wastewater treatment works upgrades, since many solutions for increasing capacity may be available at or near a site), and there will always be flexibility over delivery at the scheme stage (including abandonment of particular schemes that might contribute to delivery of an option if adverse effects are shown to be unavoidable).
- 5.1.11 The ‘appropriate assessment’ recognises that detailed assessment of the effects of specific options on specific sites is not possible, and therefore assessment must necessarily be deferred ‘down the line’. The assessment therefore aims to determine whether there are any reasons to suggest that effects might be unavoidable at the scheme level, rather than attempt to quantify effects that cannot be meaningfully assessed at the plan level with the option data available.
- 5.1.12 In summary:
- The operation of the options is considered likely to have a neutral or positive effect on the receiving waterbodies within the relevant catchments (alone and in combination), taking into account the intent of the options and the overarching objectives of the DWMP. It is possible that adverse effects in relation to specific options (or components of options) may be identified in some limited circumstances, but these are likely to be atypical and specific to a particular option (i.e. not systematic across options), and can only be identified when option or scheme details are established. An option with unavoidable adverse operational effects would not be compliant with objectives of the DWMP.
 - With regard to construction, the options and component schemes are not sufficiently defined to allow definitive assessment at this point, and hence some assessment will need to be completed at lower tiers in the planning hierarchy. However, it is evident that schemes contributing to the options will be similar in scale and scope to those that are typically implemented by Wessex Water in each investment cycle (and so the

environmental changes associated with construction will almost certainly be manageable or avoidable at the scheme level using standard project-level avoidance and mitigation measures that known to be available, achievable and effective), and that adverse effects alone or in combination are not likely to be an unavoidable consequence of implementing any of the options (i.e. possible effects on European sites or features can almost certainly be avoided or mitigated through the option design process).

- 5.1.13 Fundamentally, the DWMP does not constrain the delivery in relation to the exact location, scale or nature of the schemes that will comprise the options, so 'no adverse effect' solutions should always be available. None of the options are of a scale or type where adverse effects (through construction or operation) are likely to be an unavoidable consequence of their delivery.

5.2 Transfer / Outfall Relocation Schemes

- 5.2.1 The transfer and outfall relocation schemes have been subject to an appropriate assessment. This assessment necessarily reflects the limited information available on scheme design, and takes into account the intent and hence likely operation of the schemes.
- 5.2.2 As before, the 'appropriate assessment' recognises that (in the absence of detailed design) detailed assessment of the effects of these schemes is not possible, and therefore some assessment must necessarily be deferred 'down the line'. The assessment therefore aims to determine whether there are any reasons to suggest that effects might be unavoidable at the scheme level, rather than attempt to quantify effects that cannot be meaningfully assessed at the plan level with the data available.
- 5.2.3 In summary:
- There is nothing inherent in the scale (etc.) of the proposals to suggest that potential adverse effects from construction cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, pollution controls).
 - The effects of scheme operation will be neutral or positive for the receiving waterbodies, will not undermine the conservation objectives for associated European sites nor prevent the achievement of favourable conservation status.
- 5.2.4 On this basis, adverse effects on European sites are not an unavoidable consequence of these schemes.

5.3 Summary

- 5.3.1 The HRA can conclude that **the DWMP will have no adverse effects on the integrity of any European sites**, subject to appropriate consideration of residual uncertainties 'down the line' through the design and planning process and, ultimately, at project level. To ensure this, the final version of the plan includes a direction for potential effects on European sites to be appropriately considered throughout the design and planning stages for each option (and their component schemes).

Appendix A

European sites within 5km of the Wessex Water boundary

Table A1 European sites within 5km of the Wessex Water boundary and those within 1km or otherwise exposed* to environmental changes within a drainage area

Site	Qualifying features (hyperlink)	Vulnerability guide*	
		C**	O**
Avon Gorge Woodlands SAC	JNCC Standard Data Form	Y	N
Avon Valley Ramsar	Ramsar Information Sheet	Y	Y
Avon Valley SPA	JNCC Standard Data Form	Y	Y
Bath and Bradford-on-Avon Bats SAC	JNCC Standard Data Form	Y	N
Bracket's Coppice SAC	JNCC Standard Data Form	Y	N
Cerne and Sydling Downs SAC	JNCC Standard Data Form	Y	N
Chesil and the Fleet SAC	JNCC Standard Data Form	Y	Y
Chesil Beach and the Fleet Ramsar	Ramsar Information Sheet	Y	Y
Chesil Beach and The Fleet SPA	JNCC Standard Data Form	Y	Y
Chew Valley Lake SPA	JNCC Standard Data Form	Y	N
Chilmark Quarries SAC	JNCC Standard Data Form	Y	N
Crookhill Brick Pit SAC	JNCC Standard Data Form	Y	N
Dorset Heathlands Ramsar	Ramsar Information Sheet	Y	N
Dorset Heathlands SPA	JNCC Standard Data Form	Y	N
Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC	JNCC Standard Data Form	Y	N
Dorset Heaths SAC	JNCC Standard Data Form	Y	N
Exmoor and Quantock Oakwoods SAC	JNCC Standard Data Form	Y	N
Exmoor Heaths SAC	JNCC Standard Data Form	Y	N
Fontmell and Melbury Downs SAC	JNCC Standard Data Form	Y	N
Great Yews SAC	JNCC Standard Data Form	N	N

Site	Qualifying features (hyperlink)	Vulnerability guide*	
Hestercombe House SAC	JNCC Standard Data Form	Y	N
Holme Moor and Clean Moor SAC	JNCC Standard Data Form	N	N
Holnest SAC	JNCC Standard Data Form	Y	N
Isle of Portland to Studland Cliffs SAC	JNCC Standard Data Form	Y	N
Lyme Bay and Torbay SAC	JNCC Standard Data Form	Y	Y
Mells Valley SAC	JNCC Standard Data Form	Y	N
Mendip Limestone Grasslands SAC	JNCC Standard Data Form	Y	N
Mendip Woodlands SAC	JNCC Standard Data Form	Y	N
New Forest Ramsar	Ramsar Information Sheet	Y	N
New Forest SPA	JNCC Standard Data Form	Y	N
North Meadow and Clattinger Farm SAC	JNCC Standard Data Form	Y	N
North Somerset and Mendip Bats SAC	JNCC Standard Data Form	Y	N
Pewsey Downs SAC	JNCC Standard Data Form	Y	N
Poole Harbour Ramsar	Ramsar Information Sheet	Y	Y
Poole Harbour SPA	JNCC Standard Data Form	Y	Y
Porton Down SPA	JNCC Standard Data Form	Y	N
Prescombe Down SAC	JNCC Standard Data Form	N	N
Quants SAC	JNCC Standard Data Form	N	N
River Avon SAC	JNCC Standard Data Form	Y	Y
River Axe SAC	JNCC Standard Data Form	Y	N
River Wye/ Afon Gwy SAC	JNCC Standard Data Form	N	N
Rooksmoor SAC	JNCC Standard Data Form	Y	N
Salisbury Plain SAC	JNCC Standard Data Form	Y	N
Salisbury Plain SPA	JNCC Standard Data Form	Y	N
Severn Estuary Ramsar	Ramsar Information Sheet	Y	Y
Severn Estuary SPA	JNCC Standard Data Form	Y	Y
Severn Estuary/ Môr Hafren SAC	JNCC Standard Data Form	Y	Y
Sidmouth to West Bay SAC	JNCC Standard Data Form	Y	N
Solent and Dorset Coast SPA	JNCC Standard Data Form	Y	Y

Site	Qualifying features (hyperlink)	Vulnerability guide*	
Somerset Levels & Moors Ramsar	Ramsar Information Sheet	Y	Y
Somerset Levels and Moors SPA	JNCC Standard Data Form	Y	Y
St Albans Head to Durlston Head SAC	JNCC Standard Data Form	Y	N
Studland to Portland SAC	JNCC Standard Data Form	Y	Y
The New Forest SAC	JNCC Standard Data Form	Y	N
West Dorset Alder Woods SAC	JNCC Standard Data Form	Y	N

* Sites within 1km of a drainage area, or downstream, or upstream supporting migratory fish.

** Sites likely to be vulnerable (i.e. features both exposed and sensitive) to the outcomes of construction (C) or operation (O) of an option, based on typical water industry schemes; note this is necessarily a generic assessment based on the drainage catchments and assumptions regarding the likely scale and type of works required for the options and their operation; it is possible that some interventions (e.g. large scale catchment management schemes) might affect sites that would not typically be exposed to effects associated with typical water industry schemes.

Appendix B

European sites within 1km of WRCs

Table B1 European site and WRCs within 1km of these

European site and WRCs within 1km of these	Distance (km)
Avon Valley Ramsar	
CHRISTCHURCH	0.37
FORDINGBRIDGE	0.93
MATCHAMS	0.46
RINGWOOD	0.15
Avon Valley SPA	
CHRISTCHURCH	0.54
MATCHAMS	0.75
RINGWOOD	0.01
Bath and Bradford-on-Avon Bats SAC	
BOX	0.81
FRESHFORD	0.4
WINSLEY	0.79
Bracket's Coppice SAC	
CORSCOMBE	0.85
Cerne and Sydling Downs SAC	
CERNE ABBAS	0.36
MAIDEN NEWTON	0.71
SYDLING ST NICHOLAS	0.3
Chesil and the Fleet SAC	
BRIDPORT	0.64
LANGTON HERRING	0.65
WEYMOUTH	0.17
Chesil Beach and The Fleet Ramsar	
LANGTON HERRING	0.72

European site and WRCs within 1km of these	Distance (km)
WEYMOUTH	0.19
Chesil Beach and The Fleet SPA	
WEYMOUTH	0.38
Chew Valley Lake SPA	
CHEW STOKE	0.57
Dorset Heathlands Ramsar	
BLACKHEATH	0.07
CORFE CASTLE	0.56
EAST STOKE	0.88
HARMANS CROSS	0.66
HOLDENHURST	0.83
HURN	0.19
LYTCHETT MINSTER	0.41
PALMERSFORD	0.45
STUDLAND	0.04
WAREHAM	0.91
WOOL	0.69
Dorset Heathlands SPA	
BLACKHEATH	0.17
CORFE CASTLE	0.56
EAST STOKE	0.91
HOLDENHURST	0.84
HURN	0.2
LYTCHETT MINSTER	0.45
MATCHAMS	0.21
PALMERSFORD	0.48
STUDLAND	0
WAREHAM	0.92
WOOL	0.69
Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC	

European site and WRCs within 1km of these	Distance (km)
CORFE CASTLE	0.56
STUDLAND	0.04
Dorset Heaths SAC	
BLACKHEATH	0.07
CORFE CASTLE	0.61
EAST STOKE	0.88
HARMANS CROSS	0.66
HOLDENHURST	0.83
HURN	0.19
LYTCHETT MINSTER	0.41
MATCHAMS	0.18
PALMERSFORD	0.45
WAREHAM	0.41
WOOL	0.65
Holnest SAC	
GLANVILLES WOOTTON	0.82
Isle of Portland to Studland Cliffs SAC	
OSMINGTON MILLS	0.32
RINGSTEAD	0.22
SWANAGE	0
WORTH MATRAVERS	0.02
Lyme Bay and Torbay SAC	
BRIDPORT	0.7
CHARMOUTH	0.84
CHIDEOCK	0.74
Mells Valley SAC	
MELLS	0.53
OAKHILL	0.83
STOKE ST MICHAEL	0.85
Mendip Limestone Grasslands SAC	

European site and WRCs within 1km of these	Distance (km)
LOXTON	0.66
Mendip Woodlands SAC	
LEIGH ON MENDIP	0.8
New Forest SPA	
GORLEY	0.05
WOODGREEN	0.09
Poole Harbour Ramsar	
LYTCHETT MINSTER	0.03
POOLE	0.92
STUDLAND	0.34
WAREHAM	0.05
Poole Harbour SPA	
LYTCHETT MINSTER	0
STUDLAND	0.36
WAREHAM	0
River Avon SAC	
AMESBURY	0.16
BARFORD ST MARTIN	0.2
BERWICK ST JAMES	0.06
CHRISTCHURCH	0.37
CROCKERTON	0.69
DOWNTON	0.21
FORDINGBRIDGE	0.31
FOVANT	0.45
HURDCOTT	0.2
MATCHAMS	0.68
NETHERAVON	0.33
PEWSEY	0.09
RATFYN	0.26
RINGWOOD	0.18

European site and WRCs within 1km of these	Distance (km)
SALISBURY	0.13
SHREWTON	0.08
TISBURY	0.64
UPAVON	0.09
WARMINSTER	0.07
WISHFORD	0.24
WOODGREEN	0.43
Rooksmoor SAC	
LYDLINCH	0.37
Salisbury Plain SAC	
EVERLEIGH	0.48
NETHERAVON	0.62
TILSHEAD	0.06
Salisbury Plain SPA	
EVERLEIGH	0.27
NETHERAVON	0.91
TILSHEAD	0
Severn Estuary Ramsar	
AUST	0.13
KINGSTON SEYMOUR	0.66
PORTBURY WHARF	0.05
REDWICK	0.2
SHARPNESS	0.08
WEST HUNTSPILL	0.32
WESTON-SUPER-MARE	0.2
WICK ST LAWRENCE	0.26
Severn Estuary SPA	
AUST	0
PORTBURY WHARF	0.09
REDWICK	0

European site and WRCs within 1km of these	Distance (km)
SHARPNESS	0
WEST HUNTSPILL	0.46
WESTON-SUPER-MARE	0.11
WICK ST LAWRENCE	0.01
Severn Estuary/ Môr Hafren SAC	
AUST	0.13
KINGSTON SEYMOUR	0.69
PORTBURY WHARF	0.05
REDWICK	0.2
SHARPNESS	0.08
WEST HUNTSPILL	0.52
WESTON-SUPER-MARE	0.2
WICK ST LAWRENCE	0.26
Sidmouth to West Bay SAC	
CHARMOUTH	0.65
CHIDEOCK	0.63
Solent and Dorset Coast SPA	
CHRISTCHURCH	0.37
STUDLAND	0.9
SWANAGE	0
Somerset Levels and Moors Ramsar	
BURROWBRIDGE	0.01
EAST LYNG	0.53
MUCHELNEY	0.11
STOKE ST GREGORY	0.19
THEALE	0.7
Somerset Levels and Moors SPA	
BURROWBRIDGE	0.17
EAST LYNG	0.55
MUCHELNEY	0.11

European site and WRCs within 1km of these	Distance (km)
STOKE ST GREGORY	0.6
THEALE	0.71
St Albans Head to Durlston Head SAC	
SWANAGE	0.91
WORTH MATRAVERS	0.52
Studland to Portland SAC	
RINGSTEAD	1
SWANAGE	0.01
WORTH MATRAVERS	0.8
The New Forest Ramsar	
GORLEY	0.06
WOODGREEN	0.09
The New Forest SAC	
GORLEY	0.05
WOODGREEN	0.09
West Dorset Alder Woods SAC	
EVERSHOT	0.11
WEST MILTON	0.55

Appendix C

European Sites associated with drainage areas

The table below identifies the European sites that intersect or are within 1km of each drainage area, and those drainage areas that are upstream (“u/s”) of the European site (i.e. the European site may be exposed to operational effects from multiple options in the drainage areas).

Table C1 Linked European Sites

European sites and drainage areas
Avon Gorge Woodlands SAC
AVONMOUTH
Avon Valley Ramsar
AMESBURY (u/s)
BARFORD ST MARTIN (u/s)
BERWICK ST JAMES (u/s)
CHRISTCHURCH
CROCKERTON (u/s)
DOWNTON (u/s)
EVERLEIGH (u/s)
FORDINGBRIDGE
FOVANT (u/s)
GORLEY
GORLEY (u/s)
HOLDENHURST
HURDCOTT (u/s)
MATCHAMS HOUSE
NETHERAVON (u/s)
PALMERSFORD
PEWSEY (u/s)
RATFYN (u/s)
RINGWOOD

European sites and drainage areas

SALISBURY (u/s)

SHREWTON (u/s)

TILSHEAD (u/s)

TISBURY (u/s)

UPAVON (u/s)

WARMINSTER (u/s)

WISHFORD (u/s)

WOODGREEN (u/s)

Avon Valley SPA

AMESBURY (u/s)

BARFORD ST MARTIN (u/s)

BERWICK ST JAMES (u/s)

CHRISTCHURCH

CROCKERTON (u/s)

DOWNTON (u/s)

EVERLEIGH (u/s)

FORDINGBRIDGE (u/s)

FOVANT (u/s)

GORLEY (u/s)

HOLDENHURST

HURDCOTT (u/s)

MATCHAMS HOUSE

NETHERAVON (u/s)

PALMERSFORD

PEWSEY (u/s)

RATFYN (u/s)

RINGWOOD

SALISBURY (u/s)

SHREWTON (u/s)

TILSHEAD (u/s)

TISBURY (u/s)

European sites and drainage areas

UPAVON (u/s)

WARMINSTER (u/s)

WISHFORD (u/s)

WOODGREEN (u/s)

Bath and Bradford-on-Avon Bats SAC

BOX

COLERNE

FRESHFORD

SALTFORD

THINGLEY

WINSLEY

Bracket's Coppice SAC

CORSCOMBE

Cerne and Sydling Downs SAC

CERNE ABBAS

MAIDEN NEWTON

SYDLING ST NICHOLAS

Chesil and the Fleet SAC

ABBOTSBURY

BRIDPORT

LANGTON HERRING

PUNCKNOWLE

WEYMOUTH

Chesil Beach and The Fleet Ramsar

ABBOTSBURY

LANGTON HERRING

WEYMOUTH

Chesil Beach and The Fleet SPA

ABBOTSBURY

LANGTON HERRING

WEYMOUTH

European sites and drainage areas

Chew Valley Lake SPA

CHEW STOKE

Chilmark Quarries SAC

TISBURY

Crookhill Brick Pit SAC

WEYMOUTH

Dorset Heathlands Ramsar

BLACKHEATH

BROADMAYNE

CHRISTCHURCH

CORFE CASTLE

CORFE MULLEN

DORCHESTER

EAST STOKE

FORDINGBRIDGE

HARMANS CROSS

HOLDENHURST

HOLT

HURN

KINSON

LYTCHETT MINSTER

MATCHAMS HOUSE

PALMERSFORD

POOLE

STUDLAND

SWANAGE

WAREHAM

WIMBORNE

WOOL

Dorset Heathlands SPA

BLACKHEATH

European sites and drainage areas

CHRISTCHURCH

CORFE CASTLE

CORFE MULLEN

DORCHESTER

EAST STOKE

FORDINGBRIDGE

HOLDENHURST

HOLT

HURN

KINSON

LYTCHETT MINSTER

MATCHAMS HOUSE

PALMERSFORD

POOLE

RINGWOOD

STUDLAND

WAREHAM

WIMBORNE

WOOL

Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC

BLACKHEATH

CORFE CASTLE

POOLE

STUDLAND

SWANAGE

WAREHAM

Dorset Heaths SAC

BLACKHEATH

BROADMAYNE

CHRISTCHURCH

CORFE CASTLE

European sites and drainage areas

CORFE MULLEN

DORCHESTER

EAST STOKE

FORDINGBRIDGE

HARMANS CROSS

HOLDENHURST

HOLT

HURN

KINSON

LYTCHETT MINSTER

MATCHAMS HOUSE

PALMERSFORD

POOLE

RINGWOOD

WAREHAM

WIMBORNE

WOOL

Exmoor and Quantock Oakwoods SAC

KILVE

NETHER STOWEY

PORLOCK

Exmoor Heaths SAC

MINEHEAD

PORLOCK

Fontmell and Melbury Downs SAC

FONTMELL MAGNA

TISBURY

Hestercombe House SAC

TAUNTON

Holnest SAC

GLANVILLE WOOTTON

European sites and drainage areas

LONGBURTON

Isle of Portland to Studland Cliffs SAC

CORFE CASTLE

OSMINGTON MILLS

Ringstead

STUDLAND

SWANAGE

WEYMOUTH

WOOL

WORTH MATRAVERS

Lyme Bay and Torbay SAC

ABBOTSBURY

BRIDPORT

CHARMOUTH

CHIDEOCK

LANGTON HERRING (u/s)

OSMINGTON MILLS (u/s)

POWERSTOCK (u/s)

PUNCKNOWLE

Ringstead (u/s)

WEST MILTON (u/s)

WORTH MATRAVERS (u/s)

Mells Valley SAC

EDFORD

FROME

MELLS

OAKHILL

STOKE ST MICHAEL

Mendip Limestone Grasslands SAC

CHEDDAR

LOXTON

European sites and drainage areas

WESTON SUPER MARE

WINSCOMBE

Mendip Woodlands SAC

CHEDDAR

CRANMORE

DRAYCOTT

LEIGH ON MENDIP

WELLS

WESTBURY-SUB-MENDIP

New Forest SPA

CHRISTCHURCH

DOWNTON

GORLEY

RINGWOOD

WOODGREEN

North Meadow and Clattinger Farm SAC

MALMESBURY

North Somerset and Mendip Bats SAC

CHEDDAR

KINGSTON SEYMOUR

UBLEY

WELLS

WESTON SUPER MARE

WICK ST LAWRENCE

WINSCOMBE

WRINGTON

Pewsey Downs SAC

PEWSEY

Poole Harbour Ramsar

BLACKHEATH (u/s)

BROADMAYNE (u/s)

European sites and drainage areas

CERNE ABBAS (u/s)

CORFE CASTLE (u/s)

DORCHESTER (u/s)

EAST STOKE (u/s)

EVERSHOT (u/s)

HARMANS CROSS (u/s)

LYTCHETT MINSTER

MAIDEN NEWTON (u/s)

POOLE

STUDLAND

SYDLING ST NICHOLAS (u/s)

TOLLER PORCORUM (u/s)

WAREHAM

WOOL (u/s)

Poole Harbour SPA

BLACKHEATH (u/s)

BROADMAYNE (u/s)

CERNE ABBAS (u/s)

CORFE CASTLE (u/s)

DORCHESTER (u/s)

EAST STOKE (u/s)

EVERSHOT (u/s)

HARMANS CROSS (u/s)

LYTCHETT MINSTER

MAIDEN NEWTON (u/s)

POOLE

STUDLAND

SYDLING ST NICHOLAS (u/s)

TOLLER PORCORUM (u/s)

WAREHAM

WOOL (u/s)

European sites and drainage areas

Porton Down SPA

HURDCOTT

River Avon SAC

AMESBURY

BARFORD ST MARTIN

BERWICK ST JAMES

CHRISTCHURCH

CORFE MULLEN (u/s)

CROCKERTON

CROCKERTON (u/s)

DOWNTON

EVERLEIGH (u/s)

FONTMELL MAGNA (u/s)

FORDINGBRIDGE

FOVANT

GLANVILLE WOOTTON (u/s)

GORLEY (u/s)

HAZELBURY BRYAN (u/s)

HOLDENHURST

HOLT (u/s)

HURDCOTT

HURN (u/s)

KINGS STAG (u/s)

KINSON (u/s)

LONGBURTON (u/s)

LYDLINCH (u/s)

MATCHAMS HOUSE

NETHERAVON

PALMERSFORD

PEWSEY

RATFYN

European sites and drainage areas

RINGWOOD

SALISBURY

SHREWTON

TILSHEAD (u/s)

TISBURY

UPAVON

UPAVON (u/s)

WARMINSTER

WIMBORNE (u/s)

WISHFORD

WOODGREEN

Rookmoor SAC

HAZELBURY BRYAN

KINGS STAG

LYDLINCH

Salisbury Plain SAC

DILTON MARSH

EVERLEIGH

HURDCOTT

LAVINGTON

NETHERAVON

NORTH TIDWORTH

RATFYN

TILSHEAD

WARMINSTER

WESTBURY

Salisbury Plain SPA

DILTON MARSH

EVERLEIGH

LAVINGTON

NETHERAVON

European sites and drainage areas

NORTH TIDWORTH

RATFYN

SHREWTON

TILSHEAD

WARMINSTER

WESTBURY

Severn Estuary Ramsar

AUST

AVONMOUTH

BOX (u/s)

BURROWBRIDGE (u/s)

CANNINGTON

CHEDDAR (u/s)

CHEW STOKE (u/s)

COLERNE (u/s)

CORSCOMBE (u/s)

CRANMORE (u/s)

DILTON MARSH (u/s)

DRAYCOTT (u/s)

EAST LYNG (u/s)

EDFORD (u/s)

FIVEHEAD (u/s)

FRESHFORD (u/s)

FROME (u/s)

ILMINSTER (u/s)

KINGSTON SEYMOUR

LANGPORT (u/s)

LAVINGTON (u/s)

LEIGH ON MENDIP (u/s)

LOXTON (u/s)

MALMESBURY (u/s)

European sites and drainage areas

MARTOCK (u/s)

MEARE (u/s)

MELLS (u/s)

MUCHELNEY (u/s)

NETHER STOWEY (u/s)

OAKHILL (u/s)

PORTBURY WHARF

REDWICK

SALTFORD (u/s)

SHARPNESS

STOGURSEY

STOKE ST GREGORY (u/s)

TAUNTON (u/s)

THEALE (u/s)

THINGLEY (u/s)

THORNBURY

UBLEY (u/s)

WEDMORE (u/s)

WELLS (u/s)

WEST HUNTSPILL

WESTBURY (u/s)

WESTBURY-SUB-MENDIP (u/s)

WESTON SUPER MARE

WICK ST LAWRENCE

WINSCOMBE (u/s)

WINSLEY (u/s)

WRINGTON (u/s)

Severn Estuary SPA

AUST

AVONMOUTH

BOX (u/s)

European sites and drainage areas

BURROWBRIDGE (u/s)

CANNINGTON

CHEDDAR (u/s)

CHEW STOKE (u/s)

COLERNE (u/s)

CORSCOMBE (u/s)

CRANMORE (u/s)

DILTON MARSH (u/s)

DRAYCOTT (u/s)

EAST LYNG (u/s)

EDFORD (u/s)

FIVEHEAD (u/s)

FRESHFORD (u/s)

FROME (u/s)

ILMINSTER (u/s)

KINGSTON SEYMOUR

LANGPORT (u/s)

LAVINGTON (u/s)

LEIGH ON MENDIP (u/s)

LOXTON (u/s)

MALMESBURY (u/s)

MARTOCK (u/s)

MEARE (u/s)

MELLS (u/s)

MUCHELNEY (u/s)

NETHER STOWEY (u/s)

OAKHILL (u/s)

PORTBURY WHARF

REDWICK

SALTFORD (u/s)

SHARPNESS

European sites and drainage areas

STOGURSEY

STOKE ST GREGORY (u/s)

TAUNTON (u/s)

THEALE (u/s)

THINGLEY (u/s)

THORNBURY

UBLEY (u/s)

WEDMORE (u/s)

WELLS (u/s)

WEST HUNTSPILL

WESTBURY (u/s)

WESTBURY-SUB-MENDIP (u/s)

WESTON SUPER MARE

WICK ST LAWRENCE

WINSCOMBE (u/s)

WINSLEY (u/s)

WRINGTON (u/s)

Severn Estuary/ Môr Hafren SAC

AUST

AVONMOUTH

BOX (u/s)

BURROWBRIDGE (u/s)

CANNINGTON

CHEDDAR (u/s)

CHEW STOKE (u/s)

COLERNE (u/s)

CORSCOMBE (u/s)

CRANMORE (u/s)

DILTON MARSH (u/s)

DRAYCOTT (u/s)

EAST LYNG (u/s)

European sites and drainage areas

EDFORD (u/s)
FIVEHEAD (u/s)
FRESHFORD (u/s)
FROME (u/s)
ILMINSTER (u/s)
KINGSTON SEYMOUR
LANGPORT (u/s)
LAVINGTON (u/s)
LEIGH ON MENDIP (u/s)
LOXTON (u/s)
MALMESBURY (u/s)
MARTOCK (u/s)
MEARE (u/s)
MELLS (u/s)
MUCHELNEY (u/s)
NETHER STOWEY (u/s)
OAKHILL (u/s)
PORTBURY WHARF
REDWICK
SALTFORD (u/s)
SHARPNESS
STOKE ST GREGORY (u/s)
TAUNTON (u/s)
THEALE (u/s)
THINGLEY (u/s)
THORNBURY
UBLEY (u/s)
WEDMORE (u/s)
WELLS (u/s)
WEST HUNTSPILL
WESTBURY (u/s)

European sites and drainage areas

WESTBURY-SUB-MENDIP (u/s)

WESTON SUPER MARE

WICK ST LAWRENCE

WINSCOMBE (u/s)

WINSLEY (u/s)

WRINGTON (u/s)

Sidmouth to West Bay SAC

BRIDPORT

CHARMOUTH

CHIDEOCK

Solent and Dorset Coast SPA

ABBOTSBURY (u/s)

AMESBURY (u/s)

BARFORD ST MARTIN (u/s)

BERWICK ST JAMES (u/s)

BLACKHEATH (u/s)

BROADMAYNE (u/s)

CERNE ABBAS (u/s)

CHRISTCHURCH

CORFE CASTLE

CORFE MULLEN (u/s)

CROCKERTON (u/s)

DORCHESTER (u/s)

DOWNTON (u/s)

EAST STOKE (u/s)

EVERLEIGH (u/s)

EVERSHOT (u/s)

FONTMELL MAGNA (u/s)

FORDINGBRIDGE (u/s)

FOVANT (u/s)

GLANVILLE WOOTTON (u/s)

European sites and drainage areas

GORLEY (u/s)
HARMANS CROSS (u/s)
HAZELBURY BRYAN (u/s)
HOLDENHURST
HOLT (u/s)
HURDCOTT (u/s)
HURN (u/s)
KINGS STAG (u/s)
KINSON (u/s)
LANGTON HERRING (u/s)
LONGBURTON (u/s)
LYDLINCH (u/s)
MAIDEN NEWTON (u/s)
MATCHAMS HOUSE (u/s)
NETHERAVON (u/s)
OSMINGTON MILLS (u/s)
PALMERSFORD (u/s)
PEWSEY (u/s)
POOLE
POWERSTOCK (u/s)
PUNCKNOWLE (u/s)
RATFYN (u/s)
Ringstead (u/s)
RINGWOOD (u/s)
SALISBURY (u/s)
SHREWTON (u/s)
STUDLAND
SWANAGE
SYDLING ST NICHOLAS (u/s)
TILSHEAD (u/s)
TISBURY (u/s)

European sites and drainage areas

TOLLER PORCORUM (u/s)

UPAVON (u/s)

WARMINSTER (u/s)

WEST MILTON (u/s)

WIMBORNE (u/s)

WISHFORD (u/s)

WOODGREEN (u/s)

WOOL (u/s)

WORTH MATRAVERS (u/s)

Somerset Levels and Moors Ramsar

BURROWBRIDGE

CANNINGTON (u/s)

CHILTON TRINITY

CORSCOMBE (u/s)

EAST LYNG

FIVEHEAD

ILMINSTER

LANGPORT

MARTOCK

MEARE

MUCHELNEY

NETHER STOWEY (u/s)

STOKE ST GREGORY

TAUNTON (u/s)

THEALE

WEDMORE

WEST HUNTSPILL

WEST LYNG

Somerset Levels and Moors SPA

BURROWBRIDGE

CANNINGTON (u/s)

European sites and drainage areas

CHILTON TRINITY

CORSCOMBE (u/s)

EAST LYNG

FIVEHEAD

ILMINSTER (u/s)

LANGPORT

MARTOCK

MEARE

MUCHELNEY

NETHER STOWEY (u/s)

STOKE ST GREGORY

TAUNTON (u/s)

THEALE

WEDMORE

WEST HUNTSPILL

WEST LYNG

St Albans Head to Durlston Head SAC

SWANAGE

WORTH MATRAVERS

Studland to Portland SAC

ABBOTSBURY (u/s)

CORFE CASTLE

LANGTON HERRING (u/s)

OSMINGTON MILLS (u/s)

POWERSTOCK (u/s)

PUNCKNOWLE (u/s)

Ringstead

STUDLAND

SWANAGE

WEST MILTON (u/s)

WEYMOUTH

European sites and drainage areas

WOOL

WORTH MATRAVERS

The New Forest Ramsar

CHRISTCHURCH

DOWNTON

GORLEY

RINGWOOD

WOODGREEN

The New Forest SAC

CHRISTCHURCH

DOWNTON

GORLEY

RINGWOOD

WOODGREEN

West Dorset Alder Woods SAC

EVERSHOT

POWERSTOCK

TOLLER PORCORUM

WEST MILTON

Appendix D

Standard Avoidance and Mitigation Measures

Overview

Some of the typical 'avoidance measures' that may be applied to the options are detailed below, and are grouped as follows:

- General Measures (established construction best-practice, etc.) which will be applied to all options;
- Option-specific Measures (established and reliable measures identified to avoid specific potential effects on European sites, such as in relation to mobile species from the sites).

It is assumed that these measures will be applied unless project-level HRAs or scheme-specific environmental studies demonstrate that they are not required (i.e. the anticipated effect will not occur), not appropriate, or that alternative or additional measures are necessary or more appropriate.

Note that these measures are not exhaustive or exclusive and must be reviewed at the project stage, taking into account any changes in best-practice as well as scheme-specific survey information or studies.

General Measures and Principles

Scheme Design and Planning

All options will be subject to project-level environmental assessment as they are brought forward, which will include assessments of their potential to affect European sites during their construction or operation. These assessments will consider or identify (inter alia):

- opportunities for avoiding potential effects on European sites through design (e.g. alternative pipeline routes; micro siting; etc);
- construction measures that need to be incorporated into scheme design and/or planning to avoid or mitigate potential effects - for example, ensuring that sufficient working area is available for pollution prevention measures to be installed, such as sediment traps;
- specific operational regimes required to ensure no adverse effects occur.

Pollution Prevention

The habitats of European sites are most likely to be affected indirectly, through construction-site derived pollutants, rather than through direct encroachment. There is a substantial body of general construction good-practice which is likely to be applicable to all of the proposed options and can be relied on (at this level) to prevent significant or adverse effects on a European site occurring as a

result of construction site-derived pollutants. The following guidance documents detail the current industry best-practices in construction that are likely to be relevant to the proposed schemes:

- Environment Agency Pollution Prevention Guidance Notes²⁰ , including:
- PPG1: General guide to the prevention of pollution (May 2001);
- PPG5: Works and maintenance in or near water (October 2007);
- PPG6: Pollution prevention guidance for working at construction and demolition sites (April 2010);
- PPG21: Pollution incident response planning (March 2009);
- PPG22: Dealing with spillages on highways (June 2002);
- Environment Agency (2001) Preventing pollution from major pipelines [online]. Available at www.environment-agency.gov.uk/static/documents/Business/pipes.pdf;
- Venables R. et al. (2000) Environmental Handbook for Building and Civil Engineering Projects. 2nd Edition. Construction Industry Research and Information Association (CIRIA), London.

The best-practice procedures and measures detailed in these documents will be followed for all construction works derived from the Drought Plan as a minimum standard, unless scheme-specific investigations identify additional measures and/or more appropriate non-standard approaches for dealing with potential site-derived pollutants.

General measures for species

Most species-specific avoidance or mitigation measures can only be determined at the scheme level, following scheme-specific surveys, and 'best-practice' mitigation for a species will vary according to a range of factors that cannot be determined at the strategic (DP) level. In addition, some general 'best-practice' measures may not be relevant or appropriate to the interest features of the European sites concerned (for example, clearing vegetation over winter is usually advocated to avoid impacts on nesting birds; however, this is unlikely to be necessary to avoid effects on some SPA species (such as overwintering estuarine birds) and the winter removal of vegetation might actually have a negative effect on these species through disturbance). However, the following general measures will be followed to minimise the potential for impacts on species that are European site interest features unless project level environmental studies or HRA indicate that they are not required or not appropriate, or that alternative or additional measures are more appropriate/necessary:

- Scheme design will aim to minimise the environmental effects by 'designing to avoid' potential habitat features that may be used by species that are European site interest features when outside the site boundary (e.g. linear features such as hedges or stream corridors; large areas of scrub or woodland; mature trees; etc.) through scheme-specific routing studies.
- The works programme and requirements for each option will be determined at the earliest opportunity to allow investigation schemes, surveys and mitigation to be appropriately scheduled and to provide sufficient time for consultations with NE.
- Night-time working, or working around dusk/dawn, should be avoided to reduce the likelihood of negative effects on nocturnal species.

²⁰ Note, these guidance notes have been withdrawn by the UK government but remain relevant for pollution control.

- Any lighting required (either temporary or permanent) will be designed with an ecologist to ensure that potential 'displacement' effects on nocturnal animals, particularly SAC bat species, are avoided.
- All compounds/pipe stores etc. will be sited, fenced or otherwise arranged to prevent vulnerable SAC species (notably otters) from accessing them.
- All materials will be stored away from commuting routes/foraging areas that may be used by species that are European site interest features.
- All excavations will have ramps or battered ends to prevent species becoming trapped.
- Pipe-caps must be installed overnight to prevent species entering and becoming trapped in any laid pipe-work.

Option-specific measures

No option-specific measures can be identified at this stage.

Appendix E

Transfer / Outfall Relocation Assessments

E1 Overview of Schemes

A.1.1 Three schemes have been agreed with the Environment Agency to resolve specific water quality and flow issues, and are identified in the DWMP. These schemes are as follows:

- The **Lytchett Minster transfer** scheme transfers wastewater from Lytchett Minster WRC for treatment at Poole WRC via a short (1.5km) pipeline located in existing roads; this scheme is to improve the quality of discharges to Poole Harbour.
- The **Shrewton Outfall Relocation** moves the Shrewton WRC outfall from an ephemeral to a non-ephemeral downstream reach of the River Till via a short (1.8km) pipeline, to improve water quality in the ephemeral reach.
- The **Ratfyn Outfall Relocation** moves the Ratfyn WRC outfall to a new location upstream of the abstraction point for Durrington Water Treatment Centre (WTC) via a short (1km) pipeline, so helping to maintain flows in the river below the abstraction.

A.1.2 These schemes have not been subject to detailed design or field survey and so are largely conceptual at this point. However, it is assumed that (other than the new discharge locations) the operational parameters of the discharges will remain the same (i.e. in accordance with the existing permits etc.).

E2 Assessment Approach

Plan-Level Appropriate Assessment

A.1.3 The level of scheme detail available at the plan level is limited; possible pipeline routes have been identified and the conceptual operation of the schemes is understood, but they have not been subject to detailed design. Information on several scheme aspects (e.g. construction techniques; timing; outfall location; habitats; etc.) is not therefore available.

A.1.4 HRAs of plans and strategies typically have to deal with a degree of uncertainty as many aspects of a proposal simply cannot be fully defined at the strategy-level in the planning hierarchy. The appropriate assessment is therefore necessarily 'appropriate' to the scheme detail that is available at that level in the planning hierarchy, and some assessment aspects must necessarily be deferred to the project-level. Case law notes that it would "...hardly be proper to require a greater level of detail in preceding plans or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan."²¹

A.1.5 Guidance and case-practice also allows for the assessment of plan components 'down the line' at a lower tier in the planning hierarchy if the information available at the higher-tier is fundamentally insufficient to complete a meaningful appropriate assessment. This is usually only appropriate where there is sufficient certainty that the proposals can (with the

²¹ European Commission v UK (2005) ECR I-09017; case reference C-6/04.

implementation of established scheme-level measures that are known to be effective) avoid adverse effects on the integrity of European sites; and/or if appropriate investigation schemes are identified to resolve the uncertainty and commitments are made within the plan to not pursue an option if adverse effects are identified through these investigations.

A.1.6 The assessment therefore aims to determine whether there are any reasons to suggest that adverse effects might be unavoidable at the scheme level, rather than attempt to quantify effects that cannot be meaningfully assessed at the plan level with the option data available.

Environmental changes and the ‘zone of environmental change’

Principal environmental changes associated with schemes

5.3.2 The integrity of ecological receptors, including the features of designated sites, may be put under pressure by various environmental changes associated with the construction and operation of developments if the receptor is both exposed and sensitive to those changes (see Table E.1 for common environmental changes or effect pathways associated with schemes in the terrestrial environment). The ‘zone of influence’ within which environmental changes might be anticipated due to these aspects will depend on a number of moderating factors²², although it is possible to estimate precautionary areas where environmental changes due to the scheme may be measurable and sufficient to affect an ecological receptor.

Table E1 Typical effect pathways and environmental changes associated with terrestrial development

Environmental aspect / pressure	Common environmental changes / pathways associated with aspect
Hydrological changes	Temperature changes Salinity changes Water flow changes Flood regime changes
Pollution and other chemical changes	Non-synthetic and synthetic compound contamination Radionuclide contamination Introduction of other substances (solid, liquid or gas) De-oxygenation Nutrient enrichment Organic enrichment
Physical loss	Physical loss of habitat Physical change to another habitat
Physical damage	Habitat structure changes Changes in suspended solids Siltation rate changes
Other physical pressures	Litter Electromagnetic changes Noise changes Introduction of light

²² Taking noise, for example, without any barriers construction noise of around 110dB would be expected to attenuate to less than 50dB within 500m due to distance alone.

Environmental aspect / pressure	Common environmental changes / pathways associated with aspect
	Barrier to species movement Death or injury by collision
Biological pressures	Visual disturbance Genetic modification and translocation of indigenous species Introduction or spread of non-indigenous species Introduction of microbial pathogens Exploitation / harvesting of species Removal of non-target species during exploitation / harvesting

5.3.3 The proposed schemes will involve essentially unexceptional construction works that will be entirely consistent with schemes that have been successfully implemented through previous investment cycles without adverse effects on European sites. The fundamental operation of the schemes will remain unchanged from the current situation, other than the location of discharges being altered.

5.3.4 In summary, the schemes could theoretically affect European sites, or their interest features, through the following principal aspects and mechanisms (note, this does not account for the presence (or not) of particular receptors within the zone of influence):

- Direct physical damage to habitats used by European site interest features (within or outside European site boundaries) during construction or operation.
- Damage to habitats or species from site-derived materials or pollutants: this may include toxic and non-toxic contaminants associated directly with construction (e.g. alkali concrete leachate; silts; emissions to air; etc.).
- Noise or vibration disturbance: the works will result in noise and vibration which can affect several faunal interest feature groups through various mechanisms (for example breeding or wintering birds may suffer reduced fitness due to an increase in energy expenditure from a flight response and / or a reduction in food intake; noise and vibration can displace some fish species, or have a barrier effect).
- Visual impact disturbance: some species can be disturbed by construction activities; this has similar negative effects to noise disturbance (above).

5.3.5 Other effect pathways (e.g. from site lighting) are discounted as there is no realistic mechanism for significant effects to occur due to the negligible and temporary scale of any environmental changes.

Moderating factors and ‘zone of influence’ for environmental changes

5.3.6 There will often be moderating factors (e.g. natural attenuation, barrier effects) that will influence the likely ‘zone of influence’ for the environmental changes associated with a given proposal. In this instance it should be recognised that the proposed schemes are small-scale construction schemes and that environmental changes are unlikely to be detectable more than a few hundred metres from the site, except where effects on the rivers may occur. Table 2.2 summarises the environmental aspects likely to be associated with the scheme, and any factors that are likely to influence the ‘zone of influence’ for any environmental changes.

5.3.7 Note, it is necessary to assume that the construction and operation of the scheme will be in accordance with all applicable regulations and standards; it would not be appropriate to attempt to assess a scenario whereby, for example, standard requirements for refuelling are not followed so allowing uncontrolled leakages of oils to occur.

Table E2 Potential environmental changes and moderating factors affecting the zone of influence

Aspect	Likely extent and natural moderating factors
Hydrological changes	The anticipated hydrological changes will be local to the affected reaches only due to the nature of the scheme.
Pollution and other chemical changes	<p>Emissions to air:</p> <ul style="list-style-type: none"> • No major sources of air emissions will be required during the works (normal plant only). • Effects unlikely to extend more than ~200m from source based on available guidance for roads as point sources. • Permitted limits for airborne lead (for H&S) are substantially lower than the levels required to affect vegetation through toxicity. • Trees and woodland will significantly attenuate dispersal of airborne emissions and particulates. <p>Discharges to water:</p> <ul style="list-style-type: none"> • The volume of run-off that is possible is small simply by virtue of the scale of the works and area affected. • Effects likely to be attenuated by flows in the Avon within 20km
Physical loss	Physical loss of habitat or change to another habitat will occur at the outfall location only (all other areas restored).
Physical damage	Physical damage to habitats will occur within the construction site boundary only. Geomorphological changes due to outfall construction only likely within the local reaches.
Other physical pressures	<p>Noise / vibration:</p> <ul style="list-style-type: none"> • Zone of influence will not extend more than 400 – 500m (typical construction noise is almost always indistinguishable from background noise within this distance due to natural attenuation alone). • Only some animal species (notably birds, mammals and fish) likely to be sensitive. • No major sources of vibration (e.g. piling) required during works. <p>Visual disturbance:</p> <ul style="list-style-type: none"> • Only some animal species (notably birds and mammals) likely to be sensitive. • Operates over relatively short distances and will be moderated by screening from trees (etc.). • Rarely considered to significantly affect birds over 300m from source (Cutts et al. 2013). <p>Other physical pressures (e.g. electromagnetic changes; introduction of permanent physical barriers; etc.) are not part of the proposals being screened.</p>
Biological pressures	Introduction or spread of non-indigenous species is controlled by standard procedures. Other biological pressures (e.g. introduction of pathogens; harvesting of species) are not a component of the proposals being screened.

Study area

5.3.8 Consequently, it is reasonable (and sufficiently precautionary) to assume that environmental impacts as a result of the scheme will not be detectable more than 1km from the construction areas (except where a river is directly affected, in which case a precautionary 20km downstream is assumed), and so European site interest features will only be exposed to the effects of the scheme if they coincide with the zones in which environmental changes are considered possible (either within the European site, or if the interest features of the site are functionally dependent on the habitats with these zones). Study areas as they relate to each option are set out in the relevant sections below.

Data collection

- 5.3.9 A baseline for each European site within the study area is established. This includes a contextual overview of each site; and information on the interest features; their condition; and the current pressures and threats identified for each site²³. These are based on the citations, the Site Improvement Plans (SIPs), information on the condition of the underlying SSSIs, and any supplementary advice provided by Natural England²⁴. A summary of the conservation objectives is also provided.
- 5.3.10 The extent of each site in favourable or unfavourable condition is estimated using the Natural England condition assessments for the corresponding SSSI units, although it must be noted that the boundaries of the component SSSI units (to which the condition assessments relate) do not always match the European site boundaries exactly (i.e. the SSSIs are often larger) and it is not always possible to split SSSI units to determine the precise area of the European site (or interest feature) that is in each condition category.
- 5.3.11 ‘**Typical species**’ (for SACs), within-site **supporting habitats**, and designated or non-designated ‘**functional habitats**’ that may be relevant to site integrity are identified where possible.
- 5.3.12 A ‘typical species’ is broadly described by EC guidance as being any species (or community of species) which is particularly characteristic of, confined to, and/or dependent upon the qualifying Annex I habitat feature at a particular site. This may include those species which:
- are critical to the composition or structure of an Annex I habitat (e.g. constant species identified by the National Vegetation Classification (NVC) community classification);
 - exert a critical positive influence on the Annex I habitat’s structure or function (e.g. a bioturbator (mixer of soil/sediment), grazer, surface borer or predator);
 - are consistently associated with, and dependent upon, the Annex I habitat feature for specific ecological needs (e.g. feeding, sheltering), completion of life-cycle stages (e.g. egg-laying) and/or during certain seasons/times; or
 - are particularly distinctive or representative of the Annex I habitat feature at a particular site.
- 5.3.13 Within-site supporting habitats are those which support the population(s) of the qualifying species and which are therefore critical to the integrity of the feature.

²³ The Natural England Site Improvement Plans (SIPs) identify ‘pressures’, which are factors that are known to be currently affecting a site, and ‘threats’ which are factors that may not be exerting a pressure at the moment but which have the potential to do so based on local site knowledge.

²⁴ NE has published ‘*Supplementary advice on conserving and restoring site features*’ for most European sites, which describe in more detail the range of ecological attributes which are most likely to contribute to a site’s overall integrity, and the targets each qualifying feature needs to achieve in order for the site’s conservation objectives to be met; these are referred to as the ‘supplementary advice’.

- 5.3.14 'Functional habitats' are generally taken to be habitats or features outside a European site boundary that are important or critical to the functional integrity of the site habitats and / or its interest features. These might include, for example:
- 'buffer' areas around a site (e.g. dense scrub areas preventing public access; areas of land that reduce the effects of agricultural run-off; etc.);
 - specific features or habitats relied on by mobile species during their lifecycle (e.g. high-tide roosts for waders; significant maternity colonies for bats known to hibernate within an SAC; areas that are critical for foraging or migration; etc).

Assessment

- 5.3.15 The 'screening' test or 'test of significance' is a low bar, intended as a trigger rather than a threshold test: a proposal should be considered 'likely' to have an effect if the competent authority is unable (on the basis of objective information) to exclude the possibility that the proposal could have significant effects on any European site, either alone or in combination with other plans or projects; an effect will be 'significant' simply if it could undermine the site's conservation objectives.
- 5.3.16 An 'appropriate assessment' stage (if required) allows for a closer examination of the project where the effects are significant or uncertain²⁵ to determine whether any European sites will be subject to 'adverse effects on integrity' as a result of the plan's implementation. The scope of any 'appropriate assessment' stage is not set, however, and such assessments need not be extremely detailed: they must simply be 'appropriate' to the effects and proposal being considered, and sufficient to ensure that there is no reasonable doubt that adverse effects on site integrity will not occur (or sufficient for adverse effects to be appropriately quantified should Stages 3 and 4 be required).
- 5.3.17 The geographic scope of the screening assessments is based on the anticipated environmental changes associated with the schemes (see above). The screening assessment initially excludes those features that will self-evidently be unaffected by the proposals due to the interest features either being clearly not exposed to the likely effects, or (more commonly) not sensitive to them (taking into account any relevant 'moderating factors' but not specific mitigation measures (see below)).
- 5.3.18 Potential pathways for effects (i.e. where a feature is potentially exposed and sensitive to a particular environmental change) are then examined to determine whether the possibility of the site's conservation objectives being undermined can be objectively excluded. 'Effect pathways' (e.g. increases in dust deposition) are considered for the scheme 'alone' and (where the effect alone is not nil or entirely nugatory) 'in combination' with other activities locally.
- 5.3.19 In combination effects might occur where the environmental impacts associated with two or more schemes overlap spatially and temporally (and so operate additively to increase the magnitude of change, e.g. dust deposition from two developments affecting the same habitats), are sequential (so increasing the duration of an impact), or synergistic in some way (e.g. changes in both lighting and noise that affect bat species, perhaps at different locations or points in their lifecycle).
- A.1.7 As noted, the level of scheme detail available at the plan level is limited; possible pipeline routes have been identified and the conceptual operation of the schemes is understood, but they have not been subject to detailed design. Information on several scheme

²⁵ i.e. 'likely significant effects', where the possibility of significant effects cannot be excluded.

aspects (e.g. construction techniques; timing; outfall location; habitats; etc.) is not therefore available.

- 5.3.20 HRAs of plans and strategies typically have to deal with a degree of uncertainty as many aspects of a proposal simply cannot be fully defined at the strategy-level in the planning hierarchy. The appropriate assessment is therefore necessarily ‘appropriate’ to the scheme detail that is available at that level in the planning hierarchy, and some assessment aspects must necessarily be deferred to the project-level. To some extent, therefore, the assessment must aim to determine whether there are any reasons to suggest that adverse effects might be unavoidable at the scheme level (i.e. identify substantive uncertainties), rather than attempt to quantify effects that cannot be meaningfully assessed at the plan level with the data available.
- 5.3.21 It should be noted that the “People Over Wind” judgement²⁶ has altered how mitigation and avoidance measures are accounted for in an HRA. The judgement states that “...it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects [mitigation] of the plan or project on that site”. This contrasts with established practice in this area whereby avoidance and mitigation measures were typically considered at screening.
- 5.3.22 The broader context of the ‘People over Wind’ case suggests that the judgement is principally focusing on those instances where specific measures are included in a scheme or otherwise relied on to avoid a specific effect that has been identified, and which would otherwise be significant; the judgement argues that this presupposes that it is likely that the site is affected significantly, and that the effectiveness of any such measures should therefore be examined through an appropriate assessment stage. The use of “intended to...” in the judgement therefore has some relevance.
- 5.3.23 There is currently little information on the practical implementation of the ‘People over Wind’ judgement, and many fundamental aspects of a scheme might be interpreted as ‘avoidance’ or ‘mitigation’ measures if viewed solely in terms of their implications for European sites. For example, selecting LED lighting for a site would likely be made purely on performance grounds, although it might be interpreted as mitigation if there is an SAC designated for bats nearby. Clearly, however, a detailed examination of the engineering choices made during design to see if they might count as ‘mitigation’ for screening purposes would not be proportionate, or (arguably) consistent with the intent of the Habitats Directive.
- 5.3.24 In this instance, therefore:
- The screening **does not** take account of any measures that might be included in response to a specific identified effect on a European site, and which might be intended to avoid or reduce that effect.
 - Design or implementation choices likely to be made for engineering reasons, or which would be required irrespective of the presence of any European sites (either legally, or as a matter of standard practice), are considered to be an inherent part of the proposal being screened.
 - External anthropogenic moderating factors or protocols that incidentally ensure that potential effects are avoided (e.g. the absence of drainage pathways due to existing drainage layouts; or the ongoing implementation of agreed pollution-prevention measures for existing or coincident operations) are simply taken to be part of the baseline.

²⁶ Court of Justice of the European Union (ECJ) Case C-323/17 - People over Wind, Peter Sweetman v Coillte Teoranta, preliminary ruling.

E3 Lytchett Minster Transfer

Scheme description and anticipated zone of influence

- 5.3.25 Lytchett Minster WRC currently discharges to the Poole Harbour sites via a creek running into Lytchett Bay. The scheme essentially requires a short (1.5km) pipeline located in existing roads within an urban area (Upton, near Poole) and associated pumping that will transfer wastewater from Lytchett Minster WRC for treatment at Poole WRC.
- 5.3.26 The scheme will improve the quality of wastewater discharges to Poole Harbour due to the higher quality treatment available at Poole WRC. It is assumed that discharges of treated effluent from Lytchett Minster WRC to the creek will cease, however, which may affect the morphological and physio-chemical characteristics of this waterbody.
- 5.3.27 The scheme is a typical and unexceptional small-scale water industry construction scheme. Construction works will almost certainly be restricted to the existing operational sites and public roads. Consequently:
- The anticipated 'zone of influence' for environmental changes as a result of construction is likely to be 1km or less.
 - The location of the works in existing sites and public roads ensures that direct effects on habitats that may be functionally critical to mobile species associated with more distant sites (e.g. bat or bird species) is extremely unlikely.
 - Scheme operation will improve the quality of effluent entering Poole Harbour, although local morphological and physio-chemical effects may occur in the creek that currently receives discharges from Lytchett Minster.
- 5.3.28 On this basis a precautionary 1km buffer is employed to identify European sites and features that may be exposed to the environmental changes associated with the scheme. Five sites are within this area:
- Dorset Heaths SAC
 - Dorset Heathlands SPA
 - Dorset Heathlands Ramsar
 - Poole Harbour SPA
 - Poole Harbour Ramsar

The screening and appropriate assessments of these sites are summarised in the following sections. Note, given the overlaps in the features and habitats of some sites the assessments are grouped for clarity and to avoid repetition of data and discussion points, although conclusions are reached for each site individually.

Dorset Heaths sites

Core Designation Information

The core designation and baseline data for Dorset Heaths SAC, Dorset Heathlands SPA and Dorset Heathlands Ramsar is summarised in the following tables.

Site	Dorset Heaths SAC
Site Code	UK0019857
Qualifying Features	<ul style="list-style-type: none"> - H4010: Northern Atlantic wet heaths with Erica tetralix - H4030: European dry heaths - H6410: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) - H7150: Depressions on peat substrates of the Rhynchosporion - H7210: Calcareous fens with Cladium mariscus and species of the Caricion davallianae - H7230: Alkaline fens - H9190: Old acidophilous oak woods with Quercus robur on sandy plains - S1044: Southern damselfly Coenagrion mercuriale - S1166: Great crested newt Triturus cristatus
Standard data form	Available at: https://jncc.gov.uk/jncc-assets/SAC-N2K/UK0019857.pdf
Conservation Objectives	Available at: http://publications.naturalengland.org.uk/publication/5711678738006016?category=5374002071601152
Site Improvement Plan	Available at: http://publications.naturalengland.org.uk/publication/5711678738006016?category=5374002071601152
Supplementary advice	Available at: http://publications.naturalengland.org.uk/publication/5711678738006016?category=5374002071601152
Associated SSSIs within Zol (1km)	<p>Poole Harbour SSSI (Units 018, 019 and 020)</p> <p>Ham Common SSSI (Units 001 and 002)</p>
Condition of SSSI units within Zol	<p>Poole Harbour SSSI</p> <ul style="list-style-type: none"> • Unit 018: 'unfavourable recovering' (management / restoration of heathland) • Unit 019: 'favourable' • Unit 020: 'unfavourable recovering' (management / restoration of heathland) <p>Ham Common SSSI</p> <ul style="list-style-type: none"> • Unit 001: 'unfavourable declining' (lack of management) • Unit 002: 'unfavourable recovering' (bracken encroachment)
European site features associated with Zol SSSI units	<p>Poole Harbour SSSI</p> <ul style="list-style-type: none"> • Unit 018: Northern Atlantic wet heaths with Erica tetralix and European dry heaths • Unit 019: Not stated, but likely Northern Atlantic wet heaths with Erica tetralix; and European dry heaths • Unit 020: Northern Atlantic wet heaths with Erica tetralix and European dry heaths <p>Ham Common SSSI</p>

Site	Dorset Heaths SAC
	<ul style="list-style-type: none"> • Unit 001: European dry heaths • Unit 002: European dry heaths
SAC typical species	The 'supplementary advice' (see above link) provides guidance on the 'typical species' considered to be associated with the site and qualifying features.
Functional habitat	None identified in SACO relating to these units
Pressures and threats (those potentially associated with scheme in bold)	Inappropriate scrub control; Public Access/Disturbance; Undergrazing; Forestry and woodland management; Drainage; Water pollution ; Invasive species; Habitat fragmentation; Conflicting conservation objectives; Wildfire/arson; Air pollution (nitrogen deposition) ; and Deer.
Site	Dorset Heathlands SPA
Site Code	UK9010101
Qualifying Features	<ul style="list-style-type: none"> - A082w: Hen harrier <i>Circus cyaneus</i> - A098w: Merlin <i>Falco columbarius</i> - A224r: European nightjar <i>Caprimulgus europaeus</i> - A246r: Wood lark <i>Lullula arborea</i> - A302r: Dartford warbler <i>Sylvia undata</i>
Standard data form	Available at: https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9010101.pdf
Conservation Objectives	Available at: http://publications.naturalengland.org.uk/publication/5808199001178112?category=5374002071601152
Site Improvement Plan	Available at: http://publications.naturalengland.org.uk/publication/5808199001178112?category=5374002071601152
Supplementary advice	Available at: http://publications.naturalengland.org.uk/publication/5808199001178112?category=5374002071601152
Associated SSSIs within Zol	Poole Harbour SSSI (Units 018, 019 and 020) Ham Common SSSI (Units 001 and 002)
Condition of SSSI units within Zol	Poole Harbour SSSI <ul style="list-style-type: none"> • Unit 018: 'unfavourable recovering' (management / restoration of heathland)

Site	Dorset Heathlands SPA
	<ul style="list-style-type: none"> • Unit 019: 'favourable' • Unit 020: 'unfavourable recovering' (management / restoration of heathland) Ham Common SSSI <ul style="list-style-type: none"> • Unit 001: 'unfavourable declining' (lack of management) • Unit 002: 'unfavourable recovering' (bracken encroachment)
European site features associated with ZOI SSSI units	Poole Harbour SSSI <ul style="list-style-type: none"> • Unit 018: Not stated, but most likely to be Wood lark and Dartford warbler based on habitat preferences • Unit 019: As for Unit 019 • Unit 020: As for Unit 019 Ham Common SSSI <ul style="list-style-type: none"> • Unit 001: 'Not stated, but most likely to be Wood lark and Dartford warbler based on habitat preferences • Unit 002: As for Unit 001
SPA supporting habitats	The 'supplementary advice' (see above link) provides guidance on the 'supporting habitats' considered to be associated with the site and qualifying features; habitats of the SAC, particularly dry and wet heathland, mire/fen and grassland and woodland; habitats of SSSI units 019/020 have the potential to support SPA species.
Functional habitat	SACO notes that "a large number of nightjar territories occur outside the SPA, mainly in areas of forestry plantation on former heathland". Woodlark are known to "often utilise land adjacent to heathland...for feeding, including areas of grassland, arable fields and golf courses" and also nest in "areas of rotational forestry or areas associated with sand and gravel quarries". FCS for the site would also require restoration of wider habitat connectivity between site units.
Pressures and threats (those potentially associated with scheme in bold)	Inappropriate scrub control; Public Access/Disturbance; Undergrazing; Forestry and woodland management; Drainage; Water pollution ; Invasive species; Habitat fragmentation; Conflicting conservation objectives; Wildfire/arson; Air pollution (nitrogen deposition) ; and Deer.
Site	Dorset Heathlands Ramsar
Site Code	UK11021
Qualifying Features	- Crit. 1 - sites containing representative, rare or unique wetland types (good examples of northern Atlantic wet heaths, acid mire with Rhynchosporion, southern Atlantic wet heaths)

Site	Dorset Heathlands Ramsar
	<p>- Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. Communities 9 Supports 1 nationally rare and 13 nationally scarce wetland plant species, and at least 28 nationally rare wetland invertebrate species)</p> <p>- Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity (high species richness and high ecological diversity of wetland habitat types and transitions)</p>
Standard data form	Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11021.pdf
Conservation Objectives	As per associated SAC / SPA, or underpinning SSSI(s)
Site Improvement Plan	As per associated SAC / SPA, or underpinning SSSI(s)
Supplementary advice	As per associated SAC / SPA, or underpinning SSSI(s)
Associated SSSIs within Zol	<p>Poole Harbour SSSI (Units 018, 019 and 020)</p> <p>Ham Common SSSI (Units 001 and 002)</p>
Condition of SSSI units within Zol	<p>Poole Harbour SSSI</p> <ul style="list-style-type: none"> • Unit 018: 'unfavourable recovering' (management / restoration of heathland) • Unit 019: 'favourable' • Unit 020: 'unfavourable recovering' (management / restoration of heathland) <p>Ham Common SSSI</p> <ul style="list-style-type: none"> • Unit 001: 'unfavourable declining' (lack of management) • Unit 002: 'unfavourable recovering' (bracken encroachment)
European site features associated with Zol SSSI units	<p>Poole Harbour SSSI</p> <ul style="list-style-type: none"> • Unit 018: Not stated, but most likely to be Wood lark and Dartford warbler based on habitat preferences • Unit 019: As for Unit 019 • Unit 020: As for Unit 019 <p>Ham Common SSSI</p> <ul style="list-style-type: none"> • Unit 001: 'Not stated, but most likely to be Wood lark and Dartford warbler based on habitat preferences • Unit 002: As for Unit 001
Mobile feature supporting habitats	No mobile features for Ramsar site

Site	Dorset Heathlands Ramsar
Functional habitat	As per SAC
Pressures and threats (those potentially associated with scheme in bold)	Inappropriate scrub control; Public Access/Disturbance; Undergrazing; Forestry and woodland management; Drainage; Water pollution ; Invasive species; Habitat fragmentation; Conflicting conservation objectives; Wildfire/arson; Air pollution (nitrogen deposition) ; and Deer.

Effect Pathways and Screening

- 5.3.29 There will be no direct encroachment effects on the Dorset Heaths sites, and the areas affected by the scheme will not provide 'functional habitat' for the SPA species. The principal risks to the interest features presented by the scheme are via the following mechanisms:
- Construction site-derived pollutants (e.g. contaminated and non-contaminated dust deposition affecting SAC / SPA / Ramsar habitats or nearby 'functional habitats'; contaminated and non-contaminated sediments from site run-off).
 - Disturbance and/or displacement of breeding / non-breeding birds during the construction period.
- 5.3.30 These pathways may require mitigation or avoidance measures to ensure they are not realised, and so are considered through appropriate assessment.
- 5.3.31 Note, N-deposition associated with vehicle and plant movements is not considered a realistic pathway for significant effects given the likely scale and short-term nature of the construction works.
- 5.3.32 No operational effects are anticipated for the Dorset Heaths sites.

Appropriate Assessment

- 5.3.33 The Dorset Heaths sites are only potentially exposed to environmental changes associated with construction (e.g. noise / visual disturbance in respect of bird species; and exposure to construction-derived pollutants). However, there is nothing inherent in the scale (etc.) of the proposals to suggest that adverse effects cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, visual / acoustic screening, pollution controls).
- 5.3.34 Consequently no adverse effects can be concluded at the plan level (although this does not remove the need for scheme-level assessment).

Poole Harbour sites

Core Designation Information

The core designation and baseline data for Poole Harbour SPA and Poole Harbour Ramsar is summarised in the following tables.

Site	Poole Harbour SPA
Site Code	UK9010111
Qualifying Features	<ul style="list-style-type: none"> - A026w: Little egret <i>Egretta garzetta</i> - A048w: Common shelduck <i>Tadorna tadorna</i> - A132w: Pied avocet <i>Recurvirostra avosetta</i> - A176r: Mediterranean gull <i>Larus melanocephalus</i> - A191r: Sandwich tern <i>Sterna sandvicensis</i> - A193r: Common tern <i>Sterna hirundo</i> - A607w: Eurasian spoonbill <i>Platalea leucorodia leucorodia</i> - A616w: Black-tailed godwit <i>Limosa limosa islandica</i> - WATR: Waterbird assemblage
Standard data form	Available at: https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9010111.pdf
Conservation Objectives	Available at: http://publications.naturalengland.org.uk/publication/6625771074355200?category=5374002071601152
Site Improvement Plan	Available at: http://publications.naturalengland.org.uk/publication/6625771074355200?category=5374002071601152
Supplementary advice	Available at: https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UK9010111
Associated SSSIs within Zol	Poole Harbour SSSI
Condition of SSSI units within Zol	<ul style="list-style-type: none"> Unit 008: 'unfavourable declining' (pollution, all forms) Unit 010: 'unfavourable declining' (pollution, all forms) Unit 027: 'unfavourable declining' (pollution, all forms) Unit 059: 'unfavourable declining' (pollution, all forms) Unit 065: 'unfavourable declining' (pollution, all forms) Unit 066: 'favourable' Unit 067: 'unfavourable declining' (pollution, all forms)
European site features associated with Zol SSSI units	<ul style="list-style-type: none"> Unit 008: Waterbird assemblage; Black-tailed godwit Unit 010: Pied avocet; Black-tailed godwit; Common shelduck Unit 027: Pied avocet; Black-tailed godwit; Common shelduck Unit 059: Pied avocet; Black-tailed godwit; Common shelduck Unit 065: Pied avocet; Common tern; Sandwich tern; Common shelduck

Site	Poole Harbour SPA
	Unit 066: Pied avocet; Black-tailed godwit; Common shelduck; little egret Unit 067: Pied avocet; Black-tailed godwit; Common shelduck; little egret
SPA supporting habitats	The 'supplementary advice' (see above link) provides guidance on the 'supporting habitats' considered to be associated with the site and qualifying features; those that support the key behaviours of the nonbreeding/wintering period (moulting, roosting, loafing and feeding), i.e. open water, intertidal mudflats, saltmarshes, associated reedbeds, freshwater and brackish grazing marshes and wet grasslands; and those that support the key behaviours of the breeding interest (safe nest sites, open water feeding areas).
Functional habitat	No specific areas of 'functional land' are identified in relation to this site although it is recognised that the river valleys of the lower Frome and Piddle support grazing marsh which is important for wintering waterfowl.
Pressures and threats (those potentially associated with scheme in bold)	Eutrophication is a significant problem for Poole Harbour due catchment run-off, exacerbated by the poor flushing characteristics of the harbour. The SIP identifies 'water pollution', 'air pollution: impact of atmospheric nitrogen deposition' and 'Fisheries: Commercial marine and estuarine', as a pressures or threats affecting site integrity in those areas potentially sensitive to the options.
Site	Poole Harbour Ramsar
Site Code	UK11054
Qualifying Features	<ul style="list-style-type: none"> - Crit. 1 - sites containing representative, rare or unique wetland types (estuary) - Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. Communities (two species of nationally rare plant and one nationally rare alga; three British Red data book invertebrate species) - Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity (SAC habitats; breeding birds) - Crit. 5 - regularly supports 20,000 or more waterbirds - Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds (common shelduck, black-tailed godwit)
Standard data form	Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11054.pdf
Conservation Objectives	As per associated SAC / SPA, or underpinning SSSI(s)
Site Improvement Plan	As per associated SAC / SPA, or underpinning SSSI(s)

Site	Poole Harbour Ramsar
Supplementary advice	As per associated SAC / SPA, or underpinning SSSI(s)
Associated SSSIs within Zol	Poole Harbour SSSI (Units 019 and 020)
Condition of SSSI units within Zol	As per Poole Harbour SPA
European site features associated with Zol SSSI units	As per Poole Harbour SPA
Mobile feature supporting habitats	As per Poole Harbour SPA
Functional habitat	As per SPA
Pressures and threats (those potentially associated with scheme in bold)	As per SPA

Effect Pathways and Screening

- 5.3.35 There will be no direct encroachment effects on the Poole Harbour sites, and the areas affected by the scheme will not provide 'functional habitat' for the SPA species. The principal risks to the interest features presented by the scheme are via the following mechanisms:
- Construction site-derived pollutants (e.g. contaminated and non-contaminated dust deposition affecting SPA / Ramsar habitats or nearby 'functional habitats'; contaminated and non-contaminated site run-off).
 - Disturbance and/or displacement of breeding / non-breeding birds during the construction period.
 - Operation will improve the quality of wastewater discharges to the Poole Harbour sites due to the higher quality treatment available at Poole WRC; however cessation of the WRC discharge may result in changes to the physio-chemistry (e.g. salinity profile) or morphology of the creek adjacent to Lytchett Minster WRC.
- 5.3.36 These pathways may require mitigation or avoidance measures to ensure they are not realised, and so are considered through appropriate assessment.
- 5.3.37 Note, N-deposition associated with vehicle and plant movements is not considered a realistic pathway for significant effects given the likely scale and short-term nature of the construction works.

Appropriate Assessment

- 5.3.38 The Poole Harbour sites and features are potentially exposed to environmental changes associated with construction (e.g. noise / visual disturbance in respect of bird species; and exposure to construction-derived pollutants). However, there is nothing inherent in the scale (etc.) of the proposals to suggest that adverse effects cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, visual / acoustic screening, pollution controls).
- 5.3.39 With regard to operation, the scheme will improve the quality of wastewater discharges to the Poole Harbour sites due to the higher quality treatment available at Poole WRC. There will consequently be no adverse effects on the water quality of the Poole Harbour sites.
- 5.3.40 Lytchett Minster WRC currently discharges to the Poole Harbour sites via a creek running into Lytchett Bay that also receives surface run-off from Upton. Data on flows in this creek (and hence the contribution of the WRC discharges) are not available without detailed site survey, although it is possible that the cessation of the WRC discharge may result in changes to the physio-chemistry (e.g. salinity profile) or morphology of this creek. Any such changes will be very minor and are very unlikely to affect the ecological condition of the creek as it relates to the conservation status of the European sites; however, if project-level investigations suggest that these changes might be notable then mitigation will almost certainly be available (for example, it would be theoretically possible to return treated flows to Lytchett Minster for discharge, so maintaining flows in the channel).
- 5.3.41 Consequently no adverse effects can be concluded at the plan level (although this does not remove the need for scheme-level assessment).

E4 Shrewton Outfall Relocation

Scheme description and anticipated zone of influence

- 5.3.42 The Shrewton Outfall Relocation essentially involves the construction of a short (1.8km) pipeline and a new outfall on the River Till, which is part of the River Avon SAC (it is uncertain whether the existing outfall would be removed or simply abandoned, although the assessment has assumed removal as a worst-case). The current discharge is to an ephemeral reach; the relocation moves this discharge downstream, to a point outside the ephemeral reach, so improving water quality within the ephemeral reach.
- 5.3.43 The scheme is a typical and unexceptional small-scale water industry construction scheme. Construction works will be restricted to the existing operational site and agricultural land. Consequently:
- The anticipated 'zone of influence' for environmental changes as a result of construction is likely to be 1km or less in the terrestrial environment.
 - Potential environmental changes within the river (e.g. from site-derived pollutants) are likely to be entirely attenuated within 20km of the works area due to the anticipated small magnitude of any changes and flow volumes in the Avon.
 - There is a low probability of direct effects on habitats that may be functionally critical to mobile species associated with more distant sites (e.g. bat or bird species), and any such effects will be temporary only.
 - Scheme operation will improve water quality locally within the River Avon SAC, although there will be no change overall assuming discharge quality etc. remains the same (it will not be reduced).
- 5.3.44 On this basis a precautionary 2km buffer is employed to identify European sites that may be exposed to the environmental changes associated with the scheme, with 20km applied in respect of mobile species. Three sites are within this study area:
- River Avon SAC (construction likely within site)
 - Salisbury Plain SAC (~1.2km)
 - Salisbury Plain SPA (~3km)
- 5.3.45 The screening and appropriate assessments of these sites are summarised in the following sections.

River Avon SAC

The core designation and baseline data for the River Avon SAC is summarised in the following tables.

Site	River Avon SAC
Site Code	UK0013016
Qualifying Features	<ul style="list-style-type: none"> - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation - S1016: Desmoulin's whorl snail <i>Vertigo moulinsiana</i> - S1095: Sea lamprey <i>Petromyzon marinus</i> - S1096: Brook lamprey <i>Lampetra planeri</i> - S1106: Atlantic salmon <i>Salmo salar</i> - S1163: Bullhead <i>Cottus gobio</i>
Standard data form	Available at: https://jncc.gov.uk/jncc-assets/SAC-N2K/UK0013016.pdf
Conservation Objectives	Available at: http://publications.naturalengland.org.uk/publication/6048472272732160?category=5374002071601152
Site Improvement Plan	Available at: http://publications.naturalengland.org.uk/publication/6048472272732160?category=5374002071601152
Supplementary advice	No supplementary advice available; targets for conservation objectives available at: http://publications.naturalengland.org.uk/publication/6048472272732160?category=5374002071601152
Associated SSSIs within Zol	<ul style="list-style-type: none"> • River Till SSSI (Units 001 – 002) • River Avon System SSSI (Units 058, 061)
Condition of SSSI units within Zol	<p>River Till SSSI</p> <ul style="list-style-type: none"> • Unit 001: 'unfavourable recovering' (action required to address channel modifications) • Unit 002: 'unfavourable recovering' (action required to address channel modifications) <p>River Avon System SSSI</p> <ul style="list-style-type: none"> • Unit 058: 'unfavourable no change' (nutrient eutrophication and river channel modification) • Unit 061: 'unfavourable no change' (nutrient eutrophication and river channel modification)
European site features associated with Zol SSSI units	<p>River Till SSSI</p> <ul style="list-style-type: none"> • Unit 001: Watercourses with <i>Ranunculus</i>; Desmoulin's whorl snail; Brook lamprey; Atlantic salmon; Bullhead • Unit 002: Watercourses with <i>Ranunculus</i>; Desmoulin's whorl snail; Brook lamprey; Atlantic salmon; Bullhead <p>River Avon System SSSI</p> <ul style="list-style-type: none"> • Unit 058: Uncertain (but likely Watercourses with <i>Ranunculus</i>; Desmoulin's whorl snail; Brook lamprey; Atlantic salmon)

Site	River Avon SAC
	<ul style="list-style-type: none">• Unit 061: Uncertain (but likely Watercourses with Ranunculus; Desmoulin's whorl snail; Brook lamprey; Atlantic salmon)
SAC typical species	No guidance provided, but will be the typical species of the Ranunculion fluitantis and Callitriche-Batrachion vegetation communities.
Functional habitat	None identified in SACO relating to these units
Pressures and threats (those potentially associated with scheme in bold)	Physical modification; Siltation; Water Pollution; Water abstraction; Changes in species distributions; Invasive species; Public Access/Disturbance; Hydrological changes; Inappropriate weed control; Change in land management; Habitat fragmentation.

Effect Pathways and Screening

- 5.3.46 There will be direct encroachment in the river to construct the new outfall, and pipeline construction will be required within agricultural land close to the river; however, with regard to operation the scheme will improve water quality within the ephemeral reach by removing all discharges to this section of river, and there will be essentially no change in the water quality downstream of the new outfall compared to baseline. The principal risks to the interest features presented by the scheme are therefore via the following mechanisms:
- Direct effects on morphology of the River Avon SAC, hence possible long-term channel changes.
 - Construction site-derived pollutants (e.g. contaminated and non-contaminated site run-off deposition affecting SAC habitats or nearby 'functional habitats' of the riparian corridor).
 - Disturbance and/or displacement of fish species during the construction period.
- 5.3.47 These pathways may require mitigation or avoidance measures to ensure they are not realised, and so are considered through appropriate assessment.
- 5.3.48 Note, N-deposition associated with vehicle and plant movements is not considered a realistic pathway for significant effects given the likely scale and short-term nature of the construction works.

Appropriate Assessment (including in combination)

- 5.3.49 The scheme will result in small-scale permanent alterations to the bank of the River Avon due to the new outfall. Construction of such features within SAC rivers is not uncommon and typically the magnitude of change (with suitable detailed design and micro-siting to avoid long-term effects on geomorphology through (for example) scour) is sufficiently small that effects are considered 'not adverse'. This can only be confirmed at the project level following detailed survey, but based on precedent there is no reason to assume that this minor alteration to the channel would result in unavoidable adverse effects.
- 5.3.50 The river will be exposed to environmental changes associated with construction (principally noise / vibration disturbance in respect of some fish species; and exposure to construction-derived pollutants). However, there is nothing inherent in the scale (etc.) of the proposals to suggest that adverse effects cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, pollution controls), and adverse effects are not an unavoidable consequence of scheme delivery.
- 5.3.51 On this basis, no adverse effects would be expected as a result of the proposals.
- 5.3.52 Possible 'in combination' effects on the River Avon SAC with the Ratfyn outfall relocation are considered in the assessment for that option (i.e. after the 'alone' assessment for Ratfyn, for clarity).

Salisbury Plain SAC

The core designation and baseline data for the Salisbury Plain SAC is summarised in the following table.

Site	Salisbury Plain SAC
Site Code	UK0012683
Qualifying Features	<ul style="list-style-type: none"> - H5130: Juniperus communis formations on heaths or calcareous grasslands - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) - S1065: Marsh fritillary butterfly Euphydryas (Eurodryas, Hypodryas) aurinia
Standard data form	Available at: https://jncc.gov.uk/jncc-assets/SAC-N2K/UK0012683.pdf
Conservation Objectives	Available at: http://publications.naturalengland.org.uk/publication/4786217489006592?category=5374002071601152
Site Improvement Plan	Available at: http://publications.naturalengland.org.uk/publication/4786217489006592?category=5374002071601152
Supplementary advice	Available at: http://publications.naturalengland.org.uk/publication/4786217489006592?category=5374002071601152
Associated SSSIs within Zol	None (all units beyond the likely Zol for environmental changes); effects only possible on interest features away from site.
Condition of SSSI units within Zol	-
European site features associated with Zol SSSI units	-
SAC typical species	The 'supplementary advice' (see above link) provides guidance on the 'typical species' considered to be associated with the site and qualifying features.
Functional habitat	None identified in SACO relating to these units
Pressures and threats (those potentially associated with scheme in bold)	Change in species distribution; Air pollution (nitrogen deposition).

Effect Pathways and Screening

- 5.3.53 All units of this site are up-catchment from the construction area and at least 1km away; there are consequently no pathways by which environmental changes associated with the scheme could affect the site habitats.
- 5.3.54 With regard to the mobile species (Marsh fritillary butterfly) this species is notably sedentary, reliant on discrete patches of habitat supporting the larval food-plant (Devil's bit scabious *Succisa pratensis*). Adults rarely disperse more than 50 – 100m, and significant natural population fluctuations mean that local extinctions are common; the species therefore relies on networks of nearby habitat patches, with individual colonies being part of a more stable (in theory) metapopulation. The proposed construction area is beyond the species' typical dispersal distance, and the agricultural habitats affected by the pipeline are likely to be of limited value to this species (either for a colony or as part of a wider network of transient habitat patches) based on aerial photographs of the habitats present and the scale of construction.
- 5.3.55 As a result, it the proposals will have 'no effect' on this SAC, and hence no possibility of 'in combination' effects; appropriate assessment is not therefore required at this stage.

Salisbury Plain SPA

- 5.3.56 The core designation and baseline data for the Salisbury Plain SAC is summarised in the following table.

Site	Salisbury Plain SPA
Site Code	UK9011102
Qualifying Features	<ul style="list-style-type: none"> - A082w: Hen harrier <i>Circus cyaneus</i> - A099r: Eurasian hobby <i>Falco subbuteo</i> - A113r: Common quail <i>Coturnix coturnix</i> - A133r: Stone-curlew <i>Burhinus oedicnemus</i>
Standard data form	Available at: https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9011102.pdf
Conservation Objectives	Available at: http://publications.naturalengland.org.uk/publication/5745803545018368?category=5374002071601152
Site Improvement Plan	Available at: http://publications.naturalengland.org.uk/publication/5745803545018368?category=5374002071601152
Supplementary advice	Available at: http://publications.naturalengland.org.uk/publication/5745803545018368?category=5374002071601152
Associated SSSIs within Zol	None (all units beyond the likely Zol for environmental changes); effects only possible on interest features away from site.
Condition of SSSI units within Zol	-
European site features associated with Zol SSSI units	-
SPA supporting habitats	With regard to the supporting habitats for the SPA qualifying features, these are identified in the 'supplementary advice' as lowland calcareous grassland, semi-improved and improved grassland, and arable (all open landscape habitats), with small woods being used for breeding by Hobby.
Functional habitat	<p>Broad areas of 'functional land' are identified in the 'supplementary advice', including</p> <ul style="list-style-type: none"> • Everleigh Ashes (breeding hobby); • local RSPB reserves to the east of the site and nearby downland (stone curlew) • Bratton Downs to the north and Parsonage Down NNR (chalk grassland used by hen harrier) <p>None of these are close to the Ratfyn area.</p>
Pressures and threats (those potentially associated with scheme in bold)	Change in species distribution; Air pollution (nitrogen deposition).

Effect Pathways and Screening

- 5.3.57 All units of this site are up-catchment from the construction area and at least 3km away; there are consequently no pathways by which environmental changes associated with the scheme could affect the site habitats.
- 5.3.58 With regard to the mobile species (Hen harrier, Eurasian hobby, Common quail, Stone-curlew) whilst these species will utilise habitats outside of the SPA boundary, the temporary nature of the construction effects and the habitats affected (based on aerial photographs) are likely to ensure that the effects of the scheme are not significant (and any risk of effects e.g. on breeding stone curlew or quail could be easily avoided (note, not mitigated hence PoW does not apply) with seasonal working.
- 5.3.59 As a result, the proposals will have 'no effect' on this SPA, and hence no possibility of 'in combination' effects; appropriate assessment is not therefore required at this stage.

E5 Ratfyn Outfall Relocation

- 5.3.60 With regard to operation, the scheme will result in no net change in water quality within the river downstream of this point.
- 5.3.61 The river will be exposed to environmental changes associated with construction (principally noise / vibration disturbance in respect of some fish species; and exposure to construction-derived pollutants). However, there is nothing inherent in the scale (etc.) of the proposals to suggest that adverse effects cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, pollution controls), and adverse effects are not an unavoidable consequence of scheme delivery.

Scheme description and anticipated zone of influence

- 5.3.62 The Ratfyn Outfall Relocation essentially involves the construction of a short (1km) pipeline and a new outfall on the River Avon (it is uncertain whether the existing outfall would be removed or simply abandoned, although the assessment has assumed removal as a worst-case). The new discharge would be located upstream of the abstraction point for Durrington Water Treatment Centre (WTC), so helping to maintain flows in the river below the abstraction.
- 5.3.63 The scheme is a typical and unexceptional small-scale water industry construction scheme. Construction works will be restricted to the existing operational site and agricultural land. Consequently:
- The anticipated 'zone of influence' for environmental changes as a result of construction is likely to be 1km or less in the terrestrial environment.
 - Potential environmental changes within the river (e.g. from site-derived pollutants) are likely to be entirely attenuated within 20km of the works area due to the anticipated small magnitude of any changes and flow volumes in the Avon.
 - There is a low probability of direct effects on terrestrial habitats that may be functionally critical to mobile species associated with more distant sites (e.g. bat or bird species), and any such effects will be temporary only.
 - Scheme operation will improve water quality locally within the River Avon SAC, although there will be no change overall assuming discharge quality etc. remains the same (it will not be reduced).

- With regard to operation, the scheme will result in no net change on water quality downstream within the river although for assessment purposes it is assumed that the scheme will benefit flows in the river (since this is the objective) and be neutral for water quality.

5.3.64 On this basis a precautionary 2km buffer is employed to identify European sites that may be exposed to the environmental changes associated with the scheme, with 20km applied in respect of mobile species. Three sites are within this study area:

- River Avon SAC (construction likely within site)
- Salisbury Plain SAC (~2.4km)
- Salisbury Plain SPA (~2.4km)

5.3.65 The screening and appropriate assessments of these sites are summarised in the following sections.

River Avon SAC

The core designation and baseline data for the River Avon SAC is summarised in the tables in the Shrewton section, although different SSSI units are potentially exposed:

Aspect	Notes
Associated SSSIs within Zol	<ul style="list-style-type: none"> • River Avon System SSSI (Units 054, 058)
Condition of SSSI units within Zol	River Avon System SSSI <ul style="list-style-type: none"> • Unit 054: 'unfavourable no change' (nutrient eutrophication and river channel modification) • Unit 058: 'unfavourable no change' (nutrient eutrophication and river channel modification)
European site features associated with Zol SSSI units	River Avon System SSSI <ul style="list-style-type: none"> • Unit 054: Uncertain (but likely Watercourses with Ranunculus; Desmoulin's whorl snail; Brook lamprey; Atlantic salmon) • Unit 058: Uncertain (but likely Watercourses with Ranunculus; Desmoulin's whorl snail; Brook lamprey; Atlantic salmon)

Effect Pathways and Screening

5.3.66 There will be direct encroachment in the river to construct the new outfall, and pipeline construction will be required within agricultural land close to the river; however, with regard to operation the scheme will improve water quality within the ephemeral reach by removing all discharges to this section of river, and there will be essentially no change in the water quality downstream of the new outfall compared to baseline. The principal risks to the interest features presented by the scheme are therefore via the following mechanisms:

- Direct effects on morphology of the River Avon SAC, hence possible long-term channel changes.
- Construction site-derived pollutants (e.g. contaminated and non-contaminated site run-off deposition affecting SAC habitats or nearby 'functional habitats' of the riparian corridor).

- Disturbance and/or displacement of fish species during the construction period.
- 5.3.67 These pathways may require mitigation or avoidance measures to ensure they are not realised, and so are considered through appropriate assessment.
- 5.3.68 Note, N-deposition associated with vehicle and plant movements is not considered a realistic pathway for significant effects given the likely scale and short-term nature of the construction works.

Appropriate Assessment (including in combination)

- 5.3.69 The scheme will result in small-scale permanent alterations to the bank of the River Avon due to the new outfall. Construction of such features within SAC rivers is not uncommon and typically the magnitude of change (with suitable detailed design and micro-siting to avoid long-term effects on geomorphology through (for example) scour) is sufficiently small that effects are considered 'not adverse'. This can only be confirmed at the project level following detailed survey, but based on precedent there is no reason to assume that this minor alteration to the channel would result in unavoidable adverse effects.
- 5.3.70 The river will be exposed to environmental changes associated with construction (principally noise / vibration disturbance in respect of some fish species; and exposure to construction-derived pollutants). However, there is nothing inherent in the scale (etc.) of the proposals to suggest that adverse effects cannot be reliably avoided or mitigated using established measures that can be defined at the project-level, and which are available, achievable and likely to be effective (e.g. seasonal working, pollution controls), and adverse effects are not an unavoidable consequence of scheme delivery.
- 5.3.71 'In combination' effects with the Shrewton scheme will not occur or can be avoided for the following reasons:
- The only sections of river potentially exposed to coincident effects from both options are downstream of the confluence of the River Nadder and the River Avon at Salisbury; this is over 20km downstream from the outfall locations, and so any environmental changes associated with construction (if undertaken at the same time, which is unlikely) would not be experienced at this location due to attenuation. Similarly, changes in channel morphology would be highly local and would not affect reaches below the confluence.
 - Non-coincident effects on mobile species (e.g. due to timing of works) can be avoided through project planning.
- 5.3.72 On this basis, no adverse effects would be expected as a result of the proposals.

Salisbury Plain SAC

Effect Pathways and Screening

- 5.3.73 All units of this site are up-catchment from the construction area and at least 1km away; there are consequently no pathways by which environmental changes associated with the scheme could affect the site habitats.
- 5.3.74 With regard to the mobile species (Marsh fritillary butterfly) this species is notably sedentary, reliant on discrete patches of habitat supporting the larval food-plant (Devil's bit scabious *Succisa pratensis*). Adults rarely disperse more than 50 – 100m, and significant natural population fluctuations mean that local extinctions are common; the species therefore relies on networks of nearby habitat patches, with individual colonies being part of a more stable (in theory) metapopulation. The proposed construction area is beyond

the species' typical dispersal distance, and the agricultural habitats affected by the pipeline are likely to be of limited value to this species (either for a colony or as part of a wider network of transient habitat patches) based on aerial photographs of the habitats present and the scale of construction.

- 5.3.75 As a result, it the proposals will have 'no effect' on this SAC, and hence no possibility of 'in combination' effects; appropriate assessment is not therefore required at this stage.

Salisbury Plan SPA

Effect Pathways and Screening

- 5.3.76 All units of this site are up-catchment from the construction area and at least 3km away; there are consequently no pathways by which environmental changes associated with the scheme could affect the site habitats.
- 5.3.77 With regard to the mobile species (Hen harrier, Eurasian hobby, Common quail, Stone-curlew) whilst these species will utilise habitats outside of the SPA boundary, the temporary nature of the construction effects and the habitats affected (based on aerial photographs) are likely to ensure that the effects of the scheme are not significant (and any risk of effects e.g. on breeding stone curlew or quail could be easy avoided (note, not mitigated hence PoW does not apply) with seasonal working.
- 5.3.78 As a result, it the proposals will have 'no effect' on this SPA, and hence no possibility of 'in combination' effects; appropriate assessment is not therefore required at this stage.

