United Utilities Water

Drainage and Wastewater Management Plan

Draft Habitats Regulations Assessment

Wood Group UK Limited – June 2022

Report for

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Doc Ref. 807598-WOOD-XX-XX-RP-OE-00002_A_2

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Document revisions

No.	Details	Date
1	Draft for UUW Review	16.06.22
2	Final issued	20.06.22

Contents

Acronyms

Acronym	Full Term
ALC	Agricultural Land Classification
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Area
BAP	Biodiversity Action Plan
BEIS	Department for Business, Energy & Industrial Strategy
BNG	Biodiversity Net Gain
CaBA	Catchment Based Approach
CAMS	Catchment Abstraction Management Strategy
CAPEX	Capital expenditures
CaST	Catchment System Thinking
CFC	Chlorofluorocarbon
CFMP	Catchment Flood Management Plan
CO2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
CROW	Countryside and Rights of Way
cSAC	candidate Special Area of Conservation
DCMS	Department for Culture, Media and Sport
dDWMP	draft Drainage and Wastewater Management Plan
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DWMP	Drainage and Wastewater Management Plan
EC	European Commission
EIA	Environmental Impact Assessment
EMP	Eel Management Plan
ESA	Environmentally Sensitive Area
FRMP	Flood Risk Management Plan

Acronym	Full Term
GCR	Geological Conservation Review
GES	Good Environmental Status
GHG	Greenhouse Gas
GIS	Geographical Information Systems
Gwh	Gigawatt Hours
HE	Historic England
HES	Historic Environment Scotland
HRA	Habitats Regulations Assessment
Kt	Kilo Tonnes
l/hd/d	Litres per head per day
LGAP	Local Geodiversity Action Plans
LWS	Local Wildlife Site
MCZ	Marine Conservation Zone
MHCLG	Ministry for Housing, Communities and Local Government
Ml/d	Mega litres per day
Mt	Million tonnes
MTAN	Minerals Technical Advice Note
Mtoe	Million tonnes of equivalent
MWe	Megawatt electrical
NCA	National Character Area
NE	Natural England
NNR	National Nature Reserve
NOx	Nitrogen Oxide
NPPF	National Policy Planning Framework
NRW	Natural Resources Wales
NTS	Non-Technical Summary
NVZ	Nitrate Vulnerable Zone
ODS	Ozone Depleting Substances
OfWAT	Office of Water Services

Acronym	Full Term
OPEX	Operating expenditures
PPW	Planning Policy Wales
pSAC	possible Special Area of Conservation
pSPA	potential Special Protection Area
RBD	River Basin District
RBMP	River Basin Management Plan
RIG	Regionally Important Geological and Geomorphological
ROWMP	Public Rights of Way Improvement Plan
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Sector Adaptation Plan
SCaMP	Sustainable Catchment Management Programme
SCI	Site of Community Importance
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SIP	Site Improvement Plans
SMP	Shoreline Management Plan
SoNaRR	State of Natural Resources Report
SPA	Special Protection Area
SPG	Strategic Planning Group
sq km	Square kilometre
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
TAN	Technical Advice Note
TPU	Tactical Planning Unit
UKCIP	United Kingdom Climate Impacts Programme
UKCP	United Kingdom Climate Projections
UKTAG	United Kingdom Technical Advisory Group
UKWIR	United Kingdom Water Industry Research

Acronym	Full Term
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UUW	United Utilities Water
WaSC	Water and Sewerage Company
WFD	Water Framework Directive
WHS	World Heritage Site
WINEP	Water Industry National Environment Programme
WPZ	Water Protection Zone
WRMP	Water Resource Management Plan
WRZ	Water Resource Zone

1. Introduction

1.1 United Utilities Water Drainage and Wastewater Management Plan

1.1.1 United Utilities Water (UUW) 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 obligation[1], UUW has committed to produce a DWMP in accordance with the Water UK DWMP Framework[2] (the Framework).

1.1.2 The DWMP sets out how UUW 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 has been published for consultation and will be 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 site*[4] *or a European offshore marine site*[5] *(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. UUW 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 will inhibit the direct application of established

[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'.

WRMP assessment practices. In particular, the 'options-led' iterative assessment approach that is common to WRMP HRAs is unlikely to be easily transferrable to DWMPs due to the number of catchments and options, and the absence of substantive detail on many options.

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

- a brief summary of the Draft DWMP and options (**Section 2**);
- the approach to HRA of the Draft DWMP, including the key issues for these strategic plans (**Section 3**);
- a summary of the options screening and appropriate assessments including an 'in combination' assessment for the plan (**Section 4**); and
- the proposed conclusion of the HRA of UUW's Draft 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 Framework[9]. 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 will:

- 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.
- 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.

2.2 UUW's DWMP

Overview

2.2.1 UUW provides drainage and wastewater services to over 3 million homes and 200,000 businesses in the North West of England. It owns and is responsible for the management

[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

of 77,000 of sewers and 567 wastewater treatment works[10] collecting wastewater before it is cleaned and safely returned to the environment.

2.2.2 It is essential that this drainage system can continue to operate effectively day to day as well as being able to cope with future pressures such as climate change, increased urbanisation and population growth which will all place increased demands on the system's capacity and treatment processes.

2.2.3 The DWMP will set out how UUW intends to extend, improve and maintain a robust and resilient drainage and wastewater system. It will take a long-term view, setting out a planning period that is appropriate to the risks faced by UUW, covering at least 25 years. Collectively the plan will contain measures to the planning objectives illustrated in **Figure 2.1**.

Figure 2.1 UUW DWMP Planning Objectives

2.2.4 In developing the DWMP, and consistent with the approach outlined in the Framework, UUW has identified that the plan will operate at the following spatial levels:

- **Level 1(L1): Company** – Over-arching companywide plan which sets out key company objectives, risks faced and summarises investment needed.
- **Level 2 (L2): Strategic Planning Area** – Catchment plans co-created with stakeholders through strategic planning groups at a River Basin level. There are 14 StrPAs across the UUW area. These are illustrated in **Figure 2.2**.
- **Level 3 (L3): Tactical Planning Unit (TPU)** – Drainage area plans which assess how future changes will affect catchment performance and steps that need to be put in place to manage. UUW has identified 567 TPUs.

[10] United Utilities (2021) *Our Water Cycle*. Available online at: https://www.unitedutilities.com/corporate/about-us/what-we-do/water-cycle/ [Accessed August 2021].

Figure 2.2 United Utilities Water 14 Strategic Planning Areas

2.2.5 Following the completion of the RBCS and BRAVA process, UUW has identified 372 TPUs where drainage, flooding, pollution and treatment risks have been identified. A limited number (26) of these TPUs are characterised as being either 'complex' or 'strategic'.

- **Complex drainage areas** reflect the outcome of the problem characterisation which has identified multiple issues and the need for adaptive planning to mitigate risks; and
- **Strategic drainage areas** are those where significant future population growth and development has been planned which will result in significant and complex additional investment needs.

2.2.6 **Note, four TPUs have not yet been assessed and will therefore be included between draft and final DWMP.** This iteration of the DWMP (and hence the HRA) therefore considers 22 TPUs.

2.2.7 Options have been developed to address the identified risks at the TPU level and to deliver one or more of the planning objectives. A total of 34 generic option types are proposed in the draft DWMP to address the risks identified for drainage and wastewater management. These are categorised according to one of the following six key management areas:

- Combined and Foul Sewer Systems (9 options);

- Customer Side Management (7 options);
- Indirect Measures (3 options);
- Sludge (4 options);
- Surface Water Management (3 options);
- Wastewater Treatment (8 options).

2.2.8 The range of options that are being considered are outlined in **Table 2.1**.

Table 2.1 DWMP Generic Options

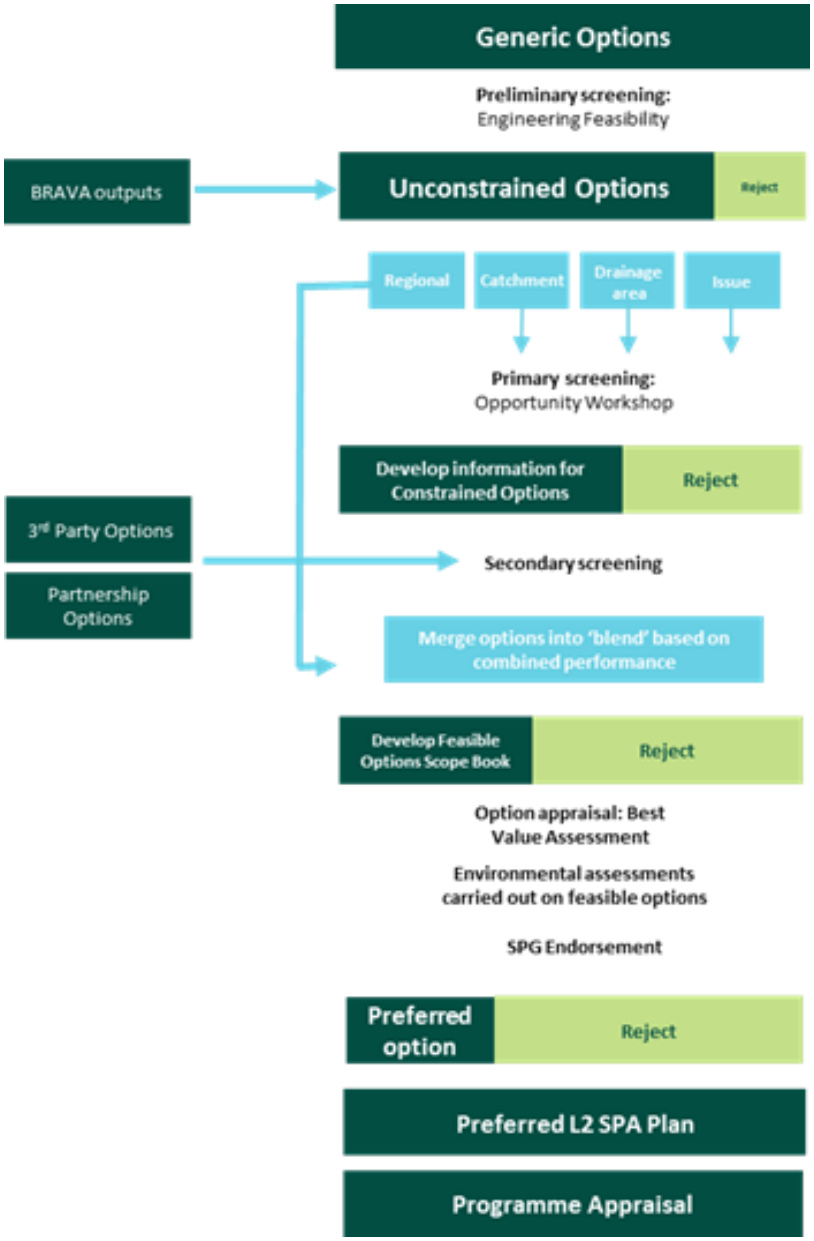
Option Ref	DWMP Generic Option	Description
Combined and Foul Sewer Systems		
N1	Intelligent network operation	Controlling flow movement in reaction to the current situation. Allows the system to be operated proactively, maximising the use of existing assets. These options cover a range of different approaches 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.
N2	Increase the capacity of existing foul / combined networks	Replace sewer with a large diameter sewer to increase capacity.
N4	Intelligent asset maintenance	Allows the system to be maintained proactively, maximising the use and longevity of existing assets (for example by repairing minor sewer damage before a collapse occurs).
N5	Sewer rehab	Sewer rehabilitation to improve asset health.
N6	Property Level Resilience (PLR)	Create additional volume to reduce storm impact (attenuation) or treatment of storm discharges Non return valves, pumps, flood gates etc.
N7	Enhanced operational maintenance	Pro-active and targeting operation and maintenance programmes
N8	Attenuation	Creation of additional volume to reduce storm impact.
N9	Sewer maintenance	Repair and rehabilitation to maintain service
N10	Cross boundary transfer	The movement of flow to another area, or company.
Customer Side Management		
CM1	Water efficient appliances	Supplying customers with household appliances which are designed to reduce water consumption. Reduced consumption can also benefit the wastewater system by reducing the dry weather flow to be conveyed through the sewer network and through the STWs

Option Ref	DWMP Generic Option	Description
CM2	Water efficiency measures	Water efficiency measures can be installed within buildings with the purpose of reducing water consumption. Reduced consumption can also benefit the wastewater system by reducing the dry weather flow to be conveyed through the sewer network and through the STWs
CM3	Rainwater harvesting	Removing surface water from the system and making it available to re-use. By installing measures which collect and store the rainfall before it lands and is lost as runoff. Rainwater harvesting reduces the amount of flow that needs to be conveyed through the sewer network during a storm, thus reducing the likelihood of sewer flooding or spills to watercourse.
CM4	Customer incentives	Financially rewarding customers who sign up to a range of programs which are designed to help customers make smart choices in managing and/or utilising water and wastewater services. This for example could include use of metering/smart metering along with different tariff designs.
CM5	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.
CM6	Greywater treatment and reuse	Install systems to treat and re-use household water (foul) for flushing toilets and gardening use. Either at property level or larger scale to reduces both flow and load to the system. The treatment levels considered vary from treatment for potable use to pre-treatment for discharge into the combined or foul sewer network.
CM7	Charging and bill incentives	Reduction on bills or adapting charging e.g. for surface water removal
Indirect measures		
IM1	Influencing policy	Influencing national and local policy for example around growth and planning, surface water management etc.to provide benefit to the delivery drainage and wastewater services
IM2	Investigate and monitor	Improve understanding of root cause and risk relating to issues identified through BRAVA prior to implementing solutions
IM3	Future technology	Need to await or develop technology or approach
Sludge		
B1	Resource recovery	Utilising technology to recycle valuable resources within sludge
B2	Sludge centre rationalisation	Close localised on-site sludge treatment and transfer for treatment at a central sludge centre.
B3	Sludge centre decentralisation	Remove flows from a central treatment centre and create smaller localised treatment options

Option Ref	DWMP Generic Option	Description
B4	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.
Surface Water Management		
SW1	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.
SW2	Surface water pathway interception 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
SW3	Attenuation	Regional level surface water management.
Wastewater treatment		
W1	Treat or pre-treat wastewater in the network	Chemical dosing prior to flow reaching the treatment works to relieve the load transferred to the STW or to remove contaminants.
W2	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.
W3	Intelligent treatment works operation	Optimising the site to improve efficiency
W4	Treatment works rationalisation	Close smaller treatment works and transfer flows to a larger one
W5	Treatment works de-centralisation	Remove flows from a treatment works and create localised treatment works
W6	Modification of consent / permits	Review the permit with the Environment Agency and agree new permit conditions.
W7	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. This includes working with EA and other stakeholders on nutrient balancing and other integrated catchment solutions.
W8	Effluent reuse	Chemical dosing prior to flow reaching the treatment works to relieve the load transferred to the STW or to remove contaminants.

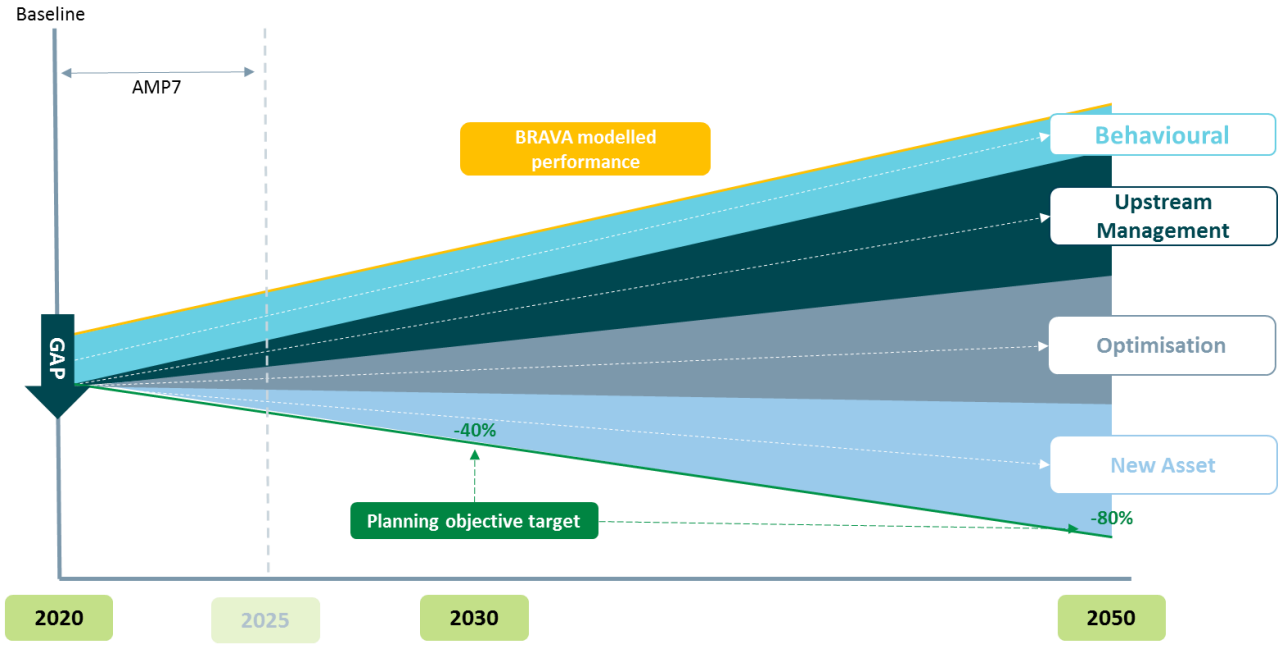
2.2.9 The option development process mirrors the Water Resources Management Plan (WRMP) process, with unconstrained, feasible and preferred options being developed and subject to appraisal. **Figure 2.3** illustrates the option development process.

Figure 2.3 UUW DWMP option development process



2.2.10 Detailed modelling and optioneering works have been undertaken to determine the most appropriate, effective response. Option 'blends' have been selected. These will provide the best value solutions to address the identified risks and contribute towards meeting the relevant planning objectives. **Figure 2.4** provides an illustrative example of such an option 'blend'.

Figure 2.4 Illustrative example of an option blend to address a planning objective



2.2.11 The outputs of the optioneering have enabled the selection of the preferred programme of options. The preferred programme will be included in the draft DWMP which will be published in summer 2022 for public consultation. Consultation responses will be analysed, and as necessary the DWMP will be revised. The DWMP will then be finalised in summer 2023

Preferred Option Blends for Strategic and Complex TPUs

2.2.12 UUW has identified a total of 403 options for 22 of the 26 TPU catchments that have been identified as strategic or complex (note, options for the remaining four TPUs are being finalised and will be assessed prior to the submission of the final plan). For each of the 22 TPU catchments a legal obligation to 'increase treatment capacity' option has been identified for the relevant wastewater treatment works.

2.2.13 **Table 2.2** identifies the 22 TPU catchments which are identified as strategic or complex and the options that have been identified for these. These form the core elements of the DWMP that are subject to assessment. It should be noted that these largely reflect the generic options identified above with little or no additional information on the precise location or scope of the option elements and actions that make up the strategy (except for the 'Increase treatment capacity' options that relate to the relevant wastewater treatment works, the locations of which are known).

Table 2.2 Options within each TPU

TPU	Option	No. of applications
Altrincham	Domestic and business customer education	2

TPU	Option	No. of applications
	Increase the capacity of existing foul / combined networks	6
	Increase treatment capacity	1
	Intelligent network operation	1
	Surface water source control measures	2
Blackburn	Catchment management initiatives	4
	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	12
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	4
Bromborough	Domestic and business customer education	1
	Increase the capacity of existing foul / combined networks	13
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	3
Burscough	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	4
	Increase treatment capacity	1
	Intelligent network operation	1
	Surface water source control measures	4
Carlisle	Domestic and business customer education	1
	Increase the capacity of existing foul / combined networks	15
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	5

TPU	Option	No. of applications
Carnforth	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	2
	Increase treatment capacity	1
	Intelligent network operation	1
	Surface water source control measures	2
Davyhulme	Catchment management initiatives	8
	Domestic and business customer education	1
	Increase the capacity of existing foul / combined networks	11
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	3
Ellesmere Port	Domestic and business customer education	1
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	2
Fleetwood	Domestic and business customer education	1
	Increase the capacity of existing foul / combined networks	17
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	4
Hillhouse	Domestic and business customer education	1
	Increase the capacity of existing foul / combined networks	1
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1

TPU	Option	No. of applications
	Surface water source control measures	1
Knutsford	Domestic and business customer education	2
	Increase treatment capacity	1
	Intelligent network operation	1
	Surface water source control measures	4
Lancaster	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	4
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	3
Macclesfield	Catchment management initiatives	1
	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	23
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	2
Partington	Domestic and business customer education	1
	Increase the capacity of existing foul / combined networks	2
	Increase treatment capacity	1
	Intelligent network operation	1
	Surface water source control measures	3
Penrith	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	3
	Increase treatment capacity	1
	Intelligent network operation	1
	Surface water source control measures	4

TPU	Option	No. of applications
Preston	Catchment management initiatives	2
	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	8
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	6
Sale	Domestic and business customer education	1
	Increase the capacity of existing foul / combined networks	26
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	2
Salford	Domestic and business customer education	1
	Increase the capacity of existing foul / combined networks	3
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	3
Stretford	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	2
	Increase treatment capacity	1
	Intelligent network operation	1
	Surface water source control measures	4
Whitehaven	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	4
	Increase treatment capacity	1
	Intelligent network operation	1

TPU	Option	No. of applications
	Surface water source control measures	7
Wigan	Catchment management initiatives	5
	Domestic and business customer education	2
	Increase the capacity of existing foul / combined networks	52
	Increase treatment capacity	1
	Intelligent network operation	1
	Sewer maintenance	1
	Surface water source control measures	8
Workington	Domestic and business customer education	1
	Increase the capacity of existing foul / combined networks	3
	Increase treatment capacity	1
	Intelligent network operation	1
	Surface water source control measures	5

Transfer Options

2.2.14 UUW has identified two effluent transfer options in the draft DWMP:

- Askham to Sockbridge;
- Mowpen Brow to High Legh.

2.2.15 These options involve the transfer of effluent for treatment from a small wastewater treatment works to a larger wastewater treatment works.

3. Approach to HRA

3.1 Overview

3.1.1 European Commission guidance[11] 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'.

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 to be run as an iterative process alongside plan development, helping to inform the selection of preferred options.

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

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 UUW, although it should be noted that this is essentially limited to the information provided in **Table 2.1** (Section 2) and some information on the approximate CAPEX anticipated for the option. The assessable information on any given option is therefore very limited.

3.2.2 As noted, for this iteration of the DWMP UUW has identified 22 TPUs with preferred 'option blends' (see **Table 2.2, Section 2**), plus two 'transfer options'. These TPUs are geographically defined but (with the exception of options relating to increases in capacity at the relevant wastewater treatment works) 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).

3.2.3 Given the nature of the problems that the options are typically aiming to resolve, it is almost certain that that the schemes that make up the options will be located within the TPU. In some instances it is conceivable that a solution may be located outside the relevant TPU (e.g. if the relevant risk area for which a solution is proposed is located close to the margins of the TPU, 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.

3.2.4 As a result, the smallest geographical units that can be applied to the HRA are:

- for options relating to increases in capacity at the relevant wastewater treatment works, the locations of the wastewater treatment works and its outfall;
- for transfer options, an indicative route of the transfer based on the supplying and receiving locations; and
- for all other options, the TPU.

3.2.5 The available information on other option characteristics (e.g. scale, construction requirements, operational outcomes) is also very limited. The CAPEX might be used as a proxy for the scale of the construction works required for an option, although this does not necessarily provide a useful indication of the scale or likelihood of environmental changes that may affect European sites, particularly as the location for that CAPEX expenditure is not typically identified below the TPU level (for example, re-lining substantial sections of the sewer network in a TPU would have a high CAPEX but would almost always be an inherently low-impact activity in relation to environmental change and consequent effects on European sites).

3.2.6 Similarly, specific data on the operation of options is not available since this will form part of the lower tier detailed design – although options that do not meet the DWMP objectives at this point will not be considered 'solutions' to the identified issue). 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.

3.2.7 Identifying plan aspects that can be meaningfully assessed is therefore challenging.

Comparable Plans and Assessment Approaches

3.2.8 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.

3.2.9 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. 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 FRMPs[12] have typically 'screened out' "*measures that would not have physical effects*" (e.g. reducing the impacts of flooding through land use and

[12] 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_SEVERN_FRMP_HRA.pdf]

development policy, improving awareness of flood risk, or engaging with partners) and measures from existing plans or projects that have been subject to HRA.

- 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

3.2.10 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.

3.2.11 It should also be noted that the DWMP does not specify or constrain exactly how or where measures are implemented (even for wastewater treatment works upgrades, since many solutions may be available at or near a site), 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.

3.2.12 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

3.2.13 There are a number of assumptions inherent in the HRA and DWMP development.

3.2.14 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 improve local flow-management and ensure that these volumes can be passed to the relevant wastewater treatment works for treatment in accordance with the wastewater treatment works' permits. They are not aiming to prevent all flooding and spills that may occur within a TPU, nor solve wider drainage and wastewater issues within the TPU area or the associated surface water catchment.

3.2.15 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); and all 22 complex and strategic catchments have wastewater treatment works upgrades included in the option blend. 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.

3.2.16 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 receiving watercourses, and options are assessed with this in mind.

3.2.17 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.

3.2.18 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 other 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 DCWW meets its obligation to 'have regard' to the Habitats Regulations in its operations.

3.2.19 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).

3.2.20 It should also be noted that **the DWMP does not specify or constrain exactly how or where measures 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.

3.3.2 As noted, for this iteration of the DWMP, UUW has identified 22 TPUs with preferred 'option blends' (see **Table 2.2, Section 2**), plus two 'transfer options'. These TPUs are geographically defined but (with the exception of options relating to increases in capacity at the relevant wastewater treatment works) 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).

3.3.3 Given the small scale of the schemes that will make up the options, and the nature of the problems they are typically aiming to resolve, it is almost certain that that they will be located within the TPU. In some instances it is conceivable that a solution may be located outside the relevant TPU (e.g. if the relevant risk area for which a solution is proposed is located close to the margins of the TPU, or perhaps where larger catchment management options are considered, such as catchment sensitive farming), but these will typically be rare and are not in any case identifiable at this stage in the planning process.

3.3.4 As a result, the smallest geographical units that can be applied to the HRA are:

- for options relating to increases in capacity at the relevant wastewater treatment works, the locations of the wastewater treatment works and its outfall;
- for transfer options, an indicative route of the transfer based on the supplying and receiving locations; and
- for all other options, the TPU.

3.3.5 Therefore the assessment considers:

- All European sites that are within 5km of the relevant TPU or new option infrastructure (if identified).
- All European sites that are downstream of the relevant TPU (no distance threshold).
- All European sites upstream of the relevant TPU or new option infrastructure (if identified) 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).

3.3.6 The 5km buffer[13] 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[14] 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

[13] '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.

[14] The additional 0.5km caters for residual uncertainty over the precise location of some interventions (e.g. the locations of some SuDS are not necessarily specified, but will be in close proximity to the L7 risk cluster).

being unavoidably affected by an option[15] (such that conservation objectives might be undermined).

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

3.3.8 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

3.3.9 The screening and appropriate assessment stages take account of the baseline condition of the European sites and their interest features[16], 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).

3.3.10 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;

[15] 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 to some extent indicative 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.

[16] 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.

- Supplementary Advice to the conservation objectives (SACO) where available[17];
- 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.

3.3.11 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 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.

3.3.12 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**'.

3.3.13 A '**typical species**' is broadly described by EC guidance as being any species (or community of species) which is particularly *chara*cteristic 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.

3.3.14 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.

[17] 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.

3.3.15 '**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).

3.3.16 **Conservation Objectives** benchmark Favourable Conservation Status (FCS) for each feature. Guidance[18] 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*".

3.3.17 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:

3.3.18 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*.

3.3.19 For SPAs:

[18] 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].

- *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*.

3.3.20 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.

3.3.21 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

3.3.22 Information on the DWMP options is provided by UUW, although it should be noted that this is essentially limited to the information provided in **Table 2.1** (Section 2) and some information on the approximate CAPEX anticipated for the option. The CAPEX might be used as a proxy for the scale of the construction works required for an option, although this does not necessarily provide a useful indication of the likelihood of environmental changes that may affect European sites, particularly as the location for that CAPEX expenditure is not typically identified below the TPU level (for example, re-lining substantial sections of the sewer network in a TPU would have a high CAPEX but would almost always be an inherently low-impact activity in relation to environmental change and consequent effects on European sites).

3.3.23 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.

Preferred Options assessment

3.3.24 For each option (or group of options, as appropriate), the assessment comprises:

- a 'screening' to identify those 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 to identify those sites and features where there will self-evidently be 'no effect', 'no likely significant effects', or positive effects due to the option[19], and those where significant effects are likely or uncertain; and
- an 'appropriate assessment' of any options where significant effects cannot be excluded (this may include 'down-the-line' deferral in accordance with established HRA practice, where appropriate).

3.3.25 The conservation objectives are taken into account at the screening and appropriate assessment stages as necessary.

3.3.26 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 then a more detailed 'appropriate assessment' is completed (rather than through a more detailed 'secondary screening' or similar).

3.3.27 The 'low bar' approach is consistent with the 'People Over Wind'[20] 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 C**) 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.

3.3.28 In this instance, therefore, mitigation measures (including the established best-practice avoidance and mitigation measures noted in **Appendix C**) are not taken into account at screening, but are instead introduced at the 'appropriate assessment' stage (if required).

3.3.29 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 effect pathways is not undertaken if there is a high degree of 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

3.3.30 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.

3.3.31 Broadly, it is considered that the DWMP could have the following in combination effects:

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

[20] Case C 323/17 Court of Justice of the European Union: People Over Wind

- 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.

3.3.32 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.

3.3.33 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

Generic Options

4.1.1 The screening of the generic options is summarised in **Table 4.1**. This follows the principles outlined in **Section 3.2** 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. Nine generic options are therefore 'screened out' at this stage.

TPU Level Screening

4.1.2 The European sites potentially exposed to construction or operation of the remaining options in each TPU (i.e. those sites within 5km of the TPUs, or downstream sites, or upstream sites with migratory fish) have been identified, with 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 (for example, terrestrial sites over 1km without mobile features, that are not hydrologically connected)) screened out. This screening is applied cautiously, recognising that no information is available on the precise nature of the schemes that will be employed to deliver the options. This assessment is summarised in **Table 4.2**.

4.1.3 In summary, for precautionary reasons the screening inevitably excluded few European sites due to the inherent uncertainties over the precise characteristics and delivery of most options. Most European sites in or near most TPUs were therefore taken forward to an 'appropriate assessment' stage. 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).

Table 4.1 Screening of generic options

Option Ref.	Management Area	Generic Option	Description	Screen in?	Notes
N1	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.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
N2	Combined and Foul Sewer Systems	Increase the capacity of existing foul / combined networks	Replace sewer with a large diameter sewer to increase capacity.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
N4	Combined and Foul Sewer Systems	Intelligent asset maintenance	Allows the system to be maintained proactively, maximising the use and longevity of existing assets (for example by repairing minor sewer damage before a collapse occurs).	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
N5	Combined and Foul Sewer Systems	Sewer rehab	Sewer rehabilitation to improve asset health.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
N6	Combined and Foul Sewer Systems	Property Level Resilience (PLR)	Create additional volume to reduce storm impact (attenuation) or treatment of storm discharges. Non return valves, pumps, flood gates etc.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.

Option Ref.	Management Area	Generic Option	Description	Screen in?	Notes
N7	Combined and Foul Sewer Systems	Enhanced operational maintenance	Pro-active and targeting operation and maintenance programmes	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
N8	Combined and Foul Sewer Systems	Attenuation	Creation of additional volume to reduce storm impact.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
N9	Combined and Foul Sewer Systems	Sewer maintenance	Repair and rehabilitation to maintain service	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
N10	Combined and Foul Sewer Systems	Cross boundary transfer	The movement of flow to another area, or company.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation and the flow requirements of watercourses in both source and receptor catchments, but likely to be neutral or positive for European sites to meet DWMP objectives.
CM1	Customer Side Management	Water efficient appliances	Supplying customers with household appliances which are designed to reduce water consumption. Reduced consumption can also benefit the wastewater system by reducing the dry weather flow to be conveyed through the sewer network and through the STWs	No	Measures to reduce consumption; will benefit European sites through reduced abstraction requirement and reducing loads requiring treatment.

Option Ref.	Management Area	Generic Option	Description	Screen in?	Notes
CM2	Customer Side Management	Water efficiency measures	Water efficiency measures can be installed within buildings with the purpose of reducing water consumption. Reduced consumption can also benefit the wastewater system by reducing the dry weather flow to be conveyed through the sewer network and through the wastewater treatment works.	No	Measures to reduce consumption; will benefit European sites through reduced abstraction requirement and reducing loads requiring treatment.
CM3	Customer Side Management	Rainwater harvesting	Removing surface water from the system and making it available to re-use. By installing measures which collect and store the rainfall before it lands and is lost as runoff. Rainwater harvesting reduces the amount of flow that needs to be conveyed through the sewer network during a storm, thus reducing the likelihood of sewer flooding or spills to watercourse.	No	Measures to reduce consumption; will benefit European sites through reduced abstraction requirement and reducing loads requiring treatment.
CM4	Customer Side Management	Customer incentives	Financially rewarding customers who sign up to a range of programs which are designed to help customers make smart choices in managing and/or utilising water and wastewater services. This for example could include use of metering/smart metering along with different tariff designs.	No	Measures to reduce consumption; will benefit European sites through reduced abstraction requirement and reducing loads requiring treatment.
CM5	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.	No	Education / information programme.

Option Ref.	Management Area	Generic Option	Description	Screen in?	Notes
CM6	Customer Side Management	Greywater treatment and reuse	Install systems to treat and re-use household water (foul) for flushing toilets and gardening use. Either at property level or larger scale to reduces both flow and load to the system. The treatment levels considered vary from treatment for potable use to pre-treatment for discharge into the combined or foul sewer network.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
CM7	Customer Side Management	Charging and bill incentives	Reduction on bills or adapting charging e.g. for surface water removal	No	Measures to reduce consumption; will benefit European sites through reduced abstraction requirement and reducing loads requiring treatment.
IM1	Indirect measures	Influencing policy	Influencing national and local policy for example around growth and planning, surface water management etc.to provide benefit to the delivery drainage and wastewater services	No	Engagement programme.
IM2	Indirect measures	Investigate and monitor	Improve understanding of root cause and risk relating to issues identified through BRAVA prior to implementing solutions	No	Investigation programme.
IM3	Indirect measures	Future technology	Need to await or develop technology or approach	No	No intervention proposed.
B1	Sludge	Resource recovery	Utilising technology to recycle valuable resources within sludge	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
B2	Sludge	Sludge centre rationalisation	Close localised on-site sludge treatment and transfer for treatment at a central sludge centre.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.

Option Ref.	Management Area	Generic Option	Description	Screen in?	Notes
B3	Sludge	Sludge centre decentralisation	Remove flows from a central treatment centre and create smaller localised treatment options	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
B4	Sludge	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.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
SW1	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.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
SW2	Surface Water Management	Surface water pathway interception 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	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
SW3	Surface Water Management	Attenuation	Regional level surface water management.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.

Option Ref.	Management Area	Generic Option	Description	Screen in?	Notes
W1	Wastewater treatment	Treat or pre-treat wastewater in the network	Chemical dosing prior to flow reaching the treatment works to relieve the load transferred to the STW or to remove contaminants.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
W2	Wastewater treatment	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.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
W3	Wastewater treatment	Intelligent treatment works operation	Optimising the site to improve efficiency	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
W4	Wastewater treatment	Treatment works rationalisation	Close smaller treatment works and transfer flows to a larger one	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
W5	Wastewater treatment	Treatment works de-centralisation	Remove flows from a treatment works and create localised treatment works	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
W6	Wastewater treatment	Modification of consent / permits	Review the permit with the Environment Agency and agree new permit conditions.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.

Option Ref.	Management Area	Generic Option	Description	Screen in?	Notes
W7	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. This includes working with EA and other stakeholders on nutrient balancing and other integrated catchment solutions.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.
W8	Wastewater treatment	Effluent reuse	Chemical dosing prior to flow reaching the treatment works to relieve the load transferred to the STW or to remove contaminants.	Yes	Option likely to require development / construction to implement; operational effects depend on implementation but likely to be neutral or positive for European sites to meet DWMP objectives.

Table 4.2 European sites potentially exposed to option delivery

European site and associated TPUs	Distance from TPU (km)*	Screen in?	Notes
Bowland Fells SPA			
Lancaster	3.3	N	Site is up-catchment and will not be exposed to outcomes of options; mobile features unlikely to be functionally dependent on habitats in Lancaster.
Calf Hill and Cragg Woods SAC			
Lancaster	3.9	N	Site is up-catchment and will not be exposed to outcomes of options.
Dee Estuary/ Aber Dyfrdwy SAC			

European site and associated TPUs	Distance from TPU (km)*	Screen in?	Notes
Bromborough	2.7	N	Site is not hydrologically linked to the TPU and the features are unlikely to be otherwise exposed to option implementation.
Leighton Moss Ramsar			
Carnforth	2.1	N	No hydrological linkages to the TPU; all options likely to be within TPU and so features unlikely to be exposed to effects of options. Mobile features relatively habitat specific so unlikely to be reliant on habitats away from the site.
Leighton Moss SPA			
Carnforth	2.1	N	No hydrological linkages to the TPU; all options likely to be within TPU and so features unlikely to be exposed to effects of options. Mobile features relatively habitat specific so unlikely to be reliant on habitats away from the site.
Liverpool Bay / Bae Lerpwl SPA			
Bromborough	0	Y	Site overlaps with TPU
Fleetwood	0	Y	Overlap associated with outfall that discharges to the SPA.
Hillhouse	3.3	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Preston	1.1	Y	Downstream receptor
Manchester Mosses SAC			
Davyhulme	4	N	No hydrological linkages to TPU; site/features very unlikely to be exposed to construction or operation of options within TPU.
Partington	2.7	N	No hydrological linkages to TPU; site/features very unlikely to be exposed to construction or operation of options within TPU.

European site and associated TPUs	Distance from TPU (km)*	Screen in?	Notes
Martin Mere Ramsar			
Burscough	0.4/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Hillhouse	DS	Y	Mobile species may utilise designated and non-designated habitats in the TPU.
Martin Mere SPA			
Burscough	0.5/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Hillhouse	DS	Y	Mobile species may utilise designated and non-designated habitats in the TPU.
Mersey Estuary Ramsar			
Altrincham	DS	Y	Downstream receptor
Bromborough	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Davyhulme	DS	Y	Downstream receptor
Ellesmere Port	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Knutsford	DS	Y	Downstream receptor
Macclesfield	DS	Y	Downstream receptor
Partington	DS	Y	Downstream receptor
Sale	DS	Y	Downstream receptor
Salford	DS	Y	Downstream receptor
Stretford	DS	Y	Downstream receptor

European site and associated TPUs	Distance from TPU (km)*	Screen in?	Notes
Mersey Estuary SPA			
Altrincham	DS	Y	Downstream receptor
Bromborough	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Davyhulme	DS	Y	Downstream receptor
Ellesmere Port	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Knutsford	DS	Y	Downstream receptor
Macclesfield	DS	Y	Downstream receptor
Partington	DS	Y	Downstream receptor
Sale	DS	Y	Downstream receptor
Salford	DS	Y	Downstream receptor
Stretford	DS	Y	Downstream receptor
Mersey Narrows and North Wirral Foreshore Ramsar			
Bromborough	3	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Hillhouse	3.5	Y	Mobile species may utilise designated and non-designated habitats in the TPU.
Mersey Narrows and North Wirral Foreshore SPA			
Bromborough	3	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Hillhouse	3.8	Y	Mobile species may utilise designated and non-designated habitats in the TPU.

European site and associated TPUs	Distance from TPU (km)*	Screen in?	Notes
Midland Meres and Mosses Phase 1 Ramsar			
Knutsford	0	Y	Within TPU.
Morecambe Bay and Duddon Estuary SPA			
Carnforth	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Fleetwood	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Lancaster	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Morecambe Bay Pavements SAC			
Carnforth	1.5	N	No hydrological linkages to the TPU; all options likely to be within TPU and so features unlikely to be exposed to effects of options.
Morecambe Bay Ramsar			
Carnforth	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Fleetwood	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Lancaster	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Morecambe Bay SAC			
Carnforth	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Fleetwood	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Lancaster	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.

European site and associated TPUs	Distance from TPU (km)*	Screen in?	Notes
Peak District Moors (South Pennine Moors Phase 1) SPA			
Macclesfield	2.9	N	Site is up-catchment and will not be exposed to outcomes of options; mobile features unlikely to be functionally dependent on habitats in Macclesfield.
Ribble and Alt Estuaries Ramsar			
Blackburn	DS	Y	Downstream receptor
Burscough	4/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Fleetwood	0	Y	Minor overlap at southern end of TPU; ; mobile species may utilise designated and non-designated habitats in the TPU.
Hillhouse	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Preston	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Wigan	DS	Y	Downstream receptor
Ribble and Alt Estuaries SPA			
Blackburn	DS	Y	Downstream receptor
Burscough	4.3/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Fleetwood	0.6	Y	Close to southern end of TPU; ; mobile species may utilise designated and non-designated habitats in the TPU.
Hillhouse	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Preston	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.

European site and associated TPUs	Distance from TPU (km)*	Screen in?	Notes
Wigan	DS	Y	Downstream receptor
River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC			
Ellesmere Port	2.3	N	Site is not hydrologically linked to the TPU and the features are unlikely to be otherwise exposed to option implementation.
River Derwent and Bassenthwaite Lake SAC			
Whitehaven	2.9	N	Site is within separate surface water catchment; no pathways for effects.
Workington	0	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
River Eden SAC			
Carlisle	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Penrith	0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
River Ehen SAC			
Whitehaven	3.3	N	Site is within separate surface water catchment; no pathways for effects.
Rixton Clay Pits SAC			
Partington	1	Y	Mobile species
Rostherne Mere Ramsar			
Altrincham	3.1	N	No hydrological linkages to TPU; site/features very unlikely to be exposed to construction or operation of options within TPU.

European site and associated TPUs	Distance from TPU (km)*	Screen in?	Notes
Knutsford	3.9	N	No hydrological linkages to TPU; site/features very unlikely to be exposed to construction or operation of options within TPU.
Sefton Coast SAC			
Burscough	3.4	N	Site not linked to TPU by surface watercourses; features unlikely to be exposed to effects of options.
Hillhouse	2.1	Y	Hydrologically linked.
Shell Flat and Lune Deep SAC			
Fleetwood	1.3	N	Site is within 5km of the sea outfall; features not exposed and sensitive to likely outcomes of options.
Solway Firth SAC			
Carlisle	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Penrith	DS	Y	Downstream receptor; mobile species likely to be functionally dependent on habitats in TPU.
Solway Firth SPA			
Carlisle	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Penrith	DS	Y	Downstream receptor
Whitehaven	0/DS	Y	Site adjacent to TPU and contains a sea outfall.
Wigan	DS	Y	Downstream receptor
Workington	0.1/DS	Y	Site adjacent to TPU and contains a sea outfall.
South Pennine Moors SAC			

European site and associated TPUs	Distance from TPU (km)*	Screen in?	Notes
Macclesfield	2.8	N	Site is up-catchment and will not be exposed to outcomes of options.
The Dee Estuary Ramsar			
Bromborough	2.7	Y	No hydrological linkages but mobile species may utilise designated and non-designated habitats in the TPU.
The Dee Estuary SPA			
Bromborough	3	Y	No hydrological linkages but mobile species may utilise designated and non-designated habitats in the TPU.
Upper Solway Flats and Marshes Ramsar			
Carlisle	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.
Penrith	DS	Y	Downstream receptor

* Downstream or upstream receptors with migratory fish over 5km from the TPU are indicated by D/S and U/S respectively.

Transfer Schemes Screening

4.1.4 UUW has identified two effluent transfer options in the draft DWMP:

- Askham to Sockbridge (wastewater treatment works located approximately 3.5km apart near Penrith, Cumbria);
- Mowpen Brow to High Legh (wastewater treatment works located approximately 1.3km apart near Lymm, Cheshire).

4.1.5 These involve the transfer of effluent from smaller to larger wastewater treatment works and the closure of the smaller works.

4.1.6 These options have a relatively precise geographical component (the locations of the source and receiving wastewater treatment works are known, and their proximity ensures that an approximate corridor for a transfer pipeline can be identified); and some operational outcomes can be identified (if not precisely defined) at this level in the planning hierarchy – specifically, that the transfer of effluent will reduce discharges at the source water treatment works. This latter change will likely be beneficial for water quality but may theoretically conflict with flow targets for watercourses in the source catchment if discharges from the water treatment works make a notable contribution to baseflows in the watercourse.

4.1.7 The screenings for the transfer schemes are summarised in **Tables 4.3 and 4.4**.

Table 4.3 Transfer schemes screening - Askham to Sockbridge

European site	Location	Screen in?	Notes
River Eden SAC	Adjacent both wastewater treatment works	Yes	Askham currently discharges to the River Lowther, Sockbridge to the River Eamont, both of which form part of the River Eden SAC.
Solway Firth SAC	D/S	Yes	Downstream receptor for source and receiving wastewater treatment works.
Solway Firth SPA	D/S	Yes	Downstream receptor for source and receiving wastewater treatment works.
Upper Solway Firth Flats and Marshes Ramsar	D/S	Yes	Downstream receptor for source and receiving wastewater treatment works.

Table 4.4 Transfer schemes screening – Mowpen Brow to High Legh

European site	Location	Screen in?	Notes
Mersey Estuary SPA	D/S	Yes	Downstream receptor for source and receiving wastewater treatment works.

European site	Location	Screen in?	Notes
Mersey Estuary Ramsar	D/S	No	Downstream receptor for source and receiving wastewater treatment works.

4.2 Appropriate Assessments

4.2.1 The appropriate assessment is 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).

TPUs and Associated Wastewater Treatment Works

4.2.2 The appropriate assessments for each site are set out in the proformas for each TPU in **Appendix B**.

4.2.3 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 site to be meaningfully identified or assessed at this stage, and any such assessment would be largely generic and speculative. This includes those options that are locationally specific (i.e. wastewater treatment works upgrades), since whilst the location is clear the precise requirements of any upgrades are not. 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 UUW 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 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.
- 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 and these include meeting all permitting requirements (now, or in the future) and protecting, restoring or improving the environment by reducing spills from storm overflows and delivering WINEP-driven schemes. The implementation of the options is therefore intended to improve water quality in the north-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), but these will be scheme-specific and not systematically driven by the options in the DWMP. As with construction effects there is a 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.

4.2.4 In addition, the DWMP does and the DWMP does not fundamentally constrain the delivery in relation to the exact location, scale or nature of the of the schemes that will comprise the options, so 'no adverse effect' solutions should always be available.

Transfer Schemes

Askham to Sockbridge

4.2.5 Askham wastewater treatment works is a small facility that discharges to the River Lowther (part of the **River Eden SAC**). Sockbridge is located approximately 3.5km to the north-east, adjacent to the River Eamont (also part of the River Eden SAC).

4.2.6 The sites associated with the upper Solway Firth (**Solway Firth SAC, Solway Firth SPA and Upper Solway Flats and Marshes SPA**) are approximately 70km downstream.

4.2.7 The scheme will require construction works close to the River Eden SAC (pipeline construction and modification of plant at Askham, presumably to include a new pumping station). Effluent will be transferred to Sockbridge for treatment and discharge into the River Lowther.

4.2.8 With regard to construction, the scheme will require the identification and implementation of appropriate avoidance measures and mitigation at the project level to ensure that there are no adverse effects on the River Eden SAC; however, the scheme is unexceptional in terms of scale and the standard best-practice measures outlined in Appendix D are likely to effective (although some bespoke measures, such as timing works to avoid key migration periods) may be required.

4.2.9 Closing Askham wastewater treatment works will improve water quality in the reach of the River Lowther between Askham and the confluence with the Eamont as effluent will be passed to Sockbridge for treatment and discharge and spills of untreated effluent will be reduced. The volumes treated at Askham are relatively modest and can be fully treated at Sockbridge to comply with the permits for this site, and so deterioration of the water quality in the River Eamont would not be expected. Discharges from Askham currently contribute to baseflow in the River Lowther, although this contribution is inconsequential due to the small volumes that are treated and discharge, the contribution of surface water from the ctahcment, and the regulated nature of the river at this point (partly maintained by compensation releases from Haweswater). The reductions in discharges from Askham would not therefore affect the achievement of flow targets for the River Lowther.

4.2.10 Other operational effects are possible (for example, noise and vibration from new pumping equipment) but these effects can be avoided or mitigated through the design process.

4.2.11 The sites associated with the Solway Firth are a substantial distance downstream, and any environmental changes from the options will be fully attenuated by this point. Mobile species associated with the SAC (i.e. migratory fish) may be exposed when using the River Eden and its tributaries, although mitigation to safeguard the River Eden SAC will be effective for these features also.

4.2.12 Therefore, including the option in the DWMP will not adversely affect the integrity of these sites, alone or in combination, and it is very likely that a 'no significant effects' conclusion would be reached in any project-stage HRA.

Mowpen Brow to High Legh

4.2.13 Mowpen Brow currently discharges to a minor watercourse that flows to the Mag Brook and hence to the Mersey Estuary via the Manchester Ship Canal.

4.2.14 The **Mersey Estuary SPA** and **Mersey Estuary Ramsar** are the only European sites potentially exposed to the outcomes of the option; the closest points of these sites are over 23km downstream.

4.2.15 The option will transfer effluent from Mowpen Brow to High Legh to the southeast via a new 1.3km pipeline. High Legh is also within the catchment of the Mersey Estuary sites, although discharges from this site reach the estuary via the River Weaver, a slightly longer route. Both

4.2.16 With regard to effects on the SPA/Ramsar, construction of the scheme will clearly have either no significant effects (or, with if mitigation is considered appropriate) no adverse effects on the site or its interest features, alone and in combination. This is due to the small scale of the works and the distance from these sites.

4.2.17 With regard to operation, the scheme should be neutral or positive on the SPA/Ramsar. The flow volumes associated with the wastewater treatment works are relatively small and essentially inconsequential in relation to the contribution of either the Ship Canal or baseflow in the River Weaver; the diversion of effluent to High Legh will have no measurable effect on 'freshwater' inputs to the SPA/Ramsar (certainly not sufficient to result in environmental changes that might affect the site interest features). The only other mechanism for effects would be through changes in water quality, and the scheme will result in improvements to discharge quality as flows are passed to a larger treatment works. Consequently, including the option in the DWMP will not adversely affect the integrity of these sites, alone or in combination, and it is very likely that a 'no significant effects' conclusion would be reached in any project-stage HRA.

Inter-Option In Combination Effects

4.2.18 **Table 4.2** identifies those sites that are potentially exposed to effects from options in two or more TPUs.

4.2.19 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.

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 TPU areas. This exercise did not identify any schemes within or near the relevant TPU areas that are likely to operate 'in combination' with the 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), and so this assessment is necessarily limited and would require repeating for project-level assessments as the options come forward. In reality the effects of the DWMP options are likely to be too minor for significant 'in combination' effects to be likely.

Minor projects

4.3.3 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

4.3.4 UUW published its current WRMP in August 2019. UUW has started working towards the preparation of the WRMP24. UUW'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. The preparation of WRMP24 will therefore take into such factors.

4.3.5 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 WRMP19 is 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.

4.3.6 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.

4.3.7 Water Resources West (WRW) 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. WRW comprises four water companies (UUW, Severn Trent Water, South Staffs Water and Welsh Water). The Regional Plan focuses on demand management and supply options to address water supply deficits. Similarly 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 to support effective management of water resources.

Effects with other strategic plans and development pressure

4.3.8 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.

4.3.9 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.

4.3.10 It is recognised that there are challenges regionally with water quality (particularly in relation to 'nutrient neutrality') but the DWMP will not amplify these issues or prevent the achievement of favourable conservation status.

5. Conclusion

5.1.1 For this iteration of the DWMP UUW has identified 34 generic options that have been applied to 22 TPU catchments that have been identified as strategic or complex. For each of the 22 TPU catchments a legal obligation to 'increase treatment capacity' option has been identified for the relevant wastewater treatment works. These TPUs are geographically defined but (with the exception of options relating to increases in capacity at the relevant wastewater treatment works) 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.

5.1.2 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.

5.1.3 The HRA therefore comprises:

- a 'screening' to identify those 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 each TPU, 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 option[21], 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).

5.1.4 The European site conservation objectives are taken into account at the screening and appropriate assessment stages as necessary.

5.1.5 In summary, nine 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, stakeholder engagement) and which will (in the context of the DWMP objectives) not have any mechanisms for significant effects on European sites; these options are as follows:

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

Table 5.1 Options screened out due to their fundamental characteristics

Option Ref.	Option	Description
CM1	Water efficient appliances	Supplying customers with household appliances which are designed to reduce water consumption. Reduced consumption can also benefit the wastewater system by reducing the dry weather flow to be conveyed through the sewer network and through the STWs
CM2	Water efficiency measures	Water efficiency measures can be installed within buildings with the purpose of reducing water consumption. Reduced consumption can also benefit the wastewater system by reducing the dry weather flow to be conveyed through the sewer network and through the STWs
CM3	Rainwater harvesting	Removing surface water from the system and making it available to re-use. By installing measures which collect and store the rainfall before it lands and is lost as runoff. Rainwater harvesting reduces the amount of flow that needs to be conveyed through the sewer network during a storm, thus reducing the likelihood of sewer flooding or spills to watercourse.
CM4	Customer incentives	Financially rewarding customers who sign up to a range of programs which are designed to help customers make smart choices in managing and/or utilising water and wastewater services. This for example could include use of metering/smart metering along with different tariff designs.
CM5	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.
CM7	Charging and bill incentives	Reduction on bills or adapting charging e.g. for surface water removal
IM1	Influencing policy	Influencing national and local policy for example around growth and planning, surface water management etc.to provide benefit to the delivery drainage and wastewater services
IM2	Investigate and monitor	Improve understanding of root cause and risk relating to issues identified through BRAVA prior to implementing solutions
IM3	Future technology	Need to await or develop technology or approach

5.1.6 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 TPU) 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. Most European sites in or near most TPUs were therefore taken forward to an 'appropriate assessment' stage.

5.1.7 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).

5.1.8 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.

5.1.9 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).

5.1.10 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.

5.1.11 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 UUW 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).

5.1.12 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.

5.1.13 Therefore the HRA can conclude that the DWMP (if adopted as proposed) 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, it is recommended that the final version of the plan include an explicit requirement for the potential effects on European sites to be considered at every design and planning stage for each option (and their component schemes), to ensure that potential adverse effects are identified and avoided during the design process.

5.1.14 It should be noted that four additional TPUs will have options developed for the final plan, and so the above conclusions are necessarily preliminary; these TPUs and options will be assessed as part of the final HRA accompanying the submitted DWMP. However, based on the anticipated option blends it is likely that the above conclusion will be applicable to these TPUs also.

Appendix A
European sites

The following European sites are considered potentially exposed to the outcomes of the DWMP.

Site and Feature
Bowland Fells SPA
Lesser black-backed gull Larus fuscus
Hen harrier Circus cyaneus
Merlin Falco columbarius
Calf Hill and Cragg Woods SAC
Old sessile oak woods with Ilex and Blechnum in the British Isles
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)
Dee Estuary/ Aber Dyfrdwy SAC
Estuaries
Mudflats and sandflats not covered by seawater at low tide
Annual vegetation of drift lines
Vegetated sea cliffs of the Atlantic and Baltic Coasts
Salicornia and other annuals colonizing mud and sand
Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
Embryonic shifting dunes
Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")
Fixed coastal dunes with herbaceous vegetation ("grey dunes")
Humid dune slacks
Sea lamprey Petromyzon marinus
River lamprey Lampetra fluviatilis
Petalwort Petalophyllum ralfsii
Leighton Moss Ramsar
Crit. 1 - sites containing representative, rare or unique wetland types
Leighton Moss SPA
Great bittern Botaurus stellaris
Eurasian marsh harrier Circus aeruginosus
Liverpool Bay / Bae Lerpwl SPA
Red-throated diver Gavia stellata
Black (common) scoter Melanitta nigra
Little tern Sterna albifrons
Common tern Sterna hirundo
Little gull Larus minutus
Waterbird assemblage
Manchester Mosses SAC
Degraded raised bogs still capable of natural regeneration
Martin Mere Ramsar
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
Martin Mere SPA
Tundra swan Cygnus columbianus bewickii
Eurasian wigeon Anas penelope
Pink-footed goose Anser brachyrhynchus
Northern pintail Anas acuta
Whooper swan Cygnus cygnus
Waterbird assemblage

Site and Feature
Mersey Estuary Ramsar
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
Mersey Estuary SPA
Common redshank Tringa totanus
Eurasian teal Anas crecca
Common redshank Tringa totanus
Ringed plover Charadrius hiaticula
Northern lapwing Vanellus vanellus
European golden plover Pluvialis apricaria
Northern pintail Anas acuta
Eurasian curlew Numenius arquata
Eurasian wigeon Anas penelope
Common shelduck Tadorna tadorna
Dunlin Calidris alpina alpina
Grey plover Pluvialis squatarola
Black-tailed godwit Limosa limosa islandica
Great crested grebe Podiceps cristatus
Mersey Narrows and North Wirral Foreshore Ramsar
Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge
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
Mersey Narrows and North Wirral Foreshore SPA
Dunlin Calidris alpina alpina
Common tern Sterna hirundo
Eurasian oystercatcher Haematopus ostralegus
Common redshank Tringa totanus
Little gull Larus minutus
Red knot Calidris canutus islandica
Common tern Sterna hirundo
Great cormorant Phalacrocorax carbo
Grey plover Pluvialis squatarola
Sanderling Calidris alba
Bar-tailed godwit Limosa lapponica
Waterbird assemblage
Midland Meres and Mosses Phase 1 Ramsar
Crit. 1 - sites containing representative, rare or unique wetland types
Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities
Morecambe Bay and Duddon Estuary SPA
Little egret Egretta garzetta
Whooper swan Cygnus cygnus
Pink-footed goose Anser brachyrhynchus
Common shelduck Tadorna tadorna
Eurasian oystercatcher Haematopus ostralegus
Ringed plover Charadrius hiaticula
European golden plover Pluvialis apricaria
Grey plover Pluvialis squatarola
Red knot Calidris canutus
Sanderling Calidris alba
Dunlin Calidris alpina alpina
Ruff Philomachus pugnax
Black-tailed godwit Limosa limosa islandica
Bar-tailed godwit Limosa lapponica
Eurasian curlew Numenius arquata
Common redshank Tringa totanus
Ruddy turnstone Arenaria interpres
Mediterranean gull Larus melanocephalus

Site and Feature
Lesser black-backed gull Larus fuscus
Herring gull Larus argentatus
Sandwich tern Sterna sandvicensis
Common tern Sterna hirundo
Little tern Sterna albifrons
Northern pintail Anas acuta
Lesser black-backed gull Larus fuscus
Waterbird assemblage
Seabird assemblage
Seabird assemblage
Morecambe Bay Pavements SAC
Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.
European dry heaths
Juniperus communis formations on heaths or calcareous grasslands
Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)
Calcareous fens with Cladium mariscus and species of the Caricion davallianae
Limestone pavements
Tilio-Acerion forests of slopes, screes and ravines
Old sessile oak woods with Ilex and Blechnum in the British Isles
Taxus baccata woods of the British Isles
Narrow-mouthed whorl snail Vertigo angustior
Morecambe Bay Ramsar
Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds
Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge
Crit. 5 - regularly supports 20,000 or more waterbirds
Morecambe Bay SAC
Sandbanks which are slightly covered by sea water all the time
Estuaries
Mudflats and sandflats not covered by seawater at low tide
Coastal lagoons
Large shallow inlets and bays
Reefs
Perennial vegetation of stony banks
Salicornia and other annuals colonizing mud and sand
Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
Embryonic shifting dunes
Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")
Fixed coastal dunes with herbaceous vegetation ("grey dunes")
Atlantic decalcified fixed dunes (Calluno-Ulicetea)
Dunes with Salix repens ssp. argentea (Salicion arenariae)
Humid dune slacks
Great crested newt Triturus cristatus
Peak District Moors (South Pennine Moors Phase 1) SPA
Merlin Falco columbarius
European golden plover Pluvialis apricaria
Short-eared owl Asio flammeus
Ribble and Alt Estuaries Ramsar
Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities
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
Ribble and Alt Estuaries SPA
Great cormorant Phalacrocorax carbo
Black-tailed godwit Limosa limosa islandica
Whooper swan Cygnus cygnus
Black-headed gull Larus ridibundus
Eurasian curlew Numenius arquata
Greater scaup Aythya marila

Site and Feature
Sanderling Calidris alba
Whimbrel Numenius phaeopus
Lesser black-backed gull Larus fuscus
Dunlin Calidris alpina alpina
Common redshank Tringa totanus
Common shelduck Tadorna tadorna
Ringed plover Charadrius hiaticula
Grey plover Pluvialis squatarola
Black (common) scoter Melanitta nigra
Common tern Sterna hirundo
Common redshank Tringa totanus
Northern lapwing Vanellus vanellus
Sanderling Calidris alba
Eurasian oystercatcher Haematopus ostralegus
Red knot Calidris canutus
Bar-tailed godwit Limosa lapponica
Ruff Philomachus pugnax
Tundra swan Cygnus columbianus bewickii
Eurasian teal Anas crecca
Eurasian wigeon Anas penelope
Pink-footed goose Anser brachyrhynchus
European golden plover Pluvialis apricaria
Northern pintail Anas acuta
Seabird assemblage
Waterbird assemblage
Seabird assemblage
River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
Sea lamprey Petromyzon marinus
Brook lamprey Lampetra planeri
River lamprey Lampetra fluviatilis
Atlantic salmon Salmo salar
Bullhead Cottus gobio
Otter Lutra lutra
Floating water-plantain Luronium natans
River Derwent and Bassenthwaite Lake SAC
Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
Sea lamprey Petromyzon marinus
Brook lamprey Lampetra planeri
River lamprey Lampetra fluviatilis
Atlantic salmon Salmo salar
Marsh fritillary butterfly Euphydryas (Eurodryas, Hypodryas) aurinia
Otter Lutra lutra
Floating water-plantain Luronium natans
River Eden SAC
Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)
Sea lamprey Petromyzon marinus
Brook lamprey Lampetra planeri
River lamprey Lampetra fluviatilis
Atlantic salmon Salmo salar
Bullhead Cottus gobio
White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes
Otter Lutra lutra
River Ehen SAC

Site and Feature
Atlantic salmon Salmo salar
Freshwater pearl mussel Margaritifera margaritifera
Rixton Clay Pits SAC
Great crested newt Triturus cristatus
Rostherne Mere Ramsar
Crit. 1 - sites containing representative, rare or unique wetland types
Sefton Coast SAC
Embryonic shifting dunes
Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")
Fixed coastal dunes with herbaceous vegetation ("grey dunes")
Atlantic decalcified fixed dunes (Calluno-Ulicetea)
Dunes with Salix repens ssp. argentea (Salicion arenariae)
Humid dune slacks
Great crested newt Triturus cristatus
Petalwort Petalophyllum ralfsii
Shell Flat and Lune Deep SAC
Sandbanks which are slightly covered by sea water all the time
Reefs
Solway Firth SAC
Sandbanks which are slightly covered by sea water all the time
Estuaries
Mudflats and sandflats not covered by seawater at low tide
Reefs
Perennial vegetation of stony banks
Salicornia and other annuals colonizing mud and sand
Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
Fixed coastal dunes with herbaceous vegetation ("grey dunes")
Sea lamprey Petromyzon marinus
River lamprey Lampetra fluviatilis
Solway Firth SPA
Eurasian oystercatcher Haematopus ostralegus
Grey plover Pluvialis squatarola
Common goldeneye Bucephala clangula
Ruddy turnstone Arenaria interpres
Greater scaup Aythya marila
Whooper swan Cygnus cygnus
Eurasian teal Anas crecca
Dunlin Calidris alpina alpina
Northern pintail Anas acuta
Sanderling Calidris alba
Northern shoveler Anas clypeata
Common redshank Tringa totanus
Barnacle goose Branta leucopsis [Svalbard/Denmark/UK]
Bar-tailed godwit Limosa lapponica
Common shelduck Tadorna tadorna
European golden plover Pluvialis apricaria
Eurasian curlew Numenius arquata
Red knot Calidris canutus
Pink-footed goose Anser brachyrhynchus
Waterbird assemblage
Red-throated diver Gavia stellata
Great cormorant Phalacrocorax carbo
Black (common) scoter Melanitta nigra
Goosander Mergus merganser
Ringed plover Charadrius hiaticula
Northern lapwing Vanellus vanellus
Black-headed gull Larus ridibundus

Site and Feature
Mew gull Larus canus
Herring gull Larus argentatus
Waterbird assemblage
South Pennine Moors SAC
Northern Atlantic wet heaths with Erica tetralix
European dry heaths
Blanket bogs (* if active bog)
Transition mires and quaking bogs
Old sessile oak woods with Ilex and Blechnum in the British Isles
The Dee Estuary Ramsar
Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds
Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities
Crit. 5 - regularly supports 20,000 or more waterbirds
Crit. 1 - sites containing representative, rare or unique wetland types
The Dee Estuary SPA
Common redshank Tringa totanus
Red knot Calidris canutus
Common tern Sterna hirundo
Northern pintail Anas acuta
Common redshank Tringa totanus
Dunlin Calidris alpina alpina
Little tern Sterna albifrons
Eurasian teal Anas crecca
Eurasian oystercatcher Haematopus ostralegus
Grey plover Pluvialis squatarola
Common shelduck Tadorna tadorna
Black-tailed godwit Limosa limosa islandica
Sandwich tern Sterna sandvicensis
Eurasian curlew Numenius arquata
Bar-tailed godwit Limosa lapponica
Waterbird assemblage
Upper Solway Flats and Marshes Ramsar
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
Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities

Appendix B
Assessment Proformas

Altrincham TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Rostherne Mere Ramsar				
- Crit. 1 - sites containing representative, rare or unique wetland types	3.1	N	No hydrological linkages to TPU; site/features very unlikely to be exposed to construction or operation of options within TPU.	-
Mersey Estuary Ramsar				
- 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Blackburn TPU

Screened in Generic Options	
W7 - Catchment management initiatives	Scheme characteristics / locations not defined; may be outside TPU; operation likely neutral or positive for WQ.
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Ribble and Alt Estuaries Ramsar				
- Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities - 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Ribble and Alt Estuaries SPA				
- Great cormorant Phalacrocorax carbo - Tundra swan Cygnus columbianus bewickii - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Greater scaup Aythya marila - Black (common) scoter Melanitta nigra - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Red knot Calidris canutus - Sanderling Calidris alba - Ruff Philomachus pugnax - Bar-tailed godwit Limosa lapponica - Whimbrel Numenius phaeopus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-headed gull Larus ridibundus - Lesser black-backed gull Larus fuscus - Common tern Sterna hirundo - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina - Seabird assemblage - Waterbird assemblage	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Bromborough TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Liverpool Bay / Bae Lerpwl SPA				
- Red-throated diver Gavia stellata - Black (common) scoter Melanitta nigra - Little gull Larus minutus - Common tern Sterna hirundo - Little tern Sterna albifrons - Waterbird assemblage	0.0	Y	Site overlaps with TPU	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. Parts of the site overlap with the TPU although this is likely to be a GIS/mapping artefact and most of the interest features may have limited exposure to the outcomes of option delivery due to their habitat preferences. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary Ramsar				
- 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	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. Parts of the site overlap with the TPU although this is likely to be a GIS/mapping artefact; the interest features may utilise non-designated functional habitats within the TPU away from the estuary. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. Parts of the site overlap with the TPU although this is likely to be a GIS/mapping artefact; the interest features may utilise non-designated functional habitats within the TPU away from the estuary. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Dee Estuary/ Aber Dyfrdwy SAC				
- Estuaries - Mudflats and sandflats not covered by seawater at low tide - Annual vegetation of drift lines - Vegetated sea cliffs of the Atlantic and Baltic Coasts - Salicornia and other annuals colonizing mud and sand - Atlantic salt meadows (Glauco-Puccinellietalia maritimae) - Embryonic shifting dunes - Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") - Fixed coastal dunes with herbaceous vegetation ("grey dunes") - Humid dune slacks - Sea lamprey Petromyzon marinus - River lamprey Lampetra fluviatilis - Petalwort Petalophyllum ralfsii	2.7	N	Site is not hydrologically linked to the TPU and the features are unlikely to be otherwise exposed to option implementation.	-

Bromborough TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
The Dee Estuary Ramsar				
- Crit. 1 - sites containing representative, rare or unique wetland types - Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities - 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	2.7	Y	No hydrological linkages but mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is in a separate surface water catchment from the TPU, although the interest features may utilise non-designated functional habitats within the TPU away from the estuary. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Narrows and North Wirral Foreshore Ramsar				
- Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge - 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	3.0	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is 'downstream' of the TPU via the Mersey estuary, and so potential effects on receiving waters (etc.) through option delivery would likely be attenuated by the tidal flux, although the interest features may utilise non-designated functional habitats within the TPU away from the estuary. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Narrows and North Wirral Foreshore SPA	3.0			
- Great cormorant Phalacrocorax carbo - Eurasian oystercatcher Haematopus ostralegus - Grey plover Pluvialis squatarola - Sanderling Calidris alba - Bar-tailed godwit Limosa lapponica - Common redshank Tringa totanus - Little gull Larus minutus - Common tern Sterna hirundo - Red knot Calidris canutus islandica - Dunlin Calidris alpina alpina - Waterbird assemblage		Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is 'downstream' of the TPU via the Mersey estuary, and so potential effects on receiving waters (etc.) through option delivery would likely be attenuated by the tidal flux, although the interest features may utilise non-designated functional habitats within the TPU away from the estuary. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
The Dee Estuary SPA				

Bromborough TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
- Common shelduck Tadorna tadorna - Eurasian teal Anas crecca - Northern pintail Anas acuta - Eurasian oystercatcher Haematopus ostralegus - Grey plover Pluvialis squatarola - Red knot Calidris canutus - Bar-tailed godwit Limosa lapponica - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Sandwich tern Sterna sandvicensis - Common tern Sterna hirundo - Little tern Sterna albifrons - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina - Waterbird assemblage	3.0	Y	No hydrological linkages but mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is in a separate surface water catchment from the TPU, although the interest features may utilise non-designated functional habitats within the TPU away from the estuary. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Burscough TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Martin Mere Ramsar				
- 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	0.4/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a close downstream receptor from the catchment wastewater treatment works, and interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Martin Mere SPA				
- Tundra swan Cygnus columbianus bewickii - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Eurasian wigeon Anas penelope - Northern pintail Anas acuta - Waterbird assemblage	0.5/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a close downstream receptor from the catchment wastewater treatment works, and interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Sefton Coast SAC				
- Embryonic shifting dunes - Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") - Fixed coastal dunes with herbaceous vegetation ("grey dunes") - Atlantic decalcified fixed dunes (Calluno-Ulicetea) - Dunes with Salix repens ssp. argentea (Salicion arenariae) - Humid dune slacks - Great crested newt Triturus cristatus - Petalwort Petalophyllum ralfsii	3.4	N	Site not linked to TPU by surface watercourses; features unlikely to be exposed to effects of options.	-
Ribble and Alt Estuaries Ramsar				
- Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities - 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	4.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor from the catchment wastewater treatment works, and interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Ribble and Alt Estuaries SPA				

Burscough TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Martin Mere Ramsar				
- Great cormorant Phalacrocorax carbo - Tundra swan Cygnus columbianus bewickii - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Greater scaup Aythya marila - Black (common) scoter Melanitta nigra - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Red knot Calidris canutus - Sanderling Calidris alba - Ruff Philomachus pugnax - Bar-tailed godwit Limosa lapponica - Whimbrel Numenius phaeopus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-headed gull Larus ridibundus - Lesser black-backed gull Larus fuscus - Common tern Sterna hirundo - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina - Seabird assemblage - Waterbird assemblage	4.3/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor from the catchment wastewater treatment works, and interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Carlisle TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
River Eden SAC				
- Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea - Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation - Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) - White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes - Sea lamprey Petromyzon marinus - Brook lamprey Lampetra planeri - River lamprey Lampetra fluviatilis - Atlantic salmon Salmo salar - Bullhead Cottus gobio - Otter Lutra lutra	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The River Eden runs through the TPU and is the receiving watercourse for the wastewater treatment works, and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats (e.g. minor watercourses) within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / vibration effects from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Solway Firth SAC				
- Sandbanks which are slightly covered by sea water all the time - Estuaries - Mudflats and sandflats not covered by seawater at low tide - Reefs - Perennial vegetation of stony banks - Salicornia and other annuals colonizing mud and sand - Atlantic salt meadows (Glauco-Puccinellietalia maritimae) - Fixed coastal dunes with herbaceous vegetation ("grey dunes") - Sea lamprey Petromyzon marinus - River lamprey Lampetra fluviatilis	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor, and interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Solway Firth SPA				

Carlisle TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
- Red-throated diver Gavia stellata - Great cormorant Phalacrocorax carbo - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Barnacle goose Branta leucopsis [Svalbard/Denmark/UK] - Common shelduck Tadorna tadorna - Eurasian teal Anas crecca - Northern pintail Anas acuta - Northern shoveler Anas clypeata - Greater scaup Aythya marila - Black (common) scoter Melanitta nigra - Common goldeneye Bucephala clangula - Goosander Mergus merganser - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Red knot Calidris canutus - Sanderling Calidris alba - Bar-tailed godwit Limosa lapponica - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Ruddy turnstone Arenaria interpres - Black-headed gull Larus ridibundus - Mew gull Larus canus - Herring gull Larus argentatus - Dunlin Calidris alpina alpina - Waterbird assemblage	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor, and interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Upper Solway Flats and Marshes Ramsar				
- Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities - 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	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor, and interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Carnforth TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Morecambe Bay and Duddon Estuary SPA				
- Little egret Egretta garzetta - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Common shelduck Tadorna tadorna - Northern pintail Anas acuta - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Red knot Calidris canutus - Sanderling Calidris alba - Ruff Philomachus pugnax - Bar-tailed godwit Limosa lapponica - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Ruddy turnstone Arenaria interpres - Mediterranean gull Larus melanocephalus - Lesser black-backed gull Larus fuscus - Herring gull Larus argentatus - Sandwich tern Sterna sandvicensis - Common tern Sterna hirundo - Little tern Sterna albifrons - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina - Seabird assemblage - Waterbird assemblage	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the TPU and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Morecambe Bay Ramsar				
- Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge - 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	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the TPU and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Morecambe Bay SAC				

Carnforth TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Morecambe Bay and Duddon Estuary SPA				
- Sandbanks which are slightly covered by sea water all the time - Estuaries - Mudflats and sandflats not covered by seawater at low tide - Coastal lagoons - Large shallow inlets and bays - Reefs - Perennial vegetation of stony banks - Salicornia and other annuals colonizing mud and sand - Atlantic salt meadows (Glauco-Puccinellietalia maritimae) - Embryonic shifting dunes - Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") - Fixed coastal dunes with herbaceous vegetation ("grey dunes") - Atlantic decalcified fixed dunes (Calluno-Ulicetea) - Dunes with Salix repens ssp. argentea (Salicion arenariae) - Humid dune slacks - Great crested newt Triturus cristatus	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the TPU and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site may also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Morecambe Bay Pavements SAC				
- Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. - European dry heaths - Juniperus communis formations on heaths or calcareous grasslands - Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) - Calcareous fens with Cladium mariscus and species of the Caricion davallianae - Limestone pavements - Tilio-Acerion forests of slopes, screes and ravines - Old sessile oak woods with Ilex and Blechnum in the British Isles - Taxus baccata woods of the British Isles	1.5	N	No hydrological linkages to the TPU; all options likely to be within TPU and so features unlikely to be exposed to effects of options.	-
Leighton Moss Ramsar				
- Crit. 1 - sites containing representative, rare or unique wetland types	2.1	N	No hydrological linkages to the TPU; all options likely to be within TPU and so features unlikely to be exposed to effects of options. Mobile features relatively habitat specific so unlikely to be reliant on habitats away from the site.	-
Leighton Moss SPA				
- Great bittern Botaurus stellaris - Eurasian marsh harrier Circus aeruginosus	2.1	N	No hydrological linkages to the TPU; all options likely to be within TPU and so features unlikely to be exposed to effects of options. Mobile features relatively habitat specific so unlikely to be reliant on habitats away from the site.	-

Davyhulme TPU

Screened in Generic Options	
W7 - Catchment management initiatives	Scheme characteristics / locations not defined; may be outside TPU; operation likely neutral or positive for WQ.
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Manchester Mosses SAC				
- Degraded raised bogs still capable of natural regeneration	4.0	N	No hydrological linkages to TPU; site/features very unlikely to be exposed to construction or operation of options within TPU.	-
Mersey Estuary Ramsar				
- 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Ellesmere Port TPU

Screened in Generic Options	
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Mersey Estuary Ramsar				
- 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	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the TPU and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the TPU and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC				
- Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation - Sea lamprey Petromyzon marinus - Brook lamprey Lampetra planeri - River lamprey Lampetra fluviatilis - Atlantic salmon Salmo salar - Bullhead Cottus gobio - Otter Lutra lutra - Floating water-plantain Luronium natans	2.3	N	Site is not hydrologically linked to the TPU and the features are unlikely to be otherwise exposed to option implementation.	-

Fleetwood TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Liverpool Bay / Bae Lerpwl SPA				
- Red-throated diver Gavia stellata - Black (common) scoter Melanitta nigra - Little gull Larus minutus - Common tern Sterna hirundo - Little tern Sterna albifrons - Waterbird assemblage	0.0	Y	Overlap associated with outfall that discharges to the SPA.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The overlap of the TPU with the site is associated with a sea outfall that discharges to the SPA; the remainder of the TPU is separated from the site. Mobile species associated with the site may use non-designated functional habitats within or near the TPU, although most will not due to their habitat preferences. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for WQ, other possible operational effects can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Ribble and Alt Estuaries Ramsar				
- Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities - 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	0.0	Y	Minor overlap at southern end of TPU; ; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. A small part of the site is immediately adjacent to the soutern end of the TPU although most areas of the TPU are some distance from the site; mobile species associated with the site may use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operational effects are unlikely (not a downstream receptor for the sewerage network, low risk of other operational effects (e.g. noise / visual disturbance from new plant)) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Morecambe Bay and Duddon Estuary SPA				
- Little egret Egretta garzetta - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Common shelduck Tadorna tadorna - Northern pintail Anas acuta - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Red knot Calidris canutus - Sanderling Calidris alba - Ruff Philomachus pugnax - Bar-tailed godwit Limosa lapponica - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Ruddy turnstone Arenaria interpres - Mediterranean gull Larus melanocephalus - Lesser black-backed gull Larus fuscus - Herring gull Larus argentatus - Sandwich tern Sterna sandvicensis - Common tern Sterna hirundo - Little tern Sterna albifrons - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina - Seabird assemblage - Waterbird assemblage	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the northern end of the TPU and so will be exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Fleetwood TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Morecambe Bay Ramsar				
- Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge - 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	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the northern end of the TPU and so will be exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Morecambe Bay SAC				
- Sandbanks which are slightly covered by sea water all the time - Estuaries - Mudflats and sandflats not covered by seawater at low tide - Coastal lagoons - Large shallow inlets and bays - Reefs - Perennial vegetation of stony banks - Salicornia and other annuals colonizing mud and sand - Atlantic salt meadows (Glauco-Puccinellietalia maritimae) - Embryonic shifting dunes - Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") - Fixed coastal dunes with herbaceous vegetation ("grey dunes") - Atlantic decalcified fixed dunes (Calluno-Ulicetea) - Dunes with Salix repens ssp. argentea (Salicion arenariae) - Humid dune slacks - Great crested newt Triturus cristatus	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the TPU and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site may also use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Ribble and Alt Estuaries SPA				

Fleetwood TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
- Great cormorant Phalacrocorax carbo - Tundra swan Cygnus columbianus bewickii - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Greater scaup Aythya marila - Black (common) scoter Melanitta nigra - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Red knot Calidris canutus - Sanderling Calidris alba - Ruff Philomachus pugnax - Bar-tailed godwit Limosa lapponica - Whimbrel Numenius phaeopus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-headed gull Larus ridibundus - Lesser black-backed gull Larus fuscus - Common tern Sterna hirundo - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina - Seabird assemblage - Waterbird assemblage	0.6	Y	Close to southern end of TPU; ; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. A small part of the site is close to the soutern end of the TPU although most areas of the TPU are some distance from the site; mobile species associated with the site may use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operational effects are unlikely (not a downstream receptor for the sewerage network, low risk of other operational effects (e.g. noise / visual disturbance from new plant)) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Shell Flat and Lune Deep SAC				
- Sandbanks which are slightly covered by sea water all the time - Reefs	1.3	N	Site is within 5km of the sea outfall; features not exposed and sensitive to likely outcomes of options.	-

Hillhouse TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Sefton Coast SAC				
- Embryonic shifting dunes - Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") - Fixed coastal dunes with herbaceous vegetation ("grey dunes") - Atlantic decalcified fixed dunes (Calluno-Ulicetea) - Dunes with Salix repens ssp. argentea (Salicion arenariae) - Humid dune slacks - Great crested newt Triturus cristatus - Petalwort Petalophyllum ralfsii	2.1	Y	Hydrologically linked.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor from the catchment wastewater treatment works, although the features are unlikely to be particularly exposed to this pathway. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Ribble and Alt Estuaries Ramsar				
- Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities - 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	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor from the catchment wastewater treatment works, and interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Ribble and Alt Estuaries SPA				

Hillhouse TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
- Great cormorant Phalacrocorax carbo - Tundra swan Cygnus columbianus bewickii - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Greater scaup Aythya marila - Black (common) scoter Melanitta nigra - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Red knot Calidris canutus - Sanderling Calidris alba - Ruff Philomachus pugnax - Bar-tailed godwit Limosa lapponica - Whimbrel Numenius phaeopus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-headed gull Larus ridibundus - Lesser black-backed gull Larus fuscus - Common tern Sterna hirundo - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina - Seabird assemblage - Waterbird assemblage	2.2/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor from the catchment wastewater treatment works, and interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Liverpool Bay / Bae Lerpwl SPA				
- Red-throated diver Gavia stellata - Black (common) scoter Melanitta nigra - Little gull Larus minutus - Common tern Sterna hirundo - Little tern Sterna albifrons - Waterbird assemblage	3.3	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor although most of the interest features may have limited exposure to the outcomes of option delivery due to their habitat preferences. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Narrows and North Wirral Foreshore Ramsar				

Hillhouse TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
- Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge - 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	3.5	Y	Mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. Most of this site is located on the southern side of the Mersey estuary (so not exposed) although a small area is located within 5km of the TPU and the interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Narrows and North Wirral Foreshore SPA				
- Great cormorant Phalacrocorax carbo - Eurasian oystercatcher Haematopus ostralegus - Grey plover Pluvialis squatarola - Sanderling Calidris alba - Bar-tailed godwit Limosa lapponica - Common redshank Tringa totanus - Little gull Larus minutus - Common tern Sterna hirundo - Red knot Calidris canutus islandica - Dunlin Calidris alpina alpina - Waterbird assemblage	3.8	Y	Mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. Most of this site is located on the southern side of the Mersey estuary (so not exposed) although a small area is located within 5km of the TPU and the interest features may use non-designated functional land within the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Knutsford TPU

Screened in Generic Options	
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Midland Meres and Mosses Phase 1 Ramsar				
- Crit. 1 - sites containing representative, rare or unique wetland types - Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities	0.0	Y	Within TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is within the TPU and so may be exposed to environmental changes associated with the options. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ, and the site is unlikely to be exposed via this mechanism (not hydrologically connected to the network); other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Rostherne Mere Ramsar				
- Crit. 1 - sites containing representative, rare or unique wetland types	3.9	N	No hydrological linkages to TPU; site/features very unlikely to be exposed to construction or operation of options within TPU.	-
Mersey Estuary Ramsar				
- 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Lancaster TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Morecambe Bay and Duddon Estuary SPA				
- Little egret Egretta garzetta - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Common shelduck Tadorna tadorna - Northern pintail Anas acuta - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Red knot Calidris canutus - Sanderling Calidris alba - Ruff Philomachus pugnax - Bar-tailed godwit Limosa lapponica - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Ruddy turnstone Arenaria interpres - Mediterranean gull Larus melanocephalus - Lesser black-backed gull Larus fuscus - Herring gull Larus argentatus - Sandwich tern Sterna sandvicensis - Common tern Sterna hirundo - Little tern Sterna albifrons - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina - Seabird assemblage - Waterbird assemblage	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to part of the TPU and so will be exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Morecambe Bay Ramsar				
- Crit. 4 - supports plant/animal species at a critical stage in their life cycles, or provides refuge - 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	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to part of the TPU and so will be exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Morecambe Bay SAC				

Lancaster TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
- Sandbanks which are slightly covered by sea water all the time - Estuaries - Mudflats and sandflats not covered by seawater at low tide - Coastal lagoons - Large shallow inlets and bays - Reefs - Perennial vegetation of stony banks - Salicornia and other annuals colonizing mud and sand - Atlantic salt meadows (Glauco-Puccinellietalia maritimae) - Embryonic shifting dunes - Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") - Fixed coastal dunes with herbaceous vegetation ("grey dunes") - Atlantic decalcified fixed dunes (Calluno-Ulicetea) - Dunes with Salix repens ssp. argentea (Salicion arenariae) - Humid dune slacks - Great crested newt Triturus cristatus	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the TPU and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site may also use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Bowland Fells SPA				
- Hen harrier Circus cyaneus - Merlin Falco columbarius - Lesser black-backed gull Larus fuscus	3.3	N	Site is up-catchment and will not be exposed to outcomes of options; mobile features unlikely to be functionally dependent on habitats in Lancaster.	-
Calf Hill and Cragg Woods SAC				
- Old sessile oak woods with Ilex and Blechnum in the British Isles - Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	3.9	N	Site is up-catchment and will not be exposed to outcomes of options.	-

Macclesfield TPU

Screened in Generic Options	
W7 - Catchment management initiatives	Scheme characteristics / locations not defined; may be outside TPU; operation likely neutral or positive for WQ.
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
South Pennine Moors SAC				
- Northern Atlantic wet heaths with Erica tetralix - European dry heaths - Blanket bogs (* if active bog) - Transition mires and quaking bogs - Old sessile oak woods with Ilex and Blechnum in the British Isles	2.8	N	Site is up-catchment and will not be exposed to outcomes of options.	-
Peak District Moors (South Pennine Moors Phase 1) SPA				
- Merlin Falco columbarius - European golden plover Pluvialis apricaria - Short-eared owl Asio flammeus	2.9	N	Site is up-catchment and will not be exposed to outcomes of options; mobile features unlikely to be functionally dependent on habitats in Macclesfield.	-
Mersey Estuary Ramsar				
- 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Partington TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Rixton Clay Pits SAC				
- Great crested newt Triturus cristatus	1.0	Y	Mobile species	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located beyond the typical migration range for the site interest features. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ, although the site is not hydrologically linked; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Manchester Mosses SAC				
- Degraded raised bogs still capable of natural regeneration	2.7	N	No hydrological linkages to TPU; site/features very unlikely to be exposed to construction or operation of options within TPU.	-
Mersey Estuary Ramsar				
- 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Penrith TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
River Eden SAC				
- Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea - Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation - Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) - White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes - Sea lamprey Petromyzon marinus - Brook lamprey Lampetra planeri - River lamprey Lampetra fluviatilis - Atlantic salmon Salmo salar - Bullhead Cottus gobio - Otter Lutra lutra	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The River Eden runs through the TPU and is the receiving watercourse for the wastewater treatment works, and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats (e.g. minor watercourses) within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / vibration effects from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Solway Firth SAC				
- Sandbanks which are slightly covered by sea water all the time - Estuaries - Mudflats and sandflats not covered by seawater at low tide - Reefs - Perennial vegetation of stony banks - Salicornia and other annuals colonizing mud and sand - Atlantic salt meadows (Glauco-Puccinellietalia maritimae) - Fixed coastal dunes with herbaceous vegetation ("grey dunes") - Sea lamprey Petromyzon marinus - River lamprey Lampetra fluviatilis	DS	Y	Downstream receptor; mobile species likely to be functionally dependent on habitats in TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways or when utilising rivers in the TPU. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Solway Firth SPA				

Penrith TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
River Eden SAC				
- Red-throated diver Gavia stellata - Great cormorant Phalacrocorax carbo - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Barnacle goose Branta leucopsis [Svalbard/Denmark/UK] - Common shelduck Tadorna tadorna - Eurasian teal Anas crecca - Northern pintail Anas acuta - Northern shoveler Anas clypeata - Greater scaup Aythya marila - Black (common) scoter Melanitta nigra - Common goldeneye Bucephala clangula - Goosander Mergus merganser - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Red knot Calidris canutus - Sanderling Calidris alba - Bar-tailed godwit Limosa lapponica - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Ruddy turnstone Arenaria interpres - Black-headed gull Larus ridibundus - Mew gull Larus canus - Herring gull Larus argentatus - Dunlin Calidris alpina alpina - Waterbird assemblage	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Upper Solway Flats and Marshes Ramsar				
- Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities - 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Preston TPU

Screened in Generic Options	
W7 - Catchment management initiatives	Scheme characteristics / locations not defined; may be outside TPU; operation likely neutral or positive for WQ.
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Ribble and Alt Estuaries Ramsar				
- Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities - 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	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the TPU and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Ribble and Alt Estuaries SPA				
- Great cormorant Phalacrocorax carbo - Tundra swan Cygnus columbianus bewickii - Whooper swan Cygnus cygnus - Pink-footed goose Anser brachyrhynchus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Greater scaup Aythya marila - Black (common) scoter Melanitta nigra - Eurasian oystercatcher Haematopus ostralegus - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Red knot Calidris canutus - Sanderling Calidris alba - Ruff Philomachus pugnax - Bar-tailed godwit Limosa lapponica - Whimbrel Numenius phaeopus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-headed gull Larus ridibundus - Lesser black-backed gull Larus fuscus - Common tern Sterna hirundo - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina - Seabird assemblage - Waterbird assemblage	0.0/DS	Y	Hydrologically linked; mobile species may utilise designated and non-designated habitats in the TPU.	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is immediately adjacent to the TPU and so will be particularly exposed to environmental changes arising from option delivery in the TPU or at the wastewater treatment works; mobile species associated with the site are also likely to use non-designated functional habitats within or near the TPU. Nevertheless, the options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects are possible (e.g. noise / visual disturbance from new plant) but these can also clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Liverpool Bay / Bae Lerpwl SPA				

Preston TPU

Screened in Generic Options				
W7 - Catchment management initiatives	Scheme characteristics / locations not defined; may be outside TPU; operation likely neutral or positive for WQ.			
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.			
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.			
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.			
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.			
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.			
- Red-throated diver Gavia stellata - Black (common) scoter Melanitta nigra - Little gull Larus minutus - Common tern Sterna hirundo - Little tern Sterna albifrons - Waterbird assemblage	1.1	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. The site is a downstream receptor although most of the interest features may have limited exposure to the outcomes of option delivery due to their habitat preferences. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Sale TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Mersey Estuary Ramsar				
- 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Salford TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
N9 - Sewer maintenance	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Mersey Estuary Ramsar				
- 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Stretford TPU

Screened in Generic Options	
N2 - Increase the capacity of existing foul / combined networks	Scheme characteristics / locations in TPU not defined; construction likely within or very close to TPU; operation neutral or positive for WQ.
W2 - Increase treatment capacity	Scheme characteristics not defined; will be at existing wastewater treatment works within TPU; operation neutral or positive for WQ.
N1 - Intelligent network operation	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.
SW1 - Surface water source control measures	Scheme characteristics / locations in TPU not defined; will be within TPU; operation neutral or positive for WQ.

European sites and features	Dist.	Screen in?	Screening Notes	Appropriate Assessment
Mersey Estuary Ramsar				
- 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	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.
Mersey Estuary SPA				
- Great crested grebe Podiceps cristatus - Common shelduck Tadorna tadorna - Eurasian wigeon Anas penelope - Eurasian teal Anas crecca - Northern pintail Anas acuta - Ringed plover Charadrius hiaticula - European golden plover Pluvialis apricaria - Grey plover Pluvialis squatarola - Northern lapwing Vanellus vanellus - Eurasian curlew Numenius arquata - Common redshank Tringa totanus - Black-tailed godwit Limosa limosa islandica - Dunlin Calidris alpina alpina	DS	Y	Downstream receptor	There is insufficient information on the options to enable potential effects on this site to be defined or meaningfully assessed at this stage. However, the TPU is located some distance from this site and so the features will not be exposed to environmental changes associated with the options except perhaps via hydrological pathways. The options will involve minor and/or unexceptional construction works, and construction effects can clearly be avoided with normal best-practice measures (see Appendix B) at the scheme level; operation should be neutral or positive for catchment WQ; other operational effects would not be expected based on the characteristics of the options and location of this site, and can clearly be avoided through appropriate design. There is nothing to suggest that unavoidable adverse effects on this site would result from implementing these options, but assessment of the options must necessarily be undertaken 'down the line'.

Appendix C
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 Notes[22] , 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

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

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.
- 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

The following tables summarise the Option-specific measures that will be employed (in addition to the general measures outlined above) to avoid specific potential effects on European sites that have been identified during the assessment process.

The interest features will be taken into account during the design-phase for the schemes, and it may be possible to design the scheme such that these measures are not required; otherwise, **these measures will be refined during the scheme design and employed during construction/operation 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 more appropriate/required.** Agreement on appropriate measures will be made with NE where potential significant effects are identified at the project-level.

Note that only those European sites for which specific measures have been identified are noted in the following sections; all other sites potentially affected by each Option will be protected by use of the general measures outlined above.

Table C1 Receptor-specific options for the Askham Sockbridge Transfer

Site	Feature	Measure
River Eden SAC	Sea Lamprey Petromyzon marinus River Lamprey Lampetra fluviatilis Atlantic salmon Salmo salar	Construction of the scheme will avoid the main migration and spawning periods for salmon to minimise the risk of displacement or barrier effects due to noise, vibration or site-derived pollutants, unless scheme-specific analyses demonstrate that any effects associated with construction works will be 'not significant' or will have no adverse effect on the integrity of the SAC.

wood.