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STRATEGIC ENVIRONMENTAL ASSESSMENT: ENVIRONMENTAL REPORT

Yorkshire Water's Draft Drought Plan 2027

Report for: Yorkshire Water Services Ltd

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GLOSSARY

Term	Definition
Abstracting	Taking water from the environment (surface or groundwater) for public supply.
Adverse	A negative effect that is important enough in scale, duration or severity to meaningfully harm the environment or receptors.
Appraisal framework table	A table that sets out the assessment objectives, criteria and indicators used to evaluate the likely environmental effects of a plan.
Appropriate Assessment (AA)	The second stage of the Habitats Regulations Assessment process that evaluates whether a plan will have adverse effects on the integrity of a European designated site.
Baseline	The existing environmental conditions against which potential effects are assessed.
Beneficial	A beneficial effect resulting from an action.
Biodiversity	The variety of living organisms, including species, habitats and ecosystems.
Communication campaigns	Public-facing activities designed to inform customers about drought conditions and encourage water-saving behaviours.
Cumulative effects assessment	An assessment of the combined effects of multiple actions or pressures over time.
Demand actions	Actions that reduce water use, such as restrictions, metering or communication campaigns.
Drought actions	All actions that may be taken during drought, including demand, supply, drought-permit and extreme actions.
Drought levels drought levels 1–4.	The staged escalation of drought severity, with Level 4 representing the most extreme conditions requiring the most intensive actions.
Drought permit	A temporary authorisation that allows a water company to change or increase the amount of water it abstracts from a source during a drought.
Ecosystem services	The benefits obtained from natural ecosystems.
Emergency drought orders	A legal measure that allows a water company to introduce emergency restrictions on water use when supplies are critically low after an extended period of drought conditions.
Environmental effects	The beneficial or adverse changes to the environment that result from the implementation of a plan.
Environmental report	The main output of the SEA, presenting the assessment of environmental effects.
Extreme actions	Actions used only in the most severe drought conditions when all other actions are insufficient.
Flora and fauna	Plants (flora) and animals (fauna) within an ecosystem.
Geology	The physical structure, composition and history of rocks and earth materials.

Term	Definition
Greenhouse gas emissions	Gases released to the atmosphere that contribute to climate change, such as carbon dioxide.
Habitats regulations assessment (HRA)	A process used to determine whether a plan could have adverse effects on protected nature conservation sites, such as Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites
Hands-off Flow (HOF)	A minimum river flow below which abstraction must stop to protect the environment.
Internal or external transfers	Movement of water between water resource zones (internal) or between different water companies (external)
Land use	The way land is managed and allocated for different functions.
Landscape	The character and appearance of an area, shaped by the interaction of natural features, landforms, vegetation and human influences.
Losses	Water lost from the system through leakage or operational processes.
Material assets	Physical resources such as infrastructure, buildings, equipment and land.
Metering	The installation and use of water meters to measure consumption.
Minimum Residual Flow (MRF)	The minimum flow that must be maintained in a river or watercourse to protect the environment, aquatic habitats, and downstream users.
Mitigation	The actions taken to avoid, reduce, or offset the adverse environmental effects of a plan.
Monitoring	Ongoing measurement of environmental conditions to track impacts and compliance.
Natural capital	The stocks of natural resources such as water, soils, air, minerals, habitats and species that provide the ecosystem services.
Non-Essential Use Bans (NEUBS)	Restrictions on commercial or industrial water uses that are not essential for health or safety.
Objectives	The environmental aims used in the SEA to guide assessment.
Optimising network pressure	Adjusting water pressure in the distribution network to reduce leakage and demand.
Overland pipeline installation	Temporary above-ground pipelines used to move water during drought.
Pressure management	Operational changes to reduce water pressure and minimise leakage.
Residual	The remaining environmental effect after mitigation has been applied.
Resource use	The consumption of natural resources such as water, energy or materials.
Reversible	An effect that can be undone once the action stops.
Scoping report	The SEA document that defines the scope, methods and topics to be assessed.

Term	Definition
Sensitive protected sites	Designated areas such as SSSIs, SACs, SPAs or Ramsar sites that require special protection.
Strategic Environmental Assessment (SEA)	The statutory process used to assess the environmental effects of plans and programmes.
Supply actions	Actions that increase the amount of water available for use or deploy additional water sources during normal operation or drought conditions.
Tankering	Transporting water by tanker to support supply during drought.
Tariffs	Pricing structures used to influence water consumption
Temporary Use Bans (tubs)	Restrictions on domestic water uses such as hosepipes.
Triggers	Indicators used to determine when drought actions should be implemented.
Wastewater	Used water that requires treatment before discharge or reuse.
Water efficiency	Measures that reduce water consumption through behaviour change or technology.
Water Resource Management Plan 2024 (WRMP24)	A water company's long-term plan for balancing supply and demand.
Water Resource Zones (WRZs)	Geographical areas within which water supply is managed as a single integrated system.
Water treatment	Processes used to make water safe and suitable for drinking.

NON-TECHNICAL SUMMARY

BACKGROUND

Under the Water Industry Act 1991, as amended by the Water Act 2003, Yorkshire Water Services Limited (YWSL) are required to prepare and maintain a Drought Plan. The purpose of Yorkshire Water's Drought Plan (DP) is to demonstrate what actions will be taken to protect public water supplies during a drought and how they intend to minimise any resulting environmental impacts. The previous Yorkshire Water DP was published in 2022, covering the period 2022 to 2027. Yorkshire Water is currently updating it's statutory DP, which will encompass the period 2027 to 3032, in accordance with the Drought Plan Direction 2025 and updated Environment Agency Drought Plan Guideline (DPG).

This Strategic Environmental Assessment (SEA) has prepared in support of the development Yorkshire Water's DP 2027. SEA of certain plans and programmes is a statutory requirement under the Environmental Assessment of Plans and Programmes Regulations 2004. The purpose of SEA is to provide high level and strategic protection of the environment by incorporating environmental considerations into the preparation of plans and policy. In the context of drought planning, SEA assists in the identification of the likely significant environmental effects of Yorkshire Water's drought management options and how any adverse impacts might be mitigated.

The DP includes a range of drought management actions that would only be implemented if and when required. Because each drought differs in severity, timing, duration and geographic extent, the plan must include a flexible suite of actions. In the context of drought planning, individual drought options are taken to constitute reasonable alternatives. Yorkshire Water's DP 2027 comprises a total of 78 drought options (5 demand options, 7 'extreme' demand options, 48 drought permit/orders and 18 'extreme' supply side options).

The SEA provides information on the relative environmental performance of alternatives and is intended to make the decision-making process more transparent. The SEA can, therefore, be used to support the timing, prioritisation and implementation of drought options within the Drought Plan.

Yorkshire Water has also undertaken a Habitats Regulations Assessment (HRA) of its DP 2027, which has been carried out in parallel with the SEA and is reported separately in the HRA Screening Report. The HRA screening process identifies whether each drought option in the Drought Plan (either alone, in combination or with other plans or projects) is likely to have significant effects on the integrity of designated habitat sites. The findings of both the SEA and HRA have fed into the revision of the DP 2027 in an iterative process.

An SEA Scoping Report was issued in November 2024 and provided an opportunity for the statutory consultees to provide views on the proposed scope and level of detail of this SEA Environmental Report. Issues raised by consultees have been considered in preparing this report.

The findings of the SEA are presented within this Environmental Report, which accompanies Yorkshire Water's publication of the DP 2027.

ENVIRONMENTAL BASELINE

A review of the baseline and future environmental baseline was undertaken. The key sustainability issues from the review of the baseline conditions are summarised below.

Biodiversity, Fauna & Flora Key Issues

- The need to protect or enhance biodiversity, ecological functions and biodiversity connectivity within Yorkshire Water's supply and source areas, particularly protected sites designated for nature conservation.
- The need to avoid activities likely to cause irreversible damage to natural heritage.
- The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors.

- The need to ensure that drought plan measures do not hinder delivery of wider Nature Recovery objectives, including the restoration of freshwater systems and non-designated habitats (e.g., lowland peat), which depend on sufficient water availability to support ecological recovery.
- The need to control the spread of Invasive Non-Native Species (INNS).
- The need to recognise the importance of allowing wildlife to adapt to climate change.
- The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of the ecosystem services.

Population & Human Health Key Issues

- The need to ensure essential water supplies are safeguarded to all communities to protect public health and economic activity.
- The need to ensure public awareness of drought conditions and importance of maintaining resilient, reliable public water supplies without the need for emergency drought measures.
- The need to ensure water quantity and quality is maintained for other users including tourists, recreational users and for other sector uses (e.g. agriculture)
- The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists, including opportunities for access to recreation resources and the natural and historic environment.
- The need to ensure the conservation and enhancement of sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way which contribute to recreation and tourism opportunities and subsequently health and well-being and the economy.
- The need to promote the health benefits of drinking water and efficient use of water.

Material Assets & Resource Use Key Issues

- The need to minimise the consumption of resources, including water and energy.
- The need to reduce the total amount of waste produced in the region, from all sources, and to reduce the proportion of this waste sent to landfill.
- The need to continue to reduce leakage from the water supply system.
- Daily consumption of water is higher than the national average in the area and consequently there is a continued need to encourage more efficient water use.

Water Key Issues

- The need to further improve the quality of the region's river, lake, estuarine and coastal waters.
- The need to maintain the quantity and quality of groundwater resources.
- The need to manage and operate water resources sustainably to protect flow and level variability in rivers and groundwater
- The need to improve the resilience, flexibility and sustainability of water resources in the region, particularly in light of potential climate change impacts on surface waters and groundwater.
- The need to ensure a continual and reliable water supply to support other sectors.
- The need to ensure that people understand the value of water.

Flooding is not viewed as a key issue for the SEA water topic in relation to the Drought Plan, because none of the drought options involve the construction of permanent physical infrastructure within areas at risk of flooding.

Soil, Geology & Landscape Key Issues

- The need to protect geological features of importance and maintain and enhance soil function and health.
- The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources).

- The need to make use of previously developed land (brownfield land) and to reduce the prevalence of derelict land in the region.

Air & Climate Key Issues

- The need to reduce air pollutant and greenhouse gas emissions arising from construction and operation, including embedded emissions, emissions associated with energy production and vehicle emissions, and to comply with air quality standards.
- The need to mitigate against climate change through the reduction in greenhouse gas emissions in order to contribute to risk reduction over the long term.
- The need to adapt to the impacts of climate change for example through, sustainable water resource management, water use efficiencies, specific aspects of natural ecosystems (e.g. connectivity) as well as accommodating potential opportunities of climate change.

Archaeology & Cultural Heritage Key Issues

The key sustainability issues arising from the baseline assessment for archaeology and cultural heritage are:

- The need to conserve and enhance sites of archaeological importance and cultural heritage interest, and their settings, particularly those which are sensitive to the water environment;
- The need to conserve and enhance the World Heritage Sites within the Drought Plan area;
- The need to have positive strategies for the conservation and enjoyment of the historic environment, particularly for heritage assets that are most at risk of neglect or decay;
- The need to protect water-dependent heritage sites during drought conditions, including important wetland areas with potential for paleoenvironmental deposits

Landscape & Visual Amenity Key Issues

The key sustainability issues arising from the baseline assessment for landscape and visual amenity are:

- The need to protect and improve the natural beauty of the region's National Parks, National Landscapes and other areas of high landscape and visual amenity value.
- The need to minimise any adverse impacts upon landscape that may result from the Drought Plan.
- The need to conserve and enhance landscape character and distinctiveness, taking into account the effects of climate change

Inter-Relationships

Environmental receptors are inter-related. For example, reduced river flows may affect biodiversity, creational use and water quality simultaneously. The SEA therefore considers cumulative and synergistic effects across topics.

ASSESSMENT METHODOLOGY

The assessment has been 'objectives-led'. SEA objectives have been derived from environmental objectives established in law, policy or other plans and programmes, and from a review of the baseline information. The SEA objectives have been categorised under the following topic areas: biodiversity, flora and fauna; population and human health; material assets and resource use; water; soil, geology and land use; air and climate; archaeology and cultural heritage; and landscape and visual amenity; and inter-relationships.

The overall findings of the SEA describe the extent to which objectives for each topic are met by each of the drought options.

The outputs of the assessment are a completed appraisal framework table for each drought option, and a colour coded summary matrix (ranging from major beneficial impacts to major adverse impacts) which provides a comparative assessment of the residual environmental effects of implementing each drought option (i.e. those impacts remaining after the implementation of mitigation measures).

A cumulative, or in-combination, assessment has also been undertaken which has involved examining the likely significant effects of each of the drought options in combination with each other and in combination with the implementation of other relevant plans and programmes.

Table NTS 1 sets out the SEA topics and objectives. For each SEA objective, a residual effects assessment was determined against a significance matrix which took into account the value/sensitivity of the receptor (e.g. air quality, river water quality, landscape value) and the magnitude of the assessed effect. This significance matrix comprised effects from 'major beneficial' to 'major adverse'. This colour coding was used to complete the columns for residual effects in the visual evaluation matrices summarised in **Table NTS 2** to **Table NTS 4**.

Table NTS 1: SEA topics and objectives

SEA Topic	SEA Objectives
Biodiversity, Flora & Fauna	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species (with particular regard to avoiding the effects of over-abstraction on sensitive sites, habitats and species), enhance ecosystem resilience and habitat connectivity. 1.2 To protect and enhance sustainable natural resources and the ecosystem services they provide and deliver a biodiversity net gain. 1.3 To avoid introducing or spreading INNS.
Population & Human Health	2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). 2.2 To protect and enhance opportunities for formal and informal recreation. 2.3 To promote a sustainable economy and thriving communities with good access to the services they need.
Material Assets & Resource Use	3.1 To minimise waste, promote resource efficiency and move towards a circular economy. 3.2 To promote efficient water resource management and the sustainable management of natural resources, ensuring water supply for homes and industry in the area is maintained.
Water	4.1 To maintain or improve the quality of surface and groundwater resources. 4.2 To protect and enhance surface and groundwater levels and flows. 4.3 To ensure appropriate and sustainable management of abstractions (or compensation flow) to maintain water supplies whilst protecting ecosystem functions that rely on water resources, including contributing to the achievement of WFD compliance objectives. 4.4 To promote water efficiency and measures that enable sustainable water use.
Soil, Geology & Land Use	5.1 To protect and enhance the quality and quantity of soils and protect and enhance geodiversity and ensure appropriate and efficient use of land.
Air & Climate	6.1 To maintain and improve air quality. 6.2 To reduce greenhouse gas emissions. 6.3 To consider the need for adaptive measures for climate change.
Archaeology and cultural heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.

SEA Topic	SEA Objectives
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, landscape character and visual amenity.

The definitions for 'significance' ratings as identified in the table above are provided below:

Major - effects represent key factors in the decision-making process. They are generally associated with sites and features of international, national or regional importance. If adverse, such resources/features are generally those which cannot be replaced or relocated.

Moderate - effects are likely to be important considerations at a regional or district scale. If adverse, they are likely to be of potential concern.

Minor - effects are not likely to be decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.

Negligible - effects which are not perceptible, being within normal bounds of variation or the margin of forecasting error.

FINDINGS OF THE ASSESSMENTS

The findings of the SEA are summarised below.

Demand side options

Demand side measures serve to reduce pressure on water resources by reducing customer demand for water and therefore reducing abstraction at source (**Table NTS 2**). This will, in turn, contribute to reducing the energy needed for water abstraction, treatment and distribution. Most measures have no significant adverse environmental effects, and many provide clear benefits by reducing water use, protecting supplies, and supporting the resilience of rivers, groundwater and ecosystems. Demand-side measures typically provide benefits, such as maintaining surface and groundwater flows and promoting efficient and sustainable use of water. Adverse effects on landscaping and horticulture businesses may be associated with sprinkler and TUBs. Should temporary or non-essential use bans (NEUBs) be implemented, water use restrictions may adversely affect businesses, recreation and tourism. Minor adverse effects may be associated with emissions of air pollutants and greenhouse gas emissions from leakage reduction programme activities.

Supply side options

Drought-permit supply options

Yorkshire Water's drought-permit options (**Table NTS 3**) involve increasing abstraction or reducing regulated flows at key river locations to provide additional water during drought. These options offer important short-term benefits, helping to maintain essential water supplies for households and businesses, supporting economic activity, and improving resilience to climate change. They also make efficient use of existing infrastructure, avoiding the need for new construction during emergency conditions. However, most options are associated with notable environmental risks, particularly where river flows are sensitive to change. Increasing abstraction would lead to moderate to major reductions in river flows, with consequential effects on water quality, riverine habitats and protected species, including NERC priority fish. These changes also create moderate risks to Water Framework Directive (WFD) status and minor adverse effects on natural capital, ecosystem services and local recreational amenity. Overall, while these options provide valuable drought-resilience benefits, they also carry environmental trade-offs, particularly for flow-dependent habitats and species, and therefore represent measures to be used only when drought conditions are sufficiently severe to justify their effects.

Extreme Supply options

The Extreme Supply Options (**Table NTS 4**) provide additional emergency water during the most severe drought conditions by drawing on groundwater sources, enabling temporary transfers, or deploying short-term

treatment solutions. These options collectively offer minor to moderate beneficial effects, primarily through maintaining essential public water supplies, supporting economic activity, and strengthening resilience to climate change. However, they also introduce a range of environmental and construction-related impacts, the scale of which varies by option. Some options, such as small-scale borehole recommissioning, are associated with only negligible to minor adverse effects, largely limited to temporary disturbance, low-level abstraction pressures, or minor emissions. Others, particularly those involving new infrastructure, higher abstraction volumes or uncertain construction footprints, may result in moderate adverse effects on biodiversity, water quality, natural capital, soils, landscape and local amenity. Across the programme, there is also some residual uncertainty where abstraction interacts with sensitive species or where infrastructure locations are not yet defined. Overall, while the Extreme Supply Options provide important emergency resilience, they also carry environmental trade-offs, reinforcing their role as measures to be deployed only under the most severe drought conditions.

Cumulative effects

The potential of Yorkshire Water's drought plan to interact with other plans, programmes or large projects was reviewed and it was determined that no cumulative effects will occur. However, there is potential for a number of Yorkshire Water's supply side options to produce cumulative effects.

Mitigation and Monitoring

Consideration of mitigation measures has been an integral part of the SEA process. The SEA appraisals have been based on residual impacts, i.e. those impacts likely to remain after the implementation of reasonable mitigation. Mitigation measures have been identified for each option on a case by case basis and are presented in the assessment framework appraisal tables.

During implementation of one or more drought options, appropriate monitoring will be undertaken to track any potential environmental effects which will in turn trigger deployment of suitable and practicable mitigation measures. Prior to implementation, Yorkshire Water will review the specific requirements for environmental monitoring in consultation with the Environment Agency and Natural England.

Consultation

Two opportunities are available for consultation bodies to be formally involved during the SEA process: during the scoping process; and at the environmental reporting stage.

Following publication of the final DP 2027, Yorkshire Water will prepare an SEA Post-Adoption Statement setting out how the SEA and any views expressed by the consultation bodies or the public have influenced the DP 2027.

Consultation bodies were invited to express their views on the Scoping Report and the scope of the SEA proposed in accordance with SEA Regulation 12(5).

The Scoping Report was issued on 13 November 2024 to the Environment Agency, Historic England and Natural England. The consultation period ran until 18 December 2024. The Statutory consultees were invited to comment on the report and the proposed scope of the SEA. Comments on the 2024 Scoping Report were received from Historic England and Natural England which did not require specific updates to the proposed approach but which have been taken into account during the preparation of the Environmental Report.

The Environmental Report of the DP 2027 has been produced in accordance with the approach agreed by Yorkshire Water and taking into consideration the responses received from consultation bodies in response to the Scoping consultation. It provides assessments of the likely significant environmental effects of the drought options considered and selected by Yorkshire Water.

The consultation bodies, as well as the public, were invited to express their views on the Environmental Report and use it as a reference point to express their views on the DP 2027.

Table NTS 2: Visual Evaluation Matrix Summary for Standard Demand-Side Options

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Adverse	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	No adverse effects have been identified for this drought measure.
Customer management - Agile Communications Strategy	Beneficial	+	+	None	+		+	+	+	+	+	+	+	None	None	None	+	0	0	Minor beneficial effects include reducing demand for water and securing essential supplies of water for customers/businesses as well as protecting natural resources and ecosystem services. Reducing the demand for water will also have minor beneficial effects on maintaining surface water and groundwater levels/flows, sustainable management of abstraction and enabling long term improvements in water efficiency. Reducing water demand will also help to improve the resilience of water supplies to drought.
	Adverse	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	No adverse effects have been identified for this drought measure.
Customer management - Drought publicity campaigns	Beneficial	+	+	None	+	None	+	+	+	+	++	++	++	None	None	None	++	0	0	Minor beneficial effects include reducing demand for water and securing essential supplies of water for customers/businesses as well as protecting natural resources and ecosystem services. Reducing the demand for water will also have moderate beneficial effects on maintaining surface water and groundwater levels/flows, sustainable management of abstraction and enabling long term improvements in water efficiency. Reducing water demand will also help to improve the resilience of water supplies to drought.
Customer management – Temporary use ban	Adverse	None	None	None	None	-	--	None	None	None	None	None	None	None	None	None	None	0	0	A moderate adverse effect has been identified in terms of promoting a sustainable economy due to the effect of the ban on some businesses (e.g. landscaping/horticulture) that rely on domestic water-using appliances/uses (e.g. sprinklers/hosepipes). Minor adverse effects are anticipated on some domestic uses.
	Beneficial	+	++	None	++	None	None	+	+	+	+	+	+	None	None	None	+	0	0	Moderate beneficial effects include reducing the demand for water and securing supply of water for customers/businesses as well as protecting natural resources and ecosystem services. Reducing the demand for water will also have minor beneficial effects on maintaining surface water and groundwater levels/flows, sustainable management of abstraction and enabling long term improvements in water efficiency. Reducing water demand will also help to improve the resilience of water supplies to drought.
Customer management - Non-essential use ban	Adverse	None		None	None	--	---	None	None	None	None	None	None	None	None	None	None	0	0	Restrictions of water use and impacts on businesses/economy could lead to major adverse effects. Moderate adverse effects associated with restriction of water use and effects on recreation and tourism assets, and on local amenities.
	Beneficial	+	++	None	++	None	None	+	+	+	+	+	+	None	None	None	+	0	0	Moderate beneficial effects are associated with the maintenance of supply to consumers during drought, protecting human health, as well as protecting natural resources and ecosystem services. Minor beneficial effects in terms of reducing demand and improving the resilience of water supplies to drought, improving water quality, maintaining surface water

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
																				and groundwater levels/flows and sustainable management of abstraction and supporting overall water efficiency.
Distribution management - Increased leakage detection and repair activity	Adverse	0	0	None	None	0	None	0	None	0	None	None	None	0	-	-	None	0	0	Minor adverse effects identified are associated with emissions to air (air pollutants and greenhouse gas emissions) as a result of construction activities and vehicle movements. All other adverse effects identified are negligible.
	Beneficial	+	None	None	++	None	++	0	+	0	+	+	None	None	None	+	+	None	None	Minor to moderate beneficial effects have been identified with respect to sustainable provision of water through water savings that would have otherwise been lost to leakage after having been abstracted at source. These effects are generally considered to be long term and permanent in nature.

Table NTS 3: Visual Evaluation Matrix Summary for Drought Permit/Order Options

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
North Area Reservoirs																				
North Area Reservoir 1	Adverse	--	-	None	None	0	None	None	None	---	---	---	None	0	None	None	None	None	-	The implementation of this drought option would lead to major adverse effects on flows and levels in receiving watercourses. These changes would result in significant declines in water quality and adversely affect a range of NERC and notable species. Reduced water levels would also cause a major adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to effects on riverine habitats. Minor adverse effects are also related to the potential effects on visual amenity of the National Trail and National Landscape.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with bolstering resilience to climate change.
North Area Reservoir 2	Adverse	--	-	None	None	None	None	None	None	-	---	-	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on flows and levels in receiving watercourses. This would be associated with a moderate adverse effect on designated sites, habitats and species. Minor adverse effects associated with reduced river flows are anticipated in relation to water quality, WFD status of the affected reaches, recreation amenity and on the visual effects on the National Landscape.
	Beneficial	None	None	None	+	None	+	0	None	None	None	0	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with bolstering resilience to climate change.
North Area Reservoir 3	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	The implementation of this option will result in major adverse effect on river flows and levels. There would be an associated moderate effect on water quality, and moderate risk to the WFD status of the effect reach. There would be moderate adverse effects on designated sites, habitats and species. Reduced water levels would also lead to minor adverse effects on ecosystem services due to impacts on riverine habitats.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with use of existing infrastructure and the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North Area Reservoir 4	Adverse	---	--	None	None	None	None	None	None	---	---	--	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on flows and levels in receiving watercourses. This would be associated with a major adverse effect on water quality, in addition to major adverse effects to designated species and moderate adverse effects on ecosystem services. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reach.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North Area Reservoir 5	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on flows and water levels. This would be accompanied by a minor adverse effect on water quality and riverine ecosystem services, and a major to moderate adverse effect on designated species. Reduced water levels would also cause a minor adverse effect on the WFD status of the affected reaches.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	++	None	++	0	None	None	None	+	None	None	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, and air and climate, through maintaining water supply during drought conditions and bolstering climate resilience. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies.
North West Area Reservoirs																				
North West Area Reservoir 1	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	Implementation of this drought option would result in a major adverse effect on water flows and levels in the River Worth. This would be associated with a moderate adverse effect on water quality and a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to impacts on riverine habitats and minor risk of spread of INNS.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought condition and moderate beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 2	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels in Leeming Water. This would be associated with a moderate adverse effect on water quality and a moderate adverse effect on a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to effects on riverine habitats and minor risk of spread of INNS.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 3	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels. This would be associated with a moderate adverse effect on water quality and a moderate adverse effect on a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to impacts on riverine habitats and minor risk of spread of INNS.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	0	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 4	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water flows and levels in Denholme Beck. This would be associated with a moderate adverse effect on water quality and moderate adverse effect on a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to impacts on riverine habitats. Minor adverse effects are anticipated in relation to visual effect on nearby walking trails under drought conditions.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
North West Area Reservoir 5	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	0	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in Harden Beck. This would be associated with a moderate adverse effect on water quality and a moderate adverse effect on a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to effects on riverine habitats. A significant reduction in the level of Harden Beck would have a minor, temporary visual effect on the landscape setting of several national trails that run alongside Harden Beck.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 6	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water flows and levels in Loadpit Beck 1. This would be associated with a moderate adverse effect on water quality and a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to impacts on riverine habitats. A reduction in the flow level would also result in a minor, short term effect on the landscape setting of two National Trails.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 7	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	Implementation of this drought option would result in a major adverse effect on water flows and levels in Jum Beck 1. This would be associated with a moderate adverse effect on water quality and a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reach, along with a minor adverse effect on ecosystem services due to effects on riverine habitats.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 8	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	Implementation of this drought option would result in a major effect on water flows and levels in Gill Beck 1. This would be associated with a moderate adverse effect on water quality and a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to effects on riverine habitats and minor risk of spread of INNS as a result of this option.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 9	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels in Eller Beck. This would be associated with a moderate adverse effect on water quality and a number of protected species due to fragmentation of habitats, increased mortality and changes in morphology or behaviour. Reduced water levels would also cause a moderate negative effect on the WFD status of the affected reach, along with a minor adverse effect on ecosystem services due to effects on riverine habitats and minor risk of spread of INNS.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 10	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels in River Dibb. This would be associated with a minor adverse effect on water quality and a major to moderate adverse effect on a number of protected species due to fragmentation of habitats, increased mortality and changes in morphology or behaviour. Reduced water levels would also cause a minor adverse effect on the WFD status of the affected reach and ecosystem services.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Moderate beneficial effect on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 11	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels in Silsden Beck. This would be associated with a minor adverse effect on water quality and a major to moderate adverse effect on a number of protected species. Reduced water levels would also cause a minor adverse effect on the WFD status of the affected reach, along with a minor adverse effect on ecosystem services due to impacts on riverine habitats.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 12	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	Implementation of this drought option would result in a major adverse effect on river water flows and levels. This would be associated with a minor adverse effect on water quality, and a major to moderate adverse effect on a number of NERC and notable species. Reduced water levels would also cause a minor negative effect on the WFD status of the affected reach, along with a minor adverse effect on ecosystem services due to effects on riverine habitats, and negligible adverse effect on soils, due to bank erosion when higher flows return. A reduction in the flow level would also result in a negligible effect on the landscape setting of a public footpath.
	Beneficial	None	None	None	+	None	+	+	None	None	None	+	None	None	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with use of existing infrastructure and minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
South Area Reservoirs																				
South Area Reservoir 1	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in the impacted reaches. This would be associated with a moderate adverse effect on water quality and a number of NERC and species. Minor to moderate adverse effects are anticipated towards WFD compliance objectives. The reduction in flow would also result in a minor adverse effect on natural capital and ecosystem services and the setting of walking trails.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
																				appropriate and sustainable management of water supplies and adaptation to climate change.
South Area Reservoir 2	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on flow levels. This would be associated with a moderate adverse effect on water quality, riverine habitats, and a number of designated sites and protected species. Minor to moderate adverse effects are anticipated towards WFD compliance objectives. A reduction in the flow level would also result in a minor adverse effect on the landscape setting of several walking trails.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, adaptation to climate change and water through maintaining supply during drought conditions, ensuring the sustainable management of abstractions, and improving adaptation to climate change.
South Area Reservoir 3a	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in the reaches. This would be associated with a moderate adverse effect on water quality and a number of designated sites and protected species. The reduction in flow would also result in a minor to moderate adverse effect on riverine habitats, and WFD compliance objectives, and a minor adverse effect the setting of walking trails.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with building climate resilience and the appropriate and sustainable management of water supplies.
South Area Reservoir 3b	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in the impacted reaches. This would be associated with a moderate adverse effect on a number of NERC and notable species. The reduction in flow would also result in a minor adverse effect on water quality, albeit with uncertainty, and the setting of walking trails.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with adaptation to climate change and the appropriate and sustainable management of water supplies.
South Area Reservoir 4	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in moderate adverse effects for biodiversity, flora and fauna, and a major adverse effect on water due to the major change to river flows. The reduction in flow would also result in moderate adverse effect on water quality and WFD compliance objectives, and a minor adverse effect on the setting of walking trails.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, water, and air and climate through maintaining water supply during drought conditions, ensuring the sustainable management of abstractions and improving adaptation to climate change.
South Area Reservoir 5	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	Major adverse effects are anticipated towards surface water flow. Moderate adverse effects are anticipated towards biodiversity and a number of protected species. There is also a minor to moderate risk to WFD compliance objectives. Minor effects to water quality and riverine habitats are also anticipated.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, water, and air and climate through maintaining water supply during drought conditions, ensuring the sustainable management of abstractions, and improving adaptation to climate change.
South Area Reservoir 6	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in major adverse effects on flows. This would be associated with a moderate adverse effect on water quality and WFD status. Minor adverse effects are anticipated towards riverine habitats and the setting of a number of walking trails.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, water, and air and climate through maintaining water supply during drought conditions, ensuring the sustainable management of abstractions, and improving adaptation to climate change.
South Area Reservoir 7	Adverse	--	--	None	None	0	None	None	None	-	---	--	None	0	None	None	None	None	0	Implementation of this drought option would result in a major adverse effect on water flows and levels in the impacted reaches. This would be associated with a minor adverse effect on water quality and a moderate adverse effect on WFD status and a number of protected species.
	Beneficial	None	None	None	+	None	+	None	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with ensuring the sustainable management of abstractions, and building climate change resilience.
South West Area Reservoirs																				
South West Area Reservoir 1	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in the effected reaches. This would be associated with moderate adverse effects on water quality, WFD compliance objectives, and protected species. The reduction in flow would also result in a minor adverse effect on natural capital and ecosystem services, and the setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change and ensuring the sustainable management of abstractions.
South West Area Reservoir 2	Adverse	--	-	None	None	-	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services, recreational amenity, and the setting of a national trail.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions, ensuring the sustainable management of abstractions, and improving adaptation to climate change.
South West Area Reservoir 3	Adverse	--	-	None	None	-	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a moderate adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services, recreational amenity, and the landscape setting of a National Trail.

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the sustainable management of water supplies and improving adaptation to climate change.
South West Area Reservoir 4	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services and on the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with use of existing infrastructure and the appropriate and sustainable management of water supplies.
South West Area Reservoir 5	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services and on the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 6	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. Moderate beneficial effects are also anticipated towards water, and air and climate, associated with improving adaptation to climate change and sustainably managing water resources.
South West Area Reservoir 7	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. Minor beneficial effects are also anticipated towards water, and air and climate, associated with improving adaptation to climate change and sustainably managing water resources.
South West Area Reservoir 8	Adverse	--	-	None	None	-	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services, recreational amenity, and on the landscape setting of a National Trail.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with improving adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 9	Adverse	--	-	None	None	--	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, protected species, and recreation, and a minor adverse effect on natural capital and ecosystem services and on the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 10	Adverse	--	--	None	None	-	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, natural capital and ecosystem services, WFD compliance objectives and protected species. A reduction in water levels would also result in a minor adverse effect on recreational amenity and the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 11	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives and protected species. A reduction in water levels would also result in a minor adverse effect on the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 12	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows across the receiving water courses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services and on the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 13	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species. Minor adverse effects to natural resources, ecosystem services and landscape would also result.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial impacts on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change, and the appropriate and sustainable management of water supplies.
South West Area Reservoir 14	Adverse	--	--	None	None	None	None	None	None	-	---	-	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse impact on water levels and flows in Bradshaw Clough. This would be associated with a minor adverse impact on water quality and a moderate adverse effect on a number of protected species, and riverine habitats.
	Beneficial	None	None	None	0	None	0	0	None	None	None	0	None	0	None	None	0	None	None	No significant beneficial effects are anticipated, although implementation of this drought option would be associated with negligible beneficial effects on population and human health, water and air and climate resulting from the negligible additional deployable output. Negligible beneficial effects are also anticipated towards material assets and resource use resulting from the use of existing infrastructure and no change in energy use.
South West Area Reservoir 15	Adverse	--	--	None	None	-	None	None	None	-	---	-	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a minor adverse effect on water quality and a minor to major adverse effect on a number of NERC and Notable species. A reduction in water levels would also result in moderate adverse effects on riverine habitats and minor adverse effect on an angling club.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with the appropriate and sustainable management of water supplies, and improving adaptation to climate change.
South West Area Reservoir 16	Adverse	--	--	None	None	-	None	None	None	-	---	-	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a minor adverse effect on water quality and WFD compliance objectives, and a minor to major adverse effect on a number of protected species. A reduction in water levels would also result in moderate adverse effects on riverine habitats and minor adverse effect on an angling club.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. Minor beneficial effects are also associated with improving adaptation to climate change, and with the appropriate and sustainable management of water supplies.
South West Area Reservoir 17	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies. Minor beneficial effects are also anticipated towards water, and air and climate, associated with improving adaptation to climate change and sustainably managing water resources.
South West Area Reservoir 18	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	0	None	0	0	None	None	None	0	None	0	None	None	0	None	None	No significant beneficial effects are anticipated. although implementation of this drought option would be associated with negligible beneficial effects on population and human health, water and air and climate resulting from the negligible additional deployable output. Negligible beneficial effects are also anticipated towards material assets and resource use resulting from the use of existing infrastructure and no change in energy use.
River Options																				
Ouse increase abstraction	Adverse	--	-	None	None	0	None	None	None	--	--	--	None	None	None	None	None	None	None	This drought option would lead to moderate adverse effects on biodiversity, flora & fauna, in relation to conservation and enhancing biodiversity, natural resources and the ecosystem services. The drought option would lead to a moderate impact on river flows. There would be a moderate risk to water quality associated with a number of intermittent discharges in the reach. The flow pressures would result in minor adverse effects on notable/NERC fish species due to the siltation of spawning gravels and exposure of habitats. Minor adverse effects are anticipated towards river habitats.
	Beneficial	None	None	None	+++	None	+++	0	None	None	None	+	None	None	None	None	+++	None	None	Major beneficial effects are anticipated towards population and human health and air and climate with regards to ensuring water supply during drought conditions and improving adaptation to climate change. Minor beneficial effects are also associated with the appropriate and sustainable management of water supplies.
Ure increase abstraction	Adverse	--	-	0	None	-	None	None	None	--	--	--	None	None	None	None	None	None	0	Moderate adverse effects are anticipated towards biodiversity, flora and fauna and water relating to reductions in flows which have consequential effects on water quality and habitats/species present there. Minor effects are anticipated towards natural capital and ecosystem services, and recreational amenity.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	None	None	None	+	None	None	Minor beneficial effects are anticipated towards population and human health, water and air and climate relating to ensuring a secure supply of water and improving adaptation to climate change.
Wharfe reduced regulated flow	Adverse	--	-	None	None	0	None	None	None	--	--	--	None	None	None	None	None	None	-	This drought option would lead to moderate adverse effects on biodiversity, flora & fauna, in relation to conservation and enhancing biodiversity, with minor effects on natural capital and the ecosystem services. The drought option would lead to a moderate reduction in low flows, affecting biodiversity and water objectives. Moderate adverse effects on water quality and flow are anticipated, having a moderate adverse effect on protected species. A reduction in the level of the River Wharfe may have a minor adverse visual effect on a the Nidderdale National Landscape.
	Beneficial	None	None	None	++	None	++	0	++	None	None	++	None	None	None	None	++	None	None	The drought option would provide up to 22.7 Ml/d, which would deliver moderate beneficial effects on population and human health due to the deployable output and continued water supply for economic activity. The option utilises existing infrastructure and would have moderate beneficial effects in relation to climate resilience.
Hull increased abstraction	Adverse	--	--	None	None	-	None	None	None	---	---	-	None	None	None	None	None	None	None	Major adverse effects are anticipated on water quality and flow. Moderate adverse effects are anticipated on protected and notable species and habitats and associated natural capital and ecosystem services. A minor adverse effect is anticipated on WFD status.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	None	None	None	++	None	None	Moderate beneficial effects are anticipated towards population and human health, water, and air and climate, relating to additional deployable output (up to 20.45 Ml/d) and improving adaptation to climate change.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
Derwent annual abstraction increase	Adverse	0	None	None	None	None	None	None	None	None	0	None	None	0	None	None	None	None	None	No significant adverse effects are anticipated towards any receptors.
	Beneficial	None	None	None	+	0	+	0	None	0	None	+	None	0	None	None	+	None	None	Minor beneficial effects are anticipated towards population and human health, water and air and climate relating to the maintenance of supply reliability in drought conditions and improving adaptation to climate change.

Table NTS 4: Visual Evaluation Matrix Summary for Extreme Supply Options

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
Extreme Supply Options																				
Catterick Groundwater Option 1	Adverse	0	0	0	None	None	None	-	None	0	0	None	None	None	-	-	None	None	None	No likely significant effects on the North Pennine Dales Meadows SAC and Swale Lake SSSI. Minor adverse effects are associated with abstraction, including increased energy and material asset use, such as chemicals to treat pumped water during operation. There is residual uncertainty in relation to the effects of increased groundwater abstraction on NERC species. Negligible adverse effects on water quality due to the minor baseflow reductions to the River Swale, which needs to be assessed further.
	Beneficial	None	None	None	+	None	+	None	+	None	None	+	0	None	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining the water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
River Aire option 1	Adverse	--	-	-	-	-	-	--	0	--	--	--	None	0	-	-	None	-	-	Moderate adverse effects on biodiversity are possible due to operational effects on NERC fish species. Construction effects on NERC species such as badgers, bats, and water voles are uncertain. The abstraction would have moderate adverse effects on surface water flows and levels and water quality. Minor adverse effects are expected on natural resources and ecosystem services, including the potential for the spread of invasive species. Minor adverse effects during the construction phase are expected on population and human health due to effects from noise, dust and vibration, temporary disruption of services, recreational sites and activities, as well as disturbance to landscape, archaeology and cultural heritage. Minor adverse effects are expected on air and climate due to construction air emissions, increased energy and resource use, and associated GHG emissions during operation.
	Beneficial	None	+	None	++	None	++	None	0	None	None	+	0	None	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects associated with human health and economic activity through maintaining water supply and bolstering resilience to climate change. Minor beneficial effects from compensatory planting and habitat enhancement and ensuring sustainable abstractions are anticipated.
River Aire option 2	Adverse	--	-	-	-	-	-	--	0	--	--	--	None	0	-	-	None	-	-	Moderate adverse effects on biodiversity are possible due to operational effects on NERC fish species. Construction effects on NERC species such as badgers, bats, and water voles are uncertain. The abstraction would have moderate adverse effects on surface water flows and levels and water quality. Minor adverse effects are expected on natural resources and ecosystem services, including the potential for the spread of invasive species. Minor adverse effects during the construction phase are expected on population and human health due to effects from noise, dust and vibration, temporary disruption of services, recreational sites and activities, as well as disturbance to landscape, archaeology and cultural heritage. Minor adverse effects are expected on air and climate due to construction air emissions, increased energy and resource use, and associated GHG emissions during operation.
	Beneficial	None	+	None	++	None	++	None	0	None	None	+	0	None	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects associated with human health and economic activity through maintaining water supply and bolstering resilience to climate change. Minor beneficial effects from compensatory planting and habitat enhancement and ensuring sustainable abstractions are anticipated.
South Area reservoir 2 to wider reservoir system transfer	Adverse	--	--	-	0	-	None	-	0	-	0	0	0	-	-	-	None	-	-	Due to the construction works required, moderate adverse effects are anticipated in relation to effect on habitats and species. Minor adverse effects are associated with the construction phase in relation to INNS risks, effects on recreational sites, effect on geology and soils, air quality, GHG emissions and, heritage assets and landscape and visual effects.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	+	None	+	None	+	0	+	None	None	+	None	None	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects through maintaining the water supply during drought conditions. This drought option will also deliver minor beneficial effects in relation to the potential for compensatory planting/ enhancements and bolstering resilience to climate change.
Doncaster Groundwater Option 1	Adverse	--	--	-	--	--	--	--	--	-	-	-	None	--	--	-	None	--	--	The extent and exact location of the proposed infrastructure and proximity to sensitive features or built-up areas are not known, so a precautionary assessment has been applied. Minor adverse effects are anticipated in relation to INNS risks, the effect of abstraction within the existing license, given the existing abstraction pressures, and GHG emissions associated with the operation of the scheme. Given the uncertainties, moderate adverse effects are associated with effect on biodiversity, natural capital and ecosystem services, effect on local residents and infrastructure, effect on recreational amenity, use of materials for construction, generation of waste, effect on water quality due to reduced flows and potential for watercourse crossings, effect on flow as a result of abstraction, potential land take and effect on soils and agricultural land, and anticipated temporary construction effects on visual amenity and local heritage sites.
	Beneficial	None	+	None	+	None	+	None	+	None	None	+	+	None	None	None	+	None	None	Given the anticipated yield from the scheme, minor beneficial effects are associated with the potential for compensatory planting or habitat enhancement, improving operational flexibility through the use of existing licensed abstraction, maintaining essential public water supplies during drought conditions, and improving the reliability and resilience of the overall supply system.
Selby Groundwater Option 2	Adverse	0	0	0	0	0	None	-	None	0	0	0	None	-	0	0	None	0	-	Minor adverse effects have been identified in relation to material assets and resource use, soils and geology, and landscape and visual amenity. These relate primarily to construction activities, including the drilling of the replacement borehole and associated waste generation and vehicle movements. Negligible adverse effects have been identified for biodiversity, flora and fauna (with low risk of INNS introduction provided mitigation is in place), and on the historic environment, including archaeology and cultural heritage. There are no significant effects anticipated on recreational access, water levels and flows, or water quality.
	Beneficial	0	0	None	+	None	++	0	+	None	None	++	0	None	None	None	+	None	None	The implementation of this drought option is anticipated to deliver minor to moderate beneficial effects by enhancing the reliability and resilience of the water supply during drought conditions, thereby supporting human health and economic activity. Additional beneficial effects may arise from compensatory planting or habitat enhancement, if required during construction, and from the sustainable use of groundwater abstractions that avoid surface water connectivity. The option also contributes to climate change resilience by diversifying water sources and improving operational flexibility within the existing abstraction regime.
Selby Groundwater Option 2	Adverse	0	0	0	0	0	None	0	None	0	0	None	None	0	0	0	0	0	0	Negligible adverse effects have been identified for most aspects associated with recommissioning the borehole.
	Beneficial	None	None	None	+	None	++	None	0	None	None	+	+	None	None	None	++	None	None	The implementation of this drought option would be associated with minor to moderate beneficial effects on human health and economic activity through maintaining the water supply during drought conditions. This drought option also delivers moderate beneficial effects related to climate change adaptation. Negligible beneficial effects are associated with water resource management, water management and abstraction, and water use efficiency.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
Pickering / Thirsk Groundwater Option 1	Adverse	-	-	0	0	-	0	-	0	0	-	-	None	0	-	-	None	0	--	A moderate adverse effect is anticipated in relation to the location of the scheme within a National Landscape and associated visual and landscape effects. Minor adverse effects are related to the potential likely significant effects on River Derwent SAC during operation, potential loss of biodiversity units, which may be compensated / offset, construction effects on recreational amenities, golf course, public footpaths and bridleways, use of materials, generation of waste and energy requirements for operation, effect of abstraction on the groundwater body (further investigation required), and air and associated GHG emissions during construction and operation. disruptions to local services Negligible adverse effects are anticipated in relation to INNS, potential temporary effects on local communities (dust, noise and vibration) and disruptions to local services during construction, generation of construction waste, and need for watercourse crossings.
	Beneficial	None	+	None	+	None	+	None	+	None	None	0	0	None	None	None	+	None	None	Minor beneficial effects were identified with regards to biodiversity net gain and climate change resilience associated with opportunities for compensatory planting and habitat enhancement and increasing the reliability and resilience of the overall supply system. Negligible minor benefits are associated with improving operational flexibility, and sustainable water resource management.
Doncaster Groundwater Option 2	Adverse	--	--	-	--	--	--	-	--	-	-	-	None	-	-	-	None	--	-	Minor adverse effects are associated with potential INNS risks, use of materials for construction, the effect of abstraction within the existing license, given the existing WFD pressures, potential land take and effect on soils and agricultural land, air and GHG emissions, and effects on visual amenity. Given the uncertainties, moderate adverse effects are associated with effect on biodiversity, natural capital and ecosystem services, effect on residents and infrastructure, effect on recreational amenity, generation of waste, effect on water quality due to reduced flows and potential for watercourse crossings, effect on flow as a result of abstraction, and anticipated temporary construction effects on local heritage sites.
	Beneficial	None	+	None	+++	None	+++	None	+++	None	None	+++	+	None	None	None	+++	None	None	Minor beneficial effects are associated with the potential for compensatory planting or habitat enhancement and improving operational flexibility through the use of existing licensed abstraction. Major beneficial effects are related to the anticipated yield of the scheme, which would maintain essential public water supplies during drought conditions and improve the reliability and resilience of the overall supply system.
Selby Aquifer Storage and Recovery Scheme 1	Adverse	-	-	0	None	0	0	0	None	-	-	None	None	None	-	-	None	None	None	No groundworks or construction activities are associated with this option. Minor adverse effects are anticipated in relation to the effect on biodiversity, natural capital and ecosystem services, the effect of abstraction on water quality and flow, given the existing WFD pressures, potential land take and effect on soils and agricultural land, and air and GHG emissions associated with operation.
	Beneficial	None	0	None	++	None	++	None	+	None	None	++	++	None	None	None	++	None	None	The implementation of this drought option would be associated with minor beneficial effects related to greater use of the existing abstraction licence and improving the existing efficiency of the management of the water resources needed to maintain essential public water supplies during drought conditions. Moderate beneficial effects are related to the anticipated yield and associated socio-economic and water supply benefits.
Doncaster Groundwater Option 3	Adverse	--	--	--	--	-	--	--	--	-	-	-	None	--	--	-	None	-	-	Moderate adverse effects are expected for biodiversity, air quality, material resources, and soil, largely due to the proximity of designated ecological sites and the scale of temporary construction activities. There is potential for minor adverse effects on heritage, recreation, and groundwater quality, where uncertainty remains.
	Beneficial	None	+	None	++	None	++	None	++	None	None	++	++	None	None	None	++	None	None	Moderate beneficial effects are expected for water resource resilience, health, and adaptive capacity to climate change, driven by the anticipated 9.09 Ml/d yield. Minor benefits include possible compensatory habitat enhancement.

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
Mobile Package Plants (Desalination, Micro-filtration or Ultrafiltration)	Adverse	-	-	0	-	-	0	0	0	-	-	0	None	0	0	-	None	-	0	Minor adverse effects are anticipated in relation to potential effect on priority habitats, INNS risks, location of sites in built-up areas and temporary disruption/ disturbance impacts, temporary disruption to access to recreational sites or services, energy usage and associated emissions, and temporary effects on local heritage sites.
	Beneficial	None	0	None	+	None	+	None	+	None	None	+	+	None	None	None	+	None	None	Minor beneficial effects associated with the provision of up to 5 Ml/d during drought conditions and improving climate resilience.
York Groundwater Option 1	Adverse	--	-	0	0	0	0	0	None	0	0	0	None	0	0	0	None	0	0	Moderate adverse effects are associated with precautionary assessment of impacts on designated sites, habitats and species and minor adverse effects are associated with short-term, temporary construction impacts on natural resources and ecosystem services and INNS risks.
	Beneficial	0	0	None	+	None	+	0	+	None	None	+	+	0	None	None	+	None	None	The implementation of this drought option could supply up to 4Ml/d with anticipated minor beneficial effects on human health and wellbeing, economic activities, sustainable abstraction, management and water use as well as climate resilience.
Network Changes	Adverse	--	--	0	-	-	None	-	-	-	0	None	None	-	0	0	None	-	-	The exact scale and location of the drought interventions under this option are not known, and as such, a precautionary assessment has been applied. Moderate effects are associated with the potential direct and indirect effects on water-dependent features of designated sites and the likelihood of watercourse crossings. At this stage, BNG has not been included in the assessment. Minor effects are associated with construction-related waste, runoff, noise, dust and vibration, effect on recreational sites/ amenities, energy requirements, potential effect on geological sites and agricultural land in rural areas, and potential effect on heritage sites and landscapes. Negligible effects are linked to INNS, surface and groundwater flows, air quality, and GHG emissions.
	Beneficial	None	None	None	++	+	++	0	++	None	None	0	++	None	0	0	++	None	None	Moderate effects are anticipated as the option is an adaptive alternative to tankering during extreme drought. It provides much-needed water in several "at-risk" areas, which in turn supports human health, economic stability, and community well-being. Minor beneficial effects are anticipated in relation to opportunities for minor enhancements on sites, such as habitat reinstatement or localised improvements to landscape or access. Potential negligible benefits include improved resource efficiency, the flexible redistribution of treated water to meet shortfalls, and the avoidance of environmental and logistical effects associated with widespread tankering operations.
Tankering	Adverse	0	0	0	0	0	None	0	None	0	0	None	None	None	0	-	None	0	0	No specific locations are known at this stage, and a precautionary assessment has been undertaken. There would be negligible adverse effects associated with the limited installation of pipelines (where required) and air. Minor adverse effects are anticipated in relation to GHG emissions associated with the operation of tanker vehicles.
	Beneficial	None	None	None	+	None	+	0	+	None	None	0	0	0	0	0	None	0	0	Assessment of the option has found minor beneficial effects in relation to population and human health from enhancing resilience of the public water supply. This option aims to be resource efficient by using the closest existing licensed supplies, including package plants where appropriate. Some negligible beneficial effects are associated with short-term reduction in pressure on other water resources infrastructure, such as WTW and treatment plants, and avoidance of impacts associated with more land-intensive drought options.
South West Reservoir 15 to other South West reservoirs	Adverse	---	--	--	-	0	-	--	None	--	-	-	None	--	-	-	None	-	-	Adopting the precautionary approach in the absence of a defined works area and pipeline corridor, major adverse effects are anticipated in relation to the construction phase on designated sites, including the SSSI and SAC/SPA within the study area. Moderate adverse effects are related to the potential loss of biodiversity units, INNS risks and materials use and waste generation. There are potential minor adverse effects on agricultural land use and soils associated with the pipeline corridor. Minor adverse effects are also associated with the temporary construction works on recreational amenity, local economy, air quality and GHG emissions, visual amenity and heritage sites, as well as through temporary disruption of access and noise and temporary light disturbances. The effect of the proposed scheme on any compensation flow requirements would require assessment and any effect on water quality is unlikely and the effect on flow is uncertain.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	+	None	+	0	+	+	+	None	None	+	+	None	None	None	+	None	None	Minor beneficial effects are linked to the potential yield of the scheme and benefits for human health and wellbeing related to maintenance of water supply during drought conditions and contribution to sustainable water resource management and drought resilience. Minor beneficial effects are related to potential for compensatory planting/ habitat enhancement following construction and maintenance of reservoir levels during drought.
Optimisation of York WTW 2	Adverse	-	-	-	-	0	0	--	-	-	0	0	None	0	-	--	None	0	-	Moderate adverse effects are associated the materials needed during construction and the increase in energy use causing greenhouse gas emissions. Minor adverse effects are associated with the potential for impact on sensitive species, INNS spread, short-term land disturbance, air quality and the surrounding rural landscape.
	Beneficial	None	0	None	+++	None	+++	None	+++	None	None	+++	+	None	None	None	+++	None	None	Major beneficial effects are associated with the large deployable output (up to 47 Ml/d) generated from this scheme and improving adaptation to climate change. Minor beneficial effects are associated with promoting water efficiency and measures that enable sustainable water use.
Transfers	Adverse	0	None	0	-	0	None	-	None	-	-	-	None	None	-	-	None	None	None	Minor adverse effects are anticipated towards the spread of INNS as water transfers between catchments can heighten this risk. Minor adverse effects are also associated with altering the flow regime, altering water quality, increasing energy consumption and potential emissions.
	Beneficial	0	0	None	++	0	++	+	++	+	+	++	+	None	None	None	++	None	None	Moderate beneficial effects are anticipated towards population and human health, and water associated with ensuring a continued supply of safe drinking water during a severe drought. Moderate beneficial effects are associated with enhancing the efficiency of sustainable water use and improving climate adaptation. Minor beneficial effects are associated with reducing pressure on stressed sources, using existing infrastructure and protecting river flows and water quality.

1. INTRODUCTION

1.1 BACKGROUND AND PURPOSE OF REPORT

Yorkshire Water Services Limited (YWSL) is preparing its statutory Drought Plan (DP 2027) and is undertaking a Strategic Environmental Assessment (SEA) the Plan. A Habitats Regulations Assessment (HRA) screening has been undertaken in parallel.

SEA is required under the Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA Regulations) for plans and programmes that are likely to have significant environmental effects. The purpose of SEA is to identify, describe and evaluate the likely significant environmental effects of implementing the Plan and sets out how adverse effects might be avoided, reduced or mitigated. More information about SEA, and the rationale for applying it to the DP 2027, is provided in **Section 1.2** below.

This Environmental Report is the second output of the SEA. In November 2024, a Scoping Report was issued for consultation[1] which summarised the baseline and framework that would be used for the assessment. Issues raised by consultees have been considered in preparing this Environmental Report (see **Section 1.8**).

The Environmental Report:

- Presents the environmental baseline relevant to DP 2027 (**Section 3**).
- Describes the SEA methodology (**Section 4**).
- Assesses the likely significant environmental effects of the drought options (**Section 5**).
- Considers cumulative effects (**Section 6**).
- Identifies mitigation and monitoring measures (**Section 7**).

The Environmental Report accompanies Yorkshire Water's submission of DP 2027 to the Secretary of State via Defra. Details of how to comment on the Environmental Report are provided in **Section1.8.3**.

1.2 APPLICATION OF SEA TO DROUGHT PLANNING

1.2.1 Overview of Strategic Environmental Assessment

SEA is a statutory requirement under the Environmental Assessment of Plans and Programmes Regulations 2004 ('the SEA Regulations') requiring the assessment of effects of certain plans and programmes on the environment. The objective of SEA is to:

> 'to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans… with a view to promoting sustainable development'.

The SEA Regulations require the preparation of an Environmental Report in which the likely significant environment effects of implementing the Plan, and reasonable alternatives taking into account the objectives and geographical scope of the Plan, are identified, described and evaluated.

As stated in the Office of the Deputy Prime Minister (ODPM) SEA Guidelines[2]

> *"It is not the purpose of the SEA to decide the alternative to be chosen for the plan or programme. This is the role of the decision-makers who have to make choices on the plan or programme to be* adopted*. The SEA simply provides information on the relative environmental performance of alternatives, and can make the decision-making process more transparent."*

SEA therefore informs decision-making on the timing and sequencing of actions but does not determine the outcome.

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[1] Ricardo (2024) Strategic Environmental Assessment of Yorkshire Water's Services Limited Draft Drought Plan 2027. Scoping Report. Prepared by Ricardo for Yorkshire Water Services Ltd. November 2024.

[2] Office of the Deputy Prime Minister (2005) A Practical Guide to the Strategic Environmental Assessment Directive.

The SEA Regulations require consideration of effects on:

- Biodiversity.
- Population and human health.
- Fauna and flora.
- Soil and geology.
- Water.
- Air.
- Climatic factors.
- Material assets.
- Cultural heritage.
- Landscape.

All relevant environmental topics are considered within this Environmental Report.

1.2.2 Requirement for SEA and HRA of Yorkshire Water's Drought Plan

SEA Screening was undertaken by Yorkshire Water in accordance the SEA Regulations and relevant guidance. Application of the screening criteria confirmed that the Draft DP 2027 requires SEA (**Figure 1-1)**.

The screening process also confirmed that a Habitats Regulations Assessment (HRA) is required under the Conservation of Habitats and Species Regulations 2017 (as amended). The HRA screening has been undertaken in parallel with the SEA and is reported separately. The HRA considers whether any drought options, alone, or in combination or with other plans or projects, are likely to have significant effects on designated habitat sites.

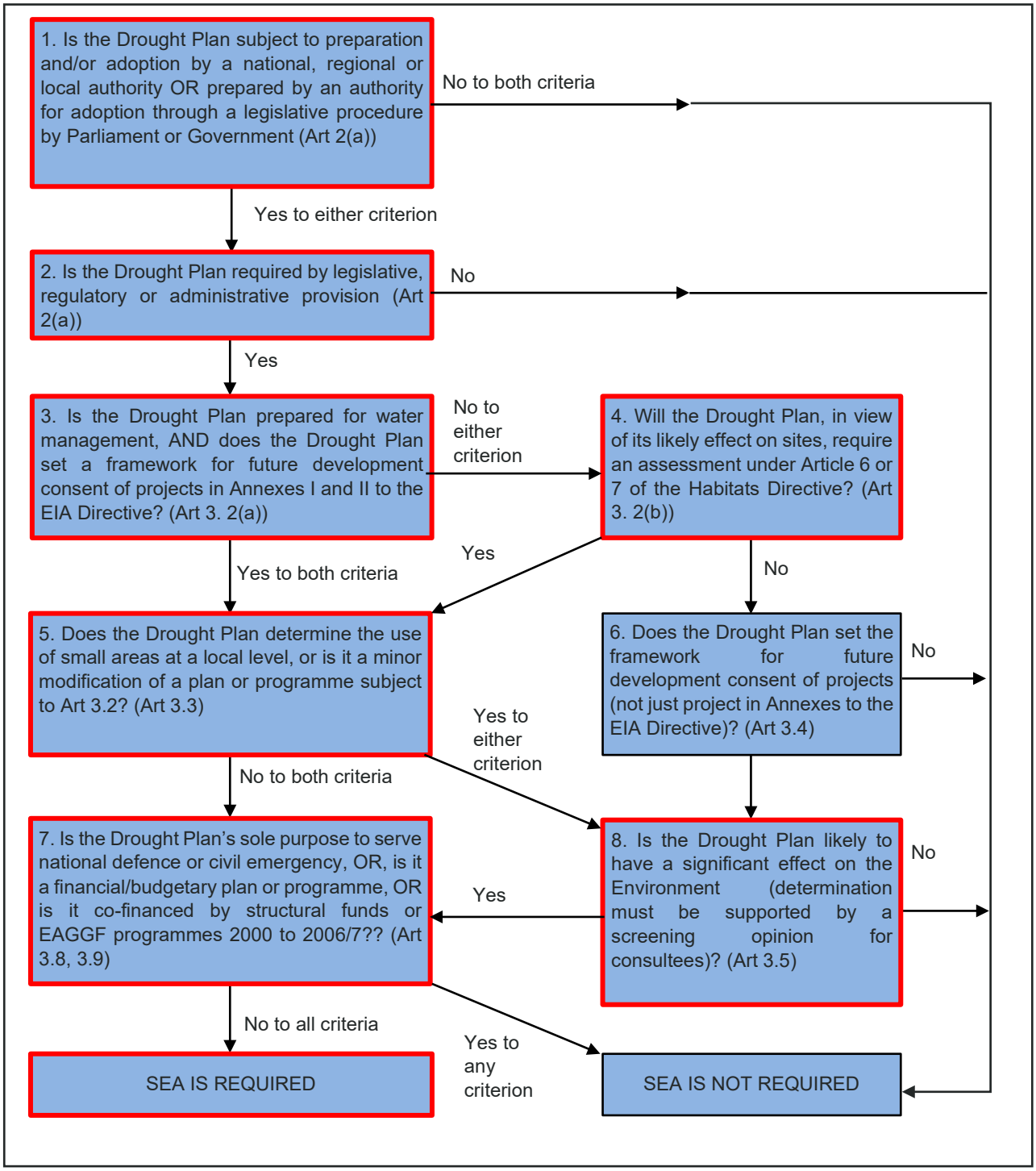


Figure 1-1: SEA Screening route of Yorkshire Water's Draft DP 2027 from UKWIR (2021) Guidance (adapted from Figure 2 of ODMP (2005) Guidelines)

The route through the flow diagram **Figure 1-1** is described below:

1. Is the Plan subject to preparation and/or adoption by a national, regional or local authority OR prepared by an authority for adoption through a legislative procedure by Parliament or Government?
   - *Yes, prepared by an authority for adoption through a legislative procedure by Parliament or Government.*
2. Is the Plan required by legislative, regulatory or administrative provisions?

- *Yes, required by legislative provisions.*

3. Is the Plan prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use, AND does it set a framework for future development consent of projects in Annexes I and II to the EIA Directive?
   - *No to latter criterion.*
4. Will the Plan, in view of its likely effect on sites, require an assessment under Article 6 or 7 of the Habitats Directive[3]?
   - *Yes, there is potential for impacts on a European designated site which triggers the requirement for Appropriate Assessment under the Habitats Regulations 2017.*
5. Does the Plan determine the use of small areas at local level, OR is it a minor modification of a PP subject to Art. 3.2?
   - *Yes, to latter criterion.*
6. Is it likely to have a significant effect on the environment?
   - *Yes (see response to Step 4).*
7. Is the PP's sole purpose to serve national defence or civil emergency, OR is it a financial or budget PP, OR is it co-financed by structural funds or EAGGF programmes 2000 to 2006/7?
   - *No to all criteria.*

Result: The Draft Drought Plan 2027 requires SEA under the SEA Regulations.

1.2.3 Applying Strategic Environmental Assessment to Drought Planning

The Draft DP 2027 comprises 78 drought options (5 demand options, 7 'extreme' demand options, 48 drought permit/orders and 18 'extreme' supply side options). Unlike a Water Resource Management Plans (WRMP), a Drought Plan does not comprise a fixed programme of measures selected from a long list of alternatives. Instead, it presents a suite of potential measures that may be implemented progressively, depending on the severity, duration and geographical extent of a drought event. Because the specific combination, timing and sequencing of options cannot be predicted in advance, the SEA does not assess competing packages of options. The SEA provides a comparative assessment of the environmental effects of each option to inform decision-making during drought. Cumulative effects can only be assessed at a strategic level for this reason, as set out in **Section 4.5**, including consideration of intra- and inter- water resource zone (WRZ) effects, and neighbouring water company Drought Plans.

The methodology for the Draft DP 2027 has been informed by:

- SEA guidance[4], which sets out the stages of the SEA process
- United Kingdom Water Industry Research (UKWIR) SEA guidance [5]
- Environment Agency's 2025 Drought Plan Guideline (DPG)[6]
- Strategic Assessment: Advice From Practice[7]

[3] Superseded by the Conservation of Habitats and Species Regulations 2017 (as amended).

[4] Office of the Deputy Prime Minister (2005) A Practical Guide to the Strategic Environmental Assessment Directive.

[5] UKWIR (2021) Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans (WR/02/S). Prepared by Ricardo Energy & Environment.

[6] Defra (2025) Water Company Drought Plan Guideline, March 2025 (Version 1.4)

[7] Institute of Sustainability and Environmental Professionals 2026 (ISEP) Strategic Assessment: Advice From Practice

1.3 YORKSHIRE WATER'S WATER SUPPLY SYSTEM, WATER RESOURCE MANAGEMENT AND DROUGHT PLANNING

1.3.1 Introduction

In the event of a severe drought, Yorkshire Water will need to carry out a range of management measures to ensure the provision of adequate supplies of wholesome water to its customers. The Yorkshire Water Draft Drought Plan sets out the options for dealing with drought conditions and takes account of recent legislative developments in drought management. Statutory demand management options available to water companies during drought have been extended through provisions in the Flood and Water Management Act 2010. Section 36 of this Act has amended the Water Industry Act 1991 provisions relating to hosepipe bans and allows companies to temporarily restrict a wider range of customer water use activities under a Temporary Use Ban without requiring a drought order. The Drought Direction 1991 was revoked and replaced by the Drought Direction 2011 which sets out those uses that still require a drought order in order to impose restrictions during a drought. This has been updated by the subsequent Drought Plan (England) Direction revisions, which contain revised timeframes for submitting the DP 2027 to the Secretary of State (see Section 1.2.3). The Drought Plan Direction 2025 states that the Draft Drought Plan should be submitted to Defra no later than 31 March 2026.

1.3.2 Yorkshire Water: Water Resources & Supply System

Yorkshire Water's supply area is geographically bounded in the west and north by the Pennine Hills and the North York Moors respectively. The southern and eastern parts of the company' supply region are low lying and bounded by the North Sea to the East and the Yorkshire/Lincolnshire border to the south. Annual average rainfall in the region is highest in the Pennine areas whilst low lying areas average less than half as much rainfall each year and with little seasonal variation.

1.3.3 Yorkshire Water's Water Resources

Urban areas in the west and south of Yorkshire are principally supplied from reservoirs in the Pennines. Reservoirs located in the Pennines and the valleys of the River Don, River Aire, River Wharfe, River Calder, River Nidd and River Colne provide the largest upland sources of water in the region. Yorkshire Water operates over 100 impounding reservoirs, of which two are major pumped storage reservoirs. The total storage capacity of all the supply reservoirs amounts to some 160,000 million litres (Ml).

In the eastern and northern parts of the region, river and groundwater abstractions, chiefly from the rivers of the North York Moors and the Yorkshire Wolds respectively, are the major water sources.

1.3.4 Yorkshire Water's Supply System

Approximately 45% of supply is derived from impounding reservoirs, 30% from rivers and 25% from groundwater. This varies from year to year depending on weather conditions. In the dry year annual average planning scenario rivers are used more, with about 40% of supply coming from reservoirs, 40% from rivers, and 20% from groundwater. Yorkshire Water has an agreement with Severn Trent Water to abstract up to 21,550 Ml per year from the Derwent Valley Reservoirs in Derbyshire for supply to parts of South Yorkshire, dependent on the control lines in the reservoirs. The majority of the Yorkshire Water's water resources are connected together by a regional grid network. This enables highly effective conjunctive use of different water resources, which mitigates risk and allows optimal planning, source operation and resilient sources of supply both in drought and during floods.

1.3.5 Yorkshire Water's WRZs

The Yorkshire Water region is currently divided into two WRZs for planning purposes (**Figure 1-2**[8]). Each zone represents a group of customers who receive the same level of service for water supply reliability from either groundwater or surface water sources.

[8] Source: Yorkshire Water (2025) Water Resources Management Plan 2024. Available at: https://www.yorkshirewater.com/media/qk4pwpjh/yorkshire-water-final-wrmp24-technical-document-public.pdf [Accessed March 2026]

The Grid Surface Water Zone (Grid SWZ) represents a highly integrated surface and groundwater zone that makes up over 99% of the supply area and is dominated by the operation of lowland rivers and Pennine reservoirs. The East Surface Water Zone (East SWZ) is a small zone supplied by a river abstraction and springs in the Whitby Area. **Figure 1-3**[8] shows the current grid system that enables the benefits of drought management options to be spread throughout the Yorkshire Water region.

Figure 1-3 Yorkshire Water's WRZs

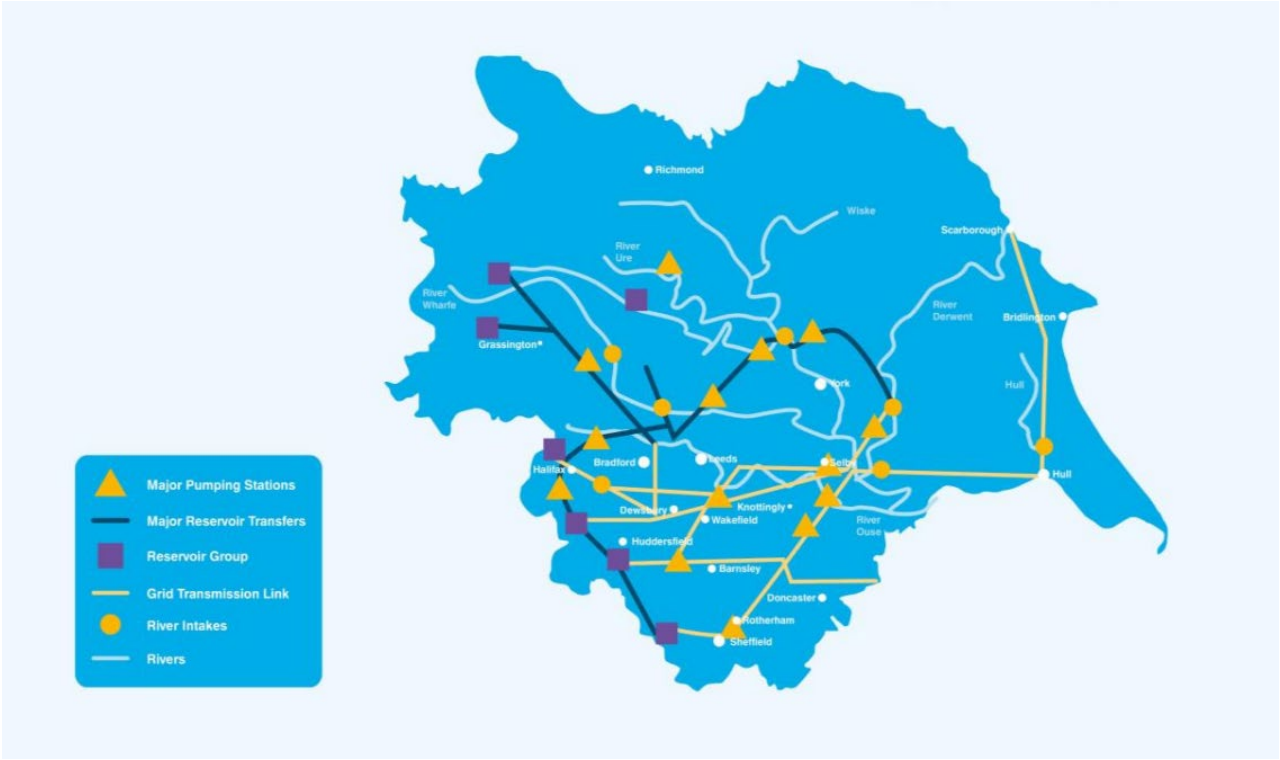


Figure 1-2 Yorkshire Water Grid System

1.3.6 Link to Water Resources Management Plan

Yorkshire Water published its Final Water Resources Management Plan (WRMP24) in 2024 which outlines the supply and water demand forecasts for the period 2025 to 2050. It also describes the preferred strategy to maintain the supply-demand balance across the WRZs. The WRMP is updated every 5 years.

The WRMP considers climate change, changes to abstraction licences (including outcomes of the Review of Consents). The WRMP also makes allowance for parts of the water supply system being out of service for maintenance. The Final WRMP24 identifies that, without any intervention, deficits could arise. These are addressed through a combination of demand management measures, leakage reduction and supply side options.

DP 2027 supports the WRMP by identifying measures available during severe water shortage. To clarify, the aim of this SEA Environmental Report is to focus on the Drought Plan, not the WRMP. Yorkshire Water's drought planning process is discussed further in **Section 1.4** below.

1.4 YORKSHIRE WATER'S DROUGHT PLANNING PROCESS AND DROUGHT OPTIONS

1.4.1 Overview & Timetable

Water companies in England are required to prepare and maintain Statutory Drought Plans under Sections 39B and 39C of the Water Industry Act 1991, as amended by the Water Act 2003 and subsequently Water Act 2014, which set out the sort of operational steps a company will take before, during and after a drought. The Water Industry Act 1991 defines a Drought Plan as 'a plan for how the water undertaker will continue, during a period of drought, to discharge its duties to supply adequate quantities of wholesome water, with as little recourse as reasonably possible to drought orders or drought permits'.

On 1 October 2010, Section 76 of the Water Industry Act 1991 was amended by the commencement of Section 36 of the Flood and Water Management Act 2010. The Water Use (Temporary Bans) Order 2010 also commenced on 1 October 2010 and provides definitions and clarifications on these activities.

The Drought Plan (England) Direction provides the schedule for when water companies must submit DP 2027 to the Secretary of State prior to consultation. Water companies must then publish their DP as directed by Defra. According to the Drought Plan (England) Direction 2025, Yorkshire Water is required to submit their Draft Drought Plan to the Secretary of State before or on 31 March 2026.

1.4.2 Drought Plan Timeframes

Yorkshire Water published its last Statutory Drought Plan in April 2022. The Draft Drought Plan was published for consultation in March 2021. A Statement of Response (SoR) was prepared and published alongside a Revised Draft Drought Plan in September 2021 and included changes in response to the initial consultation. The revised plan was not considered materially different and the Final Drought Plan 2022 was published on 29 April 2022. In accordance with current legislation, Yorkshire Water will revise and republish the DP no later than five years after the date the final DP is published, or earlier if required through new legislation or a material change to the plan.

Yorkshire Water is now preparing the Draft DP 2027 and will encompass the period 2027-2032, which is anticipated to be published in Spring 2026.

1.4.3 Review of Consents and HRA

In order to ensure that the integrity of the European site is not at risk from the impacts of abstraction, permissions to abstract water, granted through licences issued by the Environment Agency and held and operated by Yorkshire Water, have been subject to a 'Review of Consents' in accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2010 (as amended) (referred to as the Habitats Regulations). This Review of Consents was undertaken by the Environment Agency and includes screening to determine likely significant effect and Appropriate Assessment where likely significant effects are identified, to either affirm an abstraction licence or recommend actions to amend the licence conditions.

Information provided by the outcomes of the Review of Consents was used to support the HRA screening of Yorkshire Water's DP 2022 . This identified that two of the drought options included in the 2022 DP required a Stage 2 "Appropriate Assessment". It was concluded that these drought options will not, alone or in-combination with other plans or projects, have an impact on the conservation objectives or the qualifying features of the European designated sites. As part of the 2027 update to the Draft DP, a HRA screening is being undertaken for all drought options to identify any requirements for Appropriate Assessment. This is being undertaken in parallel with the SEA.

Only those drought options which are relevant to the period encompassed by the DP 2027 (2027 to 2032) are considered in the SEA and HRA process. To this end, environmental effects of the Draft DP options are considered within the context of the current licence operating conditions. Potential new sources (which Yorkshire Water may bring online in the future), new drought options, or revisions to existing options which are only envisaged to become operational post 2032 have, therefore, been excluded from the SEA and HRA screening process. The same approach has also been taken with respect to cumulative plans, projects, and programmes, in that only those that are likely to be effective in the period to 2032 will be considered in the SEA.

1.4.4 Yorkshire Water's Drought Options

The Drought Plan identifies triggers that act as decision-points for implementing drought management actions and options. The nature of the triggers varies for each WRZ, and the nature of the drought management actions or options that will be considered also varies depending on the prevailing drought conditions.

Drought management actions may be applied either company wide, by WRZ or to target a specific geographic area depending on the nature of the drought event prevailing at the time. The Drought Plan contains a range of potential supply-side and demand-side drought management options available to Yorkshire Water, for example, bringing reserve water sources into use, enhancing the capacity of supply assets to maximise use of available supplies, implementation of drought permits or drought orders and imposing temporary use bans (TUBs).

The scope of the supply-side drought options are listed in **Table 1-1**.

Table 1-1: Supply side drought options

Supply Side Options	Comments	Option
Re-commissioning of unused or under-utilised licensed water sources	An option to maximise the use of any underutilised licensed resources will include mothballed and recently abandoned assets. These assets will be used to augment supplies or mitigate against the potential impact of drought orders or permits.	e.g. some extreme supply options such as Catterick Groundwater Option 1
Increasing the capacity of water supply assets to maximise use of existing licensed sources	This may comprise temporary or permanent measures to increase the capacity of assets such as pumping stations and water treatment works to increase the use of existing licensed water sources.	e.g. Ouse increased abstraction
Reducing reservoir compensation releases or prescribed river flow conditions	Requires a drought order or permit	e.g. North Area Reservoir 4
Increasing existing abstraction licence volumes	Requires a drought order or permit	e.g. Ure increased abstraction

1.4.4.1 Demand-side Options

Demand measures are just part of a suite of options which will be put in place by Yorkshire Water as part of its Drought Plan alongside supply-side options and drought permits. Demand-side options are designed to reduce the demand for water and the options available to Yorkshire Water are consistent between all resource zones (see **Table 1-2**). Standard demand-side options have been included in both the SEA and HRA

screening. The extreme demand options are similar to the standard demand options but would only be implemented in more severe drought events.

Table 1-2: Demand-side drought management options (all WRZs)

Demand-side options	Comments
Standard demand-side management options	
Customer management	Promote water efficiency to domestic customers and non-household water users (**agile communications strategy**)
	Contribute to collaborative (regional and national) water conservation advice and campaigns for household and non-household water users. This includes WReN water companies and other stakeholders, neighbouring water companies, retailers and others if a national campaign is needed (**drought publicity campaign**)
	Temporary use bans - Restrictions on the use of hosepipes for a range of uses, including the washing of vehicles and boats, watering gardens and sports grounds and filling of paddling pools.
	Prohibit or limit non-essential uses of water (**non-essential use ban**) - Drought order to restrict non-essential water uses to be applied for when reservoir stocks fall below the Drought Control Line
Distribution Management	**Increased leakage detection and repair activity** – increased find and fix activity, pressure management, Ensure that all maintenance programmes are up-to-date and undertake additional leakage control, leading to demonstrable water savings.
'Extreme' demand-side management options	
Removal of exceptions	Removal of temporary use ban (TUBs) non-statutory exceptions and concessions so that greater restrictions are applied and to a greater number of customers.
Drought orders	Use full range of powers available with non- essential use (NEU) drought orders. Removal of non-statutory NEU exceptions and concessions so that greater restrictions are applied and to a greater number of customers. Assumes all supply-side permit applications (where a benefit is achieved) are already in place.
Yorkshire Water customer campaign	Create awareness of the situation and appeal for extreme demand reduction action e.g. reduce use to 50Ml/d. All media channels will be used including regular appearances on local news channels.
National Media & Communications	National campaigns to change culture (e.g. excessive water use seen as socially unacceptable), keeping customers aware of the current situation and risks if do not take extreme action. Produce guides for customers to demonstrate how to restrict water use e.g. to 50 litres/ person/day. Hard hitting messages and images will be developed and publicity increased by use of national campaign.
Pressure management	Reduce pressure while still maintaining essential services e.g. nighttime reductions. Pumping stations and pressure reduction valves controlling water distribution would be optimised to a level that would just meet standards.
Request commercial and agricultural water use reductions	Request non-households reduce use for purposes not prohibited by a drought order for a non-essential use ban. This could be by agreement with large users who may be able to operate differently e.g. reduce production at a site in the affected area if they have other sites elsewhere that could cope with additional demand.
Water efficiency in non-house properties	We will seek to work with retailers to deliver water efficiency devices and advice to non-household water users.

1.4.4.2 Supply Side Options

Potential drought permit/order sites are identified in **Table 1-3** and **Figure 1-4** indicates the general geographical setting and location of the potential drought options for DP 2027. There are 48 drought permit/order options and 18 'extreme' supply side options. The extreme options are those which Yorkshire

Water may require in a severe drought. Unlike the drought permit/order options, these options do not require preparation of an EAR, however they will be considered in the SEA and HRA, where appropriate.

1.4.4.2.1 Drought Permit/Order Options

Drought permits and orders are drought management actions that, if granted, can allow more flexibility to manage water resources and the effects of drought on public water supply and the environment. Guidance has been prepared by Defra[9] : which highlights the main differences between drought permits and orders. One of the key differences is that drought permits are granted by the Environment Agency, with drought orders being granted by the Secretary of State. The drought permit/orders that are included in Drought Plan 2027 are outlined in **Table 1-3** below.

Table 1-3: Drought permit/order options included in DP 2027

Grid Surface WRZ	Water Source	Type of Drought Management Option
Drought permit/order options		
North Area	North Area Reservoir 1, North Area Reservoir 2, North Area Reservoir 3, North Area Reservoir 4, North Area Reservoir 5	Compensation flow release reductions
North West Area	North West Area Reservoir 1, North West Area Reservoir 2, North West Area Reservoir 3, North West Area Reservoir 4, North West Area Reservoir 5, North West Area Reservoir 6, North West Area Reservoir 7, North West Area Reservoir 8, North West Area Reservoir 9, North West Area Reservoir 10, North West Area Reservoir 11, North West Area Reservoir 12	Compensation flow release reductions
South Area	South Area Reservoir 1, South Area Reservoir 2, South Area Reservoir 3a, South Area Reservoir 3b, South Area Reservoir 4, South Area Reservoir 5, South Area Reservoir 6, South Area Reservoir 7	Compensation flow or maintained flow release reductions
South West Area (Middle and Upper Calder)	South West Area Reservoir 1, South West Area Reservoir 2, South West Area Reservoir 3, South West Area Reservoir 4, South West Area Reservoir 5, South West Area Reservoir 6, South West Area Reservoir 7, South West Area Reservoir 8, South West Area, South West Area Reservoir 9, Reservoir 10, South West Area Reservoir 11, South West Area Reservoir 12, South West Area Reservoir 13, South West Area Reservoir 14, South West Area Reservoir 15, South West Area Reservoir 16, South West Area Reservoir 17, South West Area Reservoir 18	Compensation flow release reductions
Stand Alone	Ouse increased abstraction	Increase river abstraction rates at lower river flows
	Ure increased abstraction	Permit river abstraction at low flows
	Wharfe reduced regulated flow	Reduce river regulation requirements
	Hull increased abstraction	Reduce hands-off river flow to enable increased abstraction

[9] 9 Defra (2015) Apply for a drought order or emergency drought order, https://www.gov.uk/guidance/apply-for-a-drought-order-or-emergency-drought-order, [Accessed September 2024].

Grid Surface WRZ	Water Source	Type of Drought Management Option
	Derwent annual abstraction increase	Decrease in annual abstraction at WTW with mirrored increase at downstream WTW.

1.4.4.2.2 Extreme Supply Options

As part of DP 2027, Yorkshire Water has proposed options to be considered during more extreme drought events. These extreme options, also referred to as long-term options (LTOs), are presented in **Table 1-4**. These include further actions to increase supply, which require greater permissions (e.g. new water supply infrastructure) than Level 3 supply-side actions. The extreme options provided below are high-level and the assessments completed reflect this. If any of these options are required, full environmental assessments would need to be undertaken when the scope of the options can be more defined by the potential onset of long-term and unprecedented drought.

Table 1-4: Extreme supply options included in DP 2027

No	WRZ	Option	Summary of action	Trigger for action to be considered*
1	Grid SWZ	Catterick Groundwater Option 1	The drought option relates to an increased abstraction from the existing boreholes at Catterick. During a drought, a drought permit or order application would enable an increased abstraction from the existing borehole. There is potential for pumping at 14 Ml/d during extreme drought with contingency to manage the impacts on the neighbouring borehole. Option would meet local demand but could also help reduce input into the Grid from a WTW. Potential yield of 2 Ml/d during drought conditions	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
2	Grid SWZ	River Aire Option 1	Construction of a new intake on the south bank of the River Aire, with a new pipeline to transfer raw water to a WTW. The location chosen minimises the length of pipeline required and disruption by avoiding construction in urbanised areas. The proposed scheme would largely operate as an independent source of raw water for the WTW. The feasibility of a direct connection into the works itself is unknown and would require further investigation. It is currently assumed that the new pipeline would connect into one of the existing 36" Rising Main(s) of the Aqueduct externally to the site. This would require a temporary shut-off of one or both of the mains pipes to enable the connection.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
3	Grid SWZ	River Aire Option 2	Construction of a new intake and pumping station on the north bank of the River Aire. It is proposed that the new abstraction would be able to direct flows either southwards towards the WTW (which is the current flow direction) or northwards. This will require an additional short section of pipeline to connect from the 48-inch Aqueduct pipe to the pipe. .	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
4	Grid SWZ	South Area Reservoir 2 to wider reservoir system transfer	This option would be to transfer water from South Area Reservoir 2 to the wider reservoir system. A new raw water pump station and a transfer pipeline	In a second year of drought and reservoir stocks six weeks away

No	WRZ	Option	Summary of action	Trigger for action to be considered*
			would be required. The option would utilise an existing licence.	from crossing the drought control line.
5	Grid SWZ	South West Reservoir 15 to other South West Reservoirs	The proposed solution is to construct a new pumping main from South West Reservoir 15 to the Catchwater, alongside the installation of an additional connection chamber at the Catchwater. This would create a dual purpose and highly flexible network arrangement, enabling controlled transfers between South West Reservoir 15, and other South West Reservoirs The scheme does not rely solely on the existing rising main and establishes an alternative transfer route, improving system robustness during asset outages and drought events. Key elements include the new transfer pipeline, a new connection/valve chamber at other South West Reservoir Catchwater, isolation and control valves, thrust blocks, and pipeline supports, all designed to accommodate the full operational and surge pressures.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
6	Grid SWZ	Doncaster Groundwater Option 1	This option involves recommissioning two boreholes at Doncaster Groundwater Option 1 site. The option utilises an unused existing licence. The site has historic problems with sand in the abstraction as well as high nitrate levels and some existing site infrastructure issues. The water tower has been decommissioned, so water abstracted would need to be treated elsewhere. The option would provide resilience, rather than new water reducing grid input, which minimise wider grid input to the Doncaster supply area.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
7	Grid SWZ	Doncaster Groundwater Option 2	This option involves recommissioning two boreholes at Doncaster Groundwater Option 2 site. The boreholes are currently out of use due to turbidity concerns. The boreholes would require relining. The water is high in nutrients but could be treated with no issues at a WTW which has sufficient capacity.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
8	Grid SWZ	Doncaster Groundwater Option 3	This option involves recommissioning three boreholes at Doncaster Groundwater Option 2 site. Boreholes have been out of operation since 2002 due to contamination from fuel leakage, which has since thought to have cleared. Full treatment would be required to bring back into service. There is potential for this option to be used with plug-and-play mobile package treatment plants (micro-filtration, etc).	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
9	Howardian Hills	Pickering / Thirsk Groundwater Option 1	This option provides support to Pickering / Thirsk Groundwater Option 1 WSSs. New boreholes at these sites would provide more reliability and resilience but require a significant network infrastructure upgrade. During lower groundwater levels, the flow at the Kelds springs east of the WTW reduces. When flow over the exit weir ceases, total daily abstraction is limited to 12 Ml/d from 17 Ml/d. A Drought Permit may be possible to increase abstraction when flow over the Kelds weir is zero. Yield is available in the aquifer.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.

No	WRZ	Option	Summary of action	Trigger for action to be considered*
10	Selby Ring Main	Selby Groundwater Option 1	This option is to return a borehole (BH2) to service. BH2 has known turbidity issues. The option will involve installation of automated run to waste/return to service valve to allow BH2 to run, turn out high turbidity and continue running whilst returning to supply. [Additional, BH3 likely permanently out of service, drilling of replacement will return site to full designed operation and provide greater resilience and potential to increase abstraction beyond licence if water can be used.]	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
11	Selby Ring Main	Selby Groundwater Option 2	This option involves cleaning the Selby Groundwater Option 2 to Selby Groundwater Option 1 raw water main and bringing Borehole (BH) 3 back into service. The effect is to maximise the WTW input to Selby Ring Main and then Grid, Doncaster/Nutwell. Selby Groundwater Option 2 source is one of four that supply Selby Groundwater Option 1 WTW. The WTW feeds the Selby Ring Main that can provide water to Selby, the grid via Brayton SRE, and Doncaster/Nutwell WSS via Roll pumps. Selby Groundwater Option 2 output is limited by sand deposited in the raw water main to Selby Groundwater Option 1 WTW. The main needs cleaning (scouring to the lagoon at Selby Groundwater Option 1 WTW, ice pigging are two options) to allow full flow to the WTW. In addition, BH3 at Selby Groundwater Option 2 is out of service due to bacterial detections in raw water. The likely benefit from this option is 5 Ml/d with additional water used to support Selby Ring Main, Grid and Doncaster/Nutwell. The distance between Selby Groundwater Option 2 and Selby Groundwater Option 1 WTW is approx. 5km. Selby Groundwater Option 2 is licensed for 13.7 Ml/d avg, 15 Ml/d max. Current output is in order of 7 Ml/d due to loss of BH3.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
12	Grid SWZ	Selby Aquifer Storage and Recovery Scheme 1	This option would make use of an unused existing licence through an ASR scheme. The scheme is for recharge of groundwater with treated water abstracted from the River Derwent when excess is available, for use in drought. ASR scheme is not used because it is manually operated. It needs instrumentation and automation so that it can be used easily. There are no other known problems with the scheme. YWS has confirmed that the water quality from the ASR injection is good. Management of the ASR scheme needs updating. However, the site was previously used during the 2018 drought, as a separate licence.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
13	Grid SWZ	York Groundwater Option 1	This option to recommission York Groundwater Option 1, which is linked to the grid. The WTW is supplied by boreholes that draw from the Sandstone aquifer. The site has raw water quality issues, therefore, requires investment in treatment. All site assets and connections would require renewal.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.
14	Grid SWZ	Optimisation of York WTW 2	The proposed solution is to increase the capacity of York WTW 2 which is currently capped at approximately 223 Ml/d, due to GAC contact time. The plant is capable of 270 Ml/d. The proposed scheme would optimise York WTW 2 throughput by	In a second year of drought and reservoir stocks six weeks away from crossing the

No	WRZ	Option	Summary of action	Trigger for action to be considered*
			upgrading the high-lift pumps at the works and adding GAC beds.	drought control line.
15	Grid SWZ + East GWZ	Mobile Package Plants (Desalination, Micro-filtration or Ultrafiltration)	This option considers mobile, plug-and-play package plant treatment - reverse osmosis (RO) desalination or micro-filtration/ultrafiltration - for use with a variety of small SW (or GW) sources to provide water to constrained areas in an extreme drought. The option can potentially be used with brackish waters, mine water or high nitrate sources. De-commissioning and re-commissioning mobile desalination package plant between drought event would not be onerous, based on supplier engagement.	Level 3 actions in place and reservoir stocks one to 2 weeks from the DCL. Would be linked to network and need during drought conditions. No regrets actions if localised and combined
16	Grid SWZ	Transfers	In an extreme drought water could be transferred within YWS' supply area, if any customers supplies were at risk of running out. The option would likely be used in areas where network limitations prevent support from other assets and WTWs across the company area.	Level 3 actions in place and reservoir stocks one to two weeks from the DCL. Would be linked to network and need during drought conditions.
17	Grid SWZ + East SWZ	Tankering	In an extreme drought water could be transferred within YWS' supply area, and from other companies, if any customers supplies were at risk of running out. In line with the rest of the industry, YWS would use this option primarily only for smaller, isolated, rural areas and in relatively low volumes and numbers. The option would likely be used in areas where network limitations prevent support from other assets and WTWs across the company area.	Level 3 actions in place and reservoir stocks one to two weeks from the DCL. Would be linked to network and need during drought conditions. No regrets actions if localised and combined
18	Grid SWZ + East SWZ	Network changes	As an option for transfer of treated water and an alternative to tankering, YWS supply network could be extended in parts to transfer water to areas at risk. This could be through use of overland pipes where required. This could also be combined with package plant options where a source is identified which can be fed into the existing local transfer network.	Level 3 actions in place and reservoir stocks one week from the DCL. Would be linked to network and need during drought conditions.

1.4.5 Drought Option Implementation & role of SEA

In its DP 2022, Yorkshire Water set out the triggers that would lead to implementation of each of the drought options. These has been reviewed as part of the DP 2027 preparation. These triggers are based on specified monthly water storage volumes in appropriate groupings of reservoirs namely, Drought “Control Lines”. Preceding actions are also set out that would occur in advance of the option being implemented (for example, a temporary use ban would be in place prior to applying for a drought permit for the Ouse increase abstraction in the months of April to September). Not all options would necessarily be required in any particular drought:

the options required will be dependent on the geographical extent, magnitude, time of year and duration of a drought event.

Most of the options would only be contemplated once reservoir storage falls close to the relevant Drought Control Line for each reservoir storage group. For example, the temporary use ban would be implemented if projected storage 6 weeks ahead is forecast to cross the Drought Control Line; drought orders or permits would be applied for if storage approaches the Drought Control Line. There is a progressive and sequential approach to option implementation, with those options having the least impact on customers and/or the environment being implemented first whilst those that have the greatest impact would only be implemented in the event of a very severe drought event (a drought of greater magnitude than any previously experienced drought event).

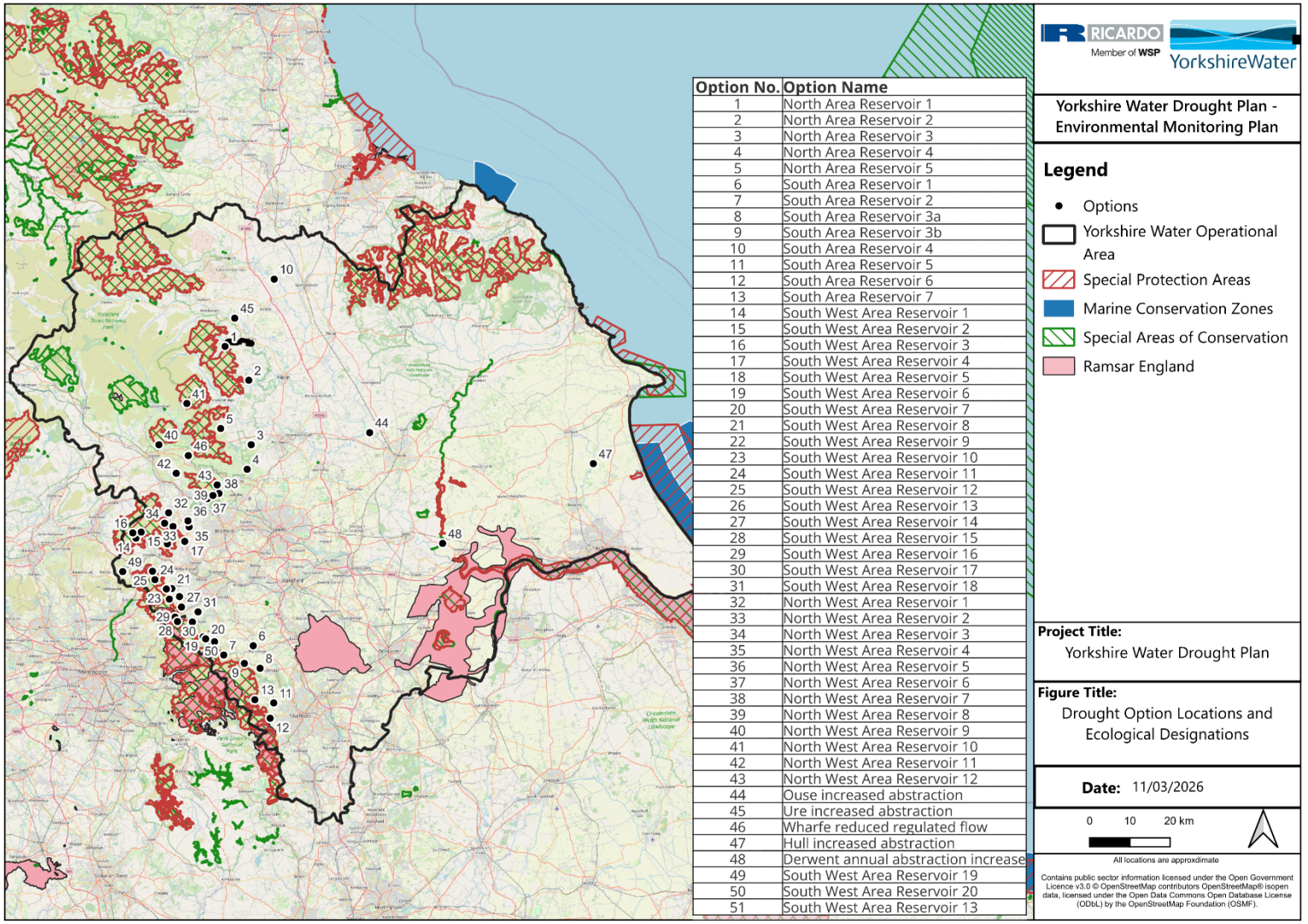
The SEA assessment of each of these options and their cumulative impacts provides a consistent and relative assessment of the impact of each option to inform the consideration of the appropriate sequencing of option implementation, alongside other factors such as practicability, risks to drinking water quality and security risks. Some drought options may have different environmental effects depending on the season of implementation (for example, summer compared to winter).

As drought measures may be required at any time of year, impacts are assessed on a precautionary worst-case basis where appropriate.

1.4.6 Supporting Information

Drought options included in the SEA and HRA screening will be documented by Yorkshire Water in the DP 2027. Yorkshire Water will include a high-level summary of the environmental assessments in the main DP along with the full technical details of the assessments, mitigation measures and monitoring plans as technical appendices, as specified by the Drought Plan Guideline.

Environmental assessment studies of Yorkshire Water's drought permit / order sites have been carried out and information from these studies have been used to inform the SEA and HRA (see **Section 1.5**).



Option No.	Option Name
1	North Area Reservoir 1
2	North Area Reservoir 2
3	North Area Reservoir 3
4	North Area Reservoir 4
5	North Area Reservoir 5
6	South Area Reservoir 1
7	South Area Reservoir 2
8	South Area Reservoir 3a
9	South Area Reservoir 3b
10	South Area Reservoir 4
11	South Area Reservoir 5
12	South Area Reservoir 6
13	South Area Reservoir 7
14	South West Area Reservoir 1
15	South West Area Reservoir 2
16	South West Area Reservoir 3
17	South West Area Reservoir 4
18	South West Area Reservoir 5
19	South West Area Reservoir 6
20	South West Area Reservoir 7
21	South West Area Reservoir 8
22	South West Area Reservoir 9
23	South West Area Reservoir 10
24	South West Area Reservoir 11
25	South West Area Reservoir 12
26	South West Area Reservoir 13
27	South West Area Reservoir 14
28	South West Area Reservoir 15
29	South West Area Reservoir 16
30	South West Area Reservoir 17
31	South West Area Reservoir 18
32	North West Area Reservoir 1
33	North West Area Reservoir 2
34	North West Area Reservoir 3
35	North West Area Reservoir 4
36	North West Area Reservoir 5
37	North West Area Reservoir 6
38	North West Area Reservoir 7
39	North West Area Reservoir 8
40	North West Area Reservoir 9
41	North West Area Reservoir 10
42	North West Area Reservoir 11
43	North West Area Reservoir 12
44	Ouse increased abstraction
45	Ure increased abstraction
46	Wharfe reduced regulated flow
47	Hull increased abstraction
48	Derwent annual abstraction increase
49	South West Area Reservoir 19
50	South West Area Reservoir 20
51	South West Area Reservoir 13

Figure 1-4: Option locations and ecological designations considered within DP 2027t

1.5 DROUGHT CONTINGENCY PLANNING ENVIRONMENTAL ASSESSMENT REPORTS

Environmental Assessment Reports (EARs) have been prepared for the drought permits / order sites identified in **Table 1-3**, to support Yorkshire Water's DP 2027.

The aim of these studies was to produce EARs that have been agreed with the Environment Agency and Natural England, such that in the event of a drought, they are readily available for update based on the prevailing drought situation at that time. These environmental studies consider all potentially affected habitats and species including, but not limited to, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites as well as Site of Special Scientific Interest (SSSI) or species/habitats of principal importance for the conservation of biodiversity in England (identified in the Natural Environment and Rural Communities (NERC) Act 2006 Section 41). The reports also include Environmental Monitoring Plan (EMP) recommendations for each drought permit/order site.

These environmental studies, undertaken outside of an actual drought event, are intended to be used as the basis for the EAR to be prepared in support of a specific drought permit / order application, should the need arise. Information from the assessments will be used to inform the SEA and HRA.

1.6 STAGES OF SEA PROCESS

Table 1-5 is an extract from the Government's SEA guidance[2] that sets out the main stages of the SEA process and the purpose of each task within the process. This Environmental Report represents Stage C, Task C1 of the SEA process

Table 1-5 SEA Stages and Tasks

SEA Stages and Tasks	Purpose
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope	
Task A1. Identifying other relevant plans, programmes and environmental protection objectives	To establish how the plan or programme is affected by outside factors to suggest ideas for how any constraints can be addressed, and to help identify SEA objectives
Task A2. Collecting baseline information	To provide an evidence base for environmental problems, prediction of effects, and monitoring; to help in the development of SEA objectives
Task A3. Identifying environmental problems	To help focus the SEA and streamline the subsequent stages, including baseline information analysis, setting of the SEA objectives, prediction of effects and monitoring
Task A4. Developing SEA Objectives	To provide a means by which the environmental performance of the plan or programme and alternatives can be assessed
Task A5. Consulting on the scope of the SEA	To ensure the SEA covers the likely significant environmental effects of the plan or programme
Stage B: Developing and refining alternatives and assessing effects	
Task B1. Testing the plan or programme objectives against SEA objectives	To identify potential synergies or inconsistencies between the objectives of the plan or programme and the SEA objectives and help in developing alternatives
Task B2. Developing strategic alternatives	To develop and refine strategic alternatives
Task B3. Predicting the effects of the plan or programme, including alternatives	To predict the significant environmental effects of the plan or programme and its alternatives
Task B4. Evaluating the effects of the plan or programme, including alternatives	To evaluate the predicted effects of the plan or programme and its alternatives and assist in the refinement of the plan or programme
Task B5. Mitigating adverse effects	To ensure that adverse effects are identified and potential mitigation measures are considered

SEA Stages and Tasks	Purpose
Task B6. Proposing measures to monitor the environmental effects of plan or programme implementation	To detail the means by which the environmental performance of the plan or programme can be assessed
Stage C: Preparing the Environmental Report	
Task C1. Preparing the environmental report	To present the predicted environmental effects of the plan or programme, including alternatives, in a form suitable for public consultation and use by decision-makers
Stage D: Consulting on the Draft Plan or programme and the Environmental Report	
Task D1. Consulting the public and consultation bodies on the draft plan or programme and the Environmental Report	To give the public and the consultation bodies an opportunity to express their opinions on the findings of the Environmental Report and to use it as a reference point in commenting on the plan or programme To gather more information through the opinions and concerns of the public
Task D2. Assessing significant changes	To ensure that the environmental implications of any significant changes to the draft plan or programme at this stage are assessed and taken into account
Task D3. Making decisions and providing information	To provide information on how the Environmental Report and consultees opinions were taken into account in deciding the final form of the plan or programme to be adopted
Stage E: Monitoring the significant effects of the plan or programme on the environment	
Task E1. Developing aims and methods for monitoring	To track the environmental effects of the plan or programme to show whether they are as predicted; to help identify adverse effects
Task E2. Responding to adverse effects	To prepare for appropriate responses where adverse effects are identified

1.7 STRUCTURE OF ENVIRONMENTAL REPORT

This SEA Environmental Report presents the findings of SEA Tasks B1 to C1 set out in **Table 1-5** and provides the consultation bodies with an opportunity to express their opinions on the findings of the assessment. The report is structured as follows:

Section 1 **Overall purpose** and process of the SEA and background to Yorkshire Water's water supply system and drought planning process. It also gives details of consultation on the SEA.

Section 2 **Policy Context**, provides a review of other policies, plans and programmes which influence the DP 2027.

Section 3 Environmental Baseline Review, sets out the key environmental issues Yorkshire Water has considered in the SEA, drawing on information on the current state of the environment within Yorkshire Water's water supply area.

Section 4 **Methodology**, provides details of the methods employed in undertaking the assessment including the cumulative effects assessment methodology.

Section 5 **Assessment of Drought Options** presents the potential impacts of the various DP 2027 options against the SEA framework.

Section 6 **Cumulative Effects Assessment**, discusses the potential in-combination impacts of drought options (intra-zone and inter-zone), demand management options and other plans and projects in the region.

Section 7 **Mitigation and Monitoring**, discusses measures envisaged to prevent, reduce and offset any significant adverse effects of implementing the DP 2027 and monitoring to track the environmental effects to show whether they are as predicted, to help identify any adverse impacts and trigger deployment of mitigation measures.

1.8 CONSULTATION

1.8.1 Overview

Two opportunities are available for consultation bodies to be formally involved during the SEA process: during the scoping process; and at the environmental reporting stage. These are discussed below.

Following publication of the final DP 2027, Yorkshire Water will prepare an SEA Post-Adoption Statement setting out how the SEA and any views expressed by the consultation bodies or the public have influenced the DP 2027.

1.8.2 Consultation on The Scoping Report

Consultation bodies were invited to express their views on the Scoping Report and the scope of the SEA proposed in accordance with SEA Regulation 12(5).

The Scoping Report was issued on 13 November 2024 to the Environment Agency, Historic England and Natural England. The consultation period ran until 18 December 2024. The Statutory consultees were invited to comment on the report and the proposed scope of the SEA. Comments on the Scoping Report were received from Historic England and Natural England which did not require specific updates to the proposed approach, but which have been taken into account during the preparation of the Environmental Report.

1.8.3 Consultation on The Environmental Report

The Environmental Report of the DP 2027 has been produced in accordance with the approach agreed by Yorkshire Water and taking into consideration the responses received from consultation bodies in response to the Scoping consultation. It provides assessments of the likely significant effects of the drought options considered and selected by Yorkshire Water.

The consultation bodies, as well as the public, are invited to express their views on this Environmental Report and use it as a reference point to express their views on the DP 2027.

Comments should be sent to Yasmina Gallagher either by email: waterresources@yorkshirewater.co.uk

or in writing to the following address:

Yasmina Gallagher
Yorkshire Water
Western House
Western Way
Bradford, BD6 2SZ

1.9 QUALITY ASSURANCE

ODPM Guidance on SEA contains a Quality Assurance checklist to help ensure that the requirements of the SEA Regulations are met. The checklist is reproduced in **Appendix A**, **Table A1**, indicating where this Environmental Report meets the requirement.

2. POLICY CONTEXT

2.1 INTRODUCTION

Schedule 2 of the SEA Regulations requires the Environmental Report to include:

- *"an outline of the…relationship with other plans and programmes"*
- *"the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme"*
- *"the environmental characteristics of areas likely to be significantly affected"*
- *"any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as a European site (within the meaning of regulation 8 of the Conservation and Habitats and Species Regulations 2017 (the 'Habitats Regulations'))*
- *"the environmental protection objectives, established at international, Community or national level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation".*

This Section addresses the requirement to identify and review relevant policies, plans and programmes and environmental protection objectives that may influence or be influenced by DP 2027.

2.2 REVIEW OF POLICIES, PLANS AND PROGRAMMES

One of the first steps in undertaking SEA is to identify other relevant policies, plans, programmes and environmental protection objectives. The review identifies environmental protection objectives which the Drought Plan should consider, highlights environmental constraints and opportunities, ensures consistency with higher level policies, and informs the development of the SEA objectives.

Plans and programmes were identified at international, national, regional, and local levels. Where a plan or programme was not considered likely to influence or be influenced by DP 2027, it was not included.

A summary of the policies, plans, programmes and strategies reviewed is presented in **Table 2-1**. The full review is provided in **Appendix B**. The findings of this review have informed the environmental baseline (**Section 3**), identification of key environmental issues (**Section 3.4.1** - **3.4.8**), and development of the SEA objectives (**Section 4.2**).

The review of policies, plans and programmes shows that DP 2027 must balance the need to secure water supplies during drought with appropriate protection for environmental receptors, particularly designated sites, and water-dependent habitats and species. The SEA framework has been developed to reflect these policy drivers and ensure alignment with statutory environmental protection objectives.

Table 2-1: Key Policy Messages derived from the review of Plans, Policies, Programmes and Strategies

SEA Topic	Key Messages	Policies
Biodiversity, Flora & Fauna	Conservation and enhancement of the natural environment and of biodiversity, principally designated sites (international and national) and priority habitats and species, whilst considering climate change and ability to adapt.	**International:** Convention on Biological Diversity (2022) Kunming-Montreal Global Biodiversity Framework (GBF) Council of Europe (1979) The Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention) Council of Europe (1979) The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) European Commission, Birds Directive (2009/147/EC) Ramsar Convention (1971), The Convention on Wetlands of International Importance United Nations, Convention on Biological Diversity (CBD) (1992) **National:** Centre for Environment Fisheries and Aquaculture Science and Natural Resources Wales (2025) Assessment of Salmon Stocks and Fisheries in England and Wales 2024 Defra (2010), Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network Defra (2010) Eel Management Plans for the United Kingdom: Overview for England and Wales UK Government / Defra (2023) Environmental Improvement Plan (EIP) 2023 Defra (2011) UK National Ecosystem Assessment and Defra, 2014, UK National Ecosystems Assessment Follow on, Synthesis of Key Findings Defra (2023) Complying with the biodiversity duty (Environment Act 2021 updated duty) Environment Agency and Defra (2025) Water company drought plan guideline 2025 Defra (2013) What nature can do for you Defra (2015) The government's response to the Natural Capital Committee's third State of Natural Capital report Defra (2020) Enabling a Natural Capital Approach (ENCA) Defra (2023) The Great Britain Invasive Non-Native Species Strategy: 2023 to 2030 Environment Agency (undated) Hydroecology: Integration for modern regulation Environment Agency (undated) WFD River Basin Characterisation Project HM Government (1975) Salmon and Freshwater Fisheries Act 1975 HM Government (1981) Wildlife and Countryside Act 1981 HM Government (1990) Environmental Protection Act 1990 UK Government (2012) UK Post-2010 Biodiversity Framework HM Government (2000) Countryside and Rights of Way (CROW) Act 2000
	Promote a catchment-wide or landscape-scale approach to biodiversity management to ensure better protection of the natural environment and heritage.	
	To achieve favourable condition for priority habitats and species, including UK NERC habitats and species.	
	Avoidance of activities likely to cause irreversible damage to nature conservation and natural heritage.	
	Recognise the wider benefits of eco-system services through support for well-functioning ecosystems, respect environmental limits and capacities, and maintain/enhance coherent ecological networks, including provision for fish passage and connectivity for migratory/mobile species.	
	Strengthen the connections between people and nature and realise the value of biodiversity.	
	Recognise importance of natural capital in supporting current and future development and seek to ensure	

SEA Topic	Key Messages	Policies
	natural capital is properly taken into account in all decision-making.	HM Government (2006) Natural Environment and Rural Communities Act 2006 HM Government (2009) The Aquatic Animal Health (England and Wales) Regulations 2009 HM Government (2009) The Eel (England and Wales) Regulations 2009 HM Government (2009) Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 HM Government (2009) Marine and Coastal Access Act 2009 HM Government (2010) The Marine Strategy Regulations 2010 HM Government (2011) UK Marine Policy Statement HM Government (2017) The Conservation of Habitats and Species Regulations 2017 HM Government (2017) The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 HM Government (2019) the Invasive Alien species (Enforcement and Permitting) Order 2019 HM Government (2021) Environment Act 2021 MHCLG (2024) National Planning Policy Framework Natural England (2016) A narrative for conserving freshwater and wetland habitats in England Natural England (2016) Conservation 21: Natural England's conservation strategy for the 21st century Natural England and the Environment Agency (2014) Protected Species and Development: Advice for Local Planning Authorities UKTAG on the WFD e.g. Phase 3 Review of Environmental Standards **Regional/Sub-regional:** Canal & Rivers Trust (2015) North East Waterway Fisheries & Angling Action Plan Environment Agency (2022) Humber River Basin Management Plan Environment Agency (2022) Northumbria River Basin Management Plan Environment Agency (various) Abstraction Licensing Strategies (CAMS) process Biodiversity Action Plans (various) Leeds City Region (2017) Green and Blue Infrastructure Strategy Local Wildlife Trust Strategies (various) Local Authorities (various) Local Nature Recovery Strategies Natural England (various) Site of Special Scientific Interest (SSSI) Monitoring Specifications Natural England (various) European Site Conservation Objectives for Special Conservation Areas (SACs) and Special Protection Areas (SPAs) Natural England (2014) Site Improvement Plans (SIPs) for Natura 2000 Sites
	A need to protect and, where possible, enhance the blue green infrastructure network, including green spaces and other environmental features.	
	To seek opportunities for biodiversity net gain from infrastructure development.	
	Avoidance of activities likely to increase the risk of spread of Invasive Non-Native Species (INNS).	

SEA Topic	Key Messages	Policies
		Natural England National Character Area (NCA) Profiles Natural England and Environment Agency (various) River Restoration and Water Level Management Plans National Park Management Plans (various)
Population & Human Health	Water resources play an important role in recreation. A reliable and wholesome water supply is vital to public health protection. Effective water resource management can create opportunities for regeneration, tourism and the wider economy. The issue of water supply is becoming a development constraint in some areas, which is recognised as an issue in the National Planning Policy Framework. To ensure all communities have a clean, safe and attractive environment in which people can take pride. To ensure reliable and sustainable supplies of water are maintained for all. Increase awareness around the value and health benefits of water and encourage its sustainable use.	**International:** European Commission (2018) Directive (EU) 2018/850 amending Directive 1999/31/EC on the landfill of waste United Nations Economic Commission for Europe (1998), Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (The Aarhus Convention) United Nations (2002) The World Summit on Sustainable Development. United Nations (2015) The 2030 Agenda for Sustainable Development World Commission on Environment and Development (1987) Our Common Future (The Brundtland Report) World Health Organisation (2004) Children's Environment and Health Action Plan for Europe **National:** Defra (2011) Water for Life -Water White Paper UK Government / Defra (2023) Environmental Improvement Plan 2023 Defra (2013) What nature can do for you Defra (2015) The government's response to the Natural Capital Committee's third State of Natural Capital report Defra, Environment Agency, Natural England, Forestry Commission England (2016) Creating a great place for living Ministry of Housing, Communities & Local Government (MHCLG) (2024) National Planning Policy Framework Environment Agency (2020) Meeting our future water needs: a national framework for water resources Environment Agency, Office for Water Services and Natural Resources Wales (2023) Water resources planning guideline HM Government (1990) Environmental Protection Act HM Government (2006) The Environmental Noise (England) Regulations 2006 HM Government (2010) The Air Quality Standards Regulations 2010 HM Government (2011) Localism Act 2011 HM Government (2015) The Environmental Damage (Prevention and Remediation) (England) Regulations 2015 HM Government (2016) Environmental Permitting (England and Wales) Regulations 2016 (as amended 2018) HM Government (2016) The Water Supply (Water Quality) Regulations 2016 HM Government (2017) The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 HM Government (2021) Environment Act 2021 National Infrastructure Commission (2018) Preparing for a Drier Future, England's Water Infrastructure Needs Water UK (2022) Water 2050 – A White Paper

SEA Topic	Key Messages	Policies
		Regional/Local: Leeds City Region (2017) Green and Blue Infrastructure Strategy Leeds City Region Enterprise Partnership & West Yorkshire Combined Authority (2016) Leeds City Region Strategic Economic Plan, 2016-2036 Local Planning Authority (various) Local Plans/Local Development Plans Public Rights of Way Improvement Plans (ROWIPs) West Yorkshire Combined Authority, Various Projects
Material Assets & Resource Use	Promote sustainable production and consumption whilst seeking to reduce the amount of waste generated by using materials, energy and water more efficiently	**International:** European Commission (2018) Directive (EU) 2018/850 amending Directive 1999/31/EC on the landfill of waste United Nations (2002) The World Summit on Sustainable Development United Nations (2015) The 2030 Agenda for Sustainable Development **National:** Canal and River Trust (2015) Water Resources Strategy 2015 – 2020 DESNZ and BEIS (2020) Energy white paper: Powering our net zero future DESNZ and BEIS (2021) Heat and buildings strategy DESNZ and BEIS (2021) Net Zero Strategy: Build Back Greener Defra (2011) Future Water – The Government's Water Strategy for England (updated version) Defra and the Environment Agency (2018) Resources and Waste Strategy for England Defra (2012) National Policy Statement for Waste Water Defra (2020) Water abstraction plan: Environment Defra (2021) Waste Management Plan for England Defra (2023) Environmental Improvement Plan 2023 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government) (2014) National Planning Policy for Waste Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2015) Renewable and Low Carbon Energy Environment Agency (2020) Meeting our future water needs: a national framework for water resources HM Treasury (2015) Fixing the Foundations: creating a more prosperous nation. HM Government (1994) Urban Waste Water Treatment (England and Wales) Regulations 1994 HM Government (2020) Energy White Paper: Powering our Net Zero Future HM Government (2021) Environment Act 2021 HM Treasury (2020) Natural Infrastructure Strategy
	Consider issues of water demand, water supply and water quality in the natural environment and ensure a sustainable use of water resources	
	Maintain a reliable public water supply and ensure there is enough water for human uses, as well as providing an improved water environment	
	Accelerating the transition to sustainable forms of energy and achieving regional renewable energy deployment targets	
	Minimise the production of waste, ensure waste management is in line with the 'waste hierarchy', and eliminate waste sent to landfill.	

SEA Topic	Key Messages	Policies
		JNCC and Defra (2012) UK Post-2010 Biodiversity Framework **Regional/Local:** National Park Management Plans (various) Water Company (various) Drought Plans adjacent to supply area Yorkshire Water Services Ltd, Final Water Resources Management Plan 2024
Water	Reduce the sources of flooding and harm to people, and the natural, built and historic environment caused by floods and promote sustainable flood risk management measures Promote sustainable water resource management, including a reduction in water consumption Maintain and improve water quality (surface waters, groundwater and bathing waters) Expanding the scope of water protection to all waters, surface waters and groundwater Improve the quality of the water environment and the ecology which it supports, and continue to provide high levels of drinking water quality Ensure appropriate management of abstractions and protect flow and level	**International:** United Nations (2002) The World Summit on Sustainable Development United Nations (2015) The 2030 Agenda for Sustainable Development **National:** Canal and River Trust (2015) Water Resources Strategy 2015 – 2020 Canal & River Trust (2015) Living Waterways Transform Places & Enrich Lives: Our 10 Year Strategy Centre for Environment Fisheries and Aquaculture Science and Natural Resources Wales (2021) Assessment of Salmon Stocks and Fisheries in England and Wales in 2020 Defra (2005) Making space for water Defra (2006) Shoreline Management Plan Guidance Defra (2011) Future Water – The Government's Water Strategy for England (updated release) Defra (2011) Water for Life - Water White Paper Defra (2012) National Policy Statement for Waste Water Defra and Welsh Government (2014) River Basin Planning Guidance Defra (2015) The government's response to the Natural Capital Committee's third State of Natural Capital report Defra (2018) Farming rules for water – getting full value from fertilisers and soil Defra (2021) Drought: how water companies plan for dry weather and drought Defra (2022) UK Climate Change Risk Assessment 2022 Defra (2023) National Policy Defra (undated) Drought Plan Direction Defra (2023) Environmental Improvement Plan 2023 Statement for Water Resources Infrastructure Environment Agency (2020) Meeting our future water needs: a national framework for water resources Environment Agency (2013), Managing Water Abstraction Environment Agency (2020) National Flood and Coastal Erosion Risk Management Strategy for England

SEA Topic	Key Messages	Policies
	variability across the full range of regimes from low to high conditions	Environment Agency CAMS (various) Environment Agency Catchment Flood Management Plans Environment Agency and other lead authorities Shoreline Management Plans Environment Agency, Office for Water Services and Natural Resources Wales (2023) Water resources planning guideline HM Government (1975) Reservoirs Act HM Government (1975) Salmon and Freshwater Fisheries Act 1975 HM Government (1991) Water Industry Act 1991 was amended by the commencement of Section 36 of the Flood and Water Management Act 2010 HM Government (1994) Urban Waste Water Treatment (England and Wales) Regulations 1994 HM Government (2007) Water Resources Management Plan Regulations 2007 HM Government (2009) The Flood Risk Regulations 2009 HM Government (2009) The Groundwater (England and Wales) Regulations 2009 HM Government (2009) The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 HM Government (2010) Flood and Water Management Act 2010 HM Government (2011) UK Marine Policy Statement HM Government (2012) Marine Strategy HM Government (2013) The Bathing Water Regulations 2013 HM Government (2014) Water Act 2014 HM Government (2015) The Nitrate Pollution Prevention Regulations 2015 HM Government (2015) The Environmental Damage (Prevention and Remediation) (England) Regulations 2015 HM Government (2016) Environmental Permitting (England and Wales) Regulations 2016 (as amended 2018) HM Government (2016) The Water Supply (Water Quality) Regulations 2016 HM Government (2017) The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 HM Government (2020) The Agriculture Act 2020 HM Government (2021) Environment Act 2021 Natural England (2016) A narrative for conserving freshwater and wetland habitats in England Natural Resources Wales (2024) Water company drought plan – technical guidance Ofwat (2016) Water 2020 Ofwat (2017) Resilience in the Round UKTAG: Phase 3 Review of Environmental Standards
	Encourage more efficient use of water and promote awareness of water sustainability.	

SEA Topic	Key Messages	Policies
		Water Resources Management Plans and Drought Plans from adjacent water companies to Yorkshire Water assessment area Waterwise (2017) Water Efficiency Strategy for the UK Water UK (2022) Water 2050 – A White Paper **Regional/Local:** Neighbouring water company WRMPs (2024) and Drought Plans (2022) Environment Agency (2022) River basin flood risk management plans 2021-2027 (Humber and Northumbria) Environment Agency (2022) River Basin Management Plans (Humber and Northumbria) Environment Agency, Abstraction Licensing Strategies (CAMS process) (various) Leeds City Region (2017) Green and Blue Infrastructure Strategy National Park Authorities Management Plans (various) Yorkshire Water Services Ltd, Final Water Resources Management Plan 2024 Water Level Management Plans and River Restoration Plans (various)
Soil, Geology & Land Use	Maintain the quality and diversity of geology and soils, which can be lost or damaged by insensitive development	**International:** European Commission (2018) Directive (EU) 2018/850 amending Directive 1999/31/EC on the landfill of waste United Nations (2002) The World Summit on Sustainable Development. **National:** Defra (2004) Rural Strategy 2004 Defra (2009) Safeguarding our Soils – A Strategy for England Defra (2018) Farming rules for water – getting full value from fertilisers and soil Defra (2020) National food strategy for England Defra (2020) The Path to Sustainable Farming: An Agricultural Transition Plan 2021 to 2024 Defra (2023) Environmental Improvement Plan 2023 Environment Agency (2007) Soil: a precious resource Ministry of Housing, Communities & Local Government (MHCLG) (2023) National Planning Policy Framework HM Government (1981) Wildlife and Countryside Act 1981 HM Government (2006) Natural Environment and Rural Communities Act 2006 HM Government (2015) The Nitrate Pollution Prevention Regulations 2015 HM Government (2020) The Agriculture Act 2020
	Ensure that soils will be protected and managed to optimise the varied functions that soils perform for society (e.g. supporting agriculture and forestry, protecting cultural heritage, supporting biodiversity, as a platform for construction), in keeping with the principles of sustainable development.	
	Promote catchment-wide approach to land use management in order to benefit natural resources, reduce pollution and develop resilience to climate change.	
	Promote mixed use developments and encourage multiple benefits from the use of land in urban and rural areas,	

SEA Topic	Key Messages	Policies
	recognising that some open land can perform many functions.	HM Government (2021) Environment Act 2021 National Assembly for Wales (2016) Environment (Wales) Act 2016 Natural England (2011) UK Geodiversity Action Plan **Regional/local:** Natural England - National Character Area (NCA) profiles Local Geodiversity Action Plans (LGAPs) Local Planning Authority (various) Local Plans/Local Development Plans National Park Authorities Management Plans (various) West Yorkshire Combined Authority, Various Projects
Air & Climate	To reduce the health risk and environmental degradation from main air pollutants without imposing unacceptable economic or social costs	**International:** The Paris Agreement (2016), The Cancun Agreement (2011) & Kyoto Agreement (1997) European Commission (2024) Directive (EU) 2024/2881 on ambient air quality and cleaner air for Europe European Commission (2018) Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources (RED II) European Commission (2005) Thematic Strategy on Air Pollution European Commission (2016) National Emissions reduction Commitments (NEC) Directive 2016/2284/EU European Commission (2008) Ambient Air Quality and Cleaner Air for Europe Directive 2008/50/EC Air Quality **National:** DESNZ (2023) National Policy Statements for energy infrastructure DESNZ and BEIS (2020) Energy white paper: Powering our net zero future DESNZ and BEIS (2021) Heat and buildings strategy DESNZ and BEIS (2021) Net Zero Strategy: Build Back Greener Department for Transport (2022) UK Electric Vehicle Infrastructure Strategy Defra (2007) The Air Quality Strategy for England, Scotland and Wales Defra (2008), England Biodiversity Strategy –climate change adaptation principles Defra (2011) Future Water – updated water strategy for England Defra (2007) Conserving Biodiversity in a Changing Climate: Guidance on Building Capacity to Adapt Defra (2013) The National Adaptation Programme – Making the Country Resilient to a Changing Climate Defra (2017) Air Quality Plan for Nitrogen Dioxide (NO2) in UK
	Cut the UK's carbon dioxide emissions by at least 100% by the year 2050, including through the contributions being made by water companies to reduce GHG emissions associated with water supply.	
	Reduce the effects of air pollution on ecosystems.	
	Improve overall air quality	
	Sustain compliance with and contribute national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas.	
	Minimise energy consumption, support the use of	

SEA Topic	Key Messages	Policies
	sustainable/renewable energy and improve resilience to climate change.	Defra (2023) Environmental Improvement Plan 2023 Defra (2024) Understanding climate adaptation and the third National Adaptation Programme (NAP3)
	Build in adaption to climate change to future planning and consider the level of urgency of associated risks of climate change impacts accordingly.	Defra, Department of the Environment (NI), Scottish Government and Welsh Assembly Government (2010) Air Pollution: Action in a Changing Climate English Heritage, now known as Historic England (2008) Climate Change and the Historic Environment The Historic Environment Group (2018) Historic Environment and Climate Change Sector Adaption Plan Historic England (2022) Climate change adaptation report HM Government (2006) Climate Change and Sustainable Energy Act 2006 HM Government (2010) The Air Quality Standards Regulations 2010 HM Government (2015) Ozone-Depleting Substances Regulations 2015 HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment HM Government (2020) Energy White Paper: Powering our Net Zero Future HM Government (2021) Environment Act 2021 HM Government (2022) UK Climate Change Risk Assessment 2022 HM Government (2023) The Energy Act 2023 Natural England National Character Area (NCA) Profiles The Climate Change Act 2008 UKCIP (2018) UK Climate Projections UKCP18 **Regional/Local:** Yorkshire Water Services Ltd, Final Water Resources Management Plan 2024 Leeds City Region (2017) Green and Blue Infrastructure Strategy Leeds City Region Enterprise Partnership & West Yorkshire Combined Authority (2016) Leeds City Region Strategic Economic Plan, 2016-2036 Local Planning Authority (various) Local Plans/Local Development Plans West Yorkshire Combined Authority, Various Projects
Archaeology & Cultural Heritage	Protection and enhancement of historic assets and their settings, particularly those of international and national importance	**International:** Council of Europe (1985) Convention for the Protection of the Architectural Heritage of Europe (Granada Convention) Council of Europe (1992) Valletta Convention on Protection of Archaeology UNESCO / ICCROM / ICOMOS / IUCN (2022) Guidance and Toolkit for Impact Assessments in a World Heritage Context UNESCO (1972) Convention Concerning the Protection of the World Cultural and Natural Heritage
	Built development in the vicinity of historic buildings could have	

SEA Topic	Key Messages	Policies
	implications for the setting and/or built fabric	UNESCO (2001) Convention on the Protection of Underwater Cultural Heritage **National:** Department for Culture, Media and Sport (DCMS) (2001) The Historic Environment – A Force for the Future DCMS and Welsh Government (2007) Heritage Protection for the 21st Century DCMS (2013) Scheduled Monuments & Nationally Important but Non-Scheduled Monuments DCMS (2016) The Culture White Paper Defra (2011) The Natural Choice: securing the value of nature, The Natural Environment White Paper MHCLG (2024) National Planning Policy Framework Historic England (various) Heritage at Risk Historic England (2015) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning 3 Historic England (2016) Historic England Advice Note 8: Sustainability Appraisal and Strategic Environmental Assessment Historic England (2022) Climate change adaptation report Historic England (2022) Heritage and Climate Change Historic England (2024) Heritage Counts: Historic Environment Overview 2023-24 The Historic Environment Group (2018) Historic Environment and Climate Change Sector Adaption Plan HM Government (1953) Historic Buildings and Ancient Monuments Act 1953 HM Government (1973) Protection of Wrecks Act 1973 HM Government (1979) Ancient Monuments and Archaeological Areas Act 1979 HM Government (1990) Planning (Listed Buildings and Conservation Areas) Act 1990 HM Government (2002) The National Heritage Act 2002 Defra (2023) Environmental Improvement Plan 2023 HM Government (2021) Environment Act 2021 **Regional/Local:** National Landscape (formerly AONB) Management Plans (various) Historic England (2023) Heritage at Risk Registers: Yorkshire National Park Authorities Management Plans (various) World Heritage Site Management Plans (various)
	Ensure any adverse effects to heritage should be minimised or avoided altogether, particularly to World Heritage Sites	
	Ensure active management of the Region's environmental and cultural assets	
	Promote heritage and landscape as central to the culture of the region and conserve and enhance distinctive characteristics of landscape and settlements, particularly in the Peak District, North York Moors and Yorkshire Dales National Parks.	
Landscape & Visual	Protection and enhancement of urban and rural landscapes (including designated landscapes, landscape character and the countryside).	**International:** Council of Europe (2000) European Landscape Convention (Florence Convention) National:

SEA Topic	Key Messages	Policies
	Take account of the different roles and character of different areas, promoting the vitality of main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it.	Defra (2011) The Natural Choice: Securing the value of nature. The Natural Environment White Paper MHCLG (2024) National Planning Policy Framework Defra (2010) Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network Defra (2004) Rural Strategy HM Government (1981) Wildlife and Countryside Act 1981 HM Government (2000) Countryside and Rights of Way (CROW) Act 2000 Historic England (2015) Historic Environment Good Practice Advice in Planning Note 3 HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment Wildlife and Countryside Act 1981 (as amended) **Regional/Local:** Historic England (2023) Heritage at Risk Registers: Yorkshire & North East) Leeds City Region (2017) Green and Blue Infrastructure Strategy Natural England - National Character Area (NCA) profiles National Landscape (formerly AONB) Management Plans (various) World Heritage Site Management Plans (various) National Park Authorities Management Plans (various) Site Improvement Plans: Yorkshire and Humber http://publications.naturalengland.org.uk/category/5171232873906176) West Yorkshire Combined Authority, Various Projects
	Promote landscape as central to the culture of the region and conserve and enhance distinctive characteristics of landscape and settlements, particularly in the Peak District, North York Moors and Yorkshire Dales National Parks	
	Enhance the value of the countryside by protecting the natural environment for this and future generations.	
	Ensure good access to valued areas of landscape character in sustainable ways to enhance its enjoyment and value by visitors and stakeholders. This includes protecting National trails and Public Rights of Way.	

3. ENVIRONMENTAL BASELINE REVIEW

3.1 INTRODUCTION

This Section presents the environmental baseline relevant to DP 2027 and fulfils the requirements of Schedule 2 of the SEA Regulations to describe:

- The current state of the environment.
- The likely evolution of the baseline in the absence of the Plan (future baseline).
- The environmental characteristics of areas likely to be significantly affected.
- Existing environmental problems relevant to the Plan.

Full environmental baseline data is presented in **Appendix C.** The baseline has been informed by:

- Review of plans, policies and programmes (**Section 2.2**).
- Published datasets and monitoring information.
- Environmental Assessment Reports (EARs) prepared for drought permit/ drought order sites.
- Information provided through consultation responses.

This Section summarises the key baseline findings relevant to the SEA. Yorkshire Water are still reviewing potential extreme (long-term) options which are unlikely to expand outside of the Yorkshire area.

3.2 ASSUMPTIONS AND LIMITATIONS

The baseline information has relied on the most recent publicly available datasets at the time of assessment.

Most of the information used in the baseline information is at the regional scale and may not capture more localised issues, such as locally important sites for recreation or any localised differences in environmental quality. Regional data has generally been sourced from national or regional bodies to allow for comparison between the regional and national averages; however, these data sets are outdated in some cases.

There are also challenges in extrapolating information from data collated at different spatial resolutions. Spatial data have been obtained for most SEA topics, and the baseline is presented graphically as mapped information where appropriate. In some cases, reporting cycles mean that available datasets are dated. In addition, drought impacts are inherently variable and depend on changing hydrological conditions. Where uncertainty exists, a precautionary approach has been adopted in the assessment.

3.3 OVERVIEW

The Yorkshire Water region has a varied landscape with the Pennines stretching to the West, the North York Moors are in the North whilst the southern and eastern parts of the region are low lying. Annual average rainfall across the region varies; highest near the Pennines, whilst low lying areas average less than half the volume of rainfall each year, with little seasonal variation.

Urban areas in the west and south of Yorkshire are principally supplied from reservoirs in the Pennines. Reservoirs located in the Pennines and the valleys of the River Don, Aire, Wharfe, Calder, Nidd and Colne provide the largest upland sources of water in the region. Yorkshire Water operates over 100 impounding reservoirs of which two are major pumped storage reservoirs. The total storage capacity of all the supply reservoirs amounts to some 160,000 million litres (Ml).

The supply area encompasses a wide range of nationally and internationally designated environmental sites, including Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites, Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Marine Conservation Zones (MCZs), and Local Nature Reserves (LNRs).

The Yorkshire Water region is currently divided into two WRZs for planning purposes (Figure 1-3). Each zone represents a group of customers who receive the same level of service for water supply reliability from either groundwater or surface water sources. The Grid Surface Water Zone (SWZ) represents a highly integrated

surface and groundwater zone that is dominated by the operation of lowland rivers and Pennine reservoirs. The East SWZ is supplied by a river abstraction and springs in the Whitby Area.

Overall, the water environment is a particularly sensitive receptor given the nature of drought options, which may influence surface water flows, groundwater levels, and other water-dependent receptors.

3.4 KEY ISSUES

3.4.1 Biodiversity, Fauna & Flora Key Issues

The key sustainability issues arising from the baseline assessment for biodiversity are:

- The need to protect or enhance biodiversity, ecological functions and biodiversity connectivity within Yorkshire Water's supply and source areas, particularly protected sites designated for nature conservation.
- The need to avoid activities likely to cause irreversible damage to natural heritage.
- The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors.
- The need to ensure that drought plan measures do not hinder delivery of wider Nature Recovery objectives, including the restoration of freshwater systems and non-designated habitats (e.g., lowland peat), which depend on sufficient water availability to support ecological recovery.
- The need to control the spread of Invasive Non-Native Species (INNS).
- The need to recognise the importance of allowing wildlife to adapt to climate change.
- The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of the ecosystem services.

3.4.2 Population & Human Health Key Issues

The key sustainability issues arising from the baseline assessment for population and human health are:

- The need to ensure essential water supplies are safeguarded to all communities to protect public health and economic activity.
- The need to ensure public awareness of drought conditions and importance of maintaining resilient, reliable public water supplies without the need for emergency drought measures.
- The need to ensure water quantity and quality is maintained for other users including tourists, recreational users and for other sector uses (e.g. agriculture)
- The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists, including opportunities for access to recreation resources and the natural and historic environment.
- The need to ensure the conservation and enhancement of sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way which contribute to recreation and tourism opportunities and subsequently health and well-being and the economy.
- The need to promote the health benefits of drinking water and efficient use of water.

The implications of a changing population on material assets and resource use, including water resources, are considered in Section 3.4.3 below.

3.4.3 Material Assets & Resource Use Key Issues

The key sustainability issues arising from the baseline assessment for material assets and resource use are:

- The need to minimise the consumption of resources, including water and energy.
- The need to reduce the total amount of waste produced in the region, from all sources, and to reduce the proportion of this waste sent to landfill.
- The need to continue to reduce leakage from the water supply system.

- Daily consumption of water is higher than the national average in the area and consequently there is a continued need to encourage more efficient water use.

3.4.4 Water Key Issues

The key issues arising from the baseline assessment for water are:

- The need to further improve the quality of the region's river, lake, estuarine and coastal waters.
- The need to maintain the quantity and quality of groundwater resources.
- The need to manage and operate water resources sustainably to protect flow and level variability in rivers and groundwater
- The need to improve the resilience, flexibility and sustainability of water resources in the region, particularly in light of potential climate change impacts on surface waters and groundwater.
- The need to ensure a continual and reliable water supply to support other sectors.
- The need to ensure that people understand the value of water.

Flooding is not viewed as a key issue for the SEA water topic in relation to the Drought Plan, because none of the drought options involve the construction of permanent physical infrastructure within areas at risk of flooding.

3.4.5 Soil, Geology & Landscape Key Issues

The key sustainability issues arising from the baseline assessment for soil, geology and land use are:

- The need to protect geological features of importance and maintain and enhance soil function and health.
- The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources).
- The need to make use of previously developed land (brownfield land) and to reduce the prevalence of derelict land in the region.

3.4.6 Air & Climate Key Issues

The key sustainability issues arising from the baseline assessment for air and climate are:

- The need to reduce air pollutant and greenhouse gas emissions arising from construction and operation, including embedded emissions, emissions associated with energy production and vehicle emissions, and to comply with air quality standards.
- The need to mitigate against climate change through the reduction in greenhouse gas emissions in order to contribute to risk reduction over the long term.
- The need to adapt to the impacts of climate change for example through, sustainable water resource management, water use efficiencies, specific aspects of natural ecosystems (e.g. connectivity) as well as accommodating potential opportunities of climate change.

3.4.7 Archaeology & Cultural Heritage Key Issues

The key sustainability issues arising from the baseline assessment for archaeology and cultural heritage are:

- The need to conserve and enhance sites of archaeological importance and cultural heritage interest, and their settings, particularly those which are sensitive to the water environment;
- The need to conserve and enhance the World Heritage Sites within the Drought Plan area;
- The need to have positive strategies for the conservation and enjoyment of the historic environment, particularly for heritage assets that are most at risk of neglect or decay;
- The need to protect water-dependent heritage sites during drought conditions, including important wetland areas with potential for paleoenvironmental deposits

3.4.8 Landscape & Visual Amenity Key Issues

The key sustainability issues arising from the baseline assessment for landscape and visual amenity are:

- The need to protect and improve the natural beauty of the region's National Parks, National Landscapes and other areas of high landscape and visual amenity value.
- The need to minimise any adverse impacts upon landscape that may result from the Drought Plan.
- The need to conserve and enhance landscape character and distinctiveness, taking into account the effects of climate change

3.4.9 Inter-Relationships

Environmental receptors are inter-related. For example, reduced river flows may affect biodiversity, creational use and water quality simultaneously. The SEA therefore considers cumulative and synergistic effects across topics.

4. METHODOLOGY

4.1 INTRODUCTION

This section sets out the methodology used to undertake the SEA of DP 2027. The methodology has been informed by the SEA Regulations, government SEA guidance, UKWIR guidance on SEA of drought plans, and the 2025 Drought Plan Guideline. This methodology reflects the unique characteristics of drought planning, where the specific combination, timing and sequencing of options cannot be predicted in advance.

What the SEA Regulations require according to Regulation 12 of the SEA Regulations:

(2) The report shall identify, describe and evaluate the likely significant effects on the environment of -
- *a) implementing the plan or programme; and*
- *b) reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme*

According to Schedule 2 of the SEA Regulations, the Environmental Report should include:

6. *The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects and secondary, cumulative and synergistic effects...*
8. *An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.*

4.2 ASSESSMENT METHODOLOGY AND SEA FRAMEWORK

The SEA has been undertaken at the level of the individual drought options. Given that the DP 2027 comprises a suite of measures that may be implemented in different combinations depending on drought severity and hydrological conditions, the SEA does not assess fixed packages of measures. Instead, it provides a comparative assessment of the likely significant environmental effects of each option. This approach allows for flexibility in terms of implementation and operation, and a responsive Plan that responds to specific drought triggers and real-time conditions.

The environmental assessments of the drought options are 'objectives-led'. Establishing assessment objectives is a recognised way of considering the environmental effects of a plan and comparing the effects of alternatives. SEA objectives are often derived from environmental objectives established in law, policy or other plans and programmes, or from a review of baseline information and environmental problems (based on the SEA topics listed in **Section 3.4**).

SEA objectives (**Table 4-1**) have been developed based on:

- A review of policies, and other plans and programmes (**Section 2**).
- The environmental baseline and key issues (see **Section 3**).
- Statutory environmental protection objectives.

The SEA objectives provide a framework against which the likely significant effects of each drought option have been assessed.

As well as the overall SEA objectives, a number of key questions have been developed for each SEA topic. These key questions prompt the assessment and ensure it considers all the relevant aspects. The assessment of each option required the following information, some of which was available from the DP 2027 (e.g. Appendix 5):

- Details of each potential drought management measure;
- Likelihood and predicted frequency of deployment of the measure;
- Construction (where applicable) and operational/implementation details;

- Relevant information contained in Environmental Assessment Reports (EARs) relating to drought permit options;
- Benefits to the water supply-demand position in a drought (taking uncertainty into account); and
- Key elements of the baseline environment, such as location of designated sites, priority habitats and species, landscape areas or heritage assets, recreational facilities and other environmental features.

The SEA objectives are not intended to duplicate statutory compliance requirements (e.g. HRA), but to provide a strategic environmental evaluation across all environmental receptors.

Table 4-1 SEA Objectives and Assessment Approach

Topic	Policies, Plans and Programmes Key Messages	Baseline Key Issues	SEA Objectives	Indicator Questions
Biodiversity, Flora & Fauna	Conservation and enhancement of the natural environment and of biodiversity, principally designated sites (international and national) and priority habitats and species, whilst considering climate change and ability to adapt. Promote a catchment-wide or landscape-scale approach to biodiversity management to ensure better protection of the natural environment and heritage. To achieve favourable condition for priority habitats and species, including UK NERC habitats and species. Avoidance of activities likely to cause damage to nature conservation and natural heritage. Recognise the wider benefits of eco-system services through support for well-functioning ecosystems, respect environmental limits and capacities, and maintain/enhance coherent ecological networks, including provision for fish passage and connectivity for migratory/mobile species. Strengthen the connections between people and nature and realise the value of biodiversity. Recognise importance of natural capital in supporting current and future development and seek to ensure natural capital is properly taken into account in all decision-making. A need to protect and, where possible, enhance the blue green infrastructure network, including green spaces and other environmental features. . To seek opportunities for biodiversity net gain from infrastructure development.	The need to protect or enhance biodiversity, ecological functions and biodiversity connectivity within Yorkshire Water's supply and source areas, particularly protected sites designated for nature conservation. The need to avoid activities likely to cause irreversible damage to natural heritage. The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors. The need to ensure that drought plan measures do not hinder delivery of wider Nature Recovery objectives, including the restoration of freshwater systems and non-designated habitats (e.g., lowland peat), which depend on sufficient water availability to support ecological recovery. The need to control the spread of Invasive Non-Native Species (INNS). The need to recognise the importance of allowing wildlife to adapt to climate change. The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species (with particular regard to avoiding the effects of over-abstraction on sensitive sites, habitats and species), enhance ecosystem resilience and habitat connectivity. 1.2 To protect and enhance sustainable natural resources and the ecosystem services they provide and deliver a biodiversity net gain. 1.3 To avoid introducing or spreading INNS.	Will it avoid damage to aquatic, transitional and terrestrial species and habitats including fish populations (particularly migratory fish)? Will it enhance aquatic, transitional and terrestrial species and habitats? Will it protect the most important sites for nature conservation? Will it minimise habitat fragmentation and protect connectivity? Will it provide opportunities for new habitat creation or restoration and link existing habitats? Will it ensure the sustainable management of natural habitats, taking into account climate change adaptability? Will it affect WFD compliance e.g. good ecological potential/status? Will it protect natural capital and ecosystems from natural capital? Will it improve access to nature for people? Will it limit, reduce or increase the risk of spread of spread of Invasive Non-native Species (INNS)?

Topic	Policies, Plans and Programmes Key Messages	Baseline Key Issues	SEA Objectives	Indicator Questions
	Avoidance of activities likely to increase the risk of spread of Invasive Non-Native Species (INNS).	recognising the value of the ecosystem services.		
Population & Human Health	Water resources play an important recreation role. A reliable and wholesome water supply is vital to public health protection. Effective water resource management can create opportunities for regeneration, tourism and the wider economy. The issue of water supply is becoming a development constraint in some areas, which is recognised as an issue in the National Planning Policy Framework. To ensure all communities have a clean, safe and attractive environment in which people can take pride. To ensure reliable and sustainable supplies of water are maintained for all. Increase awareness around the value and health benefits of water and encourage sustainable use.	The need to ensure essential water supplies are safeguarded to all communities to protect public health and economic activity. The need to ensure public awareness of drought conditions and importance of maintaining resilient, reliable public water supplies without the need for emergency drought measures. The need to ensure water quantity and quality is maintained for other users including tourists, recreational users and for other sector uses (e.g. agriculture). The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists, including opportunities for access to recreation resources and the natural and historic environment. The need to ensure the conservation and enhancement of sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way which contribute to recreation and tourism opportunities and subsequently health and well-being and the economy.	2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). 2.2 To protect and enhance opportunities for formal and informal recreation. 2.3 To promote a sustainable economy and thriving communities with good access to the services they need.	Will it help to ensure access to a resilient and secure supply of drinking water? Will it help to protect or improve drinking water quality? Will it raise awareness of the importance and value of the water environment for health and well-being? Will it help to promote healthy communities and protect from risks to health and wellbeing? Will it protect or enhance opportunities for recreation?

Topic	Policies, Plans and Programmes Key Messages	Baseline Key Issues	SEA Objectives	Indicator Questions
		The need to promote the health benefits of drinking water and efficient use of water.		
Material Assets & Resource Use	Promote sustainable production and consumption whilst seeking to reduce the amount of waste generated by using materials, energy and water more efficiently. Consider issues of water demand, water supply and water quality in the natural environment and ensure a sustainable use of water resources. Maintain a reliable public water supply and ensure there is enough water for human uses, as well as providing an improved water environment. Accelerating the transition to sustainable forms of energy and achieving regional renewable energy deployment targets Minimise the production of waste, ensure waste management is in line with the 'waste hierarchy', and eliminate waste sent to landfill.	The need to minimise the consumption of resources, including water and energy. The need to reduce the total amount of waste produced in the region, from all sources, and to reduce the proportion of this waste sent to landfill. The need to continue to reduce leakage from the water supply system. Daily consumption of water is higher than the national average in the area and consequently there is a continued need to encourage more efficient water use.	3.1 To minimise waste, promote resource efficiency and move towards a circular economy. 3.2 To promote efficient water resource management and the sustainable management of natural resources, ensuring water supply for homes and industry in the area is maintained.	Will it help to minimise the demand for water? Will it increase efficiency in water use? Will it minimise greenhouse gas emissions through energy efficiency? Will it minimise waste? Will it enable efficient water resource management and ensure maintenance of supply?
Water	Maintain and improve water quality (surface waters and groundwater). Improve the quality of the water environment and the ecology which it supports, and continue to provide high levels of drinking water quality. Expand the scope of water protection to all waters, surface waters and groundwater. Ensure appropriate management of abstraction and protect flow and level variability across the full range of regimes from low to high conditions.	The need to further improve the quality of the regions river, lake, estuarine and coastal waters. The need to maintain the quantity and quality of groundwater resources. The need to manage and operate water resources sustainably to protect flow and level variability in rivers and groundwaters The need to improve the resilience, flexibility and sustainability of water	4.1 To maintain or improve the quality of surface and groundwater resources. 4.2 To protect and enhance surface and groundwater levels and flows. 4.3 To ensure appropriate and sustainable management of	Will it minimise risks of adverse effects on water quality? Will it prevent the deterioration of WFD waterbody status (or potential)? Will it support the achievement of WFD protected area objectives? Will it ensure a new activity or new physical modification does not prevent the future achievement of good status for a water body?

Topic	Policies, Plans and Programmes Key Messages	Baseline Key Issues	SEA Objectives	Indicator Questions
	Develop a resilient and flexible water management approach to cope with changing climate, population and economic conditions. Balance the abstraction of water for supply with the other functions and services the water environment performs or provides. Encourage more efficient use of water and promote awareness of water sustainability.	resources in the region, particularly in light of potential climate change impacts on surface waters and groundwaters. The need to ensure a continual and reliable water supply to support other sectors. The need to ensure that people understand the value of water.	abstractions (or compensation flow) to maintain water supplies whilst protecting ecosystem functions that rely on water resources, including contributing to the achievement of WFD compliance objectives. 4.4 To promote water efficiency and measures that enable sustainable water use.	Will it affect bathing water compliance? Will it avoid contamination of groundwater? Will it help to minimise risks associated with unsustainable abstraction of ground and surface waters? Will it ensure sustainable abstractions, taking account of water resources availability status? Will it support the achievement of relevant environmental objectives set out in River Basin Management Plans? Will it alter the flow or level regime or residence time of surface waters or groundwaters? Will it enable flexible control over the level of abstraction at short notice in response to changing environmental conditions? Will it enable a sustainable use of water resources that balances demand for water with environmental protection? Will it encourage efficient water use? Will it contribute towards improving the awareness of water sustainability and its true value? Will it achieve an appropriate balance of supply with other functions and services

Topic	Policies, Plans and Programmes Key Messages	Baseline Key Issues	SEA Objectives	Indicator Questions
				(including agriculture, navigation and other sector use)?
Soil, Geology & Land Use	Maintain the quality and diversity of geology and soils, which can be lost or damaged by insensitive development. Ensure that soils will be protected and managed to optimise the varied functions that soils perform for society (e.g. supporting agriculture and forestry, protecting cultural heritage, supporting biodiversity, as a platform for construction), in keeping with the principles of sustainable development. Promote catchment-wide approach to land use management in order to benefit natural resources, reduce pollution and develop resilience to climate change. Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions.	The need to protect geological features of importance and maintain and enhance soil function and health. The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources). The need to make use of previously developed land in urban areas, and to reduce the prevalence of derelict land in the region.	5.1 To protect and enhance the quality and quantity of soils and protect and enhance geodiversity and ensure appropriate and efficient use of land.	Will it avoid damage to and protect geologically important sites (e.g. geological SSSIs) or similar nationally protected sites? Will it protect and enhance geomorphology and geomorphological processes, including avoiding contribution to coastal erosion? Will it avoid damaging the quality of agricultural land? Will it protect, maintain and enhance soil function and health? Will it ensure efficient use of land (e.g. make use of previously developed land)?
Air & Climate	Cut the UK's carbon dioxide emissions by at least 100% by the year 2050, including through the contributions being made by water companies to reduce GHG emissions associated with water supply. Reduce the effects of air pollution on ecosystems. Improve overall air quality. Sustain compliance with and contribute towards national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas.	The need to reduce air pollutant and greenhouse gas emissions arising from construction and operation, including embedded emissions, emissions associated with energy production and vehicle emissions, and to comply with air quality standards. The need to mitigate against climate change through the reduction in greenhouse gas emissions from all sectors of the economy in order to	6.1 To maintain and improve air quality. 6.2 To reduce greenhouse gas emissions. 6.3 To consider the need for adaptive measures for climate change.	Will it reduce or minimise air pollutant emissions? Will it maintain or enhance ambient air quality, keeping pollution below Local Air Quality Management thresholds (e.g., in Air Quality Management Areas or sensitive habitats)? Will it minimise the need for energy? Will it increase efficiency in the use of energy or make use of renewable energy?

Topic	Policies, Plans and Programmes Key Messages	Baseline Key Issues	SEA Objectives	Indicator Questions
	Minimise energy consumption, support the use of sustainable/renewable energy and improve resilience to climate change. Build in adaption to climate change to future planning and consider the level of urgency of associated risks of climate change impacts accordingly.	contribute to climate change risk reduction over the long term. The need to adapt to the impacts of climate change, including through resilience planning, ensuring resilient and sustainable water resource management, active management of specific aspects of natural ecosystems (e.g. connectivity) and accommodating potential opportunities of climate change.		Will it reduce or minimise greenhouse gas emissions? Will it reduce vulnerability or increase resilience to risks associated with climate change effects (e.g. drought)? Will it take into account the need for adaptability to climate change?
Archaeology and cultural heritage	Protection and enhancement of historic assets and their settings, particularly those of international and national importance. Built development in the vicinity of historic buildings could have implications for the setting and/or built fabric. Ensure any adverse effects to heritage should be minimised or avoided altogether, particularly to World Heritage Sites. Ensure active management of the Region's environmental and cultural assets. Promote heritage and landscape as central to the culture of the region and conserve and enhance distinctive characteristics of landscape and settlements, particularly in the Peak District, North York Moors and Yorkshire Dales National Parks.	The need to conserve and enhance sites of archaeological importance and cultural heritage interest, and their settings, particularly those which are sensitive to the water environment; The need to conserve and enhance the World Heritage Sites within the Drought Plan area; The need to have positive strategies for the conservation and enjoyment of the historic environment, particularly for heritage assets that are most at risk of neglect or decay; The need to protect water-dependent heritage sites during drought conditions, including important wetland areas with potential for paleoenvironmental deposits.	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.	Will it avoid damage to and protect the historic environment, heritage assets and their settings, places and spaces that enhance local distinctiveness, landscape/townscape character and appearance? Will it avoid damage to and protect archaeologically important sites? Will it avoid damage to important wetland areas with potential for paleo-environmental deposits?
Landscape and visual amenity	Protection and enhancement of urban and rural landscapes (including designated landscapes, landscape character and the countryside). Take account of the different roles and character of different areas, promoting the vitality of main urban areas, protecting the Green Belts around them, recognising the intrinsic	The need to protect and improve the natural beauty of the region's National Parks, National Landscapes and other areas of high landscape and visual amenity value.	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, landscape character and visual amenity.	Will it avoid adverse effects to, and enhance where possible, protected/designated landscapes and the settings of designated landscapes (including woodlands) such as National Parks or National Landscapes?

Topic	Policies, Plans and Programmes Key Messages	Baseline Key Issues	SEA Objectives	Indicator Questions
	character and beauty of the countryside and supporting thriving rural communities within it. Promote landscape as central to the culture of the region and conserve and enhance distinctive characteristics of landscape and settlements, particularly in the Peak District, North York Moors and Yorkshire Dales National Parks Ensure good access to valued areas of landscape character in sustainable ways to enhance its enjoyment and value by visitors and stakeholders. This includes protecting National trails and Public Rights of Way.	The need to minimise any adverse impacts upon landscape that may result from the Drought Plan. The need to conserve and enhance landscape character and distinctiveness, taking into account the effects of climate change.		Will it result in changes to access to the countryside and open space? Will it avoid indirect effects on the landscape resulting from effects of abstraction and low river flows? Will it help to protect and improve non-designated areas of natural beauty and distinctiveness (e.g., woodlands) and avoid the loss of landscape features and local distinctiveness? Will it protect and enhance landscape character, townscape, seascape and green infrastructure? Will it minimise adverse visual impacts?

4.3 PRIMARY ASSESSMENT

The appraisal framework set out in **Table 4-1** has been used to assess each of the drought options against the SEA objectives. The appraisal framework was applied to test the performance of the drought options against the SEA objectives. This assessment supported development of Yorkshire Water's DP2027 and will inform the selection of options should a drought result in the DP2027 becoming operational. In the context of drought planning, individual drought options are taken to constitute alternatives. Yorkshire Water's DP 2027 comprises a total of 51 standard drought options (including permits/orders) and 25 extreme options) The assessment therefore provides information on the relative environmental performance of alternatives and is intended to make the decision-making process more transparent. The SEA can, therefore, be used to support the timing and implementation of drought options within the DP2027.The appraisal framework (**Table 4-2)** is structured as follows:

- The first and second columns set out the SEA topics and objectives.
- The third column comprises the scale of the effect, which might relate to either geographical scale or the size of the population affected, on a scale of small, medium to large.
- The impact evaluation includes consideration of the nature of the impact, certainty of effect, duration and permanence (fourth, fifth and sixth columns of **Table 4-2**) in compliance with criteria for determining the likely significance of effects specified in the SEA Regulations Part 2, Regulation 9(2a) and Schedule 1. With respect to duration of temporary effects, short-term impacts are defined as those that last for up to six months, medium term impacts are those that extend from six months to two years whilst longer term temporary impacts are assessed as those that extend from two to five years. A 'significant long term' temporary impact category is used for those temporary effects that continue beyond five years in duration. For the purposes of this assessment, duration relates to impacts from initial implementation during a single drought event.
- The seventh column identifies the magnitude of the effect on a scale of low, medium and high.
- The value/sensitivity of the receptor(s) is identified in the eighth column on a scale of low, medium and high.
- Column nine provides a brief commentary and evaluation of the impact of the drought option on the objectives for each topic, with reference to the key questions proposed in . This brief commentary assumes the implementation of best practice in implementing the action; therefore the effects are referred to as residual and are largely temporary. Potential mitigation measures for any identified adverse effects arising from each action are identified within the appraisal framework.
- The residual adverse and beneficial effects (after application of best practice approaches and any appropriate and explicit mitigation measures) are presented in the tenth and eleventh columns respectively. These are identified separately so as to avoid mixing adverse and beneficial effects, in line with SEA best practice.

The SEA appraisal framework was applied to evaluate each drought option. Where potential adverse impacts were identified, the assessment followed the mitigation hierarchy, first avoidance, then reduction, and, where necessary, consideration of additional mitigation and compensatory measures.

Residual effects take into account any embedded and additional mitigation, as well as standard best-practice measures, in accordance with the ODPM Practical Guide and UKWIR's SEA guidance.

Assessments drew on quantitative data wherever available which was supplemented by qualitative evidence as needed, including spatial analysis, professional judgement, and topic-specific assessment guidelines.

Table 4-2 SEA Appraisal Framework

1	2	3	4	5	6	7	8	9	10	11
Topic	SEA objective	Scale of effect: geographical &/or population affected (Small/ Medium/ Large)	Certainty of effect (Low/ Medium/ High)	Duration of effect (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low/ Medium/ High)	Value/ sensitivity of receptor (Low/ Medium/ High)	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Residual Adverse Effect (likely to remain after reasonable mitigation)	Residual Beneficial Effect (likely to remain after reasonable mitigation)
Biodiversity, Fauna & Flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species (with particular regard to avoiding the effects of over-abstraction on sensitive sites, habitats and species), enhance ecosystem resilience and habitat connectivity.									
	1.2 To protect and enhance sustainable natural resources and the ecosystem services they provide and deliver a biodiversity net gain.									
	1.2 To avoid introducing or spreading INNS.									
Population & Human Health	2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing)									
	2.2 To protect and enhance opportunities for formal and informal recreation.									
	2.3 To promote a sustainable economy and thriving communities with good access to the services they need.									
Material Assets	3.1 To minimise waste, promote resource efficiency and move towards a circular economy.									

1	2	3	4	5	6	7	8	9	10	11
	3.2 To promote efficient water resource management and the sustainable management of natural resources, ensuring water supply for homes and industry in the area is maintained.									
Water	4.1 To maintain or improve the quality of surface and groundwater resources.									
	4.2 To protect and enhance surface and groundwater levels and flows.									
	4.3 To ensure appropriate and sustainable management of abstractions (or compensation flow) to maintain water supplies whilst protecting ecosystem functions that rely on water resources, including contributing to the achievement of WFD compliance objectives.									
	4.4 To promote water efficiency and measures that enable sustainable water use									
Soil, Geology & Land Use	5.1 To protect and enhance the quality and quantity of soils and protect and enhance geodiversity and ensure appropriate and efficient use of land.									
Air & Climate	6.1 To maintain and improve air quality.									
	6.2 To reduce greenhouse gas emissions.									
	6.3 To consider the need for adaptive measures for climate change.									
Archaeology & Cultural Heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.									

1	2	3	4	5	6	7	8	9	10	11
Landscape & Visual Amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, landscape character and visual amenity.									

For each SEA objective, a residual effects assessment was determined and assigned a significance value which takes account of all columns. Significance comprises effects from 'major beneficial' to 'major adverse' and colour coding was used to complete the columns for residual effects in the assessment framework.

The resulting significance of effects could be used in the prioritisation of actions. Also, where major adverse effects are predicted, broad actions envisaged to prevent, reduce and as fully as possible offset these effects on the environment (as a result of implementing the DP) are outlined in this Environmental Report where relevant/appropriate. In some cases, the significance of effects may not be clear cut, and professional judgement has been used to determine overall significance.

The definitions for 'significance' ratings are provided below:

- **Major** - effects represent key factors in the decision-making process. They are generally associated with sites and features of international, national or regional importance. If adverse, such resources/features are generally those which cannot be replaced or relocated.
- **Moderate** - effects are likely to be important considerations at a regional or district scale. If adverse, they are likely to be of potential concern.
- **Minor**- effects are not likely to be decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.
- **Negligible** - effects which are not perceptible, being within normal bounds of variation or the margin of forecasting error.
- **N/A** – consideration of the SEA objective is not considered applicable in the case of the action.

All actions were assessed and to the same level of detail, in line with the SEA legislative requirements, national SEA guidance and the UKWIR SEA guidance. The level of detail for the environmental assessment of each action is consistent with the strategic nature of SEA.

An assessment framework table has been completed for each drought option (as identified in **Section 1.4.4**) and presented in full in **Appendix E**. The summary of the assessment is presented in **Section 5** as a colour-coded visual evaluation matrix. The matrix summarises the likely significance of impacts (which are discussed in full in the completed appraisal framework tables in **Appendix E**).

4.4 CONSIDERATION OF REASONABLE ALTERNATIVES

In the context of a Drought Plan, individual drought options are considered to constitute reasonable alternatives. Unlike a WRMP, the DP 2027 does not select a preferred package of measures but retains a suite of potential drought actions to be implemented progressively, as required.

The SEA does not identify a single preferred option but provides a comparative assessment of environmental performance to inform sequencing decisions.

4.5 CUMULATIVE ASSESSMENT APPROACH

Schedule 2(6) of the SEA Regulations requires the assessment of *"The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects…."* In this Section, "cumulative effects" includes secondary and synergistic effects.

A cumulative assessment of specific option combinations is not feasible at this stage as the sequence and combination of options cannot be predicted and implementation is dependent on hydrological drought triggers.

The following cumulative assessments have been undertaken (see Section 6):

1. Assessment of cumulative impacts of each demand management drought option in combination with every other demand management drought option. Demand options apply across the entire supply region and serve to reduce pressure on water resources by reducing the demand for water. Therefore, demand management measures have not been assessed in detail against each supply side and drought permit/order option, other than to acknowledge that they will have a net beneficial effect.
2. Assessment of the cumulative impacts of the supply side and drought permit/order options in

combination with Yorkshire Water's existing abstraction licences within the zone of influence of the drought options.

3. Assessment of cumulative impacts of each supply side option in combination with any other supply side option. Mutually exclusive options (e.g. those that draw upon the same resource or use the same site) or those that are incompatible are identified.
4. Assessment of cumulative impacts in combination with Yorkshire Water's WRMP schemes which are scheduled to be implemented and become operational during the DP 2027 cycle (2027-2032).
5. Assessment of cumulative impacts of DP 2027 in combination with drought options included in Environment Agency and Canal and Rivers Trust Drought Plan, including those compensation-only reservoirs (CORs) where the future potential need for a drought order has been identified.
6. Assessment of cumulative impacts of DP 2027 in combination with drought options included in neighbouring water company DPs.
7. Assessment of cumulative impacts of DP 2027 in combination with other relevant policies and plans.

Neighbouring water companies will be invited to consult on DP 2027 and Yorkshire Water will, in turn be consulted on their plans. This enables potential effects with other plans to be identified, particularly in the context of spatial and temporal proximity. This is especially important in identifying potential water resources impacts, although licence changes would always be subject to further investigation by the companies themselves and the Environment Agency. Potential cumulative effects with wider plans were also be assessed. If effects are identified they can be ameliorated with early stage mitigation and associated monitoring.

Cumulative assessments of drought options with each other have been undertaken assuming, as a worst case, simultaneous operation of the two options . Spatial proximity and therefore potential impacts on a common receptor are the primary considerations (e.g. the same designated area or reach of river).

In the event of a drought, the findings of the SEA will be reviewed and a cumulative assessment made of the selected options, based on the findings of the one-on-one assessments presented in Sections 5.2 and 5.3.

4.6 LIMITATIONS OF THE STUDY

Certain limitations are inherent to drought planning. Where uncertainty exists, the assessment adopted a precautionary interpretation and identified where further assessment would be required at implementation stage.

SEA is a high-level assessment based on publicly available data and is intended to identify potential environmental risks. Sources of information include statutory bodies and previous environmental assessments of Yorkshire Water's drought permit/order options.

While existing monitoring data has informed the baseline, no new field surveys or primary data collection have been undertaken as part of the SEA. Therefore, at the individual option level, there may be additional environmental issues that have not been captured and which could influence the viability or environmental performance of a specific drought option.

Limitations of the cumulative, or in-combination assessment are outlined in **Section 4.5**. Several factors contribute to these limitations:

- The specific timing, sequencing and combination of drought options cannot be predicted in advance.
- Some drought options are defined at a high conceptual level and lack detailed design parameters.
- Environmental conditions during a future drought event cannot be known at this stage.

The EARs have been prepared for the drought permits/order sites to support DP 2027 (see **Section 1.5**) have in accordance with the latest Drought Plan Guidance[6]. This states that the level of detail included in the EAR should be based on the level of risk posed by the action that is being assessed (e.g. based on the scale of the impact, the expected frequency of use or the importance or sensitivity of the site). The required level of assessment has been undertaken to help inform any potential residual effects of each drought option. The limitations of the data used for each assessment are outlined in the EARs.

The following information is incorporated from the EARs: impacts on environmental features such as NERC species, designated sites, landscape and recreation; impact on hydrological flow and associated changes in geomorphological function, and water quality. Where limitations or gaps are known, these are briefly described in the SEA appraisal tables. Consideration should also be given to the evolution of monitoring datasets.

The methodology has been designed to ensure compliance with the SEA Regulations while recognising the operational realities and uncertainties of drought planning. This approach provides a transparent, systematic and proportionate evaluation of the likely environmental effects.

5. ASSESSMENT OF THE ENVIRONMENTAL EFFECTS OF DROUGHT OPTIONS

5.1 INTRODUCTION

This Section presents the findings of the SEA of DP 2027. The assessment evaluates the likely significant effects of implementing each drought option, in accordance with the methodology in **Section 4**.

The assessment has been undertaken at the level of individual drought options. As the specific combination and sequencing of options cannot be predetermined, effects are assessed on a standalone basis, with cumulative effects considered separately in **Section 6**.

Detailed assessment matrices are provided in **Appendix E**. A summary of the likely significant residual effects is presented in this Section in a series of VE matrix summaries with colour coding indicating significance (**Table 5-1**).

Table 5-1 Example Legend

Colour		Significance of Effect
+++	Dark Green	Major Beneficial
++	Mid Green	Moderate Beneficial
+	Light Green	Minor Beneficial
0	Grey	Negligible
-	Yellow	Minor Adverse
--	Orange	Moderate Adverse
---	Red	Major Adverse
None	Non-Applicable	None

5.2 DEMAND OPTIONS

Demand management schemes are applied across all zones and are listed in **Table 1-2.**

5.2.1 Standard Demand Options

A visual summary of likely significant residual effects for each of the demand-side options is provided in **Table 5-2.** The completed appraisal tables are provided in **Appendix E**.

Publicity campaigns and agile communications have no adverse effects and deliver minor to moderate benefits by encouraging water efficiency and helping to maintain water levels and sustainable abstraction.

Leakage detection and repair results in only negligible to minor adverse effects, mainly from vehicle movements and construction activity. It delivers long-term beneficial effects by saving water that would otherwise be lost, improving supply resilience and supporting sustainable resource use.

Temporary Use Bans (TUBs) and non-essential use bans (NEUBs) can have moderate to major adverse socio-economic effects, particularly for businesses that rely on water-using equipment or outdoor water use. However, they also provide moderate benefits by reducing demand, protecting essential supplies, and supporting natural water-dependent environments.

Overall, most demand-side measures provide net environmental and resource-efficiency benefits, with adverse effects generally limited to socio-economic impacts where restrictions affect households or businesses. Emergency measures remain a last resort due to their significant disruption.

Table 5-2: Visual Evaluation Matrix Summary for Standard Demand-Side Options

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
Customer management - Agile Communications Strategy	Adverse	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	No adverse effects have been identified for this drought measure.
	Beneficial	+	+	None	+	None	+	+	+	+	+	+	+	None	None	None	+	0	0	Minor beneficial effects include reducing demand for water and securing essential supplies of water for customers/businesses as well as protecting natural resources and ecosystem services. Reducing the demand for water will also have minor beneficial effects on maintaining surface water and groundwater levels/flows, sustainable management of abstraction and enabling long term improvements in water efficiency. Reducing water demand will also help to improve the resilience of water supplies to drought.
Customer management - Drought publicity campaigns	Adverse	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	No adverse effects have been identified for this drought measure.
	Beneficial	+	+	None	+	None	+	+	+	+	++	++	++	None	None	None	++	0	0	Minor beneficial effects include reducing demand for water and securing essential supplies of water for customers/businesses as well as protecting natural resources and ecosystem services. Reducing the demand for water will also have moderate beneficial effects on maintaining surface water and groundwater levels/flows, sustainable management of abstraction and enabling long term improvements in water efficiency. Reducing water demand will also help to improve the resilience of water supplies to drought.
Customer management – Temporary use ban	Adverse	None	None	None	None	-	--	None	None	None	None	None	None	None	None	None	None	0	0	A moderate adverse effect has been identified in terms of promoting a sustainable economy due to the effect of the ban on some businesses (e.g. landscaping/horticulture) that rely on domestic water-using appliances/uses (e.g. sprinklers/hosepipes). Minor adverse effects are anticipated on some domestic uses.
	Beneficial	+	++	None	++	None	None	+	+	+	+	+	+	None	None	None	+	0	0	Moderate beneficial effects include reducing the demand for water and securing supply of water for customers/businesses as well as protecting natural resources and ecosystem services. Reducing the demand for water will also have minor beneficial effects on maintaining surface water and groundwater levels/flows, sustainable management of abstraction and enabling long term improvements in water efficiency. Reducing water demand will also help to improve the resilience of water supplies to drought.
Customer management - Non-essential use ban	Adverse	None		None	None	--	---	None	None	None	None	None	None	None	None	None	None	0	0	Restrictions of water use and impacts on businesses/economy could lead to major adverse effects. Moderate adverse effects associated with restriction of water use and effects on recreation and tourism assets, and on local amenities.
	Beneficial	+	++	None	++	None	None	+	+	+	+	+	+	None	None	None	+	0	0	Moderate beneficial effects are associated with the maintenance of supply to consumers during drought, protecting human health, as well as protecting natural resources and ecosystem services. Minor beneficial effects in terms of reducing demand and improving the resilience of water supplies to drought, improving water quality, maintaining surface water and groundwater levels/flows and sustainable management of abstraction and supporting overall water efficiency.
Distribution management - Increased leakage	Adverse	0	0	None	None	0	None	0	None	0	None	None	None	0	-	-	None	0	0	Minor adverse effects identified are associated with emissions to air (air pollutants and greenhouse gas emissions) as a result of construction activities and vehicle movements. All other adverse effects identified are negligible.

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
detection and repair activity	Beneficial	+	None	None	++	None	++	0	+	0	+	+	None	None	None	+	+	None	None	Minor to moderate beneficial effects have been identified with respect to sustainable provision of water through water savings that would have otherwise been lost to leakage after having been abstracted at source. These effects are generally considered to be long term and permanent in nature.

5.2.2 Extreme Demand Options

The extreme demand options are similar to the standard demand options and present similar risks. As such, the likely significant effects are summarised here and have not been assessed separately against the SEA framework in Appendix E.

Given the larger anticipated savings, the beneficial effects on population and human health, are expected to be correspondingly greater. The extreme demand options would further reduce pressure on water resources by delivering greater demand reductions and lowering abstraction at source, as customers are likely to respond more strongly under worsening drought conditions. Tighter restrictions on water use could result in increased disruption for businesses and may have knock-on effects on tourism and recreational activities, resulting in greater significant adverse effects on population and human health.

5.3 SUPPLY OPTIONS

Supply side and drought permit/order drought options which have been assessed for both WRZs are listed in **Table 1-3** and **Table 1-4**4. A visual summary of likely significant residual effects for drought permit/order options is provided in **Table 5-3** and for extreme supply side option**s in Table 5-4**. The full appraisal tables are provided in **Appendix E**.

5.3.1 Standard Drought Permit/Order Options

The assessment of drought permit/order options found that the majority of options would have a major adverse effect on surface water flows and levels in the receiving watercourses; with the exception of the river abstraction options where only Hull increased abstraction experiences major adverse effects. Impacts would be restricted to the low flow regimes of the watercourses and would be short-term and temporary. Effects on water quality vary from negligible to major; with the river abstraction option Derwent annual abstraction increase performing best, and North Area Reservoir 1, North Area Reservoir 4, and Hull increased abstraction, performing worst. All options are anticipated to experience moderate adverse effects on biodiversity, flora and fauna aside from Derwent annual abstraction increase which may experience negligible effects and North Area Reservoir 4 which may experience major effects. Adverse effects on recreation and landscape associated with lower water levels in the impacted watercourses would be minimal, ranging from none to minor.

The drought permit/order options would deliver minor to major beneficial effects on human health and economic activity through maintaining water supply during drought conditions, as well as air and climate, through their ability to bolster resilience to the effects of climate change. The options require no construction activities, so there would be negligible beneficial effects associated with use of existing infrastructure. The options would also be associated with minor beneficial effects associated with the appropriate and sustainable management of water supplies.

The Ouse increased abstraction, Wharfe reduced regulated flow and Hull increased abstraction options have the greatest beneficial effects, as they would deliver large volumes of water during drought events. These options provide moderate to major beneficial effects with respect to SEA objectives regarding protecting and enhancing human health and well-being, enabling access to essential services and providing a resilient water supply for customers and the economy.

5.3.1.1 *In-Drought* Monitoring

In line with the EMP (Section 7), all options would require drought baseline environmental monitoring to be instigated in the second year of drought to examine the prevailing environmental conditions and review the environmental impact risks. The monitoring data will inform decisions on the most appropriate options to implement in consultation with the Environment Agency and Natural England.

5.3.1.2 *Non-drought* baseline monitoring

It is recommended that further investigations and/or monitoring are undertaken to improve the baseline understanding of the environmental risks where there are currently uncertainties in the impact assessment for these extreme supply drought options. This will improve confidence in the environmental assessments to enable better informed decisions on the most appropriate option to implement in a continuing drought.

Table 5-3 Visual Evaluation Matrix Summary for Drought Permit/Order Options

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
North Area Reservoirs																				
North Area Reservoir 1	Adverse	--	-	None	None	0	None	None	None	---	---	---	None	0	None	None	None	None	-	The implementation of this drought option would lead to major adverse effects on flows and levels in receiving watercourses. These changes would result in significant declines in water quality and adversely affect a range of NERC and notable species. Reduced water levels would also cause a major adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to effects on riverine habitats. Minor adverse effects are also related to the potential effects on visual amenity of the National Trail and National Landscape.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with bolstering resilience to climate change.
North Area Reservoir 2	Adverse	--	-	None	None	None	None	None	None	-	---	-	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on flows and levels in receiving watercourses. This would be associated with a moderate adverse effect on designated sites, habitats and species. Minor adverse effects associated with reduced river flows are anticipated in relation to water quality, WFD status of the affected reaches, recreation amenity and on the visual effects on the National Landscape.
	Beneficial	None	None	None	+	None	+	0	None	None	None	0	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with bolstering resilience to climate change.
North Area Reservoir 3	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	The implementation of this option will result in major adverse effect on river flows and levels. There would be an associated moderate effect on water quality, and moderate risk to the WFD status of the effect reach. There would be moderate adverse effects on designated sites, habitats and species. Reduced water levels would also lead to minor adverse effects on ecosystem services due to impacts on riverine habitats.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with use of existing infrastructure and the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North Area Reservoir 4	Adverse	---	--	None	None	None	None	None	None	---	---	--	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on flows and levels in receiving watercourses. This would be associated with a major adverse effect on water quality, in addition to major adverse effects to designated species and moderate adverse effects on ecosystem services. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reach.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North Area Reservoir 5	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on flows and water levels. This would be accompanied by a minor adverse effect on water quality and riverine ecosystem services, and a major to moderate adverse effect on designated species. Reduced water levels would also cause a minor adverse effect on the WFD status of the affected reaches.
	Beneficial	None	None	None	++	None	++	0	None	None	None	+	None	None	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, and air and climate, through maintaining water supply during drought conditions and bolstering climate resilience. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies.
North West Area Reservoirs																				
North West Area Reservoir 1	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	Implementation of this drought option would result in a major adverse effect on water flows and levels in the River Worth. This would be associated with a moderate adverse effect on water quality and a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to impacts on riverine habitats and minor risk of spread of INNS.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought condition and moderate beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 2	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels in Leeming Water. This would be associated with a moderate adverse effect on water quality and a moderate adverse effect on a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to effects on riverine habitats and minor risk of spread of INNS.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 3	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels. This would be associated with a moderate adverse effect on water quality and a moderate adverse effect on a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
																				ecosystem services due to impacts on riverine habitats and minor risk of spread of INNS.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 4	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water flows and levels in Denholme Beck. This would be associated with a moderate adverse effect on water quality and moderate adverse effect on a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to impacts on riverine habitats. Minor adverse effects are anticipated in relation to visual effect on nearby walking trails under drought conditions.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 5	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	0	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in Harden Beck. This would be associated with a moderate adverse effect on water quality and a moderate adverse effect on a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to effects on riverine habitats. A significant reduction in the level of Harden Beck would have a minor, temporary visual effect on the landscape setting of several national trails that run alongside Harden Beck.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 6	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water flows and levels in Loadpit Beck 1. This would be associated with a moderate adverse effect on water quality and a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to impacts on riverine habitats. A reduction in the flow level would also result in a minor, short term effect on the landscape setting of two National Trails.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 7	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	Implementation of this drought option would result in a major adverse effect on water flows and levels in Jum Beck 1. This would be associated with a moderate adverse effect on water quality and a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reach, along with a minor adverse effect on ecosystem services due to effects on riverine habitats.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 8	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	Implementation of this drought option would result in a major effect on water flows and levels in Gill Beck 1. This would be associated with a moderate adverse effect on water quality and a number of protected species. Reduced water levels would also cause a moderate adverse effect on the WFD status of the affected reaches, along with a minor adverse effect on ecosystem services due to effects on riverine habitats and minor risk of spread of INNS as a result of this option.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 9	Adverse	--	-	-	None	0	None	None	None	--	---	--	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels in Eller Beck. This would be associated with a moderate adverse effect on water quality and a number of protected species due to fragmentation of habitats, increased mortality and changes in morphology or behaviour. Reduced water levels would also cause a moderate negative effect on the WFD status of the affected reach, along with a minor adverse effect on ecosystem services due to effects on riverine habitats and minor risk of spread of INNS.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 10	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels in River Dibb. This would be associated with a minor adverse effect on water quality and a major to moderate adverse effect on a number of protected species due to fragmentation of habitats, increased mortality and changes in morphology or behaviour. Reduced water levels would

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
																				also cause a minor adverse effect on the WFD status of the affected reach and ecosystem services.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Moderate beneficial effect on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 11	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	The implementation of this drought option would result in a major adverse effect on water flows and levels in Silsden Beck. This would be associated with a minor adverse effect on water quality and a major to moderate adverse effect on a number of protected species. Reduced water levels would also cause a minor adverse effect on the WFD status of the affected reach, along with a minor adverse effect on ecosystem services due to impacts on riverine habitats.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
North West Area Reservoir 12	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	Implementation of this drought option would result in a major adverse effect on river water flows and levels. This would be associated with a minor adverse effect on water quality, and a major to moderate adverse effect on a number of NERC and notable species. Reduced water levels would also cause a minor negative effect on the WFD status of the affected reach, along with a minor adverse effect on ecosystem services due to effects on riverine habitats, and negligible adverse effect on soils, due to bank erosion when higher flows return. A reduction in the flow level would also result in a negligible effect on the landscape setting of a public footpath.
	Beneficial	None	None	None	+	0	+	+	None	None	None	+	None	None	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with use of existing infrastructure and minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
South Area Reservoirs																				
South Area Reservoir 1	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in the impacted reaches. This would be associated with a moderate adverse effect on water quality and a number of NERC and species. Minor to moderate adverse effects are anticipated towards WFD compliance objectives. The reduction in flow would also result in a minor adverse effect on natural capital and ecosystem services and the setting of walking trails.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and adaptation to climate change.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
South Area Reservoir 2	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on flow levels. This would be associated with a moderate adverse effect on water quality, riverine habitats, and a number of designated sites and protected species. Minor to moderate adverse effects are anticipated towards WFD compliance objectives. A reduction in the flow level would also result in a minor adverse effect on the landscape setting of several walking trails.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, adaptation to climate change and water through maintaining supply during drought conditions, ensuring the sustainable management of abstractions, and improving adaptation to climate change.
South Area Reservoir 3a	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in the reaches. This would be associated with a moderate adverse effect on water quality and a number of designated sites and protected species. The reduction in flow would also result in a minor to moderate adverse effect on riverine habitats, and WFD compliance objectives, and a minor adverse effect the setting of walking trails.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with building climate resilience and the appropriate and sustainable management of water supplies.
South Area Reservoir 3b	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in the impacted reaches. This would be associated with a moderate adverse effect on a number of NERC and notable species. The reduction in flow would also result in a minor adverse effect on water quality, albeit with uncertainty, and the setting of walking trails.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with adaptation to climate change and the appropriate and sustainable management of water supplies.
South Area Reservoir 4	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in moderate adverse effects for biodiversity, flora and fauna, and a major adverse effect on water due to the major change to river flows. The reduction in flow would also result in moderate adverse effect on water quality and WFD compliance objectives, and a minor adverse effect on the setting of walking trails.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, water, and air and climate through maintaining water supply during drought conditions, ensuring the sustainable management of abstractions and improving adaptation to climate change.
South Area Reservoir 5	Adverse	--	-	None	None	0	None	None	None	-	---	-	None	0	None	None	None	None	0	Major adverse effects are anticipated towards surface water flow. Moderate adverse effects are anticipated towards biodiversity and a number of protected species. There is also a minor to moderate risk to WFD compliance objectives. Minor effects to water quality and riverine habitats are also anticipated.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, water, and air and climate through maintaining water supply during drought conditions, ensuring the sustainable management of abstractions, and improving adaptation to climate change.
South Area Reservoir 6	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in major adverse effects on flows. This would be associated with a moderate adverse effect on water quality and WFD status. Minor adverse effects are anticipated towards riverine habitats and the setting of a number of walking trails.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	Implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity, water, and air and climate through maintaining water supply during drought conditions, ensuring the sustainable management of abstractions, and improving adaptation to climate change.
South Area Reservoir 7	Adverse	--	--	None	None	0	None	None	None	-	---	--	None	0	None	None	None	None	0	Implementation of this drought option would result in a major adverse effect on water flows and levels in the impacted reaches. This would be associated with a minor adverse effect on water quality and a moderate adverse effect on WFD status and a number of protected species.
	Beneficial	None	None	None	+	None	+	None	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with ensuring the sustainable management of abstractions, and building climate change resilience.
South West Area Reservoirs																				
South West Area Reservoir 1	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	Implementation of this drought option would result in a major adverse effect on water flows and levels in the effected reaches. This would be associated with moderate adverse effects on water quality, WFD compliance objectives, and protected species. The reduction in flow would also result in a minor adverse effect on natural capital and ecosystem services, and the setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	Implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change and ensuring the sustainable management of abstractions.
South West Area Reservoir 2	Adverse	--	-	None	None	-	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services, recreational amenity, and the setting of a national trail.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions, ensuring the sustainable management of abstractions, and improving adaptation to climate change.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
South West Area Reservoir 3	Adverse	--	-	None	None	-	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a moderate adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services, recreational amenity, and the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the sustainable management of water supplies and improving adaptation to climate change.
South West Area Reservoir 4	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services and on the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with use of existing infrastructure and the appropriate and sustainable management of water supplies.
South West Area Reservoir 5	Adverse	--	-	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services and on the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 6	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species.
	Beneficial	None	None	None	++	None	++	+	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. Moderate beneficial effects are also anticipated towards water, and air and climate, associated with improving adaptation to climate change and sustainably managing water resources.
South West Area Reservoir 7	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species.

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	+	None	+	+	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. Minor beneficial effects are also anticipated towards water, and air and climate, associated with improving adaptation to climate change and sustainably managing water resources.
South West Area Reservoir 8	Adverse	--	-	None	None	-	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services, recreational amenity, and on the landscape setting of a National Trail.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with improving adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 9	Adverse	--	-	None	None	--	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives, protected species, and recreation, and a minor adverse effect on natural capital and ecosystem services and on the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	+	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 10	Adverse	--	--	None	None	-	None	None	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a moderate adverse effect on water quality, natural capital and ecosystem services, WFD compliance objectives and protected species. A reduction in water levels would also result in a minor adverse effect on recreational amenity and the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 11	Adverse	--	-	None	None	0	None	0	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives and protected species. A reduction in water levels would also result in a minor adverse effect on the landscape setting of a National Trail.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 12	Adverse	--	-	None	None	0	None	0	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows across the receiving water courses. This would be associated with a moderate adverse effect on water quality, WFD compliance objectives and protected species. A reduction in water levels would also result in a minor adverse effect on natural capital and ecosystem services and on the landscape setting of a National Trail.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with adaptation to climate change and the appropriate and sustainable management of water supplies.
South West Area Reservoir 13	Adverse	--	--	None	None	0	None	0	None	--	---	--	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species. Minor adverse effects to natural resources, ecosystem services and landscape would also result.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial impacts on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with improving adaptation to climate change, and the appropriate and sustainable management of water supplies.
South West Area Reservoir 14	Adverse	--	--	None	None	None	None	None	None	-	---	-	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse impact on water levels and flows in Bradshaw Clough. This would be associated with a minor adverse impact on water quality and a moderate adverse effect on a number of protected species, and riverine habitats.
	Beneficial	None	None	None	0	None	0	0	None	None	None	0	None	0	None	None	0	None	None	No significant beneficial effects are anticipated, although implementation of this drought option would be associated with negligible beneficial effects on population and human health, water and air and climate resulting from the negligible additional deployable output. Negligible beneficial effects are also anticipated towards material assets and resource use resulting from the use of existing infrastructure and no change in energy use.
South West Area Reservoir 15	Adverse	--	--	None	None	-	None	None	None	-	---	-	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a minor adverse effect on water quality and a minor to major adverse effect on a number of NERC and Notable species. A reduction in water levels would also result in moderate adverse effects on riverine habitats and minor adverse effect on an angling club.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	0	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers moderate beneficial effects associated with the appropriate and sustainable management of water supplies, and improving adaptation to climate change.
South West Area Reservoir 16	Adverse	--	--	None	None	-	None	None	None	-	---	-	None	0	None	None	None	None	-	The implementation of this drought option would result in a major adverse effect on water levels and flows in the receiving watercourses. This would be associated with a minor adverse effect on water quality and WFD compliance objectives, and a minor to major adverse effect on a number of protected species. A reduction in water levels would also result in moderate adverse effects on riverine habitats and minor adverse effect on an angling club.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. Minor beneficial effects are also associated with improving adaptation to climate change, and with the appropriate and sustainable management of water supplies.
South West Area Reservoir 17	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	0	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies. Minor beneficial effects are also anticipated towards water, and air and climate, associated with improving adaptation to climate change and sustainably managing water resources.
South West Area Reservoir 18	Adverse	--	--	None	None	0	None	None	None	--	---	--	None	0	None	None	None	None	None	The implementation of this drought option would result in a major adverse effect on water levels, flows and riverine habitats in the receiving watercourse. This would be associated with moderate adverse effects on a designated site, water quality and a moderate to major adverse effect on a number of protected species.
	Beneficial	None	None	None	0	None	0	0	None	None	None	0	None	0	None	None	0	None	None	No significant beneficial effects are anticipated. although implementation of this drought option would be associated with negligible beneficial effects on population and human health, water and air and climate resulting from the negligible additional deployable output. Negligible beneficial effects are also anticipated towards material assets and resource use resulting from the use of existing infrastructure and no change in energy use.
River Options																				
Ouse increase abstraction	Adverse	--	-	None	None	0	None	None	None	--	--	--	None	None	None	None	None	None	None	This drought option would lead to moderate adverse effects on biodiversity, flora & fauna, in relation to conservation and enhancing biodiversity, natural resources and the ecosystem services. The drought option would lead to a moderate impact on river flows. There would be a moderate risk to water quality associated with a number of intermittent discharges in the reach. The flow pressures would result in minor adverse effects on notable/NERC fish species

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
																				due to the siltation of spawning gravels and exposure of habitats. Minor adverse effects are anticipated towards river habitats.
	Beneficial	None	None	None	+++	None	+++	0	None	None	None	+	None	None	None	None	+++	None	None	Major beneficial effects are anticipated towards population and human health and air and climate with regards to ensuring water supply during drought conditions and improving adaptation to climate change. Minor beneficial effects are also associated with the appropriate and sustainable management of water supplies.
Ure increase abstraction	Adverse	--	-	0	None	-	None	None	None	--	--	--	None	None	None	None	None	None	0	Moderate adverse effects are anticipated towards biodiversity, flora and fauna and water relating to reductions in flows which have consequential effects on water quality and habitats/species present there. Minor effects are anticipated towards natural capital and ecosystem services, and recreational amenity.
	Beneficial	None	None	None	+	None	+	0	None	None	None	+	None	None	None	None	+	None	None	Minor beneficial effects are anticipated towards population and human health, water and air and climate relating to ensuring a secure supply of water and improving adaptation to climate change.
Wharfe reduced regulated flow	Adverse	--	-	None	None	0	None	None	None	--	--	--	None	None	None	None	None	None	-	This drought option would lead to moderate adverse effects on biodiversity, flora & fauna, in relation to conservation and enhancing biodiversity, with minor effects on natural capital and the ecosystem services. The drought option would lead to a moderate reduction in low flows, affecting biodiversity and water objectives. Moderate adverse effects on water quality and flow are anticipated, having a moderate adverse effect on protected species. A reduction in the level of the River Wharfe may have a minor adverse visual effect on a the Nidderdale National Landscape.
	Beneficial	None	None	None	++	None	++	0	++	None	None	++	None	None	None	None	++	None	None	The drought option would provide up to 22.7 Ml/d, which would deliver moderate beneficial effects on population and human health due to the deployable output and continued water supply for economic activity. The option utilises existing infrastructure and would have moderate beneficial effects in relation to climate resilience.
Hull increased abstraction	Adverse	--	--	None	None	-	None	None	None	---	---	-	None	None	None	None	None	None	None	Major adverse effects are anticipated on water quality and flow. Moderate adverse effects are anticipated on protected and notable species and habitats and associated natural capital and ecosystem services. A minor adverse effect is anticipated on WFD status.
	Beneficial	None	None	None	++	None	++	0	None	None	None	++	None	None	None	None	++	None	None	Moderate beneficial effects are anticipated towards population and human health, water, and air and climate, relating to additional deployable output (up to 20.45 Ml/d) and improving adaptation to climate change.
Derwent annual abstraction increase	Adverse	0	None	None	None	None	None	None	None	None	0	None	None	0	None	None	None	None	None	No significant adverse effects are anticipated towards any receptors.

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	None	None	+	0	+	0	None	0	None	+	None	0	None	None	+	None	None	Minor beneficial effects are anticipated towards population and human health, water and air and climate relating to the maintenance of supply reliability in drought conditions and improving adaptation to climate change.

5.3.2 Extreme Supply Drought Options

The majority of extreme supply options cannot be implemented without prior construction and planning activity, which may include obtaining the necessary regulatory permitting and approvals. As such, the extreme supply options are not directly comparable with the drought permit/order options discussed in the previous section. The SEA process has been used to carry out strategic environmental impact comparison of the 18 alternative options that might be required if drought conditions persist.. The assessments have taken account of the HRA assessments where appropriate, along with findings from environmental reports.

The majority of the extreme supply options are associated with adverse effects relating to the consumption of resources, air quality and impacts on terrestrial species and habitats due to the construction activities involved. Options such as Catterick Groundwater Option 1 , Selby Groundwater Option 1and Selby Groundwater Option 2 perform best across these objectives as they do not require large scale construction activities and make use of existing infrastructure. These options are also associated with the lowest adverse effects on biodiversity, flora and fauna.

Many of the extreme options are not yet developed to a sufficiently mature stage to allow the definition of a works area or confirmation of pipeline routes. As such, a precautionary approach has been applied, which results in some options displaying greater adverse effects than others. The adverse environmental implications of the South West Reservoir 15 to other South West reservoirs are considered greater because the assets involved lie in close proximity to sites designated for their ecological interest. Without a confirmed scope of works, there remains the potential for pipeline construction to intersect with these designated sites.

In addition, options involving recommissioning of boreholes (e.g. Doncaster Groundwater Option 1, Doncaster Groundwater Option 2 and Doncaster Groundwater Option 3) are associated with multiple moderate adverse effects on objectives relating to biodiversity, population and human health, material assets, and water. This is due to the uncertainty surrounding the extent and precise location of the proposed infrastructure, as well as its proximity to sensitive environmental features or built-up areas.

However, these options also have beneficial effects, as they would deliver large volumes of water during drought events. These options provide beneficial effects associated with protecting and enhancing human health and well-being, enabling access to essential services and providing a resilient water supply for customers and the economy. The option Optimisation of York WTW 2 demonstrates the most significant beneficial effects in this regard.

These conclusions will need to be weighed against other factors, such as practicability, spatial distribution of drought intensity, supply-demand needs and potential risks to drinking water quality (including Drinking Water Safety Plan risk assessment regulations) in determining which option would be implemented first. None of the options are of sufficient environmental impact to exclude them from the DP 2027 as options for a continuing drought. Inclusion of all options provides Yorkshire Water with the greatest flexibility to meet what would be a very challenging situation and demonstrates that alternative options are available in case any single option cannot be implemented – or has to cease operation due to observed environmental, drinking water quality or other risks.

Table 5-4 Visual Evaluation Matrix Summary for Extreme Supply Options

Option		SEA Topics and Objectives																		Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
Extreme Supply Options																				
Catterick Groundwater Option 1	Adverse	0	0	0	None	None	None	-	None	0	0	None	None	None	-	-	None	None	None	No likely significant effects on the North Pennine Dales Meadows SAC and Swale Lake SSSI. Minor adverse effects are associated with abstraction, including increased energy and material asset use, such as chemicals to treat pumped water during operation. There is residual uncertainty in relation to the effects of increased groundwater abstraction on NERC species. Negligible adverse effects on water quality due to the minor baseflow reductions to the River Swale, which needs to be assessed further.
	Beneficial	None	None	None	+	None	+	None	+	None	None	+	0	None	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects on human health and economic activity through maintaining the water supply during drought conditions. This drought option also delivers minor beneficial effects associated with the appropriate and sustainable management of water supplies and bolstering resilience to climate change.
River Aire option 1	Adverse	---	-	-	-	-	-	--	0	--	--	--	None	0	-	-	None	-	-	Moderate adverse effects on biodiversity are possible due to operational effects on NERC fish species. Construction effects on NERC species such as badgers, bats, and water voles are uncertain. The abstraction would have moderate adverse effects on surface water flows and levels and water quality. Minor adverse effects are expected on natural resources and ecosystem services, including the potential for the spread of invasive species. Minor adverse effects during the construction phase are expected on population and human health due to effects from noise, dust and vibration, temporary disruption of services, recreational sites and activities, as well as disturbance to landscape, archaeology and cultural heritage. Minor adverse effects are expected on air and climate due to construction air emissions, increased energy and resource use, and associated GHG emissions during operation.
	Beneficial	None	+	None	++	None	++	None	0	None	None	+	0	None	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects associated with human health and economic activity through maintaining water supply and bolstering resilience to climate change. Minor beneficial effects from compensatory planting and habitat enhancement and ensuring sustainable abstractions are anticipated.
River Aire option 2	Adverse	--	-	-	-	-	-	--	0	--	--	--	None	0	-	-	None	-	-	Moderate adverse effects on biodiversity are possible due to operational effects on NERC fish species. Construction effects on NERC species such as badgers, bats, and water voles are uncertain. The abstraction would have moderate adverse effects on surface water flows and levels and water quality. Minor adverse effects are expected on natural resources and ecosystem services, including the potential for the spread of invasive species. Minor adverse effects during the construction phase are expected on population and human health due to effects from noise, dust and vibration, temporary disruption of services, recreational sites and activities, as well as disturbance to landscape, archaeology and cultural heritage. Minor adverse effects are expected on air and climate due to construction air emissions, increased energy and resource use, and associated GHG emissions during operation.

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
	Beneficial	None	+	None	++	None	++	None	0	None	None	+	0	None	None	None	++	None	None	The implementation of this drought option would be associated with moderate beneficial effects associated with human health and economic activity through maintaining water supply and bolstering resilience to climate change. Minor beneficial effects from compensatory planting and habitat enhancement and ensuring sustainable abstractions are anticipated.
South Area reservoir 2 to wider reservoir system transfer	Adverse	--	--	-	0	-	None	-	0	-	0	0	0	-	-	-	None	-	-	Due to the construction works required, moderate adverse effects are anticipated in relation to effect on habitats and species. Minor adverse effects are associated with the construction phase in relation to INNS risks, effects on recreational sites, effect on geology and soils, air quality, GHG emissions and, heritage assets and landscape and visual effects.
	Beneficial	None	+	None	+	None	+	0	+	None	None	+	None	None	None	None	+	None	None	The implementation of this drought option would be associated with minor beneficial effects through maintaining the water supply during drought conditions. This drought option will also deliver minor beneficial effects in relation to the potential for compensatory planting/ enhancements and bolstering resilience to climate change.
Doncaster Groundwater Option 1	Adverse	--	--	-	--	--	--	--	--	-	-	-	None	--	--	-	None	--	--	The extent and exact location of the proposed infrastructure and proximity to sensitive features or built-up areas are not known, so a precautionary assessment has been applied. Minor adverse effects are anticipated in relation to INNS risks, the effect of abstraction within the existing license, given the existing abstraction pressures, and GHG emissions associated with the operation of the scheme. Given the uncertainties, moderate adverse effects are associated with effect on biodiversity, natural capital and ecosystem services, effect on local residents and infrastructure, effect on recreational amenity, use of materials for construction, generation of waste, effect on water quality due to reduced flows and potential for watercourse crossings, effect on flow as a result of abstraction, potential land take and effect on soils and agricultural land, and anticipated temporary construction effects on visual amenity and local heritage sites.
	Beneficial	None	+	None	+	None	+	None	+	None	None	+	+	None	None	None	+	None	None	Given the anticipated yield from the scheme, minor beneficial effects are associated with the potential for compensatory planting or habitat enhancement, improving operational flexibility through the use of existing licensed abstraction, maintaining essential public water supplies during drought conditions, and improving the reliability and resilience of the overall supply system.
Selby Groundwater Option 2	Adverse	0	0	0	0	0	None	-	None	0	0	0	None	-	0	0	None	0	-	Minor adverse effects have been identified in relation to material assets and resource use, soils and geology, and landscape and visual amenity. These relate primarily to construction activities, including the drilling of the replacement borehole and associated waste generation and vehicle movements. Negligible adverse effects have been identified for biodiversity, flora and fauna (with low risk of INNS introduction provided mitigation is in place), and on the historic environment, including archaeology and cultural heritage. There are no significant effects anticipated on recreational access, water levels and flows, or water quality.
	Beneficial	0	0	None	+	None	++	0	+	None	None	++	0	None	None	None	+	None	None	The implementation of this drought option is anticipated to deliver minor to moderate beneficial effects by enhancing the reliability and resilience of the water supply during drought conditions, thereby supporting human health and economic activity. Additional beneficial effects may arise from compensatory

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
																				planting or habitat enhancement, if required during construction, and from the sustainable use of groundwater abstractions that avoid surface water connectivity. The option also contributes to climate change resilience by diversifying water sources and improving operational flexibility within the existing abstraction regime.
Selby Groundwater Option 2	Adverse	0	0	0	0	0	None	0	None	0	0	None	None	0	0	0	0	0	0	Negligible adverse effects have been identified for most aspects associated with recommissioning the borehole.
	Beneficial	None	None	None	+	None	++	None	0	None	None	+	+	None	None	None	++	None	None	The implementation of this drought option would be associated with minor to moderate beneficial effects on human health and economic activity through maintaining the water supply during drought conditions. This drought option also delivers moderate beneficial effects related to climate change adaptation. Negligible beneficial effects are associated with water resource management, water management and abstraction, and water use efficiency.
Pickering / Thirsk Groundwater Option 1	Adverse	-	-	0	0	-	0	-	0	0	-	-	None	0	-	-	None	0	--	A moderate adverse effect is anticipated in relation to the location of the scheme within a National Landscape and associated visual and landscape effects. Minor adverse effects are related to the potential likely significant effects on River Derwent SAC during operation, potential loss of biodiversity units, which may be compensated / offset, construction effects on recreational amenities, golf course, public footpaths and bridleways, use of materials, generation of waste and energy requirements for operation, effect of abstraction on the groundwater body (further investigation required), and air and associated GHG emissions during construction and operation. disruptions to local services Negligible adverse effects are anticipated in relation to INNS, potential temporary effects on local communities (dust, noise and vibration) and disruptions to local services during construction, generation of construction waste, and need for watercourse crossings.
	Beneficial	None	+	None	+	None	+	None	+	None	None	0	0	None	None	None	+	None	None	Minor beneficial effects were identified with regards to biodiversity net gain and climate change resilience associated with opportunities for compensatory planting and habitat enhancement and increasing the reliability and resilience of the overall supply system. Negligible minor benefits are associated with improving operational flexibility, and sustainable water resource management.
Doncaster Groundwater Option 2	Adverse	--	--	-	--	--	--	-	--	-	-	-	None	-	-	-	None	--	-	Minor adverse effects are associated with potential INNS risks, use of materials for construction, the effect of abstraction within the existing license, given the existing WFD pressures, potential land take and effect on soils and agricultural land, air and GHG emissions, and effects on visual amenity. Given the uncertainties, moderate adverse effects are associated with effect on biodiversity, natural capital and ecosystem services, effect on residents and infrastructure, effect on recreational amenity, generation of waste, effect on water quality due to reduced flows and potential for watercourse crossings, effect on flow as a result of abstraction, and anticipated temporary construction effects on local heritage sites.
	Beneficial	None	+	None	+++	None	+++	None	+++	None	None	+++	+	None	None	None	+++	None	None	Minor beneficial effects are associated with the potential for compensatory planting or habitat enhancement and improving operational flexibility through the use of existing licensed abstraction. Major beneficial effects are related to the anticipated yield of the scheme, which would maintain essential public water

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
																				supplies during drought conditions and improve the reliability and resilience of the overall supply system.
Selby Aquifer Storage and Recovery Scheme 1	Adverse	-	-	0	None	0	0	0	None	-	-	None	None	None	-	-	None	None	None	No groundworks or construction activities are associated with this option. Minor adverse effects are anticipated in relation to the effect on biodiversity, natural capital and ecosystem services, the effect of abstraction on water quality and flow, given the existing WFD pressures, potential land take and effect on soils and agricultural land, and air and GHG emissions associated with operation.
	Beneficial	None	0	None	++	None	++	None	+	None	None	++	++	None	None	None	++	None	None	The implementation of this drought option would be associated with minor beneficial effects related to greater use of the existing abstraction licence and improving the existing efficiency of the management of the water resources needed to maintain essential public water supplies during drought conditions. Moderate beneficial effects are related to the anticipated yield and associated socio-economic and water supply benefits.
Doncaster Groundwater Option 3	Adverse	--	--	--	--	-	--	--	--	-	-	-	None	--	--	-	None	-	-	Moderate adverse effects are expected for biodiversity, air quality, material resources, and soil, largely due to the proximity of designated ecological sites and the scale of temporary construction activities. There is potential for minor adverse effects on heritage, recreation, and groundwater quality, where uncertainty remains.
	Beneficial	None	+	None	++	None	++	None	++	None	None	++	++	None	None	None	++	None	None	Moderate beneficial effects are expected for water resource resilience, health, and adaptive capacity to climate change, driven by the anticipated 9.09 Ml/d yield. Minor benefits include possible compensatory habitat enhancement.
Mobile Package Plants (Desalination, Micro-filtration or Ultrafiltration)	Adverse	-	-	0	-	-	0	0	0	-	-	0	None	0	0	-	None	-	0	Minor adverse effects are anticipated in relation to potential effect on priority habitats, INNS risks, location of sites in built-up areas and temporary disruption/ disturbance impacts, temporary disruption to access to recreational sites or services, energy usage and associated emissions, and temporary effects on local heritage sites.
	Beneficial	None	0	None	+	None	+	None	+	None	None	+	+	None	None	None	+	None	None	Minor beneficial effects associated with the provision of up to 5 Ml/d during drought conditions and improving climate resilience.
York Groundwater Option 1	Adverse	--	-	0	0	0	0	0	None	0	0	0	None	0	0	0	None	0	0	Moderate adverse effects are associated with precautionary assessment of impacts on designated sites, habitats and species and minor adverse effects are associated with short-term, temporary construction impacts on natural resources and ecosystem services and INNS risks.
	Beneficial	0	0	None	+	None	+	0	+	None	None	+	+	0	None	None	+	None	None	The implementation of this drought option could supply up to 4Ml/d with anticipated minor beneficial effects on human health and wellbeing, economic activities, sustainable abstraction, management and water use as well as climate resilience.
Network Changes	Adverse	--	--	0	-	-	None	-	-	-	0	None	None	-	0	0	None	-	-	The exact scale and location of the drought interventions under this option are not known, and as such, a precautionary assessment has been applied. Moderate effects are associated with the potential direct and indirect effects on water-dependent features of designated sites and the likelihood of watercourse crossings. At this stage, BNG has not been included in the assessment. Minor effects are associated with construction-related waste, runoff, noise, dust and vibration, effect on recreational sites/ amenities, energy requirements, potential

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
																				effect on geological sites and agricultural land in rural areas, and potential effect on heritage sites and landscapes. Negligible effects are linked to INNS, surface and groundwater flows, air quality, and GHG emissions.
	Beneficial	None	None	None	++	+	++	0	++	None	None	0	++	None	0	0	++	None	None	Moderate effects are anticipated as the option is an adaptive alternative to tankering during extreme drought. It provides much-needed water in several "at-risk" areas, which in turn supports human health, economic stability, and community well-being. Minor beneficial effects are anticipated in relation to opportunities for minor enhancements on sites, such as habitat reinstatement or localised improvements to landscape or access. Potential negligible benefits include improved resource efficiency, the flexible redistribution of treated water to meet shortfalls, and the avoidance of environmental and logistical effects associated with widespread tankering operations.
Tankering	Adverse	0	0	0	0	0	None	0	None	0	0	None	None	None	0	-	None	0	0	No specific locations are known at this stage, and a precautionary assessment has been undertaken. There would be negligible adverse effects associated with the limited installation of pipelines (where required) and air. Minor adverse effects are anticipated in relation to GHG emissions associated with the operation of tanker vehicles.
	Beneficial	None	None	None	+	None	+	0	+	None	None	0	0	0	0	0	None	0	0	Assessment of the option has found minor beneficial effects in relation to population and human health from enhancing resilience of the public water supply. This option aims to be resource efficient by using the closest existing licensed supplies, including package plants where appropriate. Some negligible beneficial effects are associated with short-term reduction in pressure on other water resources infrastructure, such as WTW and treatment plants, and avoidance of impacts associated with more land-intensive drought options.
South West Reservoir 15 to other South West reservoirs	Adverse	---	--	--	-	0	-	--	None	--	-	-	None	--	-	-	None	-	-	Adopting the precautionary approach in the absence of a defined works area and pipeline corridor, major adverse effects are anticipated in relation to the construction phase on designated sites, including the SSSI and SAC/SPA within the study area. Moderate adverse effects are related to the potential loss of biodiversity units, INNS risks and materials use and waste generation. There are potential minor adverse effects on agricultural land use and soils associated with the pipeline corridor. Minor adverse effects are also associated with the temporary construction works on recreational amenity, local economy, air quality and GHG emissions, visual amenity and heritage sites, as well as through temporary disruption of access and noise and temporary light disturbances. The effect of the proposed scheme on any compensation flow requirements would require assessment and any effect on water quality is unlikely and the effect on flow is uncertain.
	Beneficial	None	+	None	+	0	+	+	+	None	None	+	+	None	None	None	+	None	None	Minor beneficial effects are linked to the potential yield of the scheme and benefits for human health and wellbeing related to maintenance of water supply during drought conditions and contribution to sustainable water resource management and drought resilience. Minor beneficial effects are related to potential for compensatory planting/ habitat enhancement following construction and maintenance of reservoir levels during drought.
Optimisation of York WTW 2	Adverse	-	-	-	-	0	0	--	-	-	0	0	None	0	-	--	None	0	-	Moderate adverse effects are associated the materials needed during construction and the increase in energy use causing greenhouse gas emissions. Minor adverse effects are associated with the potential for impact

Option		SEA Topics and Objectives																	Commentary
		Biodiversity			Population & Human Health			Material Assets & Resource Use		Water				Soil, Geology & Land Use	Air & Climate			Archaeology & Cultural Heritage	Landscape	
		1.1	1.2	1.3	2.1	2.2	2.3	3.1	3,2	4.1	4.2	4.3	4.4	5.1	6.1	6.2	6.3	7.1	8.1	
																				on sensitive species, INNS spread, short-term land disturbance, air quality and the surrounding rural landscape.
	Beneficial	None	0	None	+++	None	+++	None	+++	None	None	+++	+	None	None	None	+++	None	None	Major beneficial effects are associated with the large deployable output (up to 47 Ml/d) generated from this scheme and improving adaptation to climate change. Minor beneficial effects are associated with promoting water efficiency and measures that enable sustainable water use.
Transfers	Adverse	0	None	0	-	0	None	-	None	-	-	-	None	None	-	-	None	None	None	Minor adverse effects are anticipated towards the spread of INNS as water transfers between catchments can heighten this risk. Minor adverse effects are also associated with altering the flow regime, altering water quality, increasing energy consumption and potential emissions.
	Beneficial	0	0	None	++	0	++	+	++	+	+	++	+	None	None	None	++	None	None	Moderate beneficial effects are anticipated towards population and human health, and water associated with ensuring a continued supply of safe drinking water during a severe drought. Moderate beneficial effects are associated with enhancing the efficiency of sustainable water use and improving climate adaptation. Minor beneficial effects are associated with reducing pressure on stressed sources, using existing infrastructure and protecting river flows and water quality.

5.4 HABITATS REGULATIONS ASSESSMENT SCREENING

In parallel with the SEA, Yorkshire Water has undertaken initial HRA Screening for the DP 2027 drought options and outcomes are reported separately in the HRA Screening Report. The screening stage establishes whether any schemes have the potential for a Likely Significant Effect (LSE) on the integrity of a European designated site.

HRA screening of the Drought Plan 2027 has indicated that LSEs on the North Pennine Dales Meadows SAC and Humber Estuary SAC could not be ruled out as a result of the implementation of the Catterick Groundwater Option 1 and North Area Reservoir 1 drought options, respectively. An Appropriate Assessment for each option has been undertaken and is provided as part of the DP27 HRA Screening Report. The Appropriate Assessment concludes that abstraction from the proposed Catterick Groundwater Option 1 drought option will not have a LSE on the qualifying features of the North Pennine Dales Meadows SAC. The Appropriate Assessment for Humber Estuary SAC concludes that the proposed North Area Reservoir 1 option will not have a LSE on the qualifying features of the Humber Estuary SAC. The HRA screening concludes there are no LSEs on the Humber Estuary European Marine site (EMS) or other European Designated Sites within the drought option areas.

Should all of the River Ouse options be implemented in a long-term drought, the in-combination impact would be a moderate impact on river flows in the reach. The in-combination impact on water quality downstream of York STW to the tidal limit due to reduced dilution is a minor impact to water quality and is not considered to have a likely significant effect on water quality in the Humber Estuary EMS. It is important to distinguish between the impact of drought on the Humber Estuary and the additional impact due to implementation of the drought management options. The reduction in river flow due to the drought management options is ameliorated by the dry weather flow from a sewage works discharge, such that the reduction in the River Ouse discharge to the Humber Estuary is not considered to have a likely significant effect on water quality in the Humber Estuary.

The HRA has included extreme supply options in the event of a long term drought, although the specific timing of the options is unknown. The majority of the extreme options have been included in the Stage 1 Screening but have not been taken through Appropriate Assessment. Should the requirement for extreme options arise, these will be subject to full HRA, including a full Appropriate Assessment when scheme details become more developed.

5.5 SUMMARY

In general, the demand-side options were found to have beneficial impacts on SEA objectives for population and human health and material assets and resource use. Adverse impacts relate to restrictions of water use and there are adverse effects on cultural heritage and emissions.

Impacts on SEA objectives for drought permit/order options were mainly associated with impacts on surface waters and the aquatic ecology within. Reductions in surface water levels also have the potential for adverse impacts on water quality, recreation and on landscape and visual amenity. The river abstraction options were found to have the greatest beneficial effects due to the large volumes of water they could provide, while two reservoir options in the North area were found to have the least adverse effects. These effects are localised, reversible, and subject to regulatory control.

The assessment has found that adverse effects associated with the extreme options typically relate to additional energy requirements, emissions and materials used to maintain supply. Adverse effects on surface water flows and levels, water quality and biodiversity would be associated with these options. The best performing extreme options against these criteria include Catterick Groundwater Option 1, Selby Groundwater Option 1, Selby Groundwater Option 2 and Tankering. However, the other options deliver more beneficial effects on population and human health due to higher deployable outputs.

The assessment provides a transparent comparison of environmental performance to inform the decision-making during drought conditions.

6. CUMULATIVE EFFECTS ASSESSMENT

6.1 INTRODUCTION

Schedule 2 requires that the Environmental Report consider the likely significant cumulative effects of implementing DP 2027. The cumulative effects assessments presented in this section have been carried out in line with the methodology described in **Section 4.5.**

The DP 2027 comprises a suite of drought options that may be implemented in different combinations depending on drought severity, duration and geographical extent. It is not feasible to model specific cumulative scenarios at this stage given that the sequence and combination of options cannot be predicted in advance. In addition, drought trigger levels are based on real-time hydrological conditions and drought conditions are inherently uncertain. As a result, the degree to which individual options may overlap spatially or temporally, and therefore generate cumulative effects, cannot be reliably assessed at this strategic stage. As such, the SEA has adopted a precautionary approach, focusing on the potential for overlapping operational effects. Further detailed assessment will be undertaken once specific options are triggered and their implementation pathways are confirmed.

6.2 DEMAND SIDE OPTIONS

6.2.1 Cumulative Effects of Demand Management Options

Table 6-1 identifies potential operational overlap between demand management options. The matrix does not represent magnitude of environmental effect but highlights where implementation timing may interact.

There is potential for cumulative adverse effects when implemented simultaneously between the ‘Increased Leakage Detection and Repair Activity’ drought option and ‘Pressure Management’ extreme demand option. Both options would result in additional vehicle movements across the supply area to support operational activities. However, these works are expected to be short-term, intermittent and dispersed over a wide geographic area, and as such any cumulative effects are anticipated to be limited and not significant.

It is acknowledged that some demand management options involving TUBs and drought orders are sequential. For example, the ‘Prohibit or limit non-essential uses of water (non-essential use ban)’ will remain in place while the ‘Emergency Drought Order’ is operational, but it is the worst-case scenario for demand management and effects between the two options are not additive.

Demand management measures generally reduce abstraction pressure and therefore are unlikely to generate adverse cumulative effects.

Table 6-1 Cumulative Impacts Matrix, Demand Management Measures

	Demand Management Options	Agile communication strategy	Increased leakage detection and repair activity	Drought publicity campaign	Temporary use bans	Prohibit or limit non-essential uses of water (non-essential use ban)	Emergency drought order	Removal of exceptions	Drought orders	Yorkshire Water customer campaign	National Media & Communications	Pressure management	Request commercial and agricultural water use reductions
Standard options	Increased leakage detection and repair activity												
	Drought publicity campaign												
	Temporary use bans												
	Prohibit or limit non-essential uses of water (non-essential use ban)				--								
	Emergency drought order					--							
Extreme options	Removal of exceptions						--						
	Drought orders						--	--					
	Yorkshire Water customer campaign												
	National Media & Communications												
	Pressure management		---										
	Request commercial and agricultural water use reductions												
	Water efficiency in non-household properties												

Legend:

	No likely cumulative effects identified (or potential minor beneficial effects)
	Potential cumulative adverse interaction identified
	Options typically implemented sequentially under drought trigger hierarchy
	Uncertain – insufficient information available at this stage

6.3 CUMULATIVE EFFECTS BETWEEN SUPPLY SIDE OPTIONS

This section considers the potential cumulative effects associated with implementation of supply-side drought permit and order options across the Yorkshire Water operational area. Site-specific cumulative effects within individual areas are considered in the EARs prepared for each drought permit/order.

The EARs consider a precautionary scenario in which it is assumed that all relevant options are implemented simultaneously within a defined hydrological area, subject to regulatory control. Extreme supply options have been assessed separately due to their distinct operational characteristics.

Due to uncertainty regarding the timing and sequencing of drought option implementation across different catchments, a detailed cumulative impact assessment of drought options at the whole operational area scale has not been undertaken. Instead, the potential cumulative effects have been identified, consistent with the methodology in Section 4. In practice, in the event of a drought, the findings of the EARs would be reviewed and a cumulative assessment of options proposed for implementation at that time would be undertaken.

Table 6-2 provides a framework for capturing cumulative effects that could arise from simultaneous deployment of two or more drought option groups (excluding extreme supply options) and lists potentially impacted river reaches and estuaries. **Figure 6-1** illustrates the river reaches potentially affected by cumulative implementation of supply-side options.

Table 6-2 Cumulative Effects between Drought Permit/Order Options at the Catchment Level

Drought Option/Reservoir Group	**North area reservoir group**	**South area reservoir group**	**South West area reservoir group**	**North West area reservoir group**	**Increased Ouse pumping capacity**	**Ure increased abstraction**	**Wharfe reduced regulated flow**
South area reservoir group	Upper Humber						
South West area reservoir group	Upper Humber	Upper Humber					
North West area reservoir group	Tidal Ouse, Upper Humber	Upper Humber	Aire, tidal Ouse, Upper Humber				
Increased Ouse pumping capacity	Ouse, Upper Humber	Upper Humber	Tidal Ouse, Upper Humber	Tidal Ouse, Upper Humber			
Ure increased abstraction	Ure, Swale, Ouse, Upper Humber	Upper Humber	Tidal Ouse, Upper Humber	Tidal Ouse, Upper Humber	Ouse Upper Humber		
Wharfe reduced regulated flow	Wharfe	Upper Humber	Tidal Ouse, Upper Humber	Tidal Ouse, Upper Humber	Tidal Ouse, Upper Humber	Tidal Ouse, Upper Humber	
Hull increased abstraction	No cumulative effect	No cumulative effect	No cumulative effect	No cumulative effect	No cumulative effect	No cumulative effect	No cumulative effect
R. Derwent abstraction increase	No cumulative effect	No cumulative effect	No cumulative effect	No cumulative effect	No cumulative effect	No cumulative effect	No cumulative effect

The following sections consider the principal river reaches where cumulative hydrological interactions may arise from implementation of multiple drought permit and order options. The cumulative effects will be assessed at the time of drought permit/ order application in the respective EARs.

6.3.1.1 The River Ouse

The North Area Reservoir 1, North Area Reservoir 2, Ure increased abstraction and North Area Reservoir 3 options would result in a flow reduction.

6.3.1.2 The increased Ouse pumping capacity

Three reservoirs of the North reservoir group (North Area Reservoir 1, North Area Reservoir 2 North Area Reservoir 3), the Ouse increased abstraction drought option and the Ure increased abstraction drought option could, if simultaneously deployed, impact flows downstream of the Ouse pumping station.

6.3.1.3 Tidal Ouse

The Rivers Aire and Wharfe discharge into the tidal River Ouse, downstream of Naburn Weir, meaning that simultaneous operation of the South West Reservoir group, the North-West reservoir group, the North reservoir group, and the Ouse increased abstraction, Ure increased abstraction and Wharfe reduced regulated flow options could potentially impact freshwater flows in the tidal Ouse.

6.3.1.4 The River Ure

The simultaneous implementation of the North Area Reservoir 1 and Ure increased abstraction options would result in a moderate cumulative hydrological impact on the River Ure.

6.3.1.5 The River Swale

The North Area Reservoir 1, North Area Reservoir 2 and Ure increased abstraction options could cause a flow reduction to the Ure.

6.3.1.6 The River Wharfe

North Area Reservoir 4 and Wharfe increased abstraction drought options could cause reductions in flow in the River Wharfe downstream.

6.3.1.7 The River Aire

Potential impacts of simultaneous deployment of all drought options in the North West Area and South Area reservoir groups could result in a hydrological impact on the River Aire.

6.3.1.8 The Humber Estuary

There are potential hydrological cumulative effects on the Humber Estuary as a result of simultaneous implementation of the following options:

- North Area Reservoir 1
- North Area Reservoir 4
- Ure increased abstraction.
- North West Area Reservoir 3
- North West Area Reservoir 2
- North West Area Reservoir 1
- Ouse increased abstraction
- Hull increased abstraction
- Derwent annual abstraction increase

A detailed assessment was undertaken in support of DP 2008, and reported in February 2011[10]. The assessment found that implementation of the drought options at that time would not adversely affect the qualifying interests or site integrity of the Humber Estuary SAC/SPA. The DP 2027 retains the majority of the

10 Scott Wilson (2011). Yorkshire Water Drought Plan: Assessment of Possible Impact on Humber Estuary SPA/SAC. Final Report Revision 2 February 2011. Report for Yorkshire Water.

previously assessed options (except for Hull increased abstraction) and while hydrological baseline conditions have evolved since 2011, the scale and temporary nature of the drought options remain comparable.

The potential for cumulative effects on the Humber Estuary EMS has been considered in the HRA screening undertaken for DP27. This concluded there are no LSEs on the Humber Estuary EMS (European Marine Site) either alone or in combination.

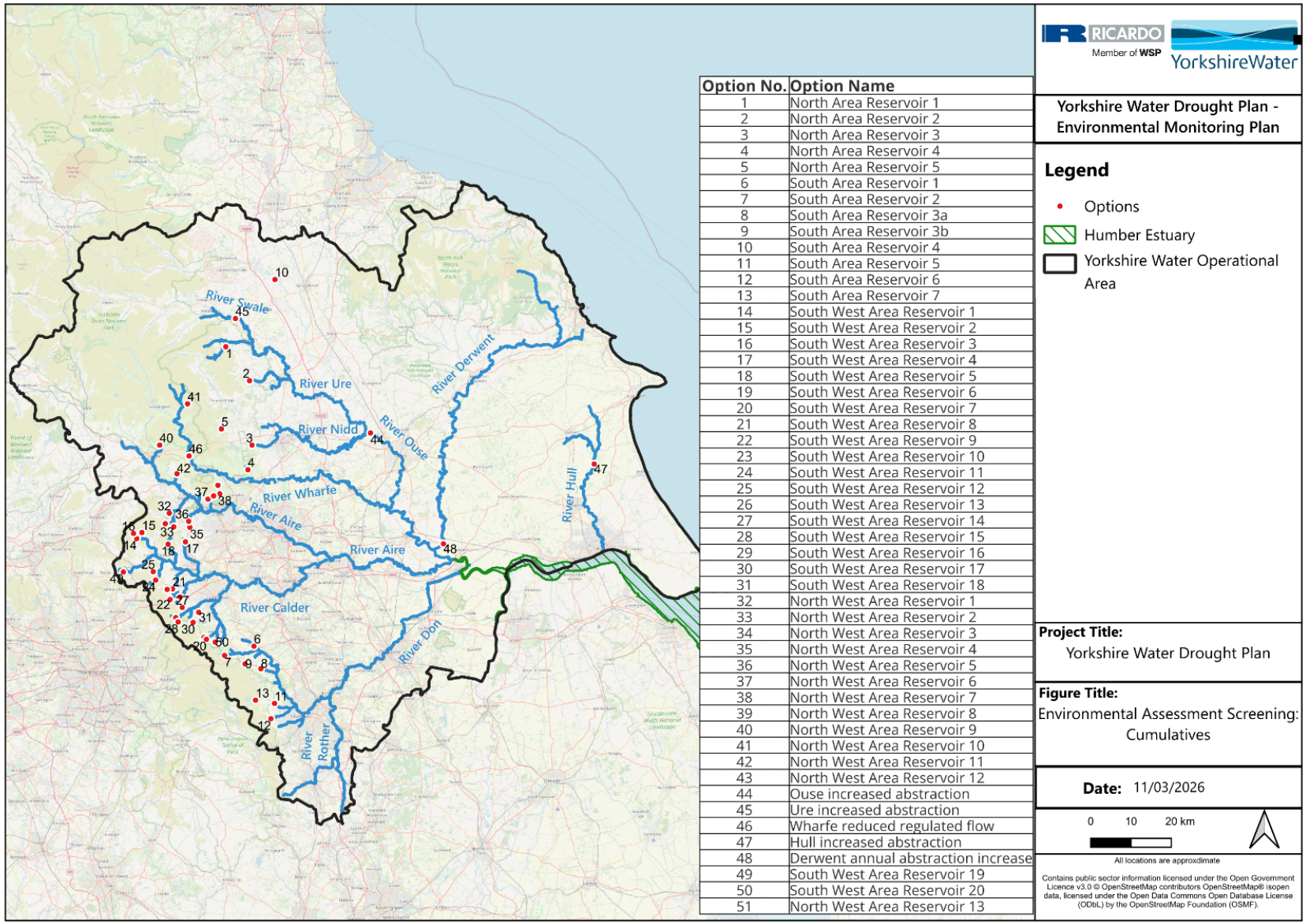
6.3.1.9 Extreme Supply Options

The cumulative effect assessment does not identify environmental effects of such magnitude as to preclude the potential implementation of any extreme supply option from being retained in the Drought Plan 2027 for consideration in a very severe drought. Decisions as to which option or options to pursue in the event of an extended drought, should be informed by:

- The additional water required to maintain essential supplies to customers.
- Prevailing hydrological and environmental conditions.
- The cumulative effects of supply-side options already in operation.
- The outcomes of regulatory consultation and environmental monitoring.

Consideration should also be given to practical and operational factors such as implementation timescales, spatial distribution of drought impacts, drinking water quality risks and construction constraints.

Given the temporary, localised and emergency nature of extreme supply options, and their implementation under regulatory control, significant long-term environmental effects are not anticipated. Any decision to implement such actions would be subject to appropriate environmental controls and adaptive management.



Option No.	Option Name
1	North Area Reservoir 1
2	North Area Reservoir 2
3	North Area Reservoir 3
4	North Area Reservoir 4
5	North Area Reservoir 5
6	South Area Reservoir 1
7	South Area Reservoir 2
8	South Area Reservoir 3a
9	South Area Reservoir 3b
10	South Area Reservoir 4
11	South Area Reservoir 5
12	South Area Reservoir 6
13	South Area Reservoir 7
14	South West Area Reservoir 1
15	South West Area Reservoir 2
16	South West Area Reservoir 3
17	South West Area Reservoir 4
18	South West Area Reservoir 5
19	South West Area Reservoir 6
20	South West Area Reservoir 7
21	South West Area Reservoir 8
22	South West Area Reservoir 9
23	South West Area Reservoir 10
24	South West Area Reservoir 11
25	South West Area Reservoir 12
26	South West Area Reservoir 13
27	South West Area Reservoir 14
28	South West Area Reservoir 15
29	South West Area Reservoir 16
30	South West Area Reservoir 17
31	South West Area Reservoir 18
32	North West Area Reservoir 1
33	North West Area Reservoir 2
34	North West Area Reservoir 3
35	North West Area Reservoir 4
36	North West Area Reservoir 5
37	North West Area Reservoir 6
38	North West Area Reservoir 7
39	North West Area Reservoir 8
40	North West Area Reservoir 9
41	North West Area Reservoir 10
42	North West Area Reservoir 11
43	North West Area Reservoir 12
44	Ouse increased abstraction
45	Ure increased abstraction
46	Wharfe reduced regulated flow
47	Hull increased abstraction
48	Derwent annual abstraction increase
49	South West Area Reservoir 19
50	South West Area Reservoir 20
51	North West Area Reservoir 13

Figure 6-1: Cumulative reaches

6.4 CUMULATIVE EFFECTS WITH YORKSHIRE WATER'S EXISTING ABSTRACTION LICENCES

The supply-side drought options would operate in conjunction with Yorkshire Water's existing abstraction licences. Drought permits and drought orders provide temporary modifications to license conditions (e.g. reducing compensation flow releases or changes to hands-off flow thresholds) under defined drought conditions.

The SEA has considered the additional environmental effects arising from these temporary modifications over and above baseline pressures associated with existing licensed abstractions.

During drought conditions, actual abstraction volumes are often constrained by low river flows and hands-off flow conditions, meaning that full licensed volumes are not typically abstracted. Drought permits and orders allow temporary adjustments to these constraints in order to maintain essential water supplies. This remans subject to Environment Agency approval and environmental monitoring.

6.5 HABITATS REGULATIONS ASSESSMENT CUMULATIVE ASSESSMENT

In parallel with the SEA, Yorkshire Water has undertaken initial HRA Screening on its DP 2027 options list and outcomes are reported separately in the HRA Screening Report with Stage 2 Appropriate Assessment undertaken where required for specific options. The screening stage establishes whether any schemes have the potential for a LSE on the integrity of a European designated site. In-combination effects with Yorkshire Water's WRMP24, the Environment Agency's regional Drought Plans, and neighbouring water company WRMPs and Drought Plans were assessed through the HRA process. The HRA concluded that the DP 2027 would not result in LSE, or where Appropriate Assessment was required, would not adversely affect the integrity of any European designated site.

6.6 CUMULATIVE EFFECTS WITH EXISTING RELEVANT PROGRAMMES, PLANS, POLICIES & PROJECTS

The SEA has considered potential cumulative interactions between DP 2027 and other relevant plans, programmes and projects at the national, regional and local scales. This Section builds upon the policy and plan review presented in Section 2 and focusses on those plans most likely to interact hydrologically or operationally with DP 2027.

6.6.1 Other Water Company Drought Plans

Assessment of the potential for cumulative effects between Yorkshire Water's DP 2027 and neighbouring water companies' Drought Plans has been undertaken. The review has considered the following companies:

- Severn Trent Water
- United Utilities
- Northumbrian Water
- Anglian Water

Given that the Drought Plans are reviewed and updated on differing cycles, the assessment has been based on the most recent publicly available information at the time of writing. As such, the assessments should be reviewed at the time of drought option implementation to consider any changes.

Following the review, no cumulative effects between United Utilities' or Anglian Water's DP 2027 with Yorkshire Water's DP 2027 have been identified.

6.6.1.1 Severn Trent Water

The Severn Trent Water 2022 drought plan sets out the bulk supply agreement with Yorkshire Water. In 1989, Severn Trent Water and Yorkshire Water entered into an agreement for the supply of untreated water from the Derwent Valley reservoirs to the Rivelin reservoirs in Sheffield. The agreement secured a maximum of 21,550Ml per year (59Ml/d) until March 2084 with the purpose of replacing the Derwent Valley Acts and Orders 1889-1969.

The amount that can be taken by both Yorkshire Water and Severn Trent Water is set in operating guidelines based on the principle that Yorkshire Water is entitled to 24.1% of the available water. The minimum supply rate set in the guidelines between Severn Trent Water and Yorkshire Water is 35Ml/d.

However, there is provision in the agreement to modify these rules and this was carried out in 1995/96, 2003, 2018, 2022 and 2025.The response from Yorkshire Water will depend upon the prevailing water resource situation in Yorkshire, but could result in the South Area reservoir drought permit options being implemented earlier in the event of a drought, and reduced supplies from the Derwent Valley reservoirs to Yorkshire Water. As such, there would be no cumulative impacts with Severn Trent's drought plan.

6.6.1.2 Northumbrian Water

The options to be included in Northumbrian Water's DP 2027 have been reviewed and no cumulative effects between these and those in Yorkshire Waters DP 2027 are anticipated.

6.6.2 Water Resource Management Plans

There are options in the WRMP24 preferred plan that also appear in the Yorkshire Water DP 2027 i.e. River Aire Option 1, or are similar schemes which would utilise the same proposed source i.e. R91 New internal transfer to North Yorkshire WTW and Pickering/Thirsk Groundwater Option 1, R3a River Ouse licence transfer. At the request of Regulators, Yorkshire Water included additional drought options in the Preferred Plan to increase overall resilience. No cumulative impacts will arise as the options will be mutually exclusive - either the scheme will be developed as a permanent scheme under the WRMP and therefore no longer a Drought Plan option; or it will be a temporary scheme available, if required, in a drought prior to it becoming a permanent scheme in later years under the WRMP.

The WRMP24 also includes a demand side management option for leakage management.. Simultaneous implementation of the DP option for increased leakage detection and repair activity could lead to cumulative adverse impacts with leak detection and repair activity associated with the WRMP, however, any such impacts are likely to be no more than minor.

6.6.3 Environment Agency Yorkshire Area Drought Plan

Assessment of the potential for cumulative impacts of supply side and drought permit/order options with the Environment Agency Yorkshire Area Drought Plan[11] has been undertaken.

The information used to carry out these assessments is considered to be the most up to date information available at time of writing, but the assessments should be reviewed at the time of actual drought option implementation to ensure that no changes to the Environment Agency Drought Plan have been made in the intervening period, and that the assessment therefore remains valid.

Drought actions and triggers are given in the Environment Agency's Drought Plan. Actions described include communications (internal and external), monitoring and potential drought order applications to protect the environment. Of these actions, those which are applicable for cumulative assessment with Yorkshire Water's drought options are external communications and potential environmental drought orders.

External communications will have beneficial cumulative effects with Yorkshire Water's media/water efficiency campaign demand side option, as drought communication messages may reinforce each other, thereby resulting in increased demand savings and greater recognition by the public to use water wisely.

Environment Agency environmental drought order actions have the potential to have cumulative impacts with Yorkshire Water's drought options. Three drought orders are identified within the Environment Agency's Drought Plan for the Yorkshire Area; South West Area Reservoir 19, North West Area Reservoir 13 and South West Area Reservoir 20. Yorkshire Water has prepared standalone EARs for these options which consider cumulative effects with other drought options. A review of the EARs concluded:

- **South West Area Reservoir 19** drought order has the potential for cumulative effects on the River Calder if implemented alongside South West Area Reservoir 1, South West Area Reservoir 3 and South West Area Reservoir 2 drought permits. The cumulative flow reduction from these drought

[11] Environment Agency (2025) Yorkshire Area Drought Plan. Version 1. April 2025

options would lead to a 7.39 Ml/d flow reduction in April to September and 11.79 Ml/d in October to March, representing a moderate hydrological impact in spring/summer/autumn and minor impact in winter. This does not represent a change when compared to the hydrological impacts assessed in the rest of the Upper Calder. As a result, additional cumulative assessment was not required.

- **North West Area Reservoir 13** drought order does not impact any of the same reaches as the Yorkshire Water drought options
- **South West Area Reservoir 20** drought order has the potential for cumulative effects on the River Holme and the downstream reaches when implemented alongside the Middle Calder drought options. The hydrological magnitude of impact as a result of this cumulative impact would be no worse than the magnitude of impact on these reaches assessed as a result of the Middle Calder options alone.

In the event of a drought, Yorkshire Water will consult with the Environment Agency to determine whether any drought order applications are being considered. The cumulative effects between these and any potential Yorkshire Water drought options would be assessed at that time

In summary, no cumulative impacts of options in Environment Agency Drought Plans and Yorkshire Water's drought options are anticipated. However, due to the uncertainties of potential locations, and potential revisions to the Environment Agency's plan, this should be considered further at the time of any potential application for drought permits/orders by Yorkshire Water.

6.6.4 Cumulative effects with any other identified relevant Plans or Policies

No cumulative effects are identified with other relevant existing plans and policies, including national policy statements, national or regional infrastructure plans or with local planning authority plans.

7. MITIGATION & MONITORING

7.1 OVERVIEW

Key stages of the SEA process comprise Task B5: *Mitigating adverse effects*, Task B6: *Proposing measures to monitor the environmental effects of plan or programme implementation* and Stage E: *Monitoring the significant effects of the plan or programme on the environment* (see **Section 1.6** and **Table 1-5**). The sections below describe how these tasks have been addressed and how Yorkshire Water intend to ensure that mitigation measures are implemented for any adverse effects that are identified and the means by which the environmental performance of the DP 2027 can be assessed.

7.2 MITIGATION

Consideration of mitigation measures has been an integral part of the SEA process. The methodology for the assessment of the drought options is provided in Section 4. The SEA appraisals have been based on residual impacts, i.e. those impacts likely to remain after the implementation of reasonable mitigation or standard good practice. Certain assumptions have been made regarding this:

- Where suitable mitigation measures are known and identified (e.g. as informed through EARs, where available, or Yorkshire Water's drought management action forms in the DP 2027 (see Appendix 4), these have been taken into account in determining the residual impact. Full details of proposed mitigation measures for drought permit/order options can be found in the DP 2027 EMP.
- In line with UKWIR SEA Guidance[5] the SEA appraisals have assumed the implementation of reasonable mitigation, such as the use of standard good construction practice. This is particularly applicable to unused supply-side options which are currently non-commissioned and which do not operate as 'business as usual', and would require recommissioning in the event of use as a drought option.
- No mitigation is proposed for abstraction licences which are issued by the Environment Agency based on an assessment of the potential impacts on the environment. These licences already contain flow constraints at low flows or conditions associated with an operating agreement. This is applicable to all supply-side options which would operate with existing abstraction licence limits which have been subject to the Environment Agency's Review of Consents process.

7.3 MONITORING

Monitoring is required to track the environmental effects to show whether they are as predicted, to help identify any adverse impacts and trigger deployment of mitigation measures.

Drought Plans encompass a basket of measures that will only be implemented if and when required because of the unpredictable occurrence of a drought event, and thus the actual impact of the plan over its life is subject to very significant uncertainties.

Yorkshire Water's DP 2027 includes a range of possible measures to allow Yorkshire Water to respond to a particular drought in the most appropriate way. It is impossible to predict in advance which and how many of the measures will be required, and in which order of priority, to respond to each particular drought event. Correspondingly, it is therefore difficult to prescribe monitoring for the effects of the DP 2027 as a whole, and more appropriate to consider monitoring for drought options with significant environmental effects should these options be implemented during an actual drought.

As described in Section 1.5, EARs have been prepared. The EARs include detailed Environmental Monitoring Plans (EMPs). A summary of the monitoring requirements can be found in Appendix 4 (Drought Management Actions) The Drought Plan Guidance requires the environmental assessment and EMPs to be updated regularly. The monitoring requirements will be assessed in more detail through this process. As described in the DP 2027, in the event of a drought requiring the implementation of drought option(s), Yorkshire Water will review the requirement for environmental monitoring in consultation with the Environment Agency and Natural England.

APPENDICES

APPENDIX A: QUALITY ASSURANCE CHECKLIST

ODPM Guidance[2] on SEA contains a Quality Assurance checklist to help ensure that the requirements of the SEA Directive are met. The checklist is reproduced in **Table A-1**, indicating where this Environmental Report meets the requirements.

Table A-1: Quality Assurance Checklist

Checklist item	Comments
Objectives and context	
The plan's or programme's purpose and objectives are made clear.	The purpose of the Drought Plan is set out in Section 1 of this Environmental Report.
Environmental issues and constraints, including international and EC environmental protection objectives, are considered in developing objectives and targets.	Objectives of other relevant plans and programmes are set out in Section 2.2 and Appendix B.
SEA objectives, where used, are clearly set out and linked to indicators and targets where appropriate.	SEA objectives are set out in Section 4.2 of this Environmental Report.
Links with other related plans, programmes and policies are identified and explained.	Links are identified in Section 2 and Appendix B of this Environmental Report.
Conflicts that exist between SEA objectives, between SEA and plan objectives and between SEA objectives and other plan objectives are identified and described	Cumulative effects such as those associated with the Drought Plan and other plans are addressed in Section 6. Yorkshire Water has not identified any objectives for the Drought Plan, hence there are no conflicts with the SEA objectives.
Scoping	
Consultation Bodies are consulted in appropriate ways and at appropriate times on the content and scope of the Environmental Report.	The Scoping Report is a part of the consultation process required to meet the requirements of the SEA Regulations and was circulated to consultees. The consultation process is described in Section 1.8
The assessment focuses on significant issues.	The scope of the assessment reflects the geographic extent of Yorkshire Water's WRZs, and provides a comprehensive approach to assessment (reflecting the large number of interactions dependent on the continued supply of water) which has enabled the subsequent assessment to determine which impacts are considered to be significant.
Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.	Difficulties and assumptions are set out in Section 4.5 of this Environmental Report.
Reasons are given for eliminating issues from further consideration.	The SEA objectives provide a comprehensive basis for assessment. Changes (additions or removal of SEA objectives) are described in Section 4.3.1 .
Alternatives	
Realistic alternatives are considered for key issues, and the reasons for choosing them are documented.	The appraisal framework was used to assess drought options, as set out in this Environmental Report.
Alternatives include 'do minimum' and/or 'business as usual' scenarios wherever relevant.	
The environmental effects (both adverse and beneficial) of each alternative are identified and compared.	Assessment of alternatives (the drought options) have been considered in this Environmental Report.
Inconsistencies between the alternatives and other relevant plans, programmes or policies are identified and explained.	Assessment of alternatives (the drought options) have been considered in this Environmental Report.

Checklist item	Comments
Reasons are given for selection or elimination of alternatives.	Assessment of alternatives (the drought options) have been considered in this Environmental Report.
Baseline information	
Relevant aspects of the current state of the environment and their likely evolution without the plan or programme are described.	The current state of the environment and predicted future baseline is set out in Section 3 and Appendix C of this Environmental Report for each SEA topic.
Environmental characteristics of areas likely to be significantly affected are described, including areas wider than the physical boundary of the plan area where it is likely to be affected by the plan.	The environmental characteristics of the Yorkshire Water' s water supply area, and bordering regions where appropriate, are described in Section 1.3.
Difficulties such as deficiencies in information or methods are explained.	Difficulties and limitations are set out in Section 3.2 (and Section 4.5 for wider methodology).
Prediction and evaluation of likely significant environmental effects	
Effects identified include the types listed in the Directive (biodiversity, population, human health, fauna, flora, soil, water, air, climate factors, material assets, cultural heritage and landscape), as relevant; other likely environmental effects are also covered, as appropriate.	Potential effects have been set out in the Environmental Report in Section 5, Section 6 and Appendix E.
Both positive and negative effects are considered, and the duration of effects (short, medium or long-term) is addressed.	The nature and duration of potential effects have been set out in the Environmental Report, using an appraisal framework set out in Section 4 of this Environmental Report. Effects are assessed in Sections 5 and 6 and Appendix E of the Environmental Report.
Likely secondary, cumulative and synergistic effects are identified where practicable.	These effects have been identified and described in Section 6 of this Environmental Report.
Inter-relationships between effects are considered where practicable.	These effects have been considered within the assessment in Section 5 and Appendix E and also in Section 6 of this Environmental Report where practicable.
The prediction and evaluation of effects makes use of relevant accepted standards, regulations, and thresholds.	Relevant standards have been used where appropriate in undertaking the assessment in the Environmental Report.
Methods used to evaluate the effects are described.	The Environmental Report includes information on the methods used for evaluation of potential effects in Section 4.
Mitigation measures	
Measures envisaged to prevent, reduce and offset any significant adverse effects of implementing the plan or programme are indicated.	Mitigation measures for potential negative effects have been incorporated into the assessment undertaken in preparing the Environmental Report, and are described in Section 7.2.
Issues to be taken into account in project consents are identified.	Such mitigating measures, if required, will be highlighted against the drought options. It is noted that Environmental Assessment Reports which include Environmental Management Plans have been prepared for most of the Drought Permit / Order sites.
The Environmental Report	
Is clear and concise in its layout and presentation.	The Environmental Report is clear and concise. See Section 1.7.
Uses simple, clear language and avoids or explains technical terms.	The Environmental Report uses simple, clear language, and explain technical terms, as appropriate.
Uses maps and other illustrations where appropriate.	The Environmental Report has used maps and illustrations where appropriate.

Checklist item	Comments
Explains the methodology used.	The SEA methodology has been described in Section 1.6 and Section 4 of the Environmental Report.
Explains who was consulted and what methods of consultation were used.	The consultation process is described in Section 1.8.
Identifies sources of information, including expert judgement and matters of opinion.	Sources of information have been detailed in the Environmental Report.
Contains a non-technical summary covering the overall approach to the SEA, the objectives of the plan, the main options considered, and any changes to the plan resulting from the SEA.	The Environmental Report includes a Non-Technical Summary.
Consultation	
The SEA is consulted on as an integral part of the plan-making process.	This Scoping Report and Environmental Report are part of the consultation process required to meet the requirements of the SEA Directive. Both have been circulated to consultees. The consultation process is described in Section 1.8.
Consultation Bodies and the public likely to be affected by, or having an interest in, the plan or programme are consulted in ways and at times which give them an early and effective opportunity within appropriate time frames to express their opinions on the draft plan and Environmental Report.	The Scoping Report and Environmental Report are part of the consultation process required to meet the requirements of the SEA Directive. Both have been/will be circulated to consultees. The consultation process is described in Section 1.8.
Decision-making and information on the decision	
The environmental report and the opinions of those consulted are taken into account in finalising and adopting the plan or programme.	Responses from consultation on the Environmental Report of the Drought Plan will be incorporated into the development of the final Environmental Report. After finalisation of the Drought Plan, a statement will be published describing how the SEA and the responses to consultation have been taken into account during the preparation of the Drought Plan.
An explanation is given of how they have been taken into account.	Consultation responses, and how they have been incorporated in the final Environmental Report have been incorporated in the report After finalisation of the Drought Plan, a statement will be published describing how the SEA and the responses to consultation have been taken into account during the preparation of the Drought Plan.
Reasons are given for choosing the plan or programme as adopted, in the light of other reasonable alternatives considered.	This is set out in the Drought Plan.
Monitoring measures	
Measures proposed for monitoring are clear, practicable and linked to the indicators and objectives used in the SEA.	See Section 7.3 of this Environmental Report which provides an overview of proposals for monitoring.
Monitoring is used, where appropriate, during implementation of the plan or programme to make good deficiencies in baseline information in the SEA.	Suggestions for monitoring have been made in the Environmental Report (see Section 7.3), with monitoring taking place following implementation of the Drought Plan, further to consultation with regulatory authorities including the Environment Agency, Natural England and Historic England.
Monitoring enables unforeseen adverse effects to be identified at an early stage. (These effects may include predictions which prove to be incorrect.)	Suggestions for monitoring have been made in the Environmental Report (see Section 7.3), with monitoring taking place following implementation of the Drought Plan, further to consultation with regulatory authorities including

Checklist item	Comments
	the Environment Agency, Natural England and Historic England.
Proposals are made for action in response to significant adverse effects.	Mitigation measures for adverse effects are suggested in the Environmental Report (see Section 7.2).

APPENDIX B: REVIEW OF POLICIES, PLANS AND PROGRAMMES

The findings of the review of policy, plans and programmes are set out in **Table B-1**. The purpose of the review and the key findings are set out in **Section 2.2** of this report. This table sets out the purpose and objectives of the policy, plans and programmes, their relationship with Yorkshire Water's Drought Plan and the implications of the plan objectives for the objectives of the SEA.

Table B-1: Summary of the Policy, Plans and Programmes reviewed and their link to the Strategic Environmental Assessment

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
International	
Convention on Biological Diversity (2022) *Kunming-Montreal Global Biodiversity Framework (GBF)*	
The Kunming-Montreal Global Biodiversity Framework (GBF) is an outcome of the 2022 United Nations Biodiversity Conference and was adopted during COP15. The GGF contains four global goals and 23 targets, categorised into three areas; reducing threats to biodiversity, meeting peoples needs through sustainable use and benefit-sharing and tools and solution or implementation and mainstreaming. Although not a legally binding treaty, the GBF is expected to have a major impacts in countries as they endeavour to meet their targets, through development of new plans and regulations. For example, protected areas will be expanded and subsidies for ecologically destructive activities such as fishing will have to be redirected.	The SEA should seek to promote the protection and enhancement of biodiversity.
Council of Europe (1979) *The Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention)*	
International convention which aims to ensure conservation of wild flora and fauna species and their habitats. Special attention is given to endangered and vulnerable species, including endangered and vulnerable migratory species specified in appendices. Enforced in European legislation through the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC).	The SEA should seek to promote the protection and enhancement of biodiversity.
Council of Europe (1983) *The Convention on the Conservation of Migratory Species of Wild Animals (The Bonn Convention)*	
Aims to conserve terrestrial, marine and avian migratory species by protecting endangered, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger such species. Enforced in European legislation through the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC).	The implementation of the DP may influence biodiversity in the North West and as such the SEA should seek to maintain or enhance the quality of habitats and biodiversity.
Council of Europe (1985) *Convention for the Protection of the Architectural Heritage of Europe* Granada Convention	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
To reinforce and promote policies for the conservation and enhancement of Europe's heritage.	The SEA should take into account the need to conserve heritage.
Council of Europe (1992) *Valletta Convention on Protection of Archaeology*	
The Valletta Convention is one of a series of Conventions for the protection of the cultural heritage produced by the Council of Europe over the last fifty years.	The SEA should take into account the need to conserve heritage.
Council of Europe (2000) *European Landscape Convention (Florence Convention)*	
The European Landscape Convention is an international convention focusing specifically on landscape. The UK Government signed the European Landscape Convention in 2006 and it became binding from March 2007.	The SEA should take landscape quality into account and include water quality in the assessment framework.
Council of Europe (2006), *European Landscape Convention*	
European Landscape Convention (ELC) is the first international convention to focus specifically on landscape. Natural England implements the European Landscape Convention in England. The aims of the 2009/10 action are: • Lead on improving the protection, planning and management of all England's landscapes • Raise the quality, influence and effectiveness of policy and practical instruments • Increase the engagement in and enjoyment of landscapes by the public • Collaborate with partners across the UK and Europe.	The implementation of the DP may influence landscape or the enjoyment of landscapes in the Yorkshire Water SEA study area and as such the SEA should consider the need to maintain or enhance the quality of the regions landscapes and the potential enjoyment of these landscapes.
EC 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment (SEA Directive)	
The SEA Directive provides the following requirements for consultation: • Authorities which, because of their environmental responsibilities, are likely to be concerned by the effects of implementing the plan or programme, must be consulted on the scope and level of detail of the information to be included in the Environmental Report. These authorities are designated in the SEA Regulations as the Consultation Bodies. • The public and the Consultation Bodies must be consulted on the draft plan or programme and the Environmental Report, and must be given an early and effective opportunity within appropriate time frames to express their opinions. • EU Member States must be consulted if the plan or programme is likely to have significant effects on the environment in their territories.	The Directive sets the basis for SEA as a whole and therefore indirectly covers all objectives. The SEA Directive has been transposed into UK Law through the SEA Regulations.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
• The Consultation Bodies must also be consulted on screening determinations on whether SEA is needed for plans or programmes under Article 3(5), i.e. those which may be excluded if they are not likely to have significant environmental effects.	
European Commission (2009), *Birds Directive (2009/147/EC)*	
The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It sets broad objectives for a wide range of activities, although the precise legal mechanisms for their achievement are at the discretion of each Member State (in the UK delivery is via several different statutes).	The SEA should seek to protect and conserve important bird habitats.
European Commission (2024) *Directive (EU) 2024/2881 on ambient air quality and cleaner air for Europe*	
The Directive aims to protect human health and the environment by significantly tightening limit and target values for major air pollutants, improving air-quality monitoring and modelling, strengthening public information requirements, and ensuring clearer, more enforceable pathways for achieving compliance. It replaces earlier EU air-quality directives to provide a more stringent, integrated and modernised framework that accelerates progress toward cleaner air across Member States.	The Drought Plan should avoid measures that could worsen air quality. The SEA should consider potential effects on human health and environmental quality and ensure options support compliance with strengthened air-quality standards.
European Commission (2018) *2018/2001 (RED II)*	
The Directive updates the EU framework for promoting renewable energy, setting a binding 2030 target for renewable energy use and introducing strengthened sustainability criteria, support mechanisms, and cooperation measures between Member States. It aims to accelerate the transition to low-carbon energy and improve energy security across the EU.	The Drought Plan should consider opportunities to support low-carbon and energy-efficient drought measures. The SEA should ensure that plan options do not hinder renewable-energy goals and support climate mitigation objectives.
European Commission (2018) *Directive (EU) 2018/850 amending Directive 1999/31/EC*	
The Directive strengthens EU landfill legislation by reducing the amount of municipal waste sent to landfill, banning landfill of separately collected waste, tightening technical standards, and improving monitoring and reporting. It supports the wider EU Circular Economy Package by promoting waste prevention, higher recycling rates, and reduced environmental impacts from landfilling.	The Drought Plan should ensure that drought measures do not increase landfill disposal or undermine waste-reduction goals. The SEA should support objectives to minimise pollution and resource use, ensuring options align with circular-economy and environmental-protection principles.
UNESCO/ICCROM/ICOMOS/IUCN (2022) *Guidance & Toolkit for Impact Assessments*	
The Guidance and Toolkit provide a unified framework for assessing environmental, social and cultural impacts on World Heritage properties. It aims to ensure consistent, transparent evaluation of potential effects on Outstanding Universal Value	The Drought Plan should avoid actions that may adversely affect World Heritage features or their OUV. The SEA should ensure that any potential impacts on

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
(OUV), integrating cultural and natural heritage considerations into a single methodology to support informed decision-making and protection of World Heritage sites.	designated heritage sites are identified, assessed and avoided where possible.
Ramsar Convention (1971) *The Convention on Wetlands of International Importance*	
The Convention on Wetlands (Ramsar, Iran, 1971) (the "Ramsar Convention") is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories.	The impacts of the DP options on important wetland habitats must be considered as part of the SEA.
United Nations (1992), *Convention on Biological Diversity (CBD)*	
The main objectives are: • Conservation of biological diversity • Sustainable use of its components • Fair and equitable sharing of benefits arising from genetic resources	The commitment to conserving biological diversity must be considered in any DP options and the SEA should seek to promote the protection and enhancement of biodiversity.
United Nations Economic Commission for Europe (1998) *Aarhus Convention - Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters*	
The Aarhus Convention grants the public rights regarding access to information, public participation and access to justice, in governmental decision-making processes on matters concerning the local, national and transboundary environment. It focuses on interactions between the public and public authorities. The Aarhus Convention has been ratified by the European Community, which has begun applying Aarhus-type principles in its legislation, notably the Water Framework Directive (Directive 2000/60/EC).	The Convention is designed to improve the way ordinary people engage with government and decision-makers on environmental matters. It helps to ensure that environmental information is easy to get hold of and easy to understand. The SEA should seek to provide easily understood information to the public on the environmental implications of the DP and its constituent options.
United Nations (2002), *Commitments arising from the World Summit on Sustainable Development, Johannesburg*	
The World Summit on Sustainable Development proposed broad-scale principles which should underlie sustainable development and growth. It included objectives such as: • Greater resource efficiency • Work on waste and producer responsibility	These commitments are the highest level definitions of sustainable development. The DP should be influenced strongly by all of these themes and should seek to take its aims into account. The SEA should seek to promote the achievement of the sustainable development objectives outlined in this plan.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
• New technology development • Push on energy efficiency • Need for integrated water management plans • Minimise significant adverse effects on human health and the environment from chemicals by 2020.	
United Nations (2015) *The 2030 Agenda for Sustainable Development*	
This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. The Agenda remains the world's roadmap for ending poverty, protecting the planet and tackling inequalities. The 17 Sustainable Development Goals (SDGs), the cornerstone of the Agenda, offer the most practical and effective pathway to tackle the causes of violent conflict, human rights abuses, climate change and environmental degradation and aim to ensure that no one will be left behind. The SDGs reflect an understanding that sustainable development everywhere must integrate economic growth, social well-being and environmental protection.	The DP should be influenced strongly by all of these themes and should seek to take the SDGs into account. The SEA should seek to promote the achievement of the sustainable development goals outlined in this plan.
United Nations (2016) The Paris Agreement (2016), Cancun Agreement (2011) and Kyoto Agreement (1997)	
The agreement represents key steps forward in capturing plans to reduce greenhouse gas emissions and to help developing nations protect themselves from climate impacts and build their own sustainable futures. It includes a shared vision to keep global temperature rise to below two degrees Celsius.	The SEA should consider the need for water companies to seek to promote a reduction in greenhouse gas emissions in carrying out its service activities.
World Commission on Environment and Development (1987) Our Common Future (The Brundtland Report)	
The Brundtland Report is concerned with the world's economy and its environment. The objective is to provide an expanding and sustainable economy while protecting a sustainable environment. The Report was a call by the United Nations: • to propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond; • to strengthen co-operation among developing countries and between countries at different stages of economic and social development to achieve common and mutually supportive objectives which take account of the interrelationships between people, resources, environment and development; • to consider ways and means by which the international community can deal more effectively with environment concerns; and • to help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long term agenda for action during the coming decades, and aspirational goals for the world community.	The SEA and DP should seek to contribute to sustainable development.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The World Heritage Convention (UNESCO) 1972 – a global instrument for the protection of cultural and natural heritage.	
A global instrument for the protection of cultural and natural heritage. Signatories commit themselves to refraining from 'any deliberate measures which might damage, directly or indirectly, the cultural and natural heritage' of their World Heritage Sites.	The DP and SEA should take account of the need to protect scheduled monuments and archaeological areas.
National	
Ancient Monuments and Archaeological Areas Act 1979	
This act addresses the protection of scheduled monuments including the control of works affecting scheduled monuments. It also addresses archaeological areas.	The DP and SEA should take account of the need to protect scheduled monuments and archaeological areas.
Canal and River Trust (2015) Water Resources Strategy 2015 – 2020	
The Strategy sets out the Canal and River Trust's overarching vision for the period 2015 – 2020 for how it intends to manage water resources across the inland waterway network that it manages. The strategy is focused on delivering long-term security of water supply for the Canal and River Trust to achieve its vision of living waterways that transform places and enrich lives.	The DP should take into consideration the potential impact on the supply of water to the inland waterway network within the Yorkshire Water operational area. The SEA should consider the effects of the DP on the long-term supply of water to the canal network.
Canal and River Trust (2015) Water Resources Strategy 2015 – 2020	
The Strategy sets out the Canal and River Trust's overarching vision for the period 2015 – 2020 for how it intends to manage water resources across the inland waterway network that it manages. The strategy is focused on delivering long-term security of water supply for the Canal and River Trust to achieve its vision of living waterways that transform places and enrich lives.	The DP should take into consideration the potential impact on the supply of water to the inland waterway network within the Yorkshire Water operational area. The SEA should consider the effects of the DP on the long-term supply of water to the canal network.
The Climate Change Act 2008	
This act sets carbon targets for 2050. Under The Climate Change Act 2008 (2050 Amendment) Order 2019 the UK is required to reduce all greenhouse gas emissions to net zero by 2050.	This target needs to be taken into account by the SEA.
Cefas/EA/NRW (2025) *Salmon Stocks 2024*	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The assessment provides the latest annual analysis of salmon populations and fisheries across England and Wales, including stock status, conservation limits, pressures, and management implications. Its objective is to inform regulatory decisions, guide fisheries management, and support long-term recovery of declining salmon stocks using up-to-date monitoring and evidence.	The Drought Plan should avoid measures that may worsen pressures on salmon populations or their river habitats. The SEA should consider impacts on migratory fish, freshwater ecology and river conditions, ensuring options support ecological protection and species recovery.
Department for Culture, Media and Sport (DCMS) (2001) The Historic Environment – A Force for the Future	
This strategy outlines the Governments policy regarding the historic environment. The strategy has key aims and objectives that demonstrate the contribution the historic environment makes to the country's economic and social well-being.	The DP and the SEA should seek to ensure any adverse effects on heritage assets are minimised or avoided.
DCMS and Welsh Government (2007) Heritage Protection for the 21st Century	
The document has three core principles: • Developing a unified approach to the historic environment; • Maximising opportunities for inclusion and involvement; and • Supporting sustainable communities by putting the historic environment at the heart of an effective planning system.	The assessment framework should include objectives which take into account the principles of heritage protection.
DCMS (2013) Scheduled Monuments & Nationally Important but Non-Scheduled Monuments	
This policy statement sets out Government policy on the identification, protection, conservation and investigation of nationally important ancient monuments, under the provisions of the Ancient Monuments and Archaeological Areas Act 1979. It includes principles relating to the selection of scheduled monuments and the determination of applications for scheduled monument consent.	The DP should seek to avoid adverse impacts on scheduled and un scheduled monuments. The SEA assessment framework should include specific objectives relating to cultural heritage.
DCMS (2016) The Culture White Paper	
This white paper sets out how the government will support the cultural sectors over the coming years and how culture will play an active role in building a fairer and more prosperous nation. It includes four key themes: everyone should enjoy the opportunities culture offers, no matter where they start in life; • the riches of our culture should benefit communities across the country; and • the power of culture can increase our international standing.	The DP should seek to protect cultural heritage assets. The SEA assessment framework should include an objective relating to cultural heritage.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The white paper includes objectives relating to the development of the historic environment sector, and the protection of world heritage.	
Department for Energy Security and Net Zero (DESNZ) (2023) National Policy Statements for energy infrastructure	
Energy National Policy Statements provide planning guidance for developers of nationally significant energy infrastructure projects. The energy National Policy Statements cover: • the overarching needs case for different types of energy infrastructure • natural gas electricity generation • renewable electricity generation • gas and oil infrastructure • electricity networks • nuclear power generation The guidance makes it easier for decision makers, applicants and the wider public to understand: • government policy on the need for nationally significant infrastructure projects (NSIPs) • how applications for energy infrastructure will be assessed • the way in which impacts and mitigations will be judged	The DP must take account of the contents of the energy NPS. The impacts of the DP options on energy generation and NSIPs must be considered as part of the SEA.
DESNZ and BEIS (2020) Energy white paper: Powering our net zero future	
The white paper outlines a series of policies and commitments made by the government as part of the transition to net zero carbon emissions. The strategies are threefold: • Prioritisation of renewable sources energy generation and invest in low-carbon technologies • Supporting a green recovery from COVID-19 through investment in green industries. • Creating a fair deal for consumers through facilitating competition, enhanced regulation and strategies to improve the energy performance of homes.	The implementation of the DP may have an influence upon Yorkshire Water's total energy use. The SEA should seek to promote energy efficiency, as well as seeking to reduce the effects of climate change through greenhouse gas emissions. The SEA should also promote the use of renewable energy, where relevant.
DESNZ and BEIS (2021) Heat and buildings strategy	
This strategy sets out how the UK will decarbonise our homes, and our commercial, industrial and public sector buildings, as part of setting a path to net zero by 2050.	The DP should consider the impact of water supply and usage on carbon emissions from buildings.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The heat and buildings strategy sets out the government's plan to significantly cut carbon emissions from the UK's 30 million homes and workplaces in a simple, low-cost and green way whilst ensuring this remains affordable and fair for households across the country. Like the transition to electric vehicles, this will be a gradual transition which will start by incentivizing consumers and driving down costs. There are about 30 million buildings in the UK. Heating these buildings contributes to almost a quarter of all UK emissions. Addressing the carbon emissions produced in heating and powering our homes, workplaces and public buildings can not only save money on energy bills and improve lives, but can support up to 240,000 skilled green jobs by 2035, boosting the economic recovery, levelling up across the country and ensuring we build back better.	The SEA should include objectives and guide questions relating to energy use and carbon emissions.
DESNZ and BEIS (2021) *Net Zero Strategy: Build Back Greener*	
The Strategy sets out the UK's pathway to achieving the statutory 2050 net-zero greenhouse gas target, outlining sector-by-sector measures across power, industry, transport, buildings, fuels and land use. Its objectives include accelerating decarbonisation, supporting green investment and technology, improving energy security, and delivering a transition that supports economic growth and environmental improvement.	The Drought Plan should support low-carbon, energy-efficient approaches and avoid actions that conflict with national decarbonisation goals. The SEA should ensure that drought options align with climate-mitigation objectives and minimise greenhouse-gas emissions.
Department for Energy and Climate Change (2021) Net Zero Strategy: Build Back Greener	
The Net Zero Strategy sets out policies and proposals for keeping the UK on track for carbon budgets, the Nationally Determined Contribution (NDC), and sets out our vision for a decarbonised economy in 2050. The Strategy sets out a delivery pathway showing indicative emissions reductions across sectors to meet targets up to the sixth carbon budget (2033-2037).	The DP should consider if it can support the delivery of the aims of the strategy. The SEA should include objectives and guide questions relating to energy use and carbon emissions.
Defra (2004) Rural Strategy	
The strategy sets out rural and countryside policy, and draws upon from lessons learnt following the rural white paper. Objectives include supporting economic and social regeneration across rural England and enhance the value of the countryside and protect the natural environment for this and future generations.	The implementation of certain DP options may have an effect upon rural communities and the countryside. The SEA should also seek to ensure that the quality of the region's landscapes, natural resources and biodiversity are maintained or enhanced.
Defra (2005) Making space for water: taking forward a new government strategy for flood and coastal erosion risk management in England	
The strategy outlines how to manage the risks from flooding and coastal erosion in the UK. The strategy aims to reduce the threat of flooding to people and their property, and to deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.	The SEA should seek to ensure that flood risk in the region is not adversely affected by the implementation of the DP.

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Defra (2006) Shoreline Management Plan Guidance	
A shoreline management plan (SMP) is a coastal defence management tool. It is a large-scale assessment of the risks associated with coastal processes and helps to reduce these risks to people and the developed, historic and natural environment. This guidance document sets out Defra's and the Welsh Government's strategy for managing flooding and coastal erosion.	The SEA should take into account the effects of the DP on areas with a SMP.
Defra (2007) The Air Quality Strategy for England, Scotland and Wales	
This strategy identifies air quality objectives and policy options to further improve air quality in the UK from into the long term. The options are intended to provide important benefits to quality of life and help protect the environment as well as the direct benefits to public health.	The implementation of the DP may have some influence on air quality, either directly or indirectly through construction or operation activities. The SEA should seek to ensure that the region's air quality is maintained or enhanced, and that emissions of air pollutants are kept to a minimum.
Defra (2007), Conserving Biodiversity in a Changing Climate: Guidance on Building Capacity to Adapt	
The guiding principles described in this document summarise current thinking on how to reduce the impacts of climate change on biodiversity and how to adapt existing plans and projects in the light of climate change. The guidance is intended to inform implementation of the UK Biodiversity Action Plan, taking account of climate change is relevant to the fulfilment of many international agreements and obligations affecting the UK.	The SEA must consider the impacts on biodiversity whilst also taking into account the potential for future climate change.
Defra (2011) *Updated Future Water*	
The updated strategy sets out the Government's approach to achieving a sustainable and resilient water sector in England, including improved water efficiency, better management of water resources, protection of the water environment, and preparation for climate change. It aims to modernise water policy by strengthening abstraction reform, promoting sustainable drainage, and ensuring long-term resilience in water supply and environmental quality.	The Drought Plan should support efficient water use, sustainable abstraction and resilience to climate pressures. The SEA should ensure options protect water environments and align with long-term sustainable water-management goals.
Defra (2008) England Biodiversity Strategy –climate change adaptation principles	
Government strategy presenting five principles that are fundamental to conserving biodiversity during climate change. The precautionary principle underlies all the principles.	The SEA must consider the impacts on biodiversity whilst also taking into account the potential for future climate change.
Defra (2009) Safeguarding our soils – A Strategy for England	

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The Soil Strategy for England – Safeguarding our Soils – outlines the Government's approach to safeguarding our soils for the long term. It provides a clear vision to guide future policy development across a range of areas and sets out the practical steps that we need to take to prevent further degradation of our soils, enhance, restore and ensure their resilience, and improve our understanding of the threats to soil and best practice in responding to them. The Governments vision is that: By 2030, all England's soils will be managed sustainably and degradation threats tackled successfully. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations.	The SEA should seek to ensure that the quality of the regions soils and their management is protected or enhanced.
Defra (2009) The Groundwater (England and Wales) Regulations 2009	
The Groundwater Regulations are designed to implement a daughter directive to the European Water Framework Directive and prevent or limit the inputs of polluting substances into groundwater.	The SEA should include an objective relating to the effects of options on groundwater quality.
Defra, Department of the Environment (NI), Scottish Government and Welsh Assembly Government (2010) Air Pollution: Action in a Changing Climate	
This document highlights the health benefits that can be achieved through closer integration of air quality and climate change policies. Air pollution often originates from the same activities that contribute to climate change (notably transport and electricity generation), so linkages between these policy areas could help ensure that they are managed most effectively. Air quality/climate change co-benefits can be realised through actions such as promoting low-carbon vehicles and renewable sources of energy that do not involve combustion. The document aims to set ambitious but realistic air quality targets, and to ensure that climate and air quality targets are better aligned in future.	The DP should seek to ensure that air quality, climate change and human health are not adversely affected by the options/measures set out in the plan. The SEA should include guide questions relating to the effects of options on human health and the environment.
Defra (2010) Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network	
This independent review of England's wildlife sites and the connections between them sets objectives and recommendations to help achieve a healthy natural environment that will allow our plants and animals to thrive.	The SEA should seek to maintain or enhance the quality of habitats and biodiversity.
Defra (2011) UK National Ecosystem Assessment Defra (2014) UK National Ecosystems Assessment Follow on, Synthesis of Key Findings	
Ecosystems services from natural capital contribute to the economic performance of the nation. Information and tools to enable decision makers to understand the wider value of ecosystems and their associated services.	For the purposes of the readership integrating an ecosystems services approach into the SEA is not being undertaken. However, it is realised that through the 'Objective-led' approach, many of the services

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	relevant to the DP can be considered through the objectives and key questions for example: • Provisioning Services: Freshwater • Provisioning Services: Biodiversity • Regulating Services: Water Regulation • Cultural services: Recreation and ecotourism • Cultural services: Cultural heritage values • Cultural services: Aesthetic The SEA should ensure the DP effects the related provisioning services in the least damaging way through informing the DP formulation and selection of DP options during times of Drought.
Defra (2011) Mainstreaming Sustainable Development	
This document sets out the Government's vision for mainstreaming sustainable development in relation to the operation of its buildings and estates, including the goods and services that it buys and the policies it makes. It builds on the principles that underpinned the UK's 2005 sustainable development strategy and highlights that long term economic growth relies on protecting and enhancing the environmental resources that underpin it, and paying due regard to social needs. It sets out measures to achieve the mainstreaming of sustainable development, which include ministerial leadership and oversight; leading by example; embedding sustainable development in government policy; and transparency and independent scrutiny.	The DP should seek to be aligned with the principles of sustainable development. The SEA assessment framework should include objectives relating to the principles of sustainable development, including communities, economy, and environment.
Defra (2011) Water for Life - Water White Paper	
This sets out market reform in the water sector.	The Drought Plan should take into account the contents of this paper.
Defra (2012) National Policy Statement for Waste Water	
National Policy Statement (NPS) sets out Government policy for the provision of major waste water infrastructure. It will be used by the Infrastructure Planning Commission (IPC) to guide its decision making on development consent applications for waste water developments that fall within the definition of Nationally Significant Infrastructure Project (NSIP) as defined in the Planning Act 2008.	The SEA should seek to ensure the DP 2027 considers any unforeseen NSIP proposals that come forward prior to adoption which may affect water resources in the Yorkshire Water area.
Defra (2013) What nature can do for you	

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This guide is designed to help policy makers across Government to understand: • The value of what nature, • The costs and risks if take the value of nature's services are not considered in our decisions, • How to work with natural systems to help deliver efficiently in the future. The guide is focussed on helping policy makers to put this into practice and includes explanation of the principles of an ecosystems approach and details on how an ecosystems approach can help policy makers to take account of the value of the natural environment at every stage of the policy making process. A 'self-assessment' method is provided to help policy makers to see how they are doing already and what could be gained by doing more to understand how the natural environment interacts with their policy issue, Signposting is given to a range of detailed resources, case-studies and further reading on specific topics such as valuation and systematic thinking.	The DP should consider how to work with natural systems to provide efficient solutions with multiple benefits where possible, aiming to implement an ecosystems approach. The SEA should consider the effects of the DP on nature.
Defra (2013) The National Adaptation Programme – Making the Country Resilient to a Changing Climate	
This Programme contains a mix of policies and actions to help adapt successfully to future weather conditions, by dealing with the risks and making the most of the opportunities. It sets out a number of objectives, including: • To provide a clear local planning framework to enable all participants in the planning system to deliver sustainable new development, including infrastructure that minimises vulnerability and provides resilience to the impacts of climate change. • To increase the resilience of homes and buildings by helping people and communities to understand what a changing climate could mean for them and to take action to become resilient to climate risks. • To ensure infrastructure is located, planned, designed and maintained to be resilient to climate change, including increasingly extreme weather events.	The DP should ensure that proposals are resilient to the effects of climate change. Where possible, options should be considered that enhance resilience. The SEA should consider the effects of options on climate change resilience.
Defra (2014) River Basin Planning Guidance	
Aims to give guidance on practical implementation of the Water Framework Directive (WFD). The river basin planning process involves setting environmental objectives for all groundwater and surface waters (including estuaries and coastal waters) within the river basin district, and devising programmes of measures to meet those objectives.	The DP 2027 should take into account the contents of this statutory guidance.
Defra (2015) The government's response to the Natural Capital Committee's third State of Natural Capital report	
This provides a number of recommendations such as:	Outputs from the SEA process will help to inform any future potential development by Yorkshire Water of Natural Capital Accounting approaches to assessing

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Agreement for the development of a 25 year plan for a healthy natural economy. This includes helping organisations understand the economic, social and cultural value the impact their actions have on it and how to use the knowledge for better decisions; identify most important and threatened environmental assets; protection of designated areas; address outstanding monitoring and data issues to enable better decisions about strategic investments in natural capital. Assigning institutional responsibility for monitoring the state of natural capital. Organisations that manage land and water assets should create a register of natural capital for which they are responsible.	environmental asset performance. Government (led by HM Treasury and Defra) is increasingly using NCA to support future environmental policy and decision-making, and there may be future expectations on water companies to follow suit.
Defra (2015) The Great Britain Invasive Non-native Species Strategy	
The Strategy is intended to provide a strategic framework, updated from the 2008 framework, within which the actions of government departments, their related bodies and key stakeholders can be better co-ordinated. Its overall aim is to minimise the risks posed, and reduce the negative impacts caused, by invasive non-native species in Great Britain.	The implementation of the DP may influence biodiversity in the north west and as such the SEA should seek to maintain or enhance the quality of habitats and biodiversity.
Defra (2018) The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting	
The National Adaptation Programme (NAP) sets the actions that government and others will take to adapt to the challenges of climate change in the UK. It sets out key actions for the next 5 years. Flooding and pressure on water services are considered to be cross cutting risks. The report also details how the third cycle of adaptation reporting will be managed, forming part of the five-yearly cycle of requirements laid down in the Climate Change Act 2008.	The DP should ensure that proposals are resilient to the effects of climate change. Where possible, options should be considered that enhance resilience. The SEA should consider the potential to include adaptive measures for climate change.
Defra and the Environment Agency (2018) *Resources and Waste Strategy*	
The Strategy sets a long-term framework for transforming waste management in England, aiming to reduce waste, increase recycling, cut environmental impacts and support a circular economy. It introduces measures such as extended producer responsibility, consistent recycling systems, waste prevention initiatives and improved resource efficiency to reduce the burden on the environment and support sustainable use of materials.	The Drought Plan should ensure its actions support waste-reduction principles and do not increase waste or pollution. The SEA should reflect objectives on resource efficiency and environmental protection, ensuring drought options align with circular-economy and sustainability goals.
Defra (2020) Drought Plan Direction 2020	
Sets out the timescales for water companies to develop and consult on Drought Plans. The direction is currently in the process of being updated for the next iteration of drought plans and is anticipated to be published later this year.	The DP SEA will take account of the statutory requirements of this and any updated Direction, where relevant.
Environment Agency and Defra (2025) *Water company drought plan guideline 2025*	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
This sets out how to assess the environmental effects of actions to maintain supply and how to mitigate. An environmental assessment must include details of changes as a result of actions to: • Water flow or level regimes • Water quality • Ecology (sensitive features, habitats and species) • Designated sites (habitats and species) • Fish populations (in particular migratory fish) Additionally, an assessment must include effects on WFD status and consider effects on river basin management plans. Assessments should also take into account the Handbook for Scoping Projects: Environmental Assessment and the EclA Guidelines. For SEAs of a DP, guidance should be followed in the DCLG (2005) Practical Guide to the Strategic Environmental Assessment Directive and UKWIR (2012) Strategic Environmental Assessment and Habitats Regulations Assessment: WRMPs and DPs. Need to identify what needs to be done to mitigate or reduce adverse effects and provide compensation for effects that remain following mitigation. This includes the identification of pre-drought, in-drought and post drought mitigation actions.	The SEA must take into account the approach to environmental assessment and what needs to be done to mitigate or reduce adverse effects and provide compensation for effects that remain following mitigation.
Environment Agency (2024) Environmental assessment for water company drought planning supplementary guidance, Consultation draft	
This supplements the guidance provided on how to write and publish a drought plan. It provides technical guidance on how to develop an environmental assessment for supply side drought management actions to support a Drought Plan. It includes the need to consider whether an SEA is required for a drought plan.	The Drought Plan and SEA need to take account of the guidance provided by the Environment Agency
Defra, Environment Agency, Natural England, Forestry Commission England (2016) Creating a great place for living	
In 2016 Defra produced a report that set out objects to great a great place for living, The objectives are related to the following topics: • Environment – a cleaner, healthier environment, benefiting people and the economy; • Food and farming – a world-leading food and farming industry; • Rural – a thriving rural economy, contributing to national prosperity and wellbeing; • Protection – a nation better protected against floods, animal and plant diseases and other hazards, with strong response and recovery capabilities;	The SEA must take into account impacts of the drought options (construction and operation) on the environment, as well as the population and human health and land use (which will impact on the food and farming and rural objectives).

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• Excellent Delivery – Excellent delivery, on time and to budget with outstanding value for money; • An outstanding organisation – an organisation striving to be the best, focused on outcomes and constantly challenging itself.	
Defra (2020) Enabling a Natural Capital Approach (ENCA)	
ENCA resources are a mixture of data, guidance and tools that enable individuals/organisations to understand natural capital and know how to take it into account. The aims of ENCA are to: • Build capacity among users to assess and value the natural environment by providing comprehensive information and resources • Reduce search costs for analysts and decision makers • Provide a platform to update tools and guidance as knowledge develops • Identify new evidence and areas for development The guidance is a comprehensive document providing information and resources for Natural Capital, covering the natural capital framework, economic valuation of the environment, how project or policy appraisal can incorporate natural capital, natural capital accounting principles and methods, benefits and challenges and applying natural capital at a local level.	The SEA will help to inform future development by Yorkshire Water and therefore should consider the effect of the drought options on opportunities for natural capital.
Defra (2023) Environmental Improvement Plan 2023	
The Environmental Improvement Plan (EIP) 2023 for England is the first revision of the 25YEP. It builds on the 25YEP vision with a new plan setting out how we will work with landowners, communities and businesses to deliver each of our goals for improving the environment, matched with interim targets to measure progress. Taking these actions will help us restore nature, reduce environmental pollution, and increase the prosperity of our country.	The Drought Plan and SEA objectives should be consistent with the vision and interim targets set out in the EIP 2023, particularly where there is cross-over between the goals in the EIP and the SEA Objectives.
Defra (2023) *Complying with the biodiversity duty (Environment Act 2021 updated duty)*	
The updated biodiversity duty requires public authorities to consider, plan and take action to conserve and enhance biodiversity, moving beyond the former “duty to have regard.” It introduces new expectations for strategic planning, reporting, and demonstrating measurable contributions to nature recovery, including alignment with national biodiversity targets.	The Drought Plan should ensure drought actions contribute to, or do not undermine, biodiversity enhancement duties. The SEA should assess effects on habitats and species and demonstrate how plan options support biodiversity protection and recovery.
Department for Transport (2022) UK Electric Vehicle Infrastructure Strategy	
This strategy sets out the Department for Transport’s vision and action plan for the rollout of electric vehicle charging infrastructure in the UK, ahead of the phase out dates. They intend:	The DP should consider use of zero emission vehicles when delivering options where applicable.

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• to end the sale of new petrol and diesel petrol and diesel vehicles by 2030 • for all new cars and vans to be fully zero emission at the tailpipe by 2035	The SEA should also promote the use of renewable energy, where relevant.
Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government) (2014) National Planning Policy for Waste	
Sets out detailed waste planning policies for local authorities. States that planning authorities need to: • Use a proportionate evidence base in preparing Local Plans • Identify sufficient opportunities to meet the identified needs of their area for the management of waste streams • Identify suitable sites and areas for waste facilities	The DP may need to consider the potential impact of options on waste generation and on waste management facilities in the DP area. The SEA should consider the effects of the DP on waste generation and management capacity.
Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2015) Renewable and Low Carbon Energy	
Increasing the amount of energy from renewable and low carbon technologies will help to make sure the UK has a secure energy supply, reduce greenhouse gas emissions to slow down climate change and stimulate investment in new jobs and businesses. Planning has an important role in the delivery of new renewable and low carbon energy infrastructure in locations where the local environmental impact is acceptable.	The DP should, where possible, contribute towards increasing the proportion of energy from renewable energy sources. The SEA assessment framework should include consideration of the use of energy from renewable energy sources.
Ministry of Housing, Communities & Local Government (2024) National Planning Policy Framework (NPPF)	
The sets out the Government's planning policies for England and how these are expected to be applied. The National Planning Policy Framework constitutes guidance for local planning authorities and decision takers both in drawing up plans and as a material consideration in determining applications. At the heart of the NPPF is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking. The NPPF requires that the planning system should be genuinely plan-led and that plans should: • be prepared with the objective of contributing to the achievement of sustainable development; • be prepared positively, in a way that is aspirational but deliverable;	The DP and SEA should take account of the key components of sustainable development and consider the three dimensions to sustainable development: economic, social and environmental.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
• be shaped by early, proportionate and effective engagement between planmakers and communities, local organisations, businesses, infrastructure providers and operators and statutory Consultees; • contain policies that are clearly written and unambiguous, so it is evident how a decision maker should react to development proposals; • be accessible through the use of digital tools to assist public involvement and policy presentation; and serve a clear purpose, avoiding unnecessary duplication of policies that apply to a particular area (including policies in this Framework, where relevant).	
Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local (various) Planning Practice Guidance	
Planning Practice Guidance (PPG) is designed to support the NPPF. It reflects the objectives of the NPPF which are not repeated here. PPG provides additional planning guidance on a number of topics. Those that are particularly relevant to the DP include: • Air quality; • appropriate assessment; • climate change; • effective use of land; • flood risk and coastal change; • healthy and safe communities; • historic environment; • natural environment; • open space, sports and recreation facilities, public rights of way and local green space; • strategic environmental assessment and sustainability appraisal; and, • water supply, wastewater and water quality.	The DP should take into consideration guidance set out in the PPG insofar as it relates to the area covered by the DP.
DESNZ & BEIS (2021) *Net Zero Strategy*	
The Strategy sets out how the UK will achieve its legally binding 2050 net-zero target, outlining measures across power, buildings, transport, industry, fuels and land use to reduce emissions while supporting economic growth and energy security. Its objectives include accelerating decarbonisation, improving energy efficiency, deploying clean technologies and creating a long-term framework for delivering national carbon-budget commitments.	The Drought Plan should aim to use low-carbon and energy-efficient approaches and avoid measures that increase emissions. The SEA should ensure drought options align with national climate-mitigation goals and support reductions in greenhouse-gas impacts.
Environment Agency (2013), *Managing Water Abstraction*	
This sets out how the EA manages water resources in England and Wales.	The SEA should consider the range of impacts that changes to abstractions could have on the

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
	environment, including water bodies, biodiversity, and water users.
Environment Agency (2007) *Soil: A Precious Resource*	
The soil strategy identifies the Environment Agency's priorities, sets out their role and says what action is to be taken to protect, manage and restore soil. Damaged soil structure can lead to flooding, water pollution and can affect the landscape and archaeological features. The strategy also outlines the part managing soils can play in mitigating climate change.	The DP should ensure the sustainable management of soil resources. SEA objectives should reflect and consider relevant priorities from the Soil: A Precious Resource publication.
Environment Agency (2004) *Catchment Flood Management Plans: Guidelines – Volume 1 Policy*	
These guidelines support the EA's strategy for flood risk management and work towards achieving the government's strategy for flood and coastal erosion flood risk management. The aims of Catchment Flood Management Planning is: • To promote sustainable flood risk management measures • To reduce the sources of flooding and harm to people, and the natural, built and historic environment caused by floods • To support the delivery of the Government's and others' policies and targets, and the Environment Agency's environmental vision.	The DP links to this plan where it affects flood risk or land management, for example through changes in abstraction or water storage. The SEA should consider how the DP may affect flood risk across the region.
Environment Agency (2020) National Flood and Coastal Erosion Risk Management Strategy for England	
This updated strategy describes what needs to be done by all risk management authorities, including water and sewerage companies, involved in flood and coastal erosion risk management. It has 3 long-term ambitions: 1. Climate resilient places: improving resilience to flooding and coastal change; 2. Making the right investment and planning decisions to secure sustainable growth, environmental improvements and infrastructure resilient to flooding and coastal change; and Educating local communities to make sure that they understand their risk to flooding and coastal change.	The SEA should ensure the DP 2027 takes into consideration the long-term ambitions included in this document and contributes to the reduction in flood risk and coastal erosion.
Environment Agency (2020) Meeting our future water needs: A national framework for water resources	
The national framework explores England's long-term water needs for: • Public water supplies; • agriculture; • the power and industry sectors; and	The Drought Plan should consider the needs of the whole region and of other water users, in line with the expectations of this policy paper.

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• environmental protection The national framework report marks a move to strategic regional planning, which would be comprised of 5 regional groups (made up of the 17 English water companies and other water users)	
Environment Agency, Office for Water Services and Natural Resources Wales (2023) Water resources planning guideline	
This guideline is relevant to water companies in England and Wales. It is also relevant to those producing regional plans. This guideline is designed to help water companies in England or Wales write a WRMP and/or Regional Plan that complies with all the relevant statutory requirements and government policy.	The SEA should seek to ensure that water supplies and resources are maintained or enhanced in line with the Water Resources Planning Guideline.
Environment Agency and other Lead Authorities, *Shoreline Management Plans*	
A large-scale assessment of the risks associated with coastal processes with the aim to help reduce these risks to people and the developed, historic and natural environments. Coastal processes include tidal patterns, wave height, wave direction and the movement of beach and seabed materials. The second generation of Shoreline Management Plans (SMPs) are in production, covering the entire 6000 kilometres of coast in England and Wales. This generation of plans aim to incorporate sea level rise resulting from climate change and current defences with limited life and improvement requirements.	The SEA should seek to promote a reduction of the risks identified in the Shoreline Management Plans.
Environment Agency (undated), *WFD River Basin Characterisation Project: Technical Assessment Method - River abstraction and flow regulation*	
This paper describes the method used to assess the likelihood of river water bodies achieving the relevant WFD objectives as a result of artificial influences on low river flows.	Implementation of the DP may impact river water quality. The SEA should seek to promote the protection and enhancement of biodiversity and river water quality across the region.
Environment Agency (undated) *Hydroecology: Integration for modern regulation*	
This paper describes clear way forward in terms of hydroecology and a strategic direction to its development and application.	The DP and SEA should ensure relevant ecological considerations are integral to water resource evaluation and management decisions across the range of temporal and spatial scales.
Historic England (2008) Climate Change and the Historic Environment	
Sets out the current thinking on the implications of climate change for the historic environment. It is intended both for the heritage sector and also for those involved in the wider scientific and technical aspects of climate change; in the development	The SEA should seek to assess the implications of the DP in combination with climate change and the

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of strategies and plans relating to the impact of climate change; or in projects relating to risk assessment, adaptation and mitigation.	potential impacts on heritage and the historic environment.
Historic England (2013) Strategic Environmental Assessment, Sustainability Appraisal and the Historic Environment	
Guidance for addressing the historic environment in Strategic Environmental Assessment or Sustainability Appraisal. It identifies the recommended list of plans, programmes and policies for review, approach to baseline review, potential sustainability issues.	The SEA should consider the potential effects of the DP on the historic environment, particularly designated assets and their settings, and to important wetland areas with potential for paleo-environmental deposits. Historic characterisation can supplement information about designations. Sustainability issues, objectives and indicators identified in this document should be taken into account in the SEA.
Historic England (2015) Historic Environment Good Practice Advice in Planning Note 3	
This provides guidance on managing change within settings of heritage assets. This includes archaeological remains, historic buildings, sites, areas and landscapes.	The SEA should take into account effects on settings of heritage assets.
Historic England (2023) *Heritage at Risk*	
Heritage at Risk is a national project that aims to identify the endangered sites (historic buildings and places with increased risks of neglect and decay) and then help secure them for the future. Regional Heritage at Risk Registers were most recently published in 2023.	The SEA should seek to protect and enhance heritage and landscape.
Historic England (2024) Heritage Counts: Historic Environment Overview 2023-24	
This document outlines the significant developments and showcases the efforts in preserving, celebrating and adapting the historic environment for current and future generations.	The SEA should consider the information set out in this report and seek to protect the historic environment.
Flood and Water Management Act, 2010 as amended	
The Flood and Water Management Act 2010 aims to provide better, more comprehensive management of flood risk for people, homes and businesses. It aims improve efficiency in the water industry, improve the affordability of water bills for certain groups and individuals, and help ensure continuity of water supplies to the consumer.	The SEA should seek to ensure that flood risk in the region is not adversely affected by the implementation of the DP and that water supplies across the region are maintained.
HM Government (1975) Reservoirs Act	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The Reservoirs Act 1975 provides a legal framework to ensure the safety against failure of large raised reservoirs. The act applies to reservoirs that hold at least 25,000 cubic metres of water above natural ground level. Safety legislation for reservoirs in the United Kingdom was introduced in 1930 after several reservoir disasters had resulted in loss of life. This law was superseded by the Reservoirs Act 1975. Under the Reservoirs Act 1975 reservoir owners (undertakers) have ultimate responsibility for the safety of their reservoirs. Reservoir owners must appoint a panel engineer (a specialist civil engineer who is qualified and experienced in reservoir safety) to supervise the design and construction of the reservoir, to continuously supervise the reservoir when built (supervising engineer) and to carry out periodic inspections (inspecting engineer).	The DP should consider any effects of options on reservoirs capacity, functioning and downstream flows.
HM Government (1975) Salmon and Freshwater Fisheries Act 1975	
The act encompasses fishing regulation, as well as illegal obstruction of migratory pathways and prohibited modes of destroying fish. The act allows the salmon to maintain an environmentally stable population and support the fishing industry.	The SEA and DP should consider the protection of salmon and freshwater fish.
HM Government (1979) Ancient Monuments and Archaeological Areas Act 1979	
The Act defines sites that warrant protection as ancient monuments. They can be a Scheduled Monuments or "any other monument which in the opinion of the Secretary of State is of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it".	The DP is unlikely to impact on Scheduled Monuments, however, the SEA assessment framework should include consideration of Scheduled Monuments
HM Government (1981) *Wildlife and Countryside Act, 1981*	
The Act is the principle mechanism for providing legislative protection of wildlife in Great Britain. Species listed in Schedule 5 of the Act are protected from disturbance, injury, intentional destruction or sale. Other provisions outlaw certain methods of taking or killing listed species. This Act is brought up to date regularly to ensure the most endangered animals are on the schedule. The Act also improved protection for the most important wildlife habitats.	Some aspects of the DP may have effects on habitats and species in the Yorkshire Water supply area and beyond. The SEA should seek to maintain or enhance the quality of habitats and biodiversity, and take regard of protected species and habitats.
HM Government (1990) Planning (Listed Buildings and Conservation Areas) Act 1990	
This addresses listed buildings including prevention of deterioration and damage and preservation and enhancement of conservation areas.	The DP and SEA should take account of the need to protect listed buildings and conservation areas.
HM Government (1990) Environmental Protection Act	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The Act defines the legal framework for England, Wales and Scotland regarding environmental protection, including the duty of care for waste, contaminated land, and statutory nuisance. Under the Act, Local Authorities or private individuals may take action to secure abatement of any such nuisance, such as noise, and only one person need be affected for action to be possible. It also specifies offences related to the storage, movement, treatment or disposal of controlled waste, and sets out the regime for identifying and remediating contaminated land.	The DP must ensure compliance with the Act. The SEA assessment framework should include waste and nuisance.
HM Government (1990) Town and Country Planning Act 1990	
The Town and Country Planning Act controls and consents development, which is defined as building, engineering, mining or other operations in. on, over or under land, or the making of any material change in the use of any building or land.	The DP must ensure full compliance with the Act. The SEA should include objectives and guide questions relating to biodiversity, land use, and landscape.
HM Government (1991) Water Industry Act 1991 was amended by the commencement of Section 36 of the Flood and Water Management Act 2010	
This makes provision for general duties of water undertakers including those associated with water resources management plans and sets out supply duties.	The DP must take into account this legislation.
HM Government (2009) Water Resources Act, 1991 (Amendment) (England and Wales) Regulations 2009 SI3104	
Amends Water Resources Act 1991 by extending the use of Water Protection Zones and Works Notices, in particular to deal with harm to aquatic ecosystems caused by the physical characteristics of a water course or lake, such as quantity, structure and substrate of river/lake bed. Aligns the Water Resources Act with the hydromorphological requirements of the WFD	The SEA should include objectives that cover hydromorphological aspects and seek to ensure that hydromorphological features within the plan are maintained or enhanced.
HM Government (1991 and 1994) Land Drainage Act	
The Land Drainage Act 1991 requires that a watercourse be maintained by its owner in such a condition that the free flow of water is not impeded. The riparian owner must accept the natural flow from upstream but need not carry out work to cater for increased flows resulting from some types of works carried out upstream, for example a new housing development. If a riparian owner fails to carry out his responsibilities under the Land Drainage Act, or if anyone else causes a watercourse to become blocked or obstructed, the County and District Councils have powers of enforcement by serving a notice under the Act. If this is ignored, the Council concerned may carry out the necessary itself and then recharge the person responsible for the full cost incurred. The District Council normally implements these powers but the County Council will deal with problems that affect the highway. The person responsible may also be prosecuted for nuisance under the Public Health Act 1936.	The DP should be prepared in accordance with the act.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The 1994 Act amends the Land Drainage Act of 1991 in relation to the functions of internal drainage boards and local authorities.	
HM Government (1994) Urban Waste Water Treatment (England and Wales) Regulations 1994	
The Regulations transposed the requirements of the Urban Waste Water Treatment Directive 91/271/EEC (as amended). The Regulations impose requirements for: collection systems for treated urban waste wate; discharges from treatment plants and sets out methods for monitoring; and makes provisions with regard to discharges of industrial wastewater and the dumping of sludge from ships.	The DP should reflect the requirements set out in the regulations.
HM Government (1994) UK Biodiversity Action Plan	
The aim of the action plan is to conserve and enhance biological diversity in the UK and to contribute to the conservation of national and global biodiversity and include the follow aims to maintain and, where practicable, to enhance: • The overall populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems; • Internationally and nationally important and threatened species, habitats and ecosystems; • Species, habitats and natural and managed ecosystems that are characteristic of Kent; • The biodiversity of natural and semi-natural habitats, where this has diminished over 3 recent decades, and • Public awareness of, and involvement in, conserving biodiversity.	Ensure that the DP and SEA encourage conservation and offer protection to areas and species of high conservation importance as identified in this action plan.
HM Government (2000) The Countryside and Rights of Way (CROW) Act, 2000	
The Act provides for increased public access to the countryside and strengthens protection for wildlife. The main provisions of the Act are as follows: • Extends the public's ability to enjoy the countryside whilst also providing safeguards for landowners and occupiers • Creates new statutory right of access to open country and registered common Land Use Consultants • Modernises Right of Way system • Gives greater protection to SSSIs • Provides better management arrangements for National Landscapes • Strengthens wildlife enforcement legislation.	The DP may have an effect on public access to the countryside. The SEA should include objectives that take into account public access, protection of SSSIs and the management of relevant landscape designations.
HM Government (2002) The National Heritage Act 2002	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
This Act builds on the preceding National Heritage Acts of 1980, 1983 and 1997. All four Acts define the way in which National heritage assets are managed and protected. The 2002 Act extended the powers of the Historic Buildings and Monuments Commission to include underwater archaeology within the territorial waters of the United Kingdom.	The DP should be compliant with the Act. The SEA should include objectives relating to the protection of heritage features.
HM Government (2006) Climate Change and Sustainable Energy Act 2006	
The Act was enacted after the publication of the UK Climate Change Programme (2006). It places an obligation on the government to report to Parliament on greenhouse gas emissions in the UK and action taken by Government to reduce these emissions.	The DP should take into account carbon emissions associated with the measures. The SEA could include an objective/guide question in the assessment framework to reduce greenhouse gas/carbon dioxide emissions. Consider whether the monitoring arrangements can be utilised to monitor the effects of the DP.
HM Government (2007) Water Resources Management Plan Regulations 2007	
These Regulations set out the process for the preparation of WRMPs.	The DP should considered these regulations, where relevant.
HM Government (2008) Planning Act 2008	
This Act introduced a new system for nationally significant infrastructure planning, alongside further reforms to the Town and Country Planning system.	The DP should consider any unforeseen NSIP proposals that come forward prior to adoption which may affect water resources in the region. The SEA should consider the cumulative effects of the DP and any unforeseen NSIP proposals that come forward which may affect water resources in the region.
HM Government (2009) Marine and Coastal Access Act 2009	
The Marine and Coastal Access Act sets out a number of measures, including the establishment of Marine Conservation Zones (MCZs) and Marine Spatial Plans. I	The DP should have regard to effects on coastal areas. The SEA should take into account the effects of the measures of coastal environments where relevant.
HM Government (2011) Localism Act 2011	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The Localism Act provides greater devolved powers to councils and neighbourhoods and gives local communities more control over housing and planning decisions.	The DP and the SEA Environmental Report will be subject to public consultation.
HM Government (2011) UK Marine Policy Statement	
The Marine Policy Statement (MPS) sets out the framework for preparing Marine Plans and taking decisions affecting the marine environment, supporting the delivery of the following high-level marine objectives: • Achieving a sustainable marine economy; • Ensuring a strong, healthy and just society; • Living within environmental limits; • Promoting good governance; • Using sound science responsibly. • Does not contain any targets.	The DP should take into account its effects on coastal areas. The SEA assessment should take into account the effects of the actions on the coast/marine environment where relevant.
HM Government (2017, updated 2019) *UK Clean Growth Strategy*	
The Strategy sets out how the UK will meet its statutory carbon budgets by accelerating low-carbon growth across power, industry, transport, buildings, agriculture and land use. Its objectives include reducing emissions, improving energy efficiency, supporting clean technologies, and delivering economic growth while transitioning to a low-carbon economy.	The Drought Plan should support energy-efficient, low-carbon drought actions and avoid measures that increase emissions. The SEA should ensure options align with climate-mitigation goals and contribute to reducing greenhouse-gas impacts.
HM Government (2015) Infrastructure Act 2015	
The Infrastructure Act (inter alia) gives environmental authorities new powers to require landowners to take action on invasive non-native species or permit others to enter the land and carry out those operations.	The SEA assessment framework should include guide questions relating to invasive species.
HM Government (2015) The Nitrate Pollution Prevention Regulations 2015	
These regulations consolidate and revoke previous regulations on Nitrate Pollution Prevention (namely the 2008 Nitrate Pollution Prevention Regulations and subsequent amendments). The continue to provide for the implementation of EU Directive 91/676/EEC on the protection of waters against pollution by nitrates from agricultural sources, and Decision 2009/431/EC granting a derogation under that directive, in England. The regulations: provide for the designation of land as nitrate vulnerable zones; impose annual limits on the quantity of nitrogen from organic manure that may be applied or spread in a holding in a nitrate vulnerable zone; establish requirements relating to the amount of nitrogen to be spread on a crop, and requires an occupier to plan in advance how much nitrogen	The DP should have regard to the requirements of the regulations. The DP and the SEA should consider potential effects of DP plan measures on Nitrate Vulnerable Zones.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
fertiliser will be spread; require an occupier to provide a risk map of the holding; impose conditions on the spreading of nitrogen fertiliser; establish closed periods during which the spreading of nitrogen fertiliser is prohibited; and, makes provision for requirements for storage of nitrogen fertiliser and the keeping of records.	
HM Government (2015) Ozone-Depleting Substances Regulations 2015	
The 2015 ODS Regulations implementation of EU Ozone Depleting Substances Regulations (1005/2009). The principle objective is to phase out and control remaining uses of ozone depleting substances (ODS). ODSs commonly include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and halons, which were typically used as refrigerants, air-conditioning systems, and fire-fighting equipment. The Regulations place controls and phase-out dates on the Manufacture and supply of ODSs. The Regulations also require ODSs to be removed from refrigeration equipment before such appliances are scrapped. The Regulations specify minimum qualifications for those working on the recovery, recycling, reclamation or destruction of ODS.	The DP should have regard to the requirements of the regulations. The SEA assessment framework should include emissions to air.
HM Government (2016) Environmental Permitting (England and Wales) Regulations 2016 (as amended 2018)	
Provides a system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances activities. It also sets out the powers, functions and duties of the regulators.	The DP should accord with these Regulations.
HM Government (2017) Conservation of Habitats and Species Regulations 2017	
These regulations consolidate all the various amendments made to the Conservation (Natural Habitats) Regulations 1994 in England and Wales. The regulations provide for the designation and protection of 'European sites', the protection of 'European species', and the adaptation of planning and other controls for the protection of European Sites. They are the principal means by which the Habitats Directive is transposed in England and Wales as such its main objective is to promote the maintenance of biodiversity.	The DP must fully comply with the Regulations. The impacts of the DP options on biodiversity and protected species and sites must be considered as part of the SEA.
HM Government (2018) The Water Supply (Water Quality) Regulations 2018	
These regulations address the quality of water supplied by water undertakers, who supply areas mainly or wholly in England. The new Regulations implement Directive 98/83/EC on the quality of water intended for human consumption. Under these Regulations, water undertakers are required to identify the areas that are to be water supply zones on an annual basis. A water supply zone cannot exceed 100,000 in terms of population before the beginning of each year of the supply. The standards of wholesomeness are set out, in respect of water for human consumption, be that through drinking, washing, food preparation or cooking and food production. In order to qualify as wholesome, the water cannot contain any:	The DP should consider the Regulations. The SEA should take into account potential effects of the measures on drinking water quality

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
• micro-organism, other than those listed in the full text of Schedule 1 to the Regulations, or parasite; or • substances, other than those listed in the full text of Schedule 1 to the Regulations.	
HM Government / Defra (2023) *Environmental Improvement Plan 2023*	
The Environmental Improvement Plan 2023 sets out how England will meet legally binding environmental targets under the Environment Act 2021. Its objectives include restoring nature, improving water quality, recovering priority habitats and species, reducing pollution, enhancing landscape resilience and ensuring long-term environmental recovery through measures such as biodiversity net gain, Local Nature Recovery Strategies and strengthened monitoring and governance.	The Drought Plan should ensure its actions support nature recovery, protect water bodies and avoid adverse effects on habitats and species. The SEA should assess how options align with environmental targets and contribute to improving water quality, biodiversity and overall environmental resilience.
HM Government (2019) the Invasive Alien species (Enforcement and Permitting) Order 2019	
This Order allows for the enforcement of the EU Invasive Alien Species Regulation 1143/2014 on the prevention and management of invasive alien plant and animal species in England and Wales, including the relevant licenses, permits and rules for keeping invasive alien species.	The SEA should seek to address any potential issues or effects on existing measures to address invasive alien species.
HM Government (2020) The Agriculture Act 2020	
The Bill provides the legislative framework for replacement agricultural support schemes to replace the European schemes after UK's exit from the EU and the EU's Common Agricultural Policy (CAP). The Bill provides powers to implement new approaches to farm payments and land management. In England, farmers will be paid to produce 'public goods' such as environmental or animal welfare improvements. The Bill also includes wider measures, including on improving fairness in the agricultural supply chain and on the operation of agricultural markets.	The DP should consider the implications of the act.
HM Government (2021) The Environment Act 2021	
The Act seeks to set legislation to improve air and water quality, tackle waste, increase recycling, halt the decline of species, and improve the natural environment. Amongst its provisions, The Act places a duty enshrined in law to ensure water companies secure a progressive reduction in the adverse impacts of discharges from storm overflows. New duties will also require the government to publish a plan to reduce sewage discharges from storm overflows by September 2022 and report to Parliament on the progress towards implementing the plan. The Environment Act also includes a legally binding target on species abundance for 2030, to help reverse declines of species like the hedgehog, red squirrel and water vole.	The DP should seek to protect and enhance the natural environment, taking into consideration the principals and guidance set out through the Environment Bill.
HM Government (2022) UK Climate Change Risk Assessment 2022	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
This report outlines the UK government and devolved administrations' position on the key climate change risks and opportunities that the UK faces today. As required by the Climate Change Act 2008, the UK government has undertaken the third five-year assessment of the risks of climate change on the UK. This is based on the Independent Assessment of UK Climate Risk, the statutory advice provided by the Climate Change Committee (CCC), commissioned by the UK government and devolved administrations. The risk assessment considers sixty-one UK-wide climate risks and opportunities cutting across multiple sectors of the economy and prioritises eight risk areas for action in the next two years.	The DP and the SEA should take into consideration the climate risks identified by the assessment.
HM Government (2023) The Energy Act 2023	
The Energy Act provides a comprehensive new legislative regime for energy production, energy security and the regulation of the UK energy sector. The Act aims to deliver "a cleaner, more affordable and more secure energy system for the long term", having been described by the UK government as "the most significant piece of energy legislation in a generation".	The implementation of DP 2027 may have an influence upon Yorkshire Water's total energy use. The SEA should seek to promote energy efficiency, as well as seeking to reduce the effects of climate change through greenhouse gas emissions. The SEA should also promote the use of renewable energy, where relevant.
HM Treasury (2015) Fixing the Foundations: creating a more prosperous nation.	
This document sets out a 15-point plan that the government will put into action to boost the UK's productivity growth, centred around two key pillars: encouraging long-term investment, and promoting a dynamic economy. It sets out the government's long term strategy for tackling the issues that matter most for productivity growth.	The DP should have regard to the points included in the plan
HM Treasury (2020) Natural Infrastructure Strategy	
This Strategy sets out the government's plans to deliver on their ambition for a radical improvement in the quality of the UK's infrastructure and to put the UK on the path to net zero emissions by 2050. The planned investment in the water and flood risk management sector is illustrated in light of the 25 Year Environmental Plan and the second National Adaptation Programme.	The decision-making process for determining which schemes should be prioritised in the DP should take this policy document into account.
JNCC and Defra (2012) UK Post-2010 Biodiversity Framework	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The framework sets out UK priorities for work on the Convention on Biological Diversity, and follows on from the 1994 UK Biodiversity Action Plan. It sets out a vision that, 'by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people'. The goals and activities to meet this aim are grouped under the categories of International / European context; facilitating and contributing to common country approaches and solutions; evidence provision; and reporting.	The DP should support the protection and enhancement of biodiversity. The SEA assessment should include criteria relating to the protection of species and habitats.
National Infrastructure Commission (2018) Preparing for a Drier Future, England's Water Infrastructure Needs	
This paper sets out a range of measures that the NIC believe government, water companies and the regulator should take to increase investment in supply infrastructure and encourage more efficient use of water, with the aim to halve leakage by 2050, extend metering and develop plans for a national water network.	The DP should take these measures into account where possible and aim to improve water efficiency.
HM Government (2006) Natural Environment and Rural Communities Act, 2006	
This Act makes provision about bodies concerned with the natural environment and rural communities in connection with wildlife, sites of special scientific interest, National Parks and the Broads. The Natural Environment and Rural Communities Act has a general purpose to ensure the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development. Section 40 places a duty to conserve biodiversity on public authorities which may include enhancing, restoring or protecting a population or habitat. This duty extends to the list of species and habitats published in Section 41 of the Act and also applies to Local Wildlife Sites.	The SEA should seek to maintain or enhance the quality of habitats and biodiversity. The impacts of the DP on any designated features, as highlighted in the Natural Environment and Rural Communities Act, should be addressed.
HM Government (1975) Salmon and Freshwater Fisheries Act, 1975	
The Act lays down the present basic legal framework within which salmon and freshwater fisheries in England are regulated. Proposals have been made to extend the legislation to apply to more fish species e.g. coarse fish, eel and lamprey species. These proposals are currently under review. The Act covers legislation on fishing methods and related offences, obstructions to fish passage, salmon and freshwater fisheries administration and law enforcement. Proposed extensions to the legislation (under review) include the provision of fish passes and screening of water abstraction and discharge points for coarse fish, eel and lamprey species.	The Act Provides statutory requirements for maintaining fish passage. The SEA will cover fish passage as an element of at least one sustainability objective. The SEA should seek to address any potential issues or effects on existing measures to address fish passage.
HM Government (2015) The Environmental Damage (Prevention and Remediation) (England) Regulations 2015	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
These regulations amend the 2009 regulations and provide additional protection to habitats and species identified on Annexes 1 and 2 of the EC Habitats Directive (92/43/EEC), SSSIs and, in some cases, classified waterbodies from environmental damage where an operator has intended to cause damage or been negligent to the potential for damage. Applies to the most serious categories of environmental damage, including: • Contamination of land that results in a significant risk of adverse effects on human health • Adverse effects on surface water or groundwater consistent with a deterioration in the water's status • Adverse effects on the integrity of a Site of Special Scientific Interest (SSSI) or on the conservation status of species and habitats protected by EU legislation outside SSSIs.	The SEA should seek to ensure that the guidance provided by the regulations is considered when assessing the DP.
HM Government (2009) The Eel (England and Wales) Regulations 2009	
Implement European Council Regulations 1100/2007 establishing measures for the recovery of the stock of European eel. The Regulations will help implement delivery Eel Management Plans. They address eel records and re-stocking, close season and reduction of fishing effort, passage of eels and entrainment. The key objective is to ensure that at least 40% of the potential production of silver eels returns to the sea to spawn. This will be achieved by reducing exploitation of all life-stages of the eel and restoration of their habitats.	The SEA should seek to maintain or enhance the quality of habitats and biodiversity, and take regard of protected species identified. This should include migratory fish species and their migratory passage.
Natural England (2016) A narrative for conserving freshwater and wetland habitats in England	
This narrative provides an overview of circumstances relating to the conservation of freshwater and wetland habitats in England, considering their ecological function, the natural and anthropogenic factors affecting them, the principles that should be applied to their management, and the respective roles of the main policy mechanisms involved in their conservation. It covers all running and standing water habitats, of whatever size, and terrestrial wetland habitats including bogs, fens, swamp and wet woodland.	The DP should consider the findings of the narrative relating to conservation. The SEA should note the impact of the DP on various habitats.
Natural England (2016) Conservation 21: Natural England's conservation strategy for the 21st century	
Conservation 21 sets out how Natural England will work to protect England's nature and landscapes for people to enjoy and for the services they provide, in support of Defra's ambitions for the environment.	The DP should take into account the contents of this strategy.
HM Government (2003) The Water Act 2003	
The Water Act 2003 is in three Parts, relating to water resources, regulation of the water industry and other provisions. The four broad aims of the Act are: • The sustainable use of water resources • Strengthening the voice of consumers	The implementation of the DP may have an effect through its role in maintaining supplies of water. The SEA should seek to promote sustainable use of water resources.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
• A measured increase in competition • The promotion of water conservation.	
HM Government (2017) The Water Environment (Water Framework Directive) (England and Wales) Regulations	
The Water Framework Directive (WFD) established a legal framework for managing the water environment across Europe. The requirements of this are set out in domestic law under these regulations. The overall aims are the sustainable use of water, preventing deterioration of water body status and the protection and improvement of inland surface waters, groundwater and transitional and coastal waters. River Basin Management Plans set out how these requirements will be delivered.	The SEA should seek to promote the protection and enhancement of all water resources. The SEA should seek to maintain, protect and improve water quality across the region and ensure efficient use of resources.
Natural England (2011) UK Geodiversity Action Plan (UKGAP)	
The UKGAP sets out of framework for geodiversity action across the UK. It provides a shared context and direction for the protection and enhancement of geodiversity through a common aim, themes, objectives and targets which link national, regional and local activities. The UKGAP consists of six broad themes: 1. Furthering our understanding of geodiversity 2. Influencing planning policy, legislation and development design 3. Gathering and maintaining information on our geodiversity 4. Conserving and managing our geodiversity 5. Inspiring people to value and care for our geodiversity 6. Sustaining resources for our geodiversity	The DP should have regard to the aims and objectives of the UKGAP. The SEA framework should consider effects of options on geodiversity and outline enhancement and mitigation opportunities where these are identified.
Ofwat (2016) Water 2020	
This document sets out Ofwat's decisions on the design of its water and wastewater services regulatory framework in England and Wales. The approach aims to deliver the following benefits: • Greater customer engagement and understanding • A sustainable investment model and a fair balance of risk and reward • Choice where possible, and ensuring markets are effective for customers • A focus on the long-term, targeted and risk-based • Support for sustainable improvements in the environment.	The DP should take account of the regulatory framework. The SEA assessment should include criteria relating to the provision of water to customers and environmental protection.
Ofwat (2017) Resilience in the Round	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The report identifies that the water sector has historically invested in options which enhance capacity, especially operational capacity and that whilst additional capacity has an important role in delivering resilience against some threats, companies should start looking at a wider set of factors in order to deliver "smarter" options for the future, including: • Addressing multiple threats through a single intervention. For example, enhancing network connectivity to reduce the number of customers reliant on a single source of supply. This type of approach can provide water supply resilience to multiple threats such as outages, drought and contamination. • Recognising that any intervention will have its own embedded vulnerabilities to future threats. Understanding the vulnerabilities of option types will be critical to planning respective roles in delivering the planned level of resilience. For example, water transfers between areas of surplus and deficit can be a good option but might be vulnerable to wider scale drought impacts and/or contamination.	The DP should consider the content of the report.
UKCIP (2018) UK Climate Projections UKCP18	
The UKCP18 Projections provide a basis for studies of impacts and vulnerability and decisions on adaptation to climate change in the UK over the 21st century. Projections are given of changes to climate, and of changes in the marine and coastal environment; recent trends in observed climate are also discussed. The methodology gives a measure of the uncertainty in the range of possible outcomes; a major advance beyond previous national scenarios. The Projections will allow planners and decision-makers to make adaptations to climate change. In order to do so they need as much good information as possible on how climate change will evolve. They are one part of a UK government programme of work to put in place a new statutory framework on, and provide practical support for, adaptation.	The DP does take account of UKCP18 projections as its formulation through the DP process which takes account of climate change in its supply and demand projections. The SEA should also use UKCP18 projections in the broader assessment of climate change effects and any potential cumulative effects. For example, the ecological requirements of aquatic habitats that may be affected by the DP will also be influenced by climate change.
UKTAG: Phase 3 Review of Environmental Standards	
UKTAG prepares technical guidance designed to facilitate consistent implementation of the WFD in the UK. This report identifies standards for certain chemicals known as specific pollutants, developments in assessments of risk to groundwater, non-native species, standards for flows in rivers, standards for levels in lakes, standards for acidity in rivers and standards in intermittent discharges.	The SEA should seek to ensure that the guidance provided by the plan are considered when assessing the DP, especially with respect to objectives relating to ecology, water quality and water quantity. The SEA should also ensure the guidance in the plan is used in relation to other related regulations for example the Habitats Directive. The guidance could contribute to the formulation of any criteria for assessing significance of effects.
Waterwise (2017) Water Efficiency Strategy for the UK	
The document sets out a strategy for achieving the vision of a water efficient UK. It suggests policy, regulatory and practical actions that can help in the process of achieving water efficiency.	The DP should take into account their possible impacts on water efficiency and aim to improve water

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
	efficiency. The SEA objectives should reflect the need improve water efficiency
Water UK (2022) Water 2050 – A White Paper	
Water UK has developed this White Paper on behalf of 16 water companies that operate in England. This White Paper describes: • Future challenges, opportunities and gaps and the priority areas for change • Our Vision for 2050 • Why and what we need to change: Delivering more environmental impact more efficiently • Why and what we need to change: Protecting long-term customer interests through the right investments at the right time • How we will make the change happen	The DP should have regard to the water White Paper.
Regional	
Canal & River Trust (2015) *North East Waterway Fisheries & Angling Action Plan*	
The action plan sets out several issues of importance to the local angling communities across the North East. Addressing these issues aims to improve the angling experience, fish stocks and the water environment. The actions are grouped under 10 themes, which include: • Develop & improve access to the fishery. • Fish passage and migration. • Predation & non native species • Fisheries and water quality and quantity.	The DP should seek to avoid harm to fisheries. The SEA assessment framework should include the protection or enhancement of factors affecting fisheries.
Historic England (2023) Heritage at Risk: North East and Yorkshire Register 2023	
Historic England's Heritage at Risk registers aim to reduce the risk to heritage assets. In order to achieve this aim HE are working to: • Better understand the nature and extent of risk • Encourage others to save and re-use heritage at risk • Build the capacity of the sector to deliver solutions for heritage at risk • Provide advice and grants to help remove heritage from the register	It is unlikely the Drought Plan will have an effect on the Heritage at Risk Register

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
Yorkshire Water (2024) Our PR24 Business Plan: For the period 2025-2030	
The business plan sets various pledges from Yorkshire Water for the period 2025-2030. The vision is to create a thriving Yorkshire, right for customers and right for the environment. This means achieving the following outcomes: 1. Secure, safe, clean water supplies 2. First-class customer service 3. Bills everyone can afford 4. Modern and resilient infrastructure 5. A healthy, natural environment 6. Net zero carbon emissions	The DP should seek to support the delivery of the Business Plan. The objectives and guide questions that comprise the SEA Framework should, where appropriate, reflect the priorities set out in this Business Plan.
Yorkshire Water (2024) Water Resources Management Plan 2024	
See WRMP.	The DP will take into account the objectives of Yorkshire Water's WRMP.
Water Company (various) Drought Plans adjacent to supply area	
This looks at the management of water resources to maintain service to customers during drought in the surrounding areas. The plans considered include; • Severn Trent Drought Plan 2022-2027 • United Utilities Drought Plan 2022 • Northumbrian Water Drought Plan 2022 • Anglian Water Drought Plan 2022	Assessment of the potential for cumulative impacts of supply side and drought permit/order options with drought options listed in neighbouring water companies' drought plans has been undertaken. The assessments should be reviewed at the time of drought option implementation to ensure that no changes to the neighbouring water company drought option have been made in the intervening period, and that the assessment, therefore, remains valid.
Water Resources Management Plans from adjacent water companies	
These set out the plans to manage water resources by companies in adjacent areas, including: • Severn Trent Revised Draft Water Resources Management Plan 2024 • United Utilities Revised Draft Water Resources Management Plan 2024 • Northumbrian Water Draft Water Resources Management Plan 2024	The DP should not conflict with the other water company operations especially drought options that may be operated simultaneously.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
• Anglian Water Revised Draft Water Resources Management Plan 2024	
Sub-regional / Local	
Defra (2010) Eel Management Plans for the United Kingdom: Humber River Basin District; Eel Management Plans for the United Kingdom: Northumbrian River Basin District	
These plans aim to achieve an escapement of silver eel to the spawning population that equals or exceeds a target set at 40% of the potential biomass that would be produced under conditions with no anthropogenic disturbance due to fishing, water quality or barriers to migration. The aim of each Eel Management Plan is to describe the nature of the eel population and fishery in the RBD, to assess whether the stock is meeting its 40 per cent escapement target, and to present management actions that will ensure the long-term viability of the eel population.	The SEA should consider the potential impacts of the DP on eel populations and escapement targets.
Catchment Management Plan / Diffuse Water Pollution Plans (various)	
Diffuse Water Pollution Plans (DWPPs) set out actions to tackle diffuse nutrient pollution impacting on rivers and lakes with high conservation value. A catchment management plan is a strategic document that sets out how to manage land, water, and environmental pressures within a catchment — the area of land that drains into a particular river, lake, estuary, or waterbody. Its purpose is to provide an integrated, place-based approach to improving water quality, managing flood risk, enhancing biodiversity, and coordinating the actions of multiple stakeholders across the whole catchment.	The SEA should consider the potential impacts of drought options on the objectives of these plans.
Environment Agency (2022) River Basin Management Plans: updated 2022	
River Basin Management Plans (RBMPs) set out how the water environment will be managed and provides a framework for more detailed decisions to be made. RBMPs set out a more integrated approach to river basin management based on the following principles: • Integrate and streamline plans and processes; • Set out a clear, transparent and accessible process of analysis and decision-making; • Focus at the river basin district level; • Work in partnership with other regulators; • Encourage active involvement of a broad cross-section of stakeholders; • Make use of the alternative objectives to deliver sustainable development; • Use Better Regulation principles and consider the cost effectiveness of the full range of possible measures; • Seek to be even handed across different sectors of society and sectors of industry;	The DP should reflect the broad targets set out in the RBMPs. The SEA objectives should reflect the need to manage water resources on a catchment basis in a sustainable manner to help improve the quality of water resources.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
• Seek to be even handed and transparent in the management of uncertainty; • Develop methodologies and refine analyses as more information becomes available. RBMPs relevant to the Yorkshire Water area are the Humber and Northumbria	
Environment Agency (various) Abstraction Licensing Strategies (ALS) (Catchment Abstraction Management Strategies (CAMS) process)	
This Licensing Strategies set out how the EA will manage the water resources of a catchment and contribute to implementing the WFD. It provides information about where water is available for further abstraction and an indication of how reliable a new abstraction licence may be. Strategies within the Yorkshire Water assessment area include: • Aire and Calder • Derwent • Don and Rother • Esk and Coast • Hull and East Riding • Swale, Ure, Nidd and Upper Ouse • Wharfe and Lower Ouse • Tees	The DP should consider the ALS/CAMS process. The SEA framework should include objectives relating to sustainable water use.
Leeds City Region Enterprise Partnership & West Yorkshire Combined Authority (2016) Leeds City Region Strategic Economic Plan, 2016-2036	
The Leeds City Region economy is the biggest outside of London and this plan aims to make full use of the areas assets and address long-term challenges, unlocking opportunities and fulfilling the City Region's exceptional potential. The four priority areas are: Growing business; Skilled people, Better jobs; Clean energy and environmental resilience; and, Infrastructure for growth.	The SEA should ensure alignment with the objectives of the plan in and around the Leeds City Region.
Leeds City Region (2017) Green and Blue Infrastructure Strategy	
Priorities include: • Effective water management and flood risk reduction • Build green and blue infrastructure into physical development and housing • Enhance green and blue corridors and networks • Heighten community access to and enjoyment of green and blue infrastructure • Plant and manage more trees and woodland • Restore the uplands and manage them sustainably • Business growth, jobs, skills and education	Options in DP 2027 have potential to cause social, economic and environmental impacts. The SEA assessment framework should consider the effects of DP 2027 on the achievement of the strategy's key priorities and the effects on water management, natural capital, landscape and biodiversity.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
Local Biodiversity Action Plans (various)	
Local biodiversity action plan objectives include those associated with maintaining and safeguarding the current extent of protected designations and recognised habitats and achieving favourable status for these areas. The Yorkshire Water assessment area covers many Local BAPs.	The Drought Plan may have an effect on BAP objectives. The SEA should include objectives that take into account the objectives of the BAP where relevant (e.g. conservation designation status).
Local Planning Authority (various) Land Use Plans	
The Yorkshire Water area covers a large number of Local Planning Authorities. The main objectives of the existing and emerging Land Use Plans in these areas are related to the sustainable development of the area	SEA should seek to ensure the DP options should be consistent with the Land Use Plans of those local authorities that will be affected.
Local Authorities (various) Local Nature Recovery Strategies	
Local Nature Recovery Strategies aim to identify local priorities for restoring nature and map the areas where action will make the greatest contribution to nature recovery, supporting England's wider goal to reverse biodiversity decline. They set out a local habitat map and a written statement of biodiversity priorities, guiding targeted, collaborative action by land managers, communities, and public bodies to create, enhance, and connect habitats across the landscape	The DP should take into account LNRS that are developed during the timeframe of the DP.
Local Geodiversity Action Plans (LGAPs)	
Local Geodiversity Action Plans (LGAPs) set out actions to conserve, enhance and promote the geodiversity of a particular area. They aim to identify, conserve and enhance the best sites that represent the geological history of an area. They also aim to promote geological sites, provide a local geodiversity audit and influence local planning policy. Currently, LGAPs exist or are in development for; Doncaster, Sheffield West Yorkshire, Northeast Yorkshire, Yorkshire Dales, North Pennines.	DP options should take into account the aims of the LGAPs. The SEA assessment should consider effects of options on geodiversity and outline enhancement and mitigation opportunities where these are identified.
Local Planning Authority (various) Local Plans/Local Development Plans	
The Yorkshire Water assessment area includes a large number of Local Planning Authorities, identified as: - North Yorkshire County Council - East Riding of Yorkshire - Kingston upon Hull City Council - City of York Council - Barnsley Metropolitan Borough Council - Bradford Council - Calderdale Council - Doncaster Council	The DP should take into account the Local Plans and emerging Local Plans. The SEA assessment framework should consider the effects of the DP on the achievement of the Plans' visions and the effects of options on sustainable land use.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
- Leeds City Council - Rotherham Metropolitan Borough Council - Scarborough Borough Council - Sheffield City Council - Wakefield Council - Craven District Council - Hambleton District Council - Harrogate Borough Council - Kirklees Council - Richmondshire District Council - Ryedale District Council - Selby District Council - Yorkshire Dales National Park - North Yorkshire Moors National Park - Peak District National Park - North Pennines National Park	
Local Wildlife Trust Strategies (various)	
There are a number of local Wildlife Trusts in the Yorkshire Water area, including: • Yorkshire Wildlife Trust • Sheffield and Rotherham Wildlife Trust • Lancashire Wildlife Trust • Derbyshire Wildlife Trust	The DP should take into account the key objectives of Wildlife Strategies and protect local wildlife. The SEA assessment framework should consider the effects of options on biodiversity.
National Landscapes (formerly known as AONBs) (various) AONB Management Plans	
The following National Landscapes are present in the Yorkshire Water area: Howardian Hills, Nidderdale and Forest of Bowland. The management plans for National Landscapes contain actions to ensure the protection and enhancement of the landscape.	The SEA should consider the effects of options on landscapes, including designated landscapes.
Natural England (various) Site of Special Scientific Interest (SSSI) Monitoring Specifications	
SSSI monitoring exists to: • Understand condition and trends in notified features (species, habitats, geological interests) • Assess the effectiveness of management actions and identify pressures affecting condition • Provide evidence for UK Government reporting and to support the Environmental Improvement Plan and statutory targets	The SEA should consider the current state of the environment with respect to SSSIs to understand the sensitivity to drought options.
Natural England (various) European Site Conservation Objectives for Special Conservation Areas (SACs) and Special Protection Areas (SPAs)	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
Natural England produces Conservation Objectives for every Special Area of Conservation (SAC) and Special Protection Area (SPA) in England. These objectives serve as the formal benchmarks for protecting, maintaining and restoring the species and habitats for which each European site is designated.	The SEA should be mindful of the conservation objectives of designated sites.
Natural England, Site Improvement Plans (SIPs) for Natura 2000 Sites (various)	
Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 Sites (IPENS). The plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance. There are a number of Natura 2000 sites within the Yorkshire Water operational area.	The DP should seek to avoid contributing to any issues affecting the condition of Natura 2000 site features and contribute to their improvement where appropriate. The SEA should include objective and guide questions related to the protection of biodiversity and designated species and habitats
Natural England and Environment Agency (various) River Restoration and Water Level Management Plans	
Cumbria River Restoration Strategy The Cumbria River Restoration Strategy was developed to help deliver the joint Natural England/Environment Agency drivers to improve the quality and function of three riverine SSSI/SAC sites; the Eden, Derwent and Kent catchments. River restoration interventions reinstate natural river processes that provide benefits to both people and wildlife.	The DP should seek to support the delivery of the aims of the strategy, where appropriate. The SEA should include objective and guide questions related to the protection of biodiversity, designated species and habitats and restoration of rivers.
Natural England National Character Area (NCA) Profiles	
There are 27 NCAs within Yorkshire Water's operating boundary. Each of these have individual objective relating to specific landscapes, habitats and species. Generalised objectives for each of these include: • Conserve characteristic historic structures • Protect the area's rich and diverse archaeology • Protect the area's high levels of tranquillity • Protect, manage and enhance the good rights of way network • Manage and enhance existing habitats • Encourage the maintenance of traditional land management practices • Protect, and encourage sympathetic management • Protect and manage geological features	The DP may have an effect on NCAs. The SEA should include objectives that take into account the objectives of the NCAs where relevant (e.g. manage and enhance existing habitats).

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
• Plan for climate change mitigation and adaptation	
National Park Management Plans (various)	
The following National Parks/management plans are present in the Yorkshire area: • Peak District National Park Management Plan 2023-2028 • Yorkshire Dales National Park Management Plan 2025-2030 • North York Moors National Park Management Plan 2022-2027 The management plans for National Parks contain actions to ensure the protection and enhancement of the landscape and natural environment of these areas.	Effective management of water resources is vital for continued economic, cultural and sustainable development. The Drought Plan may also have an effect upon providing services for communities, access to the national parks and recreational opportunities for local communities and visitors and the protection of biodiversity. The SEA should seek to protect the landscapes of the national parks; encourage continued development of the local economy and cultural heritage; and the protection of natural resources and biodiversity. The SEA should also include objectives relating to providing access to services for communities and for health and well-being, in particular how recreational opportunities may influence this.
North Yorkshire County Council (2019) Council Plan 2020-2024	
The North Yorkshire Council Plan is centred around key ambitions which will enable the county to be a thriving country which adapts to a changing world and remains a special place for everyone to live, work and visit. The key ambitions are: • Leading for North Yorkshire • Every child and young person has the best possible start in life • Every adult has a longer, healthier and independent life • North Yorkshire is a place with a strong economy and a commitment to sustainable growth • Innovative and forward thinking council	There may be some social, economic and environment effects associated with the implementation of the DP 2027 that may have effect upon the sustainable development and regeneration of the North Yorkshire county. The SEA should seek to address the potential social, economic and environmental effects.
Outline Water Cycle Studies (Various)	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
Water cycle studies identify tensions between growth proposals, particularly housing development, and environmental requirements, and identify potential solutions to addressing them. Outline Water Cycle Studies have been prepared for Mid Mersey (Warrington Borough Council, Halton Borough Council and St. Helens Council), Cheshire West and Chester and Central Lancaster and Blackpool Councils have jointly prepared an Outline Water Cycle Study. The strategic objectives for Outline Water Cycle Studies are to: • Identify whether environmental resources can cope with further development, with particular reference to Water Framework Directive targets and UKCP09 climate change projections (i.e. Can growth be accommodated without breaching water quality and abstraction limits); • Identify any potential impacts of development on the specially designated conservation sites and watercourses in the specified areas and other sites or features of significant nature conservation importance resulting from additional abstraction and wastewater discharge;	The DP should take into account any water cycle studies completed for identified growth areas (Mid Mersey, Cheshire West and Chester, Central Lancashire and Blackpool). The SEA assessment framework should include an objective relating to the efficient management of water.
Public Rights of Way Improvement Plans (ROWIPs)	
Objectives include those associated with each local authority's rights of way improvement plans.	The DP operation may have the potential to affect the objectives of the ROWIPs. The SEA will include objectives that consider the objectives of the ROWIPs where relevant.
River Restoration and Water Level Management Plans	
There are a number of past and present river restoration projects in the Yorkshire region such as: • Aire Rivers Trust (2024) River Worth Improvement Plan • Yorkshire Wildlife Trust (2020) The BEACH (Better Estuary and Coastal Habitats) Esk Project 2020-2023 • Environment Agency (2010) Restoring the River Hull Headwaters, River Restoration Plan. • River Hull Advisory Board (2015) River Hull Integrated Catchment Strategy (RHICS) • Environment Agency (2010) Restoring the Yorkshire River Derwent, Technical Report. • Natural England (2013) Restoring the River Wharfe SSSI: A River Restoration Plan • Natural England (2010) Restoring the Yorkshire Derwent • Environment Agency (2006) Pevensey Levels SSSI: Water Level Management Plan	The Drought Plan may have an effect on River Restoration Plans for non-Natura 2000 sites. The SEA should include objectives that take into account the objectives of these sites where relevant.
West Yorkshire Combined Authority, Various Projects	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan (DP) and the SEA objectives
The West Yorkshire Combined Authority are responsible for delivering a variety of projects that will improve the lives of those living in the region. These projects are centred around key areas including: **Economy:** Getting Building Fund Flood Alleviation (Hebden Bridge Food Alleviation; Natural Flood Management -River Calder, Colne and Upper Aire; Wyke Beck; Leeds Flood Alleviation Scheme; Skipton Flood Alleviation) Clean energy and Environmental Resilience **Transport** Infrastructure for growth (30+ transport schemes) More are available to view at: https://www.westyorks-ca.gov.uk/projects/	There could be some social, economic and environment effects associated with the implementation of DP 2027 that may have effect with a particular focus upon a number of social, health and infrastructure related issues in the West Yorkshire area.
World Heritage Site Management Plans (various)	
World Heritage Sites are required to have a Management Plan, as part of their management system, that sets out why the place is special; what will be done to conserve and enhance it over a five-year period, and what will be done to explain its significance to visitors. The following World Heritage Sites are within the SEA study area: • Hadrian's Wall Partnership Board (2015) Hadrian's Wall Management Plan 2015-2019 • City of Bradford Council (2014) Saltaire World Heritage Site Management Plan 2014 • National Trust (2023) Fountains Abbey and Studley Royal World Heritage Site Management Plan 2023-2029	The SEA should ensure that there are no negative direct or indirect impacts, for example during construction, on world heritage sites.

APPENDIX C: ENVIRONMENTAL BASELINE REVIEW

Biodiversity, flora and fauna

Baseline

Biodiversity is defined as the variety of plants (flora) and animals (fauna) in an area, and their associated habitats. The value of biodiversity conservation is recognised from an international to a local scale. Biodiversity has importance in its own right and has value in terms of quality of life and amenity. The Yorkshire Water supply area includes a number of sites that are designated as important for biodiversity at an international, national or local level (see **Figure C-1**). Special Protection Areas (SPA)[12], Special Areas of Conservation (SAC)[13] and Ramsar[14] sites are listed in **Table C-1** against the relevant WRZ.

Table C-1: Special Protected Areas, Special Areas of Conservation and Ramsar within the Yorkshire Water supply area

Site and Designation	WRZ
SPA	
North York Moors	Grid; East SW; East GW (within WRZs)
Hornsea Mere	Grid (within WRZ)
Flamborough Head and Filey Coast	East GW (within WRZ)
Lower Derwent Valley	Grid (within WRZ)
North Pennine Moors	Grid (within WRZ)
Peak District Moors (South Pennine Moors Phase 1)	Grid (within WRZ) and East of YW supply area
Humber Estuary	Grid (within WRZ) and South/South East of YW supply area
South Pennine Moors Phase 2	Grid (within WRZ) and East of YW supply area
Thorne & Hatfield Moors	Grid (within WRZ)
North Pennine Moors	Grid (within WRZ) and North of YW supply area
SAC	
Flamborough Head	East GW (within WRZ)
Ingleborough Complex	Grid (within WRZ)
Beast Cliff-Whitby (Robin Hood's Bay)	East SW (within WRZ)
Lower Derwent Valley	Grid (within WRZ)
Strensall Common	Grid (within WRZ)
North Pennine Moors	Grid (within WRZ) and North of YW supply
River Derwent	Grid (within WRZ)
Kirk Deighton	Grid (within WRZ)
Arnecliffe & Park Hole Woods	East SW (within WRZ)
Ox Close	Grid (within WRZ)

[12] Special Protection Areas (SPAs) are strictly protected sites classified in accordance with Article 4 of the EC Directive on the conservation of wild birds (79/409/EEC), also known as the Birds Directive, which came into force in April 1979. They are classified for rare and vulnerable birds, listed in Annex I to the Birds Directive, and for regularly occurring migratory species. www.jncc.org.uk

[13] Special Areas of Conservation (SACs) are strictly protected sites designated under the EC Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). www.jncc.org.uk

[14] Ramsar sites are wetlands of international importance designated under the Ramsar Convention.

Site and Designation	WRZ
North York Moors	Grid; East SW; East GW (within WRZ) and North of YW supply area
Craven Limestone Complex	Grid (within WRZ)
Skipwith Common	Grid (within WRZ)
North Pennine Dales Meadows	Grid (within WRZ) and West of YW supply area
Ellers Wood & Sand Dale	East GW (within WRZ)
Fen Bog	East SW (within WRZ)
South Pennine Moors	Grid (within WRZ) and West/South West of YW supply area
Hatfield Moor	Grid (within WRZ)
Denby Grange Colliery Ponds	Grid (within WRZ)
Thorne Moor	Grid (within WRZ)
Humber Estuary	Grid (within WRZ) and South/South East of YW supply area
River Eden	Directly North of Grid WRZ
Rochdale Canal	~4km West of Grid WRZ
Asby Complex	~3km North of Grid WRZ
Ramsar	
Malham Tarn	Grid (within WRZ)
Humber Estuary	Grid (within WRZ) and South/South East of YW supply area
Lower Derwent Valley	Grid (within WRZ)

Table C-2 provides numbers of Sites of Special Scientific Interest (SSSI)[15],National Nature Reserves (NNRs)[16], Marine Conservation Zones (MCZs)[17] and Local Nature Reserves (LNRs)[18] within each WRZ in Yorkshire Water's supply area. These are shown on **Figure C-1**.

Table C-2: Nationally Designated Nature Conservation Sites

Area	Number of SSSIs	Number of NNRs	Number of MCZs	Number of LNRs
Yorkshire Water Supply Area	368	11	2	134

[15]Natural England has responsibility for identifying and protecting the SSSIs in England under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000). www.naturalengland.org.uk

[16] NNRs are protected under Sections 16 to 29 of the National Parks and Access to the Countryside Act, 1949 and the Wildlife and Countryside Act, 1981.

[17] The Marine and Coastal Access Act 2009 allows for the creation of Marine Conservation Zones (MCZs). MCZs protect a range of nationally important marine wildlife, habitats, geology and geomorphology, and can be designated anywhere in English and Welsh territorial and UK offshore waters.

[18] a LNR is a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949, and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006, by principal local authorities.

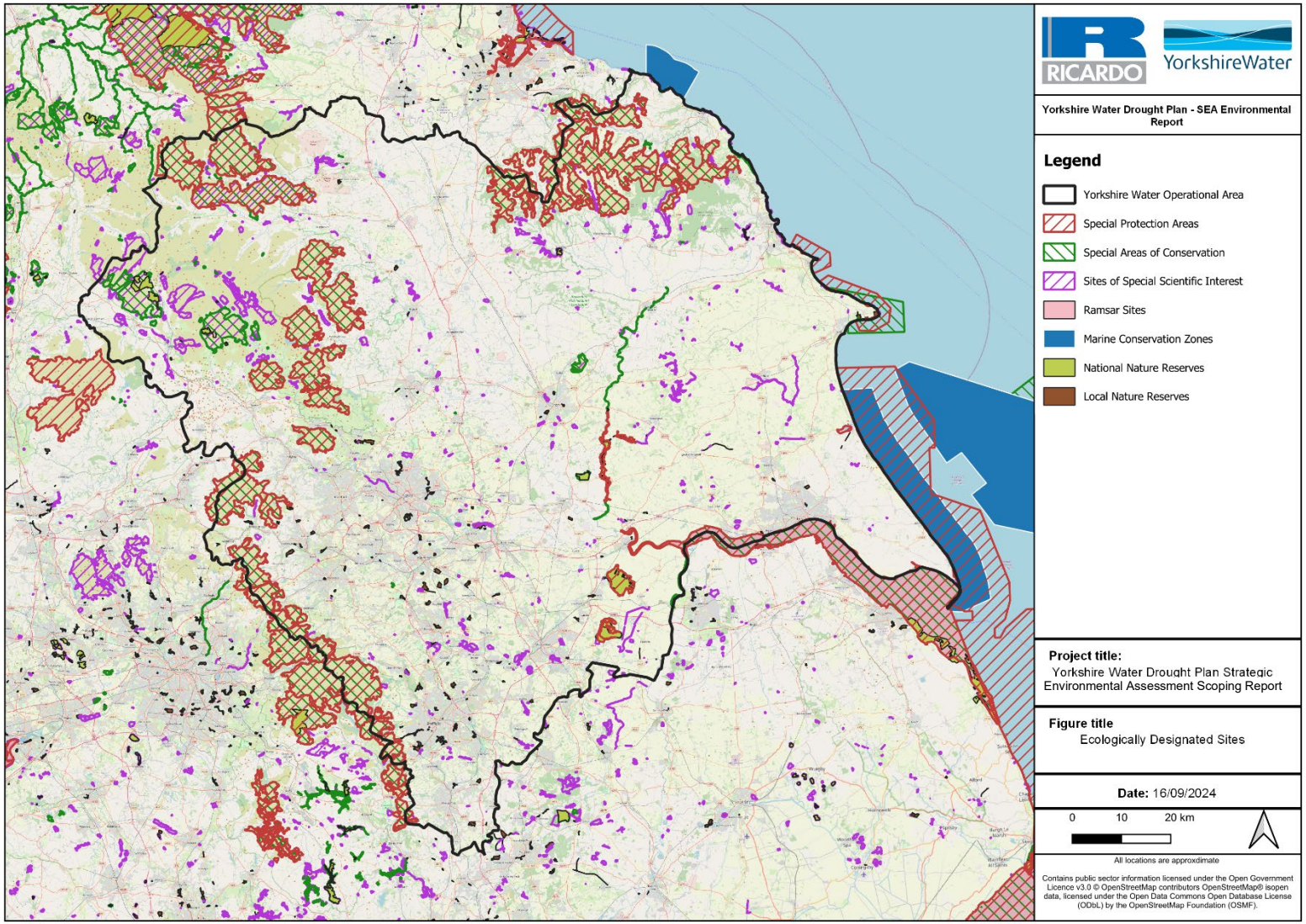

Figure C-1: Designated Sites

There are a range of designated Natural Environment and Rural Communities (NERC) Act Section 41 habitats within the Yorkshire Water supply area[19]. NERC habitats include rivers and streams, blanket bogs, reedbeds, fens and meadows. NERC priority species include:

- Otter
- Water vole
- Atlantic salmon
- European eel
- Sea/Brown trout
- River lamprey
- White clawed crayfish
- Snakeshead Fritillary
- Loddon Lilly
- Creeping Marshwort
- Narrow-leaved water-dropwort
- River water-dropwort
- Fine-lined pea Mussel
- Freshwater Pearl Mussel
- Depressed River Mussel
- Greater Water Parsnip
- Club-tailed Dragonfly
- Tassel Stonewort
- Desmoulins Whorl Snail
- Snipe
- Lapwing
- Natterer's Bat
- Daubenton's Bat
- Pipistrelle Bat

Natural England has defined a series of 120 Natural Areas as a means to conserve nature in England. They are areas of countryside identified by the unique combination of physical attributes, wildlife, land use and culture. Key messages regarding habitat type relevant to the Yorkshire Water supply area are presented in **Table C-3** and **Table C-4**.

[19] Defra, MAGIC Interactive map: Habitat Inventories https://magic.defra.gov.uk/MagicMap.aspx [Accessed September 2024]

Table C-3: Natural Character Areas in the Yorkshire Water Supply Area

Natural Area	WRZ	Region	Key Features
North Pennines	Grid	Yorkshire	Expansive moorlands, grasslands and flower-rich meadows are important features; Upland bogs and acid grassland cover much of the area; The area attracts large numbers of insects, waders and birds of prey; Varied geology (including gorges, shakeholes, caves and pavements) and associated waterfalls are important features.
Yorkshire Dales	Grid	Yorkshire	Glaciated, upland landscape of rounded hills and moors; Geologically important karst limestone landforms, cave systems and exposures of carboniferous rocks with associated habitats of international importance.
Forest of Bowland	Grid	Yorkshire	The area is dominated by rolling heather moorland and blanket bog; Internationally important grouse and sheep populations;
Lancashire Plain and Valleys	Grid	Yorkshire	Intensively farmed area with arable, horticulture and dairy farming; Significant area for wintering waders and wildfowl due to the area's proximity to internationally important estuaries; Numerous field ponds supporting great crested newt populations; Water vole populations present in the network of field drains of the coastal plain.
Southern Pennines	Grid	Yorkshire/ North West	Upland areas of heather moorland, blanket bog and acid grassland are essential character of the area Internationally important populations of red grouse, curlew, merlin, golden plover, dunlin and short-eared owl.
Pennine Dales Fringe	Grid	Yorkshire	Rolling landscapes at the transition between the Pennines and Yorkshire Dales.
Vale of York and Mowbray	Grid	Yorkshire	Riverine habitats such as Lower Derwent Valley supporting internationally important flood meadow grasslands and breeding/wintering bird populations; Important heathland areas.
North York Moors and Hills	Grid; East SW, East GW	Yorkshire	Large expanse of open heather moorland, supporting vegetation and breeding birds (in particular Golden Plover and Merlin); Species-rich limestone grassland and calcareous fens on southern fringe of the area.
Vale of Pickering	Grid; East SW, East GW	Yorkshire	Floodplain grasslands (supported by the River Derwent) which are particularly important for breeding and wintering bird populations.
Yorkshire Wolds	Grid; East GW	Yorkshire	Crescent-shaped area of hills with near-vertical cliffs; Small spring-fed flushes arising from the Western escarpment and the coastal parts of the Wolds.

Table C-4: Natural England Nature Areas within the Yorkshire Water Supply Area

Natural Area	WRZ	Region	Key Messages
Holderness	Grid; East GW	Yorkshire	Low lying plain of boulder clay, with areas of gravel and sand; Area supports a variety of wildlife associated with the river Hull and adjacent wetlands.
Humber Estuary	Grid	Yorkshire	Internationally important site Migratory wildfowl, Vast expanses of exposed mudflats.
Humberhead Levels	Grid	Yorkshire	Plains dominated by major river systems (Ouse and Trent); Peatland areas internationally important for their nature conservation features.
Southern Magnesian Limestone	Grid	Yorkshire	Base-rich flushes, river and streams forming important wetland features; Important geological sections including limestone gorges and caves containing Pleistocene sediments.
Coal Measures	Grid	Yorkshire	Area characterised by dense populations of towns/cities developed as a result of underlying coal fields (Shales and sandstones of late Carboniferous age c. 320-295 million years old).
Dark Peak	Grid	Yorkshire	Area of peat covered hills dissected by narrow cloughs; Dominated by upland heather and blanket bog; Reservoirs are key characteristic feature of the area.
Derbyshire Peak Fringe and Lower Derwent	Grid	Yorkshire	Area dominated by rivers and reservoirs providing important habitats for pondweeds, great crested newts, migrating waders and wildfowl.

Invasive Non-native Species

Invasive non-native species (INNS) are widespread across the river catchments of Yorkshire. These species include terrestrial plants such as Japanese Knotweed, Himalayan Balsam and Giant Hogweed; aquatic macrophytes such as Floating Pennywort and; aquatic invertebrates, notably Signal Crayfish and Zebra Mussels. The majority of INNS records are found along Yorkshire's river and canal network, which is also one of the key dispersal pathways for invasive species. **Table C-5** provides the records of invasive species found in Yorkshire's main rivers between 1985-2015. More recent data, including the distribution of individual INNS, can be accessed via the webtool INNS Mapper[20]. Implementation of Yorkshire Water's drought plan options are not expected to increase the distribution of these INNS. Impacts to the physical environment as a result of these options will lead to increased mortality of invasive non-native species and the impairment of pathways to further distribution as a consequence of reduced river flows. Nonetheless, the distribution of invasive species will be assessed in the SEA report and the spread of invasive species forms a key question with regards to biodiversity in Section 3.1.

[20] INNS Mapper https://innsmapper.org/map

Table C-5: Recorded Number of Key Invasive Species of Main Rivers of Yorkshire from 1985 to 2015

Year	Zebra Mussels *Dreissena polymorpha*	Signal Crayfish *Pacifastacus leniusculus*	Himalayan Balsam *Impatiens glandulifera*	Japanese Knotweed *Fallopia japonica*	Giant Hogweed *Heracleum mantegazzianum*	Floating Pennywort *Hydrocotyle ranunculoides*
1985-1990	-	3	-	-	-	-
1991-1995	-	-	-	10	3	-
1996-2000	3	13	-	29	12	-
2001-2005	11	25	-	7	3	-
2006-2010	11	54	51	7	13	48
2011-2015	1	3	83	3	1	1
Total	**26**	**98**	**134**	**56**	**32**	**49**

Eels Regulations

The Eels (England and Wales) Regulations 2009 (the Eels Regulations) came into force on 15 January 2010. To be legally compliant with the Eels Regulations, from 1st January 2015 onwards, all intakes (capable of abstracting at least 20 m3 per day) require screening unless considered exempt by the Environment Agency (EA). In AMP6 investment took place to meet the Eels Regulations at Loftsome Bridge (River Derwent), Hempholme (River Hull) and Ruswarp (River Ure). No further investigations or investment were carried out in AMP7.

In 2021, the EA conducted a review of the Eels Regulations (ChERP – Changes to the Eels Regulations Process) and subsequently issued the PR24 Eels Regulations Driver Guidance. In PR24, water companies are expected to complete improvements for eel at all remaining high priority intakes and high and medium priority barriers to eel. In addition, the remaining medium priority intakes have been reviewed and water companies are expected to deliver screens for eel at sites that have an original prioritisation score of 50 or higher in PR24.

Following publication of the driver guidance, a list of YW abstractions and outfalls which may pose a risk under the Regulations were reviewed. It was subsequently agreed that just one site (Elvington) would be taken forward as an implementation scheme during AMP8, whilst two further sites (Stoneferry Bridge and Moor Monkton) would proceed as investigations.

Natural Capital, Ecosystem Services and Biodiversity Duty

Natural capital can be defined as '*the sum of our ecosystems, species, freshwater, land, soils, minerals, our air and our seas…that directly or indirectly bring value to people and the country at large...by providing us with food, clean air and water, wildlife, energy, wood, recreation and protection from hazards'*[21]. Ecosystem services are defined as the goods and services provided by the natural

[21] HM Government (2018) A Green Future: Our 25 year Plan to Improve the Environment

environment that benefit people. The 25 Year Environment Plan (YEP) places particular emphasis on enhancing natural capital and the ecosystems that support economic growth and productivity over the long-term.

As a water company, Yorkshire Water have a responsibility protect and enhance the biodiversity to safeguard the ecosystems on which current and future generations rely on. According to the Environment Act 2021, it is the responsibility of public authorities in England to consider actions to conserve and enhance biodiversity. Government guidance[22] sets out considerations of how public authorities (including water companies as statutory undertakers) can comply with the duty. This includes educating, advising and raising awareness through helping the public understand biodiversity and the importance of conserving and enhancing it. Yorkshire Water have a Nature First commitment, working hard to find nature-based solutions to the challenges faced. This includes their commitment to preserving and enhancing biodiversity in order to protect their raw water resources and natural heritage. Yorkshire water hold the following long-term aspirations for biodiversity:

1. To achieve a net gain to biodiversity through our operations.
2. To improve the ecological resilience of our rivers and catchments.
3. To give a strong voice to nature in our decision making.
4. To help customers engage with their river and surrounding natural ecosystems.

Yorkshire Water is undertaking various conservation and enhancement projects to deliver these aspirations including providing funding to external partners (e.g. Yorkshire Wildlife Trust, rivers trusts, national park authorities) to achieve benefits to priority habitats, improve ecological resilience of rivers and catchments and help Yorkshire Water customers engage with their rivers.

Future Baseline

It is not expected that many additional sites will be designated under international or national legislation throughout the course of the Drought Plan, therefore the focus is placed on achieving the conservation objectives set for each of these sites. A range of measures are included in the management plans for each site to contribute towards the objectives and, assuming sufficient resources are in place, it is likely that the condition of these sites will be improved over the next two or three decades. A similar trend is likely for achievement of objectives associated with the NERC priority habits.

The number of locally designated sites may increase slightly in response to growing community activities and the development of local environmental initiatives. An improving trend in the condition of these sites is also anticipated with greater resources (particularly voluntary resources) devoted to their protection and enhancement.

The Defra 25 Year Environment Plan[23] includes a commitment to restoring 75% of terrestrial and freshwater protected sites to favourable condition and to create or restore 500,000 hectares of wildlife-rich habitat outside the protected site network, focusing on priority habitats as part of a wider set of land management changes providing extensive benefits. The 25 Year Plan also proposed an adoption of the 'Biodiversity Net Gain' approach to development, an approach introduced into national planning policy in 2019 and which is mandated by the Environment Act (2021).

The 25 Year Plan also includes a commitment to support land management at landscape and catchment level and to support the adoption of long-term sustainable land management practices to significantly expand wildlife habitat and provide opportunities for species and ecosystem recovery.

The development of Local Nature Recovery Strategies (LNRSs) will reshape how nature recovery priorities, opportunities, and expectations are understood at the plan-making stage. LNRSs introduce locally tailored habitat maps and statements of biodiversity priorities, identifying where habitat creation, enhancement and connectivity should be targeted to support nature's recovery. Because LNRSs map out priority areas for restoration and opportunities for expanding ecological networks, they signal where

[22] Defra (2023) Complying with the biodiversity duty. https://www.gov.uk/guidance/complying-with-the-biodiversity-duty#educate-advise-and-raise-awareness [Accessed September 2024]

[23] Defra (2018) A Green Future: Our 25 Year Plan to Improve the Environment. https://www.gov.uk/government/publications/25-year-environment-plan [Accessed September 2024]

future biodiversity gains are expected to occur and where environmental sensitivity will increase over time. As these strategies are implemented, they will shift the future baseline by embedding an assumption of improving ecological condition, greater habitat connectivity, and increased delivery of nature recovery actions. LNRSs also play a growing role in planning and Biodiversity Net Gain, guiding where nature-positive interventions should be focused.

Climate change is anticipated to have an impact on wildlife in the future by exacerbating existing pressures such as changes to the timing of seasonal activity, and water scarcity. It is acknowledged that there is a need to allow wildlife to adapt to the impacts of climate change. Climate may limit species' distribution indirectly though the impact of invasive species on native species along climatic gradients[24]. It will affect the abundance and diversity of natural enemies, competitors and species that constitute resources, as well as a species' ability to compete for resources or resist natural enemies.

Key issues

The key sustainability issues arising from the baseline assessment for biodiversity are:

- The need to protect or enhance biodiversity, ecological functions and biodiversity connectivity within Yorkshire Water's supply and source areas, particularly protected sites designated for nature conservation.
- The need to avoid activities likely to cause irreversible damage to natural heritage.
- The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors.
- The need to ensure that drought plan measures do not hinder delivery of wider Nature Recovery objectives, including the restoration of freshwater systems and non-designated habitats (e.g., lowland peat), which depend on sufficient water availability to support ecological recovery.
- The need to control the spread of Invasive Non-Native Species (INNS).
- The need to recognise the importance of allowing wildlife to adapt to climate change.
- The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of the ecosystem services.

Population and Human Health

Baseline

Population

The Yorkshire and the Humber region has centres of densely populated urban areas within a generally more sparsely populated wider area. Kingston upon Hull is the most densely populated area with a mid-2022 average population density of 3,756 people per km^2, compared to an average of 438/km^2 in England as a whole. The latest population (mid-2022) estimates[25] for the Yorkshire and the Humber regions are 5.54 million. When comparing population and household statistics and projections (**Table C-6)**, it is important to note that whilst the population growth rate for the whole of England over the period 2018-2028 is 5.0%, Yorkshire and the Humber expect to see lower growth rates of 3.6%. Household growth projections for the period 2018-2028 show a similar pattern for the regions with projected increases of 5.4% for Yorkshire and the Humber, predicting smaller growth compared to the whole of England (7.1%).

[24] Pateman & Hodgson (2015) Biodiversity Climate change impacts report card technical paper. Available from: https://www.ukri.org/wp-content/uploads/2021/12/101221-NERC-LWEC-BiodiversityClimateChangeImpacts-ReportCard2015-English.pdf [Accessed September 2024]

[25] Office for National Statistics (2024) Population estimates for UK, England, Wales, Scotland and Northern Ireland: mid-2022. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2022 [Accessed September 2024]

Table C-6: Population[26] and Household[27] statistics and projections (millions)

Period	2018	2018	2028	2028	% change over period	
Region	Population	No. Households	Population	No. Households	Population	No. Households
Yorkshire & Humber	5.48	2.31	5.67	2.43	3.6	5.4
England	55.9	23.2	58.8	24.8	5.0	7.1

Human Health and Deprivation

The Drought Plan has the potential to influence quality of life, including human health, well-being, amenity and community, through actions to maintain essential water supplies during drought conditions. There could be beneficial (e.g. actions to provide additional supply of water will help safeguard public health) or adverse impacts (e.g. noise and disruption from temporary infrastructure required to pump water).

For the Yorkshire and the Humber region, 2021 Census data suggests that 80.1% of the population claimed to be in 'very good health' or 'good health'. This was slightly below the national average of 81.7%. In the same responses, 4.6% stated their health was 'bad', above the national average of 4.1%[28].

It has been shown that, in some cases, people in disadvantaged areas experience greater exposure to negative impacts on human health including air pollution, flooding, and proximity to large industrial and waste management sites. The Index of Multiple Deprivation combines a number of indicators, chosen to cover a range of economic, social and housing issues, into a single deprivation score for each Lower layer Super Output Area[29] in the UK. This allows each area to be ranked relative to one another according to their level of deprivation. The Indices are used widely to analyse patterns of deprivation, identify areas that would benefit from special initiatives or programmes and as a tool to determine eligibility for specific funding streams.

Data relating to drinking water quality, pollution incidents and air quality, which could also be affected by the DP, and as a result affect amenity and human health are covered in separate sections of this report.

Economy and Employment

The Yorkshire and the Humber region is a polycentric area with a large and diverse economy. Traditionally, this region has been dominated by heavy industries such as mining and manufacturing and whilst the latter remains an important component of both regional economies, evidence suggests these regions are transitioning to more diversified business sectors.

Real gross domestic product (GDP) is an indicator that has been developed to measure the economic value of goods and services and is used to measure the economic health of the United Kingdom and it's regions. In 2022, The GDP for Yorkshire and the Humber was £170,304 billion, which translates to £30,734 per head[30]. This is below the UK national average of £36,844 per person.

[26] Office for National Statistics (2020) Subnational population projections for England: 2018-based

[27] Office for National Statistics (2020) Household projections in England: 2018-based

[28] Office for National Statistics (2023) General health by age, sex and deprivation, England and Wales: Census 2021

[29] According to the Office for National Statistics, Lower layer Super Output Areas (LSOAs) are made up of groups of Output Areas (OAs), usually four or five. They comprise between 400 and 1,200 households and have a usually resident population between 1,000 and 3,000 persons. Output Areas are the lowest level of geographical area for census statistics and were first created following the 2001 Census.

[30] ONS (2024) Regional economic activity by gross domestic product, UK: 1998 to 2022

The average gross weekly earnings for full-time employees in the Yorkshire and the Humber in 2023 was £631, which is below the national average of £684/week[31]. Unemployment rates for the Yorkshire region are currently lower than the national average in 2024 (4.1%) at 3.5%[32].

The COVID-19 pandemic impacted the economy in numerous ways. In 2020, UK Gross Domestic Product (GDP) fell by 9.8%, the steepest decline since consistent records began in 1948[33]. In March 2021, the UK Government launched three new investment programmes to support communities across the country as part of the 'Levelling Up' recovery response to the pandemic. These programmes will centre on developing employment opportunities, improving transport infrastructure and supporting local facilities to reduce inter-regional inequalities.

Recreation and Tourism

The DP has the potential to affect areas with recreational value through increased abstraction from rivers and reservoirs. There are a variety of opportunities for recreation and tourism within the Yorkshire Water supply area. Many of the recreational and cultural offerings are represented in other topic areas in the baseline. For example, the WRZs include a number of water resources of recreational importance including many reservoirs for sailing or fishing and river sections of particular importance with respect to navigation (e.g. The River Ouse) and angling (e.g. The River Ure). Section 2.3.4 identifies the large number of nature reserves that are present within the Yorkshire Water supply area.

Section 2.3.10 identifies the importance of the Yorkshire Water supply area with respect to heritage assets, including two internationally recognised World Heritage Sites, 131 Registered Parks and Gardens and 2,934 Scheduled Monuments.

Section 2.3.11 describes the landscape baseline, which includes three National Landscape areas (formerly known as AONB). Public open space, Rights of Way, walking routes or cycle routes are also important with respect to recreation and tourism. The National Planning Policy Framework (NPPF) states planning policies should protect and enhance public rights of way and access.

Tourism is the fifth largest industry in the UK and supports 3.1 million jobs in England (forming England's third largest employer), contributing £146 billion to the economy. In 2022, there were nearly 4.4 million visitors to the top 20 paying attractions in Yorkshire and Humberside[34]. Inbound tourism to the Yorkshire and the Humber region in 2023 was 1.1 million international visitors, spending over £640 million (a 1% increase compared to 2019)[35]. In Q4 of 2023, the Yorkshire and the Humber region experienced a 28% decrease in total tourism spend as opposed to the spend in 2022 Q4. It is possible that the spending figures for Q4 of 2023 have been affected as a result of the cost of living crisis[36].

Future Baseline

Population is expected to grow at a rate between 2.3% and 3.6% across the region (see **Table C-6**), with an increasing proportion of people at or above state pension age. Yorkshire Water's draft water resources management plan states that population is projected to increase by one million by 2045. Household projections show potential increases of between 4.3% and 5.4% across the region, with an increasing proportion of one person households.

In response to recent studies access to the recreational resources, green spaces and the historic environment will have greater importance in future planning. The NPPF suggests a range of areas that should be taken into account, including the provision of appropriate facilities for recreation that preserve the openness of the green belt.

[31] ONS (2023) Employee earnings in the UK: 2023

[32] ONS (2024) Labour market in the regions of the UK: September 2024 https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/regionallabourmarket/september2024 [Accessed September 2024]

[33] House of Commons Library (2021) Coronavirus: Economic Impact

[34] Visit England (2019) Visitor Attraction Trends in England 2022, Full Report.

[35] Welcome to Yorkshire (2020) Tourism Data Report.

[36] Visit Britain (2024) Quarterly and Annual Inbound Update UK's Nations and Regions – International Passenger Survey by the ONS

The National Ecosystem Assessment[37] and the Fair Society, Healthy Lives (Marmot Review)[38], demonstrate the positive impact that nature has on mental and physical health and as a result the Government intends to establish a Green Infrastructure Partnership with civil society to support the development of green infrastructure in England.

Improvements to the quality of the water environment and certain potential climate change impacts will present opportunities for an expanding tourist industry in the region.

Key Issues

The key sustainability issues arising from the baseline assessment for population and human health are:

- The need to ensure essential water supplies are safeguarded to all communities to protect public health and economic activity.
- The need to ensure public awareness of drought conditions and importance of maintaining resilient, reliable public water supplies without the need for emergency drought measures.
- The need to ensure water quantity and quality is maintained for other users including tourists, recreational users and for other sector uses (e.g. agriculture)
- The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists, including opportunities for access to recreation resources and the natural and historic environment.
- The need to ensure the conservation and enhancement of sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way which contribute to recreation and tourism opportunities and subsequently health and well-being and the economy.
- The need to promote the health benefits of drinking water and efficient use of water.

The implications of a changing population on material assets and resource use, including water resources, are considered in Section 2.3.6 below.

[37] UK National Ecosystem Assessment (2011) Understanding nature's value to society: Technical Report.

[38] The Marmot Review (2020) Fair Society, Healthy Lives, The Marmot Review. https://www.parliament.uk/globalassets/documents/fair-society-healthy-lives-full-report.pdf [Accessed September 2024]

Material Assets and Resource Use

Baseline

Water Use

Yorkshire Water abstract and treats 1,300Ml/d (million litres per day) of water to supply its customers, with leakage from the water distribution system reported as 260Ml/d in 2023/24[39]. The North East Environment Agency regional charge area, which comprises the Yorkshire Water operational area, had a total of 3,283 actual abstractions (over half of which were to supply the energy industry) in 2018 (**Table C-7**).

Table C-7: Estimated actual abstractions

Estimated actual abstractions from all surface and groundwater sources by purpose (2018)	Million cubic meters North East (inc. Yorkshire)	Million cubic meters England
Public water supply	764	5,346
Agriculture (including spray irrigation)	11	150
Electricity supply industry[1]	2,329	8,288
Other industry	81	1,588
Fish farming, cress growing, amenity ponds	95	813
Private water supply	1	8
Other	3	32
Total	**3,283**	**16,226**

[1]Includes hydropower licences

Source: DEFRA (2022) ENV15 – Water abstraction tables for England

Resource Use and Waste

The need for society to reduce the amount of waste it generates, by using materials more efficiently, and improving the management of waste that is produced, in order to achieve sustainable living, is realised more today than it was two decades ago. Landfill volumes in England[40] peaked in 2001/02 at 22.4 million metric tons, before declining in the following years. In 2020/21, this figure was 2.1 million tons attributed to increased recycling rates. Household recycling rates in England were at 41.5% in 2020/21. The Yorkshire and the Humber had a household waste recycling rate in 2020/21 of 41.9% which is slightly above the national average, the local authority with the highest recycling rates within the Yorkshire and the Humber region was East Riding of Yorkshire Council at 60.1%[41]. In line with the widely adopted 'waste hierarchy', best practice for waste management is to reduce, re-use, recycle and recover, and only then should disposal (or storage) in landfill be considered.

Data on waste arisings is collected in a range of categories. The activities of the water industry contribute to construction, demolition and excavation waste, through construction of new infrastructure. The water industry also contributes to several waste streams through the operation of facilities. Waste streams include commercial and industrial waste (statistics include waste arisings from the power and utilities sector, which includes water supply and sewage treatment), and also hazardous wastes from industrial wastewater treatment. In 2018, commercial and industrial sectors contributed over 36 million tonnes of waste in England, meanwhile the CDE sector (Construction, Demolition and Excavation)

[39] Yorkshire Water Services Limited (2024) Annual Performance Report 2023/2024 https://www.yorkshirewater.com/media/rpfjtjjl/annual-performance-report-2023-2024.pdf

[40] Collected by Local Authorities

[41] Defra (2023) Local authority collected waste management – annual results 2021/22

generated over 119 million tonnes, resulting in a 12.4% increase (commercial and industrial) and a 0.7% decrease (CDE), when compared to 2016 data[42].

The Yorkshire and The Humber region is a major producer and consumer of energy. Total energy consumption in the region during 2021 was 11.8 million tonnes of oil (Mtoe), approximately 9.5% of the total UK figure[43]. **Table C-8** illustrates energy consumption in the Yorkshire region used for industry and commercial, domestic and transport uses. Energy consumption by type is consistent with national trends, with the majority coming from natural gas and petroleum. Renewable energy generation in England in 2022 was up 4.4% on the 2021 figure. The renewable energy sector in both regions continues to grow with Yorkshire and the Humber region having the largest renewables capacity in England at the end of 2022[44].

Table C-8: Regional energy demand by sector in 2021 (Mtoe)

Energy demand by sector	Yorkshire and The Humber	UK
Industry and Commercial	5.2	46.1
Domestic	3.5	40.5
Transport	3.1	35.9

Source: Department for Business, Energy & Industrial Strategy. Regional Energy Consumption Statistics 2021

Future Baseline

The Government's National Infrastructure Strategy[45] (2020) includes visions to manage natural capital sustainably; treat water and waste in ways that sustain the environment and enable the economy to prosper; ensure a supply of water that meets the needs of households, businesses and the environment now and in the future and deal with waste in accordance with the waste hierarchy moving towards a zero-waste economy. The Government's Resource and Waste Strategy[46] emphasises the importance of natural capital as one of the most valuable assets and sets out how England will preserve material resources, promote resource efficiency and a move towards a circular economy whilst minimising damage to the natural environment and reducing and managing waste carefully. Targets for England by 2035 include a 65% recycling rate for municipal solid waste and less than 10% of municipal solid waste to landfill.

Yorkshire Water's future baseline for leakage control is detailed in their PR24 Business Plan[47], where they plan to significantly reduce leakage by 27.4% by 2030 and by 49% by 2050 (compared to 2019/20 baseline). If this target was met, it would reduce leakage from 315.3Ml/d (2019/20 baseline) to 161.3Ml/d by 2050. In 2023/24, Yorkshire Water achieved their leakage reduction target of 11.7% from the baseline as they reported an actual value of 260Ml/d[48]. Current and future pressures on water resources include impacts from abstraction, climate change, population growth and the choice of energy generation (e.g. greater nuclear or renewable energy generation is anticipated to have much lower rates of freshwater abstraction)[49].

The NPPF[50] emphasises the need for achieving sustainable development, through making effective use of land and existing resources, using natural resources prudently and supporting renewable and low carbon energy. The Government has committed to deliver a decarbonised power sector by 2035 and

[42] Defra (2023) UK Statistics on Waste
[43] Department for Business, Energy & Industrial Strategy (2017) Regional Energy Consumption Statistics
[44] Department for Business, Energy & Industrial Strategy (2023) Regional Renewable Statistics 2003-2022: Number of Sites
[45] HM Treasury Infrastructure UK (2020) National Infrastructure Strategy
[46] HM Government (2018) Our waste, our resources: A strategy for England
[47] Yorkshire Water (2024) Our PR24 Business Plan: For the period 2025-2030
[48] Yorkshire Water (2024) Annual Performance Report 2023-2024
[49] Environment Agency (2018) The State of the Environment: Water Resources. May 2018
[50] Ministry of Housing, Communities & Local Government (2023) National Planning Policy Framework, December 2023. Available at https://www.gov.uk/government/publications/national-planning-policy-framework--2 [Accessed September 2024]

net zero by 2050 (in line with the Paris agreement[51]). In the first quarter of 2023, renewables generated a record 48% of our electricity[52]. Although there have been positive developments in achieving this objective, the 2023 Climate Change Committee to the UK Parliament notes that action is significantly off track in a range of areas such as surface transport, electricity supply, buildings, electricity prices, land use, agriculture and industry[53]. Energy demand in the region has increased significantly in recent years and is expected to continue to rise in the future.

Key Issues

The key sustainability issues arising from the baseline assessment for material assets and resource use are:

- The need to minimise the consumption of resources, including water and energy.
- The need to reduce the total amount of waste produced in the region, from all sources, and to reduce the proportion of this waste sent to landfill.
- The need to continue to reduce leakage from the water supply system.
- Daily consumption of water is higher than the national average in the area and consequently there is a continued need to encourage more efficient water use.

Water

Baseline

Under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, which retained and embedded the principles of the EU Water Framework Directive (WFD) into UK law following EU exit, the water environment continues to include rivers, lakes, estuaries, groundwater and coastal waters out to one nautical mile. The Humber River Basin District remains characterised through this regulatory framework, with its ecological and chemical status reported through statutory River Basin Management Plans, providing the appropriate baseline for assessing the condition of the aquatic environment. Although the UK is no longer an EU member, the Regulations continue to integrate and align the planning processes associated with protected areas established under related directives—such as those for drinking water, urban wastewater, nitrates, habitats and birds—within the same basin-planning cycle. These retained measures ensure coherent management of water quality, nutrients, chemicals, and ecologically significant species within the updated UK regulatory system.

Designated sites (such as SACs, SPAs and SSSIs) frequently have site-specific targets for water quantity (flows/levels) and water quality, which can be more stringent than general Water Framework Directive requirements. These targets reflect the detailed ecological attributes and hydrological conditions necessary to maintain or restore qualifying features, as set out in the relevant Conservation Objectives and their Supplementary Advice. They are also underpinned by the Common Standards Monitoring Guidance (CSMG) framework, which provides the methodological basis for assessing feature condition and identifying the flow, level, and water-quality parameters required to support favourable condition.

Surface Waters: Rivers and Canals

The Yorkshire Water supply area lies within the Humber River Basin District (RBD) and is comprised of the following management catchments[54]:

- Aire and Calder
- Derwent (Humber)

[51] United Nations (2015) The Paris Agreement

[52] GOV.UK (2023) Energy security boost with multi-million backing for renewables. Available at https://www.gov.uk/government/news/energy-security-boost-with-multi-million-backing-for-renewables [Accessed May 2024]

[53] Climate Change Committee (2023) Progress in reducing emissions 2023 Report to Parliament. Available at https://www.theccc.org.uk/publication/2023-progress-report-to-parliament/ [Accessed May 2024]

[54] Environment Agency (2022) River Basin Management Plan: Humber River Basin District. Available at https://www.gov.uk/guidance/humber-river-basin-district-river-management-plan-updated-2022 [Accessed September 2024]

- Don and Rother
- Esk & Coast
- Hull and East Riding
- Humber AWB
- Humber GW
- Humber TraC
- Idle and Torne
- Swale, Ure, Nidd and Upper Ouse
- Wharfe and Ouse Lower

A large canal network extends from the Southern section of Yorkshire Water's supply area as far as Ripon in the North West and Driffield in the East.

Approximately 30% of Yorkshire Water's supply is derived from rivers[55]. Major rivers within the Yorkshire Water supply area include the Wharfe, Ouse and Derwent.

Surface Waters: Lakes and Reservoirs

There are a total of 133 lakes and reservoirs in the Humber RBD, of which 12 are natural water bodies, 18 are artificial water bodies and 103 heavily modified water bodies. Approximately 45% of Yorkshire Water's supply is from impounding reservoirs. Many of these reservoirs are important landscape characteristics and often provide nationally/ internationally important recreational resources and wildlife habitats.

Groundwater

Approximately 25% of Yorkshire Water's supply is from groundwaters, derived from assets within the Grid SWZ or East GWZ. There are two major aquifers in the region, the Sherwood Sandstone and the Magnesian Limestone, which support large groundwater abstractions. The Sherwood Sandstone is a source of major drinking water supply.

Under the WFD, there are two separate classifications for groundwater bodies; chemical status and quantitative status. A groundwater body will be classified as having poor quantitative status where:

- low groundwater levels are responsible for an adverse impact on rivers and wetlands normally reliant on groundwater;
- where abstraction of groundwater has led to saline intrusion;
- where it is possible that the volume of groundwater abstracted will not be replaced each year by rainfall.

For a groundwater body to be at good status overall, both chemical status and quantitative status must be good. There are 51 groundwater bodies in total in the Humber RBD and of these, 80% are at good quantitative status and 49% at good chemical status[56].

Estuaries

The Humber Basin has over 165km of coastline and 33,000km^2 of estuarine environments. The Yorkshire coastline provides a vital tourism industry to the region and there are 23 designated bathing waters in the Humber River Basin, where three were categorised as not achieving sufficient classification in 2022. Of the six estuarine waterbodies within the Humber Estuary TraC Operational

[55] Yorkshire Water Services Limited (2024) Water Resources Management Plan 2024. Available at https://www.yorkshirewater.com/about-us/resources/water-resources-management-plan/

[56] Environment Agency (2024) Catchment Data Explorer: Humber River Basin District. Available at: https://environment.data.gov.uk/catchment-planning/RiverBasinDistrict/4/print [Accessed September 2024]

catchment, two are assessed as having good ecological status and four as moderate ecological status, whilst all six surface waterbodies have failed chemical status[57].

Monitoring

There is an adequate coverage of hydrometric and water quality data in the study area. In order for this to remain the case, the existing monitoring regime, undertaken by Yorkshire Water and the Environment Agency, should continue as at present.

Abstraction Licensing Strategies (ALS)

The Environment Agency have produced a series of Abstraction Licensing Strategies (ALS) (the CAMS process) for the Yorkshire area and other areas which may be affected by the Drought Plan. These ALS set out how water resources will be managed in each catchment and provide information on how existing abstraction licences are managed and the availability of water for further abstraction. ALS areas are based on river catchment boundaries and overlap with Yorkshire Water's supply area, as summarised in **Table C-9**. Within each ALS, river flows and groundwater levels are monitored at Assessment Points (significant points on rivers) and assessed alongside the amount of water which has been abstracted on average over the previous six years and the situation if all abstraction licences were used to full capacity. This data is used to determine the water availability for each water body. Water availability falls into the following categories:

- **Water available for licensing:** There is more water than required to meet the needs of the environment. New licences can be considered depending on local and downstream impacts.
- **Restricted water available for licensing:** If all licensed water is abstracted there will not be enough water left for the needs of the environment. No new consumptive licences would be granted and restrictions may be in place. Trading from an existing licence holder can occur.
- **Water not available for licensing:** Water body flows are below the indicative flow requirement to help support Good Ecological Status (as required by the WFD). No further consumptive licences will be granted. Trading from an existing licence holder can occur.

Table C-9: Abstraction Licensing Strategies in the Yorkshire Water supply area

WRZ	Relevant ALS
Grid	Aire & Calder; Don & Rother; Hull & East Riding; Swale, Ure, Nidd & Upper Ouse; Wharfe & Lower Ouse
East SW Zone	Esk & Coast
East GW Zone	Derwent; Hull & East Riding

The most up to date ALS for the various areas within the study area are available online[58]. **Table C-10** provides a breakdown of the resource availability status in the Yorkshire Water supply area based on these strategies.

Table C-10: Resource Availability Status in the Yorkshire Water Supply Area (listing each relevant ALS, with relevant ALS management units)

Resource availability status assessed by the Environment Agency in the ALS (CAMS Process)		
Relevant ALS	**Relevant CAMS Management Unit**	**Resource availability status**

[57] Environment Agency (2024) Catchment Data Explorer: Humber Estuary TraC Operational Catchment. Available at: https://environment.data.gov.uk/catchment-planning/v/c3-plan/OperationalCatchment/3228/classifications [Accessed September 2024]

[58] Environment Agency (various) Abstraction licensing strategies (CAMS process). Available at https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process [Accessed August 2024]

Resource availability status assessed by the Environment Agency in the ALS (CAMS Process)		
Aire & Calder	1. Aire Headwaters	Water available for licensing
	2. Upper Aire	Water available for licensing
	3. River Worth	Water available for licensing
	4. Upper Mid Aire	Water available for licensing
	5. Lower Mid Aire	Water available for licensing
	6. Lower Aire	Water available for licensing
	7. Upper Calder	Water available for licensing
	8. Mid Calder	Water available for licensing
	9. River Colne	Water available for licensing
	10. Lower Calder	Water available for licensing
Derwent	1. Barmby Tidal Barrage	*Not assessed*
	2. East Cottingwith	Water not available for licensing
	3. Sutton upon Derwent	Restricted water available for licensing
	4. Buttercrambe weir	Water available for licensing
	5. Kirkham Bridge	Water available for licensing
	6. Low Marishes	Restricted water available for licensing
	7. River Hertford	Water not available for licensing
	8. West Ayton	Water not available for licensing
	9. Howe Bridge	Restricted water available for licensing
	10. Ness GS	Restricted water available for licensing
Don & Rother	1. River Sheaf	Water available for licensing
	2. Upper Don	Water available for licensing
	3. Upper Rother	Water available for licensing
	4. Lower Rother	Water available for licensing
	5. Upper Dearne	Water available for licensing
	6. Lower Dearne	Water available for licensing
	7. Middle Don	Water available for licensing
	8. Went Walden Stubbs	Water available for licensing
	9. Lower Went	Water available for licensing
Esk & Coast	1. Lower Esk	Water not available for licensing
	2. Murk Esk	Restricted water available for licensing
	3. Upper Esk	Water available for licensing
	4. Slaithes	Restricted water available for licensing
Hull & East Riding	1. Kelk Beck	Restricted water available for licensing
	2. Upper West Beck	Water available for licensing
	3. Upper Hull	Water not available for licensing
	4. Driffield Canal	Water available for licensing
	5. Upper Mires Beck	Restricted water available for licensing
	6. Lower Mires Beck	Water not available for licensing
	7. Rover Foulness	Water available for licensing

Resource availability status assessed by the Environment Agency in the ALS (CAMS Process)		
	8. Back Delfin	Restricted water available for licensing
	9. Market Weighton Canal	Water available for licensing
Swale, Ure, Nidd & Upper Ouse	1. Naburn	Restricted water available for licensing
	2. Foss	Water available for licensing
	3. Skelton GS	Water available for licensing
	4. Kyle	Water available for licensing
	5. Nidd	Water available for licensing
	6. Hunsingore GS)	Water available for licensing
	7. Crimple	Water available for licensing
	8. Birstwith GS	Water not available for licensing
	9. Ure	Water not available for licensing
	10. Westwick GS	Water not available for licensing
	11. Kilgram GS	Water available for licensing
	12. Swale	Water available for licensing
	13. Bat Bridge GS	Restricted water available for licensing
	14. Crakehill GS	Water available for licensing
	15. Cod Beck	Water available for licensing
	16. Wiske	Water available for licensing
	17. Bedale Beck	Water available for licensing
	18. Swale at Morton	Restricted water available for licensing
Wharfe and Lower Ouse	1. Tadcaster	Restricted water available for licensing
	2. River Wharfe	Water available for licensing
	3. River Washburn	Water not available for licensing
	4. Addingham	Water available for licensing
	5. River Dibb	Water available for licensing (above Grimwith reservoir only)
	6. Cock Beck	Water available for licensing

Water Quality

Historically water quality has been classified using the Environment Agency General Quality Assessment (GQA) classification. Since 2007, water quality has been monitored and classified according to WFD requirements.

For surface waterbodies there are two separate classifications, ecological and chemical. For a waterbody to be in overall 'good' status, both ecological and chemical status must be at least 'good'. The ecological measures include water quality, quantity and the habitat, including the health of river insects and plants. These are scrutinised and an assessment made of the overall status. Out of a total 982 surface water bodies in the Humber RBD, just 150 have good ecological status or potential, with 66% of water bodies achieving moderate status[59]. 72% of water bodies in the Humber RBD have an objective of maintaining or aiming to achieve good ecological status between by 2033. **Table C-11** summarises the key statistics for the catchments within the Yorkshire Water supply area.

[59] Environment Agency (2024) Catchment Data Explorer, RBMP 2019 Cycle 3 data. Available at https://environment.data.gov.uk/catchment-planning/v/c3-plan/RiverBasinDistrict/4 [Accessed September 2024]

Table C-11: Key statistics of WFD Catchments within the Yorkshire Water Supply Area[60]

RBD	Relevant RBMP Catchment	% at good ecological status or potential	
		RBMP 2019 Cycle 3	Target 2027
Humber	Aire and Calder	8	70
	Derwent Humber	11	70
	Don and Rother	6	55
	Esk and Coast	59	86
	Hull and East Riding	6	73
	Idle and Torne	9	44
	Swale, Ure, Nidd and Ouse Upper	19	57
	Wharfe and Ouse Lower	19	43

Groundwater is an important resource in the Humber RBD. A significant proportion of drinking water comes from the groundwater of the chalk and sandstone. The main pressures on groundwater are abstraction for drinking water supply and contamination with nitrates and pesticides. Historic mining in the west of the river basin on the coal measures has had a significant impact on the groundwater quality. Unsustainable abstraction from groundwater can lower groundwater levels and affect dependent river flows or wetlands or can induce the intrusion of poorer quality water from the sea or from deeper aquifers. For the 2019 assessment of groundwater chemical status, all water bodies have failed chemical status due to changes in the methods and increased evidence base. These assessments are no longer comparable to previous years assessments.

The Environment Agency's 2022 River Basin Management Plan for the Humber RBD identifies several reasons for not achieving good status (RNAG) that are the main challenges limiting the uses and potential benefits of managing the water environment in the Humber RBD in a sustainable way. These are identified in **Table C-12** below as a percentage of waterbodies affected. There may be more than one reason in a single water body. Physical modifications, including flood defences and weirs for example, affect the largest proportion of water bodies in the river basin district and can cause excessive sedimentation as well as loss of habitat.

Table C-12: Reasons for not achieving good status in the Humber River basin as % of waterbodies affected (some waterbodies are affected by more than one issue)

Reasons for not achieving good status (RNAGs)	% of waterbodies affected in Humber RBD
Physical Modifications	90
Pollution from waste water	77
Pollution from towns, cities and transport	47
Changes to the natural flow and level of water	8
Invasive non-native species	<1
Pollution from rural areas	70
Pollution from abandoned mines	7

[60] Environment Agency (2024) Catchment Data Explorer, RBMP 2019 Cycle 3 data. Available at https://environment.data.gov.uk/catchment-planning/v/c3-plan/RiverBasinDistrict/4 [Accessed September 2024]

Future Baseline

Water Quality

The Water Framework Directive originally set a target of aiming to achieve at least 'good status' in all waterbodies by 2015. However, provided that certain conditions are satisfied, in some cases the achievement of good status has been delayed until 2027 or 2033.

Flooding

The NPPF states that inappropriate development in areas at risk of flooding (in Flood Zone 1[61], Flood Zone 2[62], Flood Zone 3a[63] or Flood Zone 3b - the functional floodplain); should be avoided by directing development away from areas at highest risk (whether existing or future). The NPPF requires that where development is necessary, it should be made safe without increasing flood risk elsewhere, as defined in Government Guidance on flood risk and coastal change[64]. The NPPF requires the application of a sequential, risk-based approach (operated through Strategic Flood Risk Assessment) to the location of development to avoid where possible flood risk to people and property and to manage any residual risk, taking account of the impacts of current and future climate change. Following application of the Sequential Test, if it is not possible, consistent with wider sustainability objectives, for the development to be located in zones with a lower probability of flooding, the Exception Test can be applied if appropriate. This includes development for water- compatible uses (e.g. water transmission infrastructure and pumping stations) and essential infrastructure (e.g. water treatment works that need to remain operational in times of flood). The Government's 25 year Environment Plan looks to strengthen the relevant protections in the NPPF and, in addition, focus on using more natural flood management solutions, increase the uptake of sustainable drainage systems and improve resilience and recovery times of at risk properties.

The Environment Agency has produced 77 Catchment Flood Risk Plans (CFMPs) for England and Wales. Through the CFMPs, inland flood risk across all of England and Wales has been assessed for the first time. The CFMP considers all types of inland flooding, from rivers, ground water, surface water and tidal flooding. The role of CFMPs is to establish flood risk management policies which will deliver sustainable flood risk management for the long term. This is essential if for effective investment decisions for the future and to help prepare ourselves effectively for the impact of drought events as a result of climate change. The CFMPs will help target the areas that are at greatest risk and provide information on the likely future flood risk, which will help establish the future baseline. For the Yorkshire Water supply region, the following CFMPs have been produced:

- River Aire
- River Calder
- River Derwent
- River Don
- Esk and Coastal Streams
- Hull & Coastal Streams
- River Ouse
- River Trent

Water Availability

Yorkshire Water's 2024 Water Resource Management Plan[65] and its 2022 DP[66] provide details on how water resources will be managed and secured for the future, including in response to the risks presented by climate change. The Water Resources Management Plan identifies that the Yorkshire Water region

[61] Low probability of river or sea flooding (<0.1%) which has critical drainage problems

[62] Medium probability of river (1%-0.1%) or sea flooding (0.5%-0.1%)

[63] High probability of river (>1%) or sea flooding (>0.5%)

[64] Ministry of Housing, Communities & Local Government (2014 updated 2022) Flood risk and coastal change. Available at https://www.gov.uk/guidance/flood-risk-and-coastal-change [Accessed September 2024]

[65] Yorkshire Water (2024) Water Resources Management Plan 2024

[66] Yorkshire Water (2022) Drought Plan 2022

experiences a deficit in the Grid SWZ at the start of the planning period and is not resilient to 1 in 500 drought risk, therefore additional investment is required to become resilient by 2039 at the latest. The long-term deficit is driven by a decline in water supply over time, resulting from three key risks or needs:

- Climate change;
- Termination of import – import from Severn Trent expected to cease in 2035; and,
- Environmental destination – potential for abstraction reductions to meet environmental targets.

In August 2018, the regulators of water in England (Defra, DWI, EA and Ofwat) set out an expectation for greater co-ordination of water resources planning to secure future resilience through strategic solutions that water companies are unlikely to have capacity to deliver alone. Five regional groups were created to cover England and each group must produce a single Regional Plan that builds resilience to a range of uncertainties and future scenarios, whilst considering the needs of other sectors. The EA published the Water Resources National Framework[67] (WRNF) in March 2020 which set out the forecast future need for water across England as well as the deliverables of the Regional Plans. The WRNF set the ambition that, by 2050, no WRZ in England should have a risk of Level 4 drought restrictions (rota cuts) that is worse than once every 1 in 500 years on average. It is intended that the Regional Plans inform water company WRMPs and will:

- **Reduce demand** to 110 litres of water per person, per day by 2050 and drive down water use across all sectors
- **Halve leakage rates** by 2050
- **Develop new supplies** such as reservoirs, water reuse schemes and desalination plants
- **Move water to where it is needed** through more transfers of different scales and lengths
- **Reduce the use of drought measures** that have an impact on the environment

Water Resources North (comprising Yorkshire Water, Northumbrian Water and Hartlepool (Anglian) Water) has been set up to oversee water resource planning for the wider North East region. The ambition of Water Resources North is to be a national leader for water resource management through ensuring the regional has a sustainable, long-term plan for water resources that protects the region's resilience in the face of challenges such as climate change and population growth.

Minimising and adapting to the impacts of climate change

The UK Climate Change Risk Assessment (CCRA) 2022 Evidence Report[68] draws together and interprets the evidence gathered by CCRA regarding current and future threats and opportunities for the UK posed by the impacts of climate change up until 2100. Findings of the assessment include:

- Risks to infrastructure services from river, surface water and groundwater flooding
- Risks to public water supplies from reduced water availability
- Risks to health from water quality
- Decreased resilience of public water supply during dry weather
- Risk to soil health from increased flooding and drought
- Increased temperatures and extreme drought events

Key Issues

The key issues arising from the baseline assessment for water are:

- The need to further improve the quality of the region's river, lake, estuarine and coastal waters.
- The need to maintain the quantity and quality of groundwater resources.
- The need to manage and operate water resources sustainably to protect flow and level variability in rivers and groundwater

[67] Environment Agency (2020) Meeting our Future Water Needs: a National Framework for Water Resources
[68] HM Government (2022) The UK Climate Change Risk Assessment 2022

- The need to improve the resilience, flexibility and sustainability of water resources in the region, particularly in light of potential climate change impacts on surface waters and groundwater.
- The need to ensure a continual and reliable water supply to support other sectors.
- The need to ensure that people understand the value of water.

Flooding is not viewed as a key issue for the SEA water topic in relation to the Drought Plan, because none of the drought options involve the construction of permanent physical infrastructure within areas at risk of flooding.

Soil, Geology and Land Use

Baseline

There is a great diversity in the composition of the geology across the region. The geology of North Yorkshire comprises a range of sedimentary rocks that slope gently to the east so that the oldest rock outcrops are present in the west of the County and the youngest in the east. The Carboniferous Limestone and the overlying Upper Carboniferous Millstone Grit dominate the exposure in the west and give rise to the characteristic upland countryside of the Yorkshire Dales and the North Pennines. There is a distinctive difference in the two habitats that these rock types support; with limestone giving rise to calcareous soils whilst shales and sandstones of the Millstone Grit giving rise to acidic soils and large areas of upland grassland and bog.

The South Yorkshire area is underlain by rocks of Carboniferous age which are tilted gently to the south-east so that the oldest part of the succession occurs in the west. The moors to the west of Sheffield are formed in the shales and hard coarse-grained sandstone beds of the Millstone Grit. The West Yorkshire area is underlain by rocks of Carboniferous age which are tilted gently to the south-east so that the oldest part of the succession occurs in the west. The moors to the west of Bradford and Calderdale are formed in the shales and hard coarse-grained sandstone beds of the Millstone Grit. The geology of the East Riding of Yorkshire represents a relatively simple arrangement with the older marine clays, limestone and sandstones of Jurassic age occurring in the west of the County and younger Cretaceous rocks in the east. The topography of the area is dominated by the Chalk Wolds which are a crescent shaped series of hills stretching from the coast north of Bridlington to the Humber Bridge.

The variety of underlying geology in the region is reflected in the region's soils, the agricultural value of which varies across the region.

Arable and horticultural land is the predominant agricultural land use type in Yorkshire Water's supply region, with the majority of this land primarily located from the centre of the region to the east, with grazing and rough grassland confined mostly to the Peak District. There are pockets of dense shrub heathland present in the North Yorkshire Moors and Peak District. The Agricultural Land Classification System developed by Defra provides a method for assessing the quality of farmland, principally for the use in planning. The system divides the quality of land into five categories as well as non-agricultural and urban; the regional data is shown in **Figure C- 2**.

The 'best and most versatile land' is generally defined as the agricultural land which falls into Grades 1, 2 and 3a. The 'best and most versatile' quality of the agricultural land is largely found to the east of the Pennines, in the Vale of York and north of Kingston upon Hull.

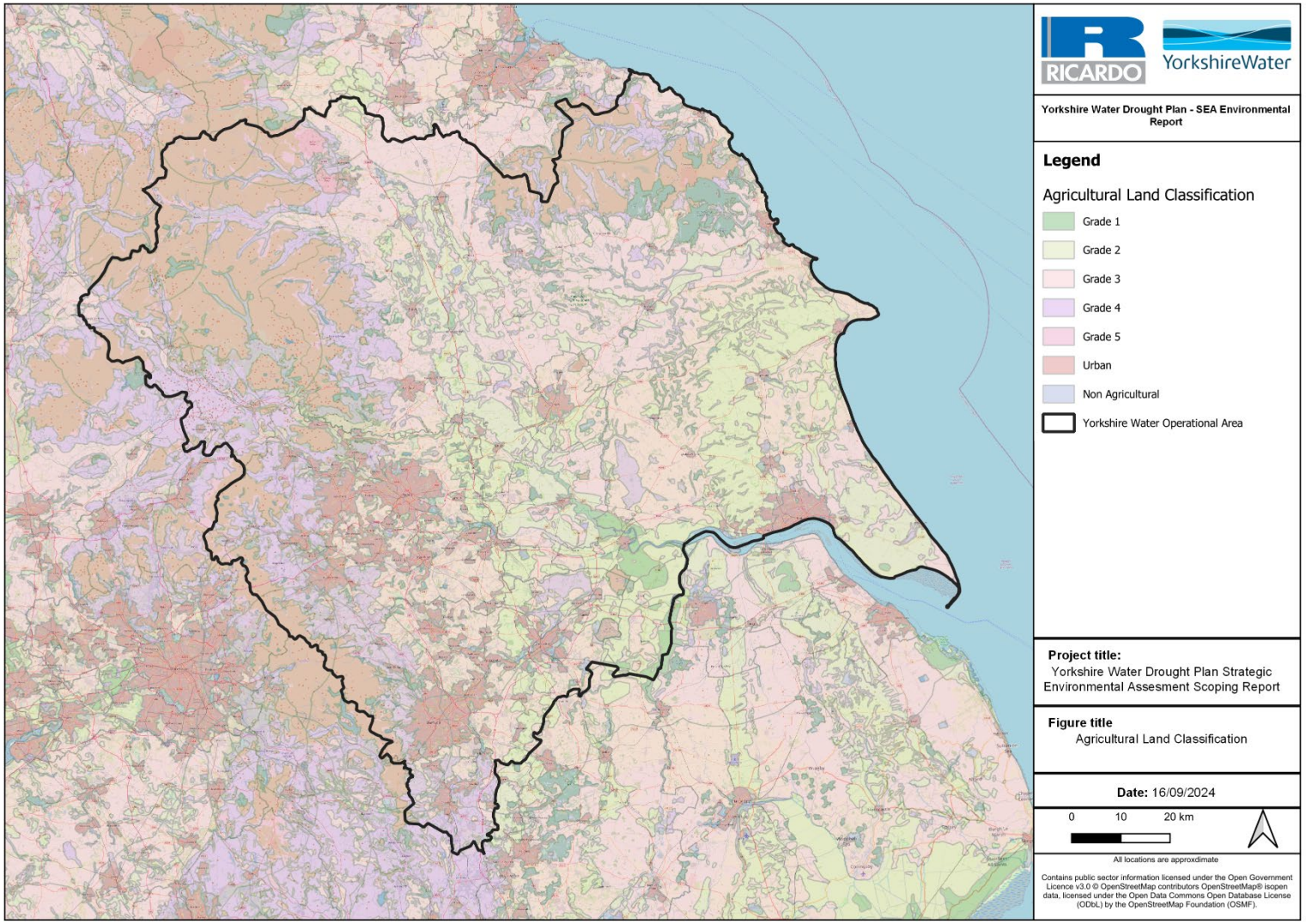

Figure C- 2: Land Classifications in the Yorkshire Water supply area

Future Baseline

The vision of Defra's Soils Strategy for England[69] is for all England's soils to be managed sustainably and degradation threats tackled successfully by 2030. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations.

The Water White Paper[70] described the Government's intentions to take forward a catchment-based approach to water quality and diffuse pollution and work towards Common Agricultural Policy reforms that will promote the farming industry's role as custodian of the natural environment. The Water White Paper also identified that the strategic policy statement for Ofwat and revised social and environmental guidance would give a strong steer on Government support for approaches that offer good value for customers and the potential to prevent and manage future risks to drinking water quality. This catchment-based approach has been implemented across England since 2014, with catchment partnerships in place across the Yorkshire Water region.

One of the core planning principles of the NPPF is to encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value. The NPPF also places great importance with respect to Green Belt policy, the aim of which is to prevent urban sprawl by keeping land permanently open.

Green Belt serves five purposes:

- to check the unrestricted sprawl of large built-up areas;
- to prevent neighbouring towns merging into one another;
- to assist in safeguarding the countryside from encroachment;
- to preserve the setting and special character of historic towns;
- and to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

Although the NPPF promotes a presumption in favour of sustainable development, this does not apply where proposed developments may affect European or other designated sites covered by specific policies. The Yorkshire and The Humber region has 2929 ha of land identified as brownfield, comprising approximately 11% of total brownfield site in the England[71].

There are a number of Environmentally Sensitive Areas (ESAs) in the region including the parts of the North Peak and the Pennine Dales. The ESA Scheme was designed to protect and enhance the environment by offering payments to landowners and occupiers in these areas to adopt environmentally beneficial agricultural practices. The scheme has now been superseded by the Environmental Stewardship Scheme. Continued development of this scheme is expected to see an improvement in land use in the future.

Ongoing research[72] aims to better understand drought impacts on various tree species, provenances, and sites. Climate change projections indicate an increase in extreme drought events, highlighting the need to assess risks to trees and implement adaptation measures. Drought-induced water stress in trees can lead to reduced growth, crown dieback, and mortality, as well as secondary impacts like increased wildfire risk and vulnerability to pests and diseases. Potential adaptation strategies include diversifying tree species, creating mixed-species stands, utilising natural regeneration, and implementing targeted establishment and management practices. These approaches can help enhance forest resilience to drought and other climate change impacts.

The future baseline is expected to reflect the ongoing protection and management of nationally important Geological SSSIs, which safeguard key geological and geomorphological features through Natural England's statutory monitoring and conservation programmes. At the local level, Regionally Important Geological Sites (RIGS)—non-statutory but recognised in planning—will continue to be

[69] Defra (2009) Safeguarding our soils – A Strategy for England

[70] Defra (2011) Water for Life - Water White Paper. Available at https://www.gov.uk/government/publications/water-for-life [Accessed September 2024]

[71] Campaign to Protect Rural England (2019) State of Brownfield 2019

[72] Forest Research https://www.forestresearch.gov.uk/climate-change/risks/drought/ [Accessed September 2024]

identified, documented and considered in development decisions, supporting the conservation of scientifically and educationally valuable geodiversity features. As site audits and local geoconservation work progress, the future baseline is likely to show improved visibility and protection of geodiversity assets, helping maintain landscape character and soil/geomorphological integrity within plan areas.

Key Issues

The key sustainability issues arising from the baseline assessment for soil, geology and land use are:

- The need to protect geological features of importance and maintain and enhance soil function and health.
- The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources).
- The need to make use of previously developed land (brownfield land) and to reduce the prevalence of derelict land in the region.

Air and Climate

Baseline

Drought options could influence CO_2 emissions through additional pumping and treatment requirements. The DP is a response plan that sets out to address the supply of water during times of drought, which may become more prevalent and intense due to the effects of climate change. The DP itself functions as a form of adaptation to some of the effects of climate change.

Drought options may involve the operation of abstraction and treatment operations in locations where such operations do not normally take place, with the potential for negative effects, although generally only in the short term.

The 2018 UK Climate Projections (UKCP18) estimate that summers in the Yorkshire and Humber River Basin district are likely to become drier and winters are likely to become wetter[73]. In northern and upland areas, an increase in the number of extreme rainfall events is estimated, as is the frequency of dry spells (over ten consecutive days without rain). The Yorkshire Water DP includes measures and options to deal with a drought more severe than has occurred on record.

Future climate change will influence processes within the hydrological cycle such as runoff and evapotranspiration.

The third UK Climate Change Risk Assessment (CCRA3) evaluates various risks and opportunities arising from climate change. For England, it identifies several high-priority risks that require additional action, even after considering existing adaptation measures. These high-magnitude risks include:

- The impacts of climate change on the natural environment, including terrestrial, freshwater, coastal and marine species, forests and agriculture.
- An increase in the range, quantities and consequences of pests, pathogens and invasive species, negatively affecting terrestrial, freshwater and marine priority habitats species, forestry and agriculture.
- The risk of climate change impacts, especially more frequent flooding and coastal erosion, causing damage to our infrastructure services, including energy, transport, water and Information and Communication Technologies.
- A reduction in public water supplies due to increasing periods of water scarcity.
- Increased severity and frequency of flooding of homes, communities and businesses.
- The viability of coastal communities and the impact on coastal businesses due to sea level rise, coastal flooding and erosion.

[73] UKCP18: UK Climate Projections. https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index [Accessed September 2024]

- Damage to our cultural heritage assets as a result of temperature, precipitation, groundwater and landscape changes.
- Impacts internationally that may affect the UK, such as risks to food availability, safety and security, risks to international law and governance from climate change that will affect the UK, international trade routes, public health and the multiplication of risks across systems and geographies.

Local air quality

Options in the DP may require increased pumping of water (carbon emissions) and potentially provision of new temporary infrastructure construction. Therefore, there is the potential for negative effects on air quality through emissions associated with construction requirements or through the operation of the DP options.

The air quality baseline can be best described through reference to information produced by the local authorities in the Yorkshire Water WRZs that have declared Air Quality Management Areas (AQMA). A local authority declares an AQMA when UK National air quality objectives are unlikely to be met. The majority of the AQMAs in the UK have been declared because of emissions from road transport. Reference to AQMAs will be made when considering any adverse on air quality of the DP options.

Climate

Climate monitoring and risk assessments have improved significantly over the last two decades but there are still limits to the understanding of future climate change impacts. Whatever happens to future 'greenhouse gas' emissions, there is already a certain amount of global warming "locked in" due to historic emissions from the inertia and lags in the global climate system. Mitigation through reducing greenhouse gas emissions will contribute to risk reduction over the long term (100 years). Adaptation is required now in order to reduce the costs and damages of potential impacts and to take advantage of opportunities that result from a changing climate.

The predominant greenhouse gas of interest is carbon dioxide (CO_2). National and regional CO_2 emissions estimates and how they are apportioned to their source categories are provided in **Table C-13**.

Table C-13: UK CO_2 Emissions (2022)

Region	Total emissions (million tonnes CO_2)	Per capita emissions (tonnes CO_2 per capita)	Percentage Contribution by Source Sector		
			Industry & Commercial	Domestic	Transport
Yorkshire & The Humber	35.5	6.4	34.4%	19.6%	29.0%
UK	375.9	5.6	25.6%	22.4%	30.4%

Source: Department for Energy Security and Net Zero, DESNZ (2022)

There has been a 32% decrease in total emissions between 2005-2017 in the Yorkshire and the Humber region compared with the UK average of 33% decrease[74].

Future climate change will influence processes within the hydrological cycle such as runoff and evapotranspiration. The potential impact of climate change on Yorkshire Water's water resources in the future is summarised in **Table C-14**.

[74] Department for Business, Energy & Industrial Strategy (2019) UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2017

Table C-14: Impact of Climate Change on Water Resources

Sector		Impact
Water Resources	(i) water supply	• Reduction in water source yields, either in total or at certain times of the year. • Increased evaporation losses from surface water stores. • Increased sediment and pollution runoff into watercourses caused by changes in farm management practices adopted to adapt to climate change. • Increased risk of algal blooms and pollution in reservoirs.
	(ii) water demand	• Increase in demand in summer months leading to increase in average and peak requirements. • Increased pressure on treatment and distribution system.
Flood management		• Increased riverine flood risk and storm occurrence due to increased rainfall, leading to increased risk of flooding to water resource assets and adverse temporary effects on raw water quality
Water quality management		• Lowered water quality in lowland rivers, with implications for in-stream ecosystems and water abstractions. • Altered potential for polluting incidents
Navigation		• Lower summer flows leading to reduced navigation opportunities in rivers and canals.
Aquatic ecosystems		• Altered habitat potential, with species at their environmental margins most affected.
Water-based recreation		• Impacts through changes in river flows and water quality.

Adaption to Climate change

The UK Climate Change Risk Assessment (CCRA) 2022 Report[75] draws together and interprets the evidence gathered by CCRA regarding current and future threats and opportunities for the UK posed by the impacts of climate change up until 2100. Overall, the findings of the CCRA indicate that the greatest need for early adaptation action (i.e. within the next 5 years) is in the following areas:

- Flood and coastal erosion risk management;
- Specific aspects of natural ecosystems, including managing productivity and biodiversity (the management of forest pests and diseases, low summer river flows and the movement of plants and animal species are all highlighted as high priorities for action);
- Managing water resources, particularly in areas with increasing water scarcity;
- Overheating of buildings and infrastructure in the urban environment;
- Health risks associated with heatwaves and other risks that may affect the NHS;
- Opportunities for the UK economy, particularly to develop climate adaptation products and services.

[75] HM Government (2022) The UK Climate Change Risk Assessment 2022

Future Baseline

In 2019, the UK set a new target to reduce greenhouse gas emissions by at least 100% (compared to 1990 levels) by 2050[76], an update from the previous target of an 80% reduction as set out in the Climate Change Act 2008. To date, the UK has hit all its carbon budgets. In 2021 the government published the Net Zero Strategy[77] which sets out policies and proposals for decarbonising all sectors to meet the net zero target by 2050. To achieve this ambition, emissions from buildings must reduce to almost zero and industrial processes will need to adapt, both significant to Yorkshire Water's operations.

The UK is currently meeting all statutory air quality limits, except for NO_2[78], where roadside NO_2 concentrations in particular have been identified as being above legal limits. In response, the government has created an air quality plan for NO_2[79], setting out how it aims to meet the ambitious and legally-binding targets set out for NOx in the shortest time possible. The wider Clean Air Strategy[80] also sets out plans for four other damaging air pollutants.

Climate change is a key theme with regards to biodiversity[81] and is likely to have an impact on biodiversity in the future by exacerbating pressures such as changes to the timing of seasonal activity and water scarcity. The CCRA considered more than 700 risks and selected 100 risks for detailed review.

As well as reducing the carbon footprint, Yorkshire Water is investing in flood resilience measures such as building flood protection walls around treatment works and raising control panels for electrical equipment above flood levels. They are working in partnership with the government to make sure that critical national infrastructure is able to cope with future weather events. This includes working with local authorities, emergency services and others to test and improve joint emergency response plans.

Together with leading academics and experts, Yorkshire Water is also working on research studies and solutions like Sustainable Urban Drainage Systems (SUDs) and real time models of river networks. These projects will help the company understand and manage the water cycle better so that it can maintain high levels of customer service in a way that is cost effective and which delivers multiple benefits for people, wildlife and the environment.

Key Issues

The key sustainability issues arising from the baseline assessment for air and climate are:

- The need to reduce air pollutant and greenhouse gas emissions arising from construction and operation, including embedded emissions, emissions associated with energy production and vehicle emissions, and to comply with air quality standards.
- The need to mitigate against climate change through the reduction in greenhouse gas emissions in order to contribute to risk reduction over the long term.
- The need to adapt to the impacts of climate change for example through, sustainable water resource management, water use efficiencies, specific aspects of natural ecosystems (e.g. connectivity) as well as accommodating potential opportunities of climate change.

[76] The Climate Change Act 2008 (2050 Target Amendment) Order 2019

[77] DESNZ & BEIS (2021) Net Zero Strategy: Build Back Greener. Available at https://www.gov.uk/government/publications/net-zero-strategy [Accessed September 2024]

[78] Nitrogen Dioxide

[79] Defra and DfT (2017) Air quality plan for nitrogen dioxide (NO2) in UK (2017). Available at https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017 [Accessed September 2024]

[80] Defra (2019) Clean Air Strategy 2019. Available at https://www.gov.uk/government/publications/clean-air-strategy-2019 [Accessed September 2024]

[81] Natural Environment White Paper The Natural Choice: Securing the Value of Nature (2011); DEFRA Biodiversity 2020: A strategy of wildlife and ecosystem services (2011).

Archaeology and Cultural Heritage

Baseline

Options in the DP could affect historic landscape character and historic structures associated with the water environment, or the historical context of their setting. Archaeological remains are also sensitive to changes in water quality, water levels (for example waterlogged deposits), pollution and land use practices.

The Yorkshire Water supply area includes two internationally recognised World Heritage Sites[82]: Saltaire and Studley Royal Park including the ruins of Fountains Abbey.

There are approximately 2,934 Scheduled Monuments located within Yorkshire Water supply area.

Registered Parks and Gardens also make up part of the UK's cultural heritage of national importance. There are approximately 142 sites designated as such in the SEA study area.

Nationally important archaeological sites are statutorily protected as designated heritage assets. shows the designated heritage asset count nationally, regionally and within the Yorkshire Water supply area. Heritage assets in the Yorkshire Water area are also presented in **Table C-15** and **Figure C-4**.

Table C-15: Designated Heritage Assets[83]

Asset	England	Yorkshire and The Humber	Yorkshire Water Supply Area
World Heritage Site	19	2	2
Scheduled Monuments	19,993	2,644	2,934
Listed Buildings	379,280	31,543	unknown
Registered Historic Parks & Gardens	1,699	127	131
Registered Historic Battlefields	47	7	7
Protected Wrecks	54	2	1

[82] World Heritage Sites are places of international importance for the conservation of mankind's cultural and natural heritage. The World Heritage List was set up by the World Heritage Convention, established by UNESCO in 1972. www.english-heritage.org.uk

[83] Historic England: Heritage Indicators 2023 (*designated assets were identified from GIS datasets available from Historic England at https://services.historicengland.org.uk/NMRDataDownload/SecurePages/Download.aspx)

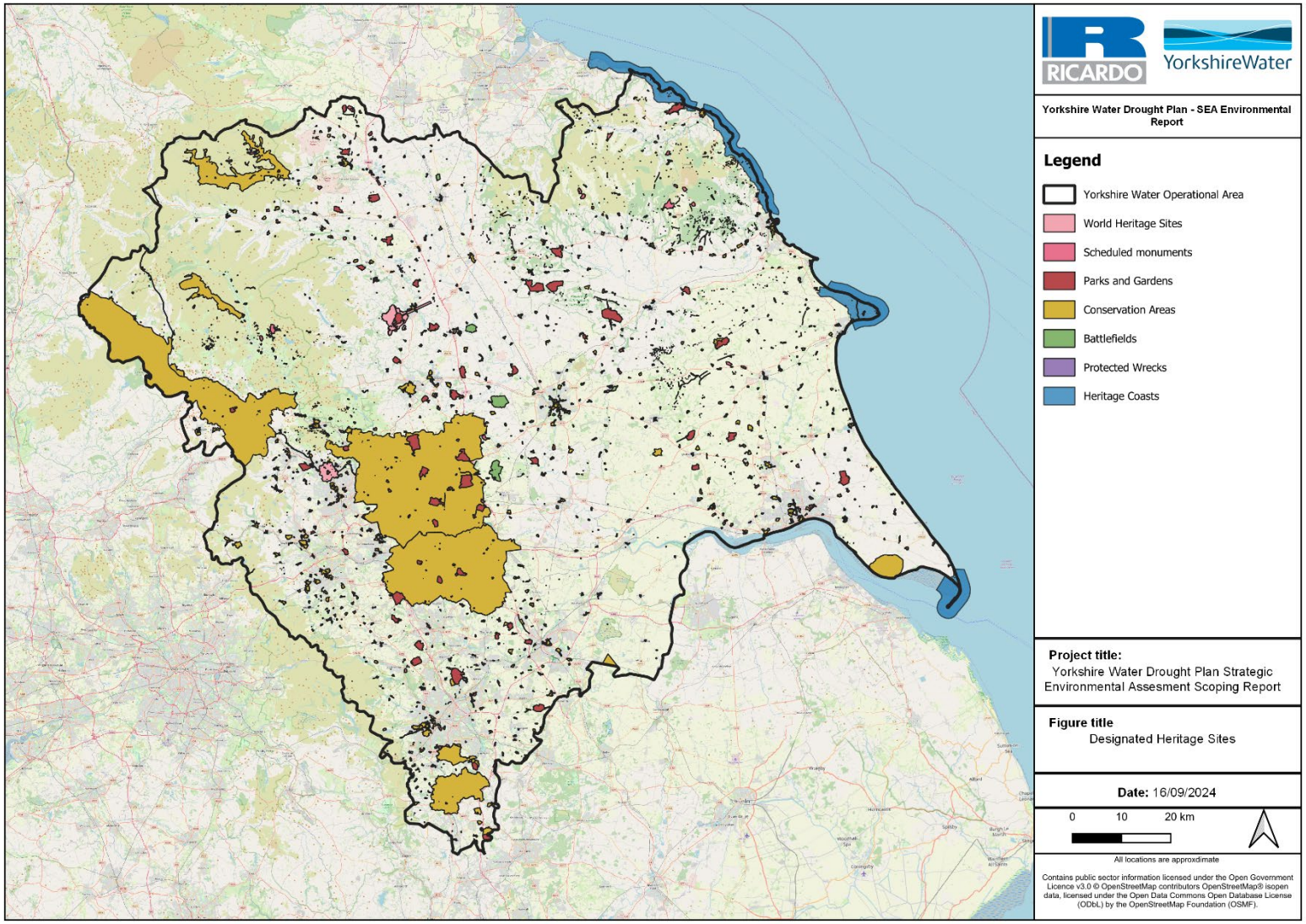

Figure C-3 Heritage Assets in the Yorkshire Water Area

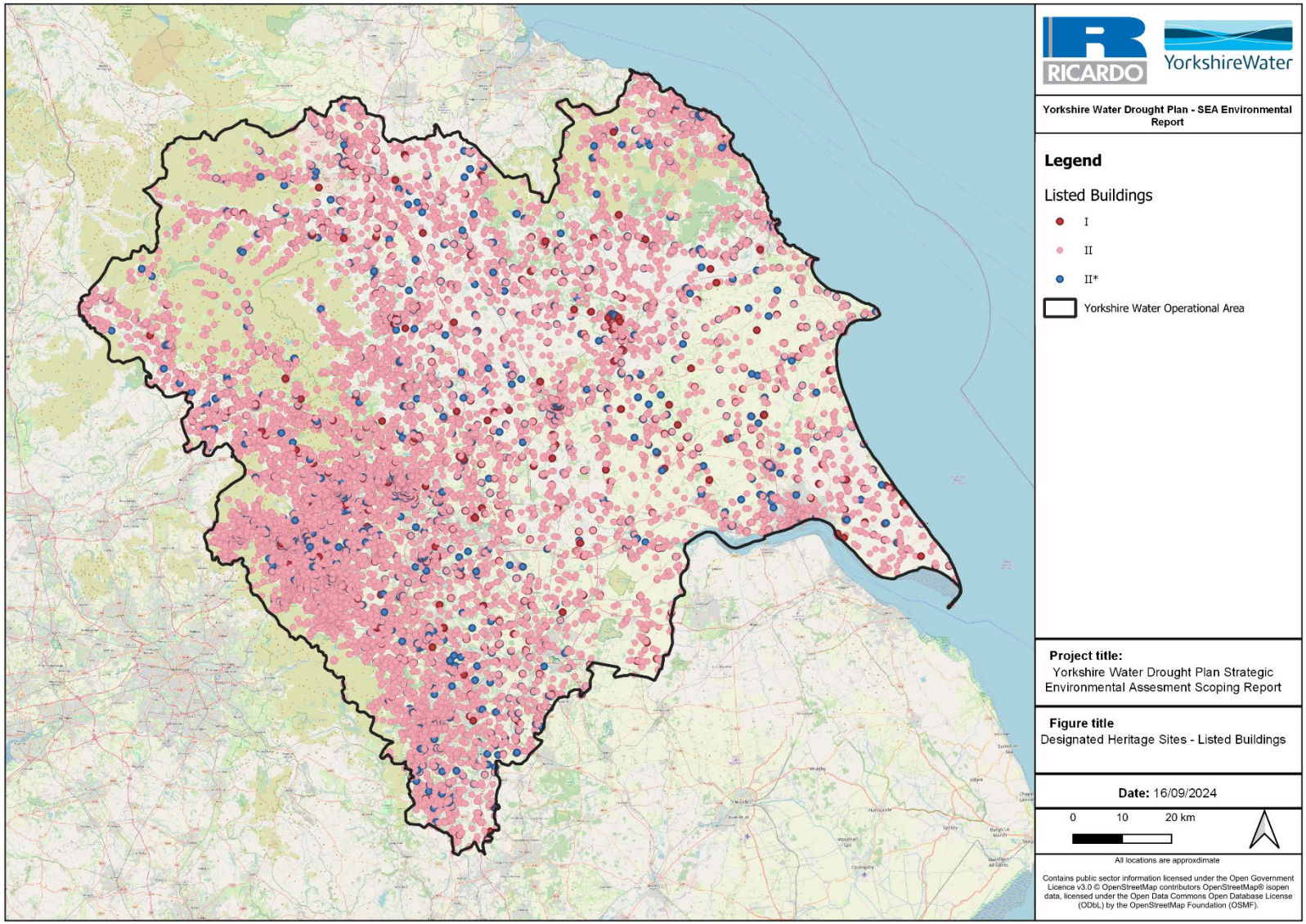

Figure C-4: Listed Buildings in the Yorkshire Water area

Historic England has been collecting data on buildings at risk for more than a decade. The National Heritage at Risk Register[84] systematically checks the condition of buildings, initially focused on buildings at risk, but now adapted to serve other types of heritage asset. In 2023, 203 entries were removed for positive reasons whilst 159 were added, indicating significant challenges ahead. In the Yorkshire area, 10.8% (430) of all Scheduled Monuments are on the Register assessed as archaeology, comparable with 9.6% in England. Overall, there are 525 historic sites at risk across the Yorkshire region and, in 2023, 13 sites were saved and removed from the list whilst seven had been added to the list due to concerns about their condition.

Nationally, 1.71% of Scheduled Monuments are at risk from water abstraction or dewatering. However, other assets such as those composed of organic material and preserved in waterlogged or anaerobic conditions are proportionately more at risk (e.g. palaeo- environmental deposits).

There are a number of floodplains within the Yorkshire Water supply area which are either known or suspected to be of high importance for waterlogged archaeology. Such evidence includes both material (wooden artefacts and structures such as trackways) and evidence of past environmental change from the deposits themselves.

The waterlogged conditions that preserve these remains may be rain-fed or groundwater fed. If the latter, then clearly abstraction levels can be a critical factor in maintaining conditions in which preservation of the remains is viable. In addition, there are waterlogged deposits that are specifically associated with chalk, such as springs and associated wetlands which again can contain important archaeological information, especially palaeo-environmental evidence.

Future Baseline

Core planning principles in the NPPF include those aiming to protect heritage assets, including to "conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations"[85]. Recent and ongoing national economic difficulties may have a negative effect on removing heritage assets from the heritage at risk register. Climate change could have variable impacts on heritage assets in the future. Some types of assets and landscapes have already experienced and survived significant climatic changes in the past and may demonstrate considerable resilience in the face of future climate change. However, many more historic assets are potentially at risk from the direct impacts of future climate change[86].

Key Issues

The key sustainability issues arising from the baseline assessment for archaeology and cultural heritage are:

- The need to conserve and enhance sites of archaeological importance and cultural heritage interest, and their settings, particularly those which are sensitive to the water environment;
- The need to conserve and enhance the World Heritage Sites within the Drought Plan area;
- The need to have positive strategies for the conservation and enjoyment of the historic environment, particularly for heritage assets that are most at risk of neglect or decay;
- The need to protect water-dependent heritage sites during drought conditions, including important wetland areas with potential for paleoenvironmental deposits.

Landscape and Visual Amenity

Baseline

The NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment, including protecting and enhancing valued landscapes. Some landscapes are

[84] Historic England, Heritage at Risk Register. Available at https://historicengland.org.uk/advice/heritage-at-risk/search-register/ [Accessed September 2024]

[85] Ministry of Housing, Communities & Local Government (2023) National Planning Policy Framework, December 2023. Available at https://www.gov.uk/government/publications/national-planning-policy-framework--2 [Accessed September 2024]

[86] Historic England, (2010) Climate Change and the Historic Environment

special because they have a particular amenity value, such as those designated as National Landscapes, formerly known as Areas of Outstanding Natural Beauty (AONB). Others may have an intrinsic value as good examples or be the only remaining examples of a particular landscape type. Some landscapes are more sensitive to development whereas others have a greater capacity to accommodate development. Assessments of landscape character and landscape sensitivity enable decisions to be made about the most suitable location of development to minimise impacts on landscapes.

Nationally Designated Sites

There are three National Parks (**Figure C-5**) in the Yorkshire Water area which are protected by national legislation and water companies also have a statutory duty to protect and conserve national parks in carrying out their functions as a water undertaker.

National Character Areas (NCAs)[87], as defined by Natural England, divide England into 159 distinct areas which are each defined by a unique combination of landscape, biodiversity, geodiversity, history and cultural and economic activity. These areas represent distinct and recognisable landscapes on a national scale. There are 30 NCAs in the Yorkshire and the Humber region (**Figure C-5**), including the North Pennines, Yorkshire Dales, Southern Pennines and Holderness[88]. There are also four national trails in the area including the Pennine Way, Wolds Way, Cleveland Way and Pennine Bridleway.

National Landscapes are areas of land designated for conservation due to their significant landscape value. They are designated by Natural England through the Countryside and Rights of Way Act, 2000. The primary purpose of the National Landscape is 'to conserve and enhance the natural beauty of the landscape'. As outlined in **Table C-16**, there are three National Landscapes within the Yorkshire Water supply area (Howardian Hills, Nidderdale and Forest of Bowland). Each of these National Landscapes has a Management Plan describing the special qualities of the area which contribute to the national significance of the landscape, identifying major trends and opportunities in the area and presenting a 5-year programme of actions.

[87] Defra (2024) National Character Area profiles: information for local decision making. May 2024. Available at https://www.gov.uk/guidance/national-character-area-profiles-information-for-local-decision-making [Accessed September 2024]

[88] Natural England, National Character Areas Profiles. Available at https://nationalcharacterareas.co.uk/ [Accessed September 2024]

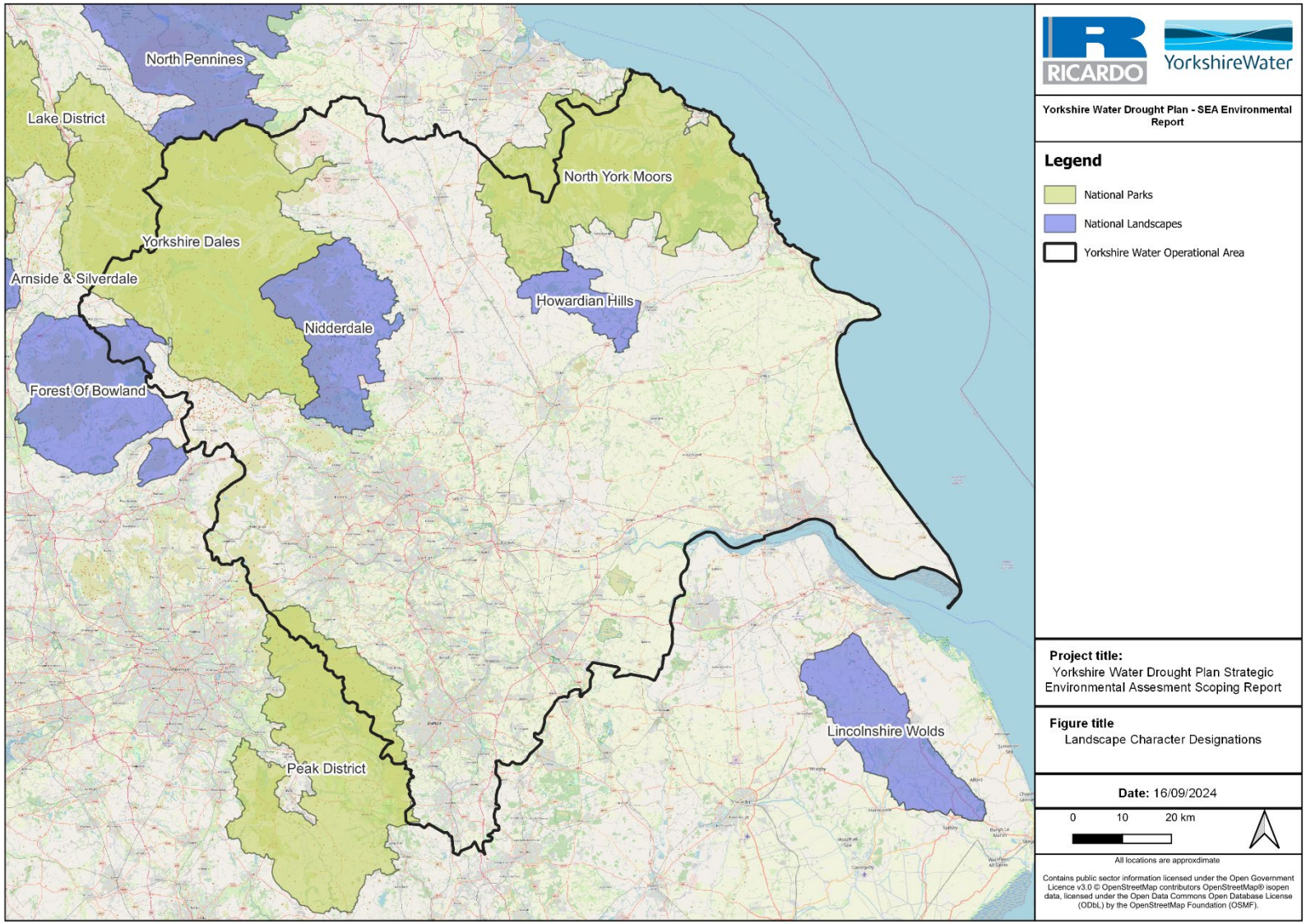

Figure C-5: Landscape Character Designation in the Yorkshire Water supply area

Table C-16 National Landscapes within the Yorkshire Water supply area

Name of site	WRZ	Key Characteristics
Howardian Hills	Grid SW; East GW	Jurassic limestone creating distinctive character. In effect, the irregular 180m ridges of the Howardian Hills are a southern extension of the rocks of the North York Moors. Notably famous for a number of fine country houses, whose parklands are an intrinsic part of the landscape value.
Nidderdale	Grid SW	Includes the wooded dales of the Washburn, Laver, Burn and dale of Nidd itself. Landscape is dominated by its millstone grit geology. Glaciation and differential resistance to weathering of the sand, shale and gritstones produce distinctive features.
Forest of Bowland	Grid SW	Internationally important landscape of heather moorland and blanket bog; Area host to rare bird species and important grouse/sheep populations. Majority of land is privately owned and used for agricultural purposes.

The DP has the potential to influence the landscape and visual amenity through the change in water levels of rivers and reservoirs (either positively or negatively).

Future Baseline

It is envisaged that landscape and designated sites will be maintained and enhanced for the enjoyment of the public.

The designation of the Yorkshire Wolds as an AONB (now National Landscape) was first proposed by Natural England in 2021. The Yorkshire Wolds are a range of low, gently rolling chalk hills forming a crescent in East and North Yorkshire stretching from the Humber Estuary to the North Sea coast at Flamborough Head. Natural England launched a statutory Notice Period for the Yorkshire Wolds proposed AONB[89] (National Landscape) designation. The decision is not made to any specific timescale, but it is anticipated that the designation would come into effect during the implementation period of the Drought Plan.

The NPPF highlights the different roles and character of different areas, promoting the vitality of our main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it. The NPPF states that great weight should be given to conserving landscape and scenic beauty in National Parks and National Landscapes (formerly AONBs), which have the highest status of protection. It identifies that planning permission should be refused for major developments in these designated areas except in exceptional circumstances and where it can be demonstrated they are in the public interest.

Key Issues

The key sustainability issues arising from the baseline assessment for landscape and visual amenity are:

- The need to protect and improve the natural beauty of the region's National Parks, National Landscapes and other areas of high landscape and visual amenity value.
- The need to minimise any adverse impacts upon landscape that may result from the Drought Plan.

[89] AONBs were rebranded as National Landscapes in November 2023. Legally however, Natural England can only designate as an AONB. To avoid confusion, all documentation and consultation materials refer to AONB throughout. If the proposed area were to be designated as an AONB, it would become known as the Yorkshire Wolds National Landscape.

- The need to conserve and enhance landscape character and distinctiveness, taking into account the effects of climate change.

SUMMARY OF KEY ISSUES

Table C-17 provides a summary of the key issues identified under each SEA topic.

Table C-17 Summary of key sustainability issues identified for the SEA

Topics	The key sustainability issues arising from the baseline assessment
Biodiversity, flora and fauna	• The need to protect or enhance biodiversity, ecological functions and biodiversity connectivity within Yorkshire Water's supply and source areas, particularly protected sites designated for nature conservation. • The need to avoid activities likely to cause irreversible damage to natural heritage. • The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors. • The need to control the spread of Invasive Non-Native Species (INNS). • The need to recognise the importance of allowing wildlife to adapt to climate change. • The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of the ecosystem services.
Population and human health	• The need to ensure essential water supplies are safeguarded to all communities to protect public health and economic activity. • The need to ensure public awareness of drought conditions and importance of maintaining resilient, reliable public water supplies without the need for emergency drought measures. • The need to ensure water quantity and quality is maintained for other users including tourists, recreational users and for other sector uses (e.g. agriculture) • The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists, including opportunities for access to recreation resources and the natural and historic environment. • The need to ensure the conservation and enhancement of sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way which contribute to recreation and tourism opportunities and subsequently health and well-being and the economy. • The need to promote the health benefits of drinking water and efficient use of water.
Material assets and resource use	• The need to minimise the consumption of resources, including water and energy. • The need to reduce the total amount of waste produced in the region, from all sources, and to reduce the proportion of this waste sent to landfill. • The need to continue to reduce leakage from the water supply system. • Daily consumption of water is higher than the national average in the area and consequently there is a continued need to encourage more efficient water use.
Water	• The need to further improve the quality of the regions river, lake, estuarine and coastal waters. • The need to maintain the quantity and quality of groundwater resources. • The need to manage and operate water resources sustainably to protect flow and level variability in rivers and groundwaters

Topics	The key sustainability issues arising from the baseline assessment
	• The need to improve the resilience, flexibility and sustainability of water resources in the region, particularly in light of potential climate change impacts on surface waters and groundwaters. • The need to ensure a continual and reliable water supply to support other sectors. • The need to ensure that people understand the value of water.
Soil, geology and land use	• The need to protect geological features of importance and maintain and enhance soil function and health. • The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources). • The need to make use of previously developed land (brownfield land) and to reduce the prevalence of derelict land in the region.
Air and climate	• The need to reduce air pollutant and greenhouse gas emissions arising from construction and operation, including embedded emissions, emissions associated with energy production and vehicle emissions, and to comply with air quality standards. • The need to mitigate against climate change through the reduction in greenhouse gas emissions in order to contribute to risk reduction over the long term. • The need to adapt to the impacts of climate change for example through, sustainable water resource management, water use efficiencies, specific aspects of natural ecosystems (e.g. connectivity) as well as accommodating potential opportunities of climate change.
Archaeology and cultural heritage	• The need to conserve and enhance sites of archaeological importance and cultural heritage interest, and their settings, particularly those which are sensitive to the water environment; • The need to conserve and enhance the World Heritage Sites within the Drought Plan area; • The need to have positive strategies for the conservation and enjoyment of the historic environment, particularly for heritage assets that are most at risk of neglect or decay; • The need to protect water-dependent heritage sites during drought conditions, including important wetland areas with potential for paleoenvironmental deposits.
Landscape and visual amenity	• The need to protect and improve the natural beauty of the region's National Parks, National Landscapes and other areas of high landscape and visual amenity value. • The need to minimise any adverse impacts upon landscape that may result from the Drought Plan. • The need to conserve and enhance landscape character and distinctiveness, taking into account the effects of climate change.

APPENDIX D: STATUTORY CONSULTEE RESPONSES

Table D-1: Statutory Consultee Responses to the SEA Scoping Report

Natural England			
Ref	**Paragraph/Section Reference**	**Issue/ Comment**	**Response to Comment / How and where will comment be addressed**
1	2.2 Review of Policies, Plans & Programmes	We suggest that reference be made to Site of Special Scientific Interest (SSSI) Monitoring Specifications and for Special Conservation Areas (SACs) and Special Protection Areas (SPAs), European Site Conservation Objectives: Supplementary advice on conserving and restoring site features, available here Site Search (https://designatedsites.naturalengland.org.uk/SiteSearch.aspx). We recognise use of Site Improvement Plans (SIPs) for European Sites (and Ramsar Sites where applicable) has been identified in the current scope.	We have updated Table 2-1 and Appendix B in to reference the SSSI Monitoring Specifications and SAC/SPA/European Site Conservation Objectives: Supplementary advice when preparing the Environmental Report.
2	2.2 Review of Policies, Plans & Programmes	EA/NE Diffuse Water Pollution Plans (DWPPs) are in place for several SSSI catchments across the Drought Plan area, these should be referenced and considered within the scope of the SEA.	We have updated Table 2.1 and Appendix B to reference these plans, where available, when preparing the Environmental Report.
3	2.2 Review of Policies, Plans & Programmes	Reference should also be made to emerging Local Nature Recovery Strategies (LNRS), led by Local Authorities, across the plan area, which will be published during the Drought Plan's lifespan. LNRSs could also be covered in section 2.3.4.2 Future Baselines.	We have updated Table 2.1, Appendix B and added a section to the 'Future Baseline' of Biodiversity, Flora and Fauna in Appendix C to make reference to the emerging LNRSs and how these will influence the Drought Plan.
4	2.3.4 Biodiversity, Flora & Fauna	NERC Priority Species – Species list at page 37. Should Freshwater Pea Mussel read Freshwater Pearl Mussel?	Yes, this was an error and has been rectified in Appendix C in the Environmental Report.
5	2.3.4 Biodiversity, Flora & Fauna	In the third paragraph, reference to the Environment Bill should now read Environment Act (2021).	This has been updated in Appendix C of the Environmental Report.
6	2.3.4 Biodiversity, Flora & Fauna	We support the list of key issues identified in this section; we would however suggest further expansion on the Nature Recovery objectives in the 25 Year Environment Plan. This is to ensure that drought plan measures do not restrict the ability to restore freshwater systems and dependent environments outside the designated sites and priority habitats series. Lowland peat restoration could be used as a particular example.	We have added the following as a key issue in Section 3.4.1 and Appendix C: *The need to ensure that drought plan measures do not hinder delivery of wider Nature Recovery objectives, including the restoration of freshwater systems and non-designated habitats (e.g., lowland peat), which depend on sufficient water availability to support ecological recovery.*
7	2.3.7 Water	Natural England suggests that reference should be made to key targets/baselines for designated sites in this section. This should include water quality and water quantity (flow/levels) targets where applicable. These can often be more stringent than WFD targets.	The Water baseline section has been updated in Appendix C to reference site-specific targets relating to the water environment.
8	2.3.7 Water 2.3.7.1 Baseline	Natural England would welcome further detail on the justification for stating that there is an adequate coverage of hydrometric and water quality data in the study area. We are concerned that EA monitoring effort has declined, even in designated sites, e.g. Pocklington Canal SSSI, so we seek further assurance	The EAR Methodology document provides further detail on data sources and availability within the study area and how this will be used in the environmental assessments for any

Natural England			
Ref	**Paragraph/Section Reference**	**Issue/ Comment**	**Response to Comment / How and where will comment be addressed**
		that baseline data that Yorkshire Water may rely upon through the Drought Plan 2027 period is robust.	drought permit/orders. This report can be shared with Natural England.
8	2.3.7 Water	We welcome the pursuit and use of targets set in the Environmental Destination through the Water Resources Management Planning Process and the Regional Groups e.g. Water Resources North (WReN). The current targets set out in the Environment Improvement Plan (EIP) (currently under Government Review) of 20% in reduction in household consumption by 31st March 2038 and 9% reduction in non-household water consumption by 31 March 2038 and 15% reduction by 2050, should also be referred to in this section. Drought Plan 27 could also be used to help target leak reduction measures in the most sensitive areas of the grid, helping to address water scarcity pressures in freshwater ecosystems, making the most of the EIP leak reduction targets in the most vulnerable areas.	The SEA Scoping uses the latest available published information where possible. When preparing the Environmental Report, we will review the EIP for more up to date targets and include these if available. With regards to leakage reduction we have a series of actions we can implement as a drought develops. One of our first steps is leakage reduction (increased find and fix activity, pressure management); followed by increase leakage control activity to counteract any breakouts that occur as a result of dry weather and ground movement. Leakage is assessed daily during normal operations and this data will be used during a drought to identify areas where enhanced leakage control is likely to be most effective. The effectiveness of additional leakage reduction activity will be evident in our daily leakage analysis
9	2.3.8 Soils, Geology and Landuse	We welcome reference to and use of the DEFRA Soils Strategy for England. Reference should be made in this section to the condition of Geological SSSI series and the Regionally Important Geological Sites (RIGS).	A paragraph regarding Geological SSSIs and RIGS has been added to the Soils, Geology and Land Use 'Future Baseline' section in Appendix C of the Enviornmental Report.
10	2.3.11 Landscape and Visual Amenity	Reference should be made in this section to the new Yorkshire Wolds National Landscape (AONB) which is likely to be designated during the Drought Plan 2027 Plan Period.	The Landscape 'Future Baseline' in Appendix C has been updated to make reference to the designation of the Yorkshire Wolds as a National Landscape (AONB).
11	2.4 Summary of Key Issues	Again, we support the list of key issues identified in this section, we would however suggest further expansion on the Nature Recovery objectives in the 25 Year Environment Plan to ensure that drought plan measures do not restrict the ability to restore freshwater systems and dependent environments beyond the designated sites and priority habitats series. Lowland peat restoration could be used as a particular example.	We have added the following as a key issue in Section 3.4.1 and Appendix C: *The need to ensure that drought plan measures do not hinder delivery of wider Nature Recovery objectives, including the restoration of freshwater systems and non-designated habitats (e.g., lowland peat), which depend on sufficient water availability to support ecological recovery.*
12	Pre-Consultation Information Pack	Thank you for your email of 6th December 2024 from Dr Jade Ward, sharing your Pre-Consultation Information Pack for Drought Plan 2027. Thank you for explaining the material changes to the published Drought Plan (Drought Plan 2022), outlining the timetable for consultation on the draft 2027 Plan and for seeking our comments at this pre-consultation stage.	Thank you for your comment, this has been noted.

Natural England			
Ref	**Paragraph/Section Reference**	**Issue/ Comment**	**Response to Comment / How and where will comment be addressed**
		We note that the material changes include an update to use and comply with the latest Environment Agency guidelines (some to be published late 2024/early 2025). We welcome the outline of the planned changes and make specific comments below:	
13	Pre-Consultation Information Pack	We support the production of a procedure document for implementing water transfers at short notice. We suggest that Natural England be consulted on this document where there is a requirement for Sites of Special Scientific Interest (SSSI) Assenting. It is also important to outline any Protected Species Advice requirements and control of Invasive Non-Native Species (INNS) protocols as informatives.	Thank you for your comment. Natural England will be consulted with during the consultation period of the draft Drought Plan
14	Pre-Consultation Information Pack	We understand and welcome that you will also be updating your environmental assessments including the Strategic Environmental Assessment (SEA) (see scoping comments below) and Habitats Regulations Assessment (HRA) alongside the Plan.	Thank you for your comment, this has been noted.
15	Pre-Consultation Information Pack	Extreme Options We acknowledge that “extreme options” planned for after Level 3a Severe Drought Actions will also be thoroughly assessed and mitigation outlined (where required) as part of the SEA and HRA stages.	Thank you for your comment, this has been noted. Where the extreme options are sufficiently developed, these have been assessed within the SEA/HRA. Further work will be ongoing to develop these options and it is important to note that these would be subject to full environmental assessment at the project-level prior to implementation.

Historic England			
Ref	**Paragraph/Section Reference**	**Issue/ Comment**	**Response to Comment / How and where will comment be addressed**
1		In terms of the historic environment, we consider that the Scoping Report has identified the plans and programmes which are of relevance to the development of the Drought Plan, that it has established an appropriate baseline against which to assess the Plan's drought options and that it has put forward a suitable set of Objectives and Indicators. Overall, therefore, we believe that it provides an appropriate framework for assessing the likely significant effects which this plan might have upon the historic environment.	Thank you for your comment, this has been noted.
2		Historic England strongly advises that conservation and archaeological advisers are closely involved throughout the preparation of the SEA of this Plan. They are best placed to advise on; historic environment issues and priorities, including access to data held in the Historic Environment Record (HER); how the drought options can be tailored to minimise potential adverse impacts on the historic environment; the nature and design of any required mitigation measures; and opportunities for securing wider benefits for the future conservation and management of heritage assets.	Thank you for your comment, this has been noted.
3		Historic England has produced guidance for all involved in undertaking SEA/SA exercises which gives advice on issues relating to the historic environment. Historic England Advice Note 8: Sustainability Appraisal and Strategic Environmental Assessment can be found here*. We are pleased to see this document referenced in the review of Plans, Policies, Programmes and Strategies under Table 2.1.	Thank you for your comment, this has been noted.
4	2.2 Review of Policies, Plans & Programmes 2.3.10 Archaeology and Cultural Heritage	One suggested change to **Table 2.1** is the inclusion of a reference to National Landscapes under the last key message of the Archaeology and Cultural Heritage section of the table, and the third and fourth key messages of the Landscape and Visual Amenity section. Corresponding changes would also be necessary under the relevant sections of Table 3.1 Draft SEA Objectives. Also, it is	We have updated Table 2.1 to include a reference to National Landscapes under the key messages for both the Landscape and Visual Amenity sections. These updates will also be reflected in Appendix C. Listed buildings datasets are large and the number was not as readily available compared to other assets. However, we will update Table 2.16 with the number of listed buildings for the Yorkshire Water Supply Area when preparing the Environmental Report.

Historic England			
		unclear why the number of Listed Buildings present within the Yorkshire Water Supply Area has been entered as unknown in Table 2.16 Designated Heritage Assets.	
5		This opinion is based on the information provided by you in the document dated 13 November 2024 and, for the avoidance of doubt, does not affect our obligation to advise you on, and potentially object to any specific development proposal which may subsequently arise from this or later versions of the plan which is subject to consultation, and which may, despite the SEA, have adverse effects on the environment.	Thank you for your comment, this has been noted.

APPENDIX E: SEA APPRAISAL TABLES

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