A46 Coventry Junctions (Walsgrave)
Scheme Number: TR010066

6.3 Environmental Statement Appendices
Appendix 13.2 Water Framework Directive Compliance Assessment

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A46 Coventry Junctions (Walsgrave) Development Consent Order 202[x]

ENVIRONMENTAL STATEMENT APPENDICES
Appendix 13.2 Water Framework Directive Compliance Assessment

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1. Introduction

1.1.1. National Highways (the Applicant) has applied for a development consent order (DCO) for the A46 Coventry Junction (Walsgrave) (the Scheme). The Scheme will ease congestion along the A46 corridor, east of Coventry. The proposed works include an alteration to the existing A46 Walsgrave Junction and B4082, east of Walsgrave.

1.1.2. This document has been prepared in accordance with Design Manual for Roads and Bridges (DMRB) LA 113 Road drainage and the water environment and the Planning Inspectorate in Advice Note 18 on the Water Framework Directive (The Planning Inspectorate, 2017).

1.1.3. This Water Framework Directive (WFD) compliance assessment is completed as part of the preliminary design stage of the Scheme. The WFD is a European directive, transposed into law in England and Wales by regulations that are now the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (WFD Regulations). The Environment Agency is the statutory body responsible for implementing the WFD Regulations in England. The WFD Regulations imposes legal requirements to protect and improve the water environment. A compliance assessment is undertaken to determine whether works that potentially affect the water environment meet the requirements of the directive.

1.1.4. An Environmental Scoping Report (ESR) (**TR010066/APP/6.8**) was produced at the preliminary design stage to document the proposed scope of the Environmental Impact Assessment (EIA). Chapter 14 of the ESR specified that a preliminary WFD compliance assessment will be carried out following the Environment Agency's (Environment Agency, 2016) and Planning Inspectorate (The Planning Inspectorate, 2017) guidance. Any potential significant adverse impacts on these water bodies will trigger the need for a detailed WFD compliance assessment.

1.1.5. This WFD assessment considers the screening, scoping and impact assessment stages for surface water bodies only. This completed assessment supplements Environmental Statement (ES) Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**). Groundwater bodies are assessed ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**).

2. The Scheme

2.1. Scheme location

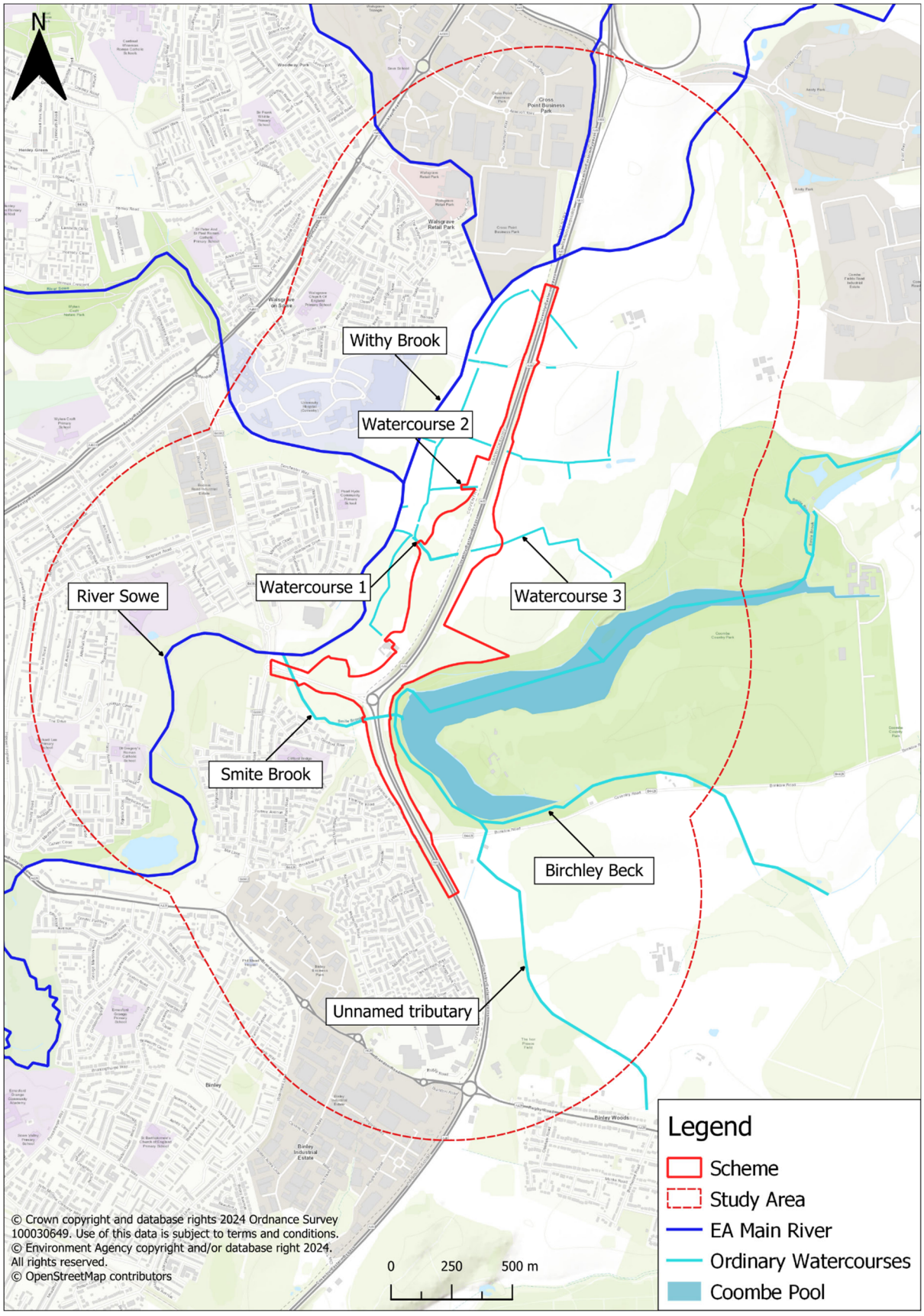
2.1.1. The Scheme is located in the West Midlands, approximately 5km to the east of Coventry city centre. ES Figure 2.1 (Location Plan) shows the location of the Scheme (**TR010066/APP/6.2**). The Scheme involves improvements to the B4082 which runs eastwards from Clifford Bridge Road to the existing Walsgrave Junction and the A46 which runs north-south to the east of Coventry. Binley Junction, located on the A46, is approximately 1.7km to the south of the existing Walsgrave Junction and the M6 and M69 junctions are approximately 2.5km to the north of the existing Walsgrave Junction. ES Figure 2.2 (Order Limits) (**TR010066/APP/6.2**) shows the principal elements of the Scheme and the Order Limits. A Location Plan (**TR010066/APP/2.1**) is also provided with the application, which shows the location of the Scheme in its wider geographical context.

2.1.2. The Scheme is situated within the Coventry City Council and Rugby Borough Council administrative areas (ES Figure 1.1 (Regional Context) (**TR010066/APP/6.2**)). The boundary between these two administrative areas is along the western side of the A46. Rugby Borough Council's administrative area also forms part of Warwickshire County Council's administrative area, which shares the same border with Coventry City Council. The Leicestershire County Council boundary is approximately 12.5km north and east of the existing Walsgrave Junction.

2.2. Study area overview

2.2.1. The study area contains several watercourses which include Coombe Pool, the River Sowe, Smite Brook, Withy Brook, Birchley Beck and unnamed watercourses (Figure 2-1). The River Sowe is a tributary of the River Avon which ultimately flows into the River Severn at Tewkesbury. The existing Walsgrave Junction is located 9km in a straight line upstream of the confluence with the River Avon. The catchment area of the River Sowe at the confluence of the River Avon is 265km^2 and is predominately characterised by a mixture of arable land use and the urban areas of East Coventry.

Figure 2-1 Overview of the Scheme



2.3. Scheme description

2.3.1. An explanation of the Scheme objectives and a detailed description of the Scheme proposals can be found in ES Chapter 2 (The Scheme) (**TR010066/APP/6.1**).

2.3.2. The Scheme consists of the following principal elements:

- Realignment of the existing A46 dual carriageway through the existing at grade roundabout (which will be removed), for approximately 880m to improve the road geometry and allow for a 50mph speed limit.
- Earthworks on the eastern side of the A46 mainline to facilitate the realignment through the existing at grade roundabout.
- A new grade separated junction over the A46 mainline, approximately 800m north of the existing Walsgrave Junction to connect the B4082 with the A46.
- A new overbridge structure across the existing A46, between the dumbbell roundabouts forming the grade separated junction.
- New merge and diverge slip roads at the grade separated junction for both northbound and southbound movements.
- Realignment of the B4082 to form a single carriageway link road, for approximately 900m, to connect the local road network to the new A46 grade separated junction with a proposed 40mph speed limit.
- Road assets and street furniture such as traffic signs and lines, variable message sign (VMS), street lighting columns, vehicle restraint systems, fences, retaining walls and kerbs.
- Drainage systems including a dry detention basin and two ponds that will be designed to be permanently wet.
- Proposed new maintenance accesses to the drainage features and VMS.
- Retention of the Hungerley Hall Farm accommodation overbridge (the existing bridge that provides farm vehicle access over the A46 mainline).
- Farm access track to the north of Hungerly Hall Farm to provide gated access to the B4082 link road.
- Improvements to facilities for walkers, cyclists and horse-riders (WCH) through provision of a signalised pedestrian crossing on the B4082; and providing enabling works, including the retention of Hungerley Hall Farm accommodation overbridge, for a potential future WCH route to be provided by others.
- Replacement and installation of new highway boundary fencing.
- Replacement vegetation planting to compensate for the vegetation that needs to be removed to facilitate the Scheme.

2.3.3. The proposed outline drainage strategy for the Scheme is for one detention basin and two ponds to be constructed to attenuate the increase in impermeable area and provide water quality mitigation, before discharging to the River Sowe to the west via new and existing outfalls. The pond volumes would take into account relevant climate change allowances, which has been agreed, with Coventry City Council, one of the Lead Local Flood Authorities (LLFA), to be 20% with a sensitivity check for 40%. In addition to this, a new drainage ditch connection to an existing watercourse is proposed at the new roundabout to maintain an existing connection.

2.3.4. The drainage design will be based on the principles of the standard DMRB CG 501: Design of Highway Drainage Systems (National Highways, 2022) for the majority of the work. Where the standard cannot be viably applied a departure from Standard will be sought in line with DMRB GG 101: Introduction to the Design Manual for Roads and Bridges (National Highways, 2020b). This approach will be discussed with the Environment Agency and LLFAs (Coventry City Council and Warwickshire County Council) before the drainage design is finalised.

3. WFD background and approach to compliance assessment

3.1. WFD background

3.1.1. The WFD establishes a framework for the management of water resources throughout the European Union (EU). The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 came into force in April 2017 (UK Government, 2017). The WFD Regulations has been amended by the Floods and Water (Amendment etc.) (EU Exit) Regulations 2019/558 (The Floods and Water Regulations, 2019) so as to continue to have effect now the United Kingdom has left the EU.

3.1.2. The key objectives of the WFD, provided in the Severn River Basin Management Plan (RBMP), are:

- Prevent deterioration, enhance and restore bodies of surface water, achieve good chemical and ecological status of such water and reduce pollution from discharges and emissions of hazardous substances.
- Protect, enhance and restore all bodies of groundwater, achieve good chemical and quantitative status of groundwater, prevent the pollution and deterioration of groundwater, and ensure a balance between groundwater abstraction and replenishment.
- Preserve protected areas.

3.1.3. WFD is implemented through the process of river basin management planning. These plans are updated every six years in which the current WFD is in Cycle 3. The WFD requires all-natural surface water bodies to achieve both ‘good’ chemical status and ‘good’ ecological status. There is a requirement for good ecological potential for all artificial and heavily modified water bodies. The WFD also requires ‘good’ status for both qualitative and quantitative measures for all groundwater bodies.

3.1.4. The following guidance has been used in production of this WFD assessment report:

- Advice Note 18 on the Water Framework Directive (The Planning Inspectorate, 2017).
- Water Framework Directive risk assessment (Environment Agency, 2016)
- DMRB LA 113 Road drainage and the water environment, Revision 1 (National Highways, 2020b)

3.1.5. The methodology used for this WFD compliance assessment follows guidance produced by the Planning Inspectorate in Advice Note 18 on the Water

Framework Directive (The Planning Inspectorate, 2017). This approach includes three phases of work:

- Stage 1 – WFD screening
- Stage 2 – WFD scoping
- Stage 3 – WFD impact assessment

3.2. Stage 1 – WFD screening criteria

3.2.1. The Stage 1 (WFD screening) process includes determining the Scheme's Zone of Influence (ZoI) and identifying receptors which have the potential to be affected by the Scheme.

3.2.2. The ZoI has been identified as a 1km radius buffer around the Order Limits boundary for surface water features as shown in Figure 2-1. These distances are considered to be an appropriate distance for any potential impacts to water bodies that are hydrologically connected. The chosen ZoI also allows potentially affected water bodies to be characterised at the water body scale to fully understand the baseline and to enable appropriate siting of potential mitigation measures, where required.

3.2.3. WFD water bodies which fall (or partly fall) within the ZoI are considered to be potential receptors which required screening to determine if they are at risk of impact by the Scheme.

3.2.4. The works associated with the Scheme were reviewed at Stage 1 (WFD screening) to identify the potential impacts of the proposed works on surface water bodies. Additionally, an exercise was undertaken to identify any activities associated with the Scheme which do not require further consideration.

3.3. Stage 2 – WFD scoping criteria

3.3.1. For Stage 2 (WFD scoping), a desk study was completed to present the baseline characteristics of each WFD surface water body scoped in. This includes the current classification status for all WFD elements (most recently updated in 2019 (Cycle 3)), Reasons for Not Achieving Good (RNAG) affecting the water body, its sensitivity to change and identification of watercourses within each WFD water body boundary.

3.3.2. All watercourses within the ZoI and falling within a water body boundary, impacted by the Scheme were scoped in for assessment under the relevant WFD surface water bodies.

3.3.3. As part of Stage 2 (WFD scoping), an assessment was undertaken to identify the potential risks from the Scheme to the surface water receptors within the ZoI, based on the relevant WFD water bodies as identified during Stage 1 (WFD screening).

3.3.4. Elements from Annex V of the WFD are recorded in Section 5 for only those which are considered to be at risk. The WFD elements that are potentially at risk from the Scheme have been screened in.

3.4. Stage 3 – WFD impact assessment

3.4.1. Stage 3 considers the potential impacts of each activity that has been screened in, identifies ways to avoid or minimise impacts, and assesses if the activity may cause deterioration or jeopardise the water body achieving its objectives.

3.4.2. Any identified impacts as a result of the Scheme which have the potential to cause deterioration or jeopardise the water body achieving its objectives will require appropriate mitigation methods to reduce the impacts.

3.5. Data sources

3.5.1. The following sources of information were used for this desk study to understand the statutory regulations, WFD status, hydrological links within the Scheme and the surrounding land use. Information has been obtained from the following sources:

- Defra Magic Map (Defra, 2024)
- Environment Agency Catchment Data Explorer (Environment Agency, 2024a)
- Environment Agency Long term flood risk map (Environment Agency, 2024b)
- Ordnance Survey Online Map (Ordnance Survey, 2024)
- A46 Coventry Junctions (Walsgrave), Environmental Scoping Report, Chapter 14 (**TR010066/APP/6.8**).

4. Stage 1 - screening

4.1. Overview

4.1.1. The screening assessment involves the identification of the relevant WFD surface water bodies potentially affected by the Scheme. These water bodies are summarised in the sections below. The ZoI of the Scheme was considered to be a 1 km radius buffer around the Order Limits boundary for surface water features.

4.2. River Basin Management Plan

4.2.1. The Scheme is located within the Avon Urban Rivers and Lakes Operational Catchment, within the Severn River Basin District. The WFD status, objectives and programme of measures derived by the Environment Agency for water bodies located within this river basin district are outlined within the 2022 Severn RBMP (Environment Agency, 2022).

4.3. WFD water body screening

4.3.1. Six WFD surface water (river and lake) bodies have been identified within the ZoI. Three of these water bodies are within the Order Limits, while three water bodies lie outside of the Order Limits. These water bodies are based on the 2022 Cycle 3 status as shown by the Environment Agency's Catchment Data Explorer website (Environment Agency, 2024a). A summary of the WFD water bodies which fall within the ZoI are presented in Table 4-1 and identifies those water bodies which have been screened out of further assessment.

Table 4-1 Summary screening of WFD water bodies within ZoI

Water body name:	Water body ID	Water body type	Heavily modified Water Body?	Screened in / out	Why screened in/out?
Withy Bk - source to conf R Sowe Water Body	GB10905 4044640	Surface water (river)	No	In	Works proposed within water body catchment.
Smite Bk - source to conf R Sowe	GB10905 4044630	Surface water (river)	No	In	Works proposed within water body catchment.
Sowe - conf Withy Bk to conf R Avon	GB10905 4044540	Surface water (river)	No	In	Works proposed within water body catchment.
Sowe - conf Breach Bk to conf Withy Bk	GB10905 4044660	Surface water (river)	No	In	Water body within ZoI.
Avon – ClaycotonYelvert	GB10905 4043920	Surface water (river)	No	**Out**	0.25% of the catchment area falls within the ZoI.

Water body name:	Water body ID	Water body type	Heavily modified Water Body?	Screened in / out	Why screened in/out?
oft Bk to conf R Sowe					The Water body is not hydraulically connected to the Scheme; therefore, will have no direct or indirect impact on the water body.
Coombe Pool	GB30937 926	Surface water (reservoir)	Yes	In	Water body in close proximity to the Scheme.

4.3.2. Only a small proportion of the Avon – ClaycotonYelvertoft Bk to conf R Sowe (WBID: GB109054043920) WFD surface water body is located within the southern edges of the ZoI and not within the Order Limits itself. No works associated with the Scheme are to be undertaken within the water body, and the water body is not hydraulically connected to the Scheme. Due to this is it assumed the Scheme will have no direct or indirect impact on the water body. Therefore, the Avon – ClaycotonYelvertoft Bk to conf R WFD water body has been screened out of any further assessment. All other water bodies have been screened in.

4.4. Stage 1 Summary

4.4.1. Stage 1 (WFD screening) has identified that the Scheme has the potential to impact on the following five WFD surface water bodies (four rivers and one lake):

- River Sowe – conf Withy Bk to conf R Avon
- Withy Brook – source to conf R Sowe
- Smite Brook – source to conf R Sowe
- River Sowe – conf Breach Bk to conf Withy Bk
- Coombe Pool

4.4.2. No other WFD water bodies have been identified as having the potential to be impacted by the Scheme.

4.4.3. Therefore, Stage 2 (WFD scoping) is required for this Scheme to understand the scope of assessment required for the WFD water bodies screened in.

5. Stage 2 - WFD scoping

5.1.1. This scoping assessment does not consider or identify any relevant avoidance and mitigation measures embedded within the design of the Scheme at this stage. Impacts have been considered with regard to the risk of the Scheme causing a deterioration in current status (or potential) and / or a failure to achieve water body objectives.

5.2. Scheme activities

5.2.1. The Scheme comprises a number of activities that have been identified at this stage as having the potential to impact upon the status of the WFD water bodies identified in Stage 1.

5.2.2. The assessment of construction and operation activities relating to the Scheme is provided in Table 5.1 and 5.2, respectively.

5.2.3. Activities associated with the construction of the Scheme may cause temporary risk to the surface water receptors identified in Stage 1 (WFD screening). Temporary risks can have a longer-term impact such as a pollution event on fish community age structure. However, temporary construction activities are not expected to have an adverse effect at the WFD water body scale, assuming that appropriate mitigation can be developed and implemented.

Table 5-1 Construction activities and potential impacts

Construction activity	Potential effects on direct and indirect receptors	Water bodies potentially affected
Activity 1: Accidental leakage or spillages	Deterioration in water quality (surface water (indirectly through likely hydraulic connection)) and aquatic environments due to accidental spillage or leakage of fuel and oils, or due to placement of construction materials, washing of plant, cleaning areas of hardstanding (suspended solids and dissolved contaminants), and from foul waste (treated or untreated) from site compounds. There is potential for an indirect impact that could propagate to upstream water bodies as a result of accidental leakages and spillages. The upstream water body potentially at risk is the Withy Brook and the River Sowe - conf Breach Bk to conf Withy Bk.	Sowe – conf Withy Bk to conf R Avon Water Body Smite Bk - source to conf R Sowe Water Body Indirect: Sowe - conf Breach Bk to conf Withy Bk Withy Brook - source to conf R Sowe

Construction activity	Potential effects on direct and indirect receptors	Water bodies potentially affected
Activity 2: Works adjacent or close to water bodies, watercourses, ponds or the fluvial floodplain	Deterioration in water quality (surface water (indirectly through likely hydraulic connection)), aquatic environments and placement of construction materials, washing of plant, cleaning areas of hardstanding (suspended solids and dissolved contaminants).	Sowe – conf Withy Bk to conf R Avon Water Body Smite Bk - source to conf R Sowe Water Body Withy Brook -– source to conf R Sowe Coombe Pool
Activity 3: Construction works within or close to the watercourse including outfalls, modification and redirection of existing ephemeral watercourses and a temporary culvert.	Deterioration in water quality (surface water) and physical impact upon aquatic environments and hydromorphological processes due to the construction of a temporary culvert, modification and redirection of existing ephemeral watercourses and the implementation of two new outfalls have the potential to alter flow and sediment volumes. Construction activities may result in increased noise and vibration may impact on fish migration.	Sowe – conf Withy Bk to conf R Avon Water Body Smite Bk - source to conf R Sowe Water Body Withy Brook -– source to conf R Sowe Coombe Pool Sowe – conf Breach Bk to conf Withy Bk

Table 5-2 Operation activities and potential impacts

Operation activity	Potential effects on direct and indirect receptors	Water body potentially affected
Activity 1: Accidental leakage or spillages	Deterioration in water quality (surface water (indirectly through likely hydraulic connection)) and aquatic environments due to accidental spillage or leakage of fuel and oils.	Sowe – conf Withy Bk to conf R Avon Water Body Smite Bk - source to conf R Sowe Water Body Sowe – conf Breach Bk to conf Withy Bk
Activity 2: Increase in pollutants from routine road runoff to surface water	Deterioration in water quality (surface water (indirectly through likely hydraulic connection)) and aquatic environments due to pollution of surface water features from increased hardstanding and traffic volumes, including a potential increase in fine sediment load.	Sowe – conf Withy Bk to conf R Avon Water Body Smite Bk - source to conf R Sowe Water Body
Activity 3: Discharge from outfalls, new outfalls, drainage ditches and minor watercourse diversions	Deterioration in water quality, aquatic environments and hydromorphological processes due to the potential change in channel stability, flow and increases in fine sediment.	Sowe – conf Withy Bk to conf R Avon Water Body Smite Bk - source to conf R Sowe Water Body Withy Brook -– source to conf R Sowe

5.2.4. River Sowe – conf Breach Bk to conf Withy Bk is located upstream of the Scheme and has only been scoped in for further assessment with respect to aquatic ecology, specifically fish, as a precautionary approach. This is due to the potential indirect impact of accidental leakages and spillages which has the potential to affect the community of migratory fish in the upstream water body.

5.2.5. The Scheme potentially interacts with the five surface waters (river and lake) bodies identified in Table 5-1 and Table 5-2. Therefore, there is a risk to WFD quality elements, and these water bodies are scoped in for further assessment.

5.3. Scoping of quality elements

Scoping exercise

5.3.1. This section presents the scoping of the quality elements undertaken for the five scoped in WFD water bodies.

5.3.2. Table 5-3 to Table 5-7 summarise the potential for impacts on the five WFD water bodies as a result of the Scheme. It indicates issues scoped into the WFD assessment for the following aspects:

- hydromorphology
- habitats
- water quality
- protected areas
- invasive non-native species (INNS)
- Chemical elements (2019 status)

5.3.3. The potential impacts of construction phase and operational surface water runoff upon the five WFD water bodies will be assessed.

Table 5-3 Potential risk to classification elements of the River Sowe - conf Withy Bk to conf R Avon Water Body (GB109054044540)

Classification element:	Receptors at risk	2022 Classification Status	Screened In / Out	Potential risk to receptors screened in to be considered in Stage 3
Biology	Fish	Moderate	In	Construction phase Direct and indirect receptor. Potential for impact to physical habitat quality and water quality as a result of in channel works and temporary culvert activities. In channel works have the potential to directly impact upon the River Sowe's tributaries within the Order Limits. Operational phase Direct and indirect receptor. Potential for impact to the River Sowe's tributaries within the Order Limits as a result of severing and infilling, and runoff from the Scheme.
	Macroinvertebrates	Good	In	
	Macrophytes and phytobenthos	Moderate	In	
Physico-chemical	Thermal conditions	High	Out - the proposed activities are not considered to have the potential to impact this receptor.	Construction phase Direct receptor. Potential for impact arising from fine sediment-laden runoff, or contamination from spillage or works near watercourse. Operational phase Direct receptor. Potential for impact to water quality as a result of increased highway runoff from the Scheme which may include heavy metal and sediment pollutants.
	Oxygenation conditions	High	In	
	Salinity	High	In	
	Acidification status	High	In	
	Nutrient conditions	Poor	Out – the proposed activities are not considered to have the potential to impact this receptor.	
Hydromorphology	Quantity and dynamics of water flow	Supports good	In	Construction phase Direct receptor. Potential for impact arising from fine sediment-laden runoff, or

Classification element:	Receptors at risk	2022 Classification Status	Screened In / Out	Potential risk to receptors screened in to be considered in Stage 3
	Connection to groundwater bodies	Supports good	In	contamination from spillage or works near watercourse. Potential for impact arising from physical construction and channel modification due to the outfalls, temporary culvert, severance and infilling. <u>Operational phase</u> Direct receptor. Potential for impact to hydromorphology as a result of increased runoff and sedimentation from the Scheme.
	River continuity	Supports good	In	
	River depth and width variation	Supports good	In	
	Structure and substrate of the riverbed	Supports good	In	
	Structure of the riparian zone	Supports good	In	
Chemical	Priority hazardous substances	Fail (2019 status)	In	<u>Construction phase</u> Direct receptor. Potential for impact arising from contamination from spillage or works near or in watercourse. <u>Operational phase</u> Direct receptor. Potential for impact arising from runoff of spillages and pollutants discharging to watercourses.
	Priority substances	Good (2019 status)	In	
	Other pollutants	Does not require assessment (2019 status)	In	

Table 5-4 Potential risk to the classification elements of Smite Brook - source to conf R Sowe Water Body (GB109054044630)

Classification element:	Receptors at risk	2022 Classification Status	Screened In / Out	Potential risk to receptors screened in to be considered in Stage 3
Biology	Fish	Moderate	In	Construction phase Direct receptor. Potential for impact to physical habitat quality and water quality as a result of runoff from construction works. There are no proposed in-channel works and no proposed new outfalls within this WFD water body. Operational phase Indirect receptor. Potential for impact to Smite Brook as a result of increased runoff from the Scheme. This has the potential to indirectly impact the River Sowe via discharge from Smite Brook. There are no direct physical modifications to this water body.
	Macroinvertebrates	Good	In	
	Macrophytes and phytobenthos	Poor	In	
Physico-chemical	Thermal conditions	High	Out - the proposed activities are not considered to have the potential to impact this receptor.	Construction phase Indirect receptor. Potential for impact arising from fine sediment-laden runoff, or contamination from spillage or works near watercourse. There are no direct physical modifications to this water body. Operational phase Indirect receptor. Potential for impact to water quality as a result of increased pollutant runoff from the Scheme. There are no direct physical modifications to this water body.
	Oxygenation conditions	High	In	
	Salinity	Moderate	In	
	Acidification status	High	In	
	Nutrient conditions	High	Out – the proposed activities are not considered to have the potential to impact this receptor.	
Hydromorphology	Quantity and dynamics of water flow	High	In	Construction phase Indirect receptor. Potential for impact arising from fine sediment-laden runoff, or

Classification element:	Receptors at risk	2022 Classification Status	Screened In / Out	Potential risk to receptors screened in to be considered in Stage 3
	Connection to groundwater bodies	High	In	contamination from spillage or works near watercourse. There are no direct physical modifications to this water body. <u>Operational phase</u> Indirect receptor. Potential for impact to hydromorphology as a result of increased runoff and sedimentation from the Scheme. There are no direct physical modifications to this water body.
	River continuity	High	In	
	River depth and width variation	Supports good	In	
	Structure and substrate of the river bed	Supports good	In	
	Structure of the riparian zone	Supports good	In	
Chemical	Priority hazardous substances	Fail (2019 status)	In	<u>Construction phase</u> Direct receptor. Potential for impact arising from contamination from spillage or works near watercourse. There are no direct physical modifications to this water body. <u>Operational phase</u> Direct receptor. Potential for impact arising from runoff of spillages and pollutants discharging to watercourses. There are no direct physical modifications to this water body.
	Priority substances	Good (2019 status)	In	
	Other pollutants	Does not require assessment (2019 status)	In	

Table 5-5 Potential risk to classification elements of Withy Brook - source to conf R Sowe Water Body (GB109054044640)

Classification element:	Receptors at risk	2022 Classification Status	Screened In / Out	Potential risk to receptors screened in to be considered in Stage 3
Biology	Fish	Poor	In	Construction phase Direct receptor. Potential for impact to physical habitat quality and water quality as a result of compound runoff and spillage from construction works. Operational phase No direct impact during the operational phase as upstream of the Scheme.
	Macroinvertebrates	Good	In	
	Macrophytes and phytobenthos	Poor	In	
Physico-chemical	Thermal conditions	High	Out - the proposed activities are not considered to have the potential to impact this receptor.	Construction phase Direct receptor. Potential for impact to physical habitat quality and water quality as a result of compound runoff and spillage from construction works. Operational phase No direct impact during the operational phase as upstream of the Scheme.
	Oxygenation conditions	High	In	
	Salinity	Moderate	In	
	Acidification status	High	In	
	Nutrient conditions	High	Out – the proposed activities are not considered to have the potential to impact this receptor.	
Hydromorphology	Quantity and dynamics of water flow	High	In	Construction phase Direct receptor. Potential for impact to physical habitat quality and water quality as a result of compound runoff and spillage from construction works. Operational phase No direct impact during the operational phase as upstream of the Scheme.
	Connection to groundwater bodies	High	In	
	River continuity	High	In	

Classification element:	Receptors at risk	2022 Classification Status	Screened In / Out	Potential risk to receptors screened in to be considered in Stage 3
	River depth and width variation	Supports good	In	
	Structure and substrate of the river bed	Supports good	In	
	Structure of the riparian zone	Supports good	In	
Chemical	Priority hazardous substances	Fail (2019 status)	In	<u>Construction phase</u> Direct receptor. Potential for impact arising from contamination from spillage or works near watercourse. <u>Operational phase</u> No direct impact during the operational phase as upstream of the Scheme.
	Priority substances	Good (2019 status)	In	
	Other pollutants	Does not require assessment (2019 status)	In	

Table 5-6 Potential risk to classification elements of Coombe Pool

Classification element:	Receptors at risk	2022 Classification Status	Screened In / Out	Potential risk to receptors screened in to be considered in Stage 3
Biology	Phytoplankton	Good	In	Construction phase Indirect receptor. Potential for impact to physical habitat quality and water quality as a result of runoff from construction works. Operational phase No direct impact during the operational phase.
Physico-chemical	Thermal conditions	High	Out - the proposed activities are not considered to have the potential to impact this receptor.	Construction phase Indirect receptor. Potential for impact arising from fine sediment-laden runoff, or contamination from spillage or works near watercourse. Operational phase No direct impact during the operational phase.
	Oxygenation conditions	High	In	
	Salinity	High	In	
	Acidification status	High	In	
	Nutrient conditions	High	Out – the proposed activities are not considered to have the potential to impact this receptor.	
Hydromorphology	Quantity and dynamics of water flow	High	In	Construction phase Indirect receptor. Potential for impact arising from fine sediment-laden runoff, or contamination from spillage or works near watercourse. Operational phase No direct impact during the operational phase.
	Connection to groundwater bodies	High	In	
	River continuity	High	In	

Classification element:	Receptors at risk	2022 Classification Status	Screened In / Out	Potential risk to receptors screened in to be considered in Stage 3
Chemical	Priority hazardous substances	Fail (2019 status)	In	Construction phase Direct receptor. Potential for impact arising from contamination from spillage or works near watercourse. Operational phase No direct impact during the operational phase.
	Priority substances	Good (2019 status)	In	
	Other pollutants	Does not require assessment (2019 status)	In	

Table 5-7 Potential risk to classification elements of River Sowe - conf Breach Bk to conf Withy Bk Water Body

Classification element:	Receptors at risk	2022 Classification Status	Screened In / Out	Potential risk to receptors screened in to be considered in Stage 3
Biology	Fish	Moderate	In	Construction phase Indirect receptor. Potential for impact to physical habitat quality and water quality as a result of runoff from construction works. Operational phase No direct impact during the operational phase.

5.4. WFD water body summary

5.4.1. The Scheme interacts with a number of WFD surface water (river and lake). Therefore, there is a risk to WFD quality elements and the ecological and chemical status (or potential) of each receptor water body.

5.4.2. Due to the interaction with the activities identified above the following WFD surface water (river and lake) have been scoped in for further assessment:

- Sowe – conf Withy Bk to conf R Avon
- Sowe – conf Breach Bk to conf Withy Bk
- Withy Brook – source to conf R Sowe
- Smite Brook – source to conf R Sowe
- Coombe Pool

WFD water body classification

5.4.3. Further details summarising the chemical WFD classification for each of the five WFD surface water (river and lake) bodies is set out in Annex A. These are based on the 2022 Cycle 3 status as shown by the Environment Agency's Catchment Data Explorer website (Environment Agency, 2024a).

5.5. Stage 2 summary

5.5.1. Stage 2 (WFD scoping) has considered each of the WFD surface water (river and lake) bodies in turn to understand the scope of assessment required. Stage 3 (WFD Impact Assessment) is required for this Scheme to identify and assess potential risks to the WFD water bodies scoped in:

- Sowe - conf Withy Bk to conf R Avon Water Body (GB109054044540)
- Sowe - conf Breach Bk to conf Withy Bk (GB109054044660)
- Coombe Pool – (GB30937926)
- Withy Brook - source to conf R Sowe Water Body (GB109054044640)
- Smite Brook - source to conf R Sowe Water Body (GB109054044630)

6. Stage 3 – WFD Impact Assessment

6.1. Introduction

6.1.1. This section identifies the potential impacts the Scheme may have on receptors identified at the scoping stage. This is based on an assessment of the residual impact and requirement for further investigation for each WFD receptor (see Table 8-1 of Annex B). This has been summarised below.

6.2. Changes to water quality

During construction

6.2.1. The construction phase of the Scheme will include: road construction, forming of earthwork embankments, the temporary culverting of a watercourse (identified as watercourse 1), severing and partial infilling of 150m of a watercourse (identified as watercourse 1), severance, partial infilling and redirection of 125m of a watercourse (identified as watercourse 3) and construction of two new outfalls, one on a new ditch and one on a watercourse (identified as watercourse 2). Each of the proposed construction activities has the potential to impact water quality in local watercourses, and indirectly the River Sowe WFD water body.

6.2.2. Construction activities, including the modification of the A46 southbound embankment, increases the risk of accidental spillage, potentially adding pollutants to the watercourses. In addition to this, there is the potential of the mobilisation of sediments and contaminants from the construction phase. This includes road runoff as a result of road construction, earthworks for the construction of new embankments, as well as from the movement of heavy plant, sewage waste from welfare facilities, runoff from stockpiling and potential works local to the watercourse. Activities 1-4 within Table 5-1 have the potential to increase the risk of sediments and contaminants reaching local watercourses and impact the following WFD receptors for the River Sowe, Smite Brook, Withy Brook and Coombe Pool:

- hydromorphology
- biology: habitats
- water quality

6.2.3. The construction area is located adjacent to four WFD water bodies. Therefore, mitigation will be included to minimise the impacts from leakage and spillage. Mitigation during the construction phase would be managed through the implementation of a Water Monitoring and Management Plan within the Second Iteration Environmental Management Plan (EMP) which is considered to be essential mitigation. The EMP will include best practice measures to limit the risk

of pollutants entering surface water features. The Second Iteration EMP will detail the procedures and methods that should be followed to minimise the potential environmental effects of construction activities. The Second Iteration EMP will be secured through Requirement 4 of Schedule 2 of the draft DCO (**TR010066/APP/3.1**).

6.2.4. The temporary culvert will take place on a largely ephemeral watercourse (identified as watercourse 2) and there are other minor watercourses available for refuge within the water body during flood events. Therefore, the impacts upon aquatic receptors are negligible.

6.2.5. Due to the proposed mitigation strategies, the risk associated with potential contaminants due to construction works or accidental spillage is considered negligible. It is considered the Scheme would not cause any of the WFD water bodies to deteriorate or prevent it from reaching its objective.

6.2.6. Flood and Coastal Erosion Risk Management activities can have a big impact, both positive and negative, on the water environment. The WFD defines a list of mitigation measures, referred to as environmental improvements, which need to be carried out by set deadlines (2015 or 2027) to improve the water environment. The Environment Agency have defined these mitigation measures for WFD water bodies that are designated as artificial or heavily modified. As Coombe Pool is designated as heavily modified, the Environment Agency have assigned four mitigation measures, which they will work towards implementing. The Environment Agency confirmed there is no further information regarding if these measures have been actioned since. The four recorded mitigation measures for Coombe Pool were obtained from the Environment Agency via a data request and are listed below:

- Creation of a new channel to bypass the pool. This will improve sediment transport, reduce thermal conditions downstream of the impoundment, increase available oxygen, reduce nutrient loading, and reduce the transfer of invasive species (i.e. the small population of remaining Zander). The new channel should be designed to maximise riparian habitat formation.
- Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone. Creation of marginal habitat may also take up some of the excessive nutrients.
- Removal of weir downstream of Coombe Pool to improve sediment movement and improve fish passage.
- Modification of existing structures by changing existing regime to allow structures to only overflow when the Pool is full to capacity.

6.2.7. The construction of the Scheme will not pose any impact to the identified mitigation measures by the Environment Agency for Coombe Pool.

During operation

6.2.8. The Scheme has the potential to result in increased traffic volumes, and an increase in impermeable drainage area. This could result in an increase in pollutant input from highway runoff and spillages, resulting in long term increases in diffuse pollution and subsequent deterioration in water quality of receiving watercourses.

6.2.9. A simple assessment (as defined by DMRB LA 113) of pollution impacts from routine runoff to surface waters has been undertaken using Highways England Water Risk Assessment Tool (HEWRAT), as described in the Appendix 13.3 (Water Quality Assessment) (**TR010066/APP/6.3**). An assessment of pollution impacts from routine runoff to surface waters was undertaken using HEWRAT. This assessment establishes potential impacts of pollutants (including sediment) in routine highway runoff for the Scheme upon surrounding water bodies and the requirement for mitigation measures to adequately reduce the risk.

6.2.10. The outfalls within catchment areas 1-4 all passed the HEWRAT assessment without the need for mitigation.

6.2.11. The outfall within catchment areas 5 and 6 initially failed step 2 (pre-mitigation) due to sediment. However, with the inclusion of ponds within the Scheme design as proposed measures in step 3, these outfalls pass the HEWRAT assessment for soluble pollutants and sediment bound pollutants.

6.2.12. The accidental spillage assessment (as described in the Appendix 13.3 (Water Quality Assessment) (**TR010066/APP/6.3**)) indicates that the risk of serious pollution incidents is considerably less than the annual acceptable threshold of 0.5%. All drainage catchments passed the accidental spillage assessment without the requirement of mitigation.

6.2.13. The Scheme will not involve any nutrient/nitrogen application, and there will be no sewage discharge to water bodies.

6.2.14. Due to the proposed mitigation strategies, the risk associated with potential contaminants associated with routine runoff or spillage is considered negligible. It is considered the Scheme would not cause any of the WFD water bodies to deteriorate or prevent it from reaching its objective.

6.2.15. The four identified mitigation measures for Coombe Pool by the Environment Agency will not be impacted by the operation of the Scheme.

6.3. Hydromorphology

6.3.1. Any water quality impacts relating to the increased road runoff which may contain sediment have been described in section 6.2. Works within the channel have the potential to impact the sediment supply and hydromorphology of the watercourse and downstream receptors, this involves:

- partial infilling of watercourses 1 and 3
- the construction of a temporary culvert over watercourse 2
- construction of two new outfalls (one on a new ditch which connects to a tributary of the River Sowe and one on watercourse 2)

6.3.2. The potential impacts will be managed through the phased construction plan. The temporary culverting of an ephemeral watercourse would have a minimal impact on water quality. However, the temporary culvert should be designed to minimise effects on water quality and ensure there is no loss of habitat or biodiversity. There should be no entry into any parts of the watercourse not being infilled. Best practice construction measures, including in-river sediment controls (for example, straw matting) should be used and it shall be undertaken during low flows to minimise sediment transport. Therefore, this risk of water body scale impacts to hydromorphology receptors is considered negligible, and it is considered the Scheme would not cause any of the WFD water bodies to deteriorate or prevent them from reaching their objective.

6.4. INNS

6.4.1. Two types of INNS were recorded within the study area. These include:

- Rhododendron *Rhododendron ponticum* – which is extensive throughout the Coombe Abbey Park woodland to the south-east of the existing A46 Walsgrave Junction, including within the area of woodland which is partially within the Order Limits.
- Himalayan balsam *Impatiens glandulifera* – which has been identified on the banks of the River Sowe to the north-west and west of the Order Limits, however the species has not been identified on any water bodies in or adjacent to the Order Limits.

6.4.2. There are records of the Schedule 9 of the Wildlife and Countryside Act 1981 (UK Government, 1981) species Canada goose (*Branta canadensis)*, American mink *Neovison vison* and Wels catfish *Silurus glanis* within 2km of the Order Limits. Invasive non-native fauna listed on Schedule 9 identified during targeted ecological surveys include Egyptian goose *Alopochen aegyptiacus* and ring-necked parakeet *Psittacula krameri.*

6.4.3. There is potential for these species to spread during the construction phase and impact the following WFD receptors for Coombe Pool and River Sowe WFD water bodies:

- biology: habitats

6.4.4. Mitigation measures to prevent the spread of invasive species during construction would be specified, and outlined within an appropriate document, such as an Invasive Non-Native Species Management Plan (INNSMP) to be produced at the detailed design stage and included in the Second Iteration EMP. Management practices for control and / or eradication of these species can include chemical treatment, such as the application of herbicide, or mechanical means of removal but should always be undertaken by an experienced contractor or professional who can provide a guarantee for that work. These requirements shall be noted in the INNSMP of the Second Iteration EMP.

6.4.5. Due to the proposed mitigation, the risk associated with INNS is considered negligible. It is considered the Scheme would not cause the WFD water body to deteriorate or prevent it from reaching its objective.

6.5. Habitats

6.5.1. The potential impacts from the construction of the Scheme including drainage, temporary culvert and associated features will be managed through the Water Monitoring and Management Plan, of the Second Iteration EMP. Any water quality impacts relating to the increased road runoff which may contain sediment have been described in section 6.2.

6.5.2. The ES Chapter 8 (Biodiversity) (**TR010066/APP/6.1**), states that there were no records of fish within 2km of the Order Limits for the Scheme. However, construction activities in or close to watercourses that support fish would avoid fish migration and spawning periods. Due to this River Sowe – conf Breach Bk to conf Withy Bk was included as a precautionary approach. This will be detailed for the appropriate watercourses within the Water Monitoring and Management Plan, of the Second Iteration EMP.

6.5.3. The temporary culvert would be designed to minimise effects on water quality and ensure there is no loss of habitat or biodiversity. Best practice construction measures, including in-river sediment controls (for example, straw matting) should be used and it shall be undertaken during low flows to minimise sediment transport. This risk is considered negligible due to the proposed drainage design, as detailed in ES Appendix 13.3 (Water Quality Assessment) (**TR010066/APP/6.3**) and ES Appendix 13.6 (Drainage Strategy Report) (**TR010066/APP/6.3**). Therefore, it is considered the Scheme would not cause

any of the five WFD water bodies to deteriorate or prevent it from reaching its objective.

6.6. Assessment against WFD mitigation measures

6.6.1. The Coombe Pool WFD water body is the only water body assessed that is classified as heavily modified. The mitigation measures for Coombe Pool via the Environment Agency have been identified in paragraph 6.2.6.

6.6.2. The Scheme activities do not propose heavy modification to this water body and are unlikely to restrict the implementation of any potential measures highlighted by the Environment Agency above. The Scheme is not anticipated to impact the ability for the four mitigation measures to be completed. Therefore, at this stage of the assessment, the Scheme should not prevent this water body from meeting good ecological potential.

6.7. WFD objectives assessment

6.7.1. Table 6-1 sets out how the Scheme would meet the WFD objectives. Taking into consideration proposed mitigation and the absence of, or low potential for, impacts of the Scheme on the various quality elements and areas with protected status, it is unlikely the Scheme would compromise the environmental objectives of the WFD Regulations and is therefore likely to be compliant.

Table 6-1 : Conclusion of the Scheme's WFD compliance

Environmental objective	Conclusion for the Scheme	WFD Regulations compliant
Protect surface water and groundwater bodies with the aim of achieving 'Good Status' by 2021 (or 2027 at the latest)	The Scheme would not prevent the achievement of 'Good' status in any water bodies not designated as Heavily Modified or Artificial.	Yes
Not prevent protected areas from achieving compliance with any standards and objectives required by other legal instruments.	The Scheme would not prevent the achievement of other standards for Protected sites.	Yes
Apply the most stringent Environmental Objective where two or more objectives apply to the same water body, or the same part of a water body.	The Scheme would not cause a permanent exclusion or compromise achieving the objectives in other bodies of water within the same river basin district.	Yes

7. Conclusions

7.1.1. The Scheme has the potential to affect a number of WFD water bodies present within the ZoI. An assessment of the compliance of the Scheme with the objectives of the WFD is therefore provided.

7.1.2. The purpose of this WFD compliance assessment report is to establish the nature and magnitude of the impacts of any components of the Scheme which are anticipated to affect WFD classification elements of the water bodies.

7.1.3. The following WFD surface water bodies have been scoped in for further assessment:

- Withy Bk - source to conf R Sowe Water Body (GB109054044640)
- Smite Bk - source to conf R Sowe Water Body (GB109054044630)
- Sowe – conf Withy Bk to conf R Avon Water Body (GB109054044540)
- Sowe - conf Breach Bk to conf Withy Bk (GB109054044660)
- Coombe Pool Water Body (GB30937926)

7.1.4. Contaminants from runoff or accidental spillage represent the largest potential risk for degradation of the identified receptors. Mitigation during the construction phase would be managed through the implementation of the Water Monitoring and Management Plan of the Second Iteration EMP which will include best practice measures to limit the risk of pollutants entering surface water features. A HEWRAT assessment was undertaken to assess potential water quality impacts during the operation phase. The results identified that all catchment areas pass the routine runoff assessment, two of which required mitigation. All catchment areas passed the accidental spillages assessment without the need for mitigation included in the design.

7.1.5. Works within the channel is required due to partial infilling of watercourses 1 and 3, the construction of a temporary culvert on watercourse 2 and construction of two new outfalls (one on a new ditch and one on watercourse 2) have the potential to impact the hydromorphology of the watercourse and downstream receptors. However, the temporary culvert and outfalls would be designed to minimise effects on hydromorphology and ensure there is no loss of habitat or biodiversity. This would ensure there is a negligible risk to WFD receptors of the River Sowe.

7.1.6. The potential spread of INNS during construction would be mitigated and outlined in an INNSMP, of the Second Iteration EMP. The INNSMP would

reduce the risk associated with INNS and therefore the risk is considered negligible.

7.1.7. The Scheme activities do not propose heavy modification to the Coombe Pool water body and are unlikely to restrict the implementation of any potential measures highlighted by the Environment Agency. The Scheme is not anticipated to impact the ability for the four mitigation measures to be completed. Therefore, at this stage of the assessment, the Scheme should not prevent this water body from meeting good ecological potential.

7.1.8. This WFD compliance assessment indicates any impacts are likely to be temporary and highly localised due to the construction approach along with the design and mitigation in place for the operational phase of the Scheme. Due to this, the Scheme is compliant with the objectives of the WFD, and it is concluded there is no significant risk to any WFD water bodies.

8. References

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Annex A. WFD water body classification

Three river water bodies are present within the Order Limits.

- Withy Bk - source to conf R Sowe Water Body (GB109054044640) encompasses Withy Bk from its source to its confluence with the River Sowe. The chemical status does not require assessment but was limited to fail by priority hazardous substances (fail for mercury and its compounds, perfluorooctane sulphonate (PFOS) and polybrominated diphenyl ethers (PBDE)) during the 2019 cycle 2. The chemical status is expected to reach good by 2063. The RNAG include poor nutrient management.
- Smite Bk - source to conf R Sowe Water Body (GB109054044630) encompasses the Smite Bk from its source to its confluence with the River Sowe. The chemical status does not require assessment but was limited to fail by priority hazardous substances (fail for mercury and its compounds, PFOS and PBDE) during the 2019 cycle 3. The chemical status is expected to reach good by 2063. The RNAG include poor livestock management, poor nutrient management and sewage discharge (intermittent).
- Sowe - conf Withy Bk to conf R Avon Water Body (GB109054044540) encompasses the River Sowe from its confluence with Withy Brook to its confluence with the River Avon. The chemical status does not require assessment but was limited to fail by priority hazardous substances (fail for benzo(g-h-i) perylene, mercury and its compounds, PFOS and PBDE) during the 2019 cycle 3. The chemical status is expected to reach good by 2063. The RNAG includes poor livestock management.

One WFD surface water (lake) body lies outside of the Order Limits, but within the study area:

- The Coombe Pool Water Body (GB30937926) is a 32ha designated raised reservoir under the Reservoirs Act 1975. The water body is located to the east of the existing roundabout within the study area. The chemical status does not require assessment but was limited to fail by priority hazardous substances (fail for mercury and its compounds, PFOS and PBDE) during the 2019 cycle 3. The chemical status is expected to reach good by 2063.The RNAG include poor livestock management, sewage discharge and urbanisation.

Annex B. Assessment of the residual impact

Table 8-1 : Assessment of the residual impact and requirement for further investigation for each WFD receptor

WFD water body	Element scoped in	Receptor	Potential impact	Mitigation	Residual Impact	Further investigation required
Sowe - conf Withy Bk to conf R Avon (GB109054044540)	Biology	Fish	Construction: Activity 1[1] Activity 2 Activity 3 Operation: Activity 1 Activity 2 Activity 3	Construction: Mitigation during the construction phase would be managed through the implementation of the Second Iteration EMP which is considered to be essential mitigation. The Second Iteration EMP will include best practice measures to limit the risk of pollutants entering surface water features. An ordinary watercourse consent is required from Coventry City Council. The temporary culvert and infilling would be designed to minimise effects on water quality and ensure there is no loss of habitat or biodiversity. The potential increase in flood risk and negative impacts on surface water receptors shall be managed by the implementation of a temporary works drainage strategy within the Second Iteration EMP However, construction activities in or close to watercourses that	Negligible	No
		Macroinvertebrates			Negligible	No
		Macrophytes and phytobenthos			Negligible	No
	Physico-chemical	Thermal conditions			Negligible	No
		Oxygenation conditions			Negligible	No
		Salinity			Negligible	No
		Acidification status			Negligible	No
	Hydromorphology:	Quantity and dynamics of water flow			Minor adverse	No
		Connection to groundwater bodies			Negligible	No
		River continuity			Negligible	No
		River depth and width variation			Negligible	No
		Structure and substrate of the riverbed			Minor adverse	No

[1] For further information on each activity see Table 5-1 and Table 5-2

WFD water body	Element scoped in	Receptor	Potential impact	Mitigation	Residual Impact	Further investigation required
		Structure of the riparian zone		support fish would avoid fish migration and spawning periods. This will be detailed for the appropriate watercourses within the EMP. Operation: The HEWRAT assessment identified catchment areas 1-4 did not require mitigation. Catchment area 6 passes with mitigation with the inclusion of a pond.	Minor adverse	No
Withy Brook - source to conf R Sowe Water Body (GB109054044640)	Biology	Fish	Construction: Activity 2 Activity 3 Operation: Activity 3	Construction: Mitigation during the construction phase would be managed through the implementation of a Second Iteration EMP which is considered to be essential mitigation. The Second Iteration EMP will include best practice measures to limit the risk of pollutants entering surface water features. The potential increase in flood risk and negative impacts on surface water receptors shall be managed by the implementation of a temporary works drainage strategy within the Second Iteration EMP However, construction activities in or close to watercourses that support fish would avoid fish migration and spawning periods.	Negligible	No
		Macroinvertebrates			Negligible	No
		Macrophytes and phytobenthos			Negligible	No
	Physico-chemical	Thermal conditions			Negligible	No
		Oxygenation conditions			Negligible	No
		Salinity			Negligible	No
		Acidification status			Negligible	No
	Hydromorphology:	Quantity and dynamics of water flow			Negligible	No
		Connection to groundwater bodies			Negligible	No
		River continuity			Negligible	No

WFD water body	Element scoped in	Receptor	Potential impact	Mitigation	Residual Impact	Further investigation required
		River depth and width variation		This will be detailed for the appropriate watercourses within the Second Iteration EMP. Operation: The HEWRAT assessment identified catchment areas 1-4 did not require mitigation. Catchment area 6 passes with mitigation with the inclusion of a pond.	Negligible	No
		Structure and substrate of the riverbed			Negligible	No
		Structure of the riparian zone			Negligible	No
Smite Brook - source to conf R Sowe (GB109054044630)	Biology	Fish	Construction: Activity 1 Activity 2 Activity 3 Operation: Activity 1 Activity 2 Activity 3	Construction: Mitigation during the construction phase would be managed through the implementation of a Second Iteration EMP which is considered to be essential mitigation. The Second Iteration EMP will include best practice measures to limit the risk of pollutants entering surface water features. The potential increase in flood risk and negative impacts on surface water receptors shall be managed by the implementation of a temporary works drainage strategy within the Second Iteration EMP Operation: The HEWRAT assessment identified catchment areas 1-4 did not require mitigation. Catchment area 6 passes with mitigation with the inclusion of a pond.	Negligible	No
		Macroinvertebrates			Negligible	No
		Macrophytes and phytobenthos			Negligible	No
	Physico-chemical	Thermal conditions			Negligible	No
		Oxygenation conditions			Negligible	No
		Salinity			Negligible	No
		Acidification status			Negligible	No
	Hydromorphology:	Quantity and dynamics of water flow			Minor adverse	No
		Connection to groundwater bodies			Negligible	No
		River continuity			Negligible	No
		River depth and width variation			Negligible	No

WFD water body	Element scoped in	Receptor	Potential impact	Mitigation	Residual Impact	Further investigation required
		Structure and substrate of the riverbed			Minor adverse	No
		Structure of the riparian zone			Minor adverse	No
Coombe Pool (GB30937926)	Biology	Fish	Construction: Activity 2 Activity 3 Operation: No activities	Construction: Mitigation during the construction phase would be managed through the implementation of a Second Iteration EMP which is considered to be essential mitigation. The Second Iteration EMP will include best practice measures to limit the risk of pollutants entering surface water features. The potential increase in flood risk and negative impacts on surface water receptors shall be managed by the implementation of a temporary works drainage strategy within the Second Iteration EMP Operation: No mitigation required.	Negligible	No
		Macroinvertebrates			Negligible	No
		Macrophytes and phytobenthos			Negligible	No
	Physico-chemical	Thermal conditions			Negligible	No
		Oxygenation conditions			Negligible	No
		Salinity			Negligible	No
		Acidification status			Negligible	No
	Hydromorphology:	Quantity and dynamics of water flow			Negligible	No
		Connection to groundwater bodies			Negligible	No
		River continuity			Negligible	No
Sowe - conf Breach Bk to conf Withy Bk (GB109054044660)	Biology	Fish	Construction: Activity 1 Operation: Activity 1	Construction: The implementation of a temporary drainage strategy within the Second Iteration EMP which will limit the risk of	Negligible	No

WFD water body	Element scoped in	Receptor	Potential impact	Mitigation	Residual Impact	Further investigation required
				pollutants entering surface water features. However, construction activities in or close to watercourses that support fish would avoid fish migration and spawning periods. This will be detailed for the appropriate watercourses within the Second Iteration EMP. <u>Operation:</u> The drainage strategy report highlights the long term strategy to mitigate the risk of spillages and pollutants entering watercourses.		

Any impacts are likely to be temporary and highly localised due to the construction approach along with the design and mitigation in place for the operational phase of the Scheme. The operational phase will include water quality and quantity mitigation measures which are not in place for the baseline operation. The construction phase will include a temporary culvert which will be removed and restored at the end of the relevant construction activity and no operational phased culverts are proposed and detailed design will ensure all outfalls are set back. Therefore, the Scheme would not result in any adverse impacts upon hydromorphology at the water body scale.