

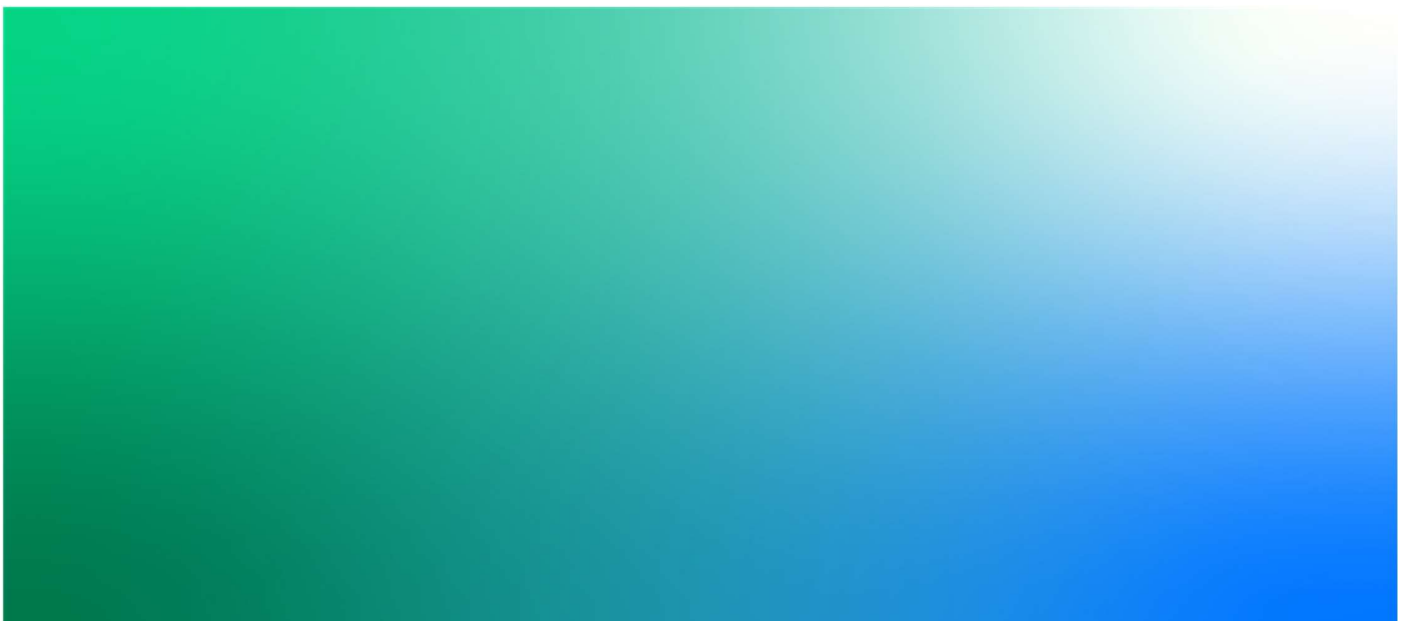


**Cottam Parkway Railway Station**  
**Water Environment Regulations Assessment**

**B2327FEF-JAC-EWE-00-RP-ENV-0003 | P02**

**2022/06/24**

**Lancashire County Council**



**Cottam Parkway Railway Station**

Project No: B2327FEF  
Document Title: Water Environment Regulations Assessment  
Document No.: B2327FEF-JAC-EWE-00-RP-ENV-0003  
Revision: P02  
Document Status: Final  
Date: 2022/06/24  
Client Name: Lancashire County Council  
Project Manager: Katarzyna Skibinska  
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File Name: B2327FEF-JAC-EWE-00-RP-ENV-0003

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**Document history and status**

Revision	Date	Description	Author	Checked	Reviewed	Approved
P01	04/10/2021	Water Environment Regulations Assessment	MW	RW	RW	PH
P02	24/06/2022	For issue	MW	RW	RW	PH

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## 1. Introduction

Jacobs UK Ltd has been commissioned by Lancashire County Council (the applicant) to undertake a Water Environment Regulations (WER) Assessment (formerly Water Framework Directive Assessment (WFD)) to accompany the planning application and development of the Environmental Statement (ES) for the proposed Cottam Parkway Railway Station (hereafter referred to as 'the Scheme').

This WER<sup>1</sup> assessment report has been prepared for the Scheme.

Compliance with the provisions of the legislation needs to be taken into account in the planning of all new activities in the water environment. The Environment Agency (EA), as competent authority in England, must exercise its relevant functions so as to secure compliance with the Regulations (including determining any authorisation for an Environmental Permit or a license to abstract or impound water), and so as best to secure the achievement of the following environmental objectives:

- a) measures should be put in place to prevent deterioration of the surface water status or groundwater status of a body of water (subject to the application of Regulations 18 and 19), and,
- b) measures should otherwise support the achievement of the environmental objectives set for a body of water (subject to the application of Regulations 16 to 19).

Regulations 16 to 19 set out: the conditions relevant to extended deadlines for environmental objectives (Regulation 16), setting less stringent environmental objectives (Regulation 17), natural causes of change (Regulation 18) and modifications to physical characteristics of waterbodies (Regulation 19).

### 1.1 Background

#### 1.1.1 Preventing Deterioration in Ecological Status or Potential

Under WER all waterbodies should meet good ecological status (GES) (or good ecological potential (GEP) if an artificial or heavily modified waterbody) by a set timeframe. Overall ecological status (or potential) is made up of a number of biological, hydromorphological and chemical quality characteristics called elements. The overall status is determined by the lowest element status.

Any activity which has the potential to have an impact on ecology will need consideration in terms of whether it could cause deterioration in the ecological status or potential of a waterbody. Because of this it is necessary to consider the possible changes associated with the proposed options for the Scheme.

Where there are sites protected under transposed and adopted regulations WER aims for compliance with any relevant standards or objectives for these sites, including for example Conservation of Habitats and Species Regulations (2017)<sup>2</sup>.

For those waterbodies that are not already in 'good' condition, specific mitigation measures have been set for each River Basin District (RBD) to achieve the environmental objectives of the WER. These measures are to mitigate impacts that have been or are being caused by human activity and to enhance and restore the quality of the existing environment. These mitigation measures will be delivered through the River Basin Management Plan (RBMP) which also identifies the different organisations responsible for their delivery.

<sup>1</sup> The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/407/contents/made>

<sup>2</sup> The Conservation of Habitats and Species Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

## **2. Outline of Scheme**

### **2.1 Site Location**

The Scheme is situated within a semi-rural area approximately 5.2km north-west of central Preston and to the immediate south-west of the largely residential area of Cottam. The central grid reference for the scheme is SD 48714 31645. Land use within the Scheme boundary comprises pastureland used for grazing and/or fodder production.

#### **2.1.1 Scheme Description**

The Scheme is shown in Figure 2-1.

Full details of the Scheme are provided in Chapter 3 'Description of the Scheme' in volume 2 of this ES. In summary, the Scheme includes:

- Construction of a new railway station including associated infrastructure and car parks (western and eastern;
- Cottam Link Road Roundabout, Access road and triple span, stone archway access road bridge over the Lancaster Canal; and,
- Associated surface water drainage system which discharges into surface waterbodies that are not classified under WER.

The proposed access road bridge would be a three-span design (see Figure 2-2) with the central span to cross the Lancaster Canal with a minimum headroom from the canal to soffit of the structure of 3.5m and with a 2.7m headroom clearance on the towpath. The width of this central span would be a total of 23.2m. A sheet pile wall would be extended along the canal for the full width of the proposed access road bridge, required to reinforce the bank for a new engineered bank side on the northern side. The northern and southern span would span over non-vehicular access tracks with a 3.0m clear headroom, the spans would be 12.8m wide each. The carriageway carried by the structure would comprise of a 1m hardened verge with two 3.25m wide lanes. The proposed design life of the main structural elements of the bridge is 120 years.

Figure 2-1 – Scheme

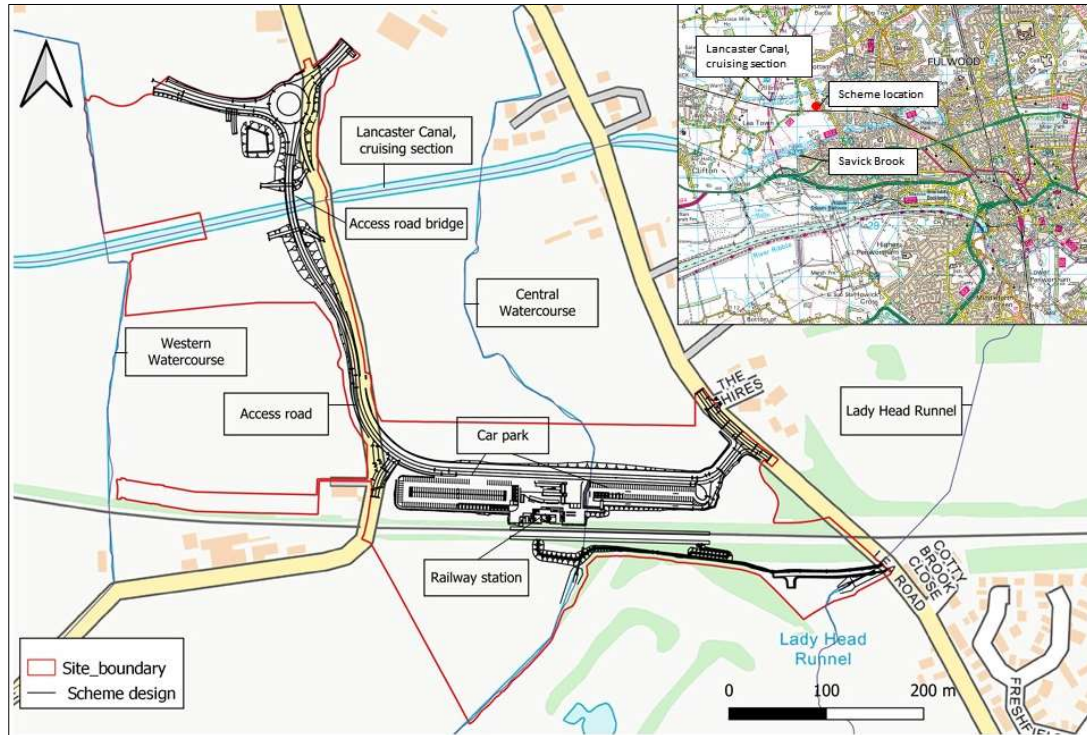
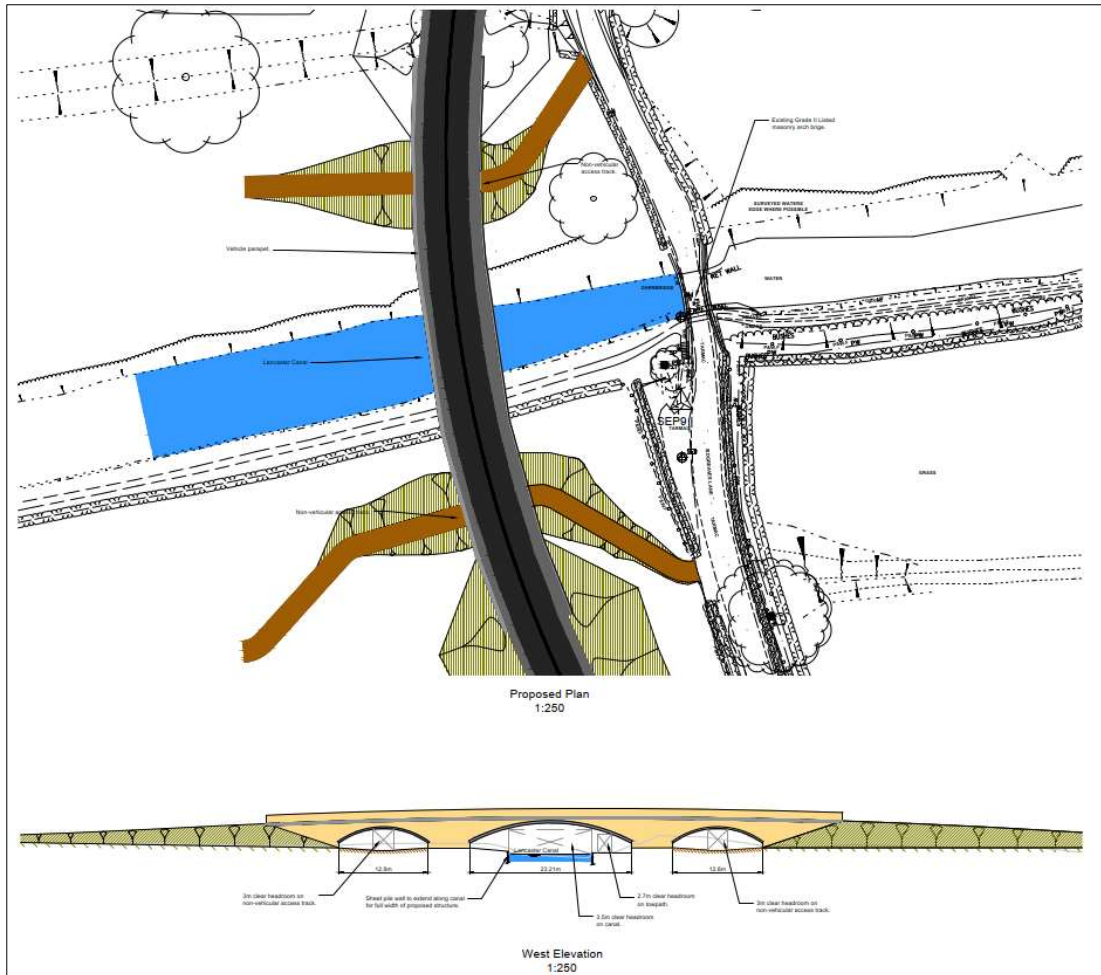


Figure 2-2 Proposed design of the access road bridge which crosses the Lancaster Canal, cruising section (GB GB71210228)



## 3. Methodology for Assessment

### 3.1 Assessment Stages

The following discrete stages need to be followed to complete the compliance assessment:

- **Data collection:** identification of relevant waterbodies potentially affected by the Scheme (section 4.1);
- **Screening:** identification of those elements of the Scheme that require assessment (section 4.2);
- **Scoping:** identifies the receptors and waterbody elements that are potentially at risk from the Scheme and need impact assessment (section 4.3); and,
- **Impact Assessment:** considers the potential impacts of the Scheme, identifies ways to avoid or minimise impacts, and indicates if the Scheme may cause deterioration or jeopardise the waterbody achieving GES or GEP (section 5).



## 4. Baseline Scoping

### 4.1 Data Collection

#### 4.1.1 Waterbodies in the Study Area

The Scheme is located within the Savick Brook and Fylde South Drains Operational Catchment, which is within the Ribble Management Catchment, and is covered by the North West Basin Management Plan (Environment Agency, 2018)<sup>3</sup>.

The EA's Catchment Data Explorer<sup>4</sup> was used to determine relevant waterbodies to the Scheme that have been classified under WER. These include:

- The Lancaster Canal, cruising section (GB71210228). This is the waterbody where the proposed works will take place.
- Savick Brook (GB112071065470). This waterbody is approximately 620m south of the Scheme.
- Fylde Permo-Triassic Sandstone Aquifer (GB41201G100500).

Further details on each WER classified waterbody are provided in section 4.1.2.

In addition to the WER waterbodies provided above, there are several ordinary watercourses that either pass through the Scheme or are in close proximity (see Figure 2-1). These include:

- unnamed drain to the west which is located approximately 610m west of the Scheme (not shown in Figure 2-1);
- unnamed watercourse (referred to as Western Ordinary Watercourse) which is located at the western boundary of the Scheme;
- unnamed watercourse (referred to as Central Watercourse) which flows through the site and is partly culverted under the proposed car park area. The existing culvert is due to be replaced as part of the Scheme design; and,
- Lady Head Runnel which is located towards the Scheme eastern site boundary.

All of the ordinary watercourses listed above, flow in a southerly direction and discharge into Savick Brook (GB112071065470).

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<sup>3</sup> Environment Agency (2018) North West River Basin District RBMP [Online]. Available at: <https://www.gov.uk/government/collections/river-basin-management-plans-2015> (Accessed September 2021).

<sup>4</sup> Environment Agency (2021a) *Catchment Data Explorer* [Online]. Available at: <https://environment.data.gov.uk/catchment-planning/> (Accessed September 2021).

#### 4.1.2 Water Environment Regulations Classified Waterbodies

##### The Lancaster Canal, cruising section

Figure 4-1: Lancaster canal, cruising section (Environment Agency, 2021b)<sup>5</sup>

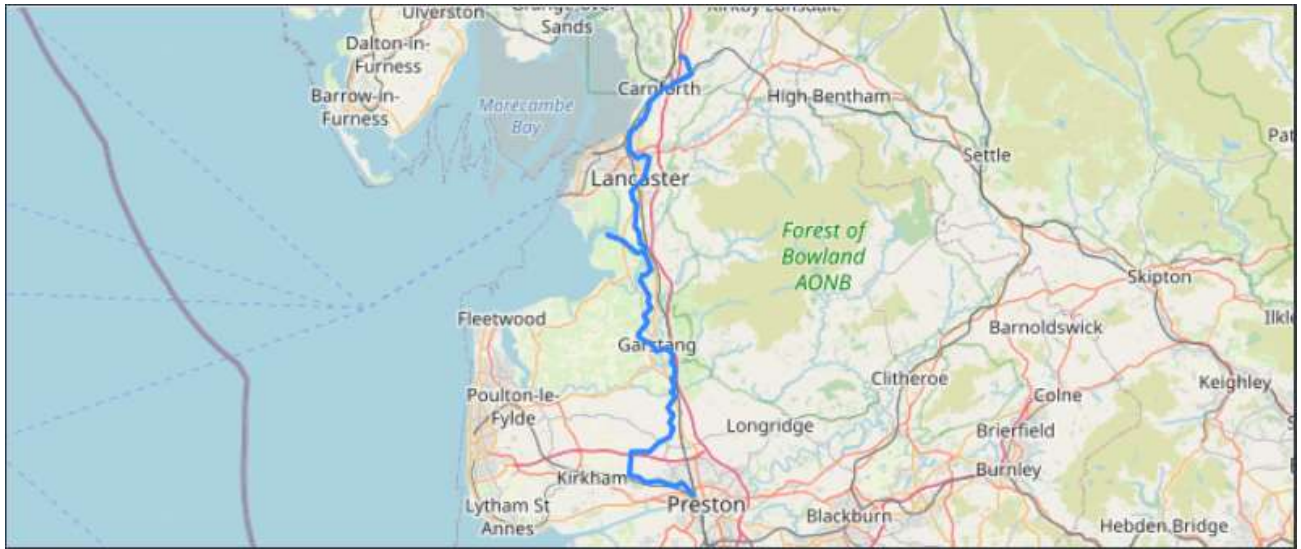


Table 4-1: Waterbody WER parameters for the Lancaster Canal, cruising section

Waterbody ID	GB71210228
Waterbody name	Lancaster Canal, cruising section
NGR	SD4674564910
Length (km)	71.514
Type	Canal
Hydromorphological designation	Artificial
Current overall status	Moderate
Status objective (overall)	Good by 2021
Reasons for not achieving good status:	Physical modification – Navigation including ports
Protected area designation and list of protected areas	N/A
Current ecological status and status objective	Moderate. Good by 2012

<sup>5</sup> Environment Agency (2021a) *Lancaster Canal, cruising section Water Body Overview* [Online]. Available at: <https://environment.data.gov.uk/catchment-planning/WaterBody/GB71210228> (Accessed September 2021).

Waterbody ID	GB71210228
Ecological supporting elements and status objective	Surface Water – Good by 2021 <ul style="list-style-type: none"> <li>Mitigation Assessment – Moderate or less</li> </ul>
Physico-chemical quality elements and status objective	High (Good by 2015) <ul style="list-style-type: none"> <li>Ammonia – High</li> <li>Temperature – High</li> <li>pH – High</li> </ul>
Chemical quality elements and status objective	Fail (Good by 2015) <ul style="list-style-type: none"> <li>Priority substances – Good</li> <li>Priority hazardous substances – Fail</li> </ul>

### Savick Brook

Figure 4-2: Savick Brook (Environment Agency, 2021c)<sup>6</sup>



Table 4-2: Waterbody WER parameters for Savick Brook (Environment Agency, 2021c)

Waterbody ID	GB112071065470
Waterbody name	Savick Brook
NGR	SD4884030460
Catchment area (km <sup>2</sup> )	38.783 km <sup>2</sup>
Length (km)	29.809 km
Type	River

<sup>6</sup> Environment Agency (2021c) *Savick Brook overview* [Online]. Available at: <https://environment.data.gov.uk/catchment-planning/WaterBody/GB112071065470> (Accessed September 2021).

Waterbody ID	GB112071065470
Hydromorphological designation	Heavily modified
Current overall status	Moderate
Status objective (overall)	Good by 2027
Reasons for not achieving good status:	<ul style="list-style-type: none"> <li>▪ Phosphate – Sewage discharge (intermittent)</li> <li>▪ Phosphate – Poor nutrient management</li> <li>▪ Phosphate – Misconnections</li> <li>▪ Invertebrates – Poor nutrient management</li> <li>▪ Invertebrates – Sewage discharge (intermittent)</li> <li>▪ Invertebrates – Misconnections</li> <li>▪ Ammonia (Phys-Chem) – Misconnections</li> <li>▪ Ammonia (Phys-Chem) – Sewage discharge (intermittent)</li> <li>▪ Ammonia (Phys-Chem) – Poor nutrient management</li> <li>▪ Mitigation Measures Assessment – Other (Local and central government)</li> <li>▪ Mitigation Measures Assessment – Other (Navigation)</li> <li>▪ Mitigation Measure Assessment – Other (Urban and Transport)</li> <li>▪ Fish – Inland boating and structures</li> </ul>
Protected area designation and list of protected areas	N/A
Hydromorphological supporting elements and status objective	Not assessed
Current ecological status and status objective	Moderate (Good by 2027)
Biological quality elements and status objective	<p>Moderate (Good by 2027)</p> <ul style="list-style-type: none"> <li>▪ Fish – Moderate (Good by 2027)</li> <li>▪ Invertebrates – Moderate (Good by 2027)</li> <li>▪ Macrophytes &amp; Phytobenthos Combined – Good (Good by 2015)</li> </ul>
Physico-chemical quality elements and status objective	<p>Moderate (Good by 2027)</p> <ul style="list-style-type: none"> <li>▪ Ammonia (Phys-Chem) - High</li> <li>▪ Dissolved Oxygen – High (Good by 2027)</li> <li>▪ Phosphate – Poor (Good by 2027)</li> <li>▪ Temperature – High (Good by 2015)</li> <li>▪ pH – High (Good by 2015)</li> </ul>
Chemical quality elements and status objectives	<p>Fail (Good by 2027)</p> <p>Priority Hazardous Substances – Fail (Does not require assessment)</p> <p>Priority substances – Good (Does not require assessment)</p>

### Fylde Permo-Triassic Sandstone Aquifers

Figure 4-3: Fylde Permo-Triassic Sandstone Aquifers (Environment Agency, 2021d)<sup>7</sup>



Table 4-3: Fylde Permo-Triassic Sandstone Aquifers WER groundwaterbody (Environment Agency, 2021d)

Groundwaterbody ID	GB41201G100500
Groundwaterbody name	Fylde Permo-Triassic Sandstone Aquifers
NGR	SD3998159692
Surface area (km <sup>2</sup> )	320.5
Groundwater area (ha)	32048.84
Current overall status	Poor
Status objective (overall)	Good by 2015
Protected area designation	<ul style="list-style-type: none"> <li>Fylde Permo-Triassic Sandstone Aquifers – Drinking Water Protected Area</li> </ul>
Quantitative Status	Poor. Good by 2015
Chemical Status	Good. Good by 2015 <ul style="list-style-type: none"> <li>Chemical and Drinking Water Protected Area – Good</li> <li>General Chemical test – Good</li> <li>Chemical GWDTes test – Good</li> <li>Chemical Dependent Surface Waterbody Status – Good</li> </ul>

<sup>7</sup> Environment Agency (2021d) *Fylde Permo-triassic sandstone aquifer overview* [Online]. Available at: <https://environment.data.gov.uk/catchment-planning/WaterBody/GB41201G100500> (Accessed September 2021).



<b>Groundwaterbody ID</b>	<b>GB41201G100500</b>
	<ul style="list-style-type: none"> <li>Chemical Saline Intrusion – Good</li> </ul>

#### 4.1.3 Upstream Water Environment Regulations Classified Waterbodies

A review of the EA's Catchment Data Explorer demonstrated there are no upstream waterbodies associated with the Lancaster Canal, cruising section (GB71210228), Savick Brook (GB112071065470) or Fylde Permo-Triassic Sandstone Aquifers (GB41201G100500). Based on this no further consideration is given to upstream WER waterbodies.

## 4.2 Screening of Scheme Components

The screening of the Scheme components is based on available Scheme design information at the time of writing. Screening should be reconsidered should there be any change to the Scheme design.

Providing that mitigation is in place during construction, the construction of the railway station and car park is not anticipated to have any detrimental impact on the WER classified waterbodies detailed in sections 4.1.1 and 4.1.2 due to the nature and scale of the works. The Scheme design includes a culvert extension on the Central Watercourse under the railway station car park. The culvert would be suitably designed in accordance with relevant culvert design guidance and is not considered to have an impact on the Central Watercourse. During operation, both the railway station and car park would be served by a suitable surface water drainage system which will prevent the deterioration of the unnamed water courses which discharge into Savick Brook (GB112071065470). This is further discussed below. Based on this, the construction and operation of the proposed railway station and car park is not considered further within this WER Compliance Assessment.

The proposed surface water drainage system includes several surface outfalls which discharge into the unnamed watercourses (Western Ordinary Watercourse, Central Watercourse and Lady Head Runnel) which are not classified under WER. Further outfalls discharge into the Lancaster Canal, cruising section (GB71210228). The provision of a suitable surface water drainage system would provide adequate treatment to prevent the deterioration of water quality within each of the receiving unnamed water courses which all discharge into Savick Brook (GB112071065470) south of the Scheme and the Lancaster Canal, cruising section (GB71210228). In addition, during construction, mitigation measures would be in place to prevent any deterioration due to construction activities. Based on this, it is not anticipated that the surface water drainage system will have impact on the unnamed watercourses which could propagate downstream to Savick Brook (GB112071065470). The provision of the surface water drainage system is not considered further as part of this WER Compliance Assessment.

As the proposed access road bridge has the capacity to influence the Lancaster Canal, cruising section (GB71210228) during construction and operation, it has been scoped into this WER assessment.

For the purposes of this WER Assessment, the Fylde Permo-Triassic Sandstone Aquifers (GB41201G100500) has been scoped out. This is due to the thickness of the overlying glacial till which has a moderate thickness of over 20m. All foundations and piling depths (maximum 10m) will be confined to the superficial layer and will therefore not intercept the underlying aquifer. However this will be subject to confirmation through a Piling Risk Assessment and/or a Hydrogeology Risk Assessment which will inform detailed design. Further information on hydrogeology is provided in Chapter 11 'Water Environment Assessment'.

## 4.3 Scoping of Waterbody Elements

Based on the screening exercise (section 4.2), the Lancaster Canal, cruising section (GB71210228) is the only WER classified waterbody considered with the potential to be impacted by the Scheme.

The waterbody elements scoped into the assessment (section 5), are:

- ecological supporting elements – surface water;
- physico-chemical quality elements (Ammonia, pH and Temperature); and,
- chemical quality elements (Priority substances and Priority hazardous substances).

## **5. Water Environment Regulations Assessment**

The site-specific impacts of the scheme on the biological and physicochemical quality elements of the Lancaster Canal, cruising section (GB71210228) are shown in the following tables:

- Table 5-1: Construction of the proposed access road bridge
- Table 5-2: Operation of the proposed access road bridge



Key to impact					
Negative		Negligible		Positive	

Table 5-1: Site specific impacts of the proposed access road bridge during construction

Scheme element	WER element likely to be impacted (and description of impact)	Possible ways to mitigate impact
<b>Construction of the proposed access road bridge.</b>		
<b>Lancaster Canal, cruising section (GB71210228)</b>		
Ecological supporting elements: Surface Water	<p>The construction of the access road bridge including associated earthworks may have a localised impact on surface water elements including macrophytes and channel-side vegetation from works associated with bridge construction and any associated vegetation clearance, depending on where they are located within proximity of the Scheme.</p> <p>Construction works could result in pollutants and sediment entering the canal in the absence of suitable pollution control measures, which could further impact on ecological supporting elements by altering dissolved oxygen, and/or contributing fines.</p> <p><b>Impact = negligible</b></p>	<p>Potential indirect impacts from construction stage of the development can be managed and no likely significant effects are anticipated on the Lancaster Canal, cruising section which would affect WER objectives.</p> <p>Compile and adhere to a Construction Environmental Management Plan (CEMP) and ensure materials do not pollute substrate or waterbody. Any channel-side vegetation clearance should be minimised where possible to maintain channel-side vegetation coverage. Earthworks should be vegetated as soon as possible to reduce increased amounts of sediment entering the canal. All pollution to be controlled under current legislation and best practice.</p>
Physico-chemical supporting elements: Ammonia, pH & temperature	<p>The nature and extent of the works are not anticipated to have any detrimental impacts on physico-chemical supporting elements. There is a risk that potential pollutants and materials used during construction could alter pH but this would be temporary and localised.</p> <p>Construction works could affect temperature if any works to facilitate bridge construction increase shading. Given the localised and temporary nature of the works, this is considered unlikely.</p> <p><b>Impact = negligible</b></p>	<p>Potential indirect impacts from construction stage of the development can be managed and no likely significant effects are anticipated on the Lancaster Canal, cruising section.</p> <p>Compile and adhere to a CEMP and ensure materials do not pollute substrate or waterbody. All pollution to be controlled under current legislation and best practice.</p>

Scheme element	WER element likely to be impacted (and description of impact)	Possible ways to mitigate impact
Chemical quality elements: Priority substances & Hazardous priority substances	<p>Potential negligible risk to from the exposure and mobilisation of contaminants from ground disturbance and chemical spillage during bridge construction works including fuel, concrete and other potential contaminants.</p> <p>In the absence of pollution prevention, there could be a temporary negative impact locally especially during sheet pile installation.</p> <p><b>Impact = negligible</b></p>	<p>Potential indirect impacts from construction stage of the development can be managed and no likely significant effects are anticipated on the water environment.</p> <p>Compile and adhere to a CEMP and ensure materials do not pollute substrate or waterbody. All pollution to be controlled under current legislation and best practice.</p>

Table 5-2: Site specific impacts of the proposed access road bridge during operation

Scheme element	WER element likely to be impacted (and description of impact)	Possible ways to mitigate impact
<b>Construction of the proposed access road bridge.</b>		
<b>Lancaster Canal, cruising section (GB71210228)</b>		
Ecological supporting elements: Surface Water	No impacts are anticipated during the operation of the access road bridge.	N/A.
Physico-chemical supporting elements: Ammonia, pH & temperature	<p>The operation of the proposed bridge is not considered to have any significant impact on physico-chemical supporting elements. The placement of the bridge structure may result in a localised change in temperature due to increased shading, but this will be local to the bridge location.</p> <p><b>Impact = negligible</b></p>	None proposed.
Chemical quality elements: Priority substances & Hazardous priority substances	<p>In the absence of suitable pollution control measures, there could be potential negligible risk to from the exposure and mobilisation of contaminants from vehicular movements over the bridge associated with fuel leaks.</p> <p><b>Impact = negligible</b></p>	The bridge deck will be served by a suitable surface water drainage system which will provide suitable treatment to reduce the risk of polluting substances entering the canal.

## 6. Conclusions

Overall, the assessment of site-specific impacts presented in Table 5-1 and Table 5-2 has demonstrated that there are no identified adverse impacts measured under the WER assessment for the main waterbody – the Lancaster Canal, cruising section (GB71210228).

Compliance with the key objectives against which the impacts of proposed works on a waterbody need to be assessed are outlined below in Table 6-1. The Scheme is unlikely to cause deterioration to WER status elements and, therefore, a detailed assessment is not required.

Table 6-1: Compliance with the environmental objectives of the WER

Environmental objective	Scheme	Compliance with the WER
No changes affecting high status sites.	None of the options considered will cause a change to the high status sites in the Study Area.	Yes.
No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential.	The Scheme options will not cause deterioration in the status of the of the waterbodies.	Yes.
No changes which will permanently prevent or compromise the Environmental Objectives being met in other waterbodies.	The Scheme options will not cause a permanent exclusion or compromise achieving the WER objectives in other bodies of water within the same River Basin District (RBD).	Yes.
No changes that will cause failure to meet good groundwater status or result in a deterioration groundwater status.	The Scheme options will not cause deterioration in the status of the waterbodies.	Yes.

The assessment has been based on available design information. The assessment should be revisited upon any fundamental changes to the design of the Scheme.