

## 6 Environmental risk assessment

### Geology and Aquifers

The bedrock geology is that of the Sherwood Sandstone Group, consisting of red, yellow, and brown part pebbly sandstones which is conglomeratic towards the base. Subordinate red mudstones and siltstones are found in the bedrock. Except for the northwest side of the site, the superficial deposits are those of the Naburn Sand Member. These consist of mottled brownish yellow, yellowish brown, brown and grey silty, sporadically clayey fine to coarse sand. The northwest of the site contains alluvium.

The bedrock aquifer is a principal aquifer. The superficial aquifer is secondary (undifferentiated). There are no groundwater source protection zones within 1km of the site.

### Surface Water

The River Ouse is located directly to the west (~35 m) of the site. ~150 m to the south, connected to the River Ouse, is a marina. There are a number of drains which surround the site, including 190 m east, 619 m east, a drain also runs through the site.

### The Surrounding Area

There are three Sites of Special Scientific Interests (SSSI) within 2 km of the site – Naburn Marsh which is ~300 m to the north, Church Ings which is ~780 m to the south west and Fulford Ings which is ~1,340 m to the north east. Additionally, there are three Special Areas of Conservation (SAC), one Special Protection Area (SPA) and one Ramsar site within 10 km of the site- River Derwent (SAC) which is ~9,480 m to the east, Skipworth Common (SAC) which is ~9,606 m to the south east and Lower Derwent Valley (SAC, SPA & Ramsar) which is ~9,480 m to the south east. There are no Local or National Nature Reserves or ancient woodlands within 2 km of the site.

Naburn Sewage Treatment Works lies right next to a B road (B1222) on its eastern side and is situated ~740 m south of the A64. To the east of the site is farmland containing a farmhouse (~350 m from the site). ~270 m to the north east is a small row of houses, next to a shopping centre (~365 m to the north east), with a further residential centre ~1.09 km to the north east (Fulford). ~220 m to the west of the site, over the River Ouse, is a residential area (Bishopthorpe) that extends parallel to the site and river. The area contains a playground (~610 m to the west), a junior school (~985 m to the west, Archbishop of York’s Church of England Junior School) and an infant school (~990 m to the west, Bishopthorpe Infant School). ~670 m to the south is another residential area (Naburn) which contains a primary school (~890 m from the site, Naburn Church of England Primary School). ~1.16 km to the south west of the site is another residential area (Acaster Malbis). The Trans Pennine trail (~75 m to the south west) and Milbridge Farm Caravan Park (~440 m to the south east) are also in proximity.

**Table** Error! No text of specified style in document.-1. Potential receptors, distance and direction from Naburn Sewage Treatment Works

Site Name	Direction from site	Distance from site
Principal Bedrock Aquifer	N/A	N/A
Secondary (Undifferentiated) Superficial Aquifer	N/A	N/A
River Ouse	West	35 m
Marina	South	150 m
Trans Pennine Trail	South	75 m
Naburn Marsh (SSSI)	North	300 m
Church Ings (SSSI)	South west	780 m
Fulford Ings (SSSI)	North East	1,340 m
River Derwent (SAC)	East	9,480 m
Lower Derwent Valley (SAC, SPA & Ramsar)	South East	9,480 m

Site Name	Direction from site	Distance from site
Skipworth Common (SAC)	Southeast	9,606 m
Residential Receptors	West, northeast, east, south, northeast, south west	220 m, 270 m, 350 m, 670 m, 1,090 m, 1,160 m
Schools	South, west, west	890 m, 985 m, 990 m
Playground	West	610 m
Commercial receptor	Northeast	365 m
Caravan and Camping Park	Southeast	440 m

Data taken from MAGIC.gov.uk website, accessed June 2021. For habitat sites, the relevant distance for consideration are: International designations (SAC, MPA, SPA and Ramsar - 10km); National designations (SSSI – 2km); Local nature reserves (LNR) and ancient woodlands (AW) (2km). [Data on local wildlife sites and protected species provided by the Environment Agency.](#)

There is a local wildlife site (LWS) within the 2km of the site and protected species (unidentified) within 2km of the site.

## Site History

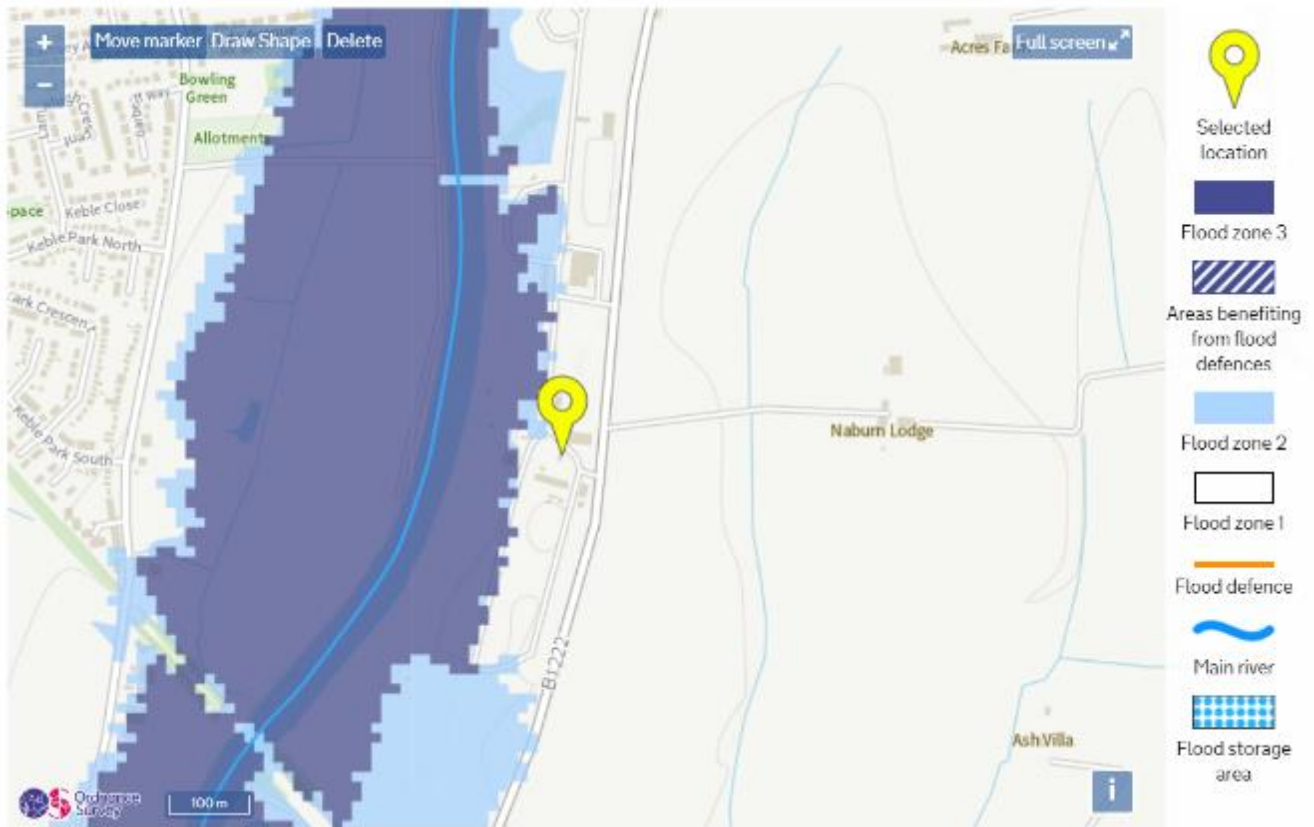
In 1851, the site was nothing more than farmland with a road travelling from Fulford in the north to Naburn in the south. By 1893, the site still hadn't been developed but the NER York and Doncaster railway line had been built directly to the south of the would-be site. By 1908, a small sewage works had been developed on the site, and to the north east an Asylum had been built. Over time (by 1938, 1958 and then 1966) the sewage works increased in size, and the Asylum evolved into a hospital. Between 1966 and 1982 the marina to the south of the site and railway was built, connected to the River Ouse to the south. By 1985, the railway had been dismantled. Today, the old railway bed now constitutes a part of the Trans Pennine trail and the hospital site has been developed into a shopping centre. The marina to the south of the site remains.

Data taken from oldmapsonline.org, accessed May 2021.

## Flooding

The whole site lies within Flood Zone 1 with a low probability of flooding from rivers (<1:1000 annual probability of flooding). Small parts of the western side of the site, particularly the north west and south west, lie within Flood Zone 2 with a medium probability of flooding from rivers (1:100 – 1:1000 annual probability of flooding). The remainder of the western side lies within Flood Zone 3 with a high probability of flooding from rivers (>1:100 annual probability of flooding). Surface water flooding for the site is very low.

Figure Error! No text of specified style in document..1. Flood risk map



Flood risk map taken from Gov.uk Flood Map for Planning, accessed 17<sup>th</sup> May 2021.

An environmental risk assessment of the site changes has been carried out in line with the requirements of the Horizontal Guidance Note H1 and Guidance given on gov.uk. This guidance specifies the following approach to carrying out an environmental risk assessment for a proposed activity:

- Identify potential risks that your activity may present to the environment;
- Screen out those that are insignificant and don't need detailed assessment;
- Assess potentially significant risks in more detail if needed;
- Choose the right control measures, if needed; and
- Report your assessment.

**Table Error! No text of specified style in document.-2. Environmental Risk Assessment**

Consideration		Receptors	Discussion	Detailed Environmental Risk Assessment?	Additional Mitigation Required
Fugitive Emissions	Litter	<p>Human health receptors: there are residential areas 800m north west and 1390m east.</p> <p>220 m west, 270 m north east, 350 m east, 670 m south, 1,090 m north east, 1,160 m south west.</p> <p>The nearest school is approximately 890 m south.</p> <p>Designations: Naburn Marsh SSSI is ~300 m to the north, Church Ings (SSSI) is ~780 m to the south west and Fulford Ings (SSSI) is ~1,340 m to the north east.</p> <p>Additionally, River Derwent (SAC) is ~9,480 m to the east, Skipworth Common (SAC) is ~9,606 m to the south east and Lower Derwent Valley (SAC, SPA &amp; Ramsar) is ~9,480 m to the south east. There are no NNRs or LNRs within 2km of the site.</p> <p><b>There is a local wildlife site and protected species designations within 2km of the site</b></p> <p>The site is surrounded by the River Ouse to the west (35 m), the B1222 to the east, farmland in all directions and a marina to the south (150 m).</p>	The facility does not produce waste which results in litter	No	N/A
	Vermin and Pests	For human health receptors, see notes for Litter above.	The waste produced does not typically attract pests and vermin and is well contained	No	N/A
	Dust	For human health receptors, see notes for Litter above.	The facility handles wet wastes which do not result in dusts	No	N/A
Point source emissions to air Emissions deposited from air to land		For human health receptors, see notes for Litter above.	There are no point source emissions to air from these activities	No	N/A
Point source and fugitive emissions to water		<p>The River Ouse is located directly to the west (~35 m) of the site.</p> <p>~150 m to the south, connected to the River Ouse, is a marina.</p> <p>There are a number of drains which surround the site, including 190 m east, 619 m east, a drain also runs through the site.</p>	<p>There are no point source or fugitive emissions to water associated with the permitted activities.</p> <p>Drainage within the works is directed to the 'head of the works'</p>	No	Waste pre-acceptance and acceptance checks for all incoming wastes to minimise the risk of unacceptable

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?	Additional Mitigation Required
	<p>The wider site drainage is returned to the head of the site for treatment.</p> <p>The permitted area of the site sits within Flood Zones 3, 2 and 1 and is within an area which benefits from flood defences.</p>	<p>Discharges of treated effluent from the WWTW are not covered under the Waste Framework Directive and are not included in the works associated with this permit application.</p> <p>There is a risk to processes on site in the event that inappropriate effluent streams are introduced to the works causing inhibition of treatment processes</p>		loads being delivered, impacting on the treatment processes on site
Odour	<p>Onsite workers and contractors. For human health and ecological receptors, see notes for Litter above.</p>	<p>There is the potential for odorous effluent to be accepted at the site via tanker, however pre-acceptance checks should minimise this risk. Direct discharges into the 'head of the works' result in rapid mixing of effluent with the main works flow and dilution of any odour potential</p> <p><b>KJ to Update</b></p>	Yes	<p>Mitigations are summarised in the odour risk assessment (Table 5-5)</p> <p><b>The tankered import activity and the WwTW is covered by two separate odour management plans</b></p>
Noise and Vibration	<p>Onsite workers and contractors. For human health and ecological receptors, see notes for Litter above.</p>	<p>The primary source of noise at the site is vehicular. All plant has been chosen to be low noise and white noise squawkers have been used in preference to beepers.</p> <p>There is no history of noise related complaints at the site.</p>	No	N/A
Accidents	<p>Onsite workers and contractors. For human health and ecological receptors, see notes for Litter above.</p> <p>Principal Aquifers in bedrock underlying the site.</p>	<p>There is potential for release of unauthorised waste or wastes of unknown composition into the treatment system, which could potentially lead to the treatment system not working correctly or requiring maintenance, as well as implications for sludge produced.</p> <p>There is potential for accidental spills and leaks of waste to the ground surface. This could lead to a potential risk to the sensitive aquifer</p>	Yes	<p>The site has emergency plans and protocols within its EMS to reduce and minimise risk.</p> <p>Pre-acceptance and acceptance procedures within the management system are in place to minimise risk of accidental input of unauthorised waste. Mitigations are summarised</p>

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?	Additional Mitigation Required
		and surface waters in the surrounding area.		in the environmental accident assessment and accident management plan (Table 5-6)
Waste compatibility	UWWT derived flow within the works, the biological, chemical and physical processes within the WwTW and output quality (sludges and final effluent)	<p>Yorkshire Water has a robust waste pre-acceptance and acceptance procedure, which is linked to both site access for tankers and also offloading point operation by means of key fob controlled loggers.</p> <p>All potential tankered effluents are subject to an assessment before permission to deposit is granted, with more detailed assessments being carried out on more complex or variable effluents.</p> <p>Incoming loads are subject to monitoring, including periodic random sampling and testing to check for compliance.</p> <p>All offloading points equipped with appropriate hoses and coupling to reduce the risk of misconnections and spillages.</p>	No	N/A
Habitats and Protected Species	There are several habitat sites, including a SSSI, local wildlife site and protected species within the screening distance.	There are no emissions to air, water or land arising from this waste activity, therefore no wider impact on protected areas or species near to site. All imports are treated within the adjacent sewage works and in accordance with its discharge permit. The activity	No	N/A

## Appendix 1 – Part B4 Question 3 – Table 3A

Table 3a – Technical standards		
Description...	Appropriate measure	Document reference (if applicable)
Non-hazardous and inert waste: appropriate measures for permitted facilities	When appropriate measures apply	
	General management appropriate measures	All parts complied with, see section on EMS in application.
	Waste pre-acceptance, acceptance and tracking	Parts 1 and 2 are met using the method statements in Appendix D of the application.  Part 3 is not met as non-conforming wastes are not offloaded and returned to sender  Part 4 is not met as wastes discharged into main urban waste water flow on offloading
	Waste storage	N / A – No storage of waste on site
	Waste treatment	General principles met through operators EMS  Sections 1 – 3 are not applicable to the processes on site.
	Emissions control	Only section 4 applicable to processes on site and are met using the sites waste pre-acceptance and acceptance method statement. Final outputs assessed as part of the sites water discharge environmental permit (separate to this permit)
	Emissions monitoring and limits	Only section 3 is applicable and covered by a separate environmental permit (EPR/NE/27/24/0124/013)
	Process efficiency appropriate measures	Not applicable to non-installations
	Waste minimisation, recovery and disposal	Covered by compliance with sites EMS

**SITE CONDITION REPORT – Naburn WwTW Imported  
Tankered Trade Waste**

For full details, see H5 *SCR guide for applicants* v2.0 4 August 2008

**COMPLETE SECTIONS 1-3 AND SUBMIT WITH APPLICATION**

**DURING THE LIFE OF THE PERMIT: MAINTAIN SECTIONS 4-7**

**AT SURRENDER: ADD NEW DOC REFERENCE IN 1.0; COMPLETE SECTIONS 8-10; &  
SUBMIT WITH YOUR SURRENDER APPLICATION.**



<b>1.0 SITE DETAILS</b>	
Name of the applicant	Yorkshire Water Ltd
Activity address	Naburn Waste water Treatment Works Naburn, York, YO19 4RN
National grid reference	SE 60601 46876
Document reference and dates for Site Condition Report at permit application and surrender	Permit application, June 2021.
Document references for site plans (including location and boundaries)	Please see drawings within permit application supporting document

**Note:**

In Part A of the application form you must give us details of the site's location and provide us with a site plan. We need a detailed site plan (or plans) showing:

- Site location, the area covered by the site condition report, and the location and nature of the activities and/or waste facilities on the site.
- Locations of receptors, sources of emissions/releases, and monitoring points.
- Site drainage.
- Site surfacing.

If this information is not shown on the site plan required by Part A of the application form then you should submit the additional plan or plans with this site condition report.

<b>2.0 Condition of the land at permit issue</b>	
Environmental setting including: <ul style="list-style-type: none"> <li>• geology</li> <li>• hydrogeology</li> <li>• surface waters</li> </ul>	<p>The permitted area sits within flood zone 1, although areas of the wider sewage treatment works sit in flood zones 2 and 3.</p> <p>The permitted activities are separated from the River Ouse to the west, by the wider sewage treatment works, operated by the permit holder.</p> <p>The bedrock below the site is Sherwood sandstone group, with superficial deposits of the Naburn sand member.</p>

	<p>The bedrock is classified as a primary aquifer and the superficial geology as a secondary (undifferentiated) aquifer.</p> <p>The site sits outside any source protection zone for groundwater.</p>
<p>Pollution history including:</p> <ul style="list-style-type: none"> <li>• pollution incidents that may have affected land</li> <li>• historical land-uses and associated contaminants</li> <li>• any visual/olfactory evidence of existing contamination</li> <li>• evidence of damage to pollution prevention measures</li> </ul>	<p>Historic maps show that prior to 1908 the site was farmland, although the road to the east of the site was in existence before 1851 and by 1893 the rail line was built to the south of the site.</p> <p>By 1908 a small sewage works is shown on the maps, along with an asylum to the north east of the site. Further maps in 1938; 1958; and 1966, show that the sewage works has increased in size and complexity. A marina was constructed to the south of the site between 1966 and 1982 which remains in use at present.</p> <p>The railway line was unused and dismantled by 1985 and is now a long distance trail (Transpenine trail). The asylum became a hospital and has now been demolished and replaced by a shopping centre.</p>
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	None
Baseline soil and groundwater reference data	None collected. This data is not relevant to this permit application because there is no risk to ground or water. The tanker import point and delivery area is located on fully impermeable surface and there is drainage back to the head of the WwTW for treatment. As there is no pathway to soil or groundwater, a baseline is not required.
<b>Supporting information</b>	No historic supporting information included, Yorkshire Water will use internal drawings to identify any issues. Area of land within the permit boundary is impermeable and no waste storage undertaken.

<b>3.0 Permitted activities</b>	
Permitted activities	Offloading of tanker trade waste into site inlet, for treatment within the main works flow. There is no storage of waste within the permit.
Non-permitted activities undertaken	Operation of wider sewage treatment works

<p>Document references for:</p> <ul style="list-style-type: none"> <li>• plan showing activity layout; and</li> <li>• environmental risk assessment.</li> </ul>	<p>See permit application supporting documents including revised environmental risk assessment</p>
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**Note:**

In Part B of the application form you must tell us about the activities that you will undertake at the site. You must also give us an environmental risk assessment. This risk assessment must be based on our guidance (*Environmental Risk Assessment - EPR H1*) or use an equivalent approach.

It is essential that you identify in your environmental risk assessment all the substances used and produced that could pollute the soil or groundwater if there were an accident, or if measures to protect land fail.

These include substances that would be classified as 'dangerous' under the Control of Major Accident Hazards (COMAH) regulations and also raw materials, fuels, intermediates, products, wastes and effluents.

If your submitted environmental risk assessment does not adequately address the risks to soil and groundwater we may need to request further information from you or even refuse your permit application.

4.0 Changes to the activity	
Have there been any changes to the activity boundary?	If yes, provide a plan showing the changes to the activity boundary.
Have there been any changes to the permitted activities?	If yes, provide a description of the changes to the permitted activities
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities?	If yes, list of them
<b>Checklist of supporting information</b>	<ul style="list-style-type: none"> <li>• Plan showing any changes to the boundary (where relevant)</li> <li>• Description of the changes to the permitted activities (where relevant)</li> <li>• List of 'dangerous substances' used/produced by the permitted activities that were not identified in the Application Site Condition Report (where relevant)</li> </ul>

5.0 Measures taken to protect land	
Use records that you collected during the life of the permit to summarise whether pollution prevention measures worked. If you can't, you need to collect land and/or groundwater data to assess whether the land has deteriorated.	
<b>Checklist of supporting information</b>	<ul style="list-style-type: none"> <li>• Inspection records and summary of findings of inspections for all pollution prevention measures</li> <li>• Records of maintenance, repair and replacement of pollution prevention measures</li> </ul>

6.0 Pollution incidents that may have had an impact on land, and their remediation	
Summarise any pollution incidents that may have damaged the land. Describe how you investigated and remedied each one. If you can't, you need to collect land and /or groundwater reference data to assess whether the land has deteriorated while you've been there.	
<b>Checklist of supporting information</b>	<ul style="list-style-type: none"> <li>• Records of pollution incidents that may have impacted on land</li> <li>• Records of their investigation and remediation</li> </ul>

## 7.0 Soil gas and water quality monitoring (where undertaken)

Provide details of any soil gas and/or water monitoring you did. Include a summary of the findings. Say whether it shows that the land deteriorated as a result of the permitted activities. If it did, outline how you investigated and remedied this.

<b>Checklist of supporting information</b>	<ul style="list-style-type: none"> <li>• Description of soil gas and/or water monitoring undertaken</li> <li>• Monitoring results (including graphs)</li> </ul>
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## 8.0 Decommissioning and removal of pollution risk

Describe how the site was decommissioned. Demonstrate that all sources of pollution risk have been removed. Describe whether the decommissioning had any impact on the land. Outline how you investigated and remedied this.

<b>Checklist of supporting information</b>	<ul style="list-style-type: none"> <li>• Site closure plan</li> <li>• List of potential sources of pollution risk</li> <li>• Investigation and remediation reports (where relevant)</li> </ul>
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## 9.0 Reference data and remediation (where relevant)

Say whether you had to collect land and/or groundwater data. Or say that you didn't need to because the information from sections 3, 4, 5 and 6 of the Surrender Site Condition Report shows that the land has not deteriorated.

If you did collect land and/or groundwater reference data, summarise what this entailed, and what your data found. Say whether the data shows that the condition of the land has deteriorated, or whether the land at the site is in a "satisfactory state". If it isn't, summarise what you did to remedy this. Confirm that the land is now in a "satisfactory state" at surrender.

<b>Checklist of supporting information</b>	<ul style="list-style-type: none"> <li>• Land and/or groundwater data collected at application (if collected)</li> <li>• Land and/or groundwater data collected at surrender (where needed)</li> <li>• Assessment of satisfactory state</li> <li>• Remediation and verification reports (where undertaken)</li> </ul>
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## 10.0 Statement of site condition

Using the information from sections 3 to 7, give a statement about the condition of the land at the site. This should confirm that:

- the permitted activities have stopped
- decommissioning is complete, and the pollution risk has been removed
- the land is in a satisfactory condition.