



Land off George Street, Milnsbridge, Huddersfield
Flood Risk Assessment

For SKA Property Management Company Limited

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Project	Flood Risk Assessment
Client	SKA Property Management Company Limited
Status	Final
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Date	August 2025

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EXECUTIVE SUMMARY

The Site would be expected to remain dry in all but the most extreme conditions. The consequences of flooding are acceptable, and the development would be in accordance with the requirements of the National Planning Policy Framework (NPPF). The Proposed Development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of the NPPF.

The Proposed Development should not therefore be precluded on the grounds of flood risk or drainage.

1.0 INTRODUCTION

1.1 Background

This Flood Risk Assessment (FRA) has been prepared by KRS Enviro at the request of SKA Property Management Company Limited to support a planning application for the regularisation of an industrial open storage, and parking area and replacement palisade fencing (“the Proposed Development”) on land off George Street, Milnsbridge, Huddersfield (“the Site”).

This FRA has been carried out in accordance with guidance contained in the National Planning Policy Framework (NPPF)¹, associated Planning Practice Guidance on flood risk and coastal change² (PPG) and the PPG ‘Site-specific flood risk assessment checklist’. This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

It is recognised that developments which are designed without regard to flood risk may endanger lives, damage property, cause disruption to the wider community, damage the environment, be difficult to insure and require additional expense on remedial works. The development design should be such that future users will not have difficulty obtaining insurance or mortgage finance, or in selling all or part of the development, as a result of flood risk issues.

1.2 National Planning Policy Framework (NPPF)

One of the key aims of the NPPF is to ensure that flood risk is taken into account at all stages of the planning process; to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk.

It advises that where new development is exceptionally necessary in areas of higher risk, this should be safe, without increasing flood risk elsewhere, and where possible, reduce flood risk overall. A risk-based approach is adopted at stages of the planning process, applying a source pathway receptor model to planning and flood risk. To demonstrate this, an FRA is required and should include:

- whether a Proposed Development is likely to be affected by current or future flooding from all sources;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate;
- if necessary, provide the evidence to the Local Planning Authority (LPA) that the Sequential Test can be applied; and
- whether the development will be safe and pass part c) of the Exception Test if this is appropriate.

The report findings are based upon professional judgement and are summarised below with detailed recommendations provided at the end of the report. The report includes rainfall data from the Flood Estimation Handbook (FEH) and hydrogeological information from the British

¹ Ministry for Housing, Communities and Local Government (2021) National Planning Policy Framework: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

² Communities and Local Government (2022) Planning Practice Guidance - Flood Risk and Coastal Change: <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

Geological Survey (BGS). The assessment will summarise and refer to these datasets in the text.

1.3 Report Structure

This FRA has the following report structure:

- Section 2 describes the location and the existing and Proposed Development;
- Section 3 outlines the flood risk to the existing and Proposed Development;
- Section 4 details the proposed surface water drainage for the Site and assesses the potential impacts of the Proposed Development on surface water drainage;
- Section 5 outlines the mitigation measures used to reduce the overall level of flood risk;
- Section 6 details the Sequential and Exception Tests; and
- Section 7 presents a summary and conclusions.

2.0 LOCATION & DEVELOPMENT DESCRIPTION

2.1 Site Location

The Site is located on land off George Street, Milnsbridge, Huddersfield (see Figure 1). The National Grid Reference (NGR) of the Site is 411988, 416047.

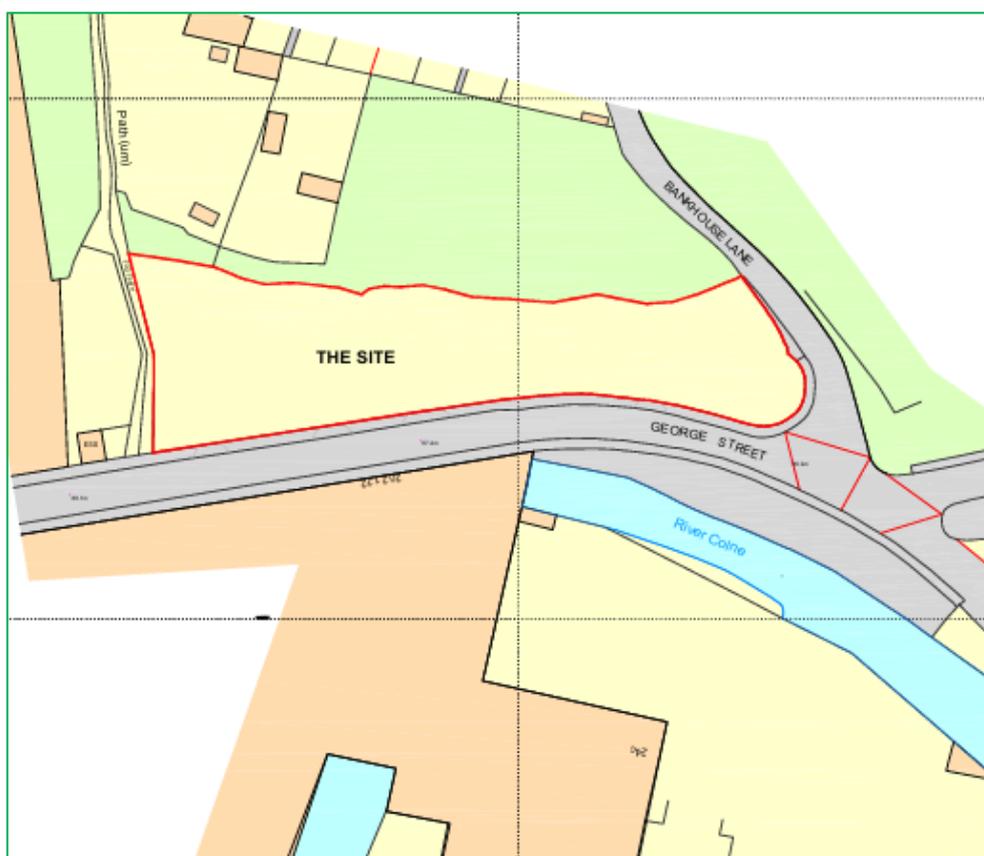


Figure 1 - Site Location

2.2 Existing Development

The existing Site consists of an industrial open storage and parking area (see Appendix 1).

2.3 Proposed Development

It is understood the Proposed Development is for the regularisation of the existing industrial open storage, and parking area and replacement palisade fencing (see Appendix 1). Further details with regard to the Proposed Development can be found in the accompanying information submitted with the planning application.

2.4 Ground Levels

A topographical survey has recently been undertaken (see Appendix 2). The Site is relatively level with a minimum ground level of 87.08 metres Above Ordnance Datum (mAOD) to the south and a maximum ground level of 88.36mAOD to the northwest.

2.5 Catchment Hydrology

The River Colne flows approximately 10m to the southeast of the Site and the Huddersfield Narrow Canal is located approximately 210m to the south of the Site. The Longwood Brook, a tributary of the River Colne, is culverted to the west of the Site however, the closest open section of this watercourse is located approximately 390m to the northwest of the Site.

2.6 Ground Conditions

The British Geological Survey (BGS) map³ shows that the bedrock deposits underneath the Site consist of the Rossendale Formation - mudstone and siltstone. The superficial deposits consist of Alluvium - clay, silt, sand and gravel. Information from the National Soil Resources Institute⁴ details the Site area as being situated on freely drainage slightly acid loamy soils.

³ https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.14476159.932338379.1655890995-1831306757.1655472887

⁴ <http://www.landis.org.uk/soilscapes/>

3.0 FLOOD RISK

3.1 Sources of Flooding

All sources of flooding have been considered, these are; fluvial (river) flooding, tidal (coastal) flooding, groundwater flooding, surface water (pluvial) flooding, sewer flooding and flooding from artificial drainage systems/infrastructure failure.

3.2 Environment Agency

Information regarding the current flood risk at the application Site and local flood defences has been obtained from the Environment Agency (see Appendix 3).

3.3 Climate Change

Projections of future climate change, in the UK, indicate more frequent, short-duration, high intensity rainfall and more frequent periods of long duration rainfall. Guidance included within the NPPF recommends that the effects of climate change are incorporated into FRA's. Recommended precautionary sensitivity ranges for peak rainfall intensities and peak river flows are outlined in the flood risk assessments: climate change allowances guidance⁵.

The flood risk assessments: climate change allowances guidance recommends that for 'less vulnerable' that the central allowances are used to assess climate change throughout the lifetime of the development which is 75 years. Table 1 shows the peak river flow allowances by river catchment therefore, the fluvial design event for the Site is the 1 in 100 year (+23%) event.

Table 1 - Peak River Flow Allowances by River Catchment

River Catchment	Allowance Category	2020s	2050s	2080s
Aire & Calder Management Catchment	Upper	+24%	+31%	+51%
	Higher	+15%	+18%	+31%
	Central	+11%	+13%	+23%

3.4 Environment Agency Flood Zones

A review of the Environment Agency's Flood Zones indicates that the majority of the Site is located within Flood Zone 1 and therefore has a 'low probability' of flooding with less than a 1 in 1000 annual probability of river flooding in any year (<0.1%), as shown in Figure 2. However, an area of the Site, to the southwest, is located within Flood Zone 2 and therefore has a 'medium probability' of flooding.. Flood Zone 2 has a between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) in any year.

The Flood Zones are the current best information on the extent of the extremes of flooding from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development. They show the worst case scenario.

The Environment Agency Flood Zones and acceptable development types are explained in Table 2. Table 2 shows that most development types are generally acceptable in Flood Zones 1 and 2.

⁵ <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#high-allowances>

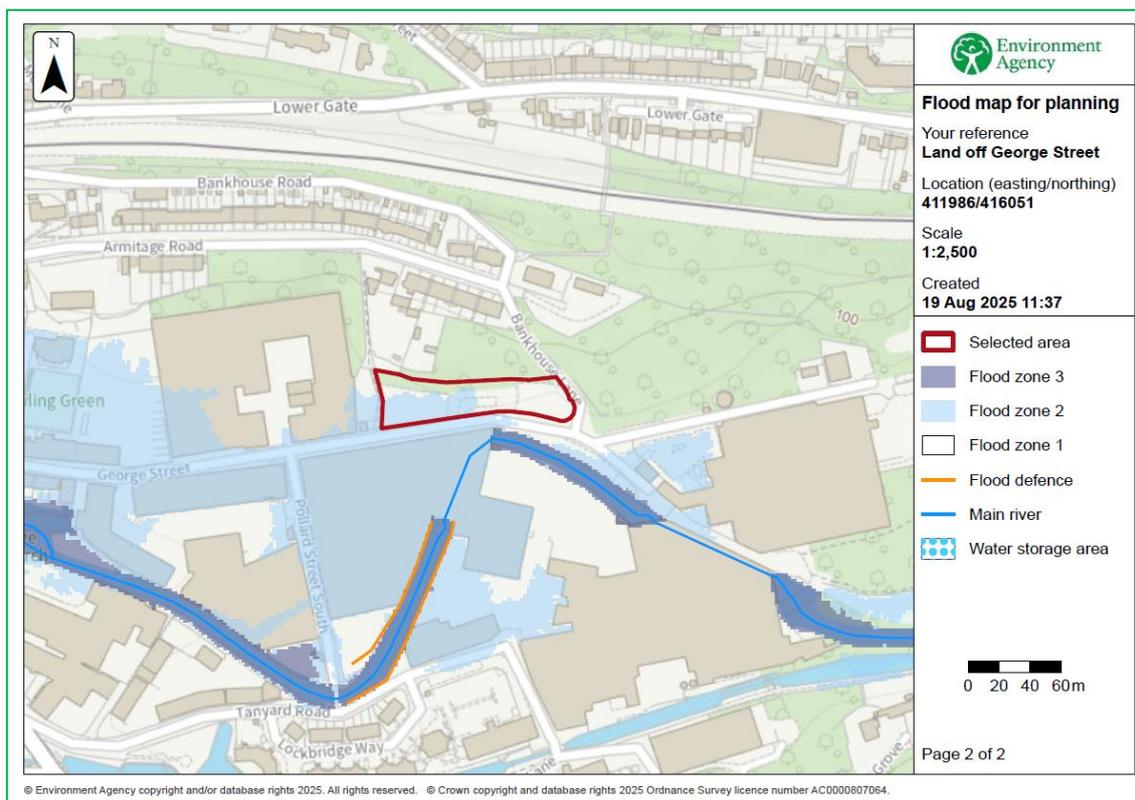


Figure 2 - Environment Agency Flood Zones

Table 2 - Environment Agency Flood Zones and Appropriate Land Use

Flood Zone	Probability	Explanation	Appropriate Land Use
Zone 1	Low	Less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%)	All development types generally acceptable
Zone 2	Medium	Between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% 0.1%) in any year	Most development type are generally acceptable
Zone 3a	High	A 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year	Some development types not acceptable
Zone 3b	'Functional Floodplain'	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: <ul style="list-style-type: none"> land having a 3.3% or greater annual probability of flooding, with any existing flood risk 	Some development types not acceptable

		<p>management infrastructure operating effectively; or</p> <ul style="list-style-type: none"> land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). <p>Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)</p>	
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3.5 Flood Vulnerability

In the PPG, appropriate uses have been identified for the Flood Zones. Applying the Flood Risk Vulnerability Classification in the PPG, the existing and proposed use is classified as 'less vulnerable'. The Proposed Development will not change the vulnerability of the Site and will not introduce a new 'more vulnerable' development into the floodplain. Table 3 of this report and the PPG state that 'less vulnerable' uses are appropriate within Flood Zones 1 and 2 after the completion of a satisfactory FRA.

Table 3 - Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception test required	✓	✓
Zone 3a	Exception test required	✓	✗	Exception test required	✓
Zone 3b 'Functional Floodplain'	Exception test required	✓	✗	✗	✗

Key: ✓: Development is appropriate, ✗: Development should not be permitted.

3.6 Historic Flooding

The Environment Agency data confirms that the Site has not historically flooded as further confirmed within the Kirklees Council Strategic Flood Risk Assessment (SFRA) (see Figure 3). There are no other records of anecdotal information of flooding at the Site. The British Hydrological Society "Chronology of British Hydrological Event⁶" has no information on flooding within the vicinity of the Site. No other historical records of flooding for the Site have been recorded. Therefore, it has been concluded that the Site has not recently flooded.

⁶ <https://cbhe.hydrology.org.uk/>

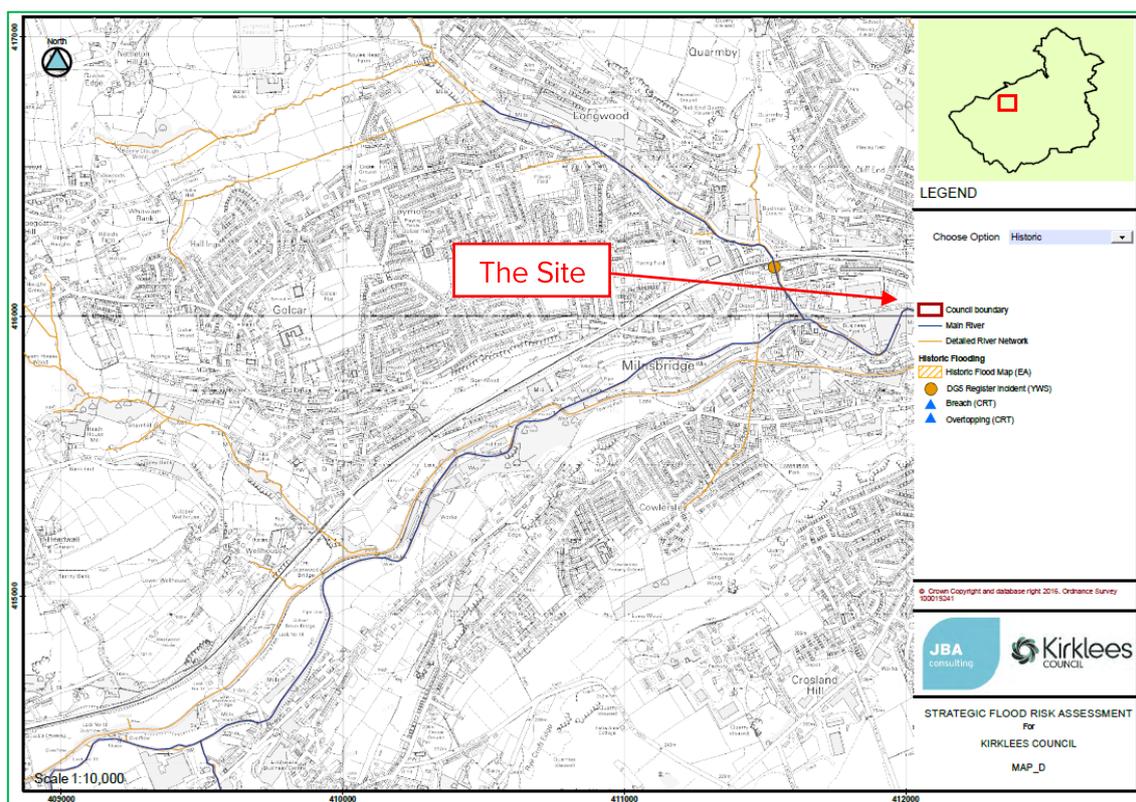


Figure 3 - Kirklees Council SFRA Historic Flood Map

3.7 Existing and Planned Flood Defence Measures

The Environment Agency data confirms that the Site is protected against flooding by existing flood defence measures. Fluvial defences reduce the risk of flooding to the Site and consist of concrete floodwalls. They reduce the risk of flooding to a 5% (1 in 20) chance of occurring in any year. The Environment Agency inspect these defences routinely to ensure potential defects are identified.

Further property level protection measures will be used to protect the Site from flooding these are discussed in Section 5.0.

3.8 Fluvial (River) Flooding

Fluvial flooding poses the primary, but unlikely, flood risk to the Site.

Longwood Brook

Flood defence measures provide protection against fluvial flooding and reduce the flood risk to the Site. The Environment Agency has provided undefended modelled flood data for the Longwood Brook at the Site. The modelled water levels have been compared to the ground level of the Site and areas within the vicinity of the Site to assess the flood risk at the Site in detail. Figure 4 shows the Environment Agency undefended modelled flood outlines and Figure 5 shows the undefended flood outlines including climate change.

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 100 year (+20%) event. The Site will be flood free during the undefended 1 in 100 year (+20%) event. Therefore, the Site will be flood free during the undefended 1 in 100 year (+23%) event, which is the design flood event for the Site.

It is only during the undefended 1 in 1000 year event that the southwest of the Site may be inundated with floodwater however, the east of the Site will be flood free. The flooding source will only inundate the Site to a relatively low water depth and water velocity, will only last a short period of time in very extreme cases and will not have an impact on the whole of the Site. The actual flood risk posed to the Site is less than a 1 in 100 (+23%) annual probability.

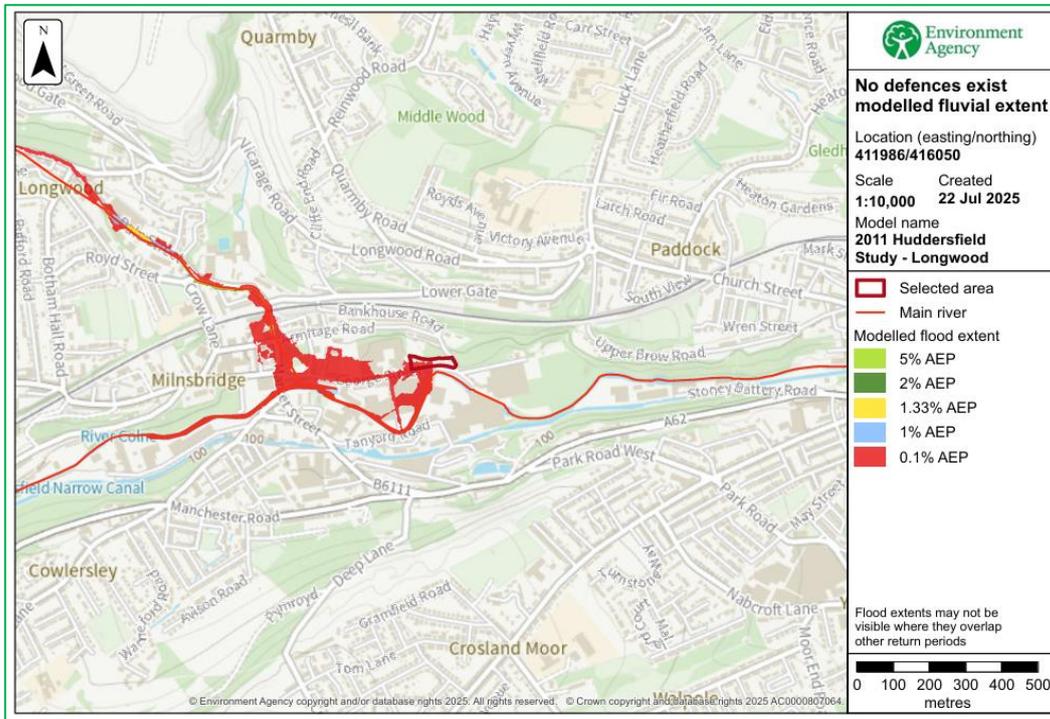


Figure 4 - Longwood Brook: Environment Agency Undefended Modelled Flood Outlines

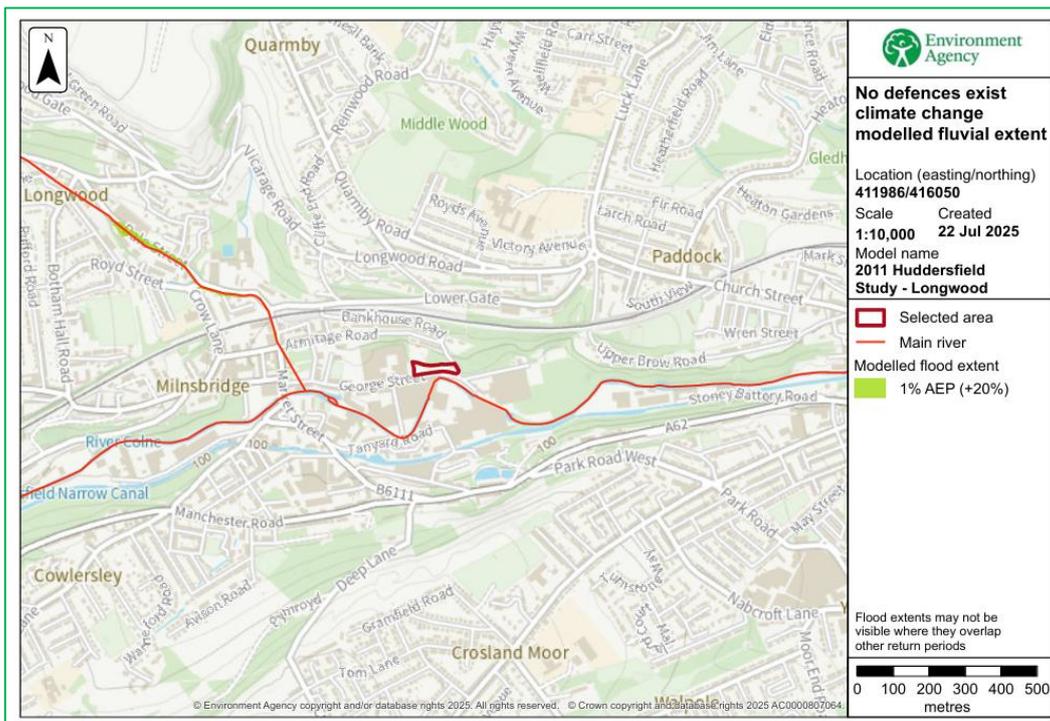


Figure 5 - Longwood Brook: Environment Agency Undefended Climate Change Modelled Flood Outlines

River Colne

The Environment Agency has provided modelled flood data for the River Colne at the Site. Node 7 has been used as this is the closest to the Site.

Actual Risk

Flood defence measures provide protection against fluvial flooding and reduce the flood risk to the Site. Table 4 shows the defended Environment Agency floodplain water levels for the Site. The modelled water levels have been compared to the ground level of the Site and areas within the vicinity of the Site to assess the flood risk at the Site in detail. Figure 6 shows the Environment Agency defended modelled flood outlines.

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the defended 1 in 1000 year event. The Site will be flood free during the defended 1 in 100 year (+23%) event, which is the design flood event for the Site. The actual flood risk posed to the Site is less than a 1 in 1000 annual probability.

Table 4 - River Colne: Environment Agency Defended Modelled Water Levels (mAOD)

Node Label	Easting	Northing	Return Period (years)					
			25	50	75	100	200	1000
1	411792	415921	88.15	88.38	88.54	88.88	88.99	89.01
2	411890	415858	87.20	87.41	87.56	88.20	88.47	88.72
3	411900	415857	87.20	87.41	87.56	87.68	87.93	88.37
4	411934	415886	86.84	87.09	87.25	87.40	87.67	88.01
5	411945	415911	86.64	86.90	87.10	87.26	87.54	87.86
6	411956	415935	86.47	86.73	86.95	87.14	87.44	87.75
7	411969	415971	86.30	86.57	86.78	87.01	87.34	87.67
8	412005	416025	85.25	85.64	85.86	86.03	86.54	86.90
9	412097	415975	84.69	85.27	85.53	85.75	86.13	86.38
10	412187	415930	84.29	84.44	84.55	84.63	84.83	85.19

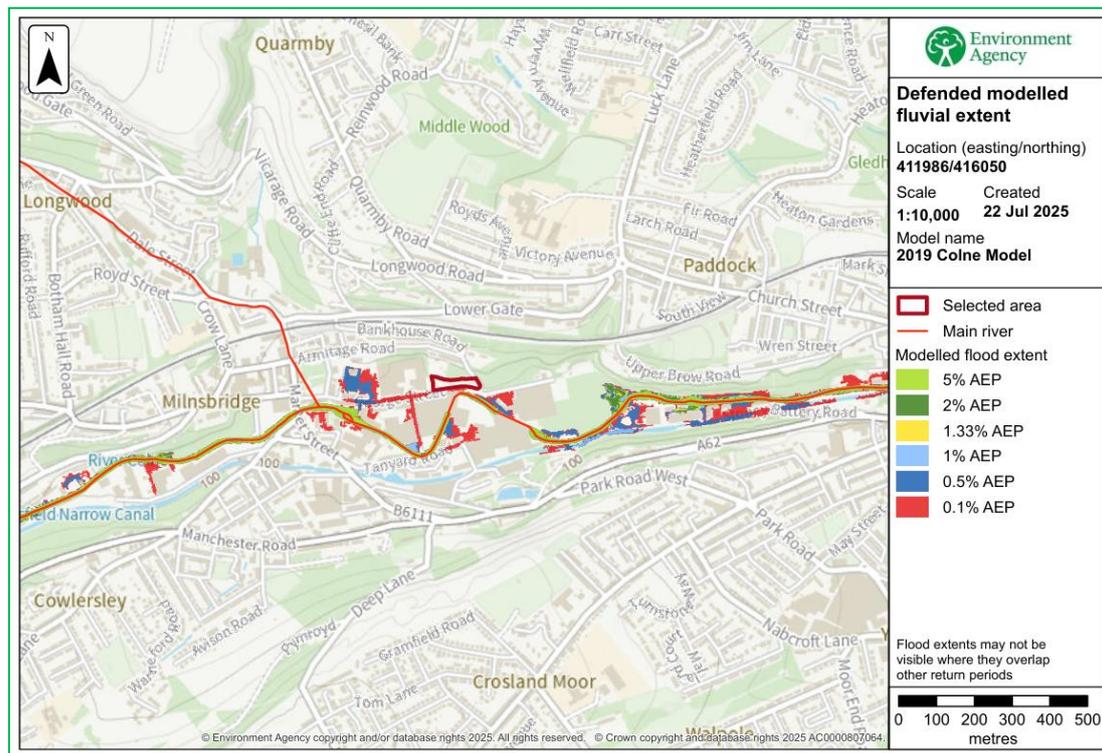


Figure 6 - River Colne: Environment Agency Defended Modelled Flood Outlines

Residual Risk

The flood defences can only protect up to a point, they may malfunction, can be breached and have a finite structure life. Therefore, there is a residual risk of fluvial flooding. Table 5 show the undefended Environment Agency floodplain water levels for the Site. The modelled water levels have been compared to the ground level of the Site and areas within the vicinity of the Site to assess the flood risk at the Site in detail. Figures 7 and 8 show the undefended modelled flood outlines.

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 100 year (+30%) event and the 1 in 1000 year event. The Site will be flood free during the undefended 1 in 100 year (+23%) event, which is the design flood event for the Site. The residual flood risk posed to the Site is less than a 1 in 1000 annual probability.

It is only during the undefended 1 in 100 year (+50%) and larger events that the southwest of the Site may be inundated with floodwater however, the east of the Site will be flood free. The flooding source will only inundate the Site to a relatively low water depth and water velocity, will only last a short period of time in very extreme cases and will not have an impact on the whole of the Site.

Table 5 - River Colne: Environment Agency Undefended Modelled Water Levels (mAOD)

Node Label	Easting	Northing	Return Period (years)						
			30	100	100 (+20%)	100 (+30%)	100 (50%)	1000	1000 (+20%)
1	411792	415921	88.20	88.86	89.00	89.00	89.00	89.01	89.61
2	411890	415858	87.23	88.20	88.47	88.52	88.68	88.72	88.83
3	411900	415857	87.24	87.67	87.94	88.01	88.29	88.35	88.49
4	411934	415886	86.89	87.42	87.68	87.80	87.94	87.99	88.16
5	411945	415911	86.70	87.26	87.55	87.67	87.80	87.85	87.98
6	411956	415935	86.52	87.14	87.45	87.58	87.70	87.74	87.89
7	411969	415971	86.36	87.02	87.36	87.47	87.62	87.67	87.82
8	412005	416025	85.41	86.03	86.57	86.68	86.83	86.90	87.08
9	412097	415975	84.99	85.75	86.14	86.22	86.34	86.38	86.50
10	412187	415930	84.34	84.63	84.85	84.94	85.12	85.19	85.41

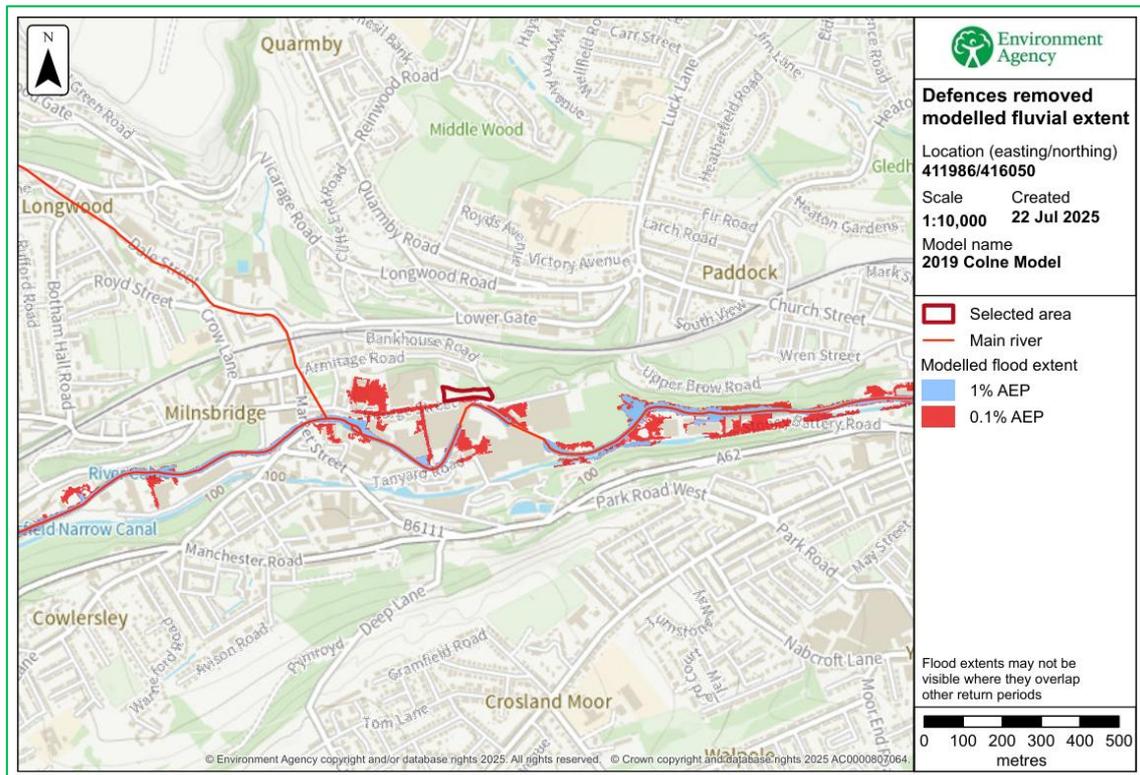


Figure 7 - River Colne: Environment Agency Undefended Modelled Flood Outlines

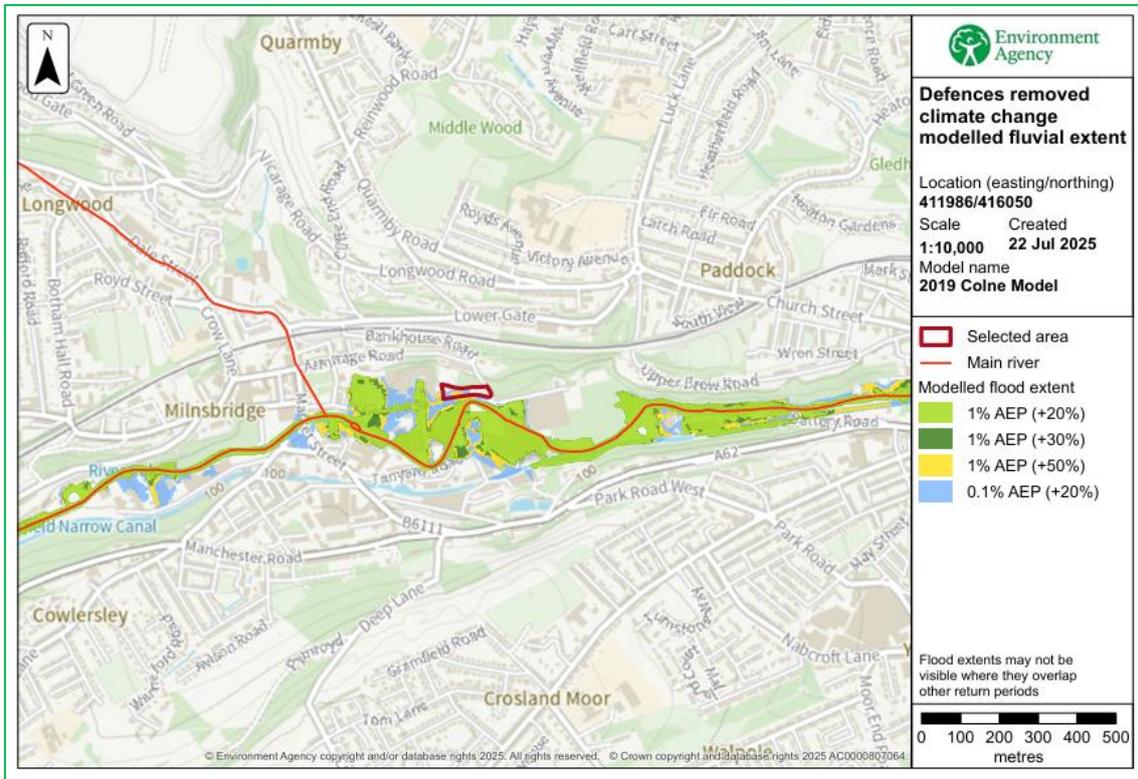


Figure 8 - River Colne: Environment Agency Undefended Climate Change Modelled Flood Outlines

Summary

Fluvial flood risk to the Site can be considered to be limited. Any overbank flow would follow the contours of the surrounding area and would flow away from the Site rather than flowing towards the Site.

Given the scale and nature of the Proposed Development and the size and location of the fluvial flooding sources it has been concluded that fluvial flooding from the Longwood Brook and River Colne poses a low flood risk to the Site. Therefore, the risk of fluvial flooding is considered to be of **low significance**. The risk of fluvial flooding will be further managed and mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site (see Section 5.0).

3.9 Tidal (Coastal) Flooding

The Site is not located within the vicinity of tidal flooding sources and the risk of tidal flooding is considered to be **not significant**.

3.10 Groundwater Flooding

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

Groundwater flooding tends to occur sporadically in both location and time. When groundwater flooding does occur, it tends to mostly affect low-lying areas, below surface infrastructure and buildings (for example, tunnels, basements and car parks) underlain by permeable rocks (aquifers). Site ground conditions suggest a low potential for groundwater flooding.

Environment Agency data shows that flooding from groundwater is unlikely in this area. This is confirmed within the Kirklees Council SFRA (see Figure 9). The risk of flooding from groundwater flooding is considered to be **not significant**.

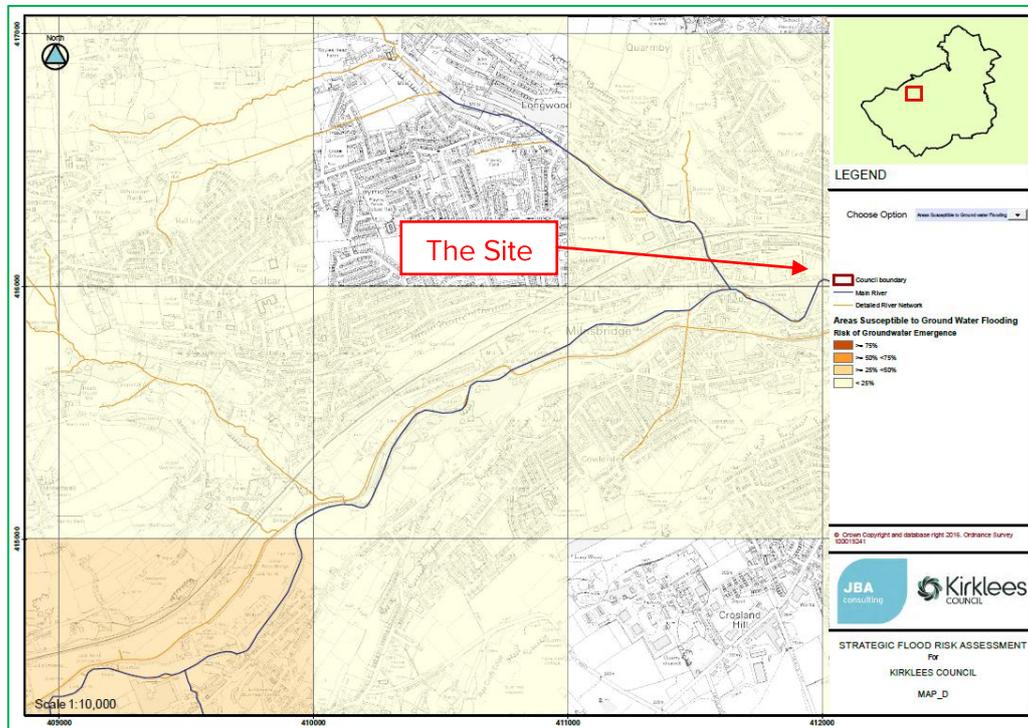


Figure 9 - Kirklees Council SFRA Areas Susceptible to Groundwater Flooding

3.11 Surface Water (Pluvial) Flooding

The Site is not situated near to large areas of poor permeability and the soil conditions at the Site and within the vicinity of the Site indicate that the Site would not be at risk of surface water flooding. Surface water flooding tends to occur sporadically in both location and time such surface water would tend to be confined to the streets around the development.

The Environment Agency Surface Water flood map shows that the Site has a very low risk of surface water flooding with an annual probability of flooding of less than 1 in 1000 (0.1%) (see Figures 10 to 12).

Given the scale and nature of the Proposed Development and the size and location of the surface water flooding sources it has been concluded that surface water flooding poses a low flood risk to the Site and the risk of surface water flooding is considered to be **not significant**.

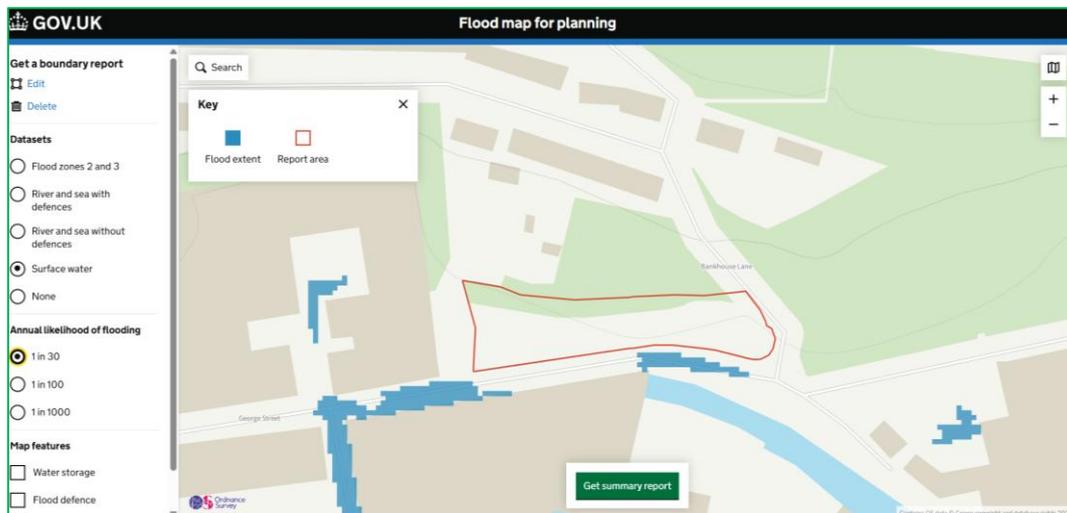


Figure 10 - Environment Agency Surface Water Flood Map: 1 in 30 Year Extent

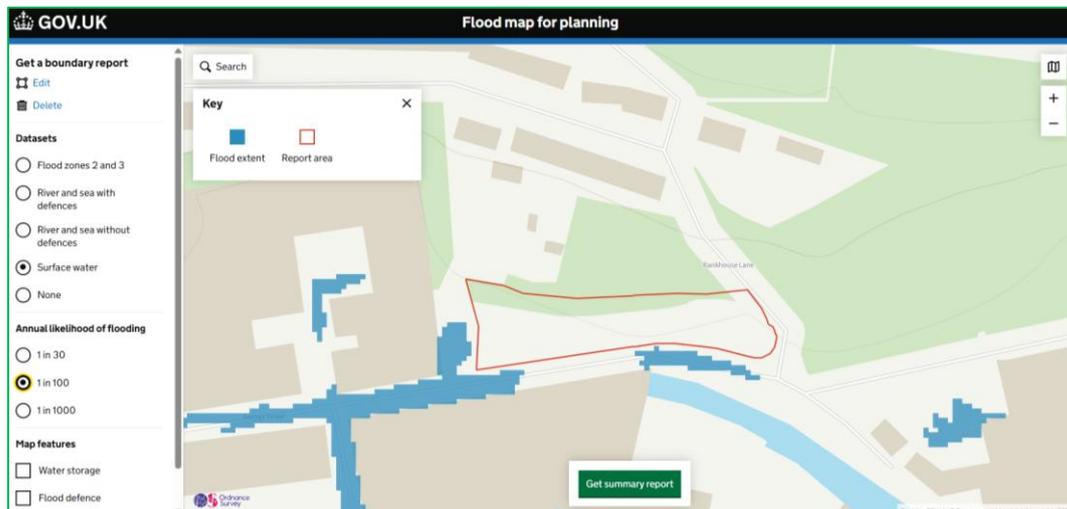


Figure 11 - Environment Agency Surface Water Flood Map: 1 in 100 Year Extent

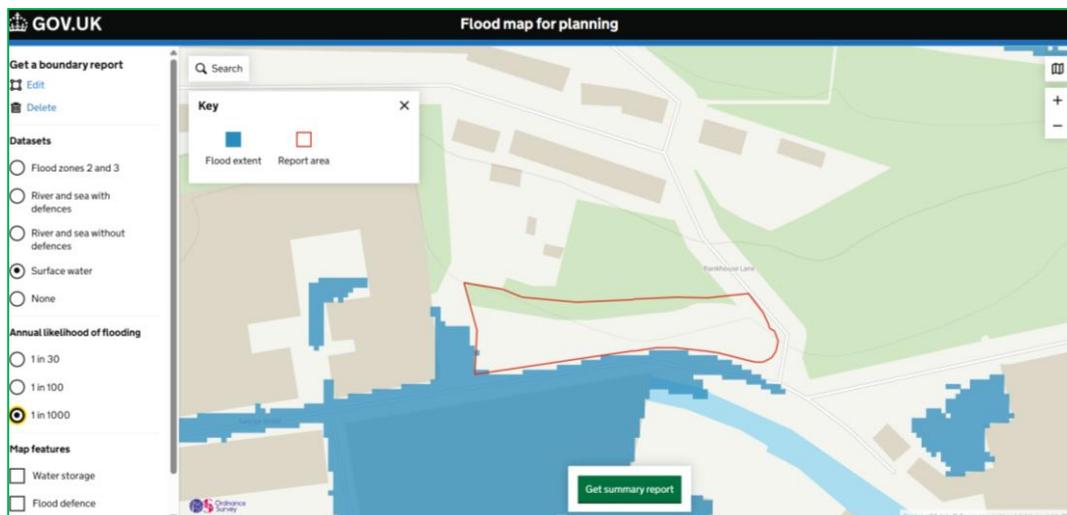


Figure 12 - Environment Agency Surface Water Flood Map: 1 in 1000 Year Extent

3.12 Sewer Flooding

Sewer flooding occurs when urban drainage networks become overwhelmed and maximum capacity is reached. This can occur if there is a blockage in the network causing water to back up behind it or if the sheer volume of water draining into the system is too great to be handled. Sewer flooding tends to occur sporadically in both location and time such flood flows would tend to be confined to the streets around the development.

It is assumed there are existing sewers located within the vicinity of the Site and these will inevitably have a limited capacity so in extreme conditions there would be surcharges, which may in turn cause flooding. Flood flows could also be generated by burst water mains, but these would tend to be of a restricted and much lower volume than weather generated events and so can be discounted for the purposes of this assessment.

Given the design parameters normally used for drainage design in recent times and allowing for some deterioration in the performance of the installed systems, which are likely to have been in place for many years, an appropriate flood risk probability from this source could be assumed to have a return period in the order of 1 in 10 to 1 in 20 years. The provision of adequate level difference between the ground floors and adjacent ground level would reduce the annual probability of damage to property from this source to 1 in 100 years or less. Therefore, the risk of flooding from sewer flooding is considered to be **not significant**.

3.13 Flooding from Artificial Drainage Systems/Infrastructure Failure

Reservoirs are located within the vicinity of the Site. The Environment Agency Reservoir flood map shows that the Site is at risk of reservoir flooding (see Figure 13). Reservoir flooding is extremely unlikely; reservoirs in the UK have a very good safety record. There has been no loss of life in the UK from reservoir flooding since 1925.

Since then, reservoir safety legislation has been introduced to make sure reservoirs are well maintained. The hazard is well managed through effective legislation and it is unlikely that the impact zone downstream of the reservoirs should preclude the Proposed Development.

The Huddersfield Narrow Canal is located within the vicinity of the Site. The Huddersfield Narrow Canal is not raised above the surrounding ground levels and as such is not risk of bank failure.

There are no other nearby artificial water bodies, water channels and artificial drainage systems that could be considered a flood risk to the Site. The risk of flooding from these sources is considered to be not significant. There are no other nearby artificial water bodies, reservoirs, water channels and artificial drainage systems that could be considered a flood risk to the Site. The risk of flooding from artificial drainage systems/infrastructure failure is considered to be **not significant**.



Figure 13 - Environment Agency Reservoir Flood Map

3.14 Impact of the Proposed Development on Flood Risk

The existing ground levels will be maintained. The overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. There will be no loss in flood storage capacity and no change in the on-site and off-site flood risk. Therefore, the Proposed Development will have no effect on flood risk.

3.15 Summary of Site Specific Flood Risk

A summary of the sources of flooding and a review of the risk posed by each source at the Site is shown in Table 6.

Table 6 - Risk Posed by Flooding Sources

Sources of Flooding	Potential Flood Risk	Potential Source	Probability/Significance
Fluvial Flooding	Yes	Longwood Brook/River Colne	Low
Tidal Flooding	No	None Reported	None
Groundwater Flooding	No	None Reported	None
Surface Water Flooding	Yes	Low Spots / Poor Permeability	Low
Sewer Flooding	No	None Reported	None
Flooding from Artificial Drainage Systems/Infrastructure Failure	Yes	Reservoirs	Not Significant

The Site is unlikely to flood except in extreme conditions, the primary, but unlikely, flood risk posed to the Site is from fluvial flooding from the Longwood Brook and River Colne. The Environment Agency’s Flood Zones indicates that the majority of the Site is located within Flood Zone 1 however, a small area of the Site, to the southwest, is located within Flood Zone 2. It

should be noted the Site has no history of flooding and flood defence measures provide protection against fluvial flooding and reduce the flood risk to the Site.

The existing and proposed use is classified as 'less vulnerable'. The Proposed Development will not change the vulnerability of the Site and will not introduce a new 'more vulnerable' development into the floodplain, 'less vulnerable' uses are appropriate within Flood Zones 1 and 2 after the completion of a satisfactory FRA.

Longwood Brook

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 100 year (+20%) event. The Site will be flood free during the undefended 1 in 100 year (+20%) event. Therefore, the Site will be flood free during the undefended 1 in 100 year (+23%) event, which is the design flood event for the Site.

It is only during the undefended 1 in 1000 year event that the southwest of the Site may be inundated with floodwater however, the east of the Site will be flood free. The flooding source will only inundate the Site to a relatively low water depth and water velocity, will only last a short period of time in very extreme cases and will not have an impact on the whole of the Site. The actual flood risk posed to the Site is less than a 1 in 100 (+23%) annual probability.

River Colne

Actual Risk

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the defended 1 in 1000 year event. The Site will be flood free during the defended 1 in 100 year (+23%) event, which is the design flood event for the Site. The actual flood risk posed to the Site is less than a 1 in 1000 annual probability.

Residual Risk

The flood defences can only protect up to a point, they may malfunction, can be breached and have a finite structure life. Therefore, there is a residual risk of fluvial flooding.

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 100 year (+30%) event and the 1 in 1000 year event. The Site will be flood free during the undefended 1 in 100 year (+23%) event, which is the design flood event for the Site. The residual flood risk posed to the Site is less than a 1 in 1000 annual probability.

It is only during the undefended 1 in 100 year (+50%) and larger events that the southwest of the Site may be inundated with floodwater however, the east of the Site will be flood free. The flooding source will only inundate the Site to a relatively low water depth and water velocity, will only last a short period of time in very extreme cases and will not have an impact on the whole of the Site.

Given the scale and nature of the Proposed Development and the size and location of the fluvial flooding sources it has been concluded that fluvial flooding from the Longwood Brook and River Colne poses a low flood risk to the Site. Therefore, the risk of fluvial flooding is considered to be of **low significance**.

The risk from all flooding sources will be further managed and mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site (see Section 5.0).

The existing ground levels will be maintained. The overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. There will be no loss in flood storage capacity and no change in the on-site and off-site flood risk. Therefore, the Proposed Development will have no effect on flood risk.

4.0 SURFACE WATER DRAINAGE

4.1 Surface Water Management Overview

It is recognised that consideration of flood issues should not be confined to the floodplain. The alteration of natural surface water flow patterns through developments can lead to problems elsewhere in the catchment, particularly flooding downstream. For example, replacing vegetated areas with roofs, roads and other paved areas can increase both the total and the peak flow of surface water runoff from the Site. Changes of land use on previously developed land can also have significant downstream impacts where the existing drainage system may not have sufficient capacity for the additional drainage.

An assessment of the surface water runoff rates has been undertaken, in order to determine the surface water options and attenuation requirements for the Site. The assessment considers the impact of the proposals compared to current conditions. Therefore, the surface water attenuation requirement for the developed Site can be determined and reviewed against existing arrangements.

The surface water drainage arrangements for any development site should be such that the volumes and peak flow rates of surface water leaving a developed site are no greater than the rates prior to the Proposed Development unless specific off-site arrangements are made and result in the same net effect.

4.2 Surface Water Runoff

The pre-application Site is constructed predominantly from impermeable surfaces. The post-application Site will not increase the impermeable surfaces on the Site. As there is no history of surface water flooding at the Site it is likely that the current drainage system is sufficient for the current and proposed Site use.

The surface water runoff from the developed Site will be no different to pre-and post-application. There will be no increase in surface water runoff or exacerbation of off-site risk as a result of the development.

5.0 RISK MANAGEMENT

5.1 Introduction

The flood risk at this location is considered suitable for 'less vulnerable' developments within the NPPF. In this flood zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development and the use of flood mitigation measures.

The flooding sources will be mitigated on the Site by using a number of techniques, and mitigation strategies to manage and reduce the overall flood risk at the Site. This will ensure the development will be safe and there is:

- Minimal risk to life;
- Minimal disruption to people living and working in the area;
- Minimal potential damage to property;
- Minimal impact of the Proposed Development on flood risk generally; and;
- Minimal disruption to natural heritage.

The flood risk at the Site will be reduced by mitigation measures; these are discussed in more detail below.

5.2 Ground Levels

The ground levels will be set no lower than the existing ground levels. In order to provide further mitigate against, it is recommended that the Site signs up to receive flood warnings from the Environment Agency and implements a Flood Plan to a safe area away from the Site during times of flood.

5.3 Flood Warning and Evacuation

The Site is located in a flood risk area therefore; the Site will participate in the Environment Agency flood warning telephone service. The Site will register contact details with the Environment Agency' Flood Warning Service (Floodline 0345 988 1188) in order to receive Flood Warnings.

The Environment Agency operate a free flood warning service providing alerts by phone, text or email when flooding is anticipated providing an opportunity for owners to take necessary precautions, giving enough time for the Site to be safely evacuated and mitigation measures to be put in place.

The Environment Agency uses Flood Warnings Codes. They can be issued in any order, usually ending with an 'all clear'. They are issued by the Environment Agency through their website and Floodline. The flood warning will be passed onto the visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood warnings when required.

5.4 Flood Plan

A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may cause will be developed. The

Flood Plan is a 'living' document and therefore should be periodically reviewed and updated to provide advice and guidance to occupants in the event of an extreme flood. The Flood Plan will therefore reduce the vulnerability of the occupants and visitors to flooding and makes them aware of the mechanisms of flooding at the Site.

Residual Risk

If flooding starts to affect the Site without any pre-warning i.e. in real time (e.g. through a failure of the flood warning delivery) the following actions will be taken:

- Occupants and visitors should consider evacuating the site.
- If flood levels continue to rise, occupants and visitors are advised to evacuate before safe access is lost. Occupants and visitors should monitor the flood progression and evacuate.

The Flood Warden will monitor flood levels and keep occupants and visitors informed and will decide whether to initiate the Flood Plan.

5.5 Safe Access and Egress Routes

The NPPF requires that, where required, safe access and escape is available to/from new developments in flood risk areas. Access routes should be such that occupants can safely access and exit sites in design flood conditions. These routes must also provide the emergency services with access to the development during a flood event and enable flood defence authorities to carry out any necessary duties during the period of flood.

The Site is one of the last places in the area to flood and remains flood free when other areas close by are flooded. The Site is at such a ground level that it would only flood in the most extreme flood events; the Site will remain flood free for the vast majority of flood events during the lifetime of the Proposed Development. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The speed of inundation and rate of floodwater rise would be low.

Safe access and egress routes, including emergency access can be maintained for vehicles and/or by foot via the Site entrance. The Safe Access and Egress Route shown in Figure 14 indicates the exit routes that all people (i.e. occupants and visitors) on Site should follow once a flood warning has been received. People should make their way to areas outside of the flood zone.

In the event of a Flood Warning, vital belongings, including waterproof clothing, necessary medication and essentials will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site. Facilities such as community centres, shops etc. are located to the north of the Site which may be used in the event of a flood event. There may also be large areas than those shown in Figure 2 that are flood free located nearer and within the vicinity of the Site. Therefore, safe access and egress can be maintained in accordance with the NPPF and Environment Agency Guidance.

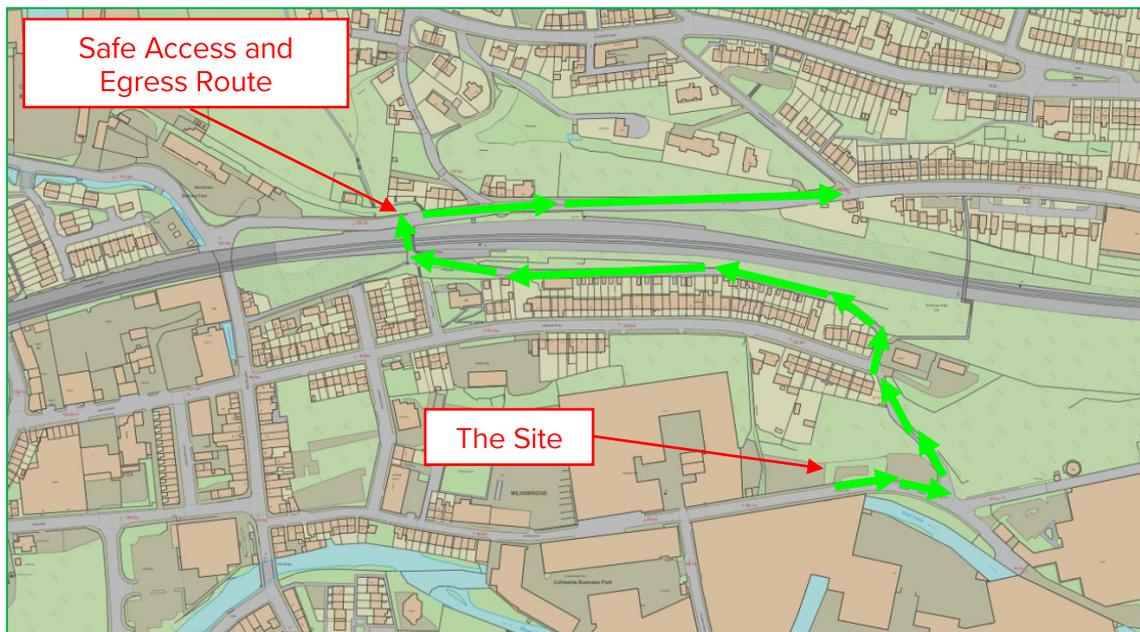


Figure 14 - Safe Access and Egress Route

5.6 Residual Risk

The mitigation measures detailed above show that the flood risk can be effectively managed and therefore the consequences of flooding are acceptable. The Site is unlikely to flood except in extreme conditions. This takes into account the property level protection measures.

6.0 SEQUENTIAL APPROACH

6.1 Sequential Test

The risk-based Sequential Test in accordance with the NPPF aims to steer new development to areas at the lowest probability of flooding from all sources (i.e. Flood Zone 1). The existing and proposed uses are designated as 'less vulnerable', the Proposed Development will not change the vulnerability of the Site.

The Site proposals cannot be located in another site elsewhere they have to be located at this Site which has existing facilities and is ancillary to the existing use of the Site as a car park and storage facility. The Site proposals remain consistent with the relevant planning policies and are not at odds with the current use of the Site and can only enhance and preserve the Site which currently exists.

Paragraph 176 of the NPPF confirms that: '*Applications for some minor development and changes of use⁷ should not be subject to the Sequential or Exception Tests but should still meet the requirements for site-specific flood risk assessments*'.

In summary, the development proposals should therefore be considered to satisfy the Sequential Test as set out in the NPPF.

6.2 Exception Test

Applications for 'less vulnerable' uses located within Flood Zone 2 are not subject to the Exception Test as confirmed within Table 3 of this report and Table 3 of the PPG. Therefore, the Exception Test will not need to be undertaken as part of this planning application.

⁷ This includes householder development, small non-residential extensions (with a footprint of less than 250m²) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate.

7.0 SUMMARY AND CONCLUSIONS

7.1 Introduction

This report presents a FRA in accordance with the NPPF for the Proposed Development on land off George Street, Milnsbridge, Huddersfield.

This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

7.2 Flood Risk

The Site is unlikely to flood except in extreme conditions, the primary, but unlikely, flood risk posed to the Site is from fluvial flooding from the Longwood Brook and River Colne. The Environment Agency's Flood Zones indicates that the majority of the Site is located within Flood Zone 1 however, a small area of the Site, to the southwest, is located within Flood Zone 2. It should be noted the Site has no history of flooding and flood defence measures provide protection against fluvial flooding and reduce the flood risk to the Site.

The existing and proposed use is classified as 'less vulnerable'. The Proposed Development will not change the vulnerability of the Site and will not introduce a new 'more vulnerable' development into the floodplain, 'less vulnerable' uses are appropriate within Flood Zones 1 and 2 after the completion of a satisfactory FRA.

Longwood Brook

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 100 year (+20%) event. The Site will be flood free during the undefended 1 in 100 year (+20%) event. Therefore, the Site will be flood free during the undefended 1 in 100 year (+23%) event, which is the design flood event for the Site.

It is only during the undefended 1 in 1000 year event that the southwest of the Site may be inundated with floodwater however, the east of the Site will be flood free. The flooding source will only inundate the Site to a relatively low water depth and water velocity, will only last a short period of time in very extreme cases and will not have an impact on the whole of the Site. The actual flood risk posed to the Site is less than a 1 in 100 (+23%) annual probability.

River Colne

Actual Risk

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the defended 1 in 1000 year event. The Site will be flood free during the defended 1 in 100 year (+23%) event, which is the design flood event for the Site. The actual flood risk posed to the Site is less than a 1 in 1000 annual probability.

Residual Risk

The flood defences can only protect up to a point, they may malfunction, can be breached and have a finite structure life. Therefore, there is a residual risk of fluvial flooding.

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 100 year (+30%) event and the 1 in 1000 year event. The Site will be flood free during the undefended 1 in 100 year (+23%) event, which is

the design flood event for the Site. The residual flood risk posed to the Site is less than a 1 in 1000 annual probability.

It is only during the undefended 1 in 100 year (+50%) and larger events that the southwest of the Site may be inundated with floodwater however, the east of the Site will be flood free. The flooding source will only inundate the Site to a relatively low water depth and water velocity, will only last a short period of time in very extreme cases and will not have an impact on the whole of the Site.

Given the scale and nature of the Proposed Development and the size and location of the fluvial flooding sources it has been concluded that fluvial flooding from the Longwood Brook and River Colne poses a low flood risk to the Site. Therefore, the risk of fluvial flooding is considered to be of **low significance**.

The risk from all flooding sources will be further managed and mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site.

The existing ground levels will be maintained. The overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. There will be no loss in flood storage capacity and no change in the on-site and off-site flood risk. Therefore, the Proposed Development will have no effect on flood risk.

7.3 Surface Water Drainage

The pre-application Site is constructed predominantly from impermeable surfaces. The post-application Site will not increase the impermeable surfaces on the Site. As there is no history of surface water flooding at the Site it is likely that the current drainage system is sufficient for the current and proposed Site use.

The surface water runoff from the developed Site will be no different to pre-and post-application. There will be no increase in surface water runoff or exacerbation of off-site risk as a result of the development.

7.4 Risk Management

The flood risk at the Site will be reduced by mitigation measures, discussed below.

Ground Levels: The ground levels will be set no lower than the existing ground levels. In order to provide further mitigate against, it is recommended that the Site signs up to receive flood warnings from the Environment Agency and implements a Flood Plan to a safe area away from the Site during times of flood.

Flood Warning and Evacuation: The Site is located in a flood risk area therefore; the Site will participate in the Environment Agency flood warning telephone service. The Site will register contact details with the Environment Agency' Flood Warnings Service, to received Flood Warnings.

Flood Plan: A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may cause will be developed.

Safe Access and Egress Route: The Site is one of the last places in the area to flood and remains flood free when other areas close by are flooded. The Site is at such a ground level that it would only flood in the most extreme flood events; the Site will remain flood free for the

vast majority of flood events during the lifetime of the Proposed Development. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The speed of inundation and rate of floodwater rise would be low.

Safe access and egress routes, including emergency access can be maintained for vehicles and/or by foot via the Site entrance. The Safe Access and Egress Route indicates the exit routes that all people (i.e. occupants and visitors) on Site should follow once a flood warning has been received. People should make their way to areas outside of the flood zone.

In the event of a Flood Warning, vital belongings, including waterproof clothing, necessary medication and essentials will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site. Facilities such as community centres, shops etc. are located to the north of the Site which may be used in the event of a flood event. Therefore, safe access and egress can be maintained in accordance with the NPPF and Environment Agency Guidance.

7.5 Sequential Approach

The development proposals should be considered by the LPA to satisfy the Sequential and Exception Tests as set out in the NPPF.

7.6 Conclusion

In conclusion, the Proposed Development would be expected to remain dry in all but the most extreme conditions. The Site is unlikely to flood except in extreme conditions. Providing the recommendations made in this FRA are instigated, flood risk from all sources would be minimised, the consequences of flooding are acceptable, and the development would be in accordance with the requirements of the NPPF.

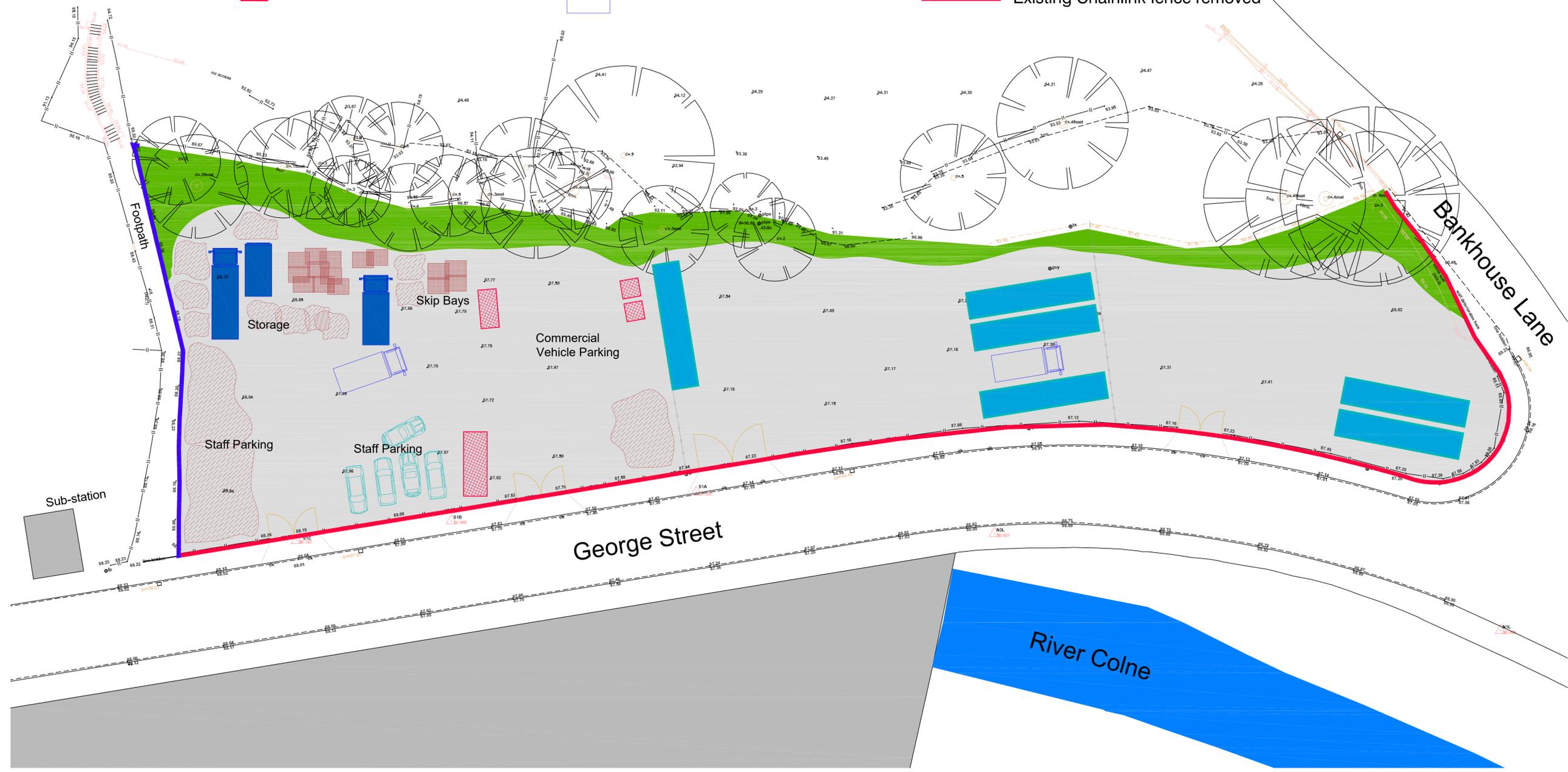
This FRA demonstrates that the Proposed Development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of the NPPF. The development should not therefore be precluded on the grounds of flood risk.



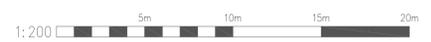
APPENDICES

APPENDIX 1 – Existing and Proposed Site Layout

- Banking
- Permeable Surfacing
- Containers
- Skips
- Storage Vehicles
- Commercial Vehicles
- Bagged Waste Material Storage
- Waste Material Springs
- Existing Palisade Fence
- Existing Chainlink fence removed



Existing Survey Plan



Client
SKA Property Management Company Ltd

Project
Regularisation of Land Use & Site Fencing

Drawing
Existing Survey Plan

Number
4442-01-02

Date
04/2025

Scale @ A1
As Marked

HEPPENSTALLS
Chartered Architects

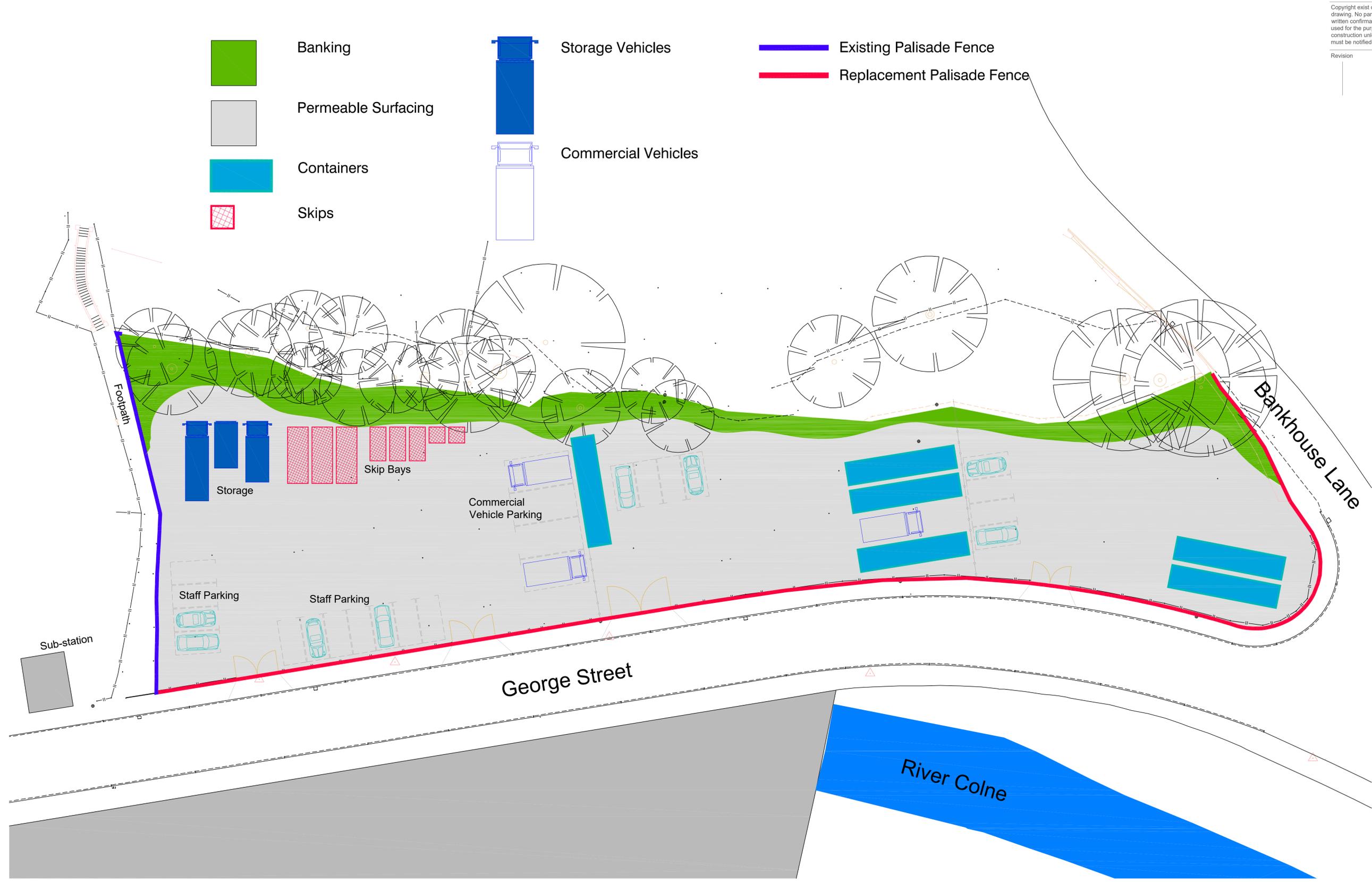
Architecture
Surveying
Planning
Project Management

RIBA

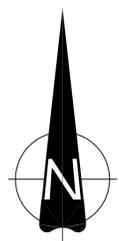
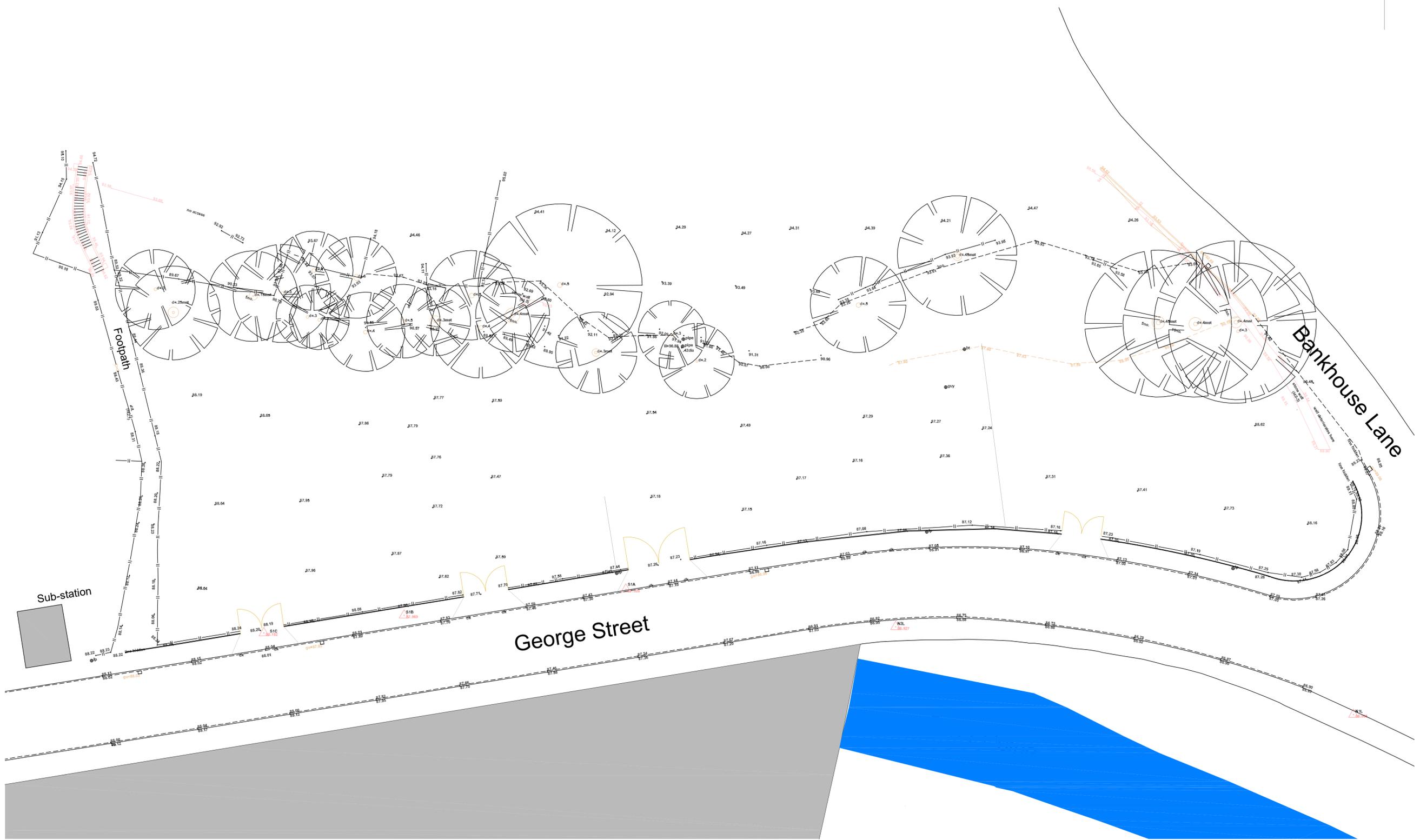
Allisons Buildings, 135 Armitage Road Mlinsbridge,
Huddersfield, HD3 4JY tel 01484 658411
projects@heppenstalls.net www.heppenstalls.net

Existing Survey Plan
Planning Application

- Banking
- Permeable Surfacing
- Containers
- Skips
- Storage Vehicles
- Commercial Vehicles
- Existing Palisade Fence
- Replacement Palisade Fence



APPENDIX 2 – Topographical Survey



Existing Site Topographic Plan



Client SKA Property Management Company Ltd	
Project Regularisation of Land Use & Site Fencing	
Drawing Existing Site Topographic Plan	
Number 4442-01-04	Date 04/2025
Scale @ A1 As Marked	

HEPPENSTALLS
Chartered Architects

Architecture
Surveying
Project Management

RIBA
Allisons Buildings, 135 Armitage Road Mlinsbridge,
Huddersfield, HD3 4JY tel 01484 658411
projects@heppenstalls.net www.heppenstalls.net

Existing Site Topographic Plan
Planning Application



APPENDIX 3 – Environment Agency Correspondence

How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

We recommend that you work with a flood risk consultant to get your flood risk assessment.

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- flood defences and attributes
- information to help you assess if there is a reduced flood risk from rivers and the sea because of defences
- modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Information that's unavailable

This document **does not** contain:

- past floods

We do not have past flooding data for this location.

Please note that:

- flooding may have occurred that we do not have records for
- flooding can come from a range of different sources
- we can only supply flood risk data relating to flooding from rivers or the sea

You can contact your Lead Local Flood Authority or Internal Drainage Board to see if they have other relevant local flood information. Please note that some areas do not have an Internal Drainage Board.

Surface water and other sources of flooding

When using the surface water map on the [check your long term flood risk service](#) the following considerations apply:

- surface water extents are suitable for use in planning
- surface water climate change scenarios may help to inform risk assessments, but the available data fall short of what is required to assess planned development
- surface water depth information should not be used for planning purposes

To find out about other factors that might affect the flood risk of this location, you should also check:

- [reservoir flood risk](#)
- groundwater flood risk - you could use the [British Geological Survey groundwater flooding data](#), [groundwater: current status and flood risk](#) and the guide on [mining and groundwater constraints for development](#) - further information may be available from the lead local flood authority (LLFA)
- your local planning authority's SFRA, which includes future flood risk

Your Lead Local Flood Authority is Kirklees District.

For information about sewer flooding, contact the relevant water company for the area.

About the models used

Model name: 2011 Huddersfield Study - Longwood Brook

Scenario(s): No defences exist fluvial, no defences exist climate change fluvial

Date: 31 March 2011

Model name: 2019 Colne Model

Scenario(s): Defended fluvial, defences removed fluvial, defences removed climate change fluvial

Date: 1 August 2019

These models contain the most relevant data for your area of interest.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occurring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 2.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change



Flood map for planning

Location (easting/northing)
411986/416050

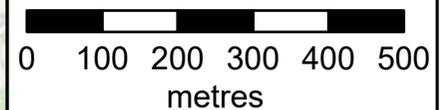
Scale

1:10,000

Created

22 Jul 2025

-  Selected area
-  Main river
-  Flood defence
-  Flood Zone 3
-  Flood Zone 2



Flood defences and attributes

The flood defences map shows the location of the flood defences present.

The flood defences data table shows the type of defences, their condition and the standard of protection. It shows the height above sea level of the top of the flood defence (crest level). The height is in mAOD which is the metres above the mean sea level at Newlyn, Cornwall.

It's important to remember that flood defence data may not be updated on a regular basis. The information here is based on the best available data.

Use this information:

- to help you assess if there is a reduced flood risk for this location because of defences
- with any information in the modelled data section to find out the impact of defences on flood risk



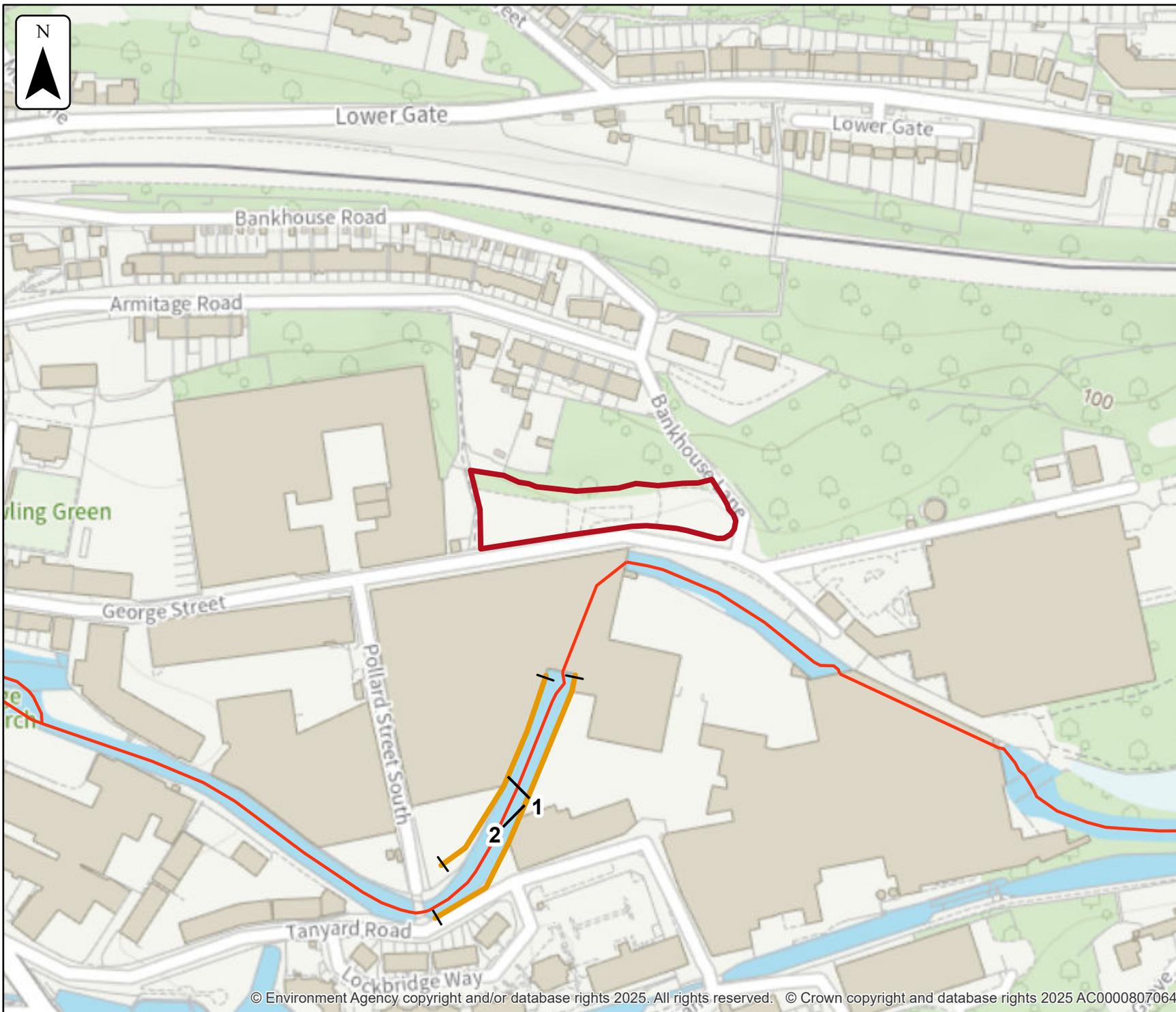
Flood defences

Location (easting/northing)
411986/416050

Scale
1:2,500

Created
22 Jul 2025

-  Selected area
-  Main river
-  Flood defence



Flood defences data

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	27981	Wall	20		89.21	89.71	
2	27685	Wall	20		90.20	89.57	

Any blank cells show where a particular value has not been recorded for an asset.

Modelled data

This section provides details of different scenarios we have modelled and includes the following (where available):

- outline maps showing the area at risk from flooding in different modelled scenarios
- modelled node point map(s) showing the points used to get the data to model the scenarios and table(s) providing details of the flood risk for different return periods
- map(s) showing the approximate water levels for the return period with the largest flood extent for a scenario and table(s) of sample points providing details of the flood risk for different return periods

Climate change

The climate change data included in the models may not include the latest [flood risk assessment climate change allowances](#). Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it's your responsibility to demonstrate that new developments will be safe in flood risk terms for their lifetime.

Modelled scenarios

The following scenarios are included:

- Defended modelled fluvial: risk of flooding from rivers where there are flood defences
- Defences removed modelled fluvial: risk of flooding from rivers where flood defences have been removed
- No defences exist modelled fluvial: risk of flooding from rivers where there are no flood defences
- Defences removed climate change modelled fluvial: risk of flooding from rivers where flood defences have been removed, including estimated impact of climate change
- No defences exist climate change modelled fluvial: risk of flooding from rivers where there are no flood defences, including estimated impact of climate change



Defences removed climate change modelled fluvial extent

Location (easting/northing)
411986/416050

Scale Created
1:10,000 22 Jul 2025

Model name
2019 Colne Model

-  Selected area
-  Main river
- Modelled flood extent
 -  1% AEP (+20%)
 -  1% AEP (+30%)
 -  1% AEP (+50%)
 -  0.1% AEP (+20%)

Flood extents may not be visible where they overlap other return periods





Defences removed modelled fluvial extent

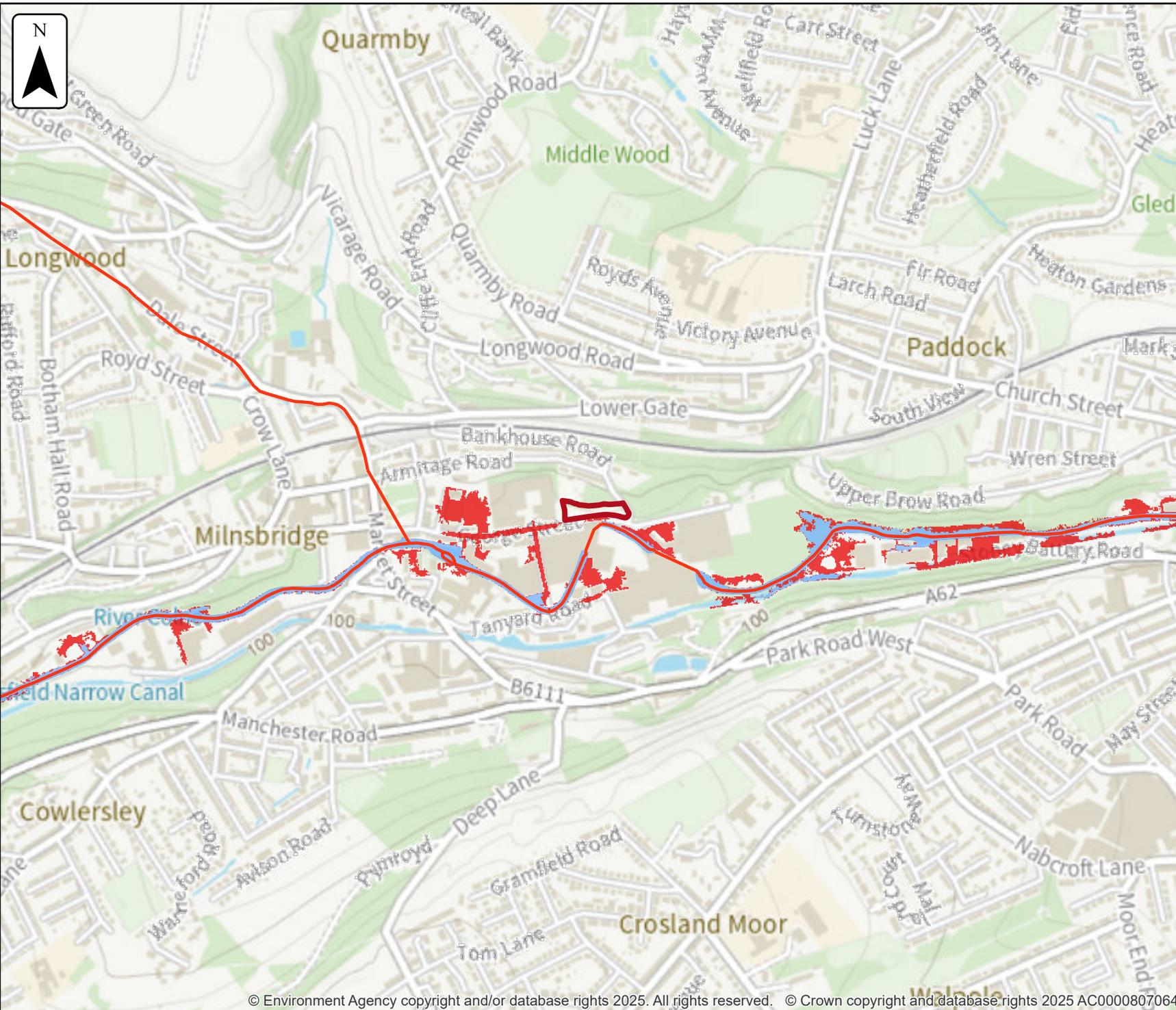
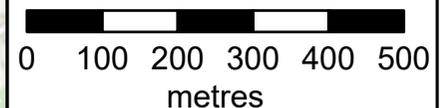
Location (easting/northing)
411986/416050

Scale Created
1:10,000 22 Jul 2025

Model name
2019 Colne Model

-  Selected area
-  Main river
- Modelled flood extent**
-  1% AEP
-  0.1% AEP

Flood extents may not be visible where they overlap other return periods





Defended modelled fluvial extent

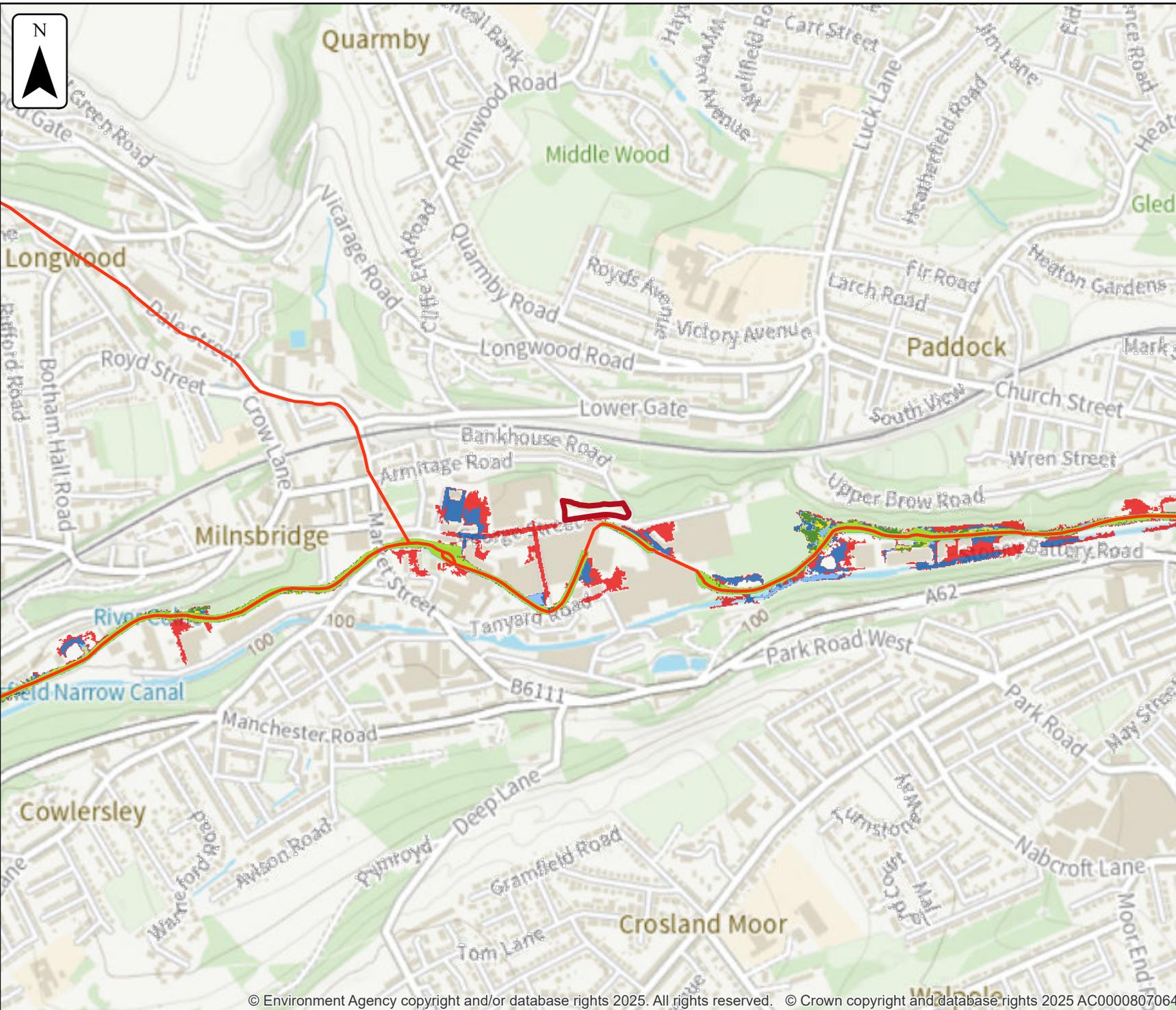
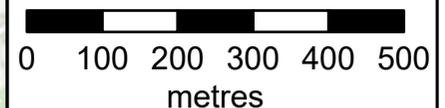
Location (easting/northing)
411986/416050

Scale Created
1:10,000 22 Jul 2025

Model name
2019 Colne Model

-  Selected area
-  Main river
- Modelled flood extent**
-  5% AEP
-  2% AEP
-  1.33% AEP
-  1% AEP
-  0.5% AEP
-  0.1% AEP

Flood extents may not be visible where they overlap other return periods





No defences exist climate change modelled fluvial extent

Location (easting/northing)
411986/416050

Scale Created
1:10,000 22 Jul 2025

Model name
**2011 Huddersfield
Study - Longwood**

-  Selected area
-  Main river
- Modelled flood extent
 -  1% AEP (+20%)

Flood extents may not be visible where they overlap other return periods





No defences exist modelled fluvial extent

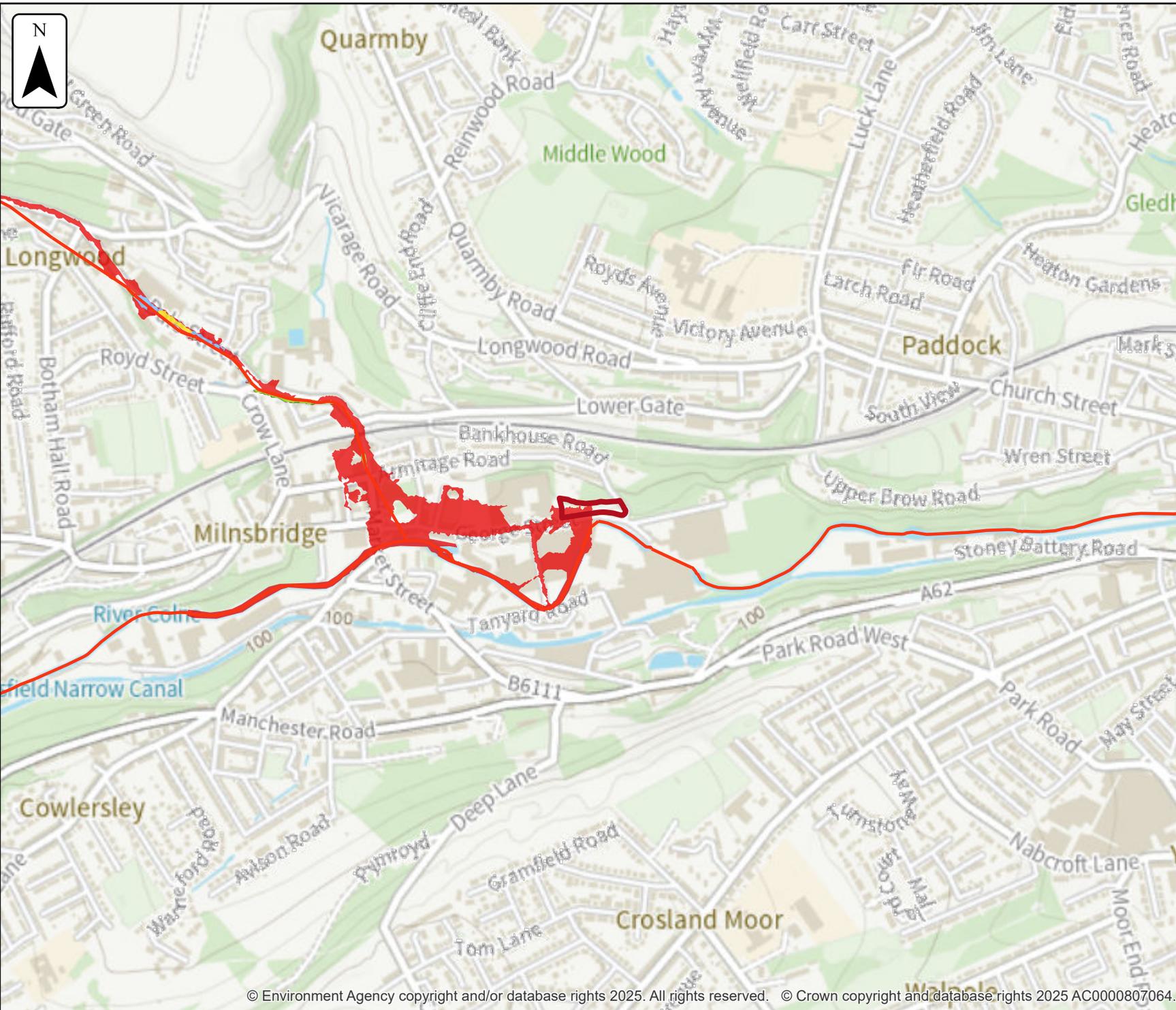
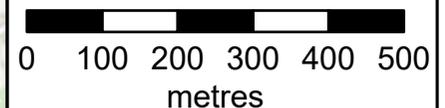
Location (easting/northing)
411986/416050

Scale Created
1:10,000 22 Jul 2025

Model name
**2011 Huddersfield
Study - Longwood**

- Selected area
- Main river
- Modelled flood extent**
- 5% AEP
- 2% AEP
- 1.33% AEP
- 1% AEP
- 0.1% AEP

Flood extents may not be visible where they overlap other return periods





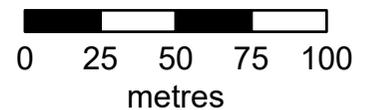
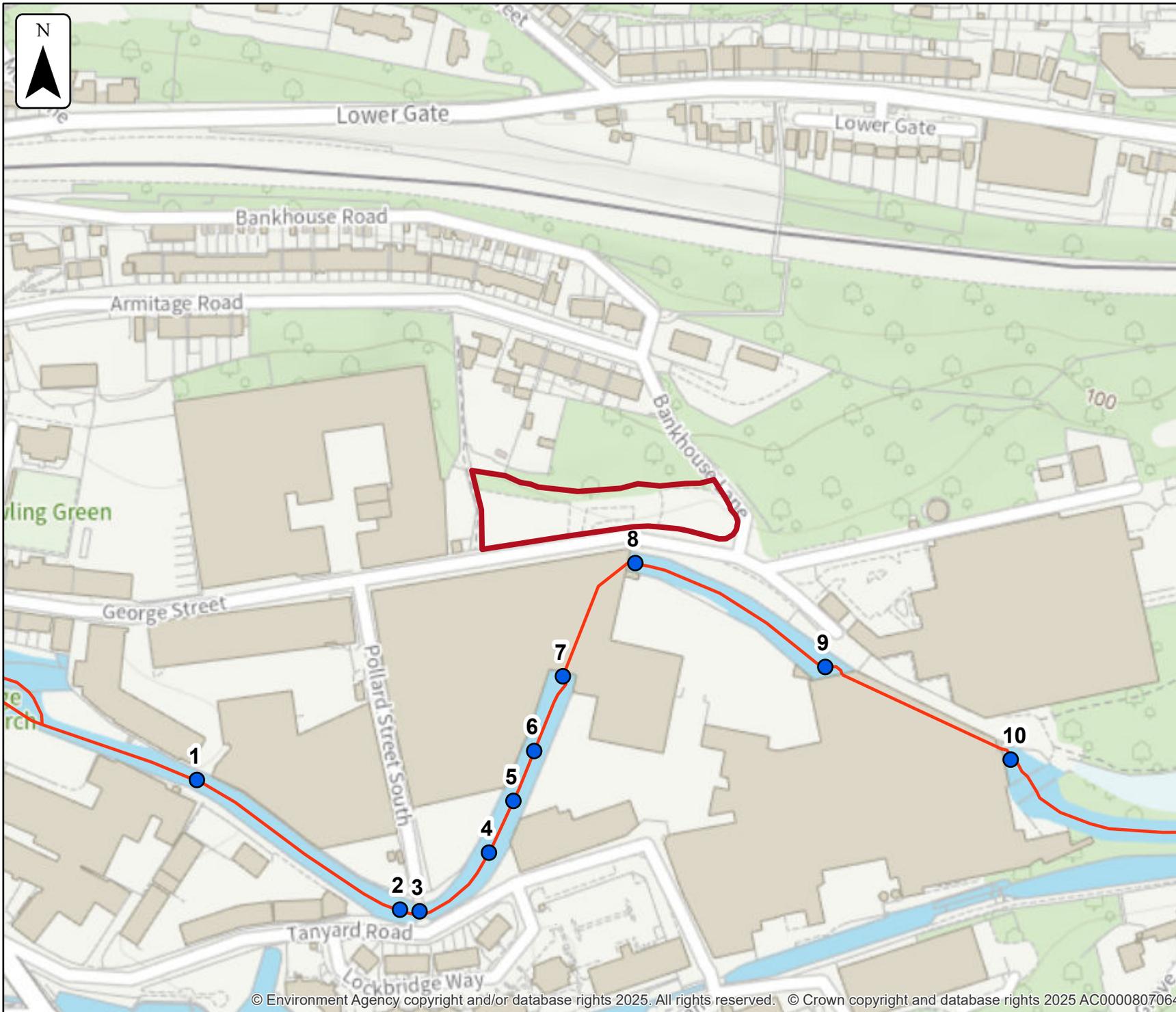
Defences removed climate change modelled fluvial node locations

Location (easting/northing)
411986/416050

Scale Created
1:2,500 22 Jul 2025

Model name
2019 Colne Model

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defences removed climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	1% AEP (+30%)	1% AEP (+50%)	0.1% AEP (+20%)
				Level	Level	Level	Level
1	1198314	411792	415921	89.0	89.0	89.0	89.61
2	1198248	411890	415858	88.47	88.52	88.68	88.83
3	1198250	411900	415857	87.94	88.01	88.29	88.49
4	1198257	411934	415886	87.68	87.80	87.94	88.16
5	1198016	411945	415911	87.55	87.67	87.80	87.98
6	1198121	411956	415935	87.45	87.58	87.70	87.89
7	1198158	411969	415971	87.36	87.47	87.62	87.82
8	1198265	412005	416025	86.57	86.68	86.83	87.08
9	1197960	412097	415975	86.14	86.22	86.34	86.50
10	1198028	412187	415930	84.85	84.94	85.12	85.41

Data in this table comes from the 2019 Colne Model model.
 Level values are shown in mAOD, and flow values are shown in cubic metres per second.
 Any blank cells show where a particular scenario has not been modelled for this location.

Defences removed climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	1% AEP (+30%)	1% AEP (+50%)	0.1% AEP (+20%)
				Flow	Flow	Flow	Flow
1	1198314	411792	415921	89.20	96.75	110.97	173.26
2	1198248	411890	415858	92.48	97.19	111.51	141.97
3	1198250	411900	415857	92.48	97.19	111.51	141.97
4	1198257	411934	415886	92.20	97.18	111.50	141.96
5	1198016	411945	415911	91.97	97.18	111.50	141.96
6	1198121	411956	415935	90.80	97.18	111.50	141.96
7	1198158	411969	415971	89.94	97.18	111.49	141.96
8	1198265	412005	416025	89.90	97.18	111.49	141.96
9	1197960	412097	415975	90.11	97.17	111.49	141.95
10	1198028	412187	415930	90.11	97.17	111.49	141.95

Data in this table comes from the 2019 Colne Model model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



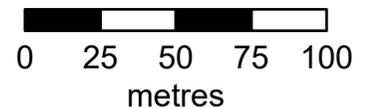
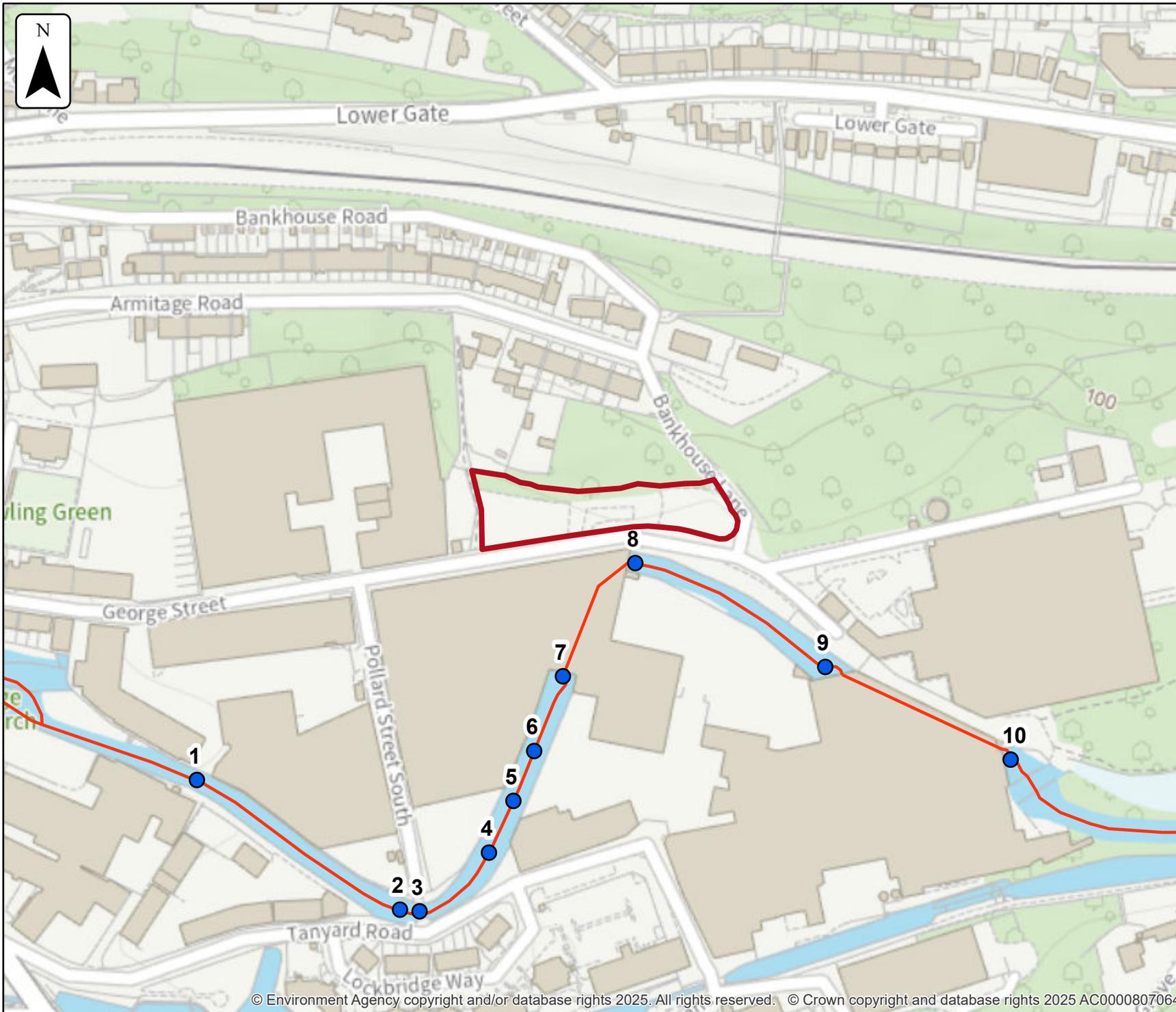
Defences removed modelled fluvial node locations

Location (easting/northing)
411986/416050

Scale Created
1:2,500 22 Jul 2025

Model name
2019 Colne Model

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defences removed

Label	Modelled location ID	Easting	Northing	10% AEP	3.33% AEP	1% AEP	0.1% AEP
				Level	Level	Level	Level
1	1198314	411792	415921	87.85	88.20	88.86	89.01
2	1198248	411890	415858	86.90	87.23	88.20	88.72
3	1198250	411900	415857	86.91	87.24	87.67	88.35
4	1198257	411934	415886	86.55	86.89	87.42	87.99
5	1198016	411945	415911	86.35	86.70	87.26	87.85
6	1198121	411956	415935	86.16	86.52	87.14	87.74
7	1198158	411969	415971	85.98	86.36	87.02	87.67
8	1198265	412005	416025	84.94	85.41	86.03	86.90
9	1197960	412097	415975	84.34	84.99	85.75	86.38
10	1198028	412187	415930	83.99	84.34	84.63	85.19

Data in this table comes from the 2019 Colne Model model.
 Level values are shown in mAOD, and flow values are shown in cubic metres per second.
 Any blank cells show where a particular scenario has not been modelled for this location.

Defences removed

Label	Modelled location ID	Easting	Northing	10% AEP	3.33% AEP	1% AEP	0.1% AEP
				Flow	Flow	Flow	Flow
1	1198314	411792	415921	41.67	55.07	86.20	117.59
2	1198248	411890	415858	41.88	55.34	76.52	118.30
3	1198250	411900	415857	41.88	55.34	76.52	118.30
4	1198257	411934	415886	41.88	55.34	81.79	118.29
5	1198016	411945	415911	41.88	55.34	78.91	118.28
6	1198121	411956	415935	41.88	55.34	75.52	118.28
7	1198158	411969	415971	41.87	55.34	74.84	118.28
8	1198265	412005	416025	41.87	55.49	74.83	118.28
9	1197960	412097	415975	41.87	55.59	74.83	118.27
10	1198028	412187	415930	41.87	55.64	74.83	118.27

Data in this table comes from the 2019 Colne Model model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



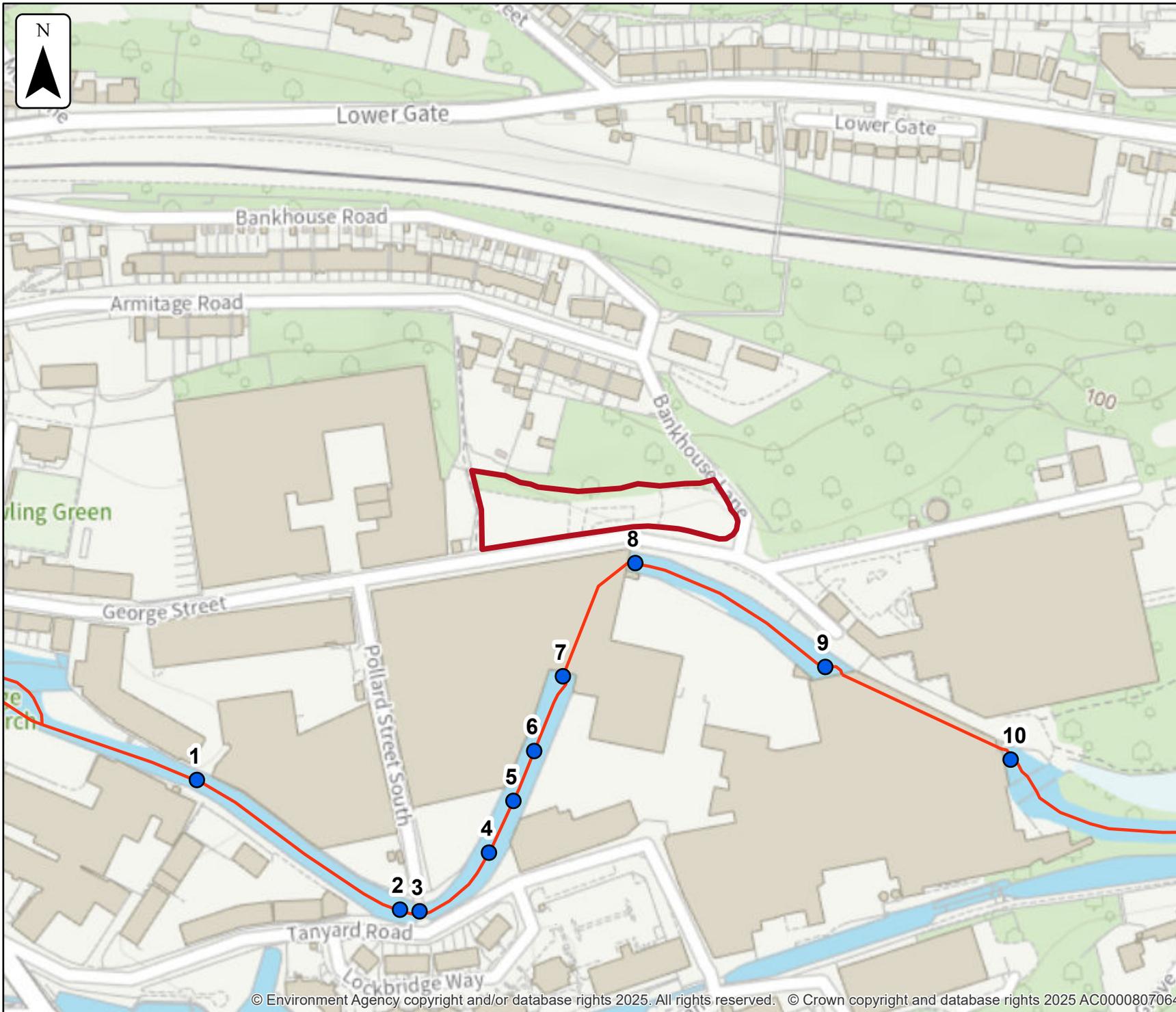
Defended modelled fluvial node locations

Location (easting/northing)
411986/416050

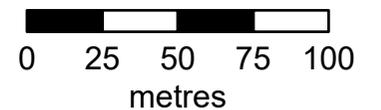
Scale Created
1:2,500 22 Jul 2025

Model name
2019 Colne Model

-  Selected area
-  Modelled location
-  Main river



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Modelled node locations data

Defended

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
1	1198314	411792	415921	87.42	87.64	87.85	88.07	88.15	88.20	88.38	88.54	88.88	88.99	89.01
2	1198248	411890	415858	86.52	86.72	86.92	87.12	87.20	87.25	87.41	87.56	88.20	88.47	88.72
3	1198250	411900	415857	86.52	86.72	86.92	87.12	87.20	87.25	87.41	87.56	87.68	87.93	88.37
4	1198257	411934	415886	86.14	86.36	86.55	86.76	86.84	86.90	87.09	87.25	87.40	87.67	88.01
5	1198016	411945	415911	85.93	86.15	86.35	86.56	86.64	86.70	86.90	87.10	87.26	87.54	87.86
6	1198121	411956	415935	85.73	85.95	86.16	86.38	86.47	86.52	86.73	86.95	87.14	87.44	87.75
7	1198158	411969	415971	85.52	85.76	85.98	86.21	86.30	86.36	86.57	86.78	87.01	87.34	87.67
8	1198265	412005	416025	84.55	84.74	84.94	85.18	85.25	85.41	85.64	85.86	86.03	86.54	86.90
9	1197960	412097	415975	83.89	84.10	84.34	84.59	84.69	84.99	85.27	85.53	85.75	86.13	86.38
10	1198028	412187	415930	83.63	83.78	83.99	84.20	84.29	84.34	84.44	84.55	84.63	84.83	85.19

Data in this table comes from the 2019 Colne Model model.
 Level values are shown in mAOD, and flow values are shown in cubic metres per second.
 Any blank cells show where a particular scenario has not been modelled for this location.

Defended

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	
1	1198314	411792	415921	27.24	34.45	41.67	49.81	53.0	55.07	62.74	69.34	83.69	87.20	117.59
2	1198248	411890	415858	27.36	34.62	41.88	50.05	53.26	55.34	63.05	69.69	75.45	92.67	118.30
3	1198250	411900	415857	27.36	34.62	41.88	50.05	53.26	55.34	63.05	69.69	75.45	92.67	118.30
4	1198257	411934	415886	27.36	34.62	41.88	50.05	53.26	55.34	63.05	69.68	79.02	91.82	118.29
5	1198016	411945	415911	27.36	34.62	41.88	50.05	53.26	55.34	63.05	69.68	77.02	91.54	118.29
6	1198121	411956	415935	27.36	34.62	41.87	50.05	53.26	55.34	63.05	69.68	74.83	90.36	118.29
7	1198158	411969	415971	27.36	34.62	41.87	50.05	53.26	55.34	63.05	69.68	74.83	89.22	118.28
8	1198265	412005	416025	27.36	34.62	41.87	50.05	53.26	55.49	63.05	69.68	74.83	89.13	118.28
9	1197960	412097	415975	27.36	34.62	41.87	50.05	53.26	55.59	63.04	69.67	74.82	89.20	118.28
10	1198028	412187	415930	27.36	34.62	41.87	50.05	53.25	55.64	63.04	69.67	74.82	89.20	118.28

Data in this table comes from the 2019 Colne Model model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.

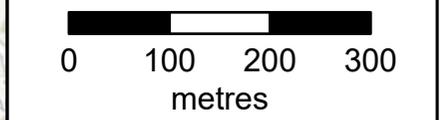
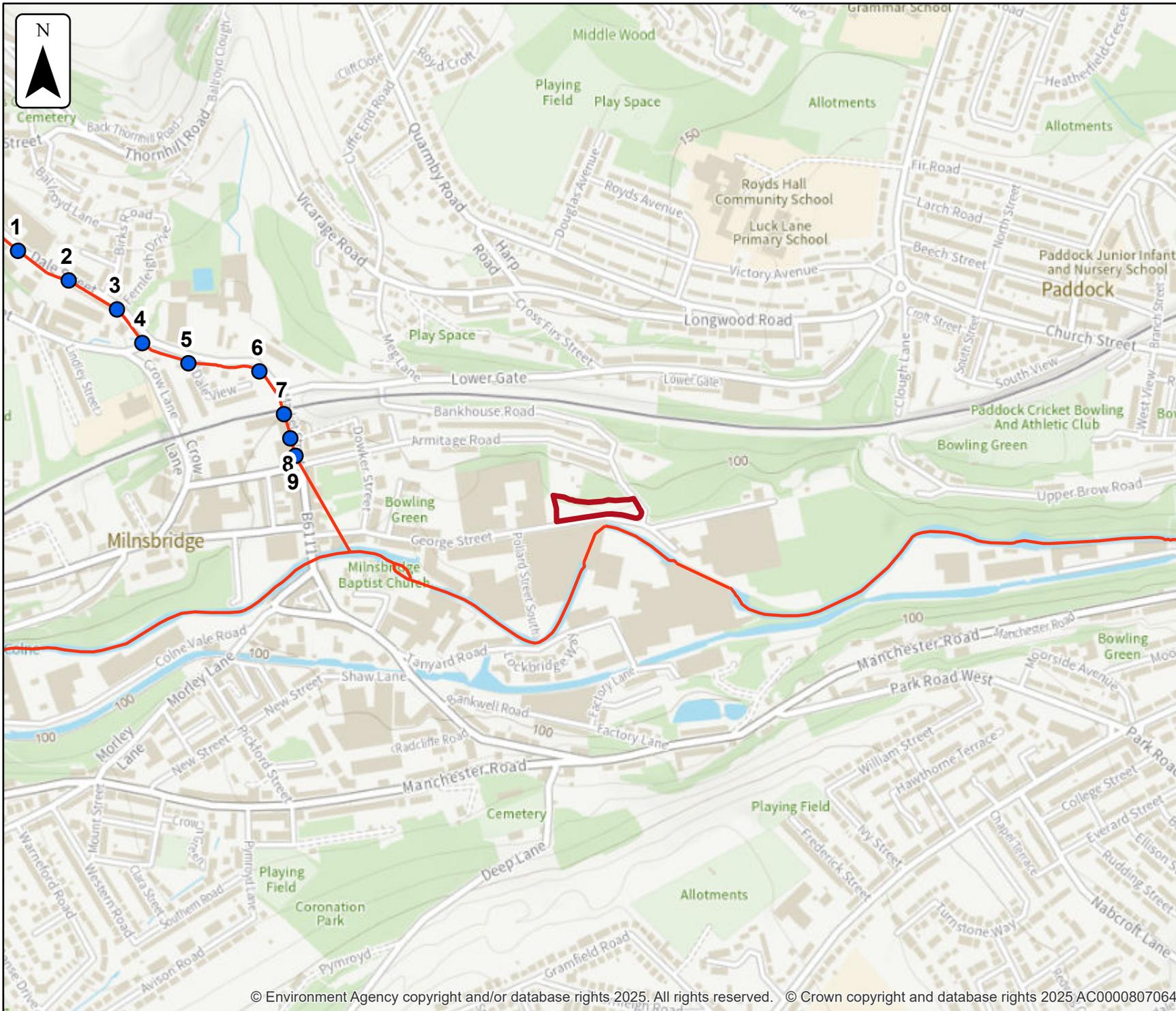
**No defences exist
climate change
modelled fluvial
node locations**

Location (easting/northing)
411986/416050

Scale Created
1:7,500 22 Jul 2025

Model name
**2011 Huddersfield
Study - Longwood**

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

No defences exist climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	
				Level	Flow
1	123794	411145	416424	115.04	5.56
2	203650	411219	416381	111.21	8.22
3	295457	411289	416339	107.12	8.21
4	39625	411326	416290	105.33	9.92
5	44955	411393	416261	102.38	9.90
6	68573	411497	416249	99.59	14.14
7	211958	411533	416187	98.35	14.31
8	125834	411542	416152	95.83	14.31
9	188330	411549	416127	95.66	14.38

Data in this table comes from the 2011 Huddersfield Study - Longwood Brook model.
 Level values are shown in mAOD, and flow values are shown in cubic metres per second.
 Any blank cells show where a particular scenario has not been modelled for this location.

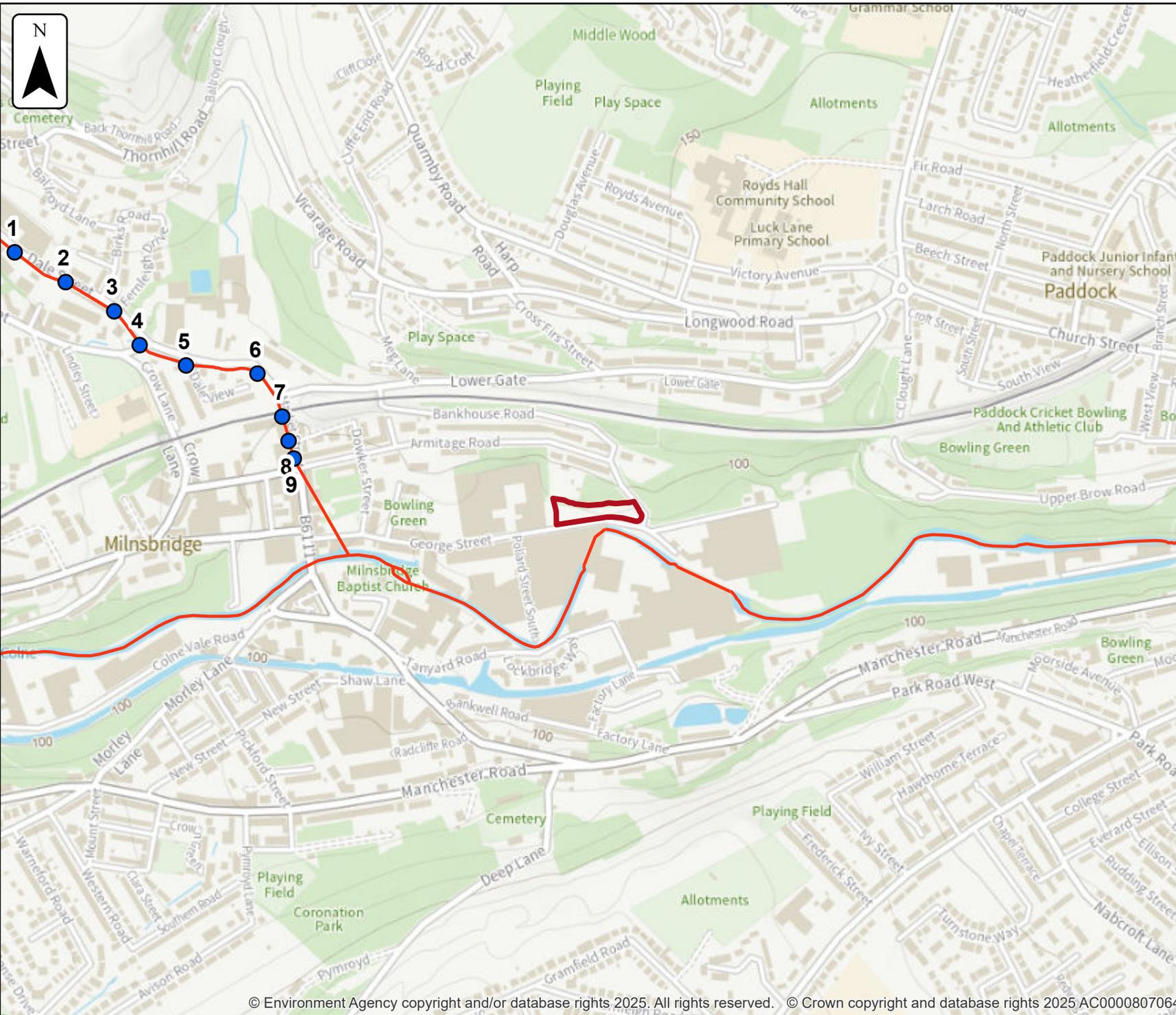
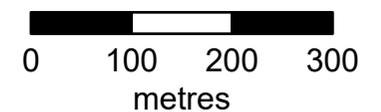
No defences exist modelled fluvial node locations

Location (easting/northing)
411986/416050

Scale Created
1:7,500 22 Jul 2025

Model name
**2011 Huddersfield
Study - Longwood**

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

No defences exist

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	2% AEP	1.33% AEP	1% AEP	0.1% AEP
				Level	Level	Level	Level	Level	Level	Level	Level	Level
1	123794	411145	416424	114.25	114.38	114.49	114.61	114.65	114.83	114.92	114.98	115.14
2	203650	411219	416381	110.35	110.47	110.57	110.68	110.71	110.88	110.98	111.06	111.57
3	295457	411289	416339	106.33	106.44	106.53	106.64	106.67	106.82	106.92	106.99	107.62
4	39625	411326	416290	104.78	104.86	104.92	105.02	105.04	105.14	105.20	105.25	105.60
5	44955	411393	416261	102.05	102.10	102.14	102.18	102.20	102.27	102.30	102.33	102.48
6	68573	411497	416249	98.81	98.89	98.96	99.04	99.07	99.21	99.32	99.40	101.15
7	211958	411533	416187	96.58	96.72	96.84	97.0	97.07	97.38	97.64	97.87	100.18
8	125834	411542	416152	95.07	95.16	95.23	95.30	95.33	95.50	95.61	95.68	96.50
9	188330	411549	416127	94.48	94.61	94.71	94.83	94.87	95.07	95.22	95.34	96.50

Data in this table comes from the 2011 Huddersfield Study - Longwood Brook model.
 Level values are shown in mAOD, and flow values are shown in cubic metres per second.
 Any blank cells show where a particular scenario has not been modelled for this location.

No defences exist

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	2% AEP	1.33% AEP	1% AEP	0.1% AEP
				Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	
1	123794	411145	416424	1.95	2.49	2.96	3.51	3.71	4.60	5.05	5.33	5.88
2	203650	411219	416381	2.33	3.01	3.60	4.30	4.55	5.68	6.46	7.08	10.93
3	295457	411289	416339	2.32	3.01	3.59	4.29	4.54	5.67	6.46	7.07	10.97
4	39625	411326	416290	2.71	3.54	4.25	5.10	5.41	6.78	7.73	8.49	15.39
5	44955	411393	416261	2.70	3.53	4.24	5.05	5.35	6.75	7.70	8.48	15.41
6	68573	411497	416249	3.65	4.80	5.80	7.0	7.37	9.44	10.91	12.08	16.75
7	211958	411533	416187	3.69	4.86	5.86	7.06	7.46	9.56	11.05	12.22	18.98
8	125834	411542	416152	3.69	4.86	5.86	7.06	7.45	9.55	11.04	12.21	18.98
9	188330	411549	416127	3.71	4.89	5.90	7.09	7.50	9.61	11.11	12.28	20.31

Data in this table comes from the 2011 Huddersfield Study - Longwood Brook model.
 Level values are shown in mAOD, and flow values are shown in cubic metres per second.
 Any blank cells show where a particular scenario has not been modelled for this location.

Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as surface water, ground water and reservoirs

Your Lead Local Flood Authority is Kirklees District.

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

[Find out more about flood risk activity permits](#)

Help and advice

Contact the Yorkshire Environment Agency team at neyorkshire@environment-agency.gov.uk for:

- [more information about getting a product 5, 6, 7 or 8](#)
- general help and advice about the site you're requesting data for

