



409 Leeds Road, Huddersfield, HD2 1XT

Flood Risk Assessment

For Mattress Online Ltd

KRS.0756.001.R.001.A

October 2023

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409 Leeds Road, Huddersfield, HD2 1XT

Project	Flood Risk Assessment
Client	Mattress Online Ltd
Status	Final
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Date	October 2023

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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 Mattress Online Ltd to support a planning change of use application from a commercial car garage to a retail unit (“the Proposed Development”) at 409 Leeds Road, Huddersfield, HD2 1XT (“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 (2023) National Planning Policy Framework: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.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 at 409 Leeds Road, Huddersfield, HD2 1XT (see Figure 1).



Figure 1 - Site Location

2.2 Existing Development

The Site is currently used as a commercial car garage Class B2 (see Appendix 1).

2.3 Proposed Development

It is understood the Proposed Development is for change of use to Use Class E for a retail unit (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

The Site is relatively flat with an approximate minimum ground level of 58.50 metres Above Ordnance Datum (mAOD).

2.5 Catchment Hydrology

The Allison Dike is located approximately 250m to the northeast of the Site and the Grimescar Dyke is located approximately 540m to the southwest of the Site. The River Colne is located approximately 250m to the south of the Site and the Fenay Beck is located approximately 1.25km to the east of the Site.

2.6 Ground Conditions

The Site is underlain by Made Ground and consists of impermeable surfaces. The British Geological Survey (BGS) map³ shows that the bedrock deposits underneath the Site consist of the Pennine Lower Coal Measures Formation - mudstone, siltstone and sandstone. 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 loamy and clayey floodplain soils with naturally high groundwater.

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 2).

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 'more 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.

The Environment Agency has provided modelled data for the 1 in 100 year (+20%) event, which in this case, has been used as a proxy for 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 Site is located within Flood Zone 2 and therefore has a 'medium probability' of flooding as shown in Figure 2. 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 Zone 2.

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

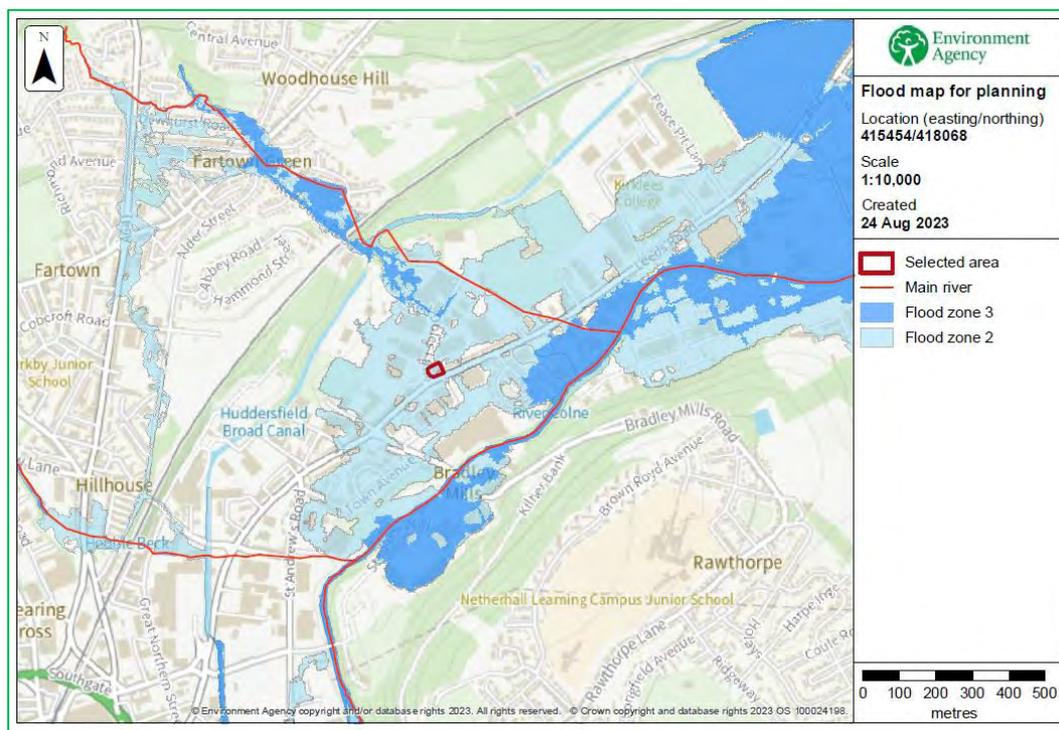


Figure 2 - Environment Agency Flood Zones

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 management infrastructure operating effectively; or 	Some development types not acceptable

		<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 to flooding or introduce a new ‘less vulnerable’ development in the floodplain.

Table 3 of this report and the PPG state that ‘less vulnerable’ uses are appropriate within Flood Zone 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 (see Figure 3) and the Kirklees Council Strategic Flood Risk Assessment (SFRA) shows that the Site has not historically flooded. 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/>

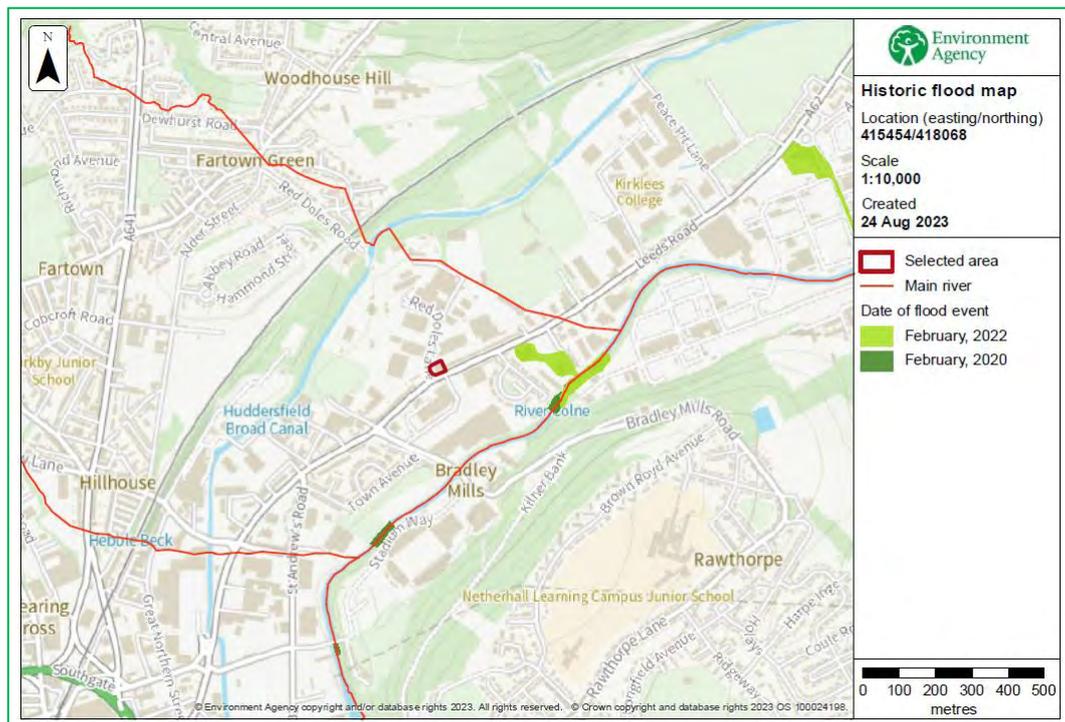


Figure 3 - Environment Agency Historic Flood Map

3.7 Existing and Planned Flood Defence Measures

The Environment Agency data shows that the Site is not protected against flooding by flood defence measures. However, 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 due to the vicinity of the Site to the local watercourses.

Fenay Beck, the Allison Dike and/or the Grimescar Dyke

The Environment Agency has provided modelled flood data for the Fenay Beck, the Allison Dike and the Grimescar Dyke for the Site.

Figures 4 to 8 show that the Site will not be inundated with floodwater for all events up to and including the 1 in 100 year, 1 in 100 year (+20%) and the 1 in 1000 year events for the Fenay Beck, the Allison Dike and/or the Grimescar Dyke. The Site will be flood free during the 1 in 100 year (+23%) event, which is the design flood event for the Site.

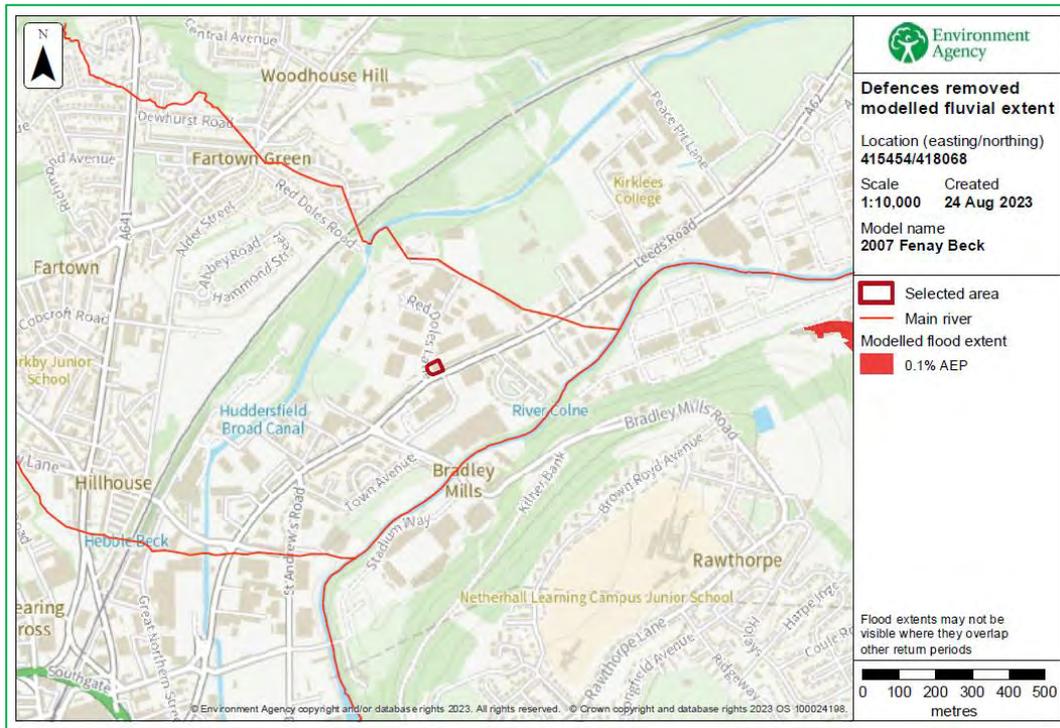


Figure 4 - Fenay Beck: Environment Agency Modelled Flood Outlines

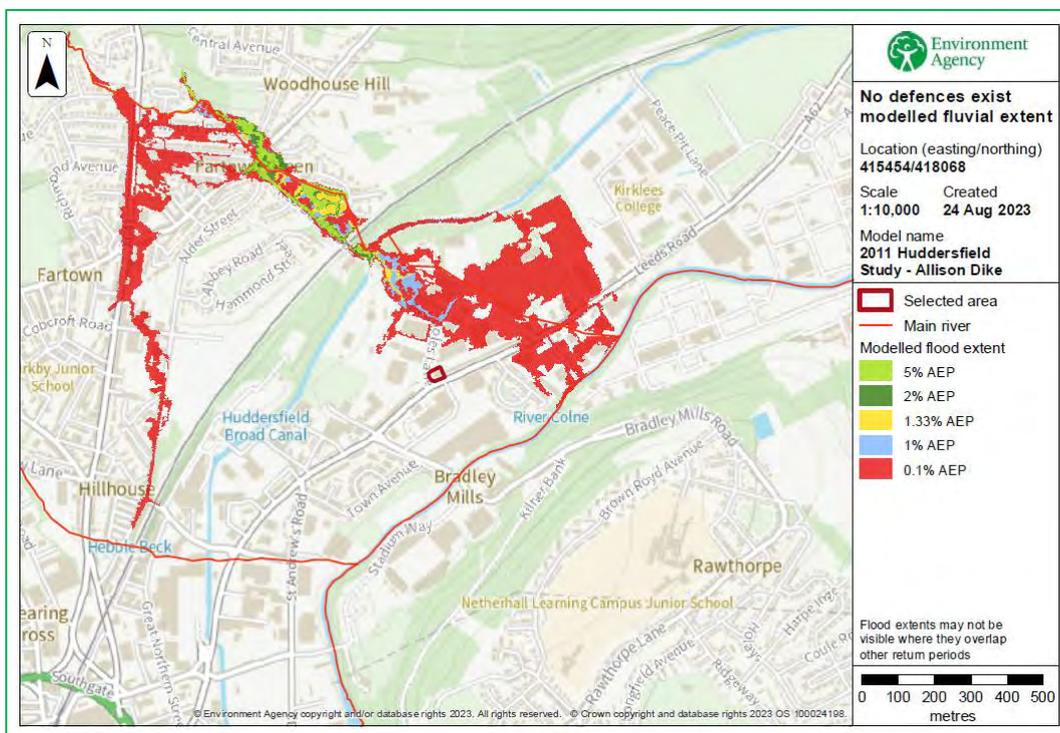


Figure 5 - Allison Dike: Environment Agency Modelled Flood Outlines

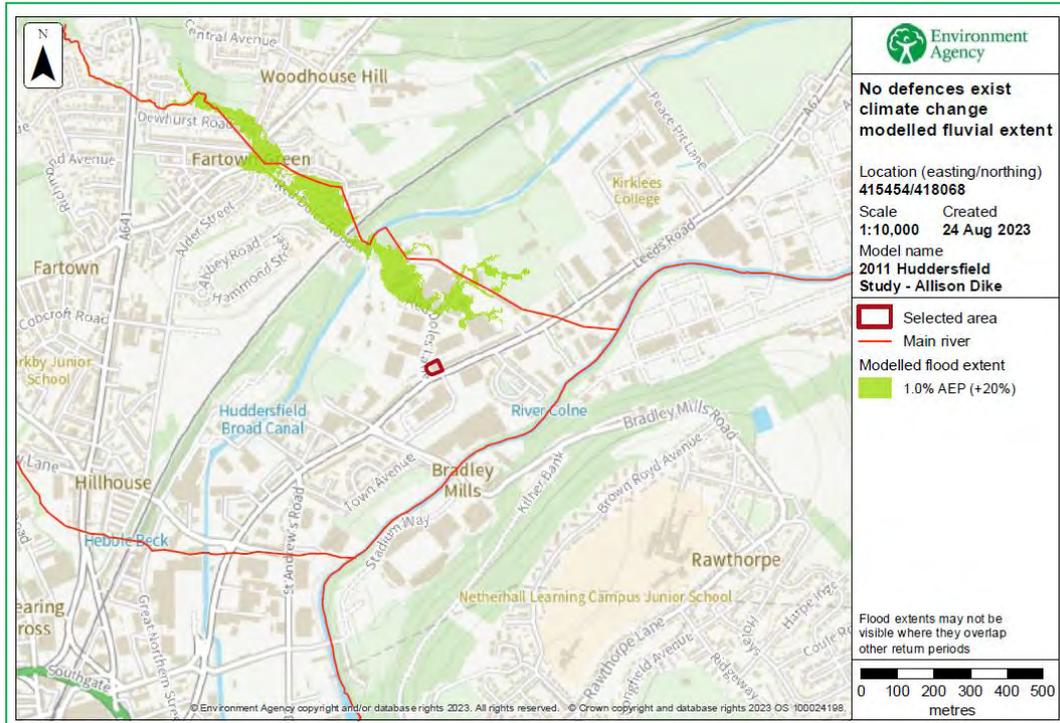


Figure 6 - Allison Dike: Environment Agency Climate Change Modelled Flood Outline

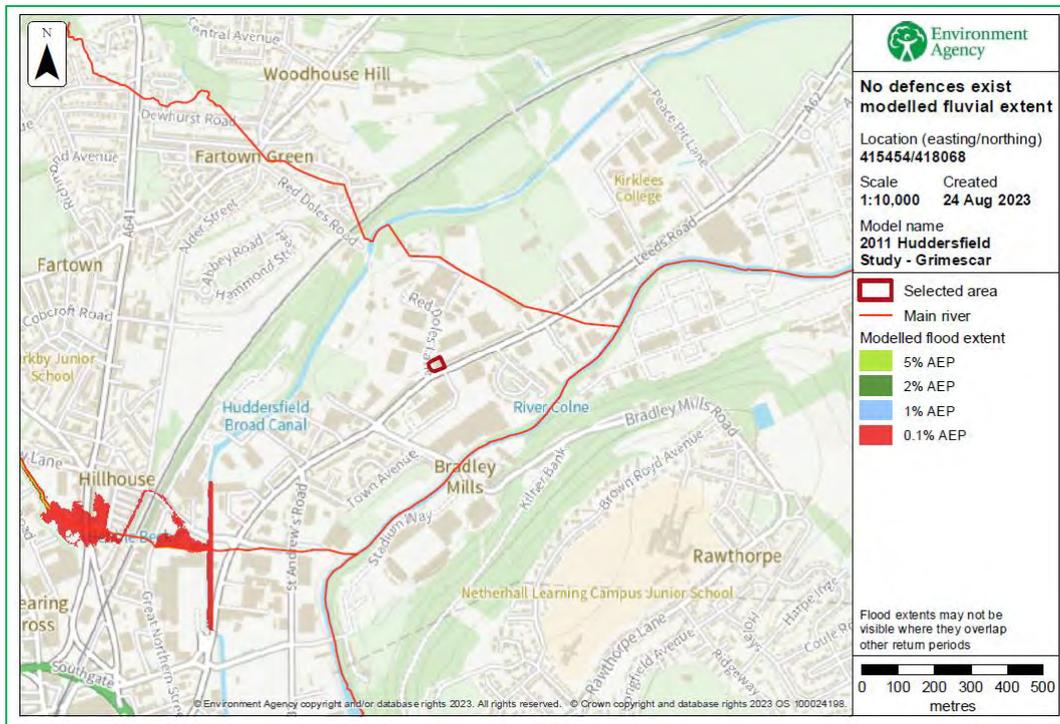


Figure 7 - Grimescar Dyke: Environment Agency Modelled Flood Outlines

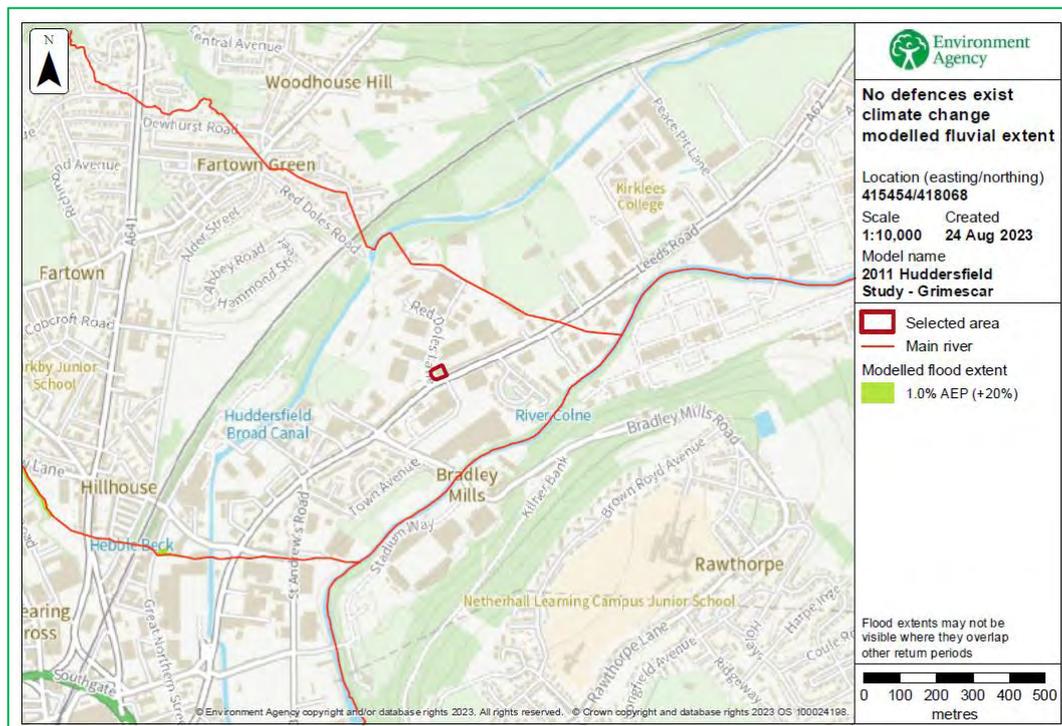


Figure 8 - Grimescar Dyke: Environment Agency Climate Change Modelled Flood Outlines

River Colne

The Environment Agency has provided modelled flood data for the River Colne for the Site. Figures 9 to 11 show that the Site will not be inundated with floodwater for all events up to and including the 1 in 100 year, 1 in 100 year (+20%), 1 in 200 year events for the River Colne. The Site will be flood free during the 1 in 100 year (+23%) event, which is the design flood event for the Site.

Figure 11 shows that the very north of the Site may be inundated with floodwater during the 1 in 100 year (+30%) event however, this would only affect the very north of the Site as the majority of the Site ground levels are above the 1 in 100 year (+30%) event. During the 1 in 1000 year event the Site may be inundated with floodwater. The flooding sources 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.

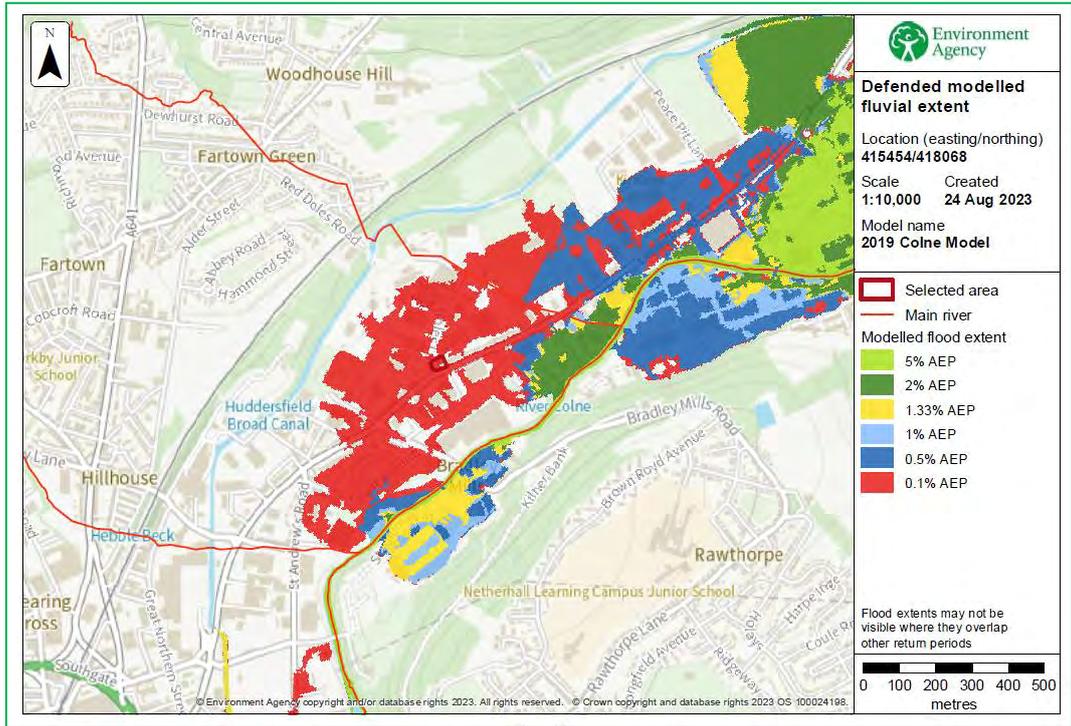


Figure 9 - River Colne: Environment Agency Defended Modelled Flood Outlines

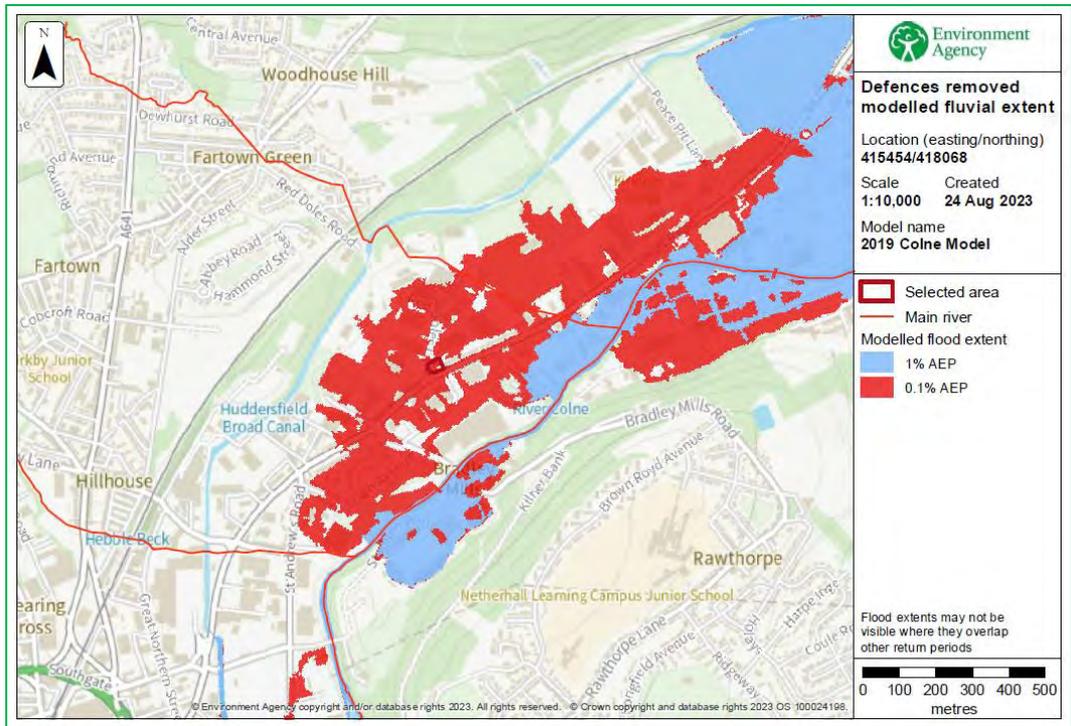


Figure 10 - River Colne: Environment Agency Undefended Modelled Flood Outlines

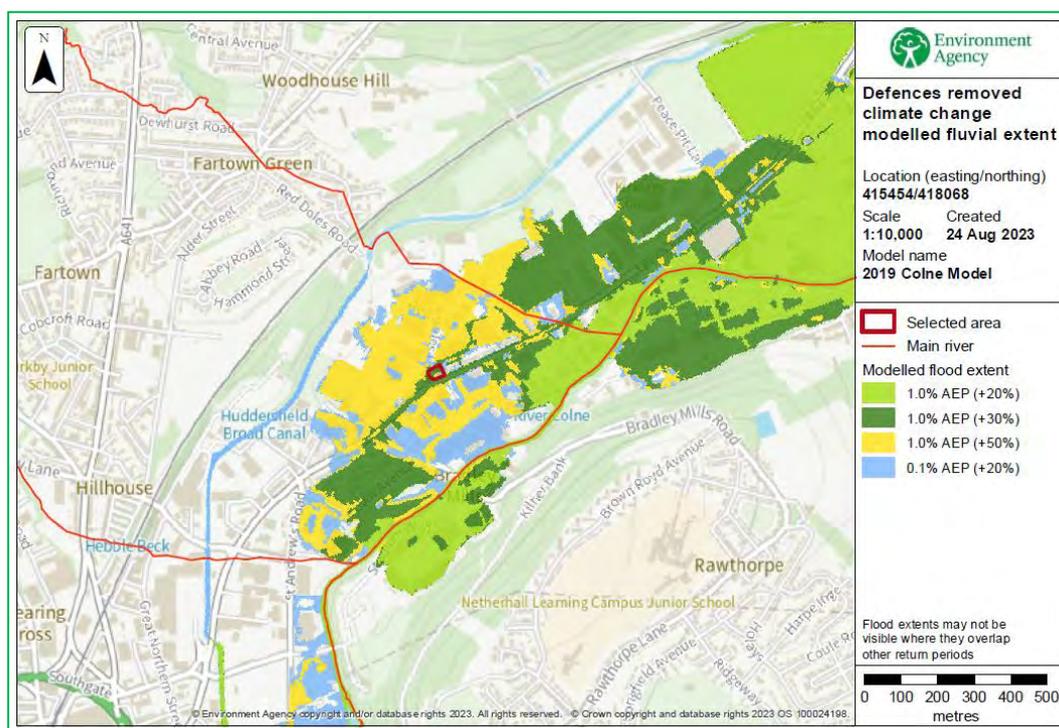


Figure 11 - River Colne: Environment Agency Undefended Climate Change Modelled Flood Outlines

The Site is one of the last places in the area to flood and remains flood free when other areas 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.

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 poses a low flood risk to the Site. Therefore, the risk of fluvial flooding from the River Colne 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). The Site is underlain by Made Ground and consists of impermeable surfaces therefore, Site ground conditions suggest a low potential for groundwater flooding, the low permeability deposits are classified as unproductive strata and suggest a negligible risk of groundwater flooding. The risk of flooding from groundwater flooding is considered to be **not significant**.

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 (see Figure 12) shows that the majority of 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%) years. However, a small proportion of the Site has a low risk of surface water flooding with an annual probability of flooding of 1 in 1000 (0.1%) to 1 in 100 (1%) years. This may result in water depths of less than 300mm and velocities of less than 0.25m/s.

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 of **low significance**.



Figure 12 - Environment Agency Surface Water Flood Map

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.

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.

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**.

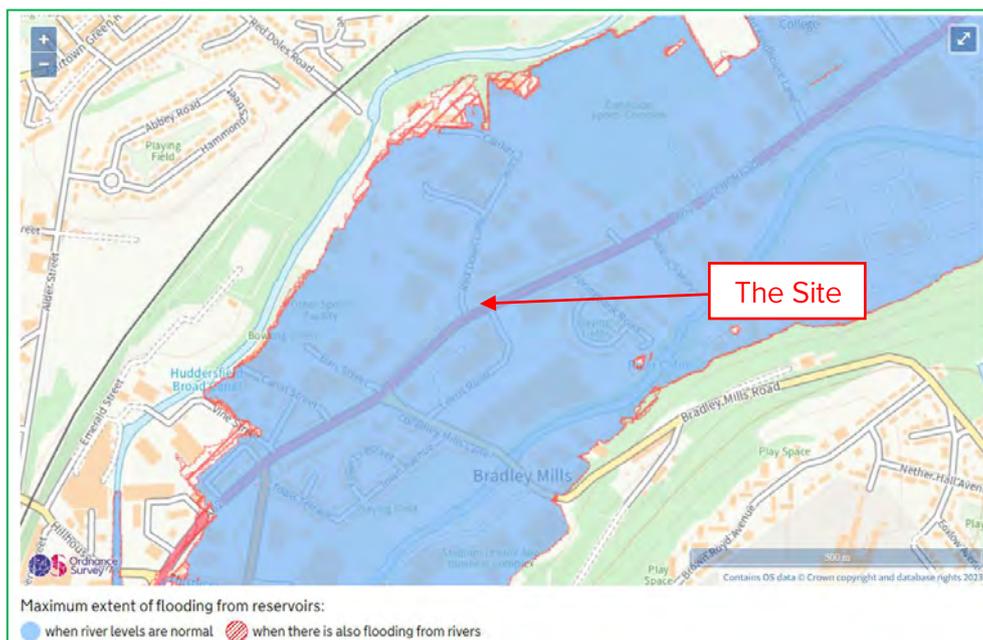


Figure 13 - Environment Agency Reservoir Flood Map

3.14 Impact of the Proposed Development on Flood Risk

The Site will not be inundated with floodwater for events up to and including the 1 in 100 year (+23%) event. 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. The Proposed Development will have no impact 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 4.

Table 4 - Risk Posed by Flooding Sources

Sources of Flooding	Potential Flood Risk	Potential Source	Probability/Significance
Fluvial Flooding	Yes	River Colne	Low
Tidal Flooding	No	None Reported	None
Groundwater Flooding	No	None Reported	None
Surface Water Flooding	Yes	Poor Permeability	Low
Sewer Flooding	No	None Reported	None
Flooding from Artificial Drainage Systems/Infrastructure Failure	Yes	Reservoirs	None

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 River Colne. The Environment Agency's Flood Zones indicates that half of the Site is located within Flood Zone 2 however, the Site has no history of flooding.

The existing and proposed use is classified as 'less vulnerable'. The Proposed Development will not change the vulnerability of the Site to flooding or introduce a new 'less vulnerable' development in the floodplain. 'Less vulnerable' uses are appropriate within Flood Zone 2 after the completion of a satisfactory FRA.

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the 1 in 100 year, 1 in 100 year (+20%), 1 in 200 year events from the River Colne. The Site will be flood free during the undefended 1 in 100 year (+23%) event, which is the design flood event for the Site.

However, the very north of the Site may be inundated with floodwater during the 1 in 100 year (+30%) event however, this would only affect the very north of the Site as the majority of the Site ground levels are above the 1 in 100 year (+30%) event. During the 1 in 1000 year event the Site may be inundated with floodwater. The flooding sources 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 poses a low flood risk to the Site. Therefore, the risk of fluvial flooding from the River Colne is considered to be of **low significance**. A secondary flooding source has been identified which may pose a **low significant** risk to the Site. This is:

- Surface Water Flooding

The risk of 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).

The Proposed Development is for the conversion of an existing building therefore, 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. The Proposed Development will have no impact on flood risk.

The application is for a new, suitable flood-resilient design. The exposure of people and property will be reduced and minimised compared to existing Site conditions. The chance of flooding each year is low each year. This takes into account the property level protection measures.

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 Finished Floor Levels

It is proposed that the finished floor levels will be set no lower than the existing ground levels. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further, than those stated above. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site sign up to the Environment Agency's flood warning service and implement a Flood Plan to a safe area away from the Site during times of flood.

It is also proposed that flood protection measures are employed within the building design to reduce the overall risk to the occupants. This is discussed below.

5.3 Flood Resilience and Resistance

The development of the layout should always consider that the site is potentially at risk from an extreme event and as such the implementation of flood resilience and resistance methods should be assessed.

To make the buildings more resistant to seepage the following measures will be incorporated. Sealant will be used around external doors and windows. All windows will be located above the ground levels. All external doors and windows will be constructed from synthetic materials. The floors of the building will be concrete hardstanding.

5.4 Flood Warning

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.

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 building to be safely evacuated and mitigation measures to be put in place.

All occupants of the Site will be made aware of the Environment Agency Floodline telephone number (Call Floodline on 0345 988 1188) and the Flood Warning Codes and their meaning. The owner of the property will carry out the role of Flood Warden for the Site and ensure they have an understanding of the flood mechanisms of the Site and will ensure that the safety of the occupants and visitors will not be compromised.

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.

5.5 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. Sensible precautions would include raising electrical items, irreplaceable items and sentimental items off the ground or where possible moving them to a higher level, rolling up carpets and rugs and turning off utilities. In addition, consider what actions you would take should the property need to be evacuated including access and egress routes and preparing a flood kit in advance containing warm clothing, medication, a torch, food and wellingtons.

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 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.

5.6 Safe Access and Egress Route

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 their houses 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.

A safe access and egress route, including emergency access can be maintained for vehicles and/or by foot. The Site is at such a ground level that it would only flood in the most extreme flood event. The Site and the Site access will be flood free for all events up to and including the 1 in 100 year (+23%) event, which is the design flood event for the Site.

Facilities such as community centres, shops etc. are located to the west of the Site. 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. In the event of a flood warning, vital belongings, including waterproof clothing, necessary medication and essentials for infants and children will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site using the routes shown in Figure 14.

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. Therefore, safe access and egress can be maintained in accordance with the NPPF and Environment Agency guidance.

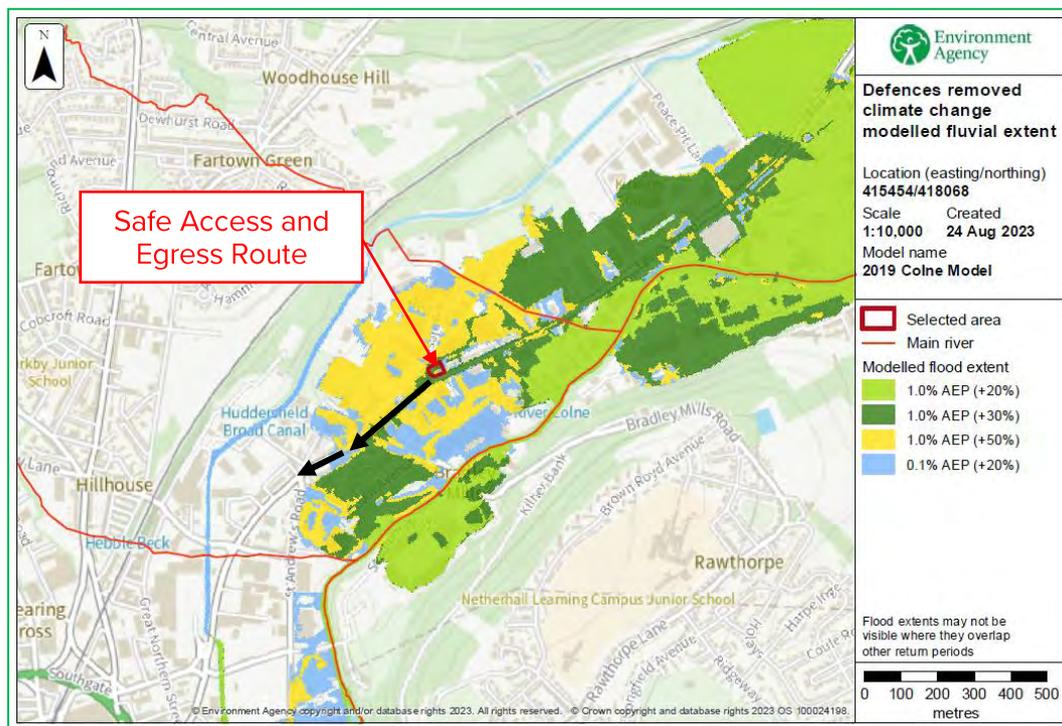


Figure 8 - Safe Access and Egress Route

5.7 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 / Exception Tests

The risk-based Sequential Test in accordance with the NPPF aims to steer new development to areas at the lowest probability of flooding (i.e. Flood Zone 1). However, paragraph 168 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'*.

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

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 at 409 Leeds Road, Huddersfield, HD2 1XT.

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 River Colne. The Environment Agency's Flood Zones indicates that half of the Site is located within Flood Zone 2 however, the Site has no history of flooding.

The existing and proposed use is classified as 'less vulnerable'. The Proposed Development will not change the vulnerability of the Site to flooding or introduce a new 'less vulnerable' development in the floodplain. 'Less vulnerable' uses are appropriate within Flood Zone 2 after the completion of a satisfactory FRA.

The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the 1 in 100 year, 1 in 100 year (+20%), 1 in 200 year events from the River Colne. The Site will be flood free during the undefended 1 in 100 year (+23%) event, which is the design flood event for the Site.

However, the very north of the Site may be inundated with floodwater during the 1 in 100 year (+30%) event however, this would only affect the very north of the Site as the majority of the Site ground levels are above the 1 in 100 year (+30%) event. During the 1 in 1000 year event the Site may be inundated with floodwater. The flooding sources 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 poses a low flood risk to the Site. Therefore, the risk of fluvial flooding from the River Colne is considered to be of **low significance**. A secondary flooding source has been identified which may pose a **low significant** risk to the Site. This is:

- Surface Water Flooding

The risk of 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.

The Proposed Development is for the conversion of an existing building therefore, 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. The Proposed Development will have no impact on flood risk.

The application is for a new, suitable flood-resilient design. The exposure of people and property will be reduced and minimised compared to existing Site conditions. The chance of flooding each year is low each year. This takes into account the property level protection measures.

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.

Finished Floor Levels: It is proposed that the finished floor levels will be set no lower than the existing ground levels. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further, than those stated above. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site sign up to the Environment Agency's flood warning service and implement a Flood Plan to a safe area away from the Site during times of flood.

It is also proposed that flood protection measures are employed within the building design to reduce the overall risk to the occupants. This is discussed below.

Flood Resilience and Resistance: To make the buildings more resistant to seepage the following measures will be incorporated. Sealant will be used around external doors and windows. All windows will be located above the ground levels. All external doors and windows will be constructed from synthetic materials. The floors of the building will be concrete hardstanding.

Flood Warning: 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 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 their houses 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.

A safe access and egress route, including emergency access can be maintained for vehicles and/or by foot. The Site is at such a ground level that it would only flood in the most extreme flood event. The Site and the Site access will be flood free for all events up to and including the 1 in 100 year (+23%) event, , which is the design flood event for the Site.

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. 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

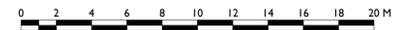
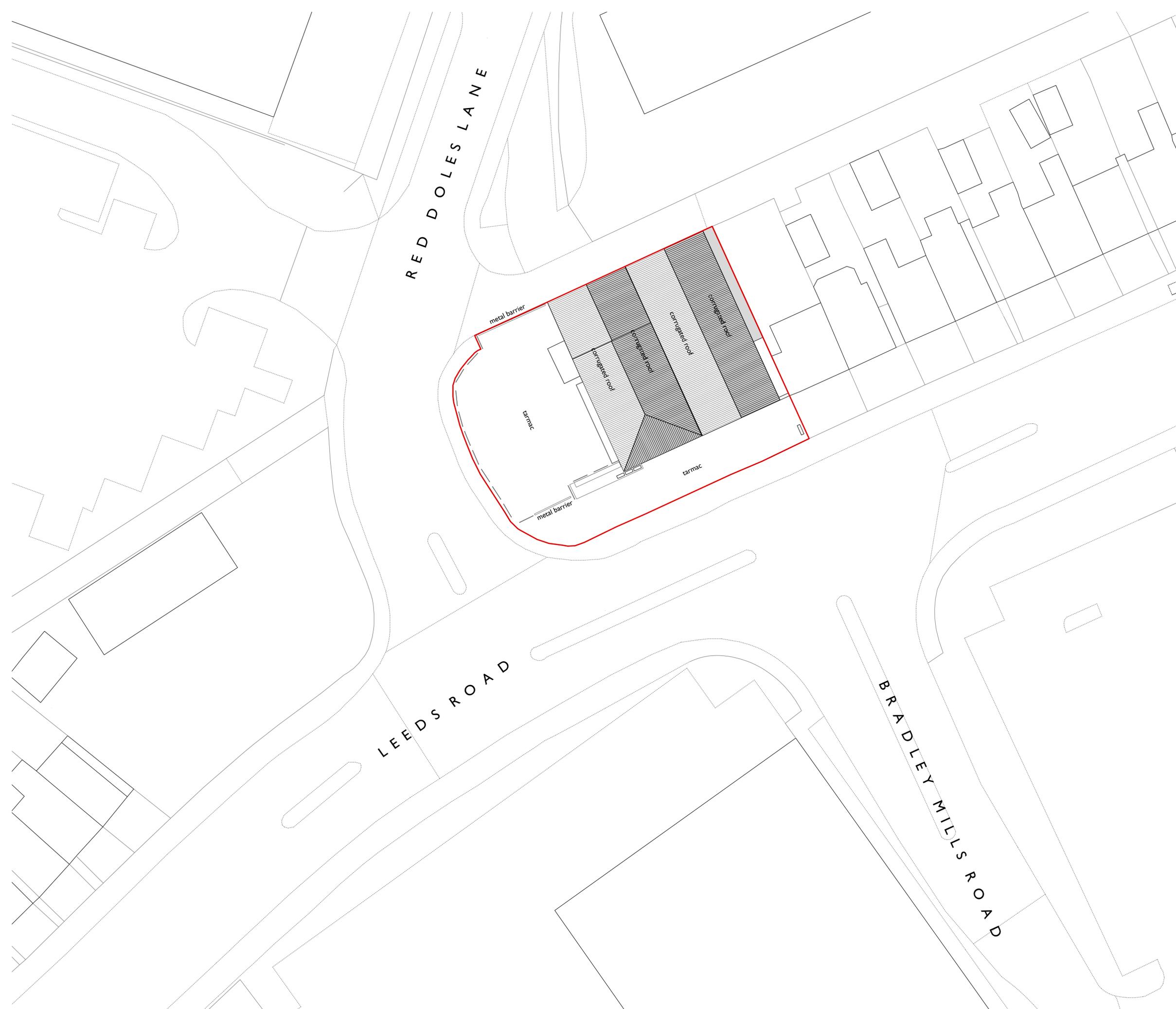
In conclusion, the Proposed Development would be expected to remain dry in all but the most extreme conditions. The Site is unlikely to flood except in extreme conditions. Providing the recommendations made in this FRA are instigated, flood risk from all sources would be minimised, the consequences of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



Current Revision **P1**

Date	Rev	Description

Project Name **Mattressonline.co.uk, Huddersfield**

Client **mattressonline.co.uk**

Drawing Title **Existing Site Plan**

Drawing Number **A1000**

Date **23/08/2023**

Scale **1:200 @ A1**

Drawn By **MA**

93

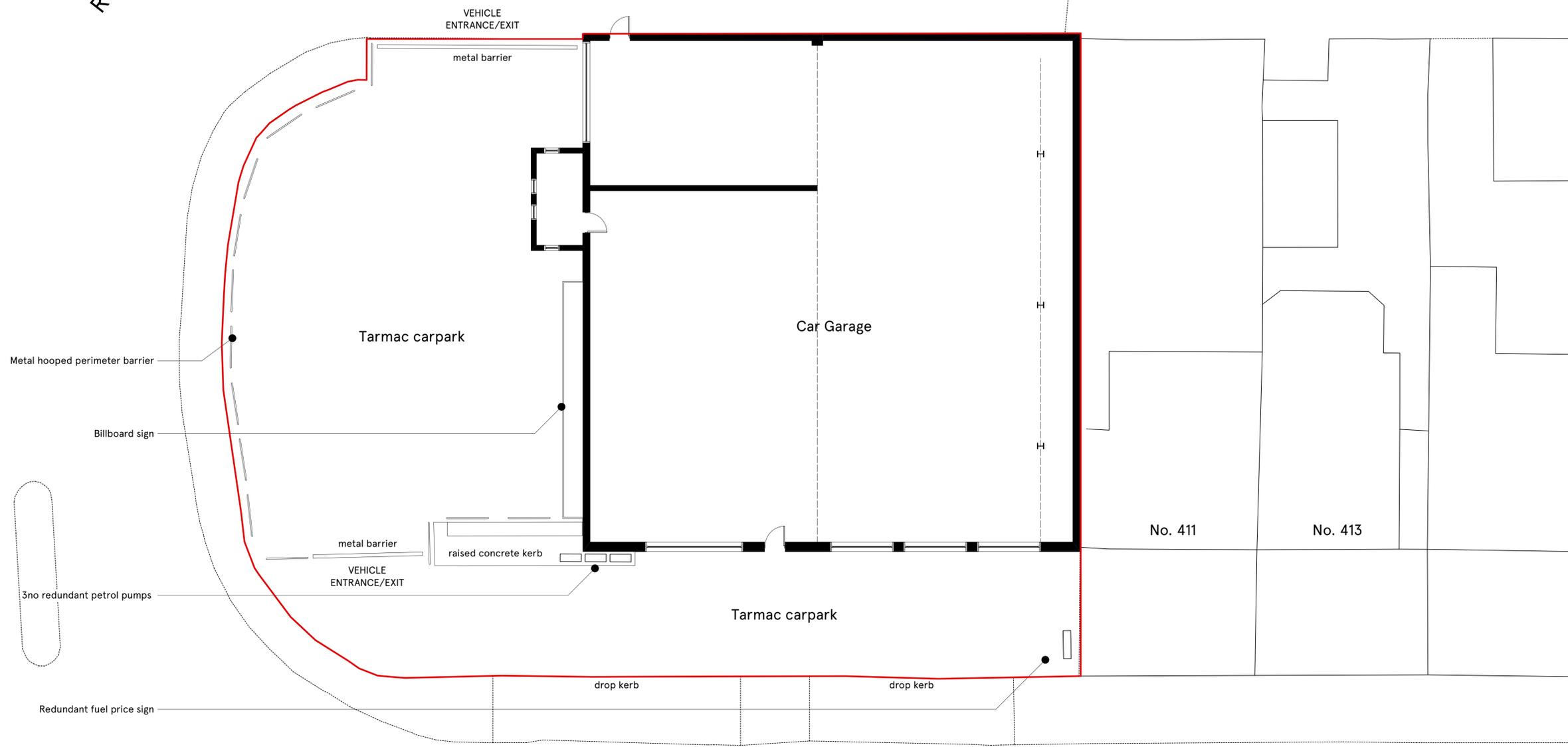
3 Noopsend Lane
Sheffield, S3 8FE
+44 (0) 114 361 9393
begin@93ft.com

Do not scale from this drawing. Use
figured dimensions in all cases.
Check all dimensions on-site. Any
discrepancies to be reported
immediately to 93



RED DOLES LANE

[rear lane]



Metal hooped perimeter barrier

Billboard sign

3no redundant petrol pumps

Redundant fuel price sign

metal barrier

VEHICLE ENTRANCE/EXIT

raised concrete kerb

drop kerb

drop kerb

Tarmac carpark

Car Garage

Tarmac carpark

No. 411

No. 413



Current Revision **P1**

Date	Rev	Description

Project Name **Mattressonline.co.uk, Huddersfield**

Client **mattressonline.co.uk**

Drawing Title **Existing Plan**

Drawing Number **A1001**

Date **23/08/2023**

Scale **1:100 @ A1**

Drawn By **MA**

LEEDS ROAD

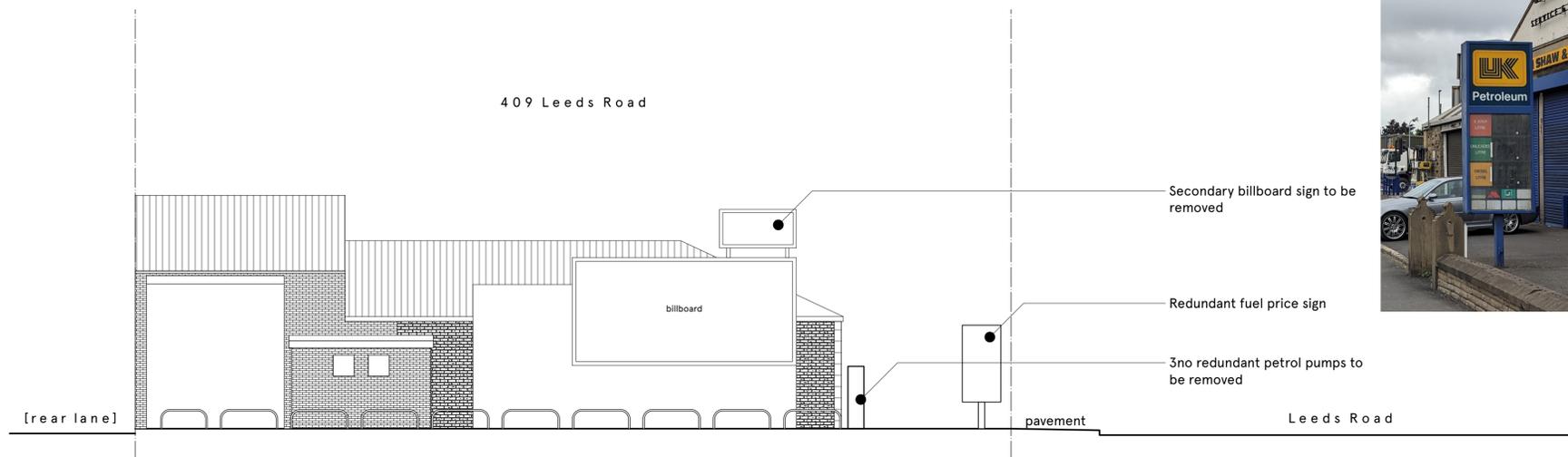
93

3 Neepsend Lane
Sheffield, S3 8FE
+44 (0) 114 361 9393
begin@93ft.com

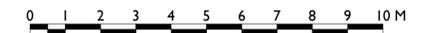
Do not scale from this drawing. Use figured dimensions in all cases. Check all dimensions on-site. Any discrepancies to be reported immediately to 93



1 Existing (south) Elevation to Leeds Road
Scale: 1:100



2 Existing (west) Elevation to Red Doles Lane
Scale: 1:100

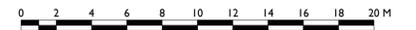
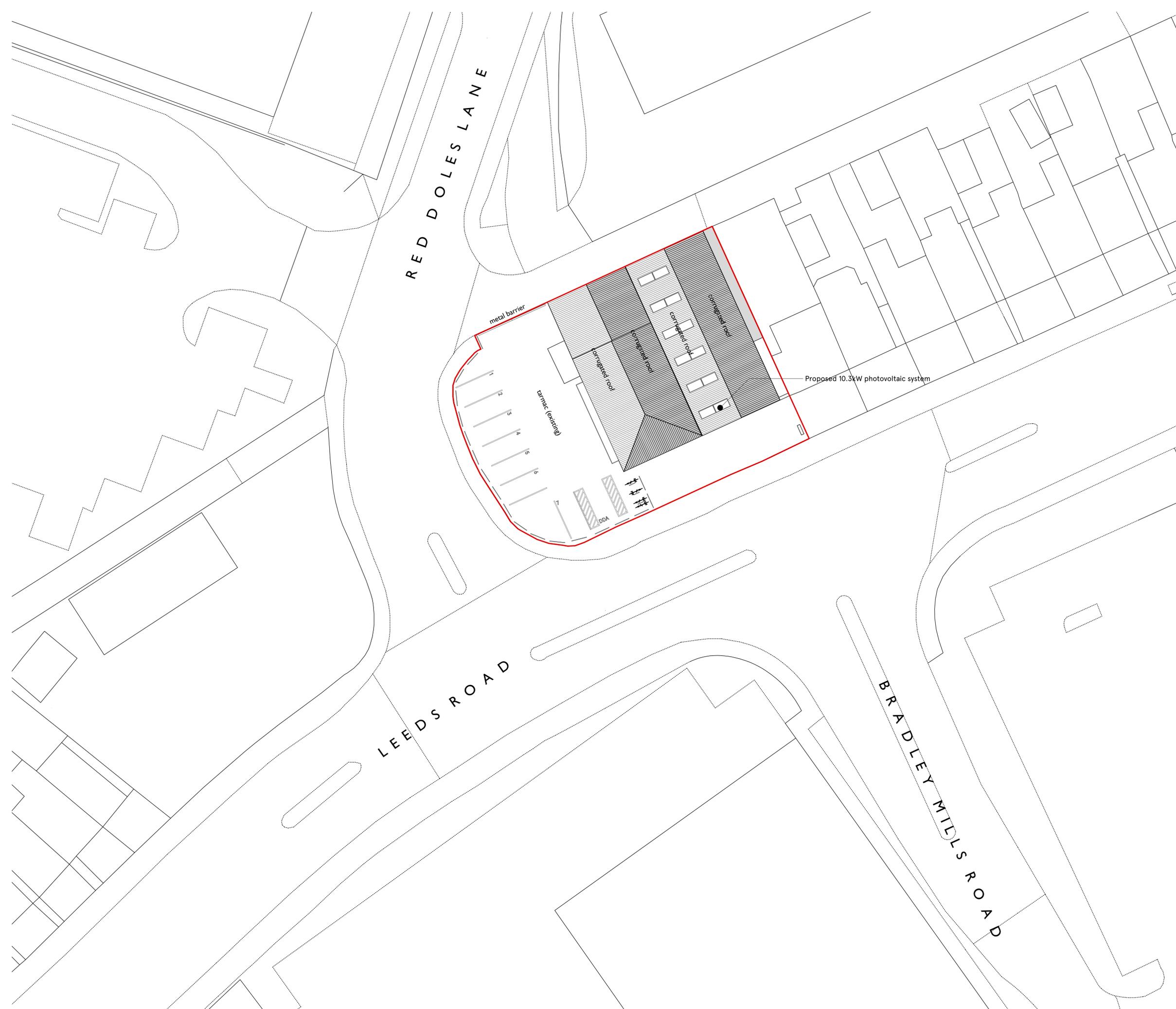


Current Revision	P1	
Date	Rev	Description



3 Existing (north) Elevation to Rear Lane
Scale: 1:100

Project Name	Mattressonline.co.uk, Huddersfield
Client	mattressonline.co.uk
Drawing Title	Existing Elevations
Drawing Number	A1200
Date	23/08/2023
Scale	1:100 @ A1
Drawn By	MA



Current Revision

P1

Date	Rev	Description

Project Name **Mattressonline.co.uk, Huddersfield**

Client **mattressonline.co.uk**

Drawing Title **Proposed Site Plan**

Drawing Number **A2000**

Date **23/08/2023**

Scale **1:200 @ A1**

Drawn By **MA**

93

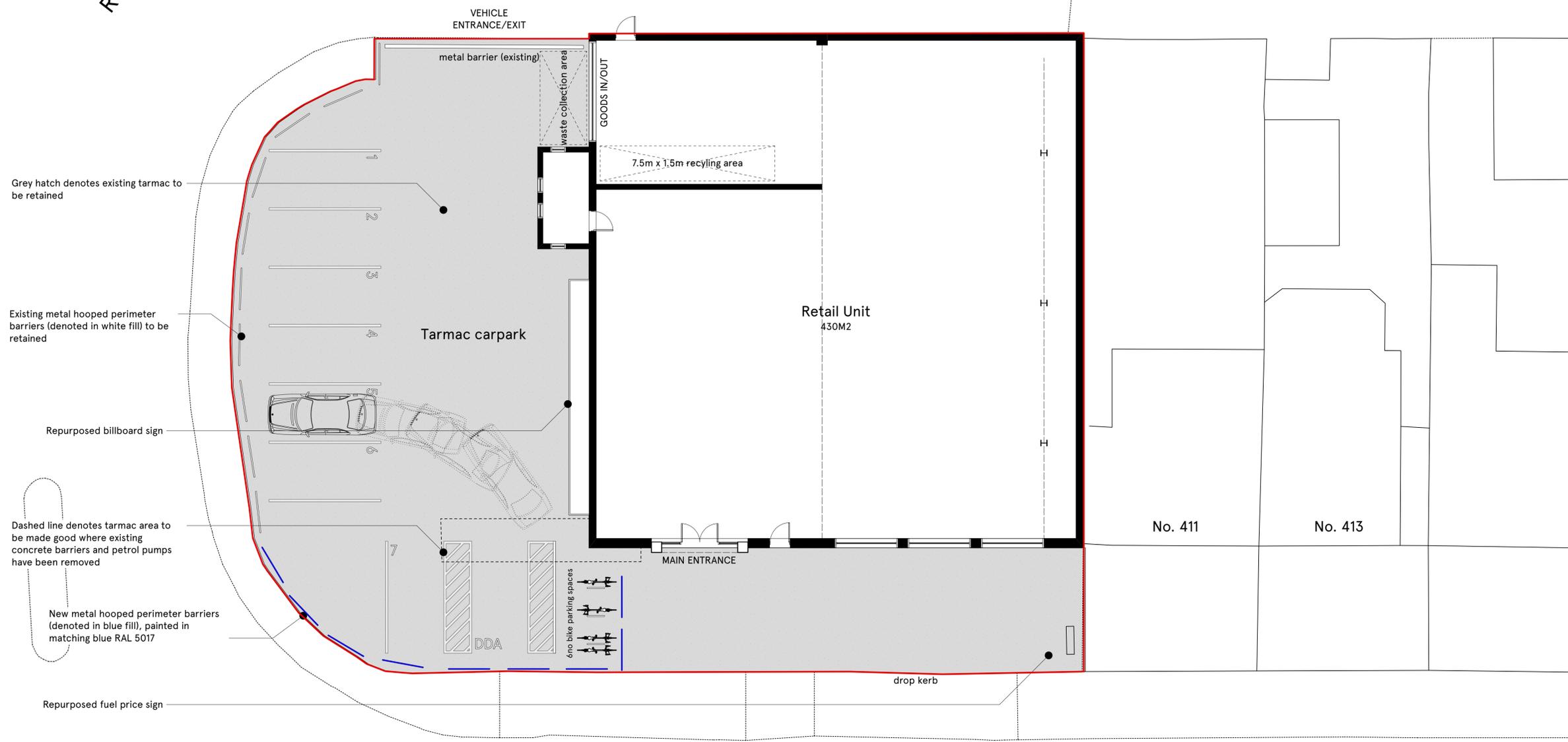
3 Neepsend Lane
Sheffield, S3 8FE
+44 (0) 114 361 9393
begin@93ft.com

Do not scale from this drawing. Use figured dimensions in all cases. Check all dimensions on-site. Any discrepancies to be reported immediately to 93



RED DOLES LANE

[rear lane]



Grey hatch denotes existing tarmac to be retained

Existing metal hooped perimeter barriers (denoted in white fill) to be retained

Repurposed billboard sign

Dashed line denotes tarmac area to be made good where existing concrete barriers and petrol pumps have been removed

New metal hooped perimeter barriers (denoted in blue fill), painted in matching blue RAL 5017

Repurposed fuel price sign



Current Revision **P1**

Date	Rev	Description

Project Name **Mattressonline.co.uk, Huddersfield**

Client **mattressonline.co.uk**

Drawing Title **Proposed Plan**

Drawing Number **A2001**

Date **23/08/2023**

Scale **1:100 @ A1**

Drawn By **MA**

LEEDS ROAD

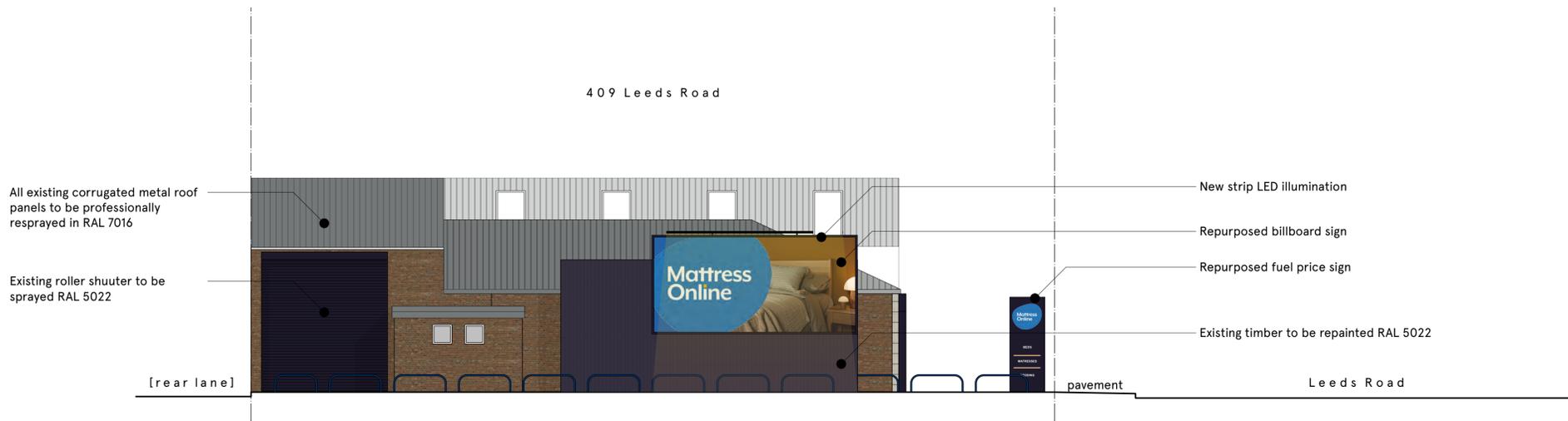
93

3 Neepsend Lane
Sheffield, S3 8FE
+44 (0) 114 361 9393
begin@93ft.com

Do not scale from this drawing. Use figured dimensions in all cases. Check all dimensions on-site. Any discrepancies to be reported immediately to 93



1 Proposed (south) Elevation to Leeds Road
Scale: 1:100



2 Proposed (west) Elevation to Red Doles Lane
Scale: 1:100



Current Revision

P1

Date Rev Description

05/07/2023 P1 Planning

Project Name **Mattressonline.co.uk, Huddersfield**

Client **mattressonline.co.uk**

Drawing Title **Proposed Elevations**

Drawing Number **A2200**

Date **23/08/2023**

Scale **1:100 @ A1**

Drawn By **MA**



3 Proposed (north) Elevation to Rear Lane
Scale: 1:100

93

3 Neepsend Lane
Sheffield, S3 8FE
+44 (0) 114 361 9393
begin@93ft.com

Do not scale from this drawing. Use figured dimensions in all cases. Check all dimensions on-site. Any discrepancies to be reported immediately to 93



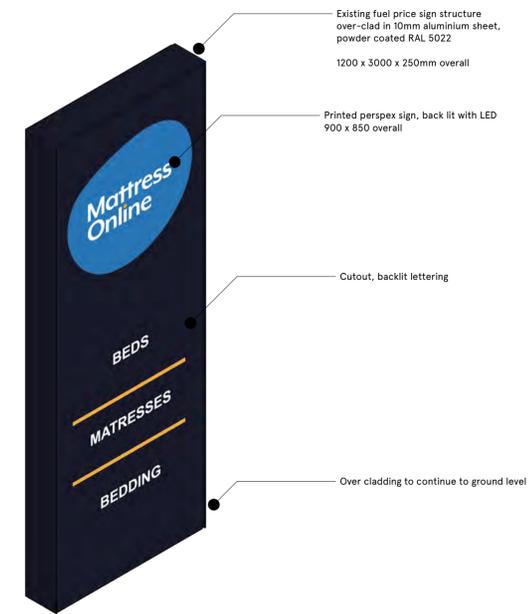
1 Proposed (south) Elevation to Leeds Road
Scale: 1:125



2 Proposed Gable End Signs
Scale: 1:20



3 Proposed (west) Elevation to Red Doles Lane
Scale: 1:125



4 Proposed Roadside 'Fuel' Sign
Scale: 1:20

Current Revision	P1	
Date	Rev	Description
05/07/2023	P1	Planning
Project Name	Mattressonline.co.uk, Huddersfield	
Client	mattressonline.co.uk	
Drawing Title	Proposed Signs	
Drawing Number	A2201	
Date	23/08/2023	
Scale	1:100 @ A1	
Drawn By	MA	

93
3 Neepsend Lane
Sheffield, S3 8FE
+44 (0) 114 361 9393
begin@93ft.com

Do not scale from this drawing. Use figured dimensions in all cases. Check all dimensions on-site. Any discrepancies to be reported immediately to 93



APPENDIX 2 – Environment Agency Correspondence

Flood risk assessment data



Location of site: 415454 / 418068 (shown as easting and northing coordinates)

Document created on: 24 August 2023

This information was previously known as a product 4.

Customer reference number: U9K2DH9HVXME

Map showing the location that flood risk assessment data has been requested for.



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)
- historic flooding
- 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
- climate change modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Not included in this document

This document does not include a Flood Defence Breach Hazard Map.

If your location has a reduced flood risk from rivers and sea because of defences, you need to request a Flood Defence Breach Hazard Map and information about the level of flood protection offered at your location from the Yorkshire Environment Agency team at neyorkshire@environment-agency.gov.uk. This information will only be available if modelling has been carried out for breach scenarios.

Include a site location map in your request.

Surface water and other sources of flooding

Use the [long term flood risk service](#) to find out about the risk of flooding from:

- surface water
- ordinary watercourses
- reservoirs

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

About the models used

Model name: 2007 Fenay Beck
Scenario(s): Defences removed fluvial
Date: 1 August 2007

Model name: 2011 Huddersfield Study - Allison Dike and Blackhouse Dike
Scenario(s): No defences exist fluvial, no defences exist climate change fluvial
Date: 31 March 2011

Model name: 2011 Huddersfield Study - Grimescar Beck / Clayton Dike
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

This data is updated on a quarterly basis as better data becomes available.



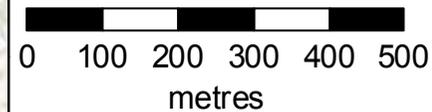
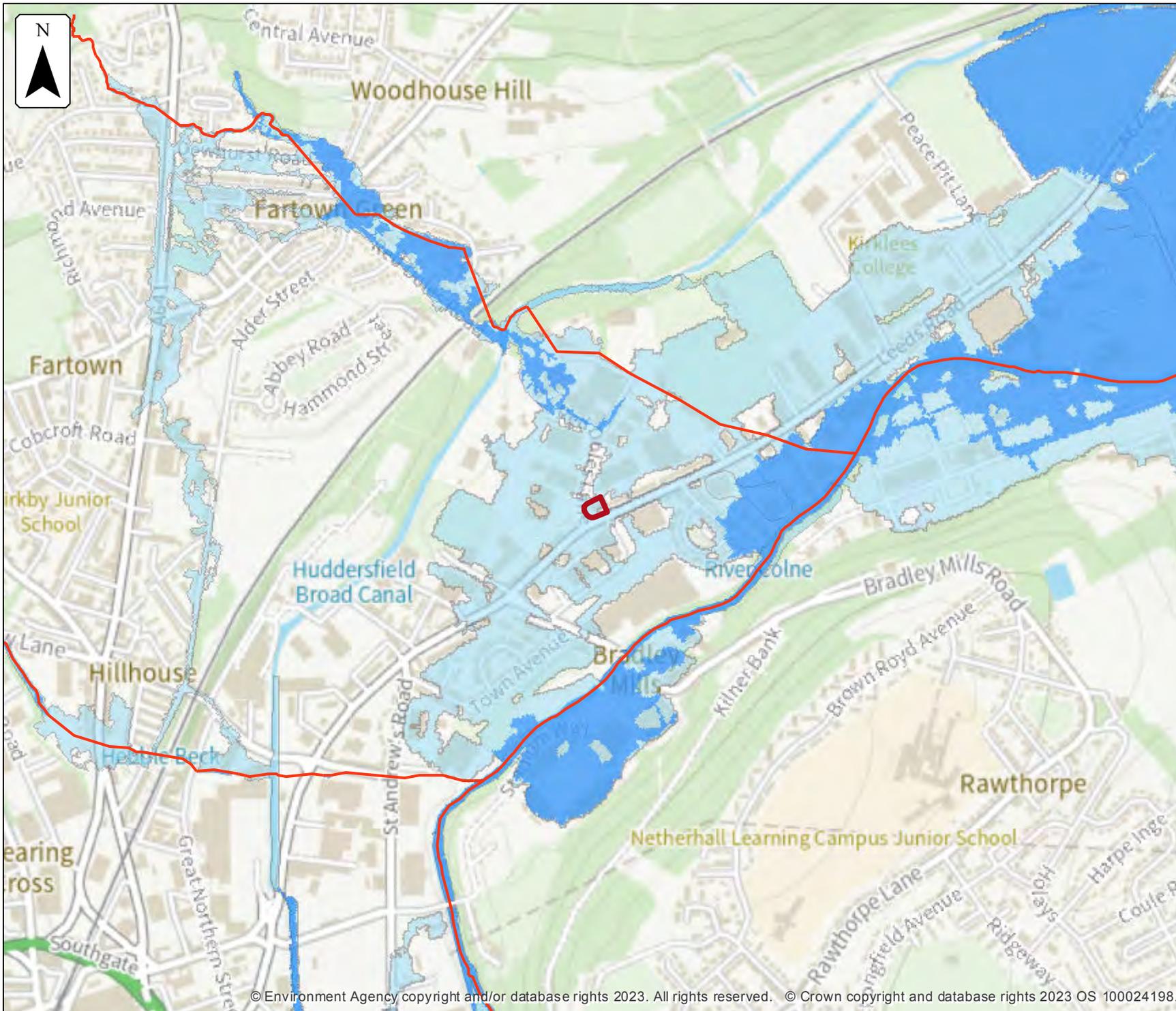
Flood map for planning

Location (easting/northing)
415454/418068

Scale
1:10,000

Created
24 Aug 2023

-  Selected area
-  Main river
-  Flood zone 3
-  Flood zone 2



Historic flooding

This map is an indicative outline of areas that have previously flooded. Remember that:

- our records are incomplete, so the information here is based on the best available data
- it is possible not all properties within this area will have flooded
- other 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 also 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.

[Download recorded flood outlines in GIS format](#)



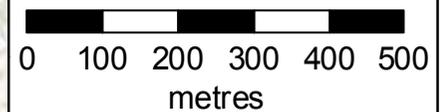
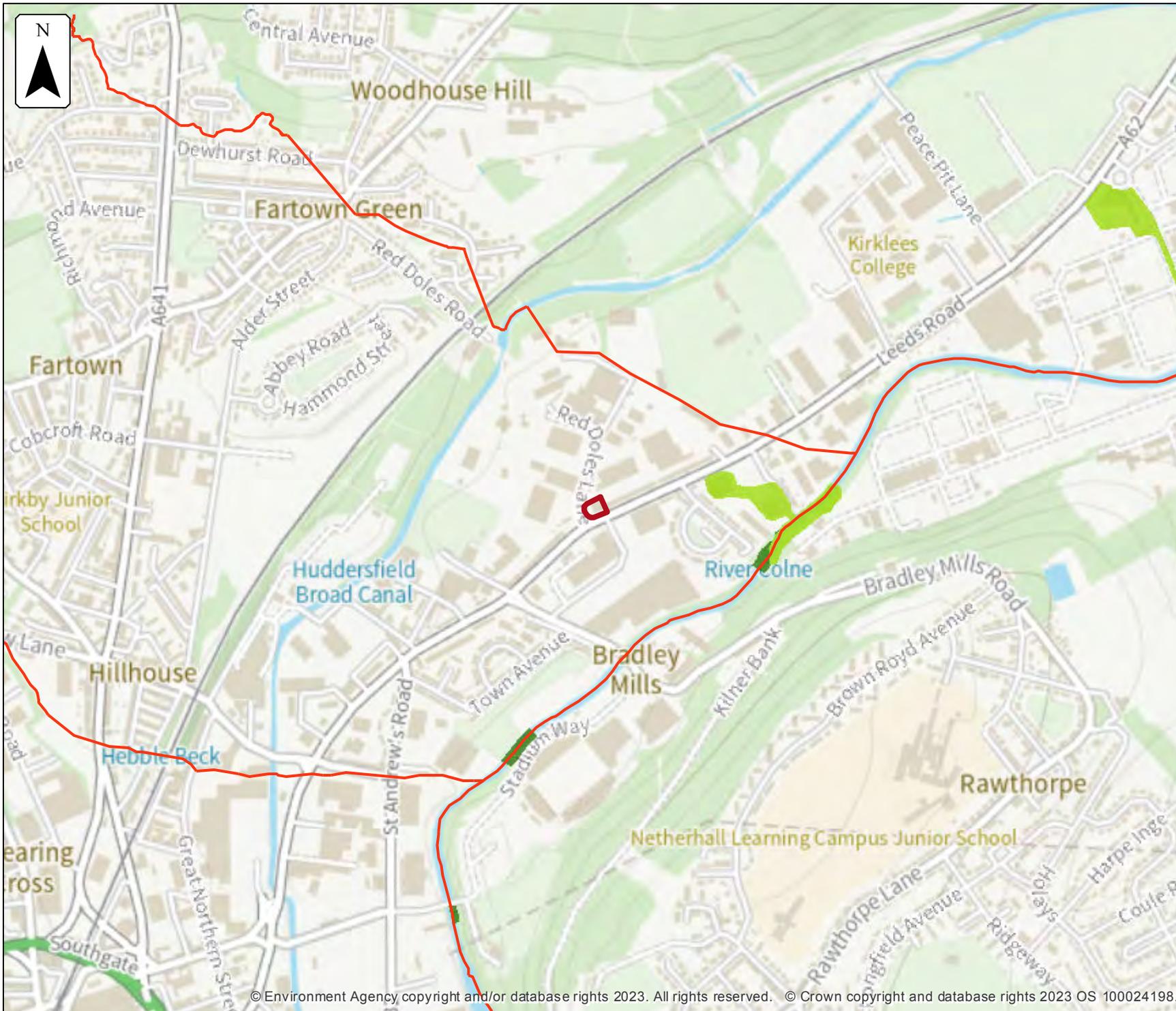
Historic flood map

Location (easting/northing)
415454/418068

Scale
1:10,000

Created
24 Aug 2023

-  Selected area
-  Main river
- Date of flood event
-  February, 2022
-  February, 2020



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Historic flood event data

Start date	End date	Source of flood	Cause of flood	Affects location
20 February 2022	28 March 2022	main river	channel capacity exceeded (no raised defences)	No
15 February 2020	19 March 2020	main river	channel capacity exceeded (no raised defences)	No

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)
415454/418068

Scale
1:5,000

Created
24 Aug 2023

-  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	183943	Wall		Good	56.97	57.34	

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



Defended modelled fluvial extent

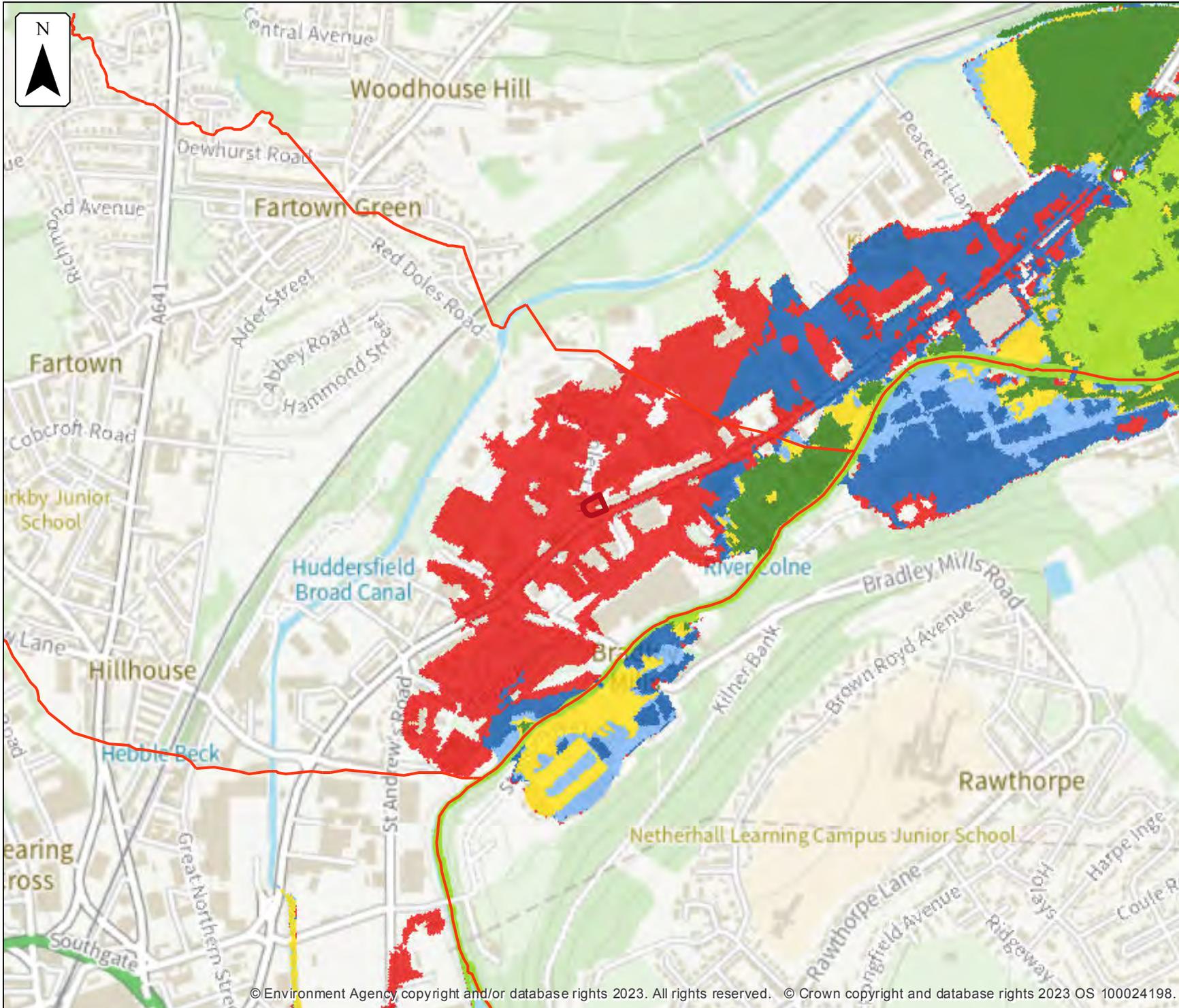
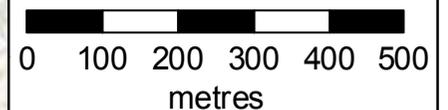
Location (easting/northing)
415454/418068

Scale Created
1:10,000 24 Aug 2023

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





Defences removed modelled fluvial extent

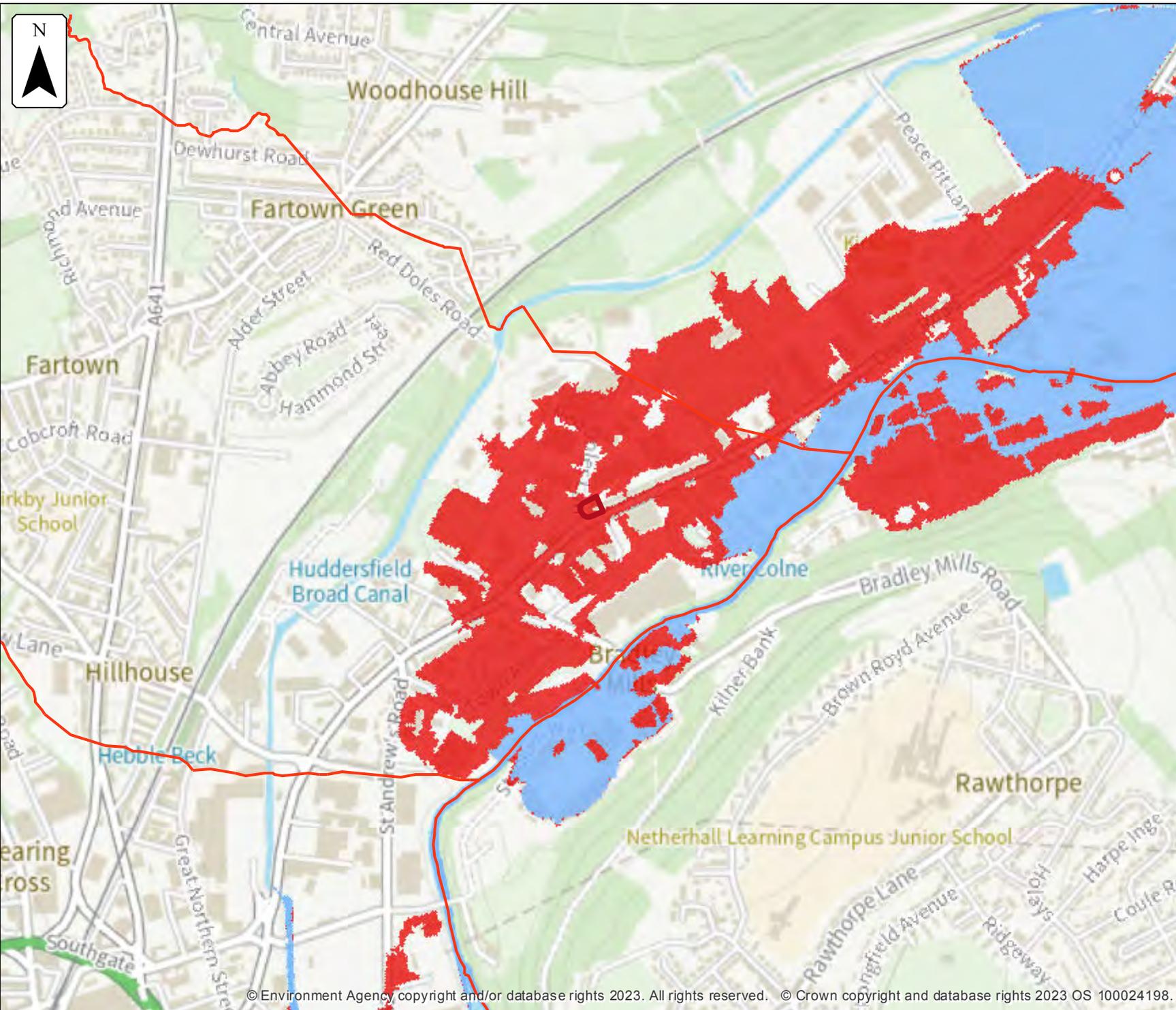
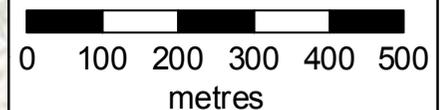
Location (easting/northing)
415454/418068

Scale Created
1:10,000 24 Aug 2023

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



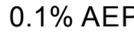


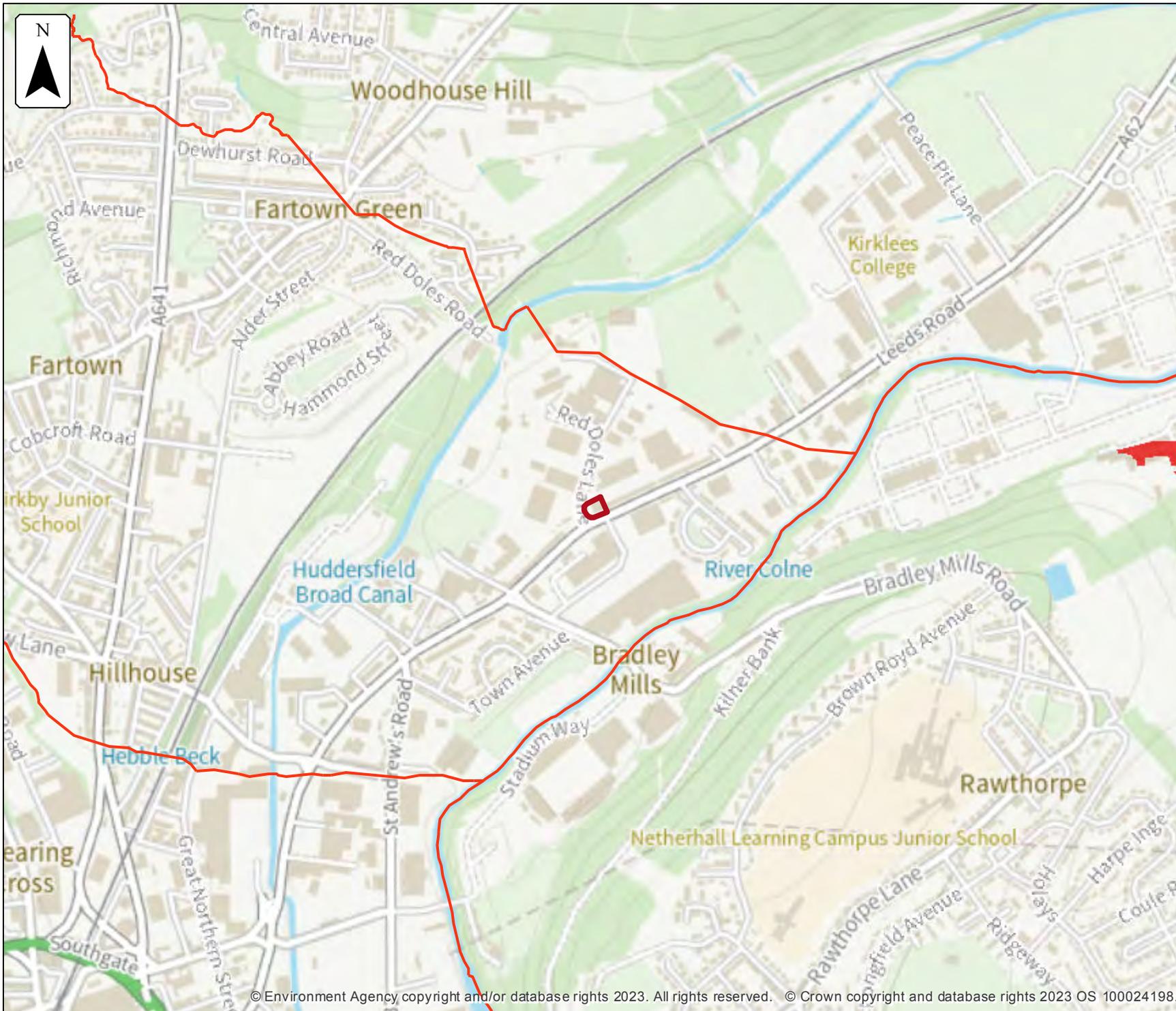
Defences removed modelled fluvial extent

Location (easting/northing)
415454/418068

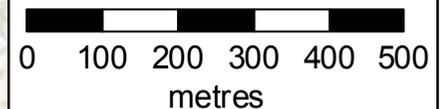
Scale Created
1:10,000 24 Aug 2023

Model name
2007 Fenay Beck

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



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





No defences exist modelled fluvial extent

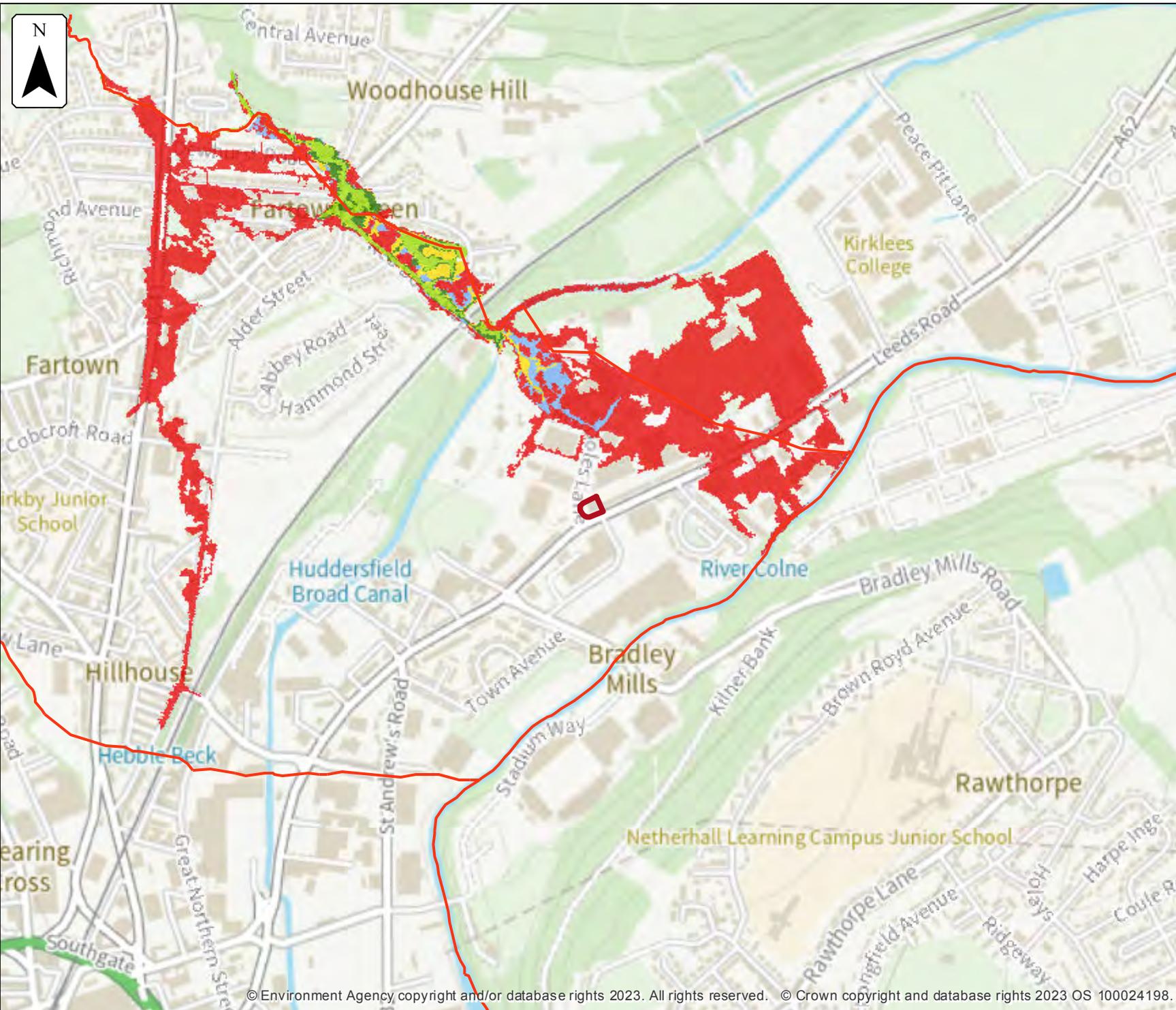
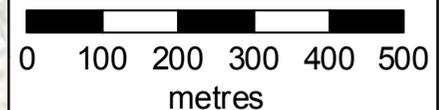
Location (easting/northing)
415454/418068

Scale Created
1:10,000 24 Aug 2023

Model name
**2011 Huddersfield
Study - Allison Dike**

- 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





No defences exist modelled fluvial extent

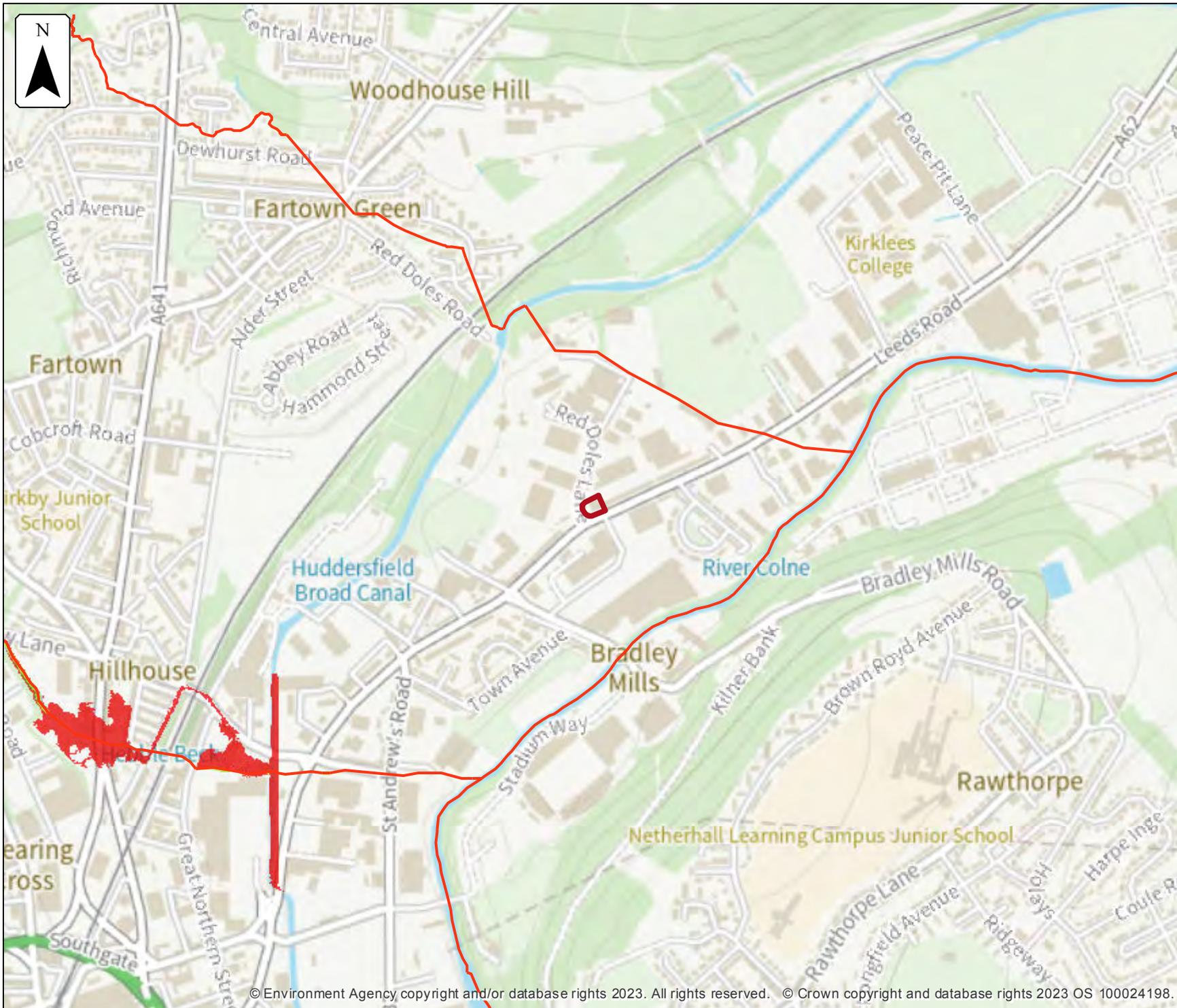
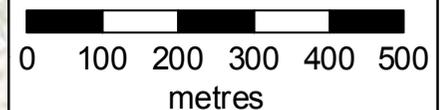
Location (easting/northing)
415454/418068

Scale Created
1:10,000 24 Aug 2023

Model name
2011 Huddersfield Study - Grimescar

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

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





Defences removed climate change modelled fluvial extent

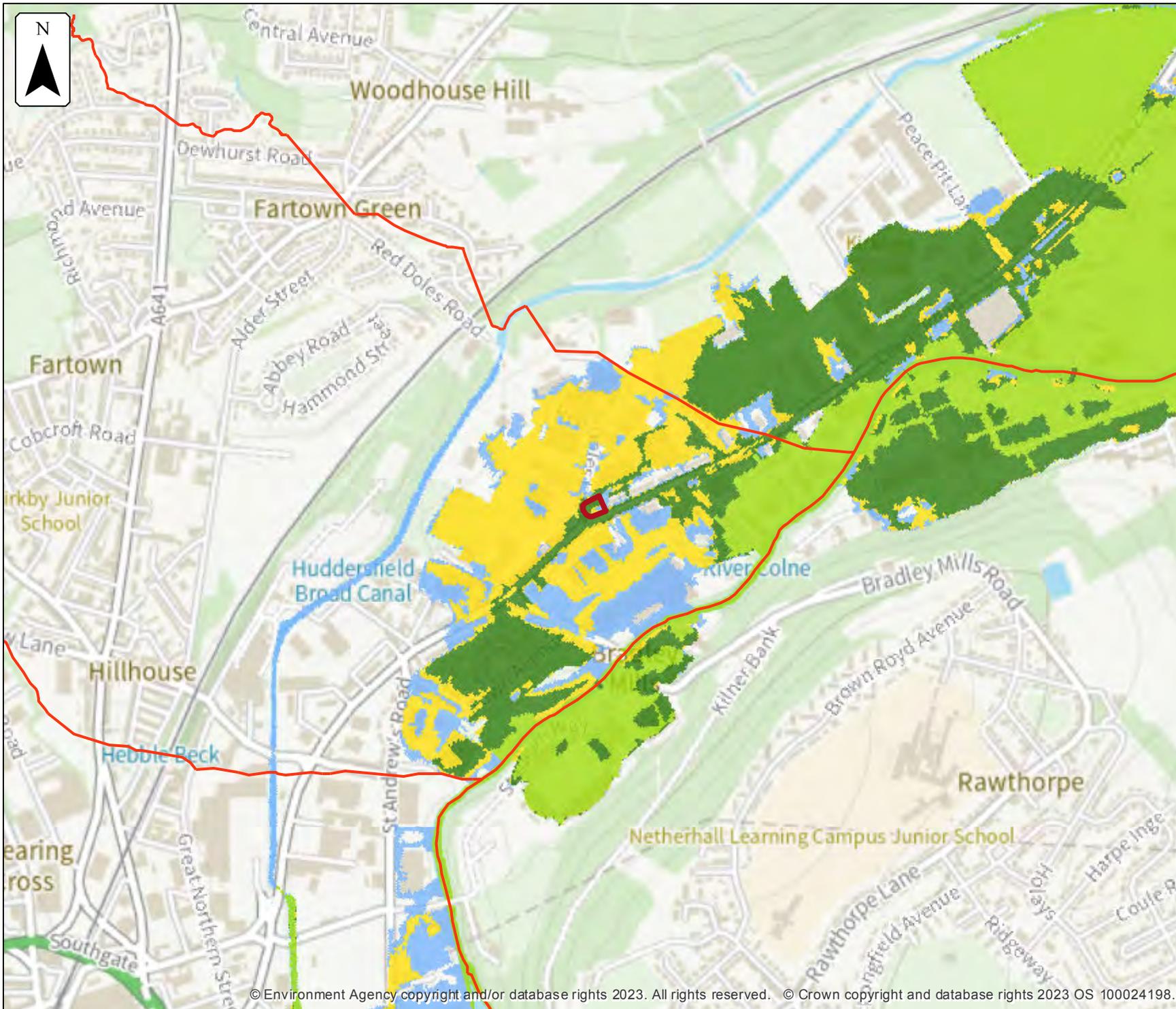
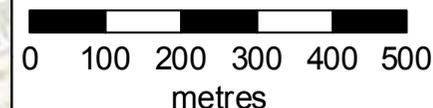
Location (easting/northing)
415454/418068

Scale Created
1:10,000 24 Aug 2023

Model name
2019 Colne Model

- Selected area
- Main river
- Modelled flood extent
 - 1.0% AEP (+20%)
 - 1.0% AEP (+30%)
 - 1.0% AEP (+50%)
 - 0.1% AEP (+20%)

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





No defences exist climate change modelled fluvial extent

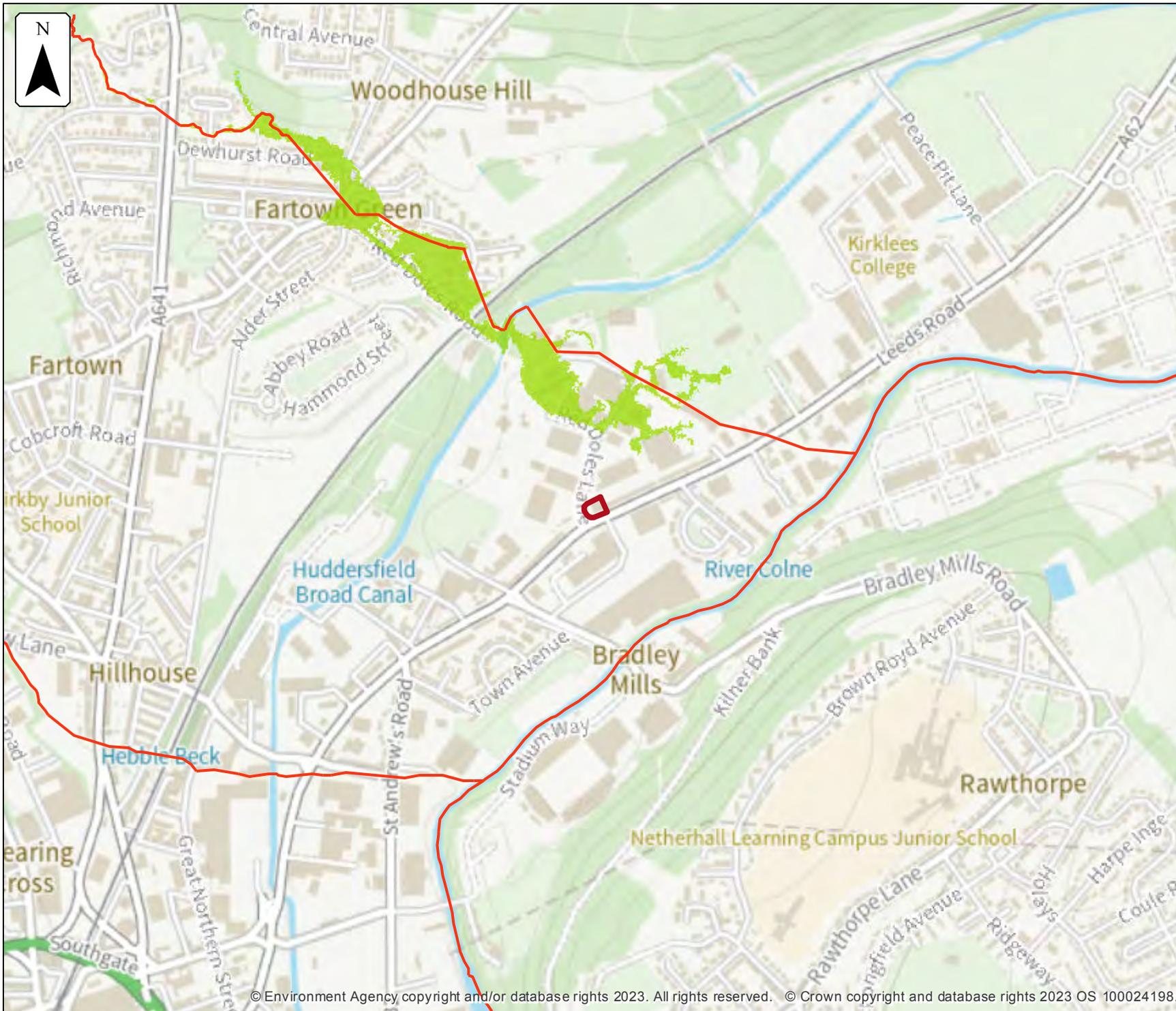
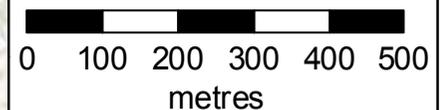
Location (easting/northing)
415454/418068

Scale Created
1:10,000 24 Aug 2023

Model name
**2011 Huddersfield
Study - Allison Dike**

-  Selected area
-  Main river
- Modelled flood extent
 -  1.0% AEP (+20%)

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





No defences exist climate change modelled fluvial extent

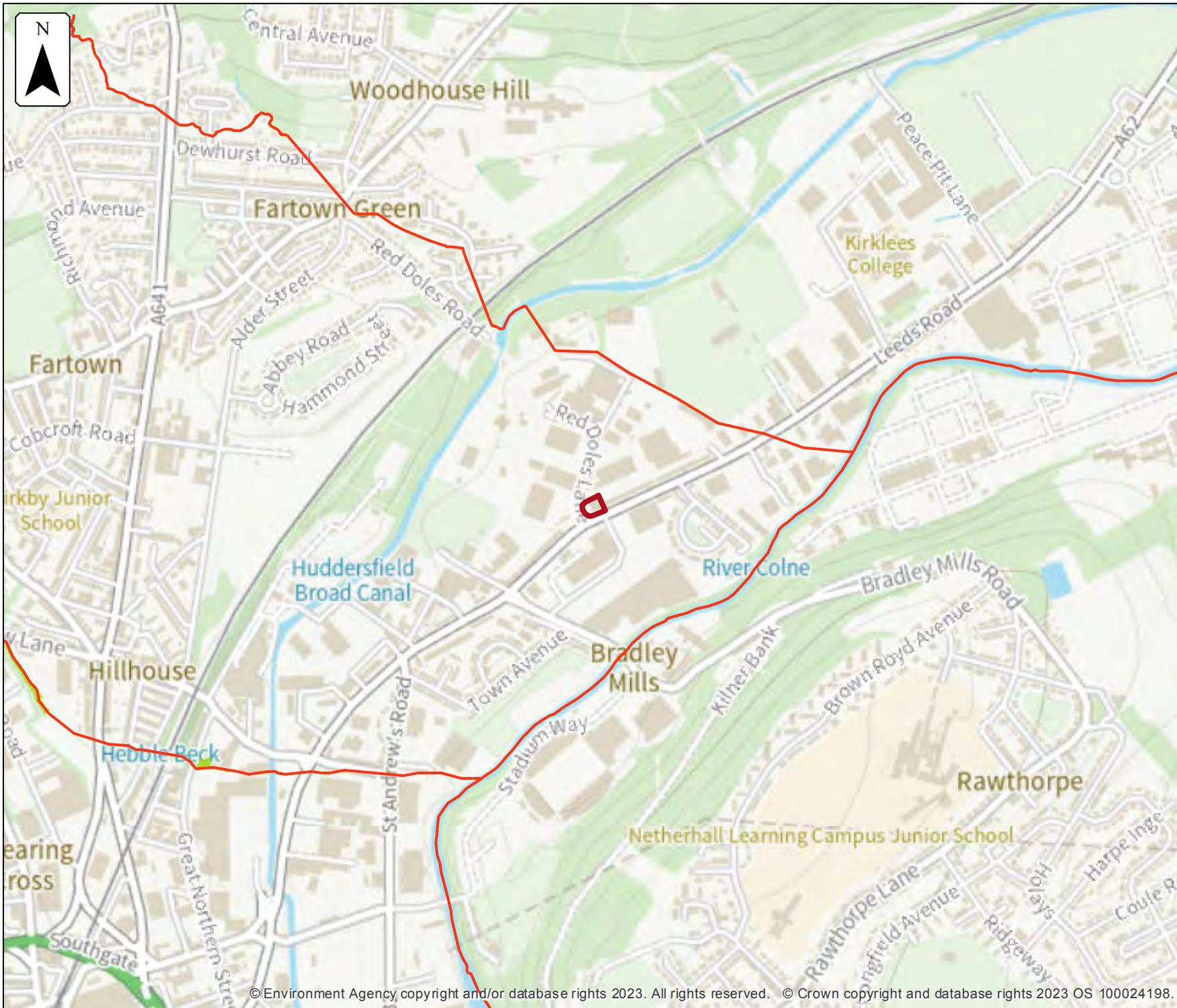
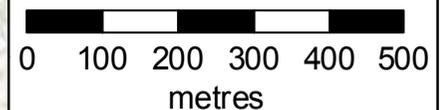
Location (easting/northing)
415454/418068

Scale Created
1:10,000 24 Aug 2023

Model name
**2011 Huddersfield
Study - Grimescar**

-  Selected area
-  Main river
- Modelled flood extent
 -  1.0% AEP (+20%)

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





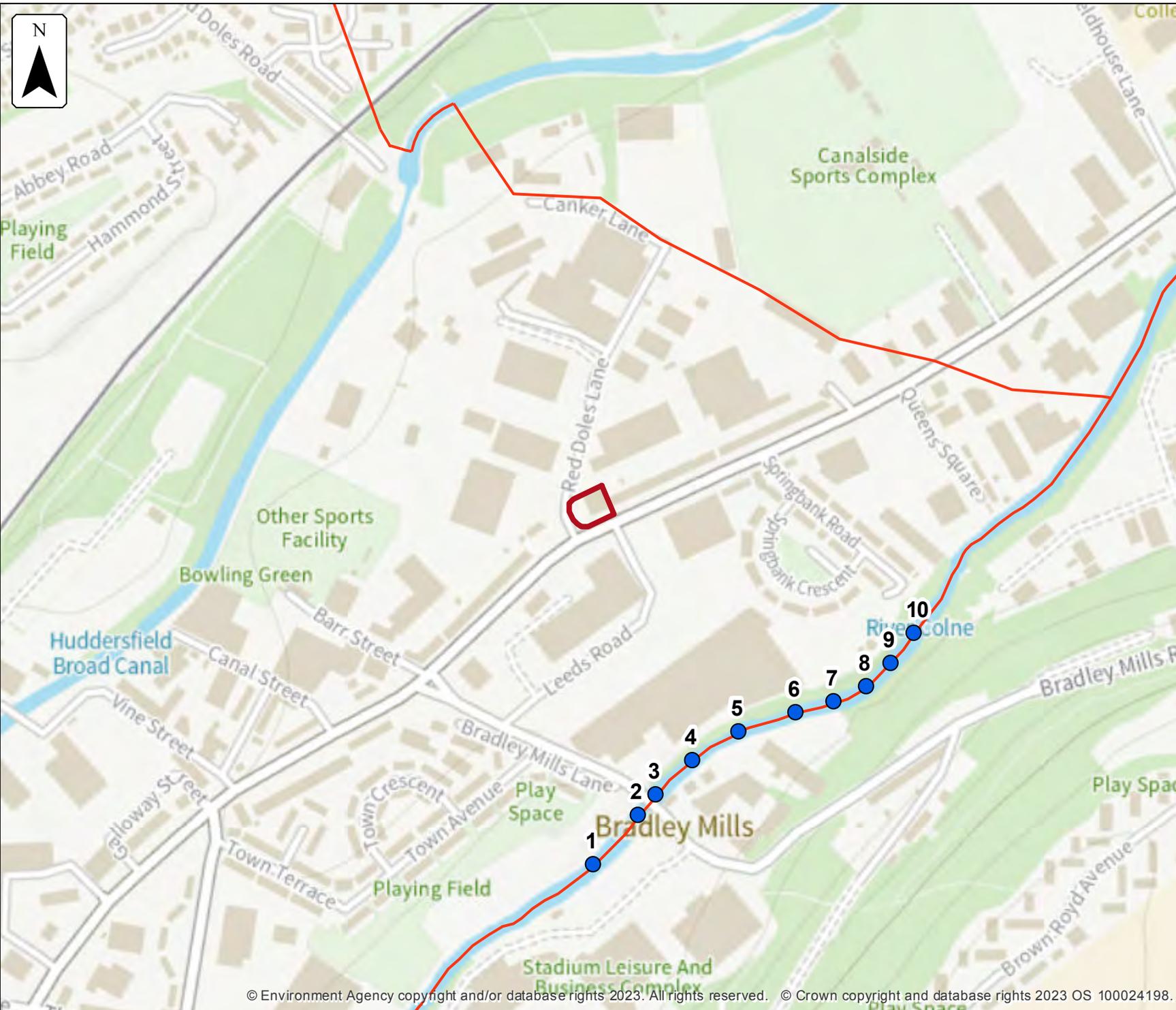
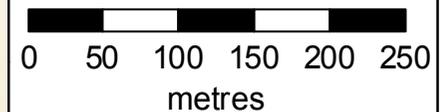
Defended modelled fluvial node locations

Location (easting/northing)
415454/418068

Scale Created
1:5,000 24 Aug 2023

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	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1197951	415456	417724	57.53	106.78	57.94	131.69	58.12	142.72	58.27	151.88	59.21	183.38	59.64	183.74
2	1198273	415500	417771	57.41	106.77	57.83	131.69	58.01	142.72	58.17	152.49	58.88	170.46	59.36	179.01
3	1198238	415517	417791	57.34	106.77	57.69	131.69	57.83	142.72	57.95	152.49	58.24	170.46	58.67	179.01
4	1198004	415553	417824	57.16	106.77	57.51	131.68	57.65	142.71	57.76	152.49	58.06	172.12	58.45	197.38
5	1198025	415598	417852	56.96	106.77	57.30	131.68	57.42	142.71	57.53	152.49	57.84	172.87	58.22	199.99
6	1198155	415653	417871	56.80	106.76	57.13	131.68	57.26	142.71	57.36	152.47	57.61	179.02	57.88	217.71
7	1198127	415691	417881	56.73	106.76	57.05	131.68	57.17	142.71	57.27	152.47	57.51	179.02	57.76	217.66
8	1197930	415722	417895	56.65	106.76	56.97	131.67	57.09	142.70	57.18	152.47	57.41	179.02	57.65	217.63
9	1198091	415746	417918	56.57	106.75	56.89	131.66	57.0	142.70	57.09	152.47	57.32	179.01	57.53	217.61
10	1198000	415769	417947	56.49	106.75	56.80	131.66	56.92	142.70	57.0	152.47	57.22	179.02	57.40	217.59

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.



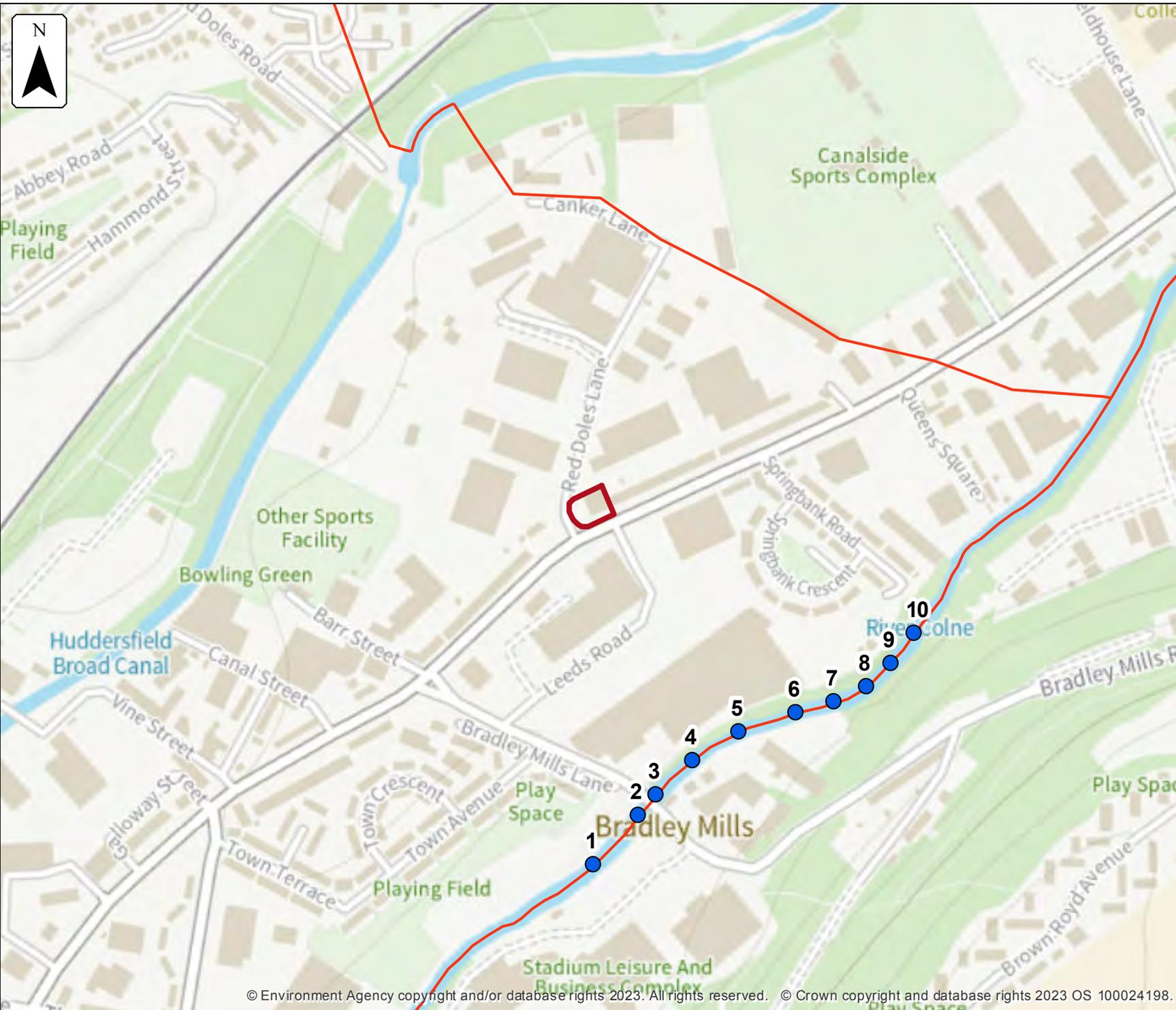
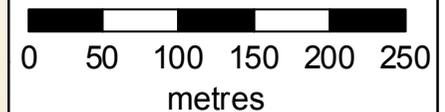
Defences removed modelled fluvial node locations

Location (easting/northing)
415454/418068

Scale Created
1:5,000 24 Aug 2023

Model name
2019 Colne Model

-  Selected area
-  Modelled location
-  Main river



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Modelled node locations data

Defences removed

Label	Modelled location ID	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1197951	415456	417724							58.27	151.87			59.64	184.08
2	1198273	415500	417771							58.17	152.47			59.37	179.0
3	1198238	415517	417791							57.95	152.47			58.67	179.0
4	1198004	415553	417824							57.76	152.47			58.45	197.44
5	1198025	415598	417852							57.53	152.47			58.22	200.04
6	1198155	415653	417871							57.36	152.46			57.88	217.78
7	1198127	415691	417881							57.27	152.46			57.76	217.72
8	1197930	415722	417895							57.18	152.46			57.65	217.70
9	1198091	415746	417918							57.09	152.46			57.53	217.69
10	1198000	415769	417947							57.0	152.45			57.40	217.66

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.

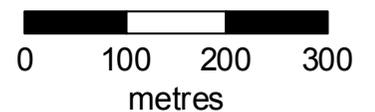
No defences exist modelled fluvial node locations

Location (easting/northing)
415454/418068

Scale Created
1:7,500 24 Aug 2023

Model name
**2011 Huddersfield
Study - Allison Dike**

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

No defences exist

Label	Modelled location ID	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	318110	414699	418790	81.63	1.44	81.79	1.89	81.94	2.29	82.06	2.61			82.52	3.19
2	315757	414722	418796	80.80	1.57	80.85	2.05	80.89	2.48	80.92	2.83			80.99	3.52
3	185994	414856	418788	76.62	3.20	76.76	3.23	76.82	3.25	76.85	3.25			76.88	3.58
4	104756	414988	418635	70.63	3.20	70.64	3.23	70.66	3.25	70.67	3.25			70.61	3.03
5	166445	415094	418601	69.06	2.51	69.14	2.54	69.20	2.53	69.24	2.53			69.07	2.51
6	208178	415134	418584	67.60	2.51	68.62	2.54	68.90	2.53	69.02	2.53			67.48	2.51
7	165616	415205	418552	67.57	3.0	68.62	3.23	68.90	3.27	69.02	3.27			67.42	2.96
8	221867	415249	418435	61.85	3.0	62.01	3.23	61.99	3.27	62.08	3.27			61.85	2.96
9	280133	415268	418415	60.40	3.0	60.52	3.46	60.60	3.72	60.73	4.33			60.39	2.96
10	46654	415953	418182	52.37	3.0	52.42	3.44	52.44	3.72	52.50	4.32			52.35	2.87

Data in this table comes from the 2011 Huddersfield Study - Allison Dike and Blackhouse Dike 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.



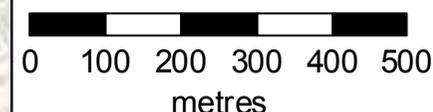
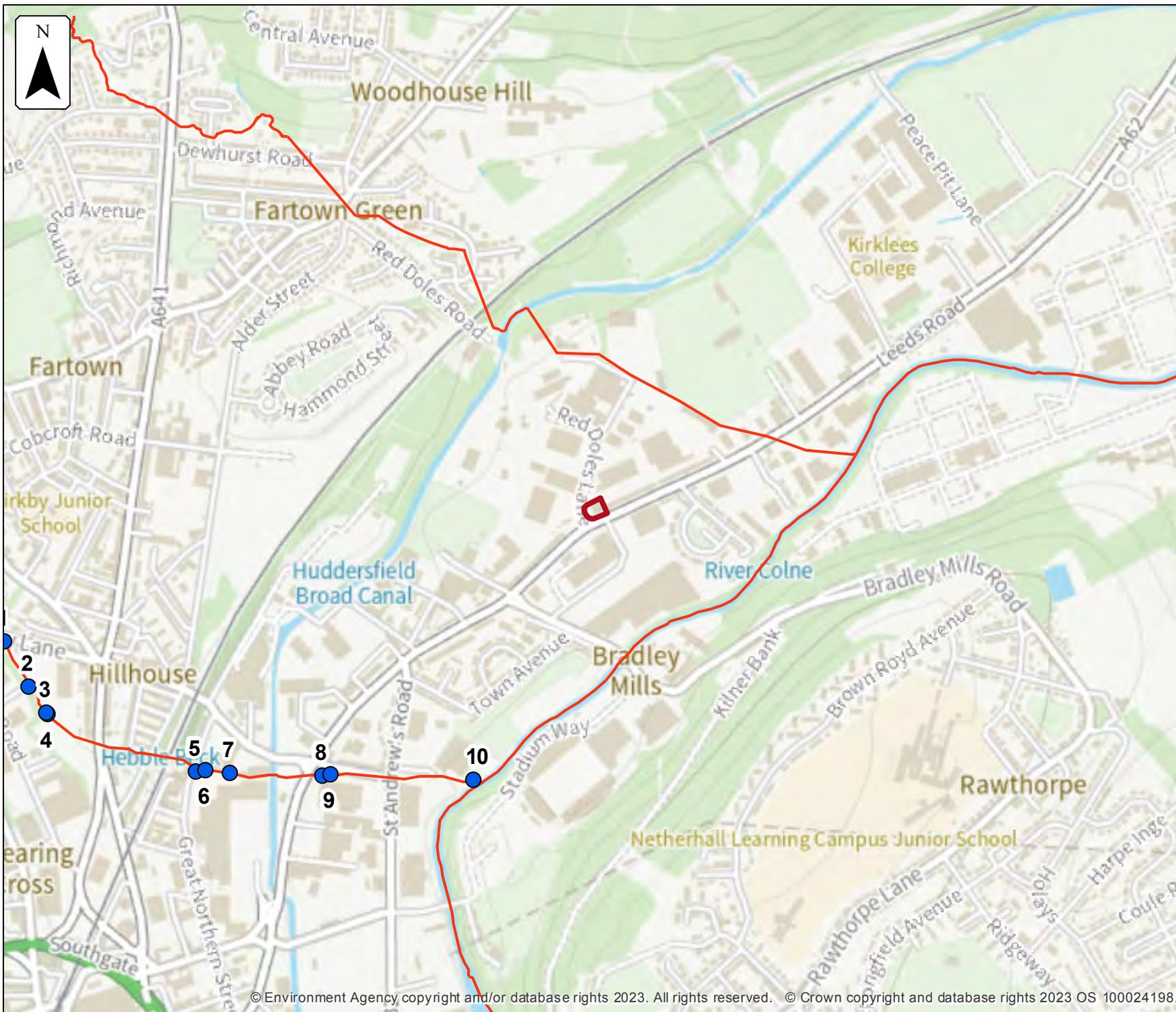
No defences exist modelled fluvial node locations

Location (easting/northing)
415454/418068

Scale Created
1:10,000 24 Aug 2023

Model name
**2011 Huddersfield
Study - Grimescar**

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

No defences exist

Label	Modelled location ID	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	274578	414304	417813	72.97	3.51	73.08	4.60	73.14	5.05	73.19	5.32			73.85	5.88
2	219397	414353	417727	71.64	3.51	71.89	4.60	72.07	5.05	72.18	5.32			73.09	5.88
3	338905	414387	417676	71.57	4.30	71.85	5.68	72.03	6.46	72.15	7.08			73.07	10.93
4	74312	414389	417672	71.56	4.30	71.85	5.68	72.03	6.46	72.15	7.08			73.08	10.93
5	305262	414678	417563	66.48	4.29	66.74	5.67	66.84	6.46	66.89	7.07			67.09	10.97
6	342710	414698	417564	66.23	4.29	66.48	5.67	66.57	6.46	66.62	7.07			66.85	10.97
7	273833	414745	417558	65.73	5.10	65.96	6.78	66.05	7.73	66.09	8.49			66.31	15.39
8	21742	414925	417553	62.32	5.10	62.55	6.78	62.59	7.73	62.61	8.49			62.74	15.39
9	249122	414940	417556	61.97	5.05	62.19	6.75	62.23	7.70	62.25	8.48			62.40	15.41
10	344834	415218	417545	58.61	5.06	59.08	6.78	59.08	7.73	59.28	8.53			59.28	11.75

Data in this table comes from the 2011 Huddersfield Study - Grimescar Beck / Clayton Dike 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.



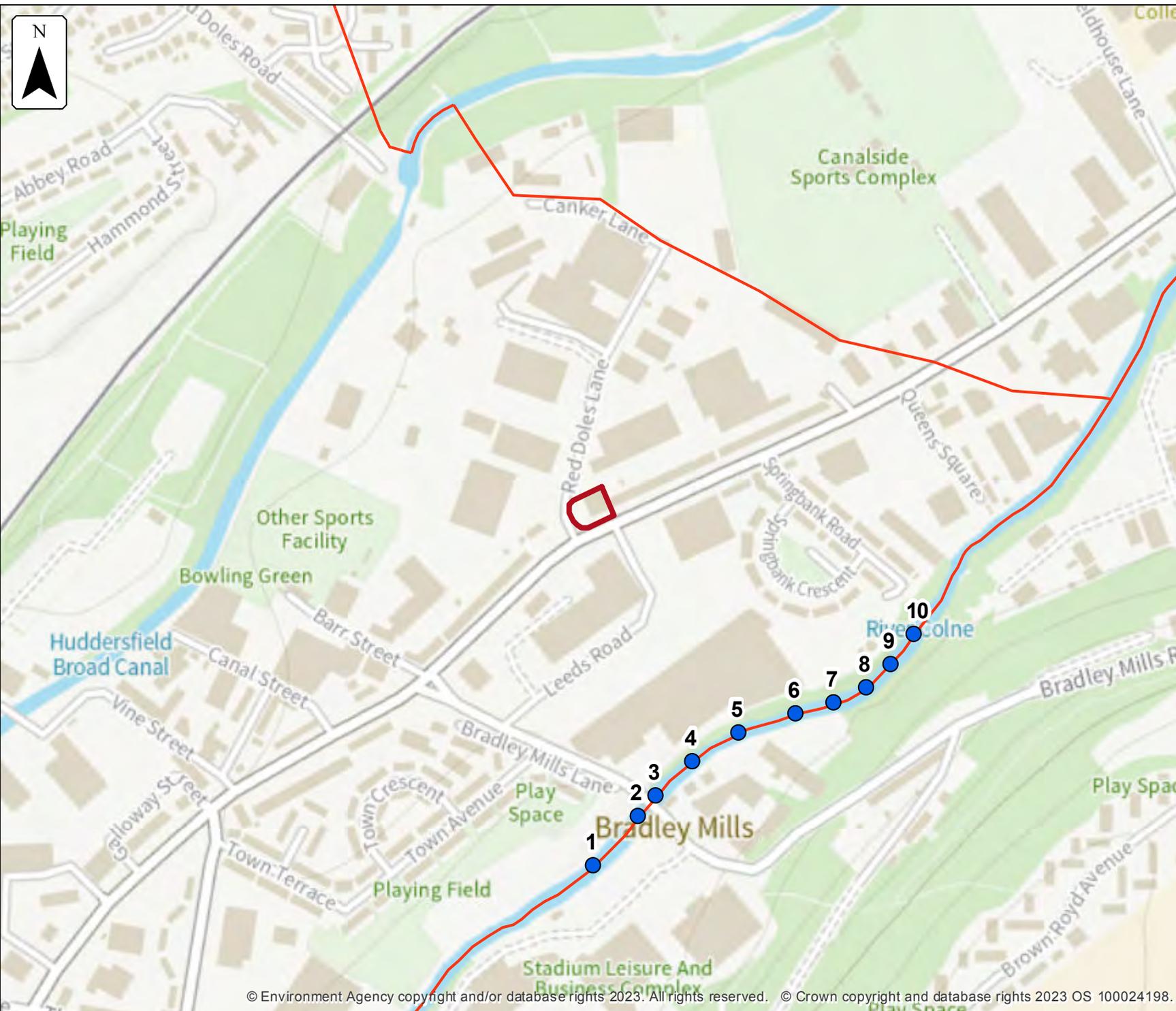
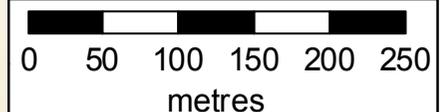
Defences removed climate change modelled fluvial node locations

Location (easting/northing)
415454/418068

Scale Created
1:5,000 24 Aug 2023

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	1.0% AEP (+20%)		1.0% AEP (+30%)		1.0% AEP (+50%)		0.1% AEP (+20%)	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1197951	415456	417724	59.27	183.75	59.42	183.68	59.62	185.0	59.91	184.83
2	1198273	415500	417771	58.93	172.03	59.10	176.28	59.34	179.0	59.71	179.44
3	1198238	415517	417791	58.29	172.03	58.42	176.28	58.65	179.0	59.06	179.44
4	1198004	415553	417824	58.11	174.82	58.23	183.51	58.43	196.34	58.79	216.72
5	1198025	415598	417852	57.88	175.84	58.0	185.28	58.20	198.85	58.58	222.49
6	1198155	415653	417871	57.63	183.01	57.72	195.45	57.86	215.73	58.12	252.97
7	1198127	415691	417881	57.54	183.01	57.62	195.44	57.75	215.72	57.99	252.99
8	1197930	415722	417895	57.44	183.01	57.52	195.44	57.63	215.71	57.86	252.92
9	1198091	415746	417918	57.34	183.01	57.41	195.44	57.52	215.71	57.73	252.85
10	1198000	415769	417947	57.24	183.01	57.30	195.43	57.39	215.70	57.58	252.78

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)
415454/418068

Scale Created
1:7,500 24 Aug 2023

Model name
**2011 Huddersfield
Study - Allison Dike**

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

No defences exist climate change

Label	Modelled location ID	Easting	Northing	1.0% AEP (+20%)	
				Level	Flow
1	318110	414699	418790	82.22	3.11
2	315757	414722	418796	80.97	3.38
3	185994	414856	418788	76.92	3.27
4	104756	414988	418635	70.71	3.27
5	166445	415094	418601	69.30	2.53
6	208178	415134	418584	69.16	2.53
7	165616	415205	418552	69.15	3.27
8	221867	415249	418435	62.23	3.27
9	280133	415268	418415	61.12	5.48
10	46654	415953	418182	52.61	5.47

Data in this table comes from the 2011 Huddersfield Study - Allison Dike and Blackhouse Dike 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.



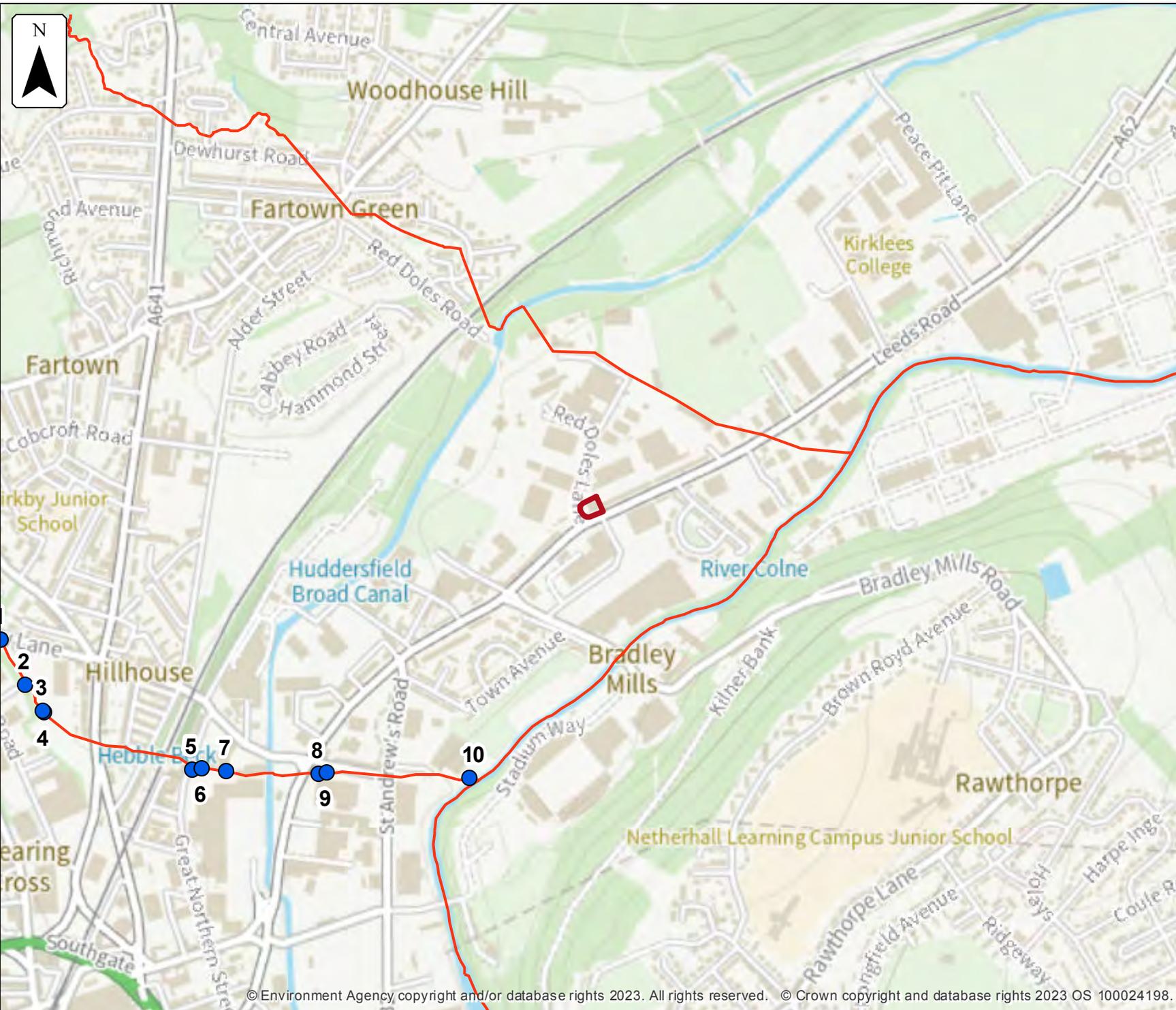
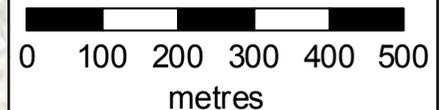
No defences exist climate change modelled fluvial node locations

Location (easting/northing)
415454/418068

Scale Created
1:10,000 24 Aug 2023

Model name
**2011 Huddersfield
Study - Grimescar**

-  Selected area
-  Modelled location
-  Main river



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Modelled node locations data

No defences exist climate change

Label	Modelled location ID	Easting	Northing	1.0% AEP (+20%)	
				Level	Flow
1	274578	414304	417813	73.45	5.55
2	219397	414353	417727	72.40	5.55
3	338905	414387	417676	72.37	8.22
4	74312	414389	417672	72.37	8.22
5	305262	414678	417563	67.01	8.21
6	342710	414698	417564	66.74	8.21
7	273833	414745	417558	66.20	9.92
8	21742	414925	417553	62.67	9.92
9	249122	414940	417556	62.30	9.90
10	344834	415218	417545	59.28	9.95

Data in this table comes from the 2011 Huddersfield Study - Grimescar Beck / Clayton Dike 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 extent and height

Location (easting/northing)
415454/418068

Scale Created
1:500 24 Aug 2023

Model name
2019 Colne Model

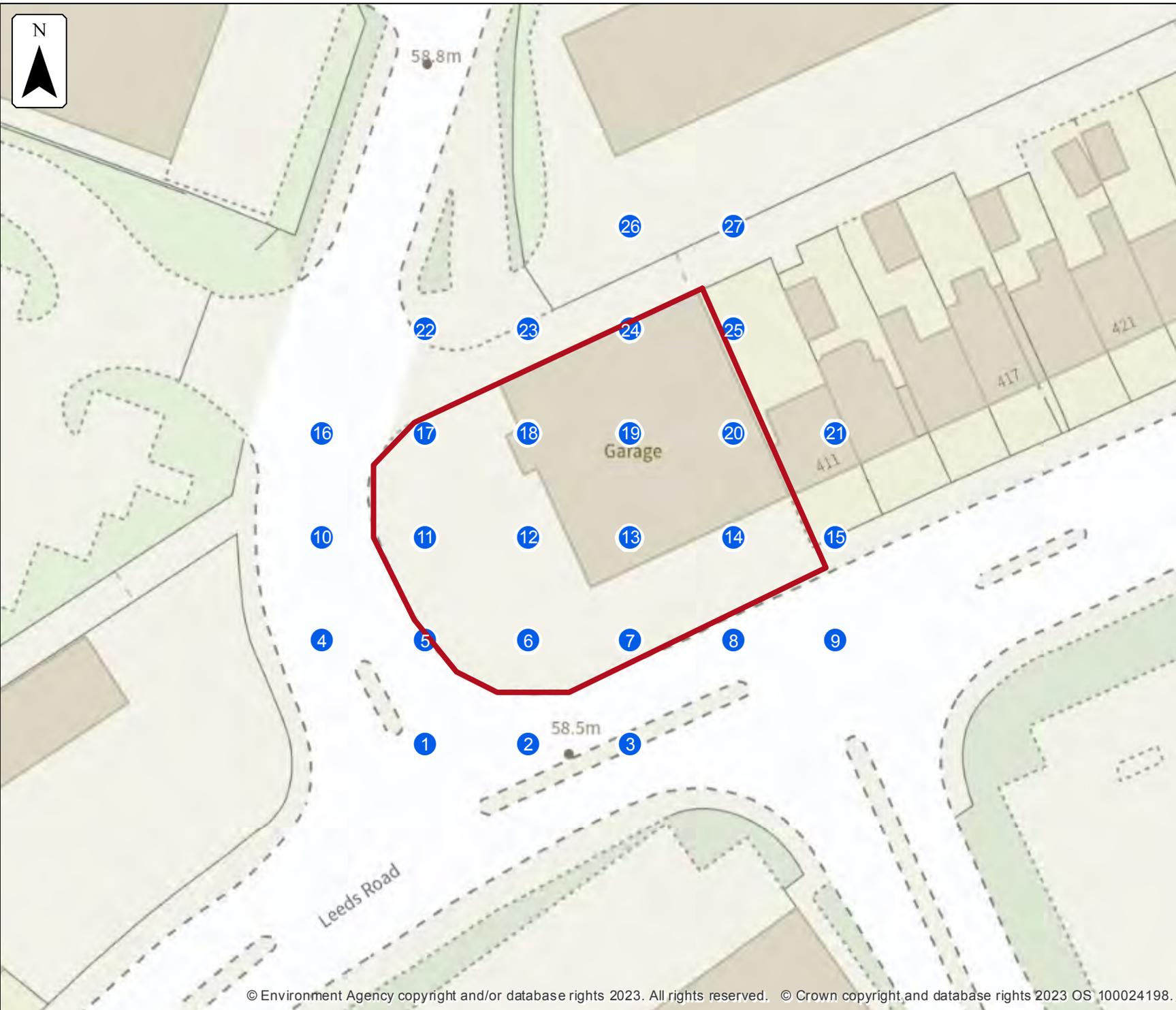
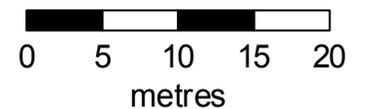
 Selected area

 Main river

Modelled 2D grid
Water level in mAOD

-  0 - 58.0
-  58.0 - 58.25
-  58.25 - 58.5
-  58.5 - 58.75
-  58.75 - 59.0
-  59.0 - 59.25
-  59.25 - 59.5
-  59.5 - 59.75
-  59.75 - 60.0

This map shows the
0.1% AEP height data



Sample point data

Defended

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	415438	418046	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.04	58.84
2	415448	418046	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.06	58.82
3	415458	418046	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.08	58.78
4	415428	418056	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.07	58.84
5	415438	418056	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.16	58.83
6	415448	418056	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.08	58.81
7	415458	418056	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.12	58.76
8	415468	418056	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.10	58.73
9	415478	418056	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.09	58.71
10	415428	418066	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.18	58.83
11	415438	418066	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.19	58.83
12	415448	418066	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.08	58.83
13	415458	418066	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
14	415468	418066	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	415478	418066	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.09	58.71
16	415428	418076	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.16	58.83

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP		
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	
17	415438	418076	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.32	58.83
18	415448	418076	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.12	58.82
19	415458	418076	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.07	58.80
20	415468	418076	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.01	58.76
21	415478	418076	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	415438	418086	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.14	58.83
23	415448	418086	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.06	58.78
24	415458	418086	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.04	58.73
25	415468	418086	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.05	58.56
26	415458	418096	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.05	58.12
27	415468	418096	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.00	58.27

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

Height values are shown in mAOD, and depth values are shown in metres.

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

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



Defences removed modelled fluvial extent and height

Location (easting/northing)
415454/418068

Scale Created
1:500 24 Aug 2023

Model name
2019 Colne Model

 Selected area

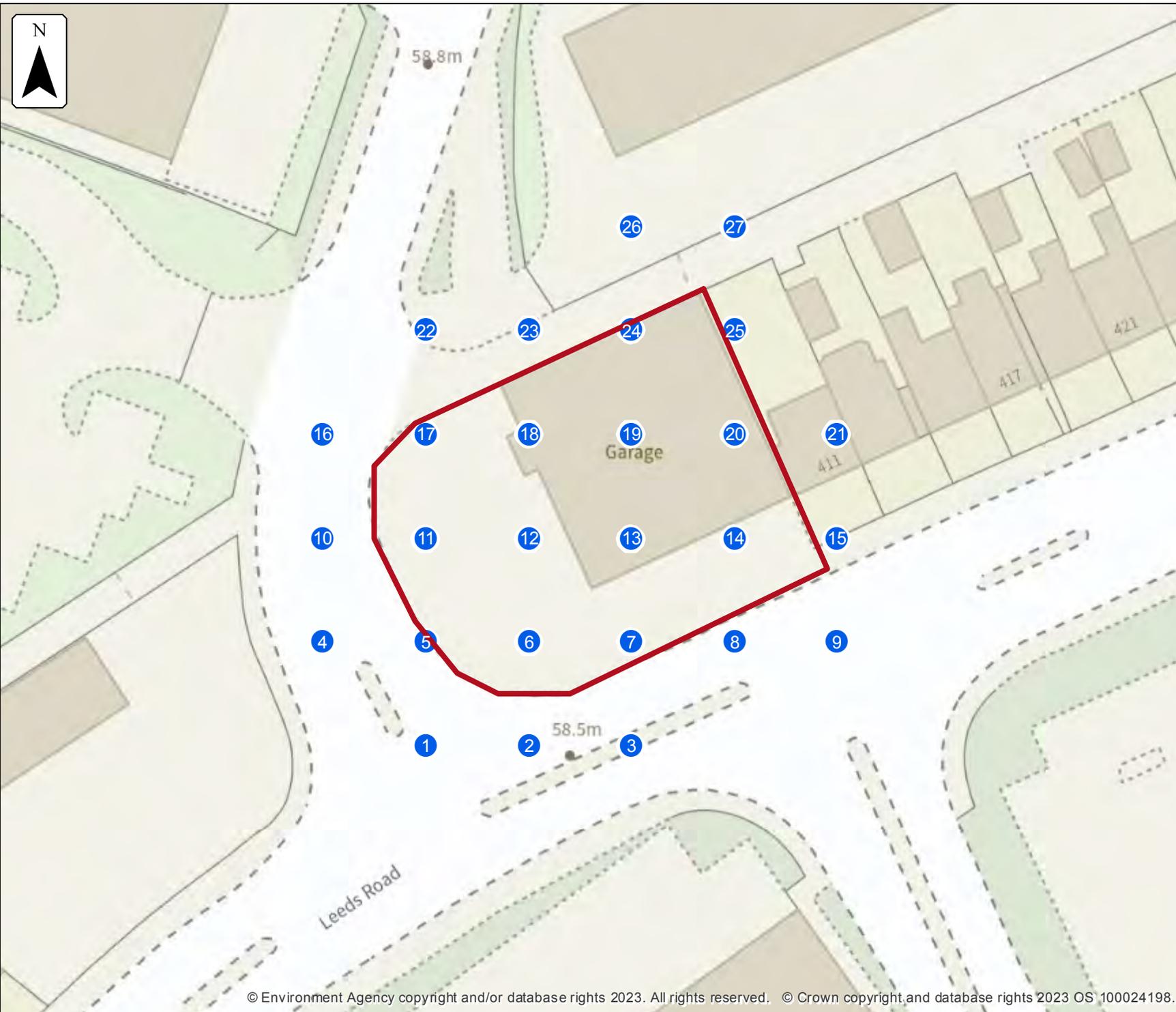
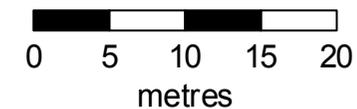
 Main river

Modelled 2D grid

Water level in mAOD

-  0 - 58.0
-  58.0 - 58.25
-  58.25 - 58.5
-  58.5 - 58.75
-  58.75 - 59.0
-  59.0 - 59.25
-  59.25 - 59.5
-  59.5 - 59.75
-  59.75 - 60.0

This map shows the
0.1% AEP height data



Sample point data

Defences removed

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	415438	418046							NoData	NoData			0.04	58.84
2	415448	418046							NoData	NoData			0.06	58.82
3	415458	418046							NoData	NoData			0.08	58.78
4	415428	418056							NoData	NoData			0.07	58.84
5	415438	418056							NoData	NoData			0.16	58.83
6	415448	418056							NoData	NoData			0.08	58.81
7	415458	418056							NoData	NoData			0.12	58.76
8	415468	418056							NoData	NoData			0.10	58.73
9	415478	418056							NoData	NoData			0.09	58.71
10	415428	418066							NoData	NoData			0.18	58.83
11	415438	418066							NoData	NoData			0.19	58.83
12	415448	418066							NoData	NoData			0.08	58.83
13	415458	418066							NoData	NoData			NoData	NoData
14	415468	418066							NoData	NoData			NoData	NoData
15	415478	418066							NoData	NoData			0.09	58.71
16	415428	418076							NoData	NoData			0.16	58.83

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	415438	418076							NoData	NoData			0.32	58.83
18	415448	418076							NoData	NoData			0.12	58.82
19	415458	418076							NoData	NoData			0.07	58.80
20	415468	418076							NoData	NoData			0.01	58.76
21	415478	418076							NoData	NoData			NoData	NoData
22	415438	418086							NoData	NoData			0.14	58.83
23	415448	418086							NoData	NoData			0.06	58.78
24	415458	418086							NoData	NoData			0.04	58.73
25	415468	418086							NoData	NoData			0.05	58.56
26	415458	418096							NoData	NoData			0.05	58.12
27	415468	418096							NoData	NoData			0.00	58.27

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

Height values are shown in mAOD, and depth values are shown in metres.

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

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



Defences removed climate change modelled fluvial extent and height

Location (easting/northing)
415454/418068

Scale Created
1:500 24 Aug 2023

Model name
2019 Colne Model

 Selected area

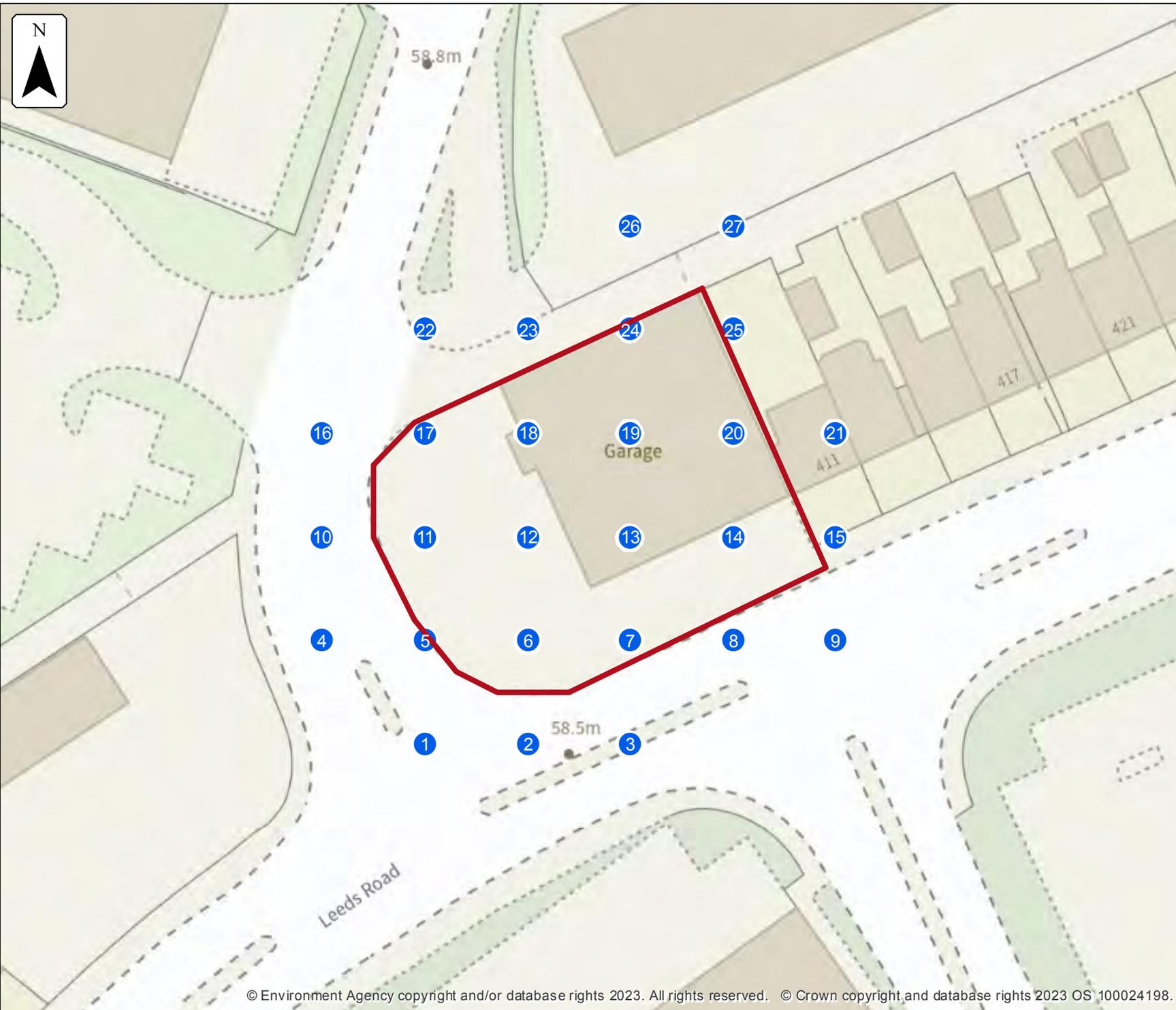
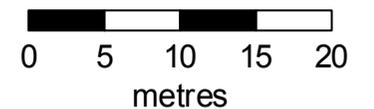
 Main river

Modelled 2D grid

Water level in mAOD

-  0 - 58.0
-  58.0 - 58.25
-  58.25 - 58.5
-  58.5 - 58.75
-  58.75 - 59.0
-  59.0 - 59.25
-  59.25 - 59.5
-  59.5 - 59.75
-  59.75 - 60.0

This map shows the
0.1% AEP +20% height data



Sample point data

Defences removed climate change

Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+50%)		0.1% AEP (+20%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	415438	418046	NoData	NoData	0.01	58.80	0.04	58.83	0.16	58.96
2	415448	418046	NoData	NoData	0.02	58.78	0.05	58.81	0.18	58.94
3	415458	418046	NoData	NoData	0.03	58.73	0.08	58.78	0.20	58.90
4	415428	418056	NoData	NoData	0.02	58.78	0.07	58.83	0.20	58.97
5	415438	418056	NoData	NoData	0.09	58.76	0.15	58.82	0.30	58.97
6	415448	418056	NoData	NoData	0.03	58.75	0.08	58.80	0.22	58.94
7	415458	418056	NoData	NoData	0.04	58.68	0.12	58.75	0.25	58.88
8	415468	418056	NoData	NoData	0.02	58.65	0.10	58.72	0.24	58.86
9	415478	418056	NoData	NoData	NoData	NoData	0.09	58.71	0.23	58.85
10	415428	418066	NoData	NoData	0.11	58.76	0.17	58.82	0.32	58.97
11	415438	418066	NoData	NoData	0.12	58.76	0.18	58.82	0.33	58.97
12	415448	418066	NoData	NoData	NoData	NoData	0.07	58.82	0.22	58.97
13	415458	418066	NoData	NoData	NoData	NoData	NoData	NoData	0.07	58.89
14	415468	418066	NoData	NoData	NoData	NoData	NoData	NoData	0.14	58.85
15	415478	418066	NoData	NoData	0.01	58.63	0.09	58.71	0.22	58.84
16	415428	418076	NoData	NoData	0.09	58.76	0.15	58.82	0.29	58.97

Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+50%)		0.1% AEP (+20%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	415438	418076	NoData	NoData	0.25	58.76	0.31	58.82	0.46	58.97
18	415448	418076	NoData	NoData	0.06	58.76	0.11	58.82	0.25	58.95
19	415458	418076	NoData	NoData	0.02	58.75	0.07	58.79	0.17	58.90
20	415468	418076	NoData	NoData	NoData	NoData	0.01	58.76	0.08	58.84
21	415478	418076	NoData	NoData	NoData	NoData	NoData	NoData	0.01	58.82
22	415438	418086	NoData	NoData	0.08	58.76	0.13	58.82	0.27	58.96
23	415448	418086	NoData	NoData	0.01	58.73	0.06	58.77	0.17	58.89
24	415458	418086	NoData	NoData	0.01	58.71	0.03	58.73	0.08	58.78
25	415468	418086	NoData	NoData	0.03	58.53	0.05	58.55	0.10	58.61
26	415458	418096	NoData	NoData	0.01	58.08	0.04	58.11	0.18	58.26
27	415468	418096	NoData	NoData	0	58.25	0.00	58.27	0.06	58.36

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

Height values are shown in mAOD, and depth values are shown in metres.

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

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that 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

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

