Flood Risk Assessment for Planning

April 2026

Prepared for:

Cumbria Canine Park

Location:

Land south of The Barn

Beck Green

Distington

Workington

CA14 5XW

Our reference:

97300-Martin-BeckGreen

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Document Issue Record

Project Details	
Project:	Flood Risk Assessment for Planning
Prepared for:	Cumbria Canine Park
Application:	Change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area
Location:	Land south of The Barn, Beck Green, Distington, Workington, CA14 5XW
Our reference:	97300-Martin-BeckGreen
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Project Consultants	
Lead Consultant:	Miss Jesy Ferry, MSc
Document Check:	Miss Freya Pott, MSc
Authorisation:	Mr Edward Bouët, BSc (Hons)

Contents

1. Key Facts

Flood Risk Posed:

- Site is located within Flood Zones 1, 2 and 3 according to the EA Flood Map for planning (Rivers and the Sea). Risk would appear to be fluvial and originates from the Distington Beck located approximately 4m south of the site boundary.
- The site is shown to be within the EA Flood Zones plus climate change (2070 to 2125) extent.
- Product 4 data has been provided by the Environment Agency.
- The information provided is based upon the NW (North) Flood Zone Improvements, completed in 2009 by JBA, which includes the 2010 Distington Beck model.
- The site is shown to be partially within the undefended 1:50 year, 1:75 year, 1:100 year, 1:100 year +20%CC, 1:200 year and 1:1000 year flood extents.
- Comparison of the undefended modelled flood level for the 1:100 year plus 20% climate change event (53.63mAOD) with approximate topographic site levels (51.10mAOD to 53.50mAOD) shows the site to be between 0.13m and 2.53m below the flood level for this event.
- According to EA data, there are no Flood Storage Areas located in close proximity to the site.
- A series of flood defences are present upstream of the site with a 1:100 year standard of protection which protect the housing located within The Green. However, no formal flood defences would appear to defend the site from direct inundation to any significant degree. Therefore, there is negligible residual risk from breach and overtopping of flood defences.
- The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at "Very Low" to "High" chance of flooding from surface water for the present day and between 2040 and 2060.
- Risk to the site from groundwater flooding and sewer surcharge would appear to be very low. No information has been provided to suggest that the site has flooded historically from these sources.
- The site is located outside the maximum inundation extent on the EA Reservoir Inundation Map. The EA also advise on their website that reservoir flooding is extremely unlikely.
- The EA hold no records of historic flooding having affected the site or immediate surrounding area.

Flood Risk Mitigation:

- The proposed application is for the change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area.
- There will be no land raising, introduction to new residential units, increase to built footprint, impermeable areas or vulnerability classification as part of this development.
- Post development, the site will become "water compatible" (outdoor recreation).
- There will be no unacceptable loss of fluvial floodplain storage.
- Flood warning notices will be erected around the site to inform site users of the risk of flooding, and the flood warning and evacuation measures.
- In the event of a flood alert or weather warning being issued, site users would be advised not to attend site until the flood alert has been lifted.
- Safe escape will be provided by a flood warning and evacuation plan that will be prepared in liaison with the Council's Emergency Planners and tied in with the existing emergency plans for the area.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

2. Introduction

2.1. Unda Consulting Limited have been appointed by Cumbria Canine Park (hereinafter referred to as "the applicant") to undertake a Flood Risk Assessment for the proposed development at Land south of The Barn, Beck Green, Distington, Workington, CA14 5XW (hereinafter referred to as "the site"). The purpose of the study is to support a planning application for the proposed development.

2.2. This report presents our findings based on the readily available information and data relating to the site and surrounding drainage area.

2.3. The site appears to be located within Flood Zones 1, 2 and 3 as defined by the Environment Agency (EA) on their Flood Map for Planning. Under the National Planning Policy Framework (NPPF), a FRA is required for all development or changes of use proposed:

- In Flood Zones 2 or 3 or see flood map for planning;
- Within Flood Zone 3b;
- Within Flood Zone 1 with a site area of 1 hectare or more;
- Within 'Flood Zones plus Climate Change', showing it is at increased risk of flooding from rivers or sea in future - see flood map for planning;
- With Flood Zone 1 and the flood map for planning shows it is at risk of flooding from surface water;
- In areas with critical drainage problems;
- Within Flood Zone 1 where the LPA's strategic flood risk assessment (SFRA) shows it will be at increased risk of flooding during its lifetime;
- That increases the vulnerability classification and may be subject to sources of flooding other than rivers or sea.

2.4. The assessment should demonstrate to the Local Planning Authority (LPA) and EA how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.

- Whether the proposed development is likely to be affected by current or future flooding from any source;
- Whether it will increase flood risk elsewhere;
- Whether the measures proposed to deal with these effects and risks are appropriate.

3. Existing Site

3.1. The site comprises agricultural land.

3.2. The site is understood to have lawful planning permission for agricultural use.

3.3. The surrounding area is characterised by agricultural land and residential properties.

3.4. Existing plans are provided in the report Appendix.

Figure 1: Aerial imagery of site and surrounding area (Source: Google Earth)

Figure 2: Site location plan (Source: Applicant)

Site Topography:

3.5. Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LiDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LiDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data is available for over 70% of England. The LiDAR technique records an elevation accurate to +/-5cm to 15cm with spatial resolutions ranging from 25cm to 2 metres. This dataset is derived from a combination of the full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LiDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital Terrain Model (DTM) produced by removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

3.6. LiDAR remotely sensed digital elevation data suggests that the ground topography on site ranges from approximately 51.10mAOD to 53.50mAOD.

Existing Ground Conditions:

3.7. The 1:50,000 BGS map shows that the bedrock underlying the site is Pennine Lower Coal Measures Formation – Mudstone, siltstone and sandstone.

3.8. The BGS mapping shows superficial deposits of Alluvium – clay, silt, sand and gravel underlying the site.

3.9. The soil type taken from the UKSO Soil Map Viewer, shows the site to be located upon relatively deep soils of glacial till soil parent material with a soil texture of clayey loam to silty loam.

Nearby Watercourses / Drainage Features:

3.10. The nearest watercourse to the site is the Distington Beck located approximately 4m south.

4. Development Proposal

4.1. The proposed application is for the change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area.

4.2. The applicant has confirmed that the parking area will be upon gravel, which is permeable.

4.3. There will be no land raising, introduction to new residential units, increase to built footprint, impermeable areas or vulnerability classification as part of this development.

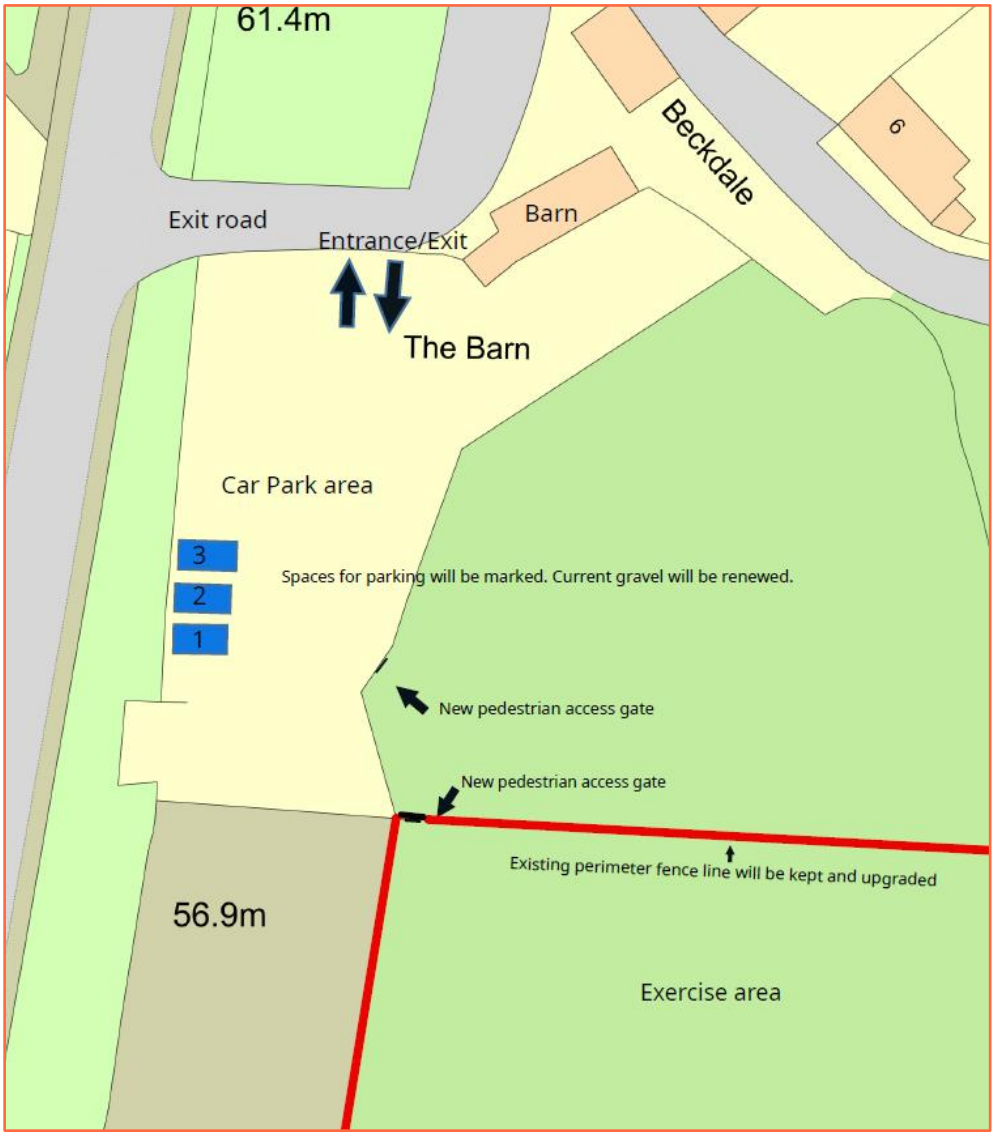


Figure 3: Proposed site gate access (Source: Applicant)

5. Flood Risk Assessment

EA Flood Zones:

5.1. Within planning, Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's website.

Flood Zone	Definition
Zone 1 **Low Probability**	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 **Medium Probability**	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a **High Probability**	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b **The 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: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • 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). 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)

Table 1: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

5.2. The Flood Zones are created using local flood model outputs, recorded flood outlines and national flood model information. These are combined to generate extents of land at flood risk, with the aim of using the best available flood risk information in any one location. The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

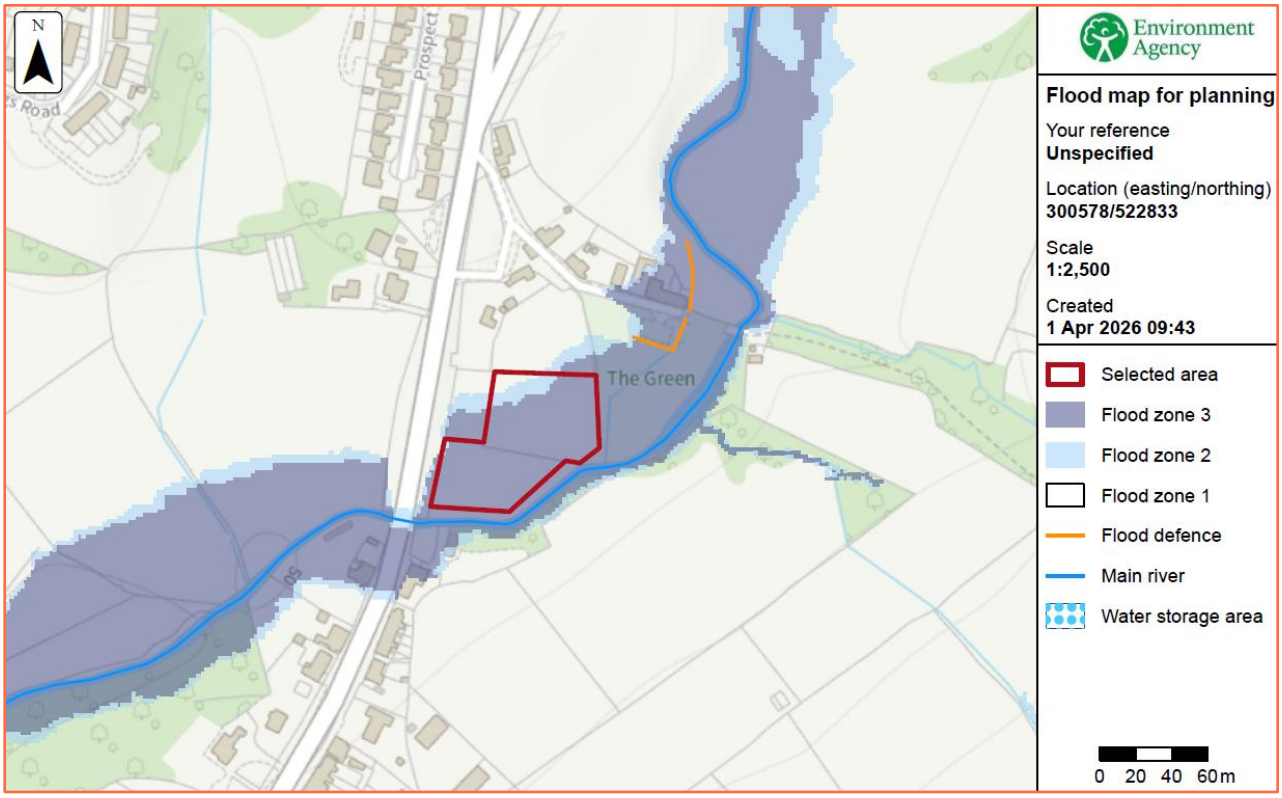


Figure 4: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

5.3. The site is located within Flood Zone 1 (Low Probability), defined as land having a less than 1:1000 year probability of river or sea flooding, Flood Zone 2 (Medium Probability), defined as land having between a 1:100 and 1:1000 annual probability of river flooding; or Land having between a 1:200 and 1:1000 annual probability of sea flooding and partially within Flood Zone 3 (High Probability), defined as land having a 1:100 or greater annual probability of river flooding; or Land having a 1:200 or greater annual probability of sea flooding.

5.4. The risk would appear to be fluvial and originates from the Distington Beck located approximately 4m south of the site boundary.

EA Flood Zones plus Climate Change:

5.5. The Flood Zones plus climate change dataset shows how the combined extent of Flood Zones 2 and 3 could increase with climate change over the next century, ignoring the benefits of any existing flood defences. The EA have assumed no changes to flood defences or land-use that could occur in future. The effects of climate change on flood risk which may be seen in the future could be different to those currently considered.

5.6. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.

5.7. The datasets shown on Flood Map for Planning are aimed at supporting planners and developers to make long-term decisions about the location and design of development and the use of land. Such decisions need to account for the full anticipated lifetime of the development being planned.

5.8. The EA have therefore chosen:

- The 'Central' allowance for the 2080s epoch (2070-2125) for risk of flooding from rivers
- The 'Upper End' allowance for risk of flooding from the sea, accounting for cumulative sea level rise to 2125

5.9. The Flood Zones plus climate change dataset is created using local flood model outputs, recorded flood outlines and national flood model information, and by adding climate change scenarios from local and national modelling, using the maximum extents from:

- Rivers and sea with defences 3.3%, 1%/0.5% and 0.1% AEPs
- Rivers and sea without defences 1%/0.5% and 0.1% AEPs

5.10. The extents are merged to create a single outline.

5.11. The site is shown to be within the EA Flood Zones plus climate change (2070 to 2125) extent.

Fluvial (Distington Beck):

5.12. Distington Beck is a small watercourse in west Cumbria forming part of the wider Irish Sea catchment. It rises on the higher ground to the east of Distington, draining predominantly rural and former mining landscapes before flowing in a generally westerly direction through the village of Distington. The beck continues across low lying land before discharging into the Irish Sea along the Cumbrian coast near Workington. The watercourse is relatively short in length and responds quickly to rainfall due to its modest catchment size and urban influences in its lower reaches.

5.13. Distington Beck is designated as a "Main River" by the Environment Agency in the area of the site and in its lower sections.

Detailed Flood Modelling:

5.14. Product 4 data has been provided by the Environment Agency. This can be found within the Appendix.

5.15. The information provided is based upon the NW (North) Flood Zone Improvements, completed in 2009 by JBA, which includes the 2010 Distington Beck model.

5.16. The undefended modelled in-channel flood levels and extents have been provided for a variety of return periods.

5.17. The development is classified as "Water Compatible" and is located within Flood Zone 2 and Flood Zone 3. The Flood Risk Assessments: climate change allowances guidance states that for "Water Compatible" development in Flood Zones 2 and 3, the Central allowance should be used. The site falls within the South West Lakes Management Catchment, where Central allowance is a 30% increase in flows.

5.18. The data provided by the EA includes climate change allowances of 20%. Therefore, the most suitable allowance is the 20% increase in river flows, which will be used for this assessment.

5.19. The site is shown to be partially within the undefended 1:50 year, 1:75 year, 1:100 year, 1:100 year +20%CC, 1:200 year and 1:1000 year flood extents.

5.20. Node 7 has been utilised for the purpose of this assessment as it is the closest upstream in-channel node to the site.

5.21. LiDAR remotely sensed digital elevation data suggests that the ground topography on site ranges from approximately 51.10mAOD to 53.50mAOD.

Return Period	Undefended (mAOD)
1:50 year	53.32
1:75 year	53.39
1:100 year	53.44
1:100 year + 20%	53.63
1:200 year	53.29
1:1000 year	53.88

Table 2: Maximum modelled upstream in-channel flood levels – Node 7 (Source: Distington Beck, 2010)

5.22. Comparison of the undefended modelled flood level for the 1:100 year plus 20% climate change event (53.63mAOD) with approximate topographic site levels (51.10mAOD to 53.50mAOD) shows the site to be between 0.13m and 2.53m below the flood level for this event.

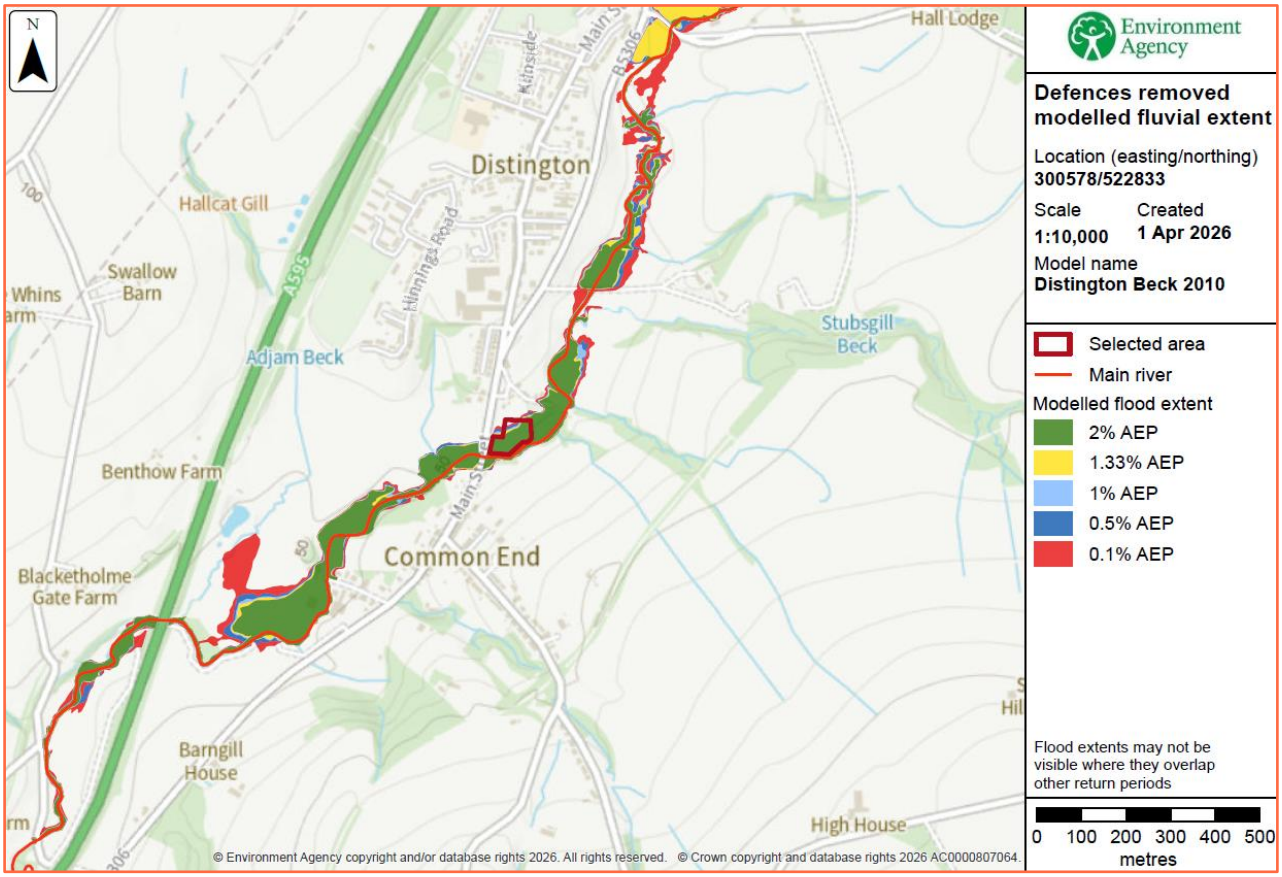


Figure 5: Undefended flood extents (Source: EA)

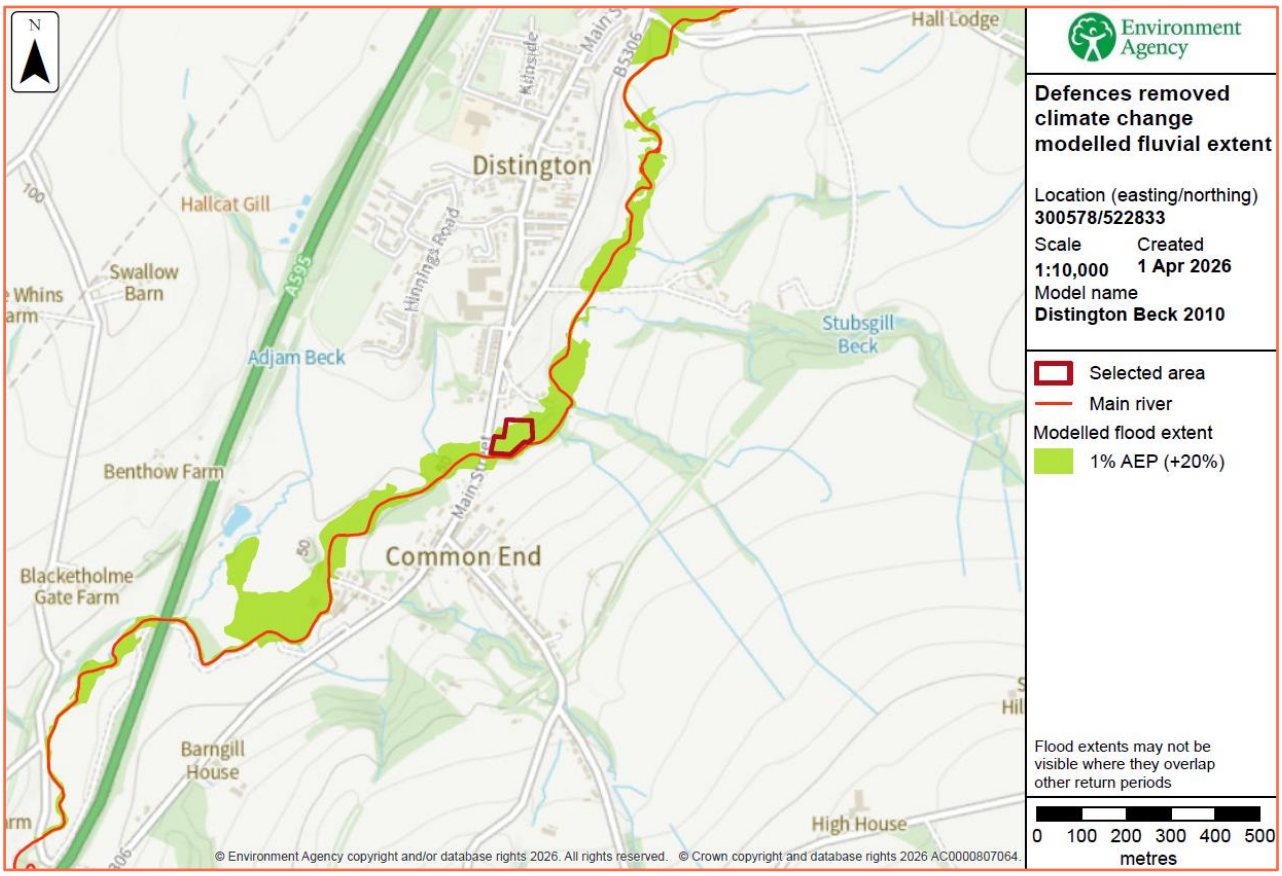


Figure 6: Undefended 1:100 year plus climate change flood extent (Source: EA)

Flood Storage Areas:

5.23. Flood Storage Areas are areas that act as a balancing reservoir, storage basin or balancing pond. Their purpose is to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel. It may also delay the timing of a flood peak so that its volume is discharged over a longer time interval. Flood storage areas do not completely remove the chance of flooding and can be overtopped or fail in extreme weather conditions.

5.24. According to EA data, there are no Flood Storage Areas located in close proximity to the site.

Flood Defences:

5.25. Flood defences are typically raised structures that alter natural flow patterns and prevent floodwater from entering property in times of flooding. They are generally categorised as either 'formal' or 'informal' defences. A 'formal' flood defence is a structure that was built specifically for the purpose of flood defence, and is maintained by its respective owner, which could be the EA, Local Authority, or an individual. An 'informal' flood defence is a structure that has not been specifically built to retain floodwater, and is not maintained for this specific purpose, but may afford some protection against flooding.

5.26. Asset inspections are undertaken on average every six months, although some critical assets are assessed on a more regular basis. It is possible that adjacent assets are inspected on different dates, which may result in two assets of a similar state of repair having different condition ratings. It is unclear when both assets were last inspected.

5.27. Condition ratings of assets may also be affected by the time of year the surveys are conducted, as vegetation may obscure the asset in the summer months, or accessibility may be an issue during winter months. These factors would not usually affect the recorded condition rating of an asset unless the asset is on a borderline between two ratings.

5.28. A series of flood defences are present upstream of the site with a 1:100 year standard of protection which protect the housing located within The Green. However, no formal flood defences would appear to defend the site from direct inundation to any significant degree. Therefore, there is negligible residual risk from breach and overtopping of flood defences.

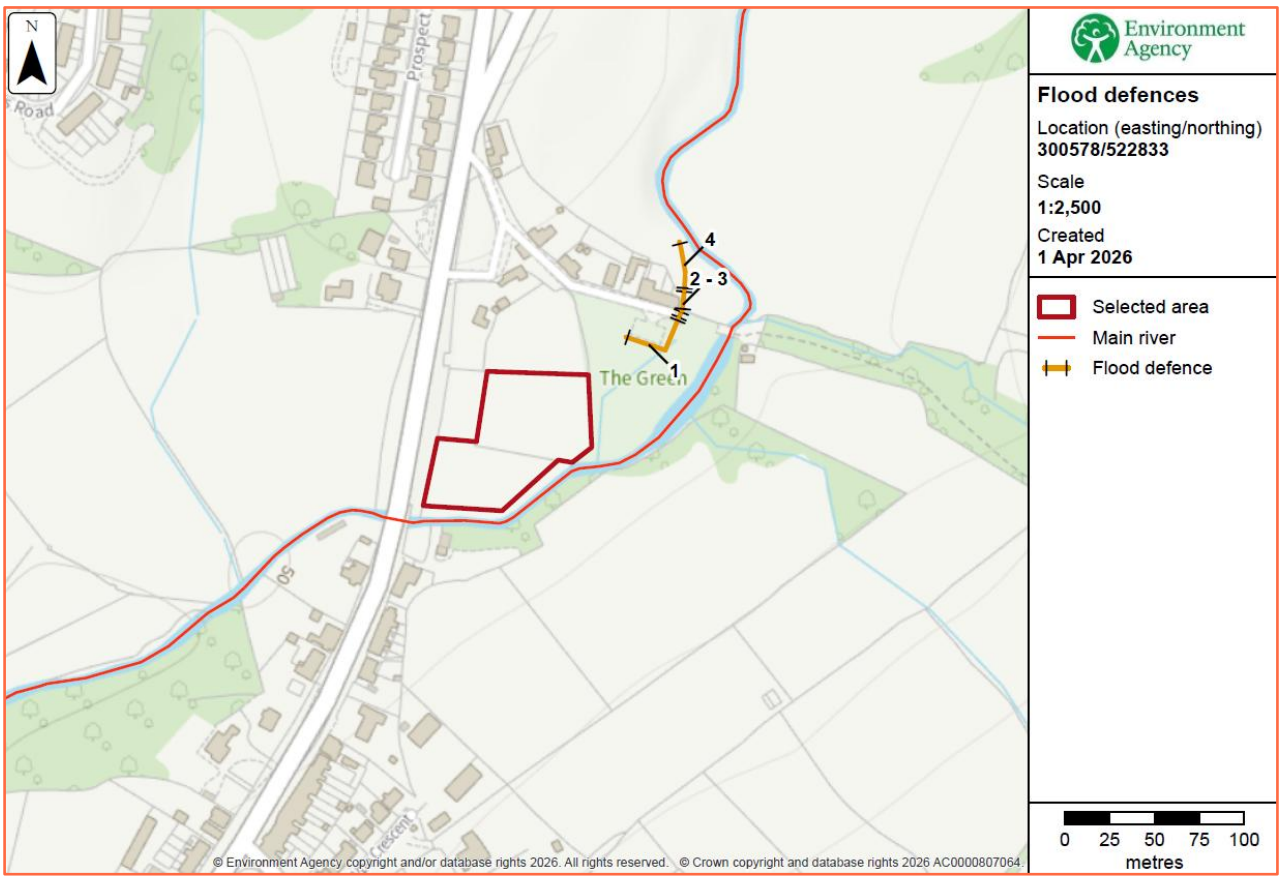


Figure 7: Flood defences within the area (Source: EA)

Residual Risk (breach or overtopping of flood defences):

5.29. Breaching of flood defences can cause rapid inundation of areas behind flood defences as flow in the river channel discharges through the breach. A breach can occur with little or no warning, although they are much more likely to occur with extreme river levels or tides when the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life. Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.

5.30. Overtopping of flood defences occurs when water levels exceed the protection level of raised flood defences. The worst case occurs when the fluvial or tidal levels exceed the defence level as this can lead to prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes cyclic overtopping, with intermittent discharge over the crest level of the defence. Flood defences are commonly designed with a freeboard to provide protection against overtopping from waves. The risk from overtopping due to exceedance of the flood defence level is much more significant than the risk posed by wave overtopping. Exceedance of the flood defence level can lead to prolonged and rapid flooding with properties immediately behind the defences at highest risk.

5.31. The site is not shown to be defended by formal flood defences.

Tidal Flooding:

5.32. Due to the site topography and distance to the nearest coast/tidal watercourse, the risk of tidal flooding is considered to be very low.

Pluvial (Surface Water):

5.33. Pluvial (surface water) flooding occurs when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

5.34. The mapping below shows the Risk of Flooding from Surface Water (RoFSW). Please note that the EA do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation. This information tells you the flood risk of the land around a building, not the building itself.

5.35. The RoFSW products are an assessment of where surface water flooding may occur.

5.36. The mapping shows the following likelihood categories, for the present day risk of flooding from surface water, and the climate change scenarios have been produced to indicate the predicted impacts of climate change on future flood risk.

- High - greater than or equal to 1 in 30 (3.3%) chance of flooding in any year.
- Medium – Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance of flooding in any given year.
- Low – Less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) chance of flooding in any given year.

5.37. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5. A near-term epoch (2040 – 2060 “2050s” epoch) and Central allowances are being used initially, to support short and medium-term decisions informed by the highest flood likelihood projections.

5.38. The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at “Very Low” to “High” chance of flooding from surface water.

5.39. The EA Risk of Flooding from Surface Water mapping shows the site to be at “Very Low” to “High” chance of flooding between 2040 and 2060.

Figure 8: Extract from EA Risk of Flooding from Surface Water mapping – present day (Source: EA)

Figure 9: Extract from Environment Agency RoFSW map – between 2040 and 2060 (Source: EA)

Groundwater:

5.40. Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends

to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

5.41. Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground.

5.42. The EA states that this location is outside of a groundwater flood alert area.

5.43. No information has been provided to suggest that the site has flooded historically due to groundwater.

Sewer:

5.44. Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.

5.45. All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.

5.46. No information has been presented to suggest that the site itself has been affected by sewer flooding.

Other Sources:

5.47. Reservoirs with an impounded volume in excess of 25,000 cubic metres (measured above natural ground level) are governed by the Reservoirs Act and are listed on a register held by the Environment Agency. The site is located outside the maximum inundation extent on the EA Reservoir Inundation Map. The EA also advise on their website that reservoir flooding is extremely unlikely. There has been no loss of life in the UK from reservoir flooding since 1925. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. In accordance with the Reservoirs Act 1975 in England, these inspections are monitored and enforced by the EA themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial / tidal flooding to occur. The Environment Agency Reservoir Flood Map illustrated below, illustrates the largest area that might be flooded if the storage area were to fail and release the water it is designed to hold during a flood event.

5.48. Records of flooding from reservoirs and canals are erratic as there is no requirement for the Environment Agency to provide information on historic flooding from canals and raised reservoirs on plans. In particular, the NPPF does not require flood risk from canals and raised reservoirs to be shown on the Environment Agency flood zones.

5.49. Overflows from canals can be common as they are often fed by land drainage, and often do not have controlled overflow spillways. Occasionally, major bank breaches also occur, leading to rapid and deep flooding of adjacent land.

5.50. No information has been provided to suggest that the site is susceptible to flooding from other sources.

Figure 10: Extract from Environment Agency Reservoir Flood Map (Source: EA)

Historical Flood Events:

5.51. The EA hold records of historic flood events from rivers and the sea. The EA map flooding to land, not individual properties. Their historic flood event record outlines are an indication of the geographical extent of an observed flood event. Their historic flood event outlines do not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.

5.52. The EA hold no records of historic flooding having affected the site or immediate surrounding area.

5.53. The EA historical flood records are not comprehensive, and they advise that further enquiries locally are made with specific reference to flooding at the location.

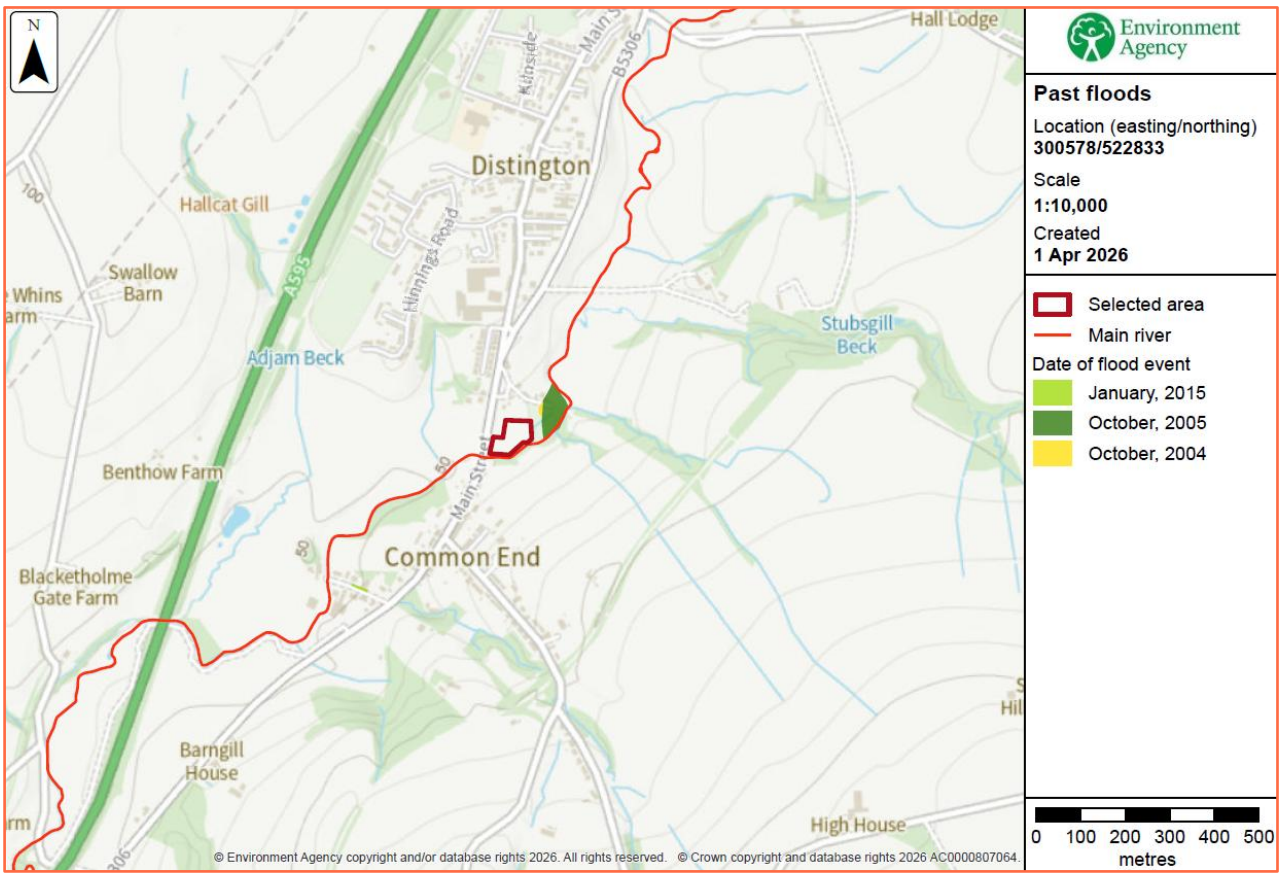


Figure 11: EA historic flood outlines (Source: EA, OS)

6. Flood Risk Management

Vulnerability to Flooding:

6.1. The NPPF classifies property usage by vulnerability to flooding.

6.2. The existing site usage is classified as “less vulnerable” (agricultural).

6.3. Post development, the site will become “water compatible” (outdoor recreation), as the application is for the change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area.

6.4. There will be no land raising, introduction to new residential units, increase to built footprint, impermeable areas or vulnerability classification as part of this development.

6.5. Accordingly, it is considered that the vulnerability of the site as a whole will not increase post development.

EA Standing Advice for Minor Extensions:

6.6. EA Standing Advice guidance is for domestic extensions and non-domestic extensions where the additional footprint created by the development does not exceed 250m^2. It should not be applied if an additional dwelling is being created, e.g. a self-contained annexe or additional commercial unit.

6.7. The proposed application is for the change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area.

Physical Design Measures:

6.8. The site is located within Flood Zones 1, 2 and 3 according to the EA Flood Map for planning (Rivers and the Sea).

6.9. The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at “Very Low” to “High” chance of flooding from surface water for the present day and “Very Low” to “High” chance between 2040 and 2060.

6.10. The applicant has confirmed that the proposed boundary fencing for the site will be mesh fencing which will not obstruct or impede floodwater.

6.11. It is recommended that signs should be in place to notify site users of the susceptibility of flooding and should sign up to the EA’s flood alert area (Rivers Ehen, Calder, Irt and Esk) to provide some advance warning time that the site could become inundated.

Safe Escape:

6.12. The Flood Risk and Coastal Change Planning Practice Guidance (PPG) states that access considerations should include the voluntary and free movement of people during a design flood, as well as the potential for evacuation before a more extreme flood, considering the effects of climate change for the lifetime of the development. Emergency access and escape plans are needed if any part of a development is below the estimated design flood level, which connects the site to an area away from current or future flood risk.

6.13. Flood warning notices will be erected around the site to inform site users of the risk of flooding, and the flood warning and evacuation measures.

6.14. In the event of a flood alert or weather warning being issued, site users would be advised not to attend site until the flood alert has been lifted.

6.15. A potential safe escape route has been provided below.

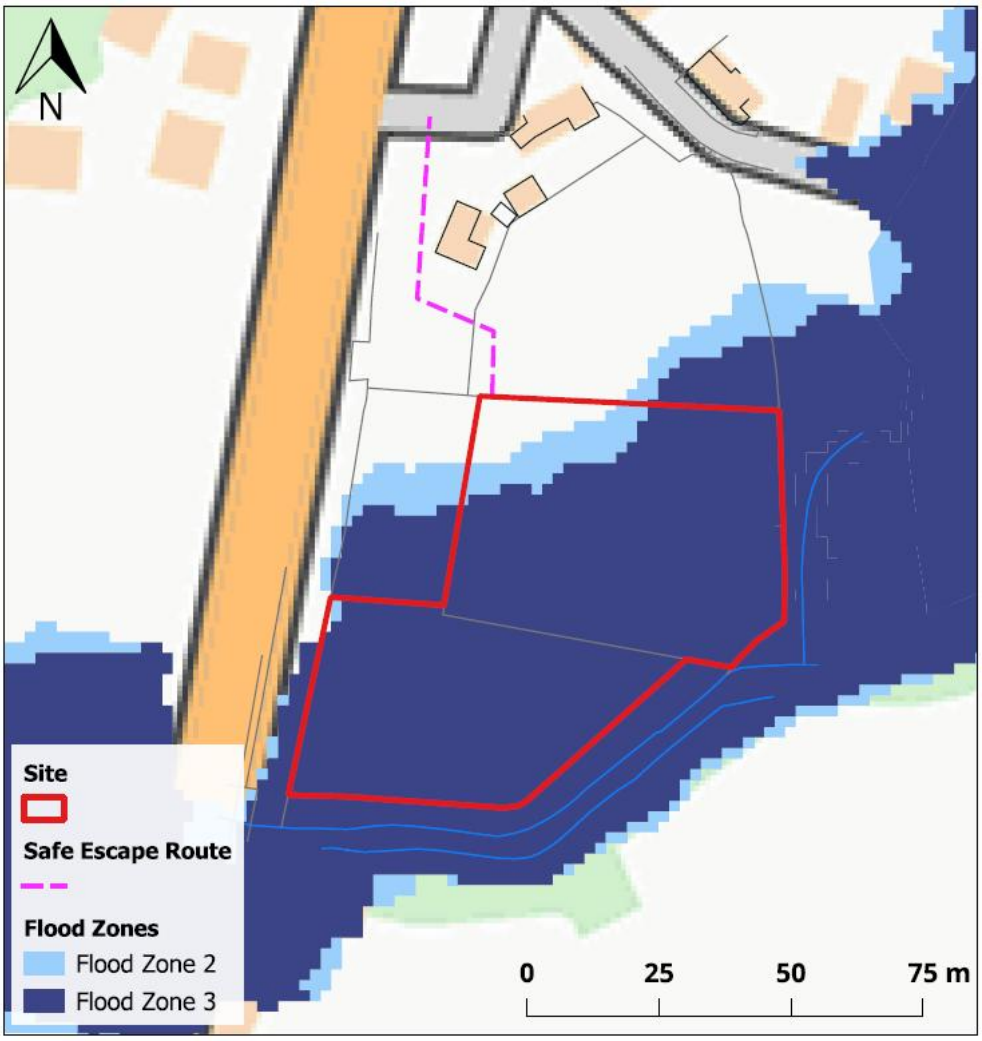


Figure 12: Potential Safe escape route (Source: OS mapping, EA)

6.16. Safe escape will be provided by a flood warning and evacuation plan that will be prepared in liaison with the Council's Emergency Planners and tied in with the existing emergency plans for the area.

6.17. Site users will follow the Flood Warning and Evacuation Plan detailed in the following section.

Flood Warning:

6.18. The EA is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.

6.19. Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.

6.20. The applicant has agreed to subscribe to the EA's flood warning service.

6.21. The EA issue flood warnings/alerts to specific areas when flooding is expected. The site lies within the Rivers Ehen, Calder, Irt and Esk Flood Alert Area.

Flood Warning	Flood Alert	Flood Warning	Severe Flood Warning
			
What it means?	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
When it's used?	Two hours to two days in advance of flooding.	Half an hour to one day in advance of flooding.	When flooding poses a significant threat to life.
What to do?	Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website.	Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place.	Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger.

Table 3: EA Flood Warning Service

Flood Plan:

6.22. It is recommended that the applicant and future owners, occupiers and Landlords of the property prepare a flood plan to protect life and property during a flood event:

Action	
Before a flood	• Prepare and keep a list of all your important contacts to hand or save them on your mobile phone. • Think about what items you can move now and what you would want to move to safety during a flood. • Know how to turn off electricity and water supplies to the site. • Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.
During a flood	• Activate the evacuation plan and evacuate the site. • Remove cars from the site if there is sufficient warning and the water levels are not rising rapidly. • Switch off water and electricity for the site. • Tune into your local radio station on a battery or wind-up radio. • Listen to the advice of the emergency service and evacuate if told to do so. • Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.
After a flood	• If you have flooded, contact your insurance company as soon as possible. • Take photographs and videos of your damaged property as a record for your insurance company. • If you don't have insurance, contact your local authority for information on grants and charities that may help you. • Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask. • Have your electrics and water checked by qualified engineers before switching them back on.

Table 4: Flood plan

Off-Site Impacts:

Fluvial Floodplain Storage:

6.23. The NPPF requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.

6.24. In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.

6.25. For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.

6.26. The site is situated in Flood Zones 1, 2 and 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea), however the application is for a change of use. There will be no increase to built footprint and thus no displacement of fluvial floodwater. Therefore, there will be no unacceptable loss of floodplain storage.

Surface Water Drainage:

6.27. The development will utilise Sustainable drainage systems (SuDS) design in accordance with the NPPF for Planning Applications and the drainage hierarchy as follows:

1. Store rainwater for later use;
2. Infiltration techniques;
3. Attenuate rainwater by storing in tanks for gradual release;
4. Discharge rainwater direct into watercourse;
5. Discharge rainwater into surface water sewer;
6. Discharge rainwater into a combined sewer.

6.28. Due to the nature of the development (change of use of existing land), there will be no increase to the built footprint, no change to the impermeable coverage, and therefore no increase to surface water runoff generation. The existing surface water drainage arrangements for the site will continue to be utilised.

7. Sequential and Exception Test

7.1. The Sequential Test aims to ensure that development does not take place in areas at high risk of flooding when appropriate areas of lower risk are reasonably available.

7.2. The Sequential Test is applied to developments in areas identified as being at risk of any source of flooding now or in the future. The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.

7.3. The sequential approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding. Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk.

7.4. The site is situated within Flood Zones 1, 2 and 3 according to the EA Flood Map for planning (Rivers and the Sea) and within an area of "Very Low" to "High" chance of flooding from surface water. Post development, the site will become "water compatible", as the application is for the change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area.

	Flood Risk Vulnerability Classification				
Flood Zones	**Essential Infrastructure**	**Highly Vulnerable**	**More Vulnerable**	**Less Vulnerable**	**Water Compatible**
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	X	Exception Test required	✓	✓
Zone 3b	Exception Test required	X	X	X	✓

Table 5: Flood risk vulnerability and flood zone 'compatibility' (Source: NPPF Table 3 Technical Guidance)

7.5. Using the table above, the proposed application ("water compatible") is considered to be suitable within Flood Zones 1,2 and 3. The Sequential and Exception Tests do not need to be applied for minor developments and changes of use – this application is for the change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area.

8. Discussion and Conclusion

8.1. Unda Consulting Limited have been appointed by Cumbria Canine Park to undertake a Flood Risk Assessment for the proposed development at Land south of The Barn, Beck Green, Distington, Workington, CA14 5XW. The purpose of the study is to support a planning application for the proposed development.

8.2. The site comprises agricultural land. The site is understood to have lawful planning permission for agricultural use. The surrounding area is characterised by agricultural land and residential properties.

8.3. The proposed application is for the change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area.

8.4. There will be no land raising, introduction to new residential units, increase to built footprint, impermeable areas or vulnerability classification as part of this development.

8.5. The existing site usage is classified as “less vulnerable” (agricultural). Post development, the site will become “water compatible” (outdoor recreation), as the application is for the change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area. There will be no land raising, introduction to new residential units, increase to built footprint or increase to vulnerability classification as part of this development. Accordingly, it is considered that the vulnerability of the site as a whole will not increase post development.

8.6. The site is located within Flood Zone 1 (Low Probability), defined as land having a less than 1:1000 year probability of river or sea flooding, Flood Zone 2 (Medium Probability), defined as land having between a 1:100 and 1:1000 annual probability of river flooding; or Land having between a 1:200 and 1:1000 annual probability of sea flooding and partially within Flood Zone 3 (High Probability), defined as land having a 1:100 or greater annual probability of river flooding; or Land having a 1:200 or greater annual probability of sea flooding.

8.7. The risk would appear to be fluvial and originates from the Distington Beck located approximately 4m south of the site boundary.

8.8. The site is shown to be within the EA Flood Zones plus climate change (2070 to 2125) extent.

8.9. Product 4 data has been provided by the Environment Agency.

8.10. The information provided is based upon the NW (North) Flood Zone Improvements, completed in 2009 by JBA, which includes the 2010 Distington Beck model.

8.11. The site is shown to be partially within the undefended 1:50 year, 1:75 year, 1:100 year, 1:100 year +20%CC, 1:200 year and 1:1000 year flood extents.

8.12. Comparison of the undefended modelled flood level for the 1:100 year plus 20% climate change event (53.63mAOD) with approximate topographic site levels (51.10mAOD to 53.50mAOD) shows the site to be between 0.13m and 2.53m below the flood level for this event.

8.13. According to EA data, there are no Flood Storage Areas located in close proximity to the site.

8.14. A series of flood defences are present upstream of the site with a 1:100 year standard of protection which protect the housing located within The Green. However, no formal flood defences would appear to defend the site from direct inundation to any significant degree. Therefore, there is negligible residual risk from breach and overtopping of flood defences.

8.15. The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at "Very Low" to "High" chance of flooding from surface water for the present day and between 2040 and 2060.

8.16. Risk to the site from groundwater flooding and sewer surcharge would appear to be very low. No information has been provided to suggest that the site has flooded historically from these sources.

8.17. The site is located outside the maximum inundation extent on the EA Reservoir Inundation Map. The EA also advise on their website that reservoir flooding is extremely unlikely.

8.18. The EA hold no records of historic flooding having affected the site or immediate surrounding area.

In Summary:

- The proposed application is for the change of use of agricultural land to a private, pre-booked dog exercise area (low-intensity leisure use), including reinforcement of existing boundary fencing, installation of secure pedestrian access gate, and provision of small customer parking area.
- There will be no land raising, introduction to new residential units, increase to built footprint, impermeable areas or vulnerability classification as part of this development.
- Post development, the site will become "water compatible" (outdoor recreation).
- There will be no unacceptable loss of fluvial floodplain storage.
- Flood warning notices will be erected around the site to inform site users of the risk of flooding, and the flood warning and evacuation measures.
- In the event of a flood alert or weather warning being issued, site users would be advised not to attend site until the flood alert has been lifted.
- Safe escape will be provided by a flood warning and evacuation plan that will be prepared in liaison with the Council's Emergency Planners and tied in with the existing emergency plans for the area.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

Unda Consulting Limited
April 2026

Appendix

A – Development Plans:

- Site location, existing and proposed plans – Applicant.

B – EA Flood Map for Planning:

- Flood Map for Planning – Environment Agency.

C – EA Product 4:

- Product 4 – Environment Agency.

D – NPPF Annex 3:

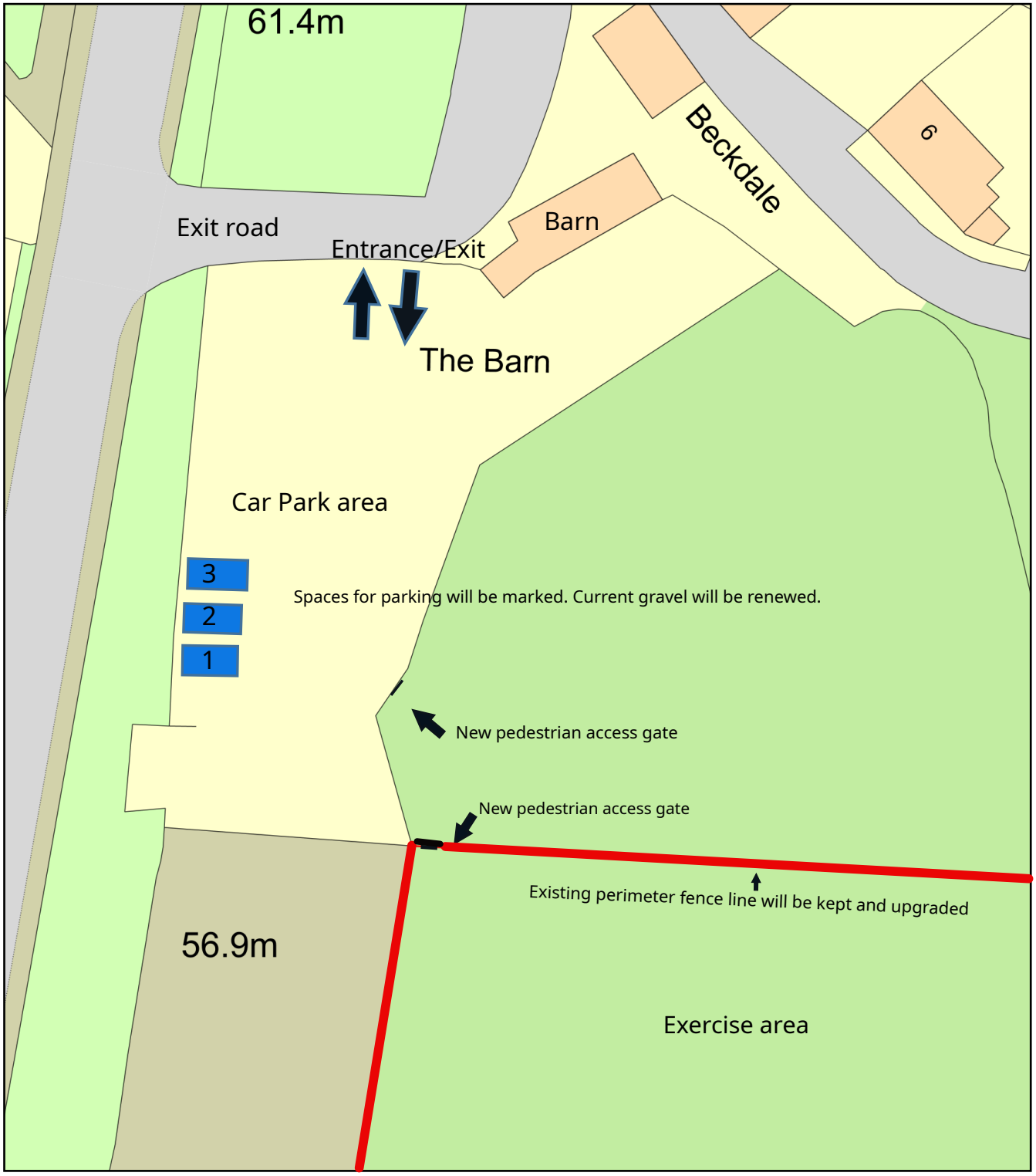
- NPPF Annex 3: Flood risk vulnerability classification table.

Appendix A

Planning application-site location plan 1 1250

Location Plan shows area bounded by: 300467.71, 522775.13 300667.71, 522975.13 (at a scale of 1:1250), OSGridRef: NY00562287. The representation of a road, track or path is no evidence of a right of way. The representation of features as lines is no evidence of a property boundary.

Site Layout plan



0 20
Metres

N

ReQuestaPlan

Plan Produced for: James Martin

Date Produced: 01 Apr 2026

Plan Reference Number: TQRQM26091061407832

Scale: 1:500 @ A4

Appendix B

Flood map for planning

Your reference	Location (easting/northing)	Created
Unspecified	**300578/522833**	**1 April 2026 09:43**

Your selected location is in flood zone 3, an area with a high probability of flooding.

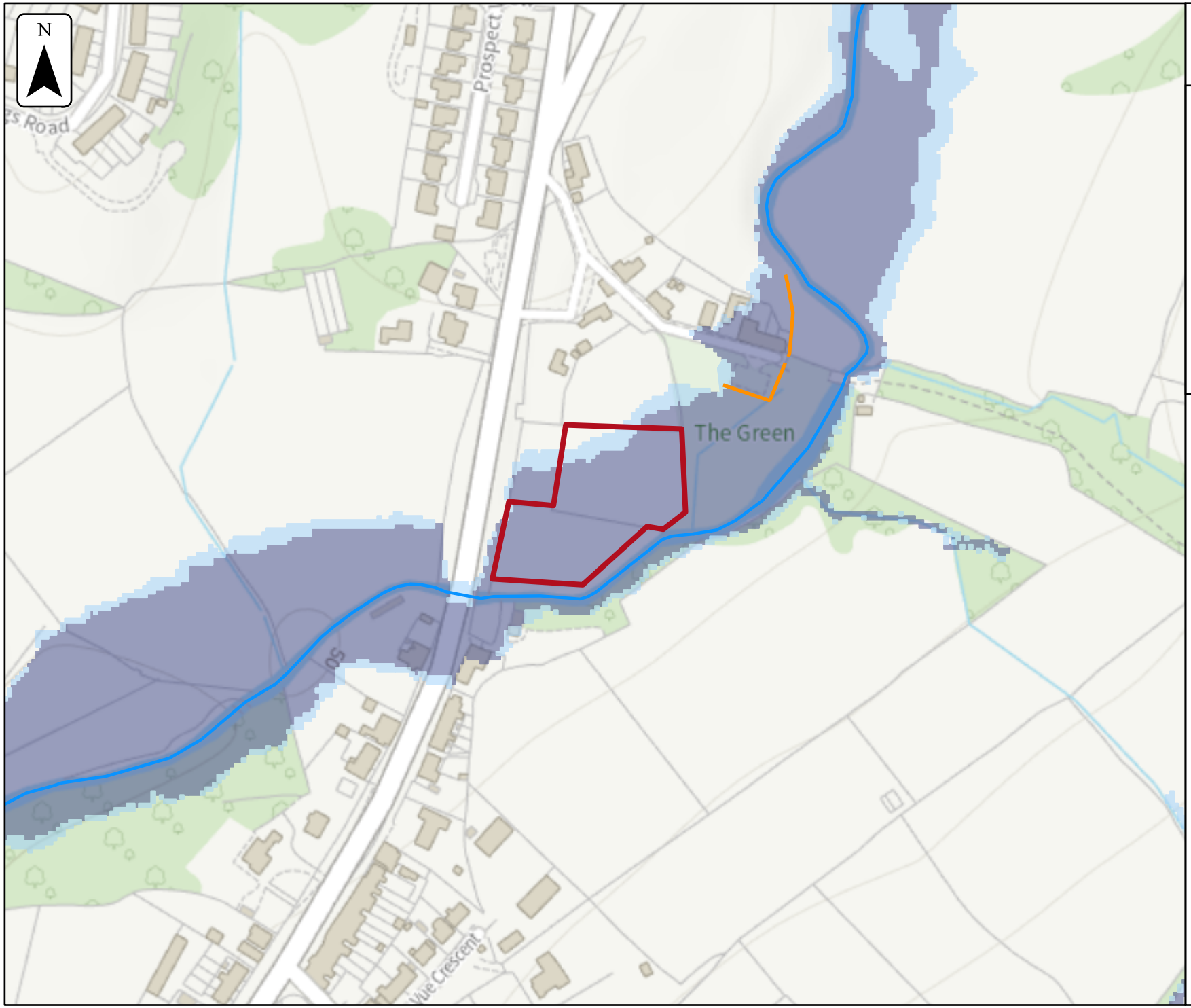
This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see https://www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.



Environment Agency

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
300578/522833

Scale
1:2,500

Created
1 Apr 2026 09:43

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60 m

Appendix C

Flood risk assessment data

Location of site: 300578 / 522833 (shown as easting and northing coordinates)
Document created on: 1 April 2026
This information was previously known as a product 4.
Customer reference number: B22HPJM3N8GT

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)
- past floods
- 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

Surface water and other sources of flooding

When using the surface water map on the check your long term flood risk service the following considerations apply:

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

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

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

Your Lead Local Flood Authority is Cumberland.

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

About the models used

Model name: Distington Beck 2010
Scenario(s): Defended fluvial, defences removed fluvial, defences removed climate change fluvial
Date: 1 June 2010

This model contains 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 occuring 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 3.

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

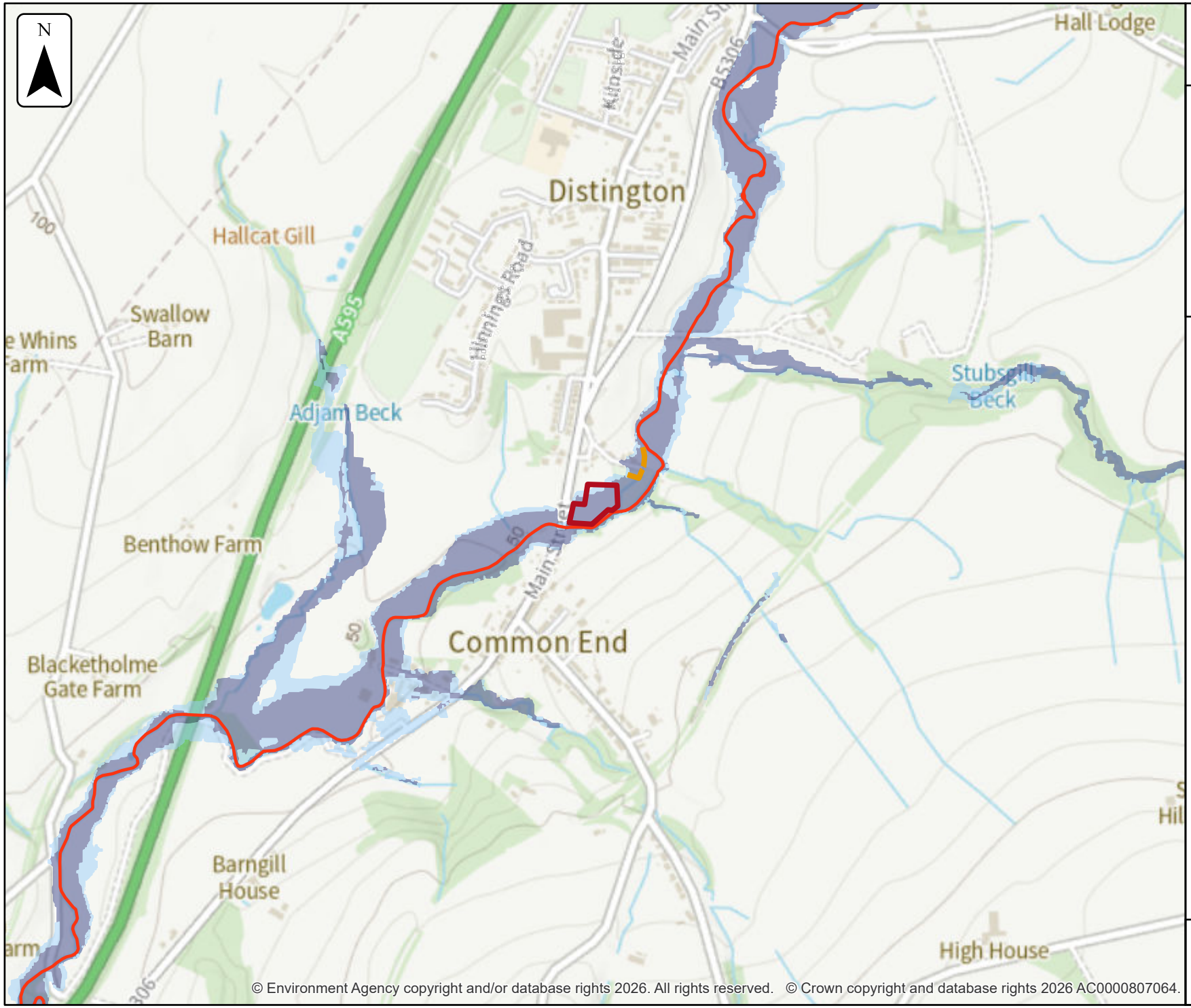
- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

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



Environment Agency

Flood map for planning

Location (easting/northing)
300578/522833

Scale
1:10,000

Created
1 Apr 2026

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

0 100 200 300 400 500
metres

Past floods

Past flood events included in this document

The recorded flood outlines included in this document are for areas of land local to your site location that have been flooded by any of these sources:

- ephemeral water
- main rivers
- ordinary watercourses
- the sea
- unknown

Data limitations

The outlines do not include flooding from:

- drainage where rainfall has led to surface water ponding or overland runoff
- artificial, water-bearing sewer, water supply and wastewater treatment pipelines

Changes to flood defences

The defences (also known as assets) that were in place may also have changed. For example, assets may have been built more recently than the last recorded flood outline.

What the recorded flood outlines dataset is

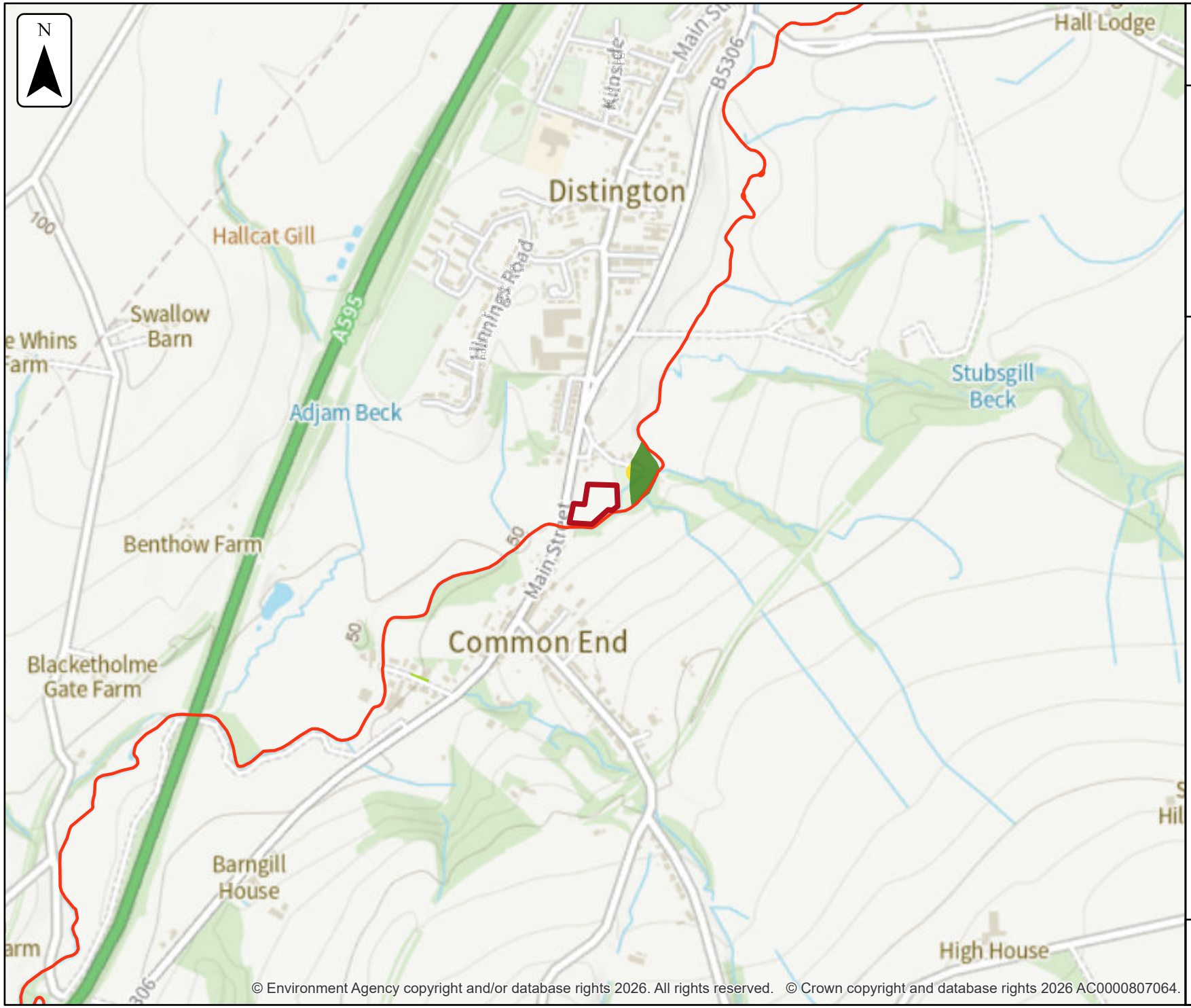
The recorded flood outlines are a geographical information system (GIS) data layer that show our verified records of areas that have flooded in the past from:

- rivers
- the sea
- groundwater
- surface water

Download the complete recorded flood outlines dataset, which includes data quality flags for outlines recorded after April 2020. This indicates the confidence we have in an outline.

Get flood information from other organisations

Contact Cumberland Lead Local Flood Authority (LLFA) and your drainage board to get information about past flooding caused by surface water or drainage systems.



Environment Agency

Past floods

Location (easting/northing)
300578/522833

Scale
1:10,000

Created
1 Apr 2026

- Selected area
- Main river

Date of flood event

- January, 2015
- October, 2005
- October, 2004

0 100 200 300 400 500
metres

Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
14 January 2015	15 January 2015	ordinary watercourse	obstruction/blockage - bridge	No
12 October 2005	13 October 2005	main river	channel capacity exceeded (no raised defences)	No
3 October 2004	3 October 2004	main river	unknown	No

Flood defences and attributes

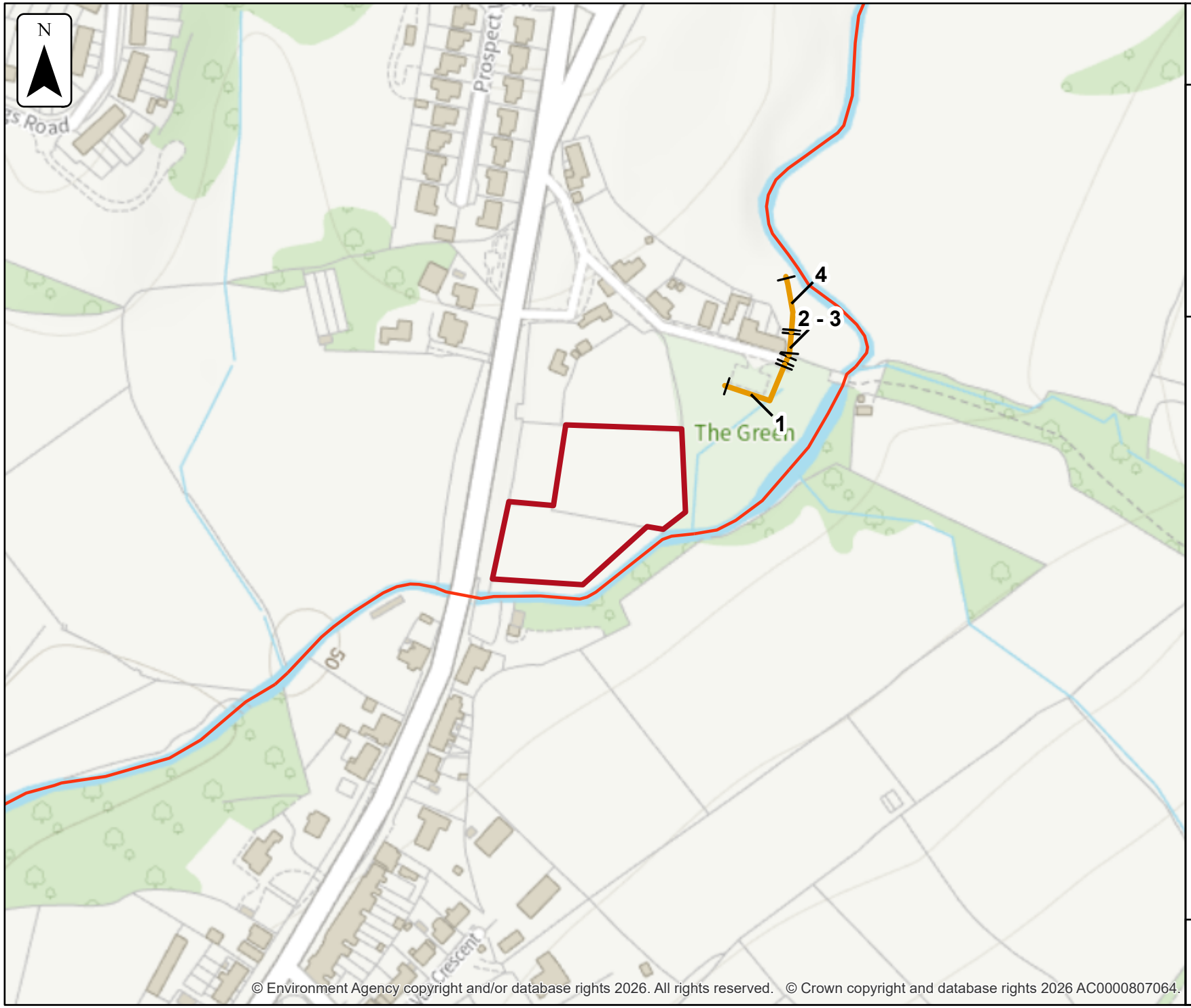
The flood defences map shows the location of the flood defences present.

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



Environment Agency

Flood defences

Location (easting/northing)
300578/522833

Scale
1:2,500

Created
1 Apr 2026

Selected area
Main river
Flood defence

0 25 50 75 100
metres

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	185544	Embankment	100	Good	53.93	53.88	53.88
2	181272	Flood Gate	100	Fair	54.40	54.40	54.40
3	185545	Wall	100	Good	53.97	54.40	53.97
4	185546	Embankment	100	Fair	54.05	54.13	54.05

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

Climate change

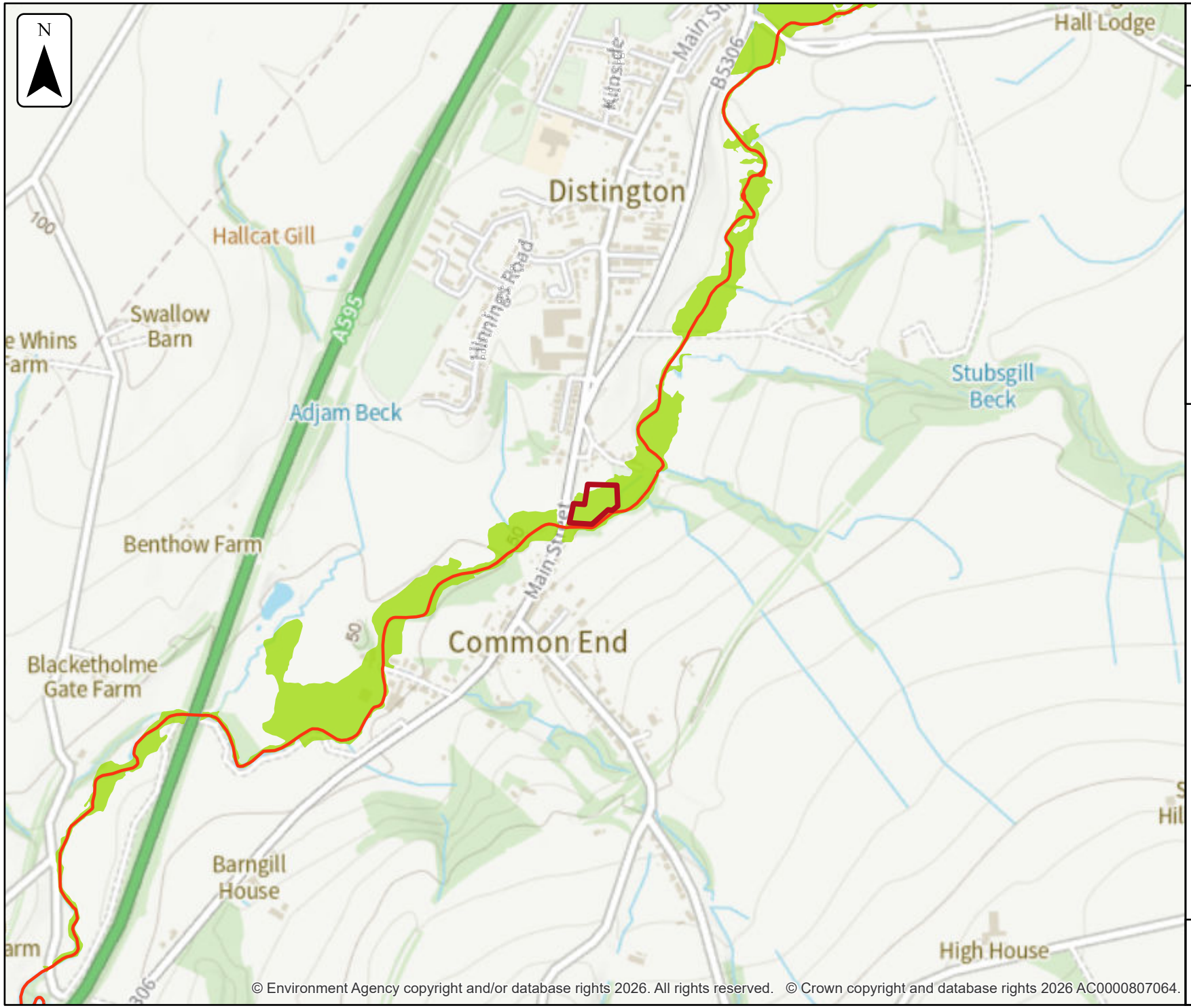
The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

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
- Defences removed climate change modelled fluvial: risk of flooding from rivers where flood defences have been removed, including estimated impact of climate change



Environment Agency

Defences removed climate change modelled fluvial extent

Location (easting/northing)
300578/522833

Scale
1:10,000

Created
1 Apr 2026

Model name
Distington Beck 2010

Selected area

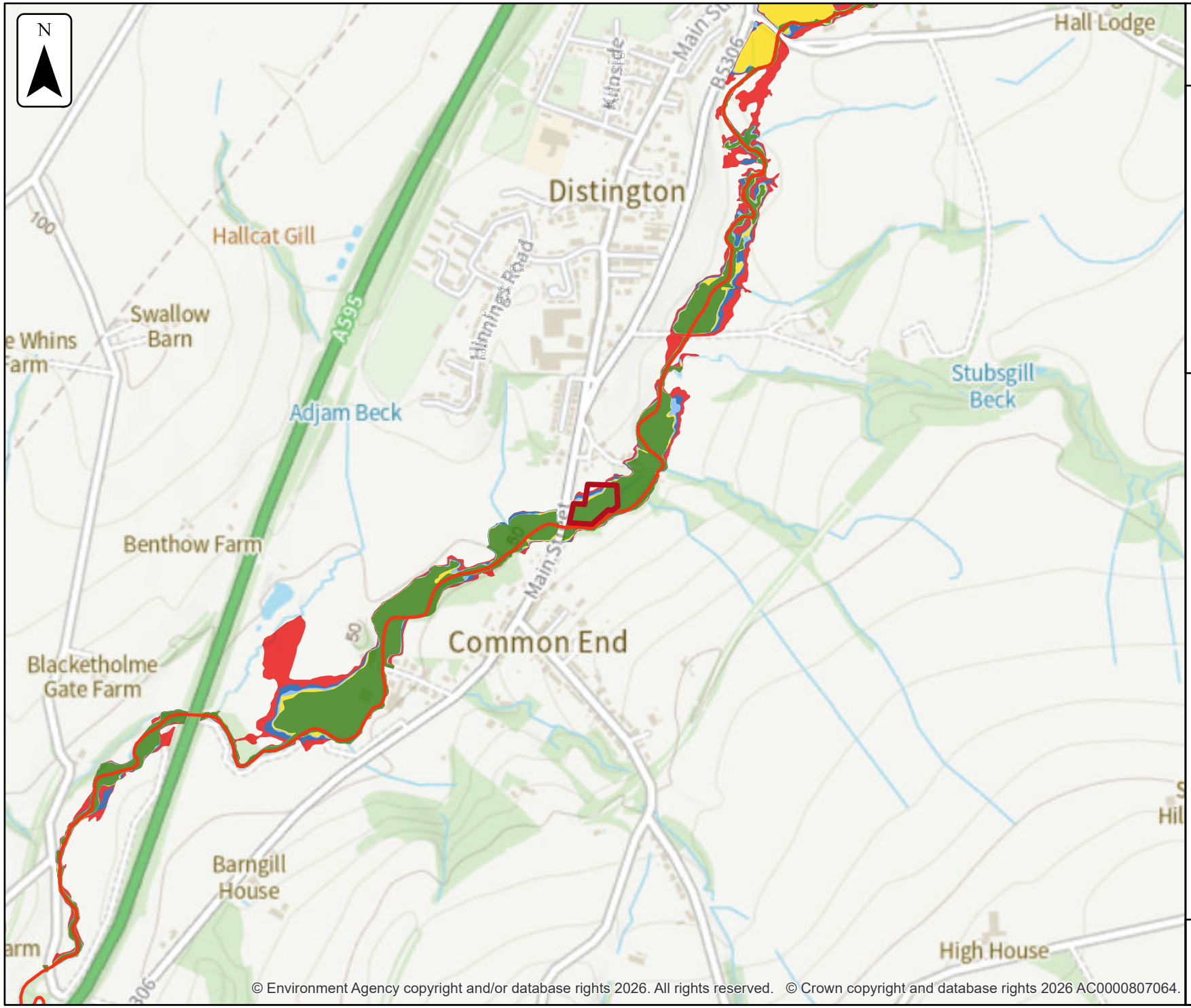
Main river

Modelled flood extent

1% AEP (+20%)

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

0 100 200 300 400 500
metres



Environment Agency

Defences removed modelled fluvial extent

Location (easting/northing)
300578/522833

Scale
1:10,000

Created
1 Apr 2026

Model name
Distington Beck 2010

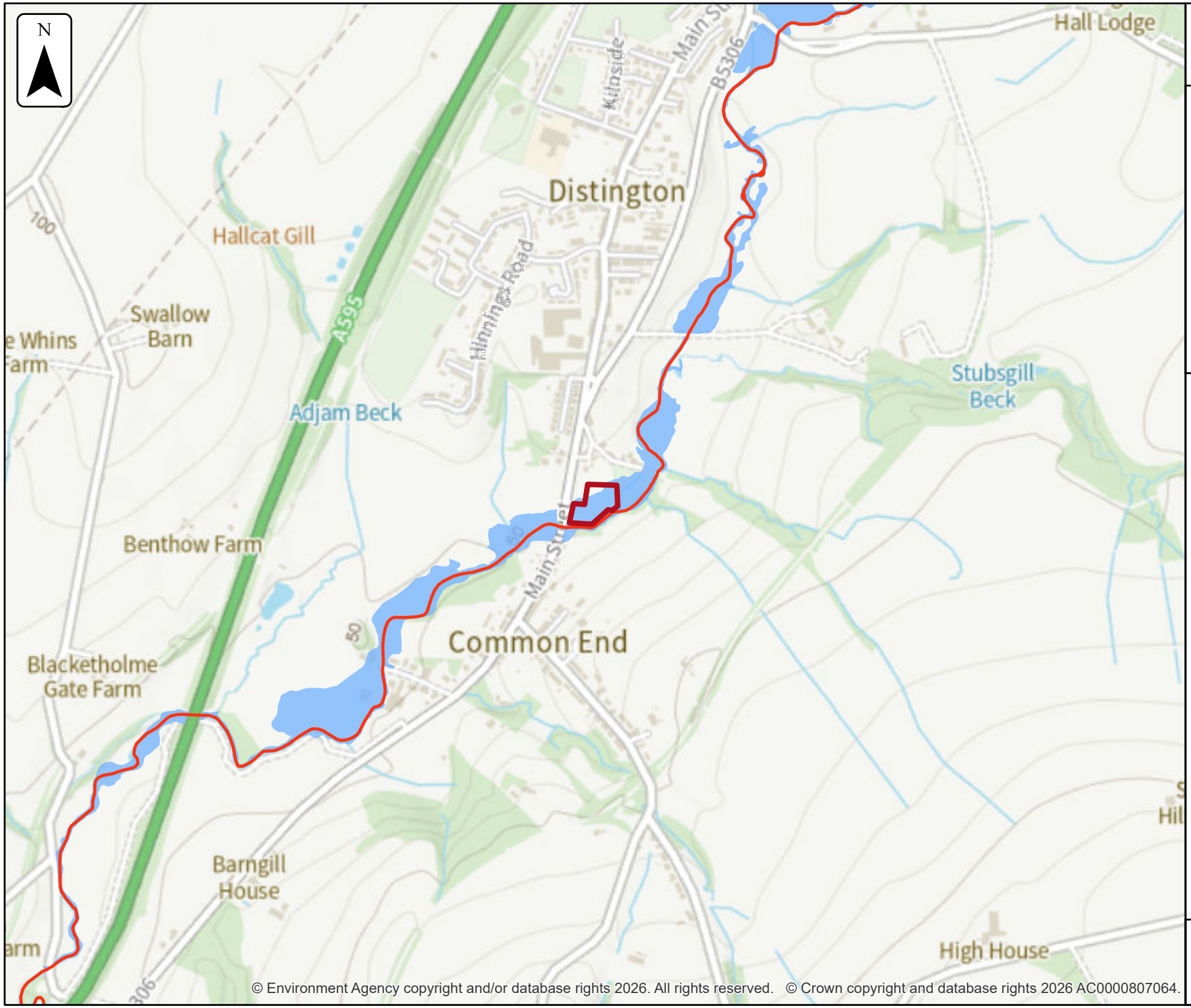
- Selected area
- Main river

Modelled flood extent

- 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

0 100 200 300 400 500
metres



Environment Agency

Defended modelled fluvial extent

Location (easting/northing)
300578/522833

Scale
1:10,000

Created
1 Apr 2026

Model name
Distington Beck 2010

Selected area

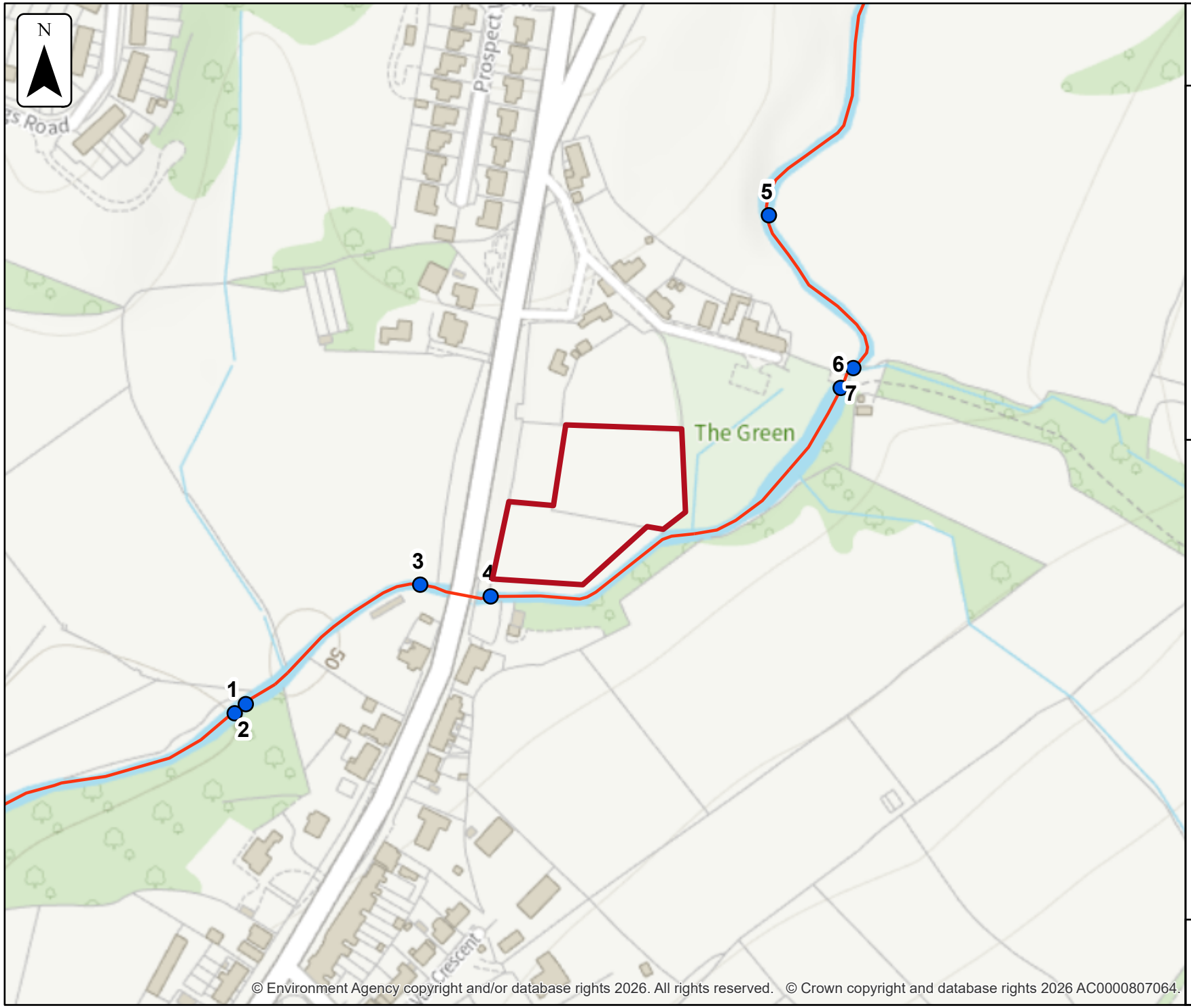
Main river

Modelled flood extent

1% AEP

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

0 100 200 300 400 500
metres



Environment Agency

Defended modelled fluvial node locations

Location (easting/northing)
300578/522833

Scale
1:2,500

Created
1 Apr 2026

Model name
Distington Beck 2010

- Selected area
- Modelled location
- Main river

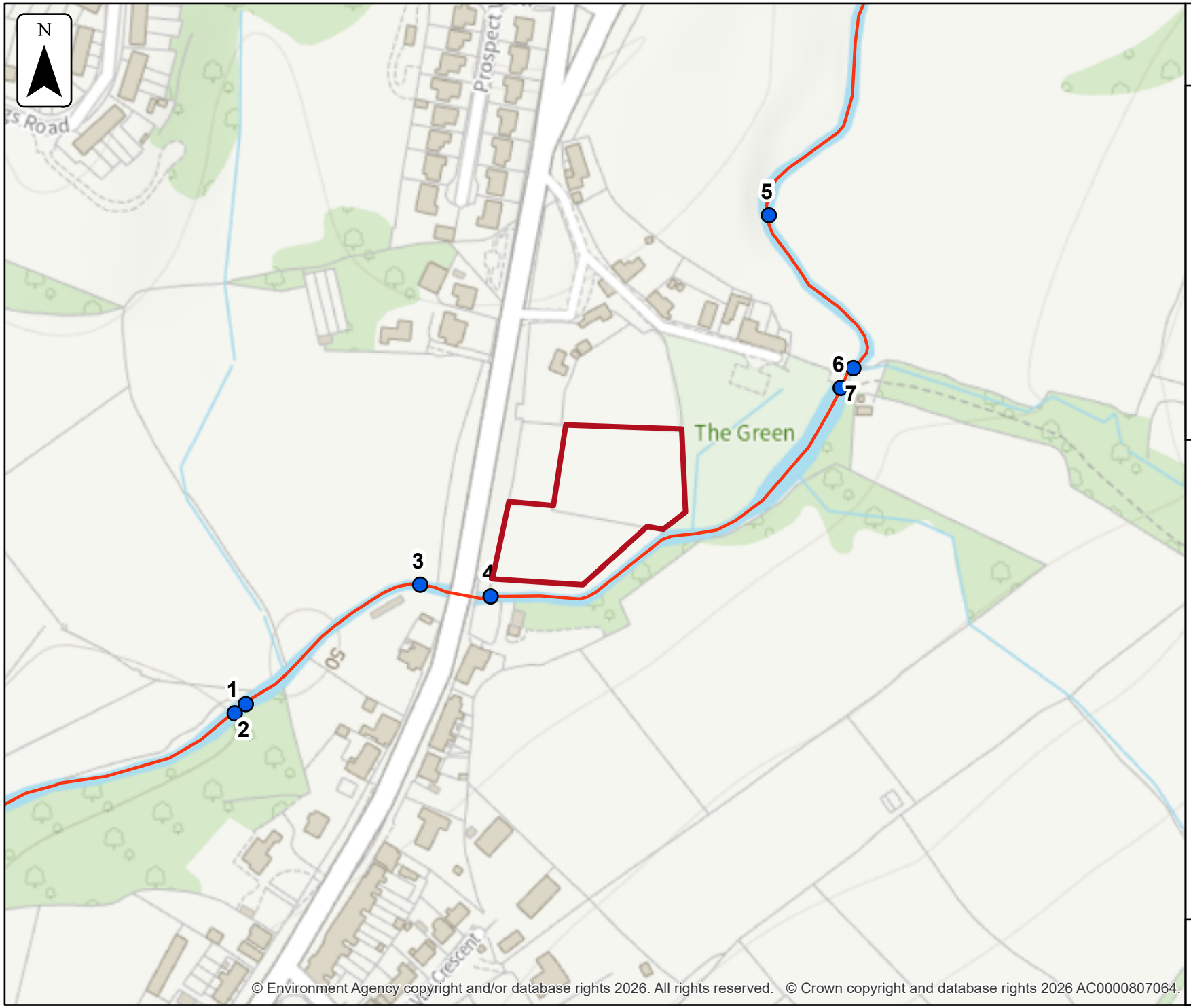
0 25 50 75 100
metres

Modelled node locations data

Defended

Label	Modelled location ID	Easting	Northing	1% AEP	1% AEP
				Level	Flow
1	1042605	300402	522731	48.75	20.14
2	1042600	300408	522736	49.88	20.14
3	1042619	300492	522794	51.25	20.14
4	1042621	300527	522788	52.24	20.14
5	1042607	300662	522974	54.27	20.14
6	1042620	300697	522890	53.24	20.14
7	1042616	300703	522899	53.47	20.14

Data in this table comes from the Distington Beck 2010 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.



Environment Agency

Defences removed modelled fluvial node locations

Location (easting/northing)
300578/522833

Scale
1:2,500

Created
1 Apr 2026

Model name
Distington Beck 2010

- Selected area
- Modelled location
- Main river

0 25 50 75 100
metres

Modelled node locations data

Defences removed

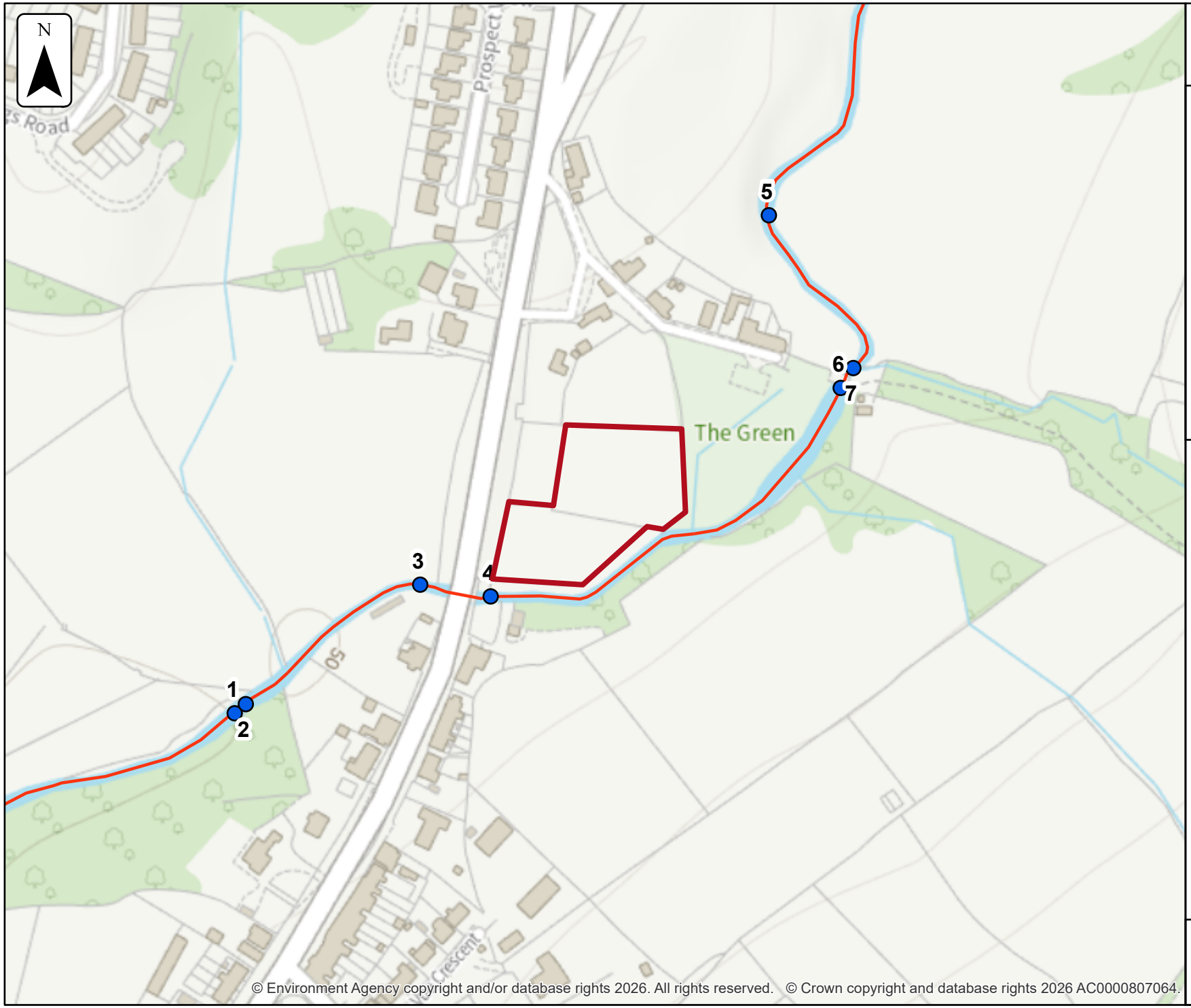
Label	Modelled location ID	Easting	Northing	20% AEP	10% AEP	4% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Level	Level	Level	Level	Level	Level	Level	Level
1	1042605	300402	522731	48.38	48.47	48.58	48.66	48.71	48.75	48.84	49.06
2	1042600	300408	522736	49.65	49.70	49.77	49.82	49.86	49.88	49.92	49.94
3	1042619	300492	522794	50.95	51.03	51.13	51.19	51.21	51.25	51.30	51.34
4	1042621	300527	522788	51.19	51.38	51.68	51.94	52.10	52.24	52.60	52.83
5	1042607	300662	522974	53.83	53.93	54.07	54.16	54.23	54.27	54.35	54.52
6	1042620	300697	522890	52.83	52.91	53.02	53.11	53.16	53.20	53.29	53.47
7	1042616	300703	522899	52.94	53.05	53.20	53.32	53.39	53.44	53.57	53.88

Data in this table comes from the Distington Beck 2010 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.

Defences removed

Label	Modelled location ID	Easting	Northing	20% AEP	10% AEP	4% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow
1	1042605	300402	522731	11.21	13.02	15.57	17.73	19.11	20.14	22.85	30.56
2	1042600	300408	522736	11.21	13.02	15.57	17.73	19.11	20.14	22.85	30.56
3	1042619	300492	522794	11.21	13.02	15.57	17.73	19.11	20.14	22.85	30.56
4	1042621	300527	522788	11.21	13.02	15.57	17.73	19.11	20.14	22.85	30.56
5	1042607	300662	522974	11.21	13.02	15.57	17.73	19.11	20.14	22.85	30.56
6	1042620	300697	522890	11.21	13.02	15.57	17.73	19.11	20.14	22.85	30.56
7	1042616	300703	522899	11.21	13.02	15.57	17.73	19.11	20.14	22.85	30.56

Data in this table comes from the Distington Beck 2010 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.



Environment Agency

Defences removed climate change modelled fluvial node locations

Location (easting/northing)
300578/522833

Scale
1:2,500

Created
1 Apr 2026

Model name
Distington Beck 2010

Selected area
Modelled location
Main river

0 25 50 75 100
metres

Modelled node locations data

Defences removed climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	1% AEP (+20%)
				Level	Flow
1	1042605	300402	522731	48.88	24.17
2	1042600	300408	522736	49.93	24.17
3	1042619	300492	522794	51.31	24.17
4	1042621	300527	522788	52.76	24.17
5	1042607	300662	522974	54.39	24.17
6	1042620	300697	522890	53.33	24.17
7	1042616	300703	522899	53.63	24.17

Data in this table comes from the Distington Beck 2010 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.

Strategic flood risk assessments

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

This should give you information about:

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

Your Lead Local Flood Authority is Cumberland.

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 Cumbria and Lancashire Environment Agency team at inforequests.cmblnc@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

Appendix D

Annex 3: Flood Risk Vulnerability Classification	
Essential Infrastructure:	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood. • Wind turbines. • Solar farms.
Highly Vulnerable:	• Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)
More Vulnerable: * Landfill is as defined in Schedule 10 of the Environmental Permitting (England and Wales) Regulations 2010	• Hospitals. • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non–residential uses for health services, nurseries and educational establishments. • Landfill* and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable:	• Police, ambulance and fire stations which are not required to be operational during flooding. • Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill* and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do not need to remain operational during times of flood. • Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place. • Car parks.
Water-Compatible Development:	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

National Planning Policy Framework Annex 3: Flood risk vulnerability classification