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SITE SPECIFIC FLOOD RISK ASSESSMENT

PROPOSED FOUR BEDROOM DWELLING AT 12 KIRKBECK DRIVE, BECKERMET, CUMBRIA. CA21 2YT

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February 2023

Contents

Appendices

1.0 INTRODUCTION

A L Daines and Partners LLP have been instructed to undertake a site-specific flood risk assessment for the creation of one additional dwelling on land adjacent to 12 Kirkbeck Drive, Beckermet, Cumbria. CA21 2YT.

The purpose of this Flood Risk Assessment is to assess the potential for flooding because of the proposed development, taking account of all reasonable mechanisms of flooding. Planning policy for flood risk is set out in the National Planning Policy Framework (NPPF) technical guidance published in March 2012. The policy document sets out key planning objectives in relation to land usage and flood risk management. The development proposals are designed to be compliant with the requirements of the National Planning Policy Framework.

The UK Government stipulates that a flood risk assessment is required for developments that include:

- In flood zones 2 or 3 including minor development and change of use.
- More than 1 hectare (ha) in flood zone 1.
- Less than 1 ha in flood zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs).
- In an area within flood zone 1 which has critical drainage problems as notified by the Environment Agency.

As part of the development site is within Flood Zone 3a, as specified within the Environment Agency flood risk mapping available online, a flood risk assessment is required as part of the planning process. Flood Zone 3a equates to a high risk of flooding with the land having a 1% or greater chance of flooding from rivers each year; or with a 0.5% or greater chance of flooding each year from the sea. The Environment Agency Flood Map for Planning is located within *Appendix A* for reference.

Site specific data in the form of modelled river levels, was obtained from the Environment Agency. All Environment Agency data received can be found in *Appendix B*.

2.0 SITE DETAILS

The development site is situated adjacent to 12 Kirkbeck Drive, Beckermet, Cumbria. CA21 2YT. The grid reference for the development is stated below:

Easting: 301950

Northing: 506424

Figure 1: Location Plan (taken from Google Maps)

The location of the proposed development currently consists of a lawn area associated with 12 Kirkbeck Drive which is located on the eastern bank of Kirk Beck (main river) which flows through Beckermet.

3.0 PROPOSED DEVELOPMENT

The proposed development site consists of an area of garden previously utilised by 12 Kirkbeck Drive, Beckermet. The planning application seeks the approval for one single dwelling with associated landscaping and car parking areas. As detailed within the plans below.

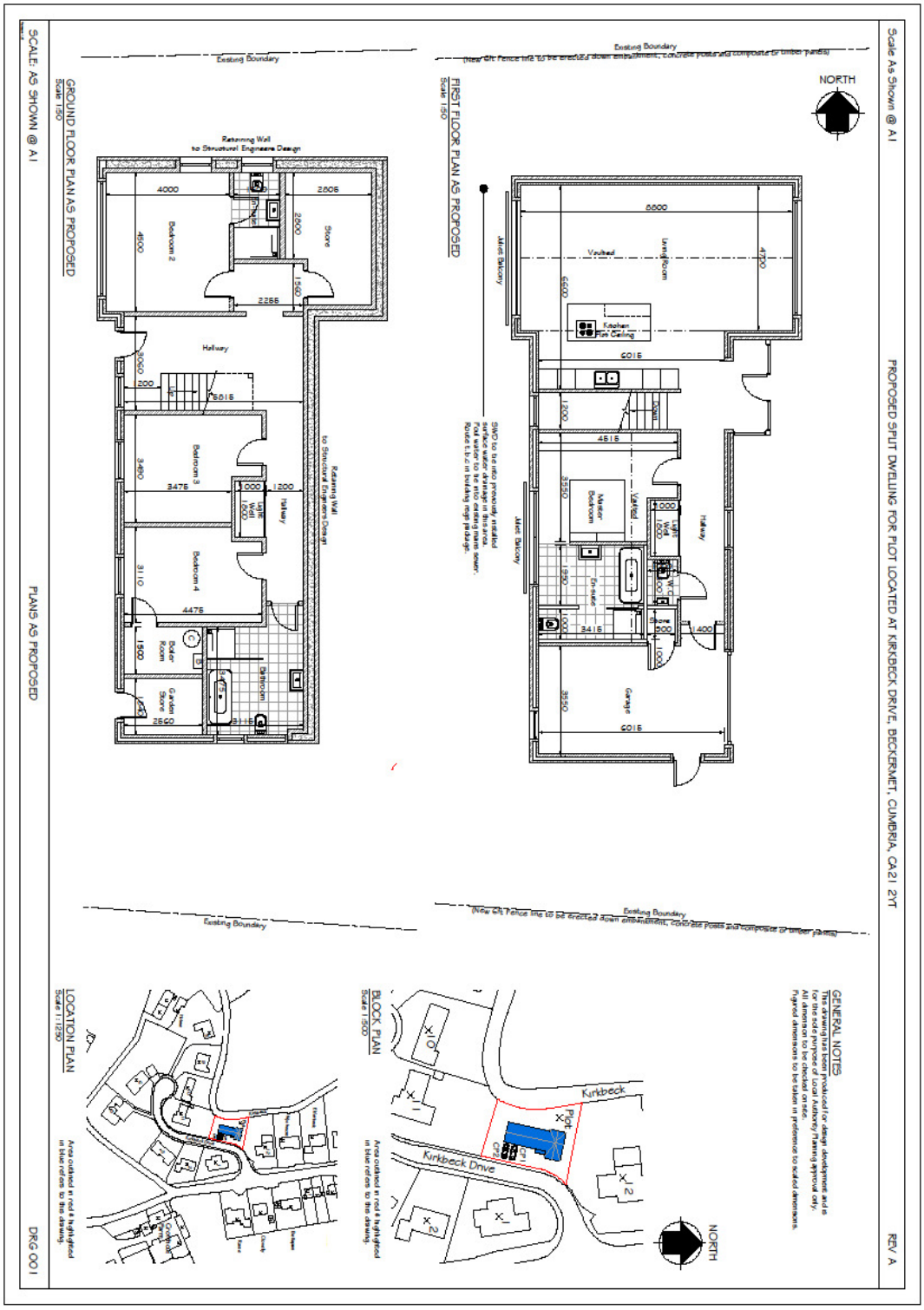


Figure 2: Proposed Site Layout Plan

4.0 VULNERABILITY CLASSIFICATION

The Environment Agency's Flood map, as detailed below, illustrates that the proposed development site is within part of Flood Zone 3a and predominantly Flood Zone 1.

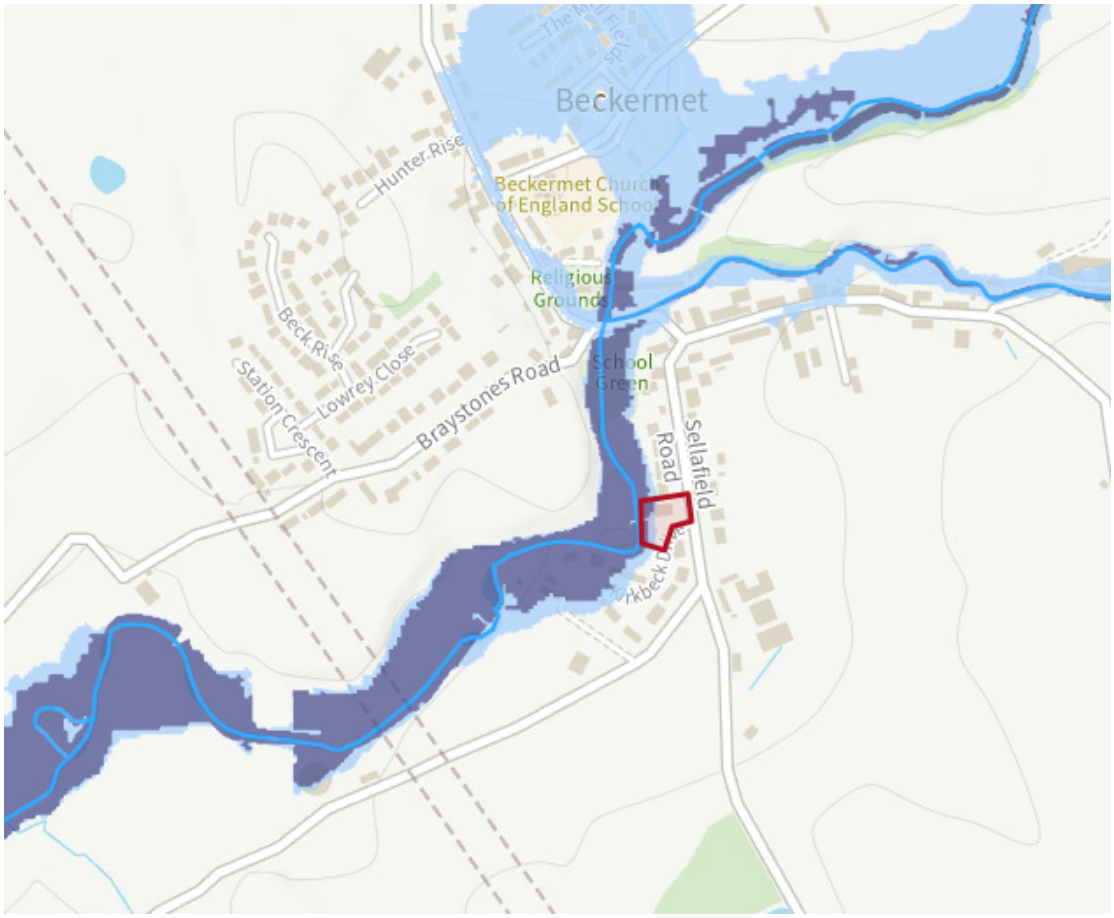


Figure 2: Flood Zone Mapping (Environment Agency)

Table 2 in the National Planning Policy Framework (NPPF) technical guidance (Flood Risk Vulnerability Classification) assesses the flood risk vulnerability of a site based on its site operations. Based on this assessment and the proposed site operations it has been concluded that the site falls within the category of 'more vulnerable'. The Flood Map produced by the Environment Agency indicates that the site falls predominantly within Flood Zone 1 (as noted previously), but with the western boundary in Flood Zone 3a.

Using the Sequential Test set out in the NPPF, More Vulnerable development uses are permitted in Flood Zones 3a (refer to *Figure 4* below), subject to the sequential and exception test being met.

Table 3: Flood risk vulnerability and flood zone 'compatibility'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	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.

Figure 4: Sequential Test Table for Suitable Development

In order to understand the extent of flooding to the proposed development, it was essential to relate the finished floor level of the development to the modelled flood level obtained from Environment Agency, as seen in *Appendix B*.

5.0 IDENTIFICATION OF POTENTIAL FLOOD HAZARDS

The National Planning Policy Framework (NPPF) states that a flood risk assessment should be proportionate to the risk and appropriate to the scale, nature, and location of the development.

The following flood mechanisms have been identified as potential flood hazards: -

1. Flooding from Seas and Rivers.
2. Flooding from Land.
3. Flooding from Sewers.
4. Flooding from Groundwater

5.1 Sea and River Flooding

River flooding mainly occurs when the river's catchment area receives larger volumes of water (for example through rainfall) than the river channel can cope with. This results in river levels rising causing flooding outside of the primary channel. The closest river to the site is the Kirk Beck which flows east to west on the western boundary of the development site at Beckermet.

The Environment Agency Flood Mapping (*Figure 5*) shows the site to be at a medium to high risk of flooding due to Kirk Beck. Medium risk means that each year this area has a chance of flooding between 1% and 3.3% each year. A High risk means that this area has a chance of flooding of greater than 3.3% each year.

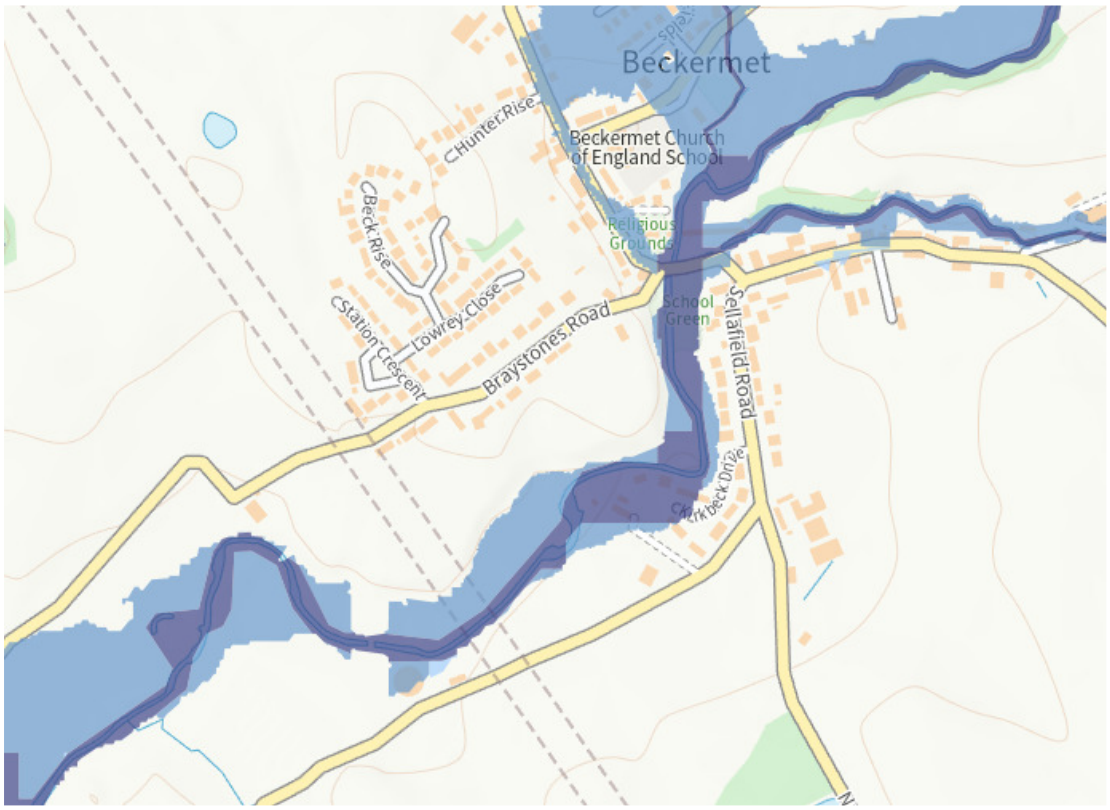


Figure 5: Flood Risk from Rivers and the Sea

The Historic Flood Map for the development site, located in *Appendix B*, illustrates that the site has not been affected by flooding during extreme storm events from 1975 – 2022. The historic flood data obtained from the Environment Agency is located within *Figure 5*.

Start Date	End Date	Source of Flood	Cause of Flood	Affects Location
30 August 2012	30 August 2012	Main River	Channel capacity exceeded	No
19 November 2009	19 November 2009	Main River	Channel capacity exceeded	No
4 September 2008	4 September 2008	Ordinary Watercourse	Channel capacity exceeded	No
24 October 1977	24 October 1977	Unknown	Unknown	No
25 January 1975	25 January 1975	Main River	Channel capacity exceeded	No

Figure 5: Historic Flood Data

5.2 Flooding from Land

Flooding from Land (referred to as Pluvial flooding) is often because of intense rainfall, which can be of short duration, and which is unable to soak into the ground or enter drainage systems. These flows can run quickly off the land and result in localised flooding.

The risk of surface water flooding has been assessed within this report. The Environment Agency Surface Water Flood Risk mapping, as shown in *Figure 6*, illustrates that the development site itself is at a very low risk of surface water flooding. Very low risk means that this area has a chance of flooding of less than 0.1% each year.

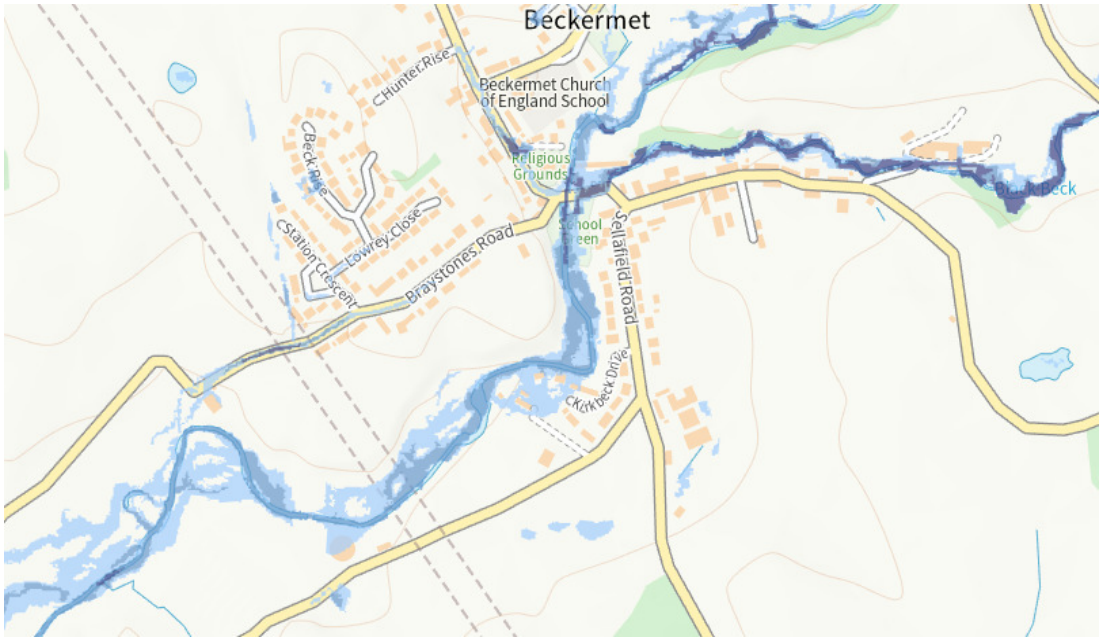


Figure 6: Flood Risk from surface water

5.3 Flooding from Sewers

Flooding of combined sewers can result when the sewer is overwhelmed by heavy rainfall, becomes blocked or is of inadequate capacity, and will continue until the water drains away. From consultation with United Utilities and the Strategic Flood Risk Assessment (SFRA) for Copeland Borough Council, it can be concluded that there have been no recorded flooding incidents caused by foul or surface water sewers in the vicinity of the site. Foul drainage within the curtilage of the individual dwelling has been designed in accordance with Approved Document H (The Building Regulations 2000).

5.4 Flooding from Groundwater

Groundwater flooding is the emergence of groundwater at the ground surface. It can occur in a variety of geological settings including valleys in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels. Groundwater flooding happens in response to a combination of already high groundwater levels (usually during mid or late winter) and intense or unusually lengthy storm events. Groundwater flooding often lasts much longer than flooding caused by a river overflowing its banks. It may last many months and can cause significant social and economic disruption to the affected areas.

Due to the close proximity of the River Kirk Beck to the proposed development site, the water table at the proposed development site is likely to be high. However, reference to the SFRA was made in order to see if this site, or the vicinity has had any previous incidents of groundwater flooding, and there have been no historic incidents at this site.

5.5 Climate Change

Currently, climate change is perceived to be one of the most severe threats to ecosystems and urbanised areas worldwide. Studies undertaken have shown that climate change is beginning to affect the climate in the present; therefore, it is important to envisage what changes could occur in the future and the impact that they could have. The UK climate projections 2009 (UKCP09) describes the likely changes in the climate in the UK over the 21st century. These are:

- Air temperature is likely to increase 2-5^{o}C by 2080.
- Summer mean cloud cover is expected to decrease by approximately 18%.
- Relative humidity is expected to decrease by 9%.
- Extreme wind events are likely to increase in frequency.
- Precipitation in winter is expected to increase by up to 33% and in summer is to reduce by up to 40%.

The Environment Agency guidance issued in 2022 estimates that peak rainfall intensity will increase due to climate change over the next 100 years. There is therefore to be a minimum allowance of 50% attributed to the 30yr and 100yr storm event calculations in line with the Upper End estimate of rainfall increases for small and urban catchments. In the instance of this development, the climate change valuation to be utilised for the flood levels associated with Kirk Beck is 70%.

6.0 IMPACT OF THE PROPOSED DEVELOPMENT

As the site lies within a Flood Zone 3a with a high probability of flooding, the NPPF and Environment Agency, require that the proposed development must not increase flood risk elsewhere. In particular any Flood Risk Assessment (FRA) submitted with the application must show that:

- There is no loss of fluvial flood storage on the site as a result of the works. Volume for volume and level for level compensation must be provided for any loss of fluvial flood storage volume up to the 1:100 + climate change event.
- The drainage scheme proposed should provide a sustainable drainage strategy to include SUDS elements with attenuation, storage and treatment capacities incorporated as detailed in the CIRIA SUDS Manual. If the overall impermeable area of the site is increased as a result of the development, this would change the surface water runoff from the site and potentially affect the risk of flooding elsewhere.

7.0 SUSTAINABLE DRAINAGE SYSTEMS (SuDS)

Development at this site would increase the impermeable surfaces by 186m^2. This will in turn increase the amount of surface water runoff generated and the peak run off flow rate. Surface water arising from a developed site should, as far as is practicable, be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development. In addition, the drainage network is also to reduce the flood risk to the site itself and elsewhere, taking climate change into account. Reducing the rate of surface water discharge from urban sites is one of the most effective ways of reducing and managing flood risk. Appropriately designed, constructed, and maintained SuDS are more sustainable than conventional drainage methods because they can mitigate many of the adverse effects of urban storm water runoff on the environment.

SuDS features should be selected based on local context (e.g., steepness of the terrain, proximity to housing, permeability of the soil etc), and how the features fit into the wider management plan for surface water in a given area. The various types of SUDS include:

- Permeable Paving (Infiltration)
- Soakaways (Infiltration)
- Swales and Basins
- Green roofs and rainwater re-use
- Infiltration trenches and filter drain
- Ponds and Wetlands

Due to the ground conditions at this site, soakaways are not viable. Therefore, permeable paving will only be utilised for hard standing areas as a means of storage and treatment of surface water. Water butts will also be provided at the house, in order to encourage rainwater re-use.

8.0 MITIGATION MEASURES

The modelled flood level for the 1 in 100-year flood level plus allowance for climate change (+70%) is 21.120m AOD as detailed within the defended climate change valuations on page 32 of the Environment Agency data (located in *Appendix B*).The sample point utilised is point 7 as this is the closest modelled data point to the proposed development site. The proposed finished floor levels of the dwelling are to be 22.060m AOD; as such in the event of an extreme flood event the house would not flood internally and have 0.940m of freeboard.

There is no loss of flood storage volume due to the development predominantly being within Flood Zone 1. It is acknowledged that some of the site is within Flood Zone 3a; however, this only affects the lower part of the site with no loss of floodplain due to the proposals.

As such no mitigation measures are proposed in addition to utilising a Sustainable Drainage System to manage surface water prior to discharge.

9.0 SEQUENTIAL TEST

The NPPF advises that in areas at risk of river or sea flooding, new development should be directed to areas at the lowest probability of flooding, i.e., Flood Zone 1. NPPF's technical guidance also states:

"The overall aim should be to steer new development to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, local planning authorities allocating land in local plans or determining planning applications for development at any particular location should consider the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2, applying the Exception Test if required. Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 be considered, considering the flood risk vulnerability of land uses and applying the Exception Test if required."

The Copeland Borough SFRA favours lesser scale development in areas such as Beckermet, in order to accommodate future development in the Borough as outlined in the Copeland Local Plan 2001-2016. As Beckermet is a small rural town, there are very few development sites available for small scale development such as this single dwelling. The primary risk of flooding to the site is from fluvial flooding during a 1 in 100-year event.

As there are no reasonable sites available in Flood zones 1 and 2, and with the height of the floor level in place being higher than the modelled flood level by 0.940m, any disruption caused by the flooding will being minimal. Therefore, it can be concluded that the site meets the requirements of the sequential test.

10.0 EXCEPTION TEST

The proposed development site is situated within Zone 3a, and according to Table 1 in the NPPF's technical guidance, the 'more vulnerable land use' is an appropriate type of development within this zone, only if the Exception Test has been passed.

For the Exception Test to be passed:

- It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared; and
- A site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

The above parts of the Exception Test are addressed as follows:

The Copeland Borough is undergoing a growth strategy, and some of the key factors that are being considered are, growth in housing, sustainability, and employment. As discussed before, areas like Beckermet have been earmarked for lesser scale development. Developing this site into a single dwelling will count towards this lesser scale development and the Copeland Borough's housing targets. With the above statements in mind, it is considered that the proposed development will help facilitate this growth strategy and provide benefits to Copeland Borough as a whole.

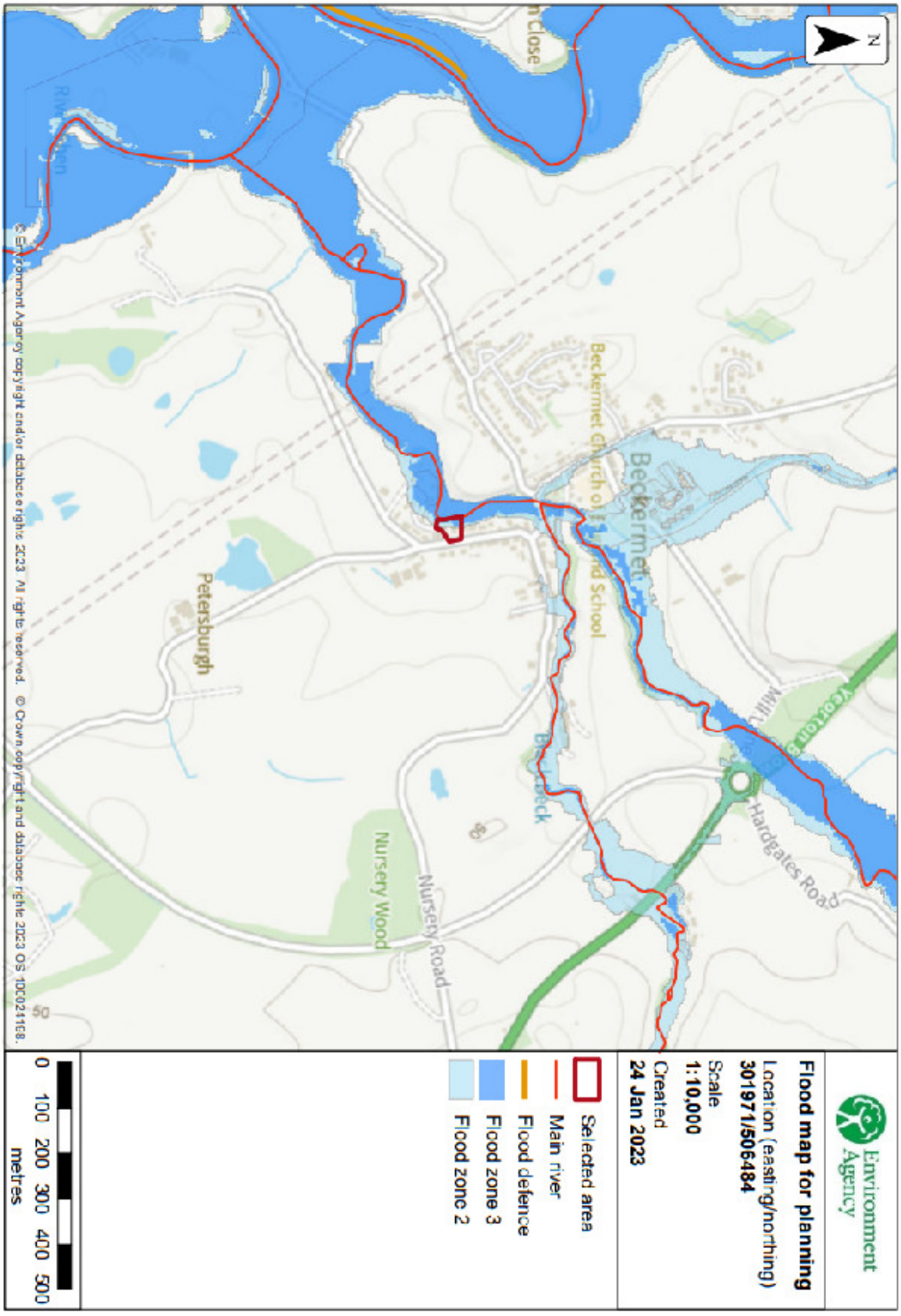
This Flood Risk Assessment demonstrates that the development is safe and does not increase flood risk elsewhere. Due to the development at this site, the impervious areas will have increased, however the increase in run off caused by the development site will be attenuated at the site and then slowly released back into the watercourse at a rate equivalent to the greenfield runoff rate. Therefore, the peak rate of surface water run off leaving the proposed development site will not increase and will therefore not cause flooding at this site or elsewhere.

11.0 CONCLUSION

Application of both the Sequential Test and the Exception Test has shown that the site is appropriate for the proposed development, and that the development is safe and has no adverse impact on site or downstream of the proposed development.

Peter Allan
BSc (Hons) MSc MCIWEM C.WEM C.Env
For and on behalf of
A L DAINES & PARTNERS LLP

APPENDIX A – FLOOD MAP FOR PLANNING



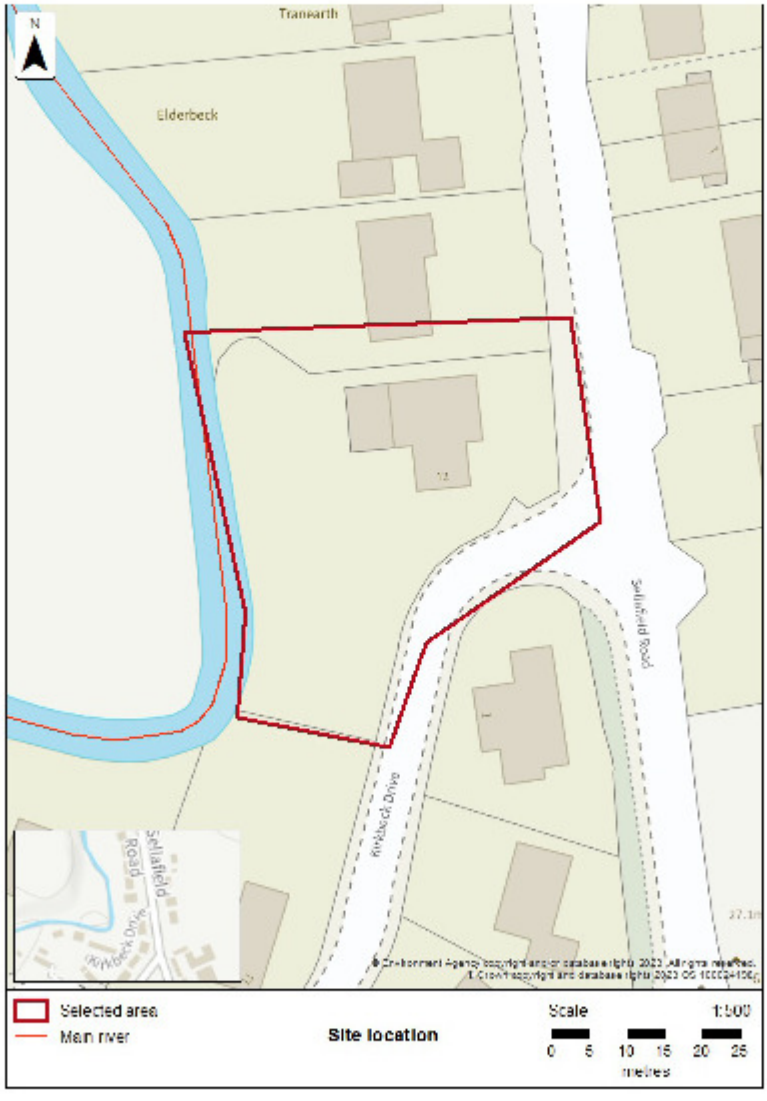
APPENDIX B – SITE SPECIFIC ENVIRONMENT AGENCY DATA

Flood risk assessment data

Environment Agency

Location of site: 301971 / 506484 (shown as easting and northing coordinates)
Document created on: 24 January 2023
This information was previously known as a product 4.
Customer reference number: HYHNAVN738F7

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



Page 1

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

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: Ehen 2015
Scenario(s): Defended fluvial, defences removed fluvial, defended climate change fluvial, defences removed climate change fluvial
Date: 11 July 2016

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

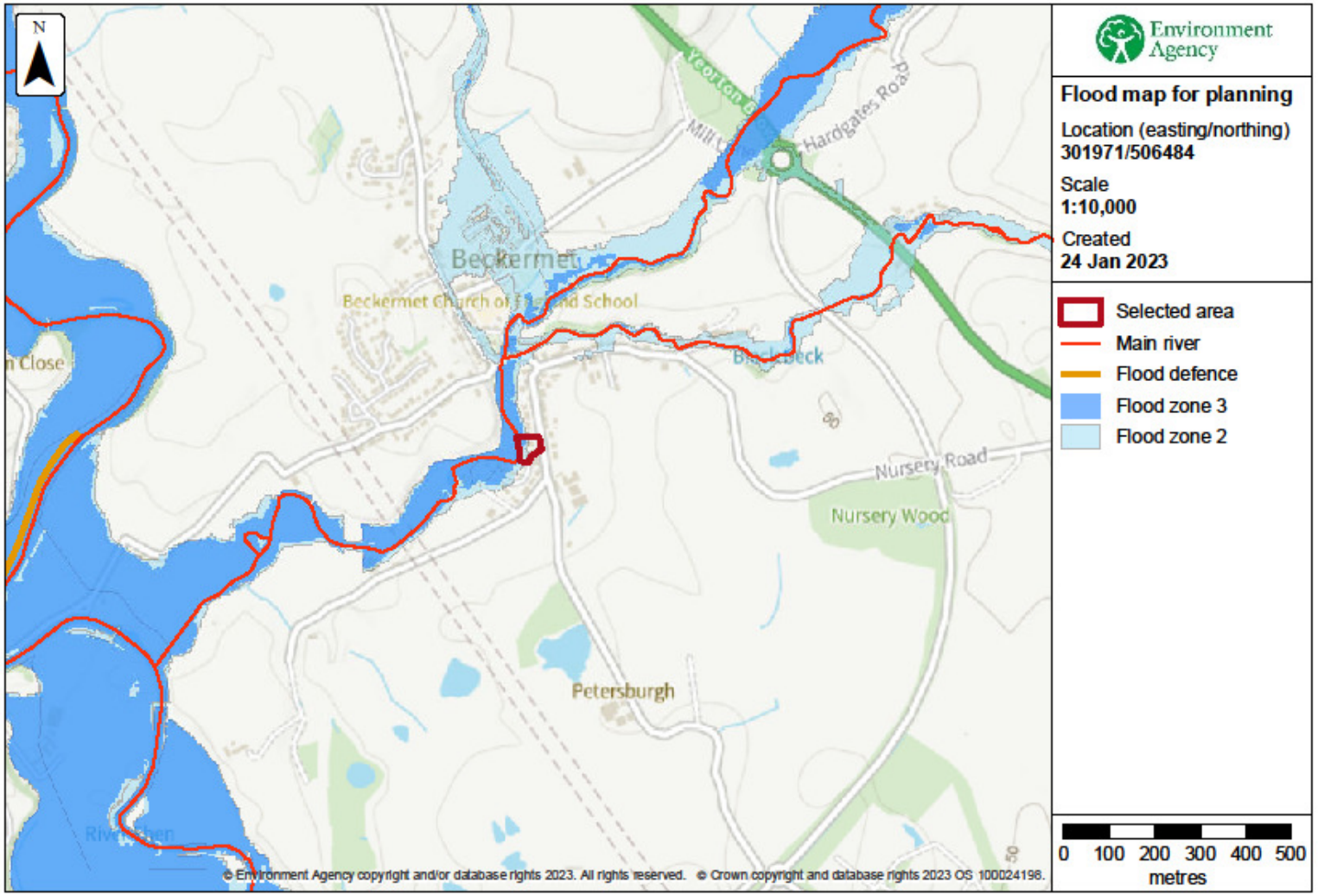
Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- 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

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


N
Environment Agency
Flood map for planning
Location (easting/northing)
301971/506484
Scale
1:10,000
Created
24 Jan 2023
Selected area
Main river
Flood defence
Flood zone 3
Flood zone 2
0 100 200 300 400 500
metres
Beckermet
Nursery Road
Nursery Wood
Petersburgh
Hardgates Road
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Page 5

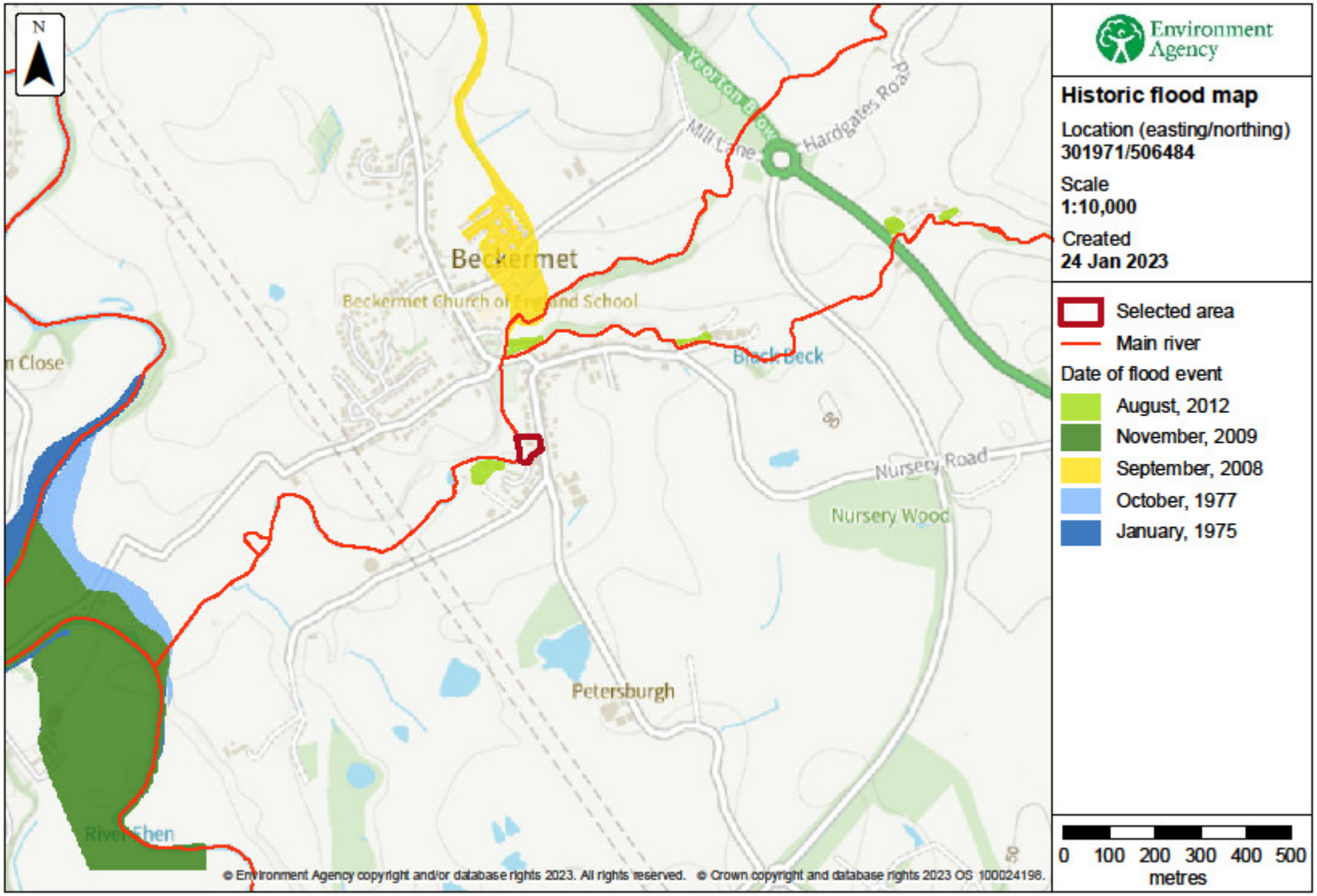
Historic flooding

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


N
Environment Agency
Historic flood map
Location (easting/northing)
301971/506484
Scale
1:10,000
Created
24 Jan 2023
Selected area
Main river
Date of flood event
August, 2012
November, 2009
September, 2008
October, 1977
January, 1975
Beckermet
Beckermet Church of England School
Black Beck
Nursery Road
Nursery Wood
Petersburgh
River Ehen
Hardgates Road
0 100 200 300 400 500
metres
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Historic flood event data

Start date	End date	Source of flood	Cause of flood	Affects location
30 August 2012	30 August 2012	main river	channel capacity exceeded (no raised defences)	No
19 November 2009	22 November 2009	main river	channel capacity exceeded (no raised defences)	No
4 September 2008	4 September 2008	ordinary watercourse	channel capacity exceeded (no raised defences)	No
24 October 1977	24 October 1977	unknown	unknown	No
25 January 1975	25 January 1975	main river	channel capacity exceeded (no raised defences)	No

Flood defences and attributes

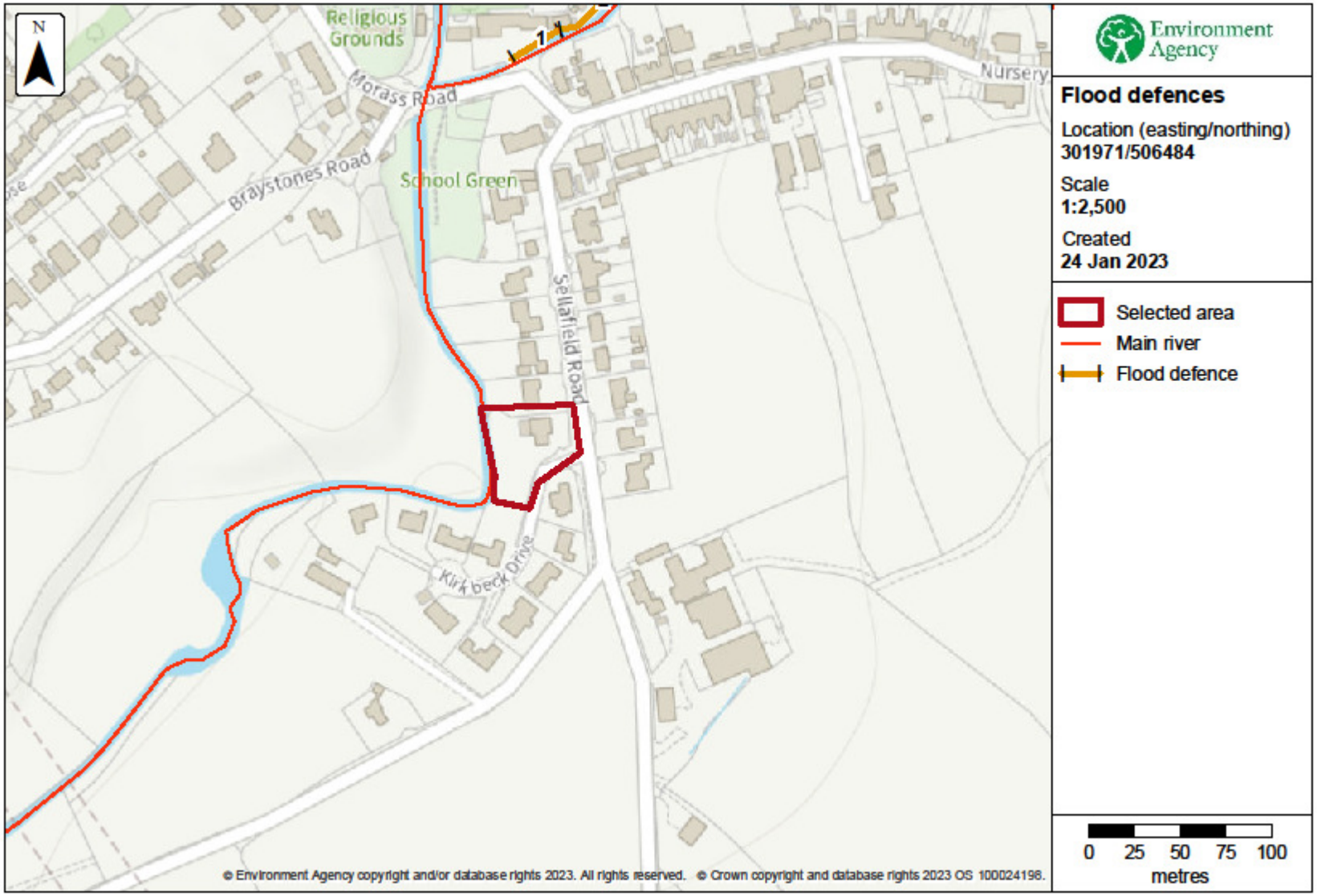
The flood defences map shows the location of the flood defences present.

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


N
Religious Grounds
Morass Road
Braystones Road
School Green
Sellafield Road
Nursery
Kirk beck Drive
1
Environment Agency
Flood defences
Location (easting/northing)
301971/506484
Scale
1:2,500
Created
24 Jan 2023
Selected area
Main river
Flood defence
0 25 50 75 100
metres
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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	160625	Wall	50	Fair	23.88	26.18	23.88
2	34341	Wall	100	Fair	25.54	25.42	25.42

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

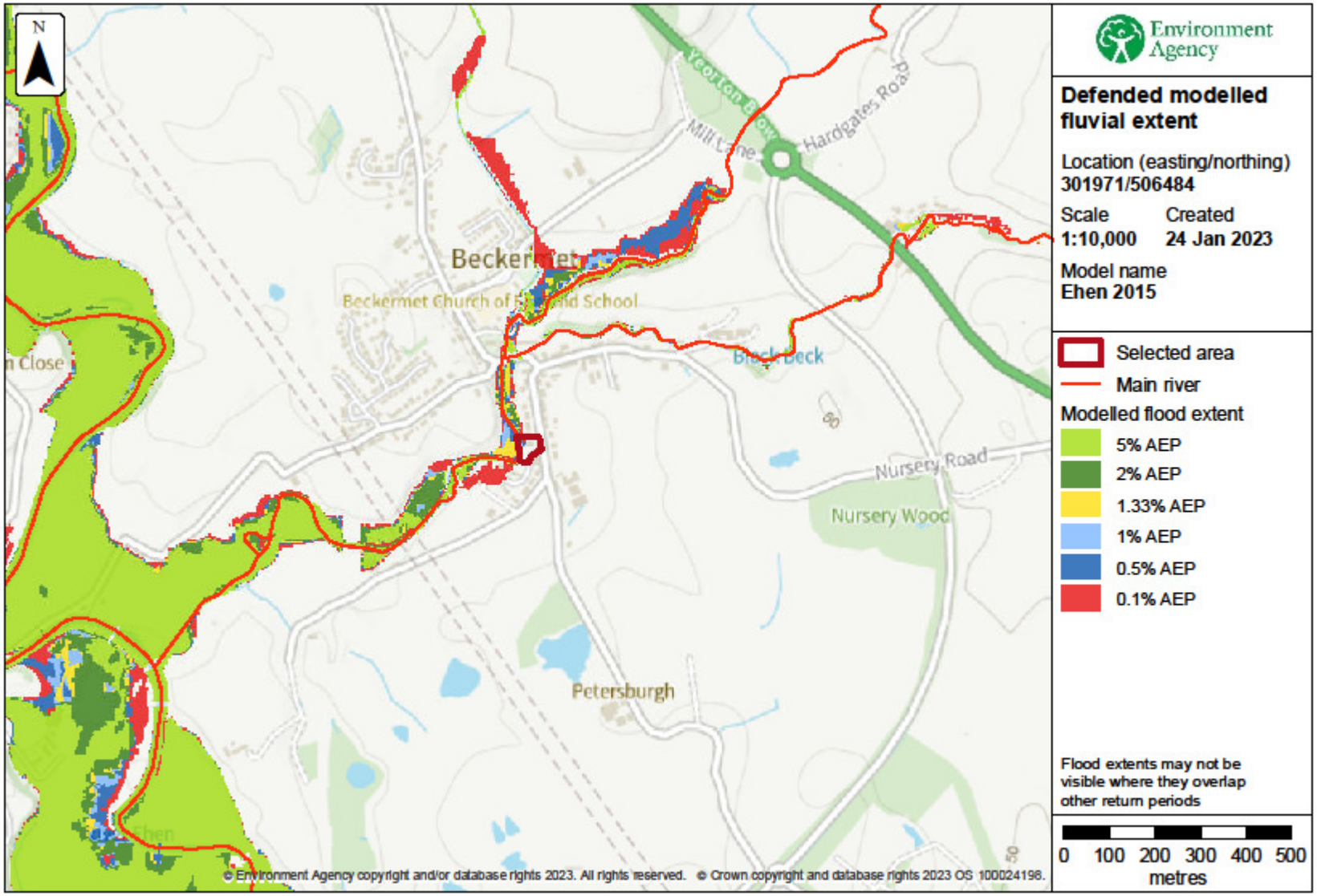
The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

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


N
Environment Agency
Defended modelled fluvial extent
Location (easting/northing)
301971/506484
Scale
1:10,000
Created
24 Jan 2023
Model name
Ehen 2015
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
0 100 200 300 400 500
metres
Hardgates Road
Nursery Road
Nursery Wood
Petersburgh
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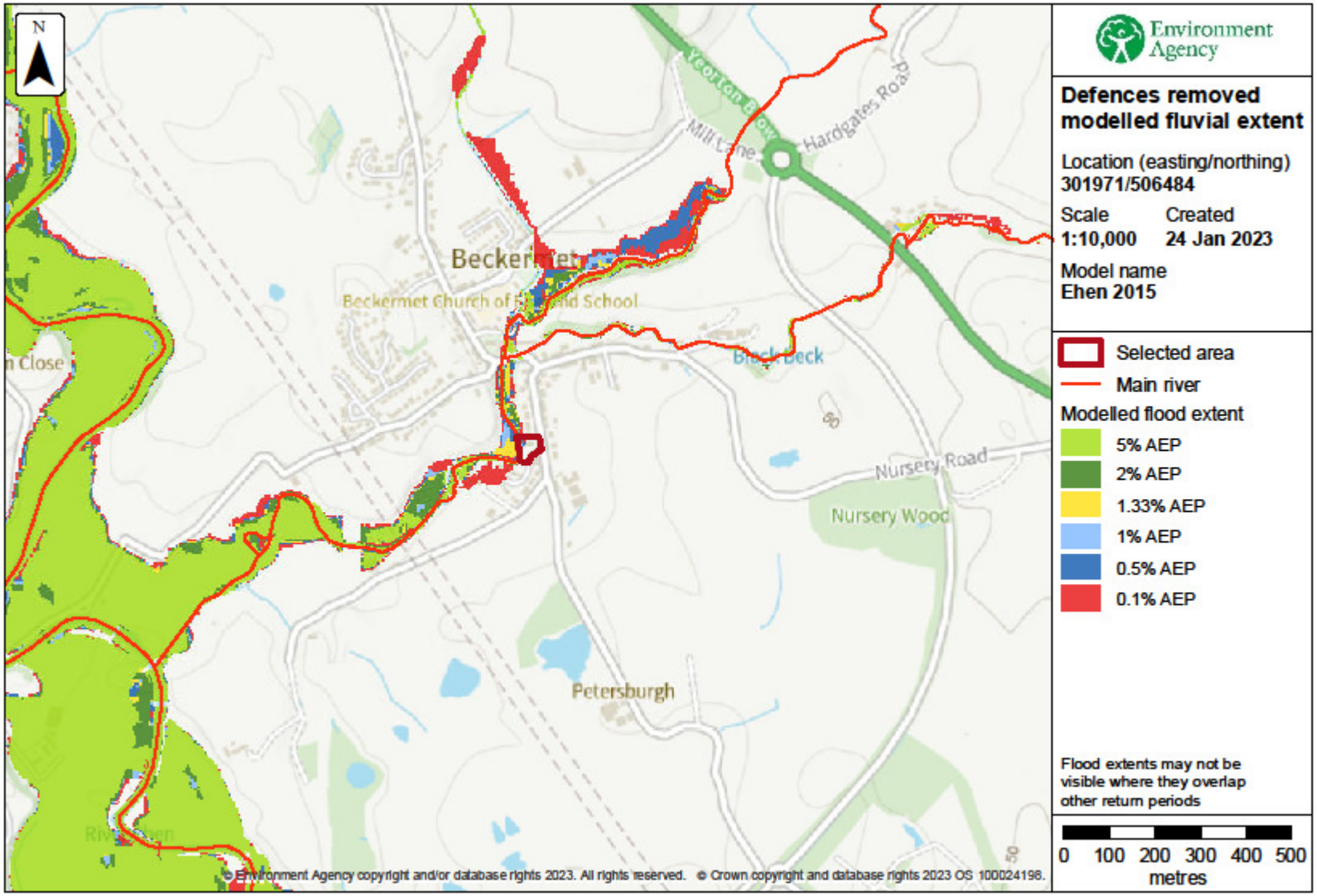
N
Environment Agency
Defences removed modelled fluvial extent
Location (easting/northing)
301971/506484
Scale
1:10,000
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Main river
Modelled flood extent
5% AEP
2% AEP
1.33% AEP
1% AEP
0.5% AEP
0.1% AEP
Flood extents may not be visible where they overlap other return periods
0 100 200 300 400 500
metres
Hardgates Road
Nursery Road
Nursery Wood
Petersburgh
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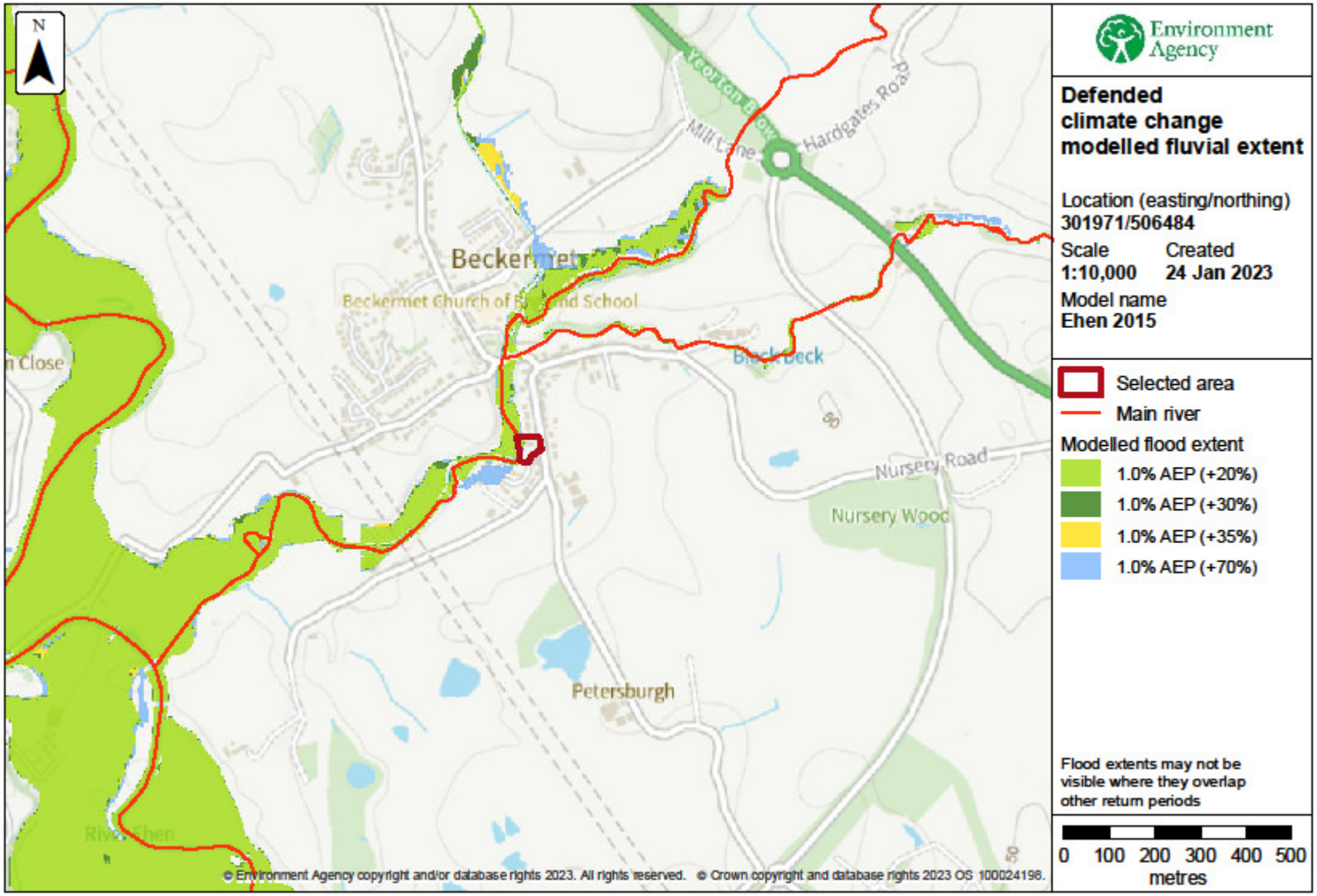
N
Environment Agency
Defended climate change modelled fluvial extent
Location (easting/northing)
301971/506484
Scale
1:10,000
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Main river
Modelled flood extent
1.0% AEP (+20%)
1.0% AEP (+30%)
1.0% AEP (+35%)
1.0% AEP (+70%)
Flood extents may not be visible where they overlap other return periods
0 100 200 300 400 500
metres
Hardgates Road
Mill Lane
Beckermet
Beckermet Church of England School
Black Beck
Nursery Road
Nursery Wood
Petersburgh
River Ehen
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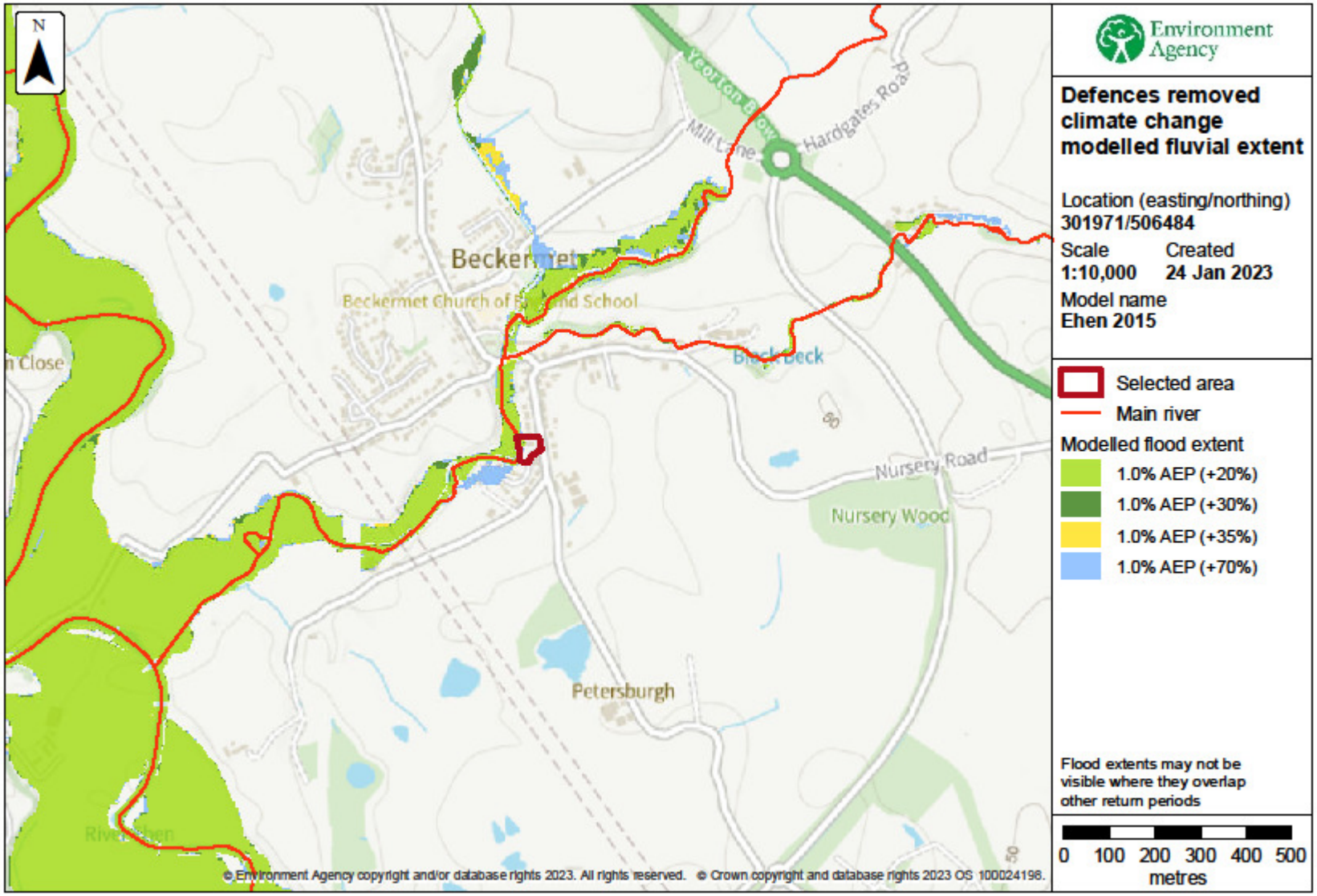
N
Environment Agency
Defences removed climate change modelled fluvial extent
Location (easting/northing)
301971/506484
Scale
1:10,000
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Main river
Modelled flood extent
1.0% AEP (+20%)
1.0% AEP (+30%)
1.0% AEP (+35%)
1.0% AEP (+70%)
Flood extents may not be visible where they overlap other return periods
0 100 200 300 400 500
metres
Hardgates Road
Nursery Road
Nursery Wood
Petersburgh
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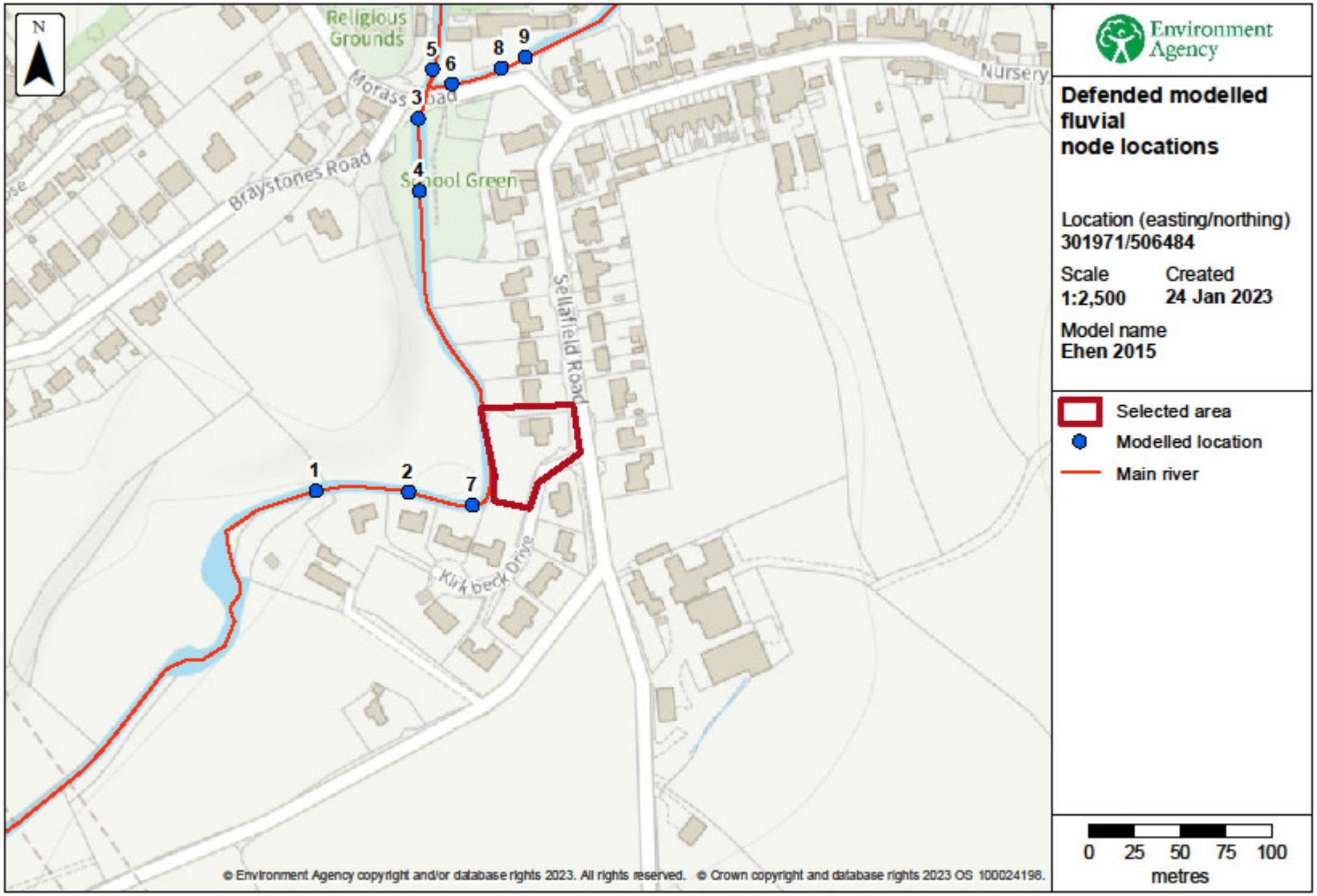
N
Religious Grounds
Morass Road
Braystones Road
School Green
Sellafield Road
Nursery
Kirk beck Drive
1
2
3
4
5
6
7
8
9
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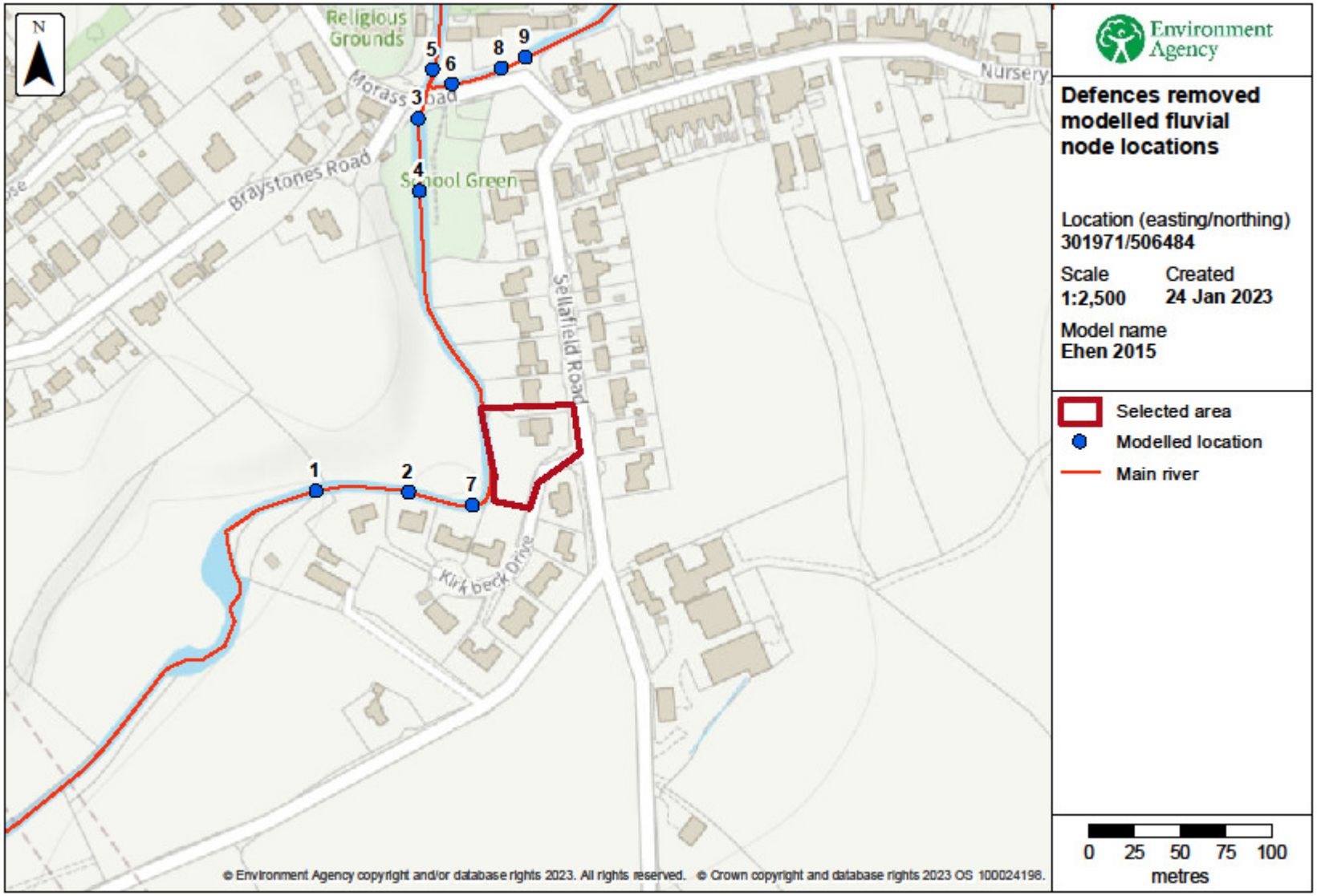
Environment Agency
Defended modelled fluvial node locations
Location (easting/northing)
301971/506484
Scale
1:2,500
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Modelled location
Main river
0 25 50 75 100
metres

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	1204331	301855	506460	19.68	15.86	19.76	19.52	19.80	21.32	19.82	22.64	19.86	26.14	19.91	37.59
2	1204541	301905	506459	20.02	15.86	20.17	19.52	20.26	21.32	20.31	22.63	20.41	26.08	20.68	37.06
3	1204561	301911	506664	22.78	15.86	22.94	19.53	23.0	21.34	23.04	22.69	23.13	26.33	23.28	37.32
4	1204252	301912	506624	22.25	15.86	22.44	19.53	22.52	21.32	22.57	22.65	22.71	25.86	22.87	35.56
5	1204049	301919	506691	22.78	13.91	22.95	17.34	23.02	19.05	23.07	20.34	23.17	23.81	23.40	34.34
6	1203915	301929	506683	23.55	1.96	23.61	2.20	23.62	2.29	23.64	2.37	23.67	2.54	23.76	3.0
7	1204361	301940	506452	20.36	15.86	20.50	19.52	20.54	21.24	20.58	22.39	20.71	24.63	21.09	31.27
8	1203894	301956	506692	23.68	2.60	23.71	3.23	23.72	3.49	23.73	3.70	23.73	4.28	23.73	6.08
9	1204701	301970	506698	23.77	2.60	23.84	3.23	23.87	3.49	23.88	3.70	23.92	4.28	24.05	6.09

Data in this table comes from the Ehen 2015 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.


N
Religious Grounds
Morass Road
Braystones Road
School Green
Sellafield Road
Nursery
Kirk beck Drive
1
2
3
4
5
6
7
8
9
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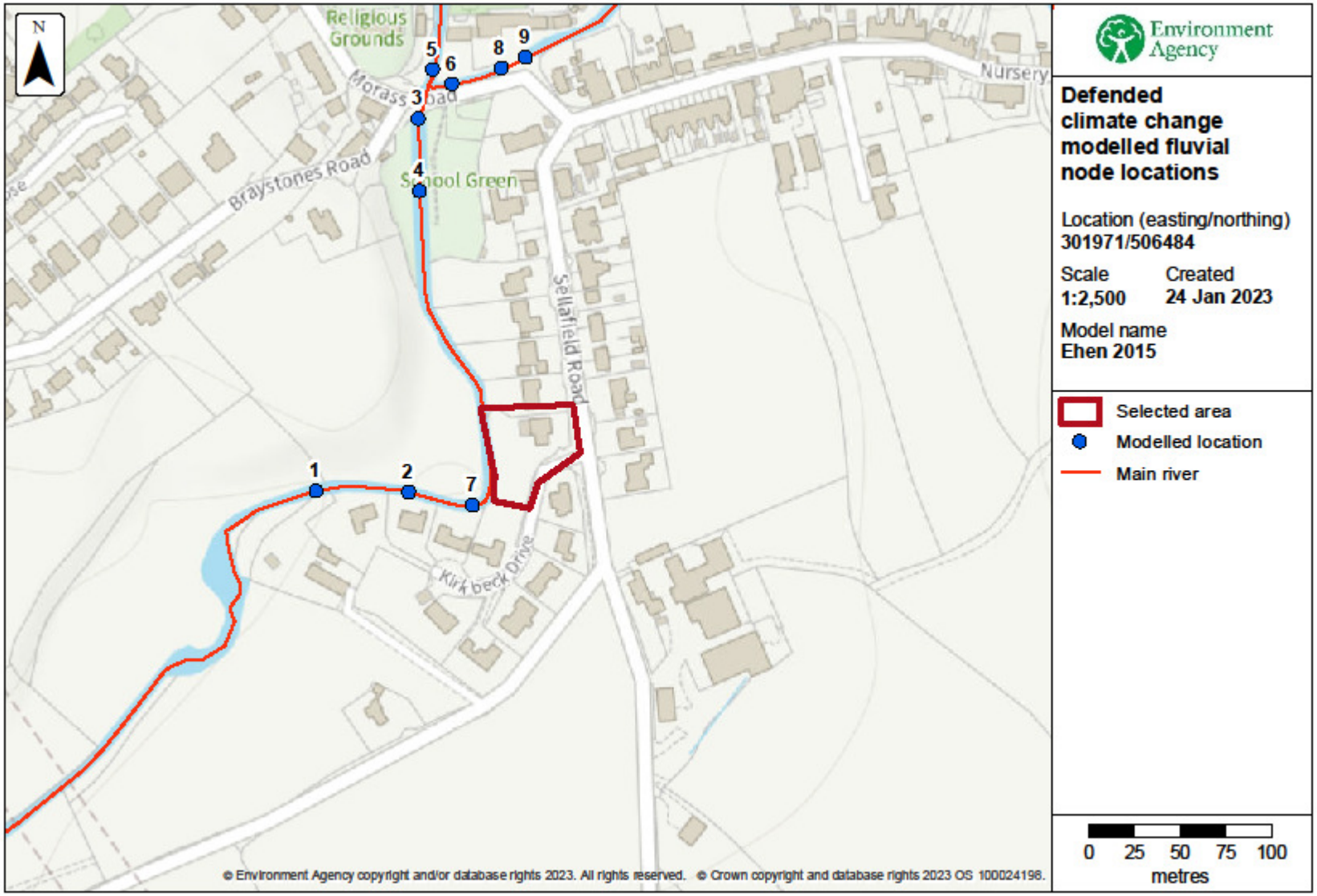
Environment Agency
Defences removed modelled fluvial node locations
Location (easting/northing)
301971/506484
Scale
1:2,500
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Modelled location
Main river
0 25 50 75 100
metres

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	1204331	301855	506460	19.68	15.86	19.76	19.52	19.80	21.32	19.82	22.64	19.86	26.14	19.91	37.60
2	1204541	301905	506459	20.02	15.86	20.17	19.52	20.26	21.32	20.31	22.63	20.41	26.08	20.68	37.08
3	1204561	301911	506664	22.78	15.86	22.94	19.53	23.0	21.34	23.04	22.69	23.13	26.31	23.28	37.33
4	1204252	301912	506624	22.25	15.86	22.44	19.53	22.52	21.32	22.57	22.65	22.71	25.83	22.87	35.59
5	1204049	301919	506691	22.78	13.91	22.95	17.34	23.02	19.05	23.07	20.34	23.17	23.78	23.40	34.35
6	1203915	301929	506683	23.55	1.96	23.61	2.20	23.62	2.29	23.64	2.37	23.67	2.54	23.76	3.0
7	1204361	301940	506452	20.36	15.86	20.50	19.52	20.54	21.24	20.58	22.39	20.70	24.64	21.08	31.29
8	1203894	301956	506692	23.68	2.60	23.71	3.23	23.72	3.49	23.73	3.70	23.73	4.28	23.73	6.08
9	1204701	301970	506698	23.77	2.60	23.84	3.23	23.87	3.49	23.88	3.70	23.92	4.28	24.05	6.10

Data in this table comes from the Ehen 2015 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.


N
Religious Grounds
Morass Road
Braystones Road
School Green
Sellafield Road
Nursery
Kirk beck Drive
1
2
3
4
5
6
7
8
9
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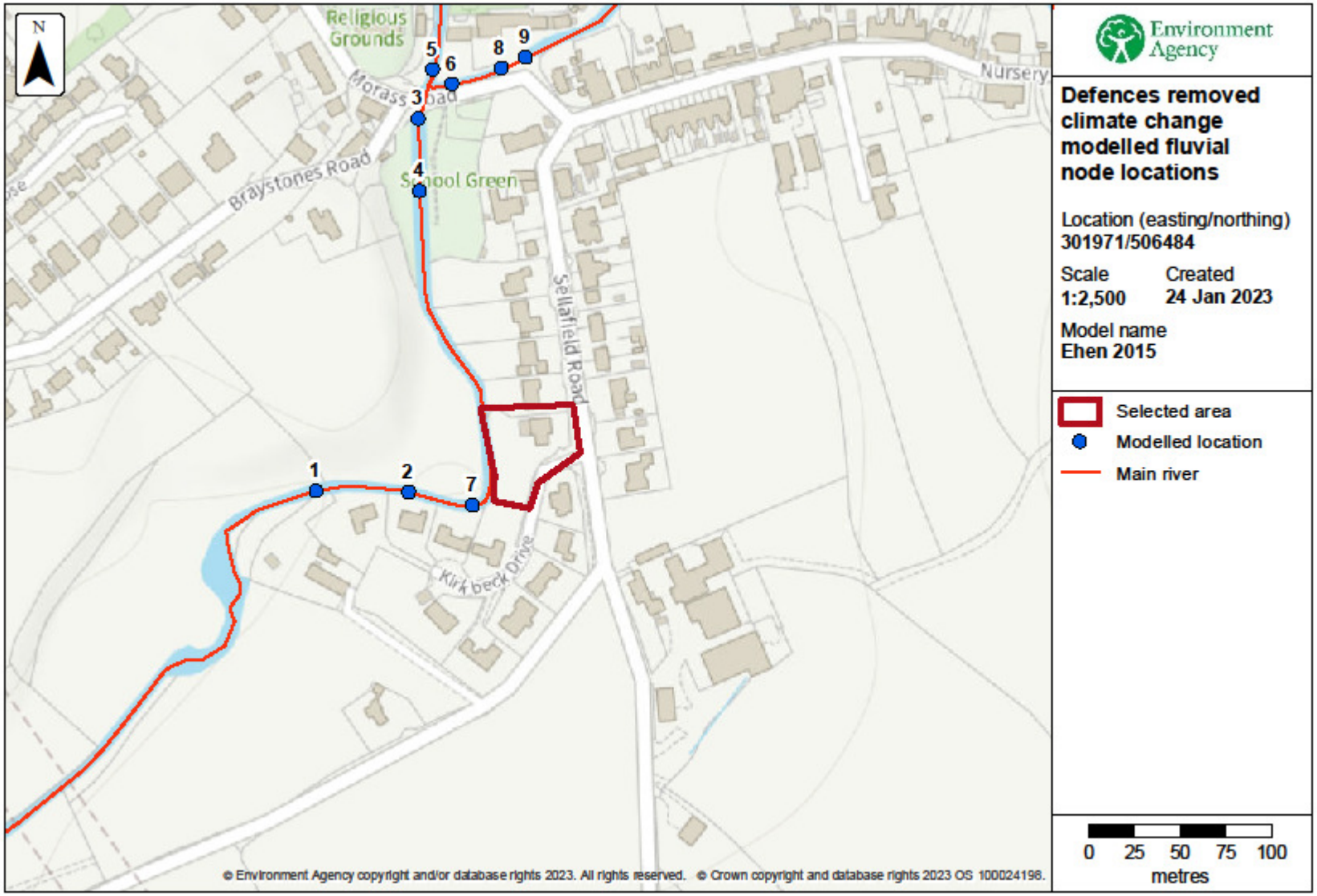
Environment Agency
Defended climate change modelled fluvial node locations
Location (easting/northing)
301971/506484
Scale
1:2,500
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Modelled location
Main river
0 25 50 75 100
metres

Modelled node locations data

Defended climate change

Label	Modelled location ID	Easting	Northing	1.0% AEP (+20%)		1.0% AEP (+30%)		1.0% AEP (+35%)		1.0% AEP (+70%)	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1204331	301855	506460	19.87	26.86	19.88	29.04	19.89	30.16	19.91	37.78
2	1204541	301905	506459	20.43	26.79	20.49	28.90	20.51	29.98	20.68	37.25
3	1204561	301911	506664	23.14	26.92	23.17	29.09	23.18	30.24	23.28	37.52
4	1204252	301912	506624	22.73	26.38	22.76	28.32	22.78	29.31	22.87	35.74
5	1204049	301919	506691	23.18	24.36	23.22	26.43	23.24	27.52	23.40	34.53
6	1203915	301929	506683	23.68	2.57	23.70	2.67	23.71	2.73	23.76	3.01
7	1204361	301940	506452	20.73	25.06	20.81	26.33	20.85	26.98	21.09	31.40
8	1203894	301956	506692	23.73	4.41	23.73	4.76	23.73	4.93	23.73	6.12
9	1204701	301970	506698	23.93	4.41	23.95	4.76	23.97	4.93	24.05	6.13

Data in this table comes from the Ehen 2015 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.


N
Religious Grounds
Morass Road
Braystones Road
School Green
Sellafield Road
Nursery
Kirk beck Drive
1
2
3
4
5
6
7
8
9
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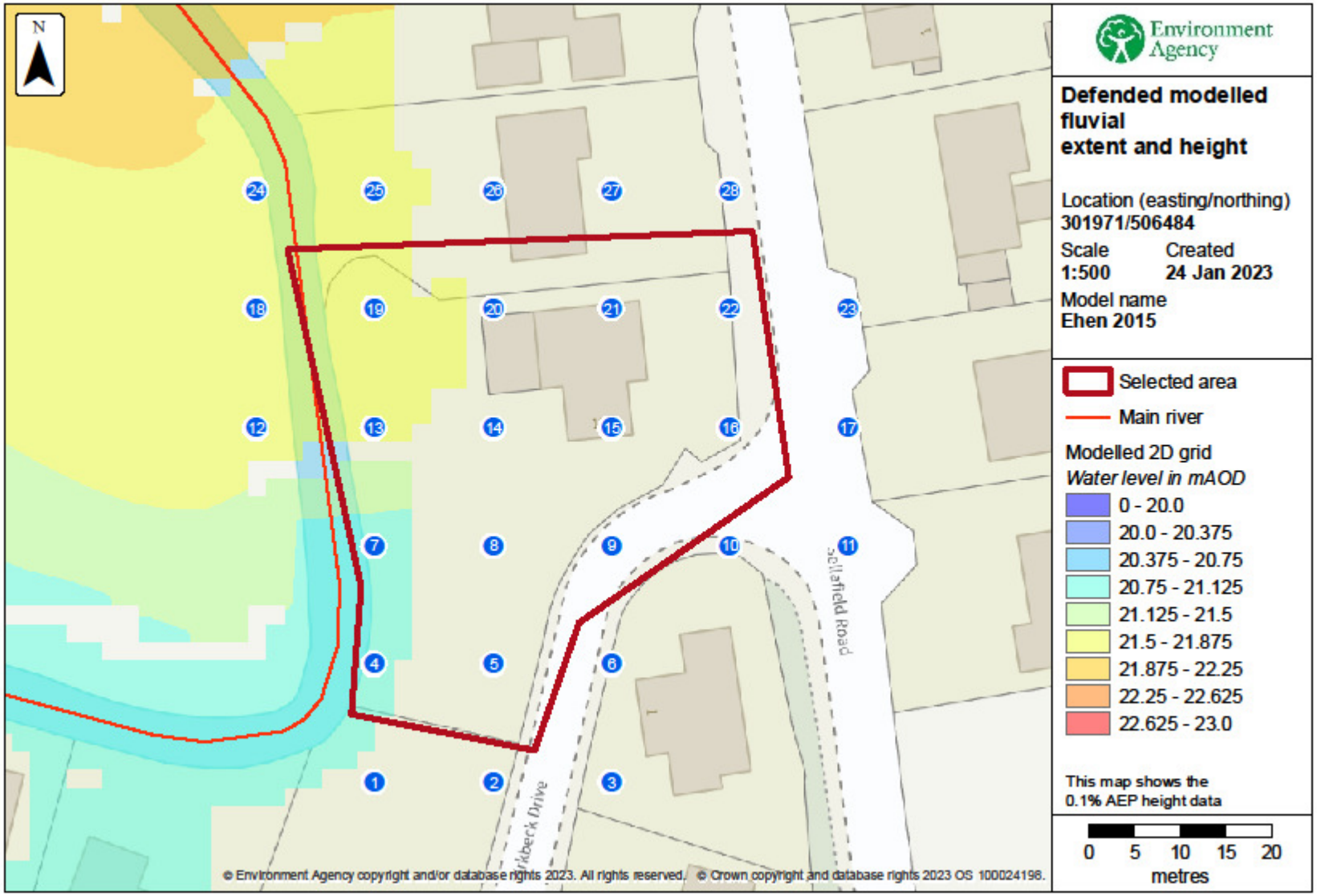
Environment Agency
Defences removed climate change modelled fluvial node locations
Location (easting/northing)
301971/506484
Scale
1:2,500
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Modelled location
Main river
0 25 50 75 100
metres

Modelled node locations data

Defences removed climate change

Label	Modelled location ID	Easting	Northing	1.0% AEP (+20%)		1.0% AEP (+30%)		1.0% AEP (+35%)		1.0% AEP (+70%)	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1204331	301855	506460	19.87	26.87	19.88	29.03	19.89	30.16	19.91	37.78
2	1204541	301905	506459	20.43	26.79	20.49	28.89	20.51	29.98	20.68	37.24
3	1204561	301911	506664	23.14	26.92	23.17	29.09	23.18	30.24	23.28	37.52
4	1204252	301912	506624	22.73	26.38	22.76	28.32	22.78	29.31	22.87	35.74
5	1204049	301919	506691	23.18	24.36	23.22	26.43	23.24	27.52	23.40	34.53
6	1203915	301929	506683	23.68	2.57	23.70	2.67	23.71	2.73	23.76	3.01
7	1204361	301940	506452	20.73	25.07	20.81	26.33	20.85	26.98	21.09	31.40
8	1203894	301956	506692	23.73	4.41	23.73	4.76	23.73	4.93	23.73	6.12
9	1204701	301970	506698	23.93	4.41	23.95	4.76	23.97	4.93	24.05	6.13

Data in this table comes from the Ehen 2015 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.


N
Environment Agency
Defended modelled fluvial extent and height
Location (easting/northing)
301971/506484
Scale
1:500
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Main river
Modelled 2D grid
Water level in mAOD
0 - 20.0
20.0 - 20.375
20.375 - 20.75
20.75 - 21.125
21.125 - 21.5
21.5 - 21.875
21.875 - 22.25
22.25 - 22.625
22.625 - 23.0
This map shows the 0.1% AEP height data
0 5 10 15 20
metres
Scallafield Road
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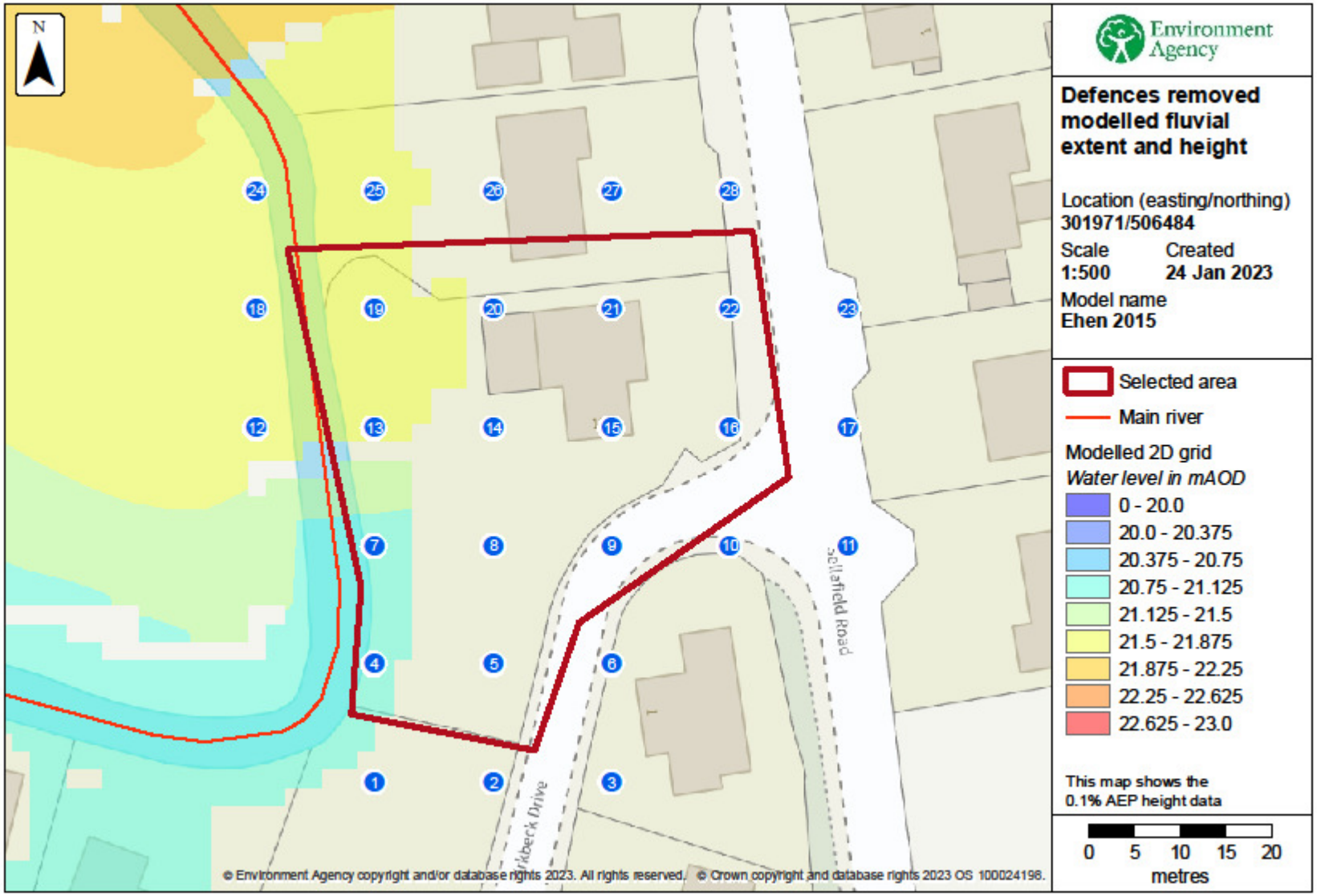
Sample point data

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	301954	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	301967	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	301980	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	301954	506460	0.36	20.42	0.49	20.55	0.54	20.60	0.57	20.64	0.69	20.75	1.04	21.10
5	301967	506460	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	301980	506460	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	301954	506473	0.47	20.47	0.60	20.60	0.65	20.65	0.69	20.69	0.80	20.80	1.12	21.12
8	301967	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	301980	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	301993	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	302006	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	301941	506486	0.17	21.09	0.27	21.30	0.35	21.38	0.40	21.43	0.48	21.51	0.07	21.68
13	301954	506486	0.02	21.09	0.18	21.30	0.26	21.38	0.31	21.43	0.39	21.51	0.56	21.68
14	301967	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	301980	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	301993	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

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	302006	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	301941	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.12	21.73
19	301954	506499	NoData	NoData	0.01	21.34	0.03	21.42	0.05	21.47	0.13	21.55	0.30	21.72
20	301967	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	301980	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	301993	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	302006	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
24	301941	506512	NoData	NoData	0.01	21.39	0.03	21.46	0.04	21.51	0.10	21.60	0.28	21.77
25	301954	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.00	21.59	0.14	21.76
26	301967	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
27	301980	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
28	301993	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Data in this table comes from the Ehen 2015 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.


N
Environment Agency
Defences removed modelled fluvial extent and height
Location (easting/northing)
301971/506484
Scale
1:500
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Main river
Modelled 2D grid
Water level in mAOD
0 - 20.0
20.0 - 20.375
20.375 - 20.75
20.75 - 21.125
21.125 - 21.5
21.5 - 21.875
21.875 - 22.25
22.25 - 22.625
22.625 - 23.0
This map shows the 0.1% AEP height data
0 5 10 15 20
metres
Sellafield Road
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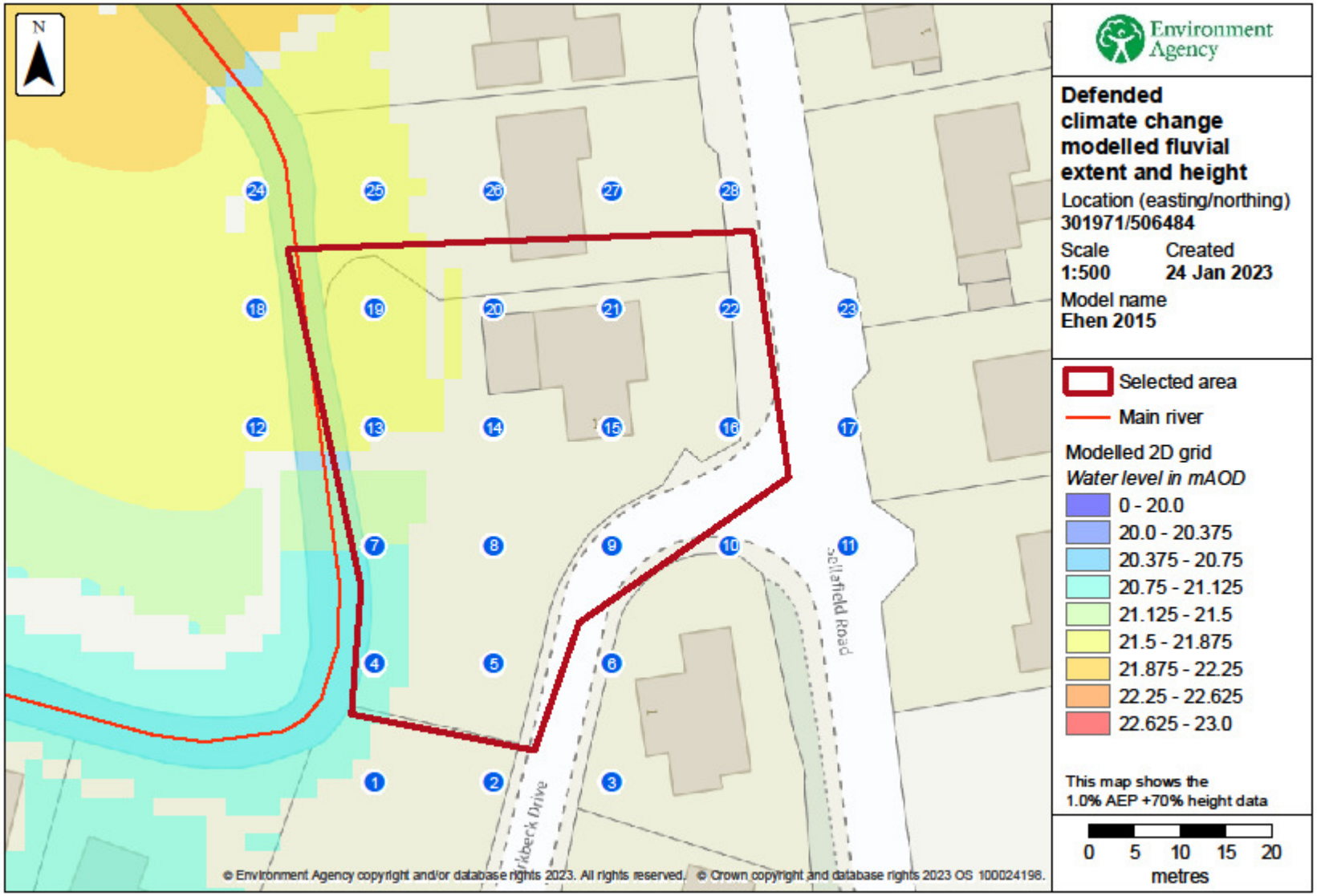
Sample point data

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	301954	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	301967	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	301980	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	301954	506460	0.36	20.42	0.49	20.55	0.54	20.60	0.57	20.64	0.69	20.75	1.04	21.10
5	301967	506460	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	301980	506460	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	301954	506473	0.47	20.47	0.60	20.60	0.65	20.65	0.69	20.69	0.79	20.79	1.12	21.12
8	301967	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	301980	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	301993	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	302006	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	301941	506486	0.17	21.09	0.27	21.30	0.35	21.38	0.40	21.43	0.48	21.51	0.07	21.68
13	301954	506486	0.02	21.09	0.18	21.30	0.26	21.38	0.31	21.43	0.39	21.51	0.56	21.68
14	301967	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	301980	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	301993	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

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	302006	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	301941	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.12	21.73
19	301954	506499	NoData	NoData	0.01	21.34	0.03	21.42	0.05	21.47	0.13	21.55	0.30	21.72
20	301967	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	301980	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	301993	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	302006	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
24	301941	506512	NoData	NoData	0.01	21.39	0.03	21.46	0.04	21.51	0.10	21.59	0.28	21.77
25	301954	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.00	21.59	0.14	21.76
26	301967	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
27	301980	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
28	301993	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Data in this table comes from the Ehen 2015 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.


N
Environment Agency
Defended climate change modelled fluvial extent and height
Location (easting/northing)
301971/506484
Scale
1:500
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Main river
Modelled 2D grid
Water level in mAOD
0 - 20.0
20.0 - 20.375
20.375 - 20.75
20.75 - 21.125
21.125 - 21.5
21.5 - 21.875
21.875 - 22.25
22.25 - 22.625
22.625 - 23.0
This map shows the 1.0% AEP +70% height data
0 5 10 15 20
metres
Kirkbeck Drive
Scallafield Road
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Sample point data

Defended climate change

Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+35%)		1% AEP (+70%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	301954	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	301967	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	301980	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	301954	506460	0.72	20.78	0.23	20.85	0.26	20.89	0.49	21.11
5	301967	506460	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	301980	506460	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	301954	506473	0.82	20.82	0.43	20.88	0.47	20.91	0.68	21.12
8	301967	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	301980	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	301993	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	302006	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	301941	506486	0.50	21.52	NoData	NoData	NoData	NoData	0.00	21.69
13	301954	506486	0.40	21.52	0.29	21.56	0.30	21.58	0.41	21.68
14	301967	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	301980	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	301993	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+35%)		1% AEP (+70%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	302006	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	301941	506499	NoData	NoData	NoData	NoData	0.00	21.62	0.06	21.73
19	301954	506499	0.14	21.57	0.07	21.60	0.09	21.62	0.19	21.72
20	301967	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	301980	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	301993	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	302006	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
24	301941	506512	0.11	21.61	0.06	21.65	0.06	21.67	0.15	21.78
25	301954	506512	0.00	21.60	NoData	NoData	NoData	NoData	0.09	21.77
26	301967	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
27	301980	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
28	301993	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

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Height values are shown in mAOD, and depth values are shown in metres.
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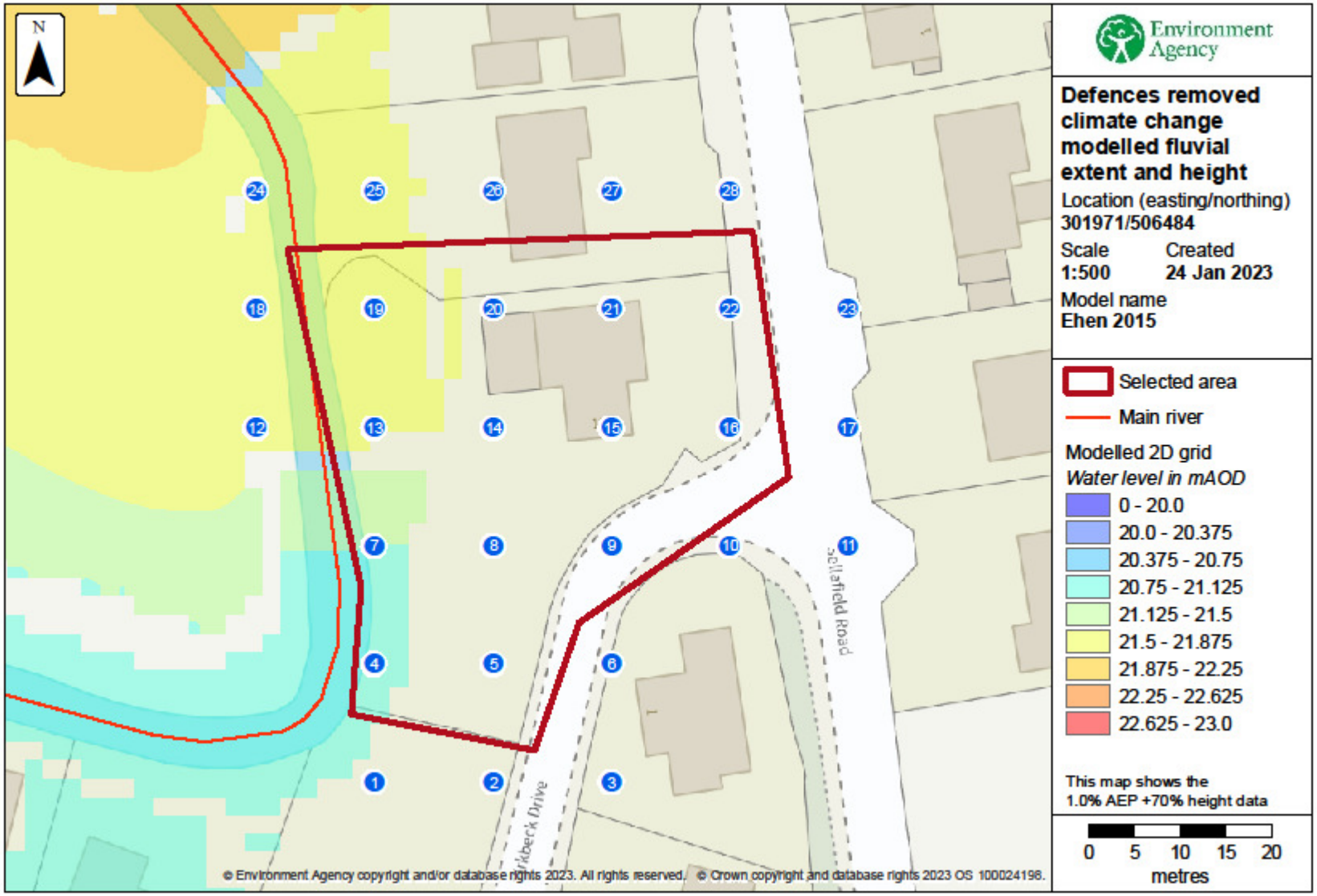
N
Environment Agency
Defences removed climate change modelled fluvial extent and height
Location (easting/northing)
301971/506484
Scale
1:500
Created
24 Jan 2023
Model name
Ehen 2015
Selected area
Main river
Modelled 2D grid
Water level in mAOD
0 - 20.0
20.0 - 20.375
20.375 - 20.75
20.75 - 21.125
21.125 - 21.5
21.5 - 21.875
21.875 - 22.25
22.25 - 22.625
22.625 - 23.0
This map shows the 1.0% AEP +70% height data
0 5 10 15 20
metres
Sellafield Road
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Sample point data

Defences removed climate change

Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+35%)		1% AEP (+70%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	301954	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	301967	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	301980	506447	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	301954	506460	0.71	20.78	0.23	20.85	0.26	20.89	0.49	21.11
5	301967	506460	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	301980	506460	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	301954	506473	0.81	20.82	0.43	20.88	0.47	20.91	0.68	21.12
8	301967	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	301980	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	301993	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	302006	506473	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	301941	506486	0.50	21.52	NoData	NoData	NoData	NoData	0.00	21.69
13	301954	506486	0.40	21.52	0.29	21.56	0.30	21.58	0.41	21.68
14	301967	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	301980	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	301993	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+35%)		1% AEP (+70%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	302006	506486	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	301941	506499	NoData	NoData	NoData	NoData	0.00	21.62	0.06	21.73
19	301954	506499	0.14	21.56	0.07	21.60	0.09	21.62	0.19	21.72
20	301967	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	301980	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	301993	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	302006	506499	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
24	301941	506512	0.11	21.61	0.06	21.65	0.06	21.67	0.15	21.78
25	301954	506512	0.00	21.60	NoData	NoData	NoData	NoData	0.09	21.77
26	301967	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
27	301980	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
28	301993	506512	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

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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 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