ENGINEERING

Flood Risk Assessment
For the Proposed Residential Development of
Land East of North Road, Alconbury Weston
With 2 Residential Dwellings

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Flood Risk Assessment
For the Proposed Residential Development of
Land East of North Road, Alconbury Weston
With 2 Residential Dwellings

1 Introduction

1.1 MTC Engineering (Cambridge) Ltd. has been asked to provide a Flood Risk Assessment in respect of the proposed residential development of land to the east of North Road, Alconbury Weston, with 2 dwellings on behalf of Mr M Bell.

1.2 This Flood Risk Assessment is based on the following information:-

1.2.1 Environment Agency Modelled and Historical Flood Data.

1.2.2 Huntingdonshire District Council Strategic Flood Risk Assessment (SFRA)

1.2.3 Spot level data provided by Cambpell McCrae Limited.

1.2.4 British Geological Survey Mapping.

1.3 All the comments and opinions contained in this report including any conclusions are based on the information available to MTC Engineering (Cambridge) Ltd. during our investigations. The conclusions drawn could therefore differ if the information is found to be inaccurate, incomplete or misleading. MTC Engineering (Cambridge) Ltd. accept no liability should this prove to be the case, nor if additional information exists or becomes available with respect to this site.

1.4 MTC Engineering (Cambridge) Ltd. makes no representation whatsoever concerning the legal significance of its findings or any other matters referred to in the following report. Except as otherwise requested by the client, MTC Engineering (Cambridge) Ltd. are not obliged and disclaim any obligation to update the report for events taking place after the Assessment was undertaken.

1.5 This report is a Flood Risk Assessment of flooding issues associated with the proposed development. The information presented and conclusions drawn are based on statistical data and are for guidance purposes only. This report provides no guarantee against flooding of the study site or elsewhere, nor as to the absolute accuracy of water levels, flow rates and associated probabilities quoted.

2 Site Description

2.1 The site is located on the eastern side of North Road in central Alconbury Weston and is approximately square in size as shown on the location plan provided in Appendix 1.

2.2 To the northeast the site is bound by a small area of woodland/scrub, past which Alconbury Brook flows in a southeasterly direction approximately 50 metres northeast of the site at its closest point. Alconbury Brook is a Main River of the Environment Agency.

2.3 To the southeast the site is bound by the low density residential development on the eastern side of North Road and associated garden space, then open agricultural land.

2.4 To the south/southwest the site is bound by a small cemetery area, then North Road, with residential development on the opposite side of North Road.

2.5 To the west the site is bound by North Road, past which lies residential development.

2.6 The site itself is currently open grassland and is completely permeable. It is relatively flat, with a slight fall in an easterly direction, with the highest levels being in the southeastern area at approximately 18.2m above Ordnance Datum (AOD) and the lowest area being approximately 17.8m AOD in the eastern corner of the site.

2.7 Aside from Alconbury Brook, the only surface water features in the vicinity of the site are a couple of small drains along the southeastern and northwestern boundaries of the site which run in a northerly direction to join Alconbury Brook.

2.8 There are no further surface water features of note in the vicinity of the site.

2.9 British geological survey mapping shows the bedrock underlying the site is the Oxford Clay Formation, with a superficial geology of First and Second River Terrace Deposits of sand and gravel also present at the site.

3 Sources of Potential Flood Risk

3.1 In accordance with the National Planning Policy Framework, all forms of flood risk need to be considered in respect of any development.

3.2 The first form of flood risk to be considered in respect of The National Planning Policy Framework is fluvial flooding.

3.3 The main source of fluvial flood risk to the site is Alconbury Brook approximately 50m northeast of the site. The Environment Agency Flood Map for Planning (Appendix 2) indicates that there is a thin band of Flood Zone 3 on the southern side of this watercourse but that this does not extend onto the site itself, with a slightly greater extent of Flood Zone 2 which extends to the sites northeastern boundary. The site itself is shown as lying entirely/almost entirely in Flood Zone 1 thus at a low risk of fluvial flooding.

3.4 The SFRA appears to indicate the same Flood Zone boundaries as the Environment Agency mapping, however is difficult to determine the exact site boundaries due to the underlying mapping used in the SFRA. Climate change mapping provided in the SFRA indicates that even with a 65% allowance for climate change on a 1 in 100 flood event the extent of flooding is approximately the same as the 1 in 1000 year flood event outline (with this allowance significantly exceeding the 19% allowance that is now required in this area under current guidance).

3.5 The Environment Agency have supplied modelled flood data for the River Great Ouse, (Appendix 3), with model node 1 with location ID 942771 being at the upstream end of the site. The modelled 1 in 100 year water level at this node is 17.48m AOD, with the modelled 1 in 1000 year in channel water level being 17.84m AOD.

3.6 The modelled 1 in 100 year flood level of 17.48m AOD is below all site levels, thus confirms that the site lies outside of Flood Zone 3, as indicated by the Environment Agency Flood Map for Planning and the SFRA mapping.

3.7 At 17.84m AOD would result in very minor encroachment along the northern boundary of the site, thus this contour has been plotted on the site survey provided in Appendix 4. This closely matches the Environment Agency and SFRA 1 in 1000 year/Flood Zone 2 boundary, and is considered to provide the most accurate representation of the Flood Zone 1/Flood Zone 2 boundary at a site specific level given the lower resolution of the EA/SFRA mapping and that it is based upon comparison of with hydraulic modelled levels with topographic survey rather than LIDAR data.

3.8 In addition, the Environment Agency have also supplied sample point data at various points on site with no relevant data on site for the 1 in 100 year event which confirms that the site does not flood at all in this event. The 1 in 1000 year data shows almost no flooding, but with water at a level of either 17.76m AOD or 17.77m AOD at nodes 16, 21, and 23 thus either just outside or just inside the northwestern boundary of the site.

3.9 This shows no significant flooding of the site in such an event, and closely matches the pattern of flooding indicated on the Flood Map for Planning and by the flood line provided in Appendix 4 (but would result in slightly less flooding than shown in Appendix 4 as the water levels in the flood plain are lower than the modelled in channel levels).

3.10 As such this confirms that the vast majority of the site lies in Flood Zone 1, with a negligible extent of land along the northern boundary lying within Flood Zone 2.

3.11 Modelled water levels for a 1 in 100 year plus 20% climate change event have also been supplied, which very closely matches (but is slightly more conservative) than the 1 in 100 year plus 19% climate change that currently requires consideration.

3.12 The in channel water level in this event is 17.57m AOD which is below all site levels, and no data is shown at any node on the site itself, thereby confirming that the site would not be subject to any flooding during a 1 in 100 year plus climate change event.

3.13 Historic mapping indicates that the site was subject to some flooding in 1947, which is the worst flood event that has occurred in the area, however significant changes have occurred to the catchment since this event and thus hydraulic modelling is considered to provide the best indication of the current flood risk at the site. In 1998 the outline provided indicates that the majority of the site remained dry.

3.14 The drains along the northwestern and southeastern boundaries of the site are very small surface water features thus not considered to give rise to any significant risk of flooding to the site, even in the event of a blockage in which case flows would either simply flow back into the drain downstream of the blockage or form a very shallow overland flow across the site in a northerly/northeasterly direction.

3.15 There are no further significant sources of fluvial flood risk to the proposed site and the overall risk of flooding is considered to be low.

3.16 The second form of flood risk to be considered in respect of The National Planning Policy Framework is flooding from the sea.

3.17 The site is well in land, upstream of the tidal reach of any watercourse, and with levels of approximately 18m AOD is not considered to be at any significant risk of flooding from tidal sources.

3.18 The third form of flood risk to be considered in respect of The National Planning Policy Framework is flooding from land.

3.19 Intense rainfall, often of short duration, that is unable to soak into the ground or enter drainage systems can quickly run off land and result in local flooding. In developed areas, this flood water can be polluted with domestic sewage with foul sewer surcharge and overflow. Local topography and built form can have a strong influence on the direction and depth of flow. The design of development down to a micro level can influence or exacerbate this. Overland flow paths need to be taken into account in development to minimise the risk of flooding from overland flow.

3.20 Land in the vicinity of the site falls in a northerly direction towards Alconbury Brook, this some surface flows could come onto the site from the south, however would tend to simply flow across the site in a northeasterly direction towards Alconbury Brook without having any significant impact upon the site.

3.21 During extreme surface water events, these would run in a southwesterly direction along the Alconbury Brook channel which runs along a low line. The surface water flood map shows that in a high risk (1 in 30 year event) and medium risk (1 in 100 year event) there would be no significant flood extent either side of the channel with this remaining a significant distance northeast of the site (and being very similar to the Flood Zone 3 mapping).

3.22 In a 'low risk' 1 in 1000 year event, limited flooding is indicated in the northeastern part of the site, generally to a depth of up to 300mm, with the southern and western part of the site shown as remaining dry.

3.23 In this area, and as indicated by mapping, the surface water and fluvial flood extents are anticipated to be similar, thus consideration of the fluvial flood levels, which have been hydraulically modelled thus are considered to a high degree of accuracy, for design purposes at the dwellings is also considered to provide reasonable basis for designing against surface water flooding in this instance.

3.24 The overall risk of surface water flooding occurring at the site is considered to be low.

3.25 The fourth form of flood risk to be considered in respect of The National Planning Policy Framework is flooding from groundwater.

3.26 Groundwater flooding occurs when water levels in the ground rise above surface elevations. It 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 and river gravels in valley bottoms underlain by less permeable rocks. Water levels below the ground rise during wet winter months, and fall again in

the summer as water flows out into rivers. In very wet winters, rising water levels may lead to the flooding of normally dry land.

3.27 Whilst the underlying bedrock geology is a low permeability geology, surface water may be present as a perched water table in the overlying sands and gravels.

3.28 It is however anticipated that any groundwater near the surface would tend to flow directly into the Alconbury Brook channel to the north or into the bed of the drains along the site boundaries, without water levels rising to surface levels at the site.

3.29 As such the overall risk of the site flooding by means of rising groundwater is considered to be low.

3.30 The fifth form of flood risk to be considered in accordance with the National Planning Policy Framework is the risk of flooding from blocked, overloaded, or burst sewers and water mains.

3.31 In urban areas rainwater is frequently drained into surface water sewers or sewers containing both foul and surface water sewers known as “combined sewers”. Flooding can result when the sewer is overwhelmed by heavy rainfall, becomes blocked or is of inadequate capacity, and will continue until water drains away.

3.32 Should a sewer or watermain become burst, overloaded or blocked on North Road water would likely be channeled northwards along the road by the kerb lines, whilst any water that did come onto the site would simply flow across the site in a northeasterly direction and off the site towards Alconbury Brook without having any significant impact upon the site.

3.33 The last form of flood risk to be considered in accordance with the National Planning Policy Framework is flooding from reservoirs, canals or other artificial sources.

3.34 There are no significant artificial sources of flood risk in the vicinity of the site thus the risk associated with such sources is considered to be low.

4 The Proposal

4.1 The proposal involves the residential development of land to the east of North Road, Alconbury Weston with 2 dwellings and associated access, landscaping and parking as shown on the site layout provided in Appendix 5.

4.2 As detailed in Section 3, it is considered that the site is at a low risk of flooding from any sources, with the worst case 1 in 1000 year fluvial flood level at the site being 17.77m AOD at the site itself and during which a negligible amount of water would be present on the northern boundary of the site. No water at all would be present on the site in a 1 in 100 year event even with allowance for climate change.

4.3 Both proposed dwellings at the site will remain to the south of the flood line shown on the drawing provided in Appendix 4, thus in the area of the site classified as Flood Zone 1 (which is virtually the entire site), and will have minimum finished floor levels of at least 18.07m AOD which provides 300mm above the modelled 1 in 1000 year water level at the site itself and an greater level of freeboard against the 1 in 100 year plus climate change water levels in the area.

4.4 No further flood resistant or resilient construction is required at the proposed dwellings.

4.5 As a minor development of less than 10 dwellings surface water drainage is not a material consideration at planning application stage, thus it is appropriate to secure the full detailed surface water drainage design by means of appending an appropriate condition to any planning approval granted.

4.6 It is however envisaged that all external access areas will be permeably surfaced, with roof drainage to the base of the permeable access areas. Full infiltration testing will take place in accordance with BRE 365, once conditional planning permission has been granted, and if suitable rates are achieved then all surface water will be discharged via the base of the permeable paving or other infiltration systems to the ground.

4.7 If suitable rates discharge will be to the drain along the southeastern boundary of the site, with discharge restricted to an acceptable rate by means of a flow control such as a hydrobrake to ensure that there is no adverse impact upon the downstream risk of flooding.

5 Assessment

5.1 The proposal involves the residential development of 2 dwellings on land to the east of North Road, Alconbury Weston.

5.2 Under the National Planning Policy Framework residential use is classified as a “more vulnerable” use.

5.3 The site is shown on the Environment Agency Flood Map for Planning and SFRA as being almost entirely in Flood Zone 1, but with a very small area of land along the northern boundary being in Flood Zone 2. Both proposed dwellings will be located entirely in Flood Zone 1.

5.4 In accordance with the National Planning Policy Framework, development of a “more vulnerable” nature is appropriate in defended Flood Zone 1 without the need for the Exception Test, whilst the Sequential Test is automatically passed.

5.5 All the sources of flood risk to the proposed development have been considered in Section 3. To ensure that the dwellings are adequately protected against flooding the finished floor levels will be set at a minimum level of 18.07m AOD, which 300mm above the modelled 1 in 1000 year water level of 17.77m AOD on the site and provides a greater level of freeboard against the 1 in 100 year plus climate change event.

5.6 No further flood resistant or resilient construction is required at the proposed dwellings.

5.7 As no water will be present on the site in a 1 in 100 year plus climate change event there will be no loss of flood storage at the site thus no adverse impact upon the off-site risk of flooding, and are no issues associated with safe access.

5.8 As a minor development of less than 10 dwellings it is appropriate to secure the surface water drainage details by appending a suitable planning condition to any approval granted, whilst outline details of the strategy have been provided in Section 4.

6 Conclusion

6.1 The proposal involves the development of 2 residential dwellings on land to the east of North Road, Alconbury Weston.

6.2 The site lies almost entirely in Flood Zone 1 and both proposed dwellings will be located in Flood Zone 1.

6.3 The Sequential Test is therefore passed whilst the Exception Test is not required.

6.4 The minimum floor level of the proposed dwellings will be set at 18.07m AOD, which is 300mm above the modelled 1 in 1000 year water level, and provides a greater level of freeboard against the 1 in 100 year plus climate change flood level.

6.5 No further flood resistant or resilient construction is required at the dwellings.

6.6 There will be no loss of flood storage in a 1 in 100 year plus climate change event and no issues associated with access in such an event.

6.7 Detailed surface water drainage design will be secured by Planning Condition as is appropriate for minor developments of less than 10 dwellings.

6.8 There will be no adverse impact upon the off-site risk of flooding associated with the proposed development.

6.9 There are no flood risk or drainage related grounds under The National Planning Policy Framework on which to object to the proposed residential development of 2 dwellings on land to the east of North Road, Alconbury Weston.

APPENDIX 1

SITE LOCATION PLAN

HM Land Registry
Current title plan

Title number **CB271860**
Ordnance Survey map reference **TL1776NE**
Scale **1:1250**
Administrative area **Cambridgeshire : Huntingdonshire**

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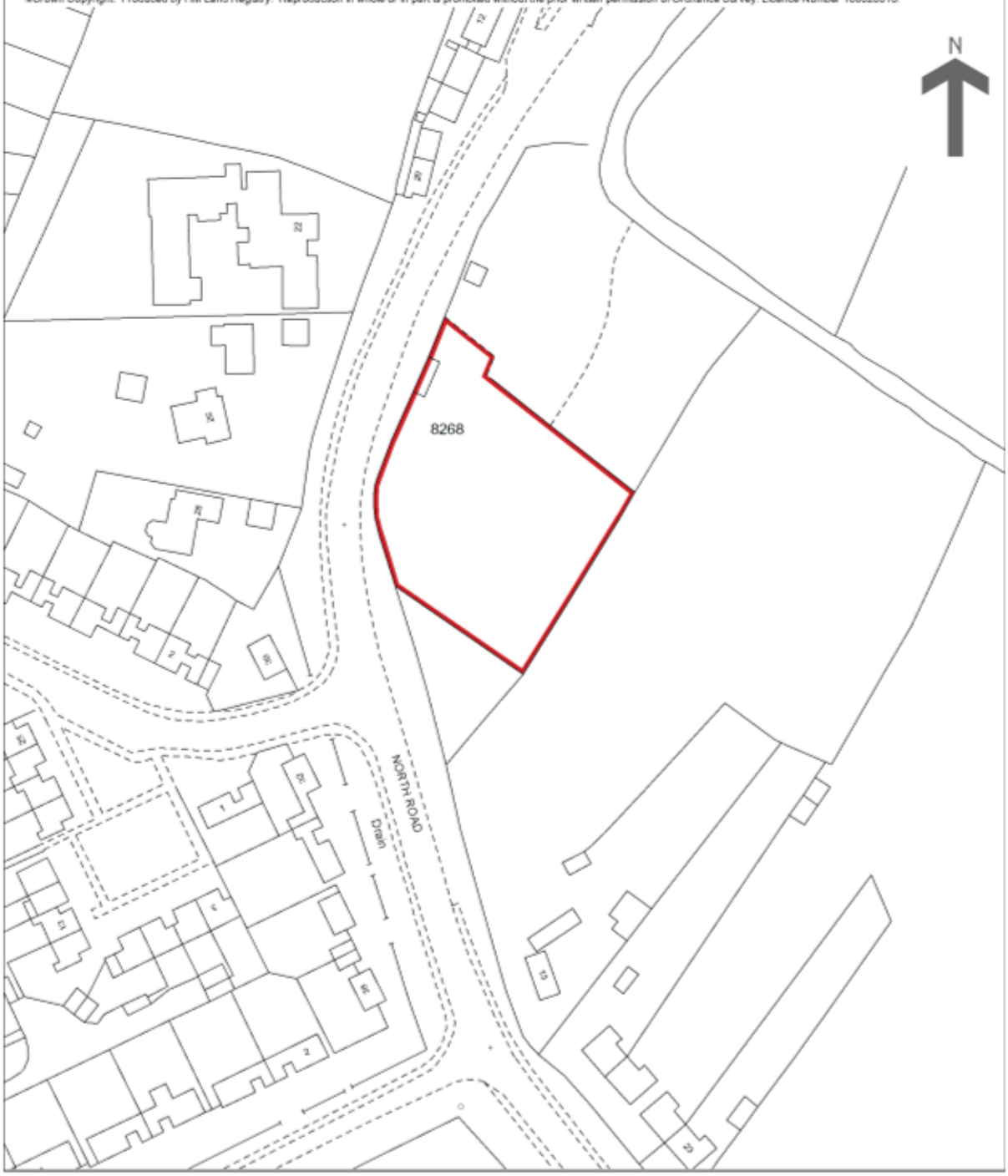


This is a copy of the title plan on 8 AUG 2018 at 15:18:45. This copy does not take account of any application made after that time even if still pending in HM Land Registry when this copy was issued.

This copy is not an 'Official Copy' of the title plan. An official copy of the title plan is admissible in evidence in a court to the same extent as the original. A person is entitled to be indemnified by the registrar if he or she suffers loss by reason of a mistake in an official copy. If you want to obtain an official copy, the HM Land Registry web site explains how to do this.

HM Land Registry endeavours to maintain high quality and scale accuracy of title plan images.The quality and accuracy of any print will depend on your printer, your computer and its print settings.This title plan shows the general position, not the exact line, of the boundaries. It may be subject to distortions in scale. Measurements scaled from this plan may not match measurements between the same points on the ground.

This title is dealt with by HM Land Registry, Peterborough Office.

APPENDIX 2

ENVIRONMENT AGENCY FLOOD MAP FOR PLANNING

Flood map for planning

Your reference	Location (easting/northing)	Created
<Unspecified>	**517834/276680**	**2 Feb 2024 16:44**

Your selected location is in flood zone 2, an area with a medium 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 www.gov.uk/guidance/flood-risk-assessment-standing-advice)

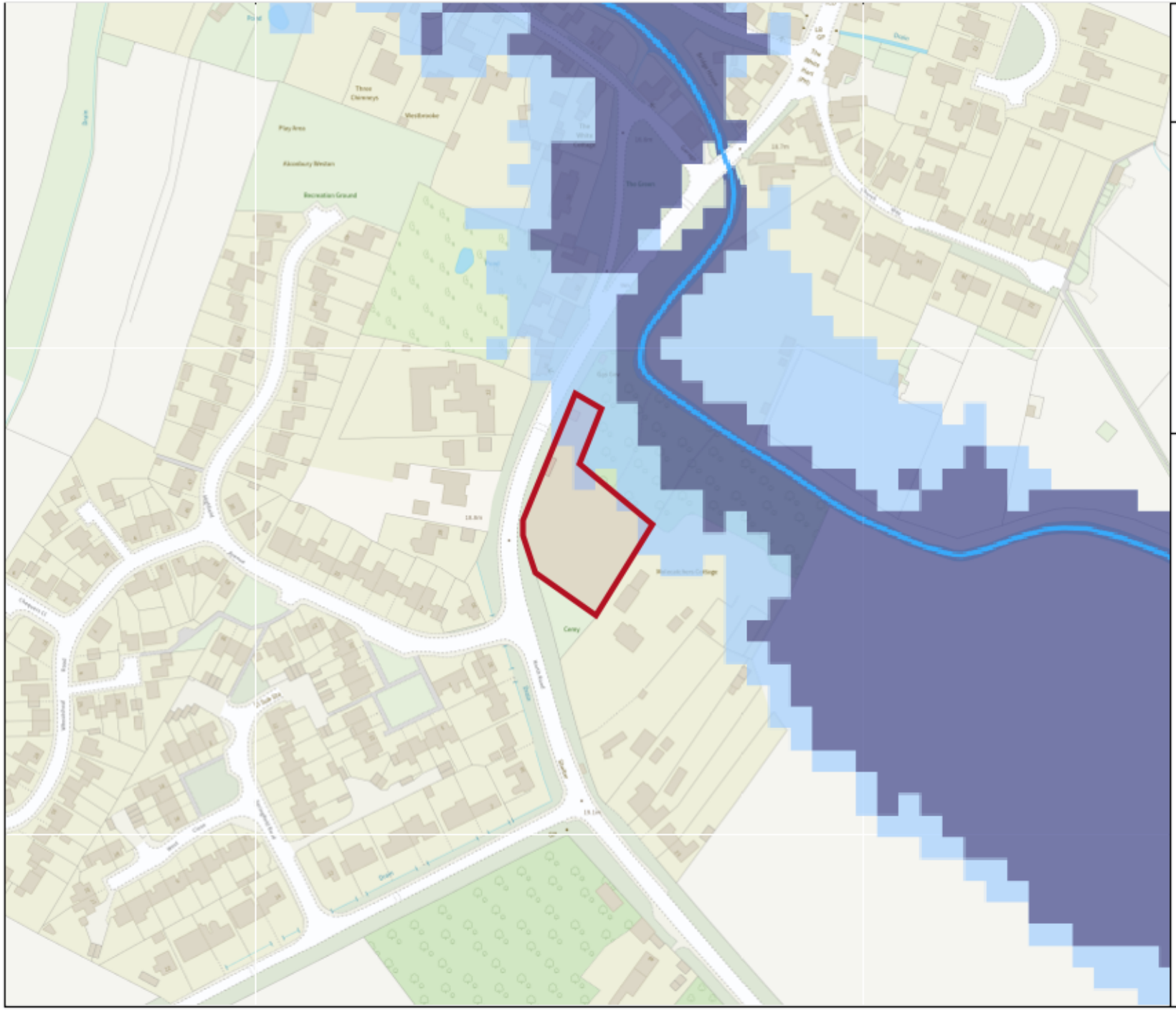
Notes

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.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2022 OS 100024198. https://flood-map-for-planning.service.gov.uk/os-terms



Environment Agency

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
517834/276680

Scale
1:2500

Created
2 Feb 2024 16:44

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

0 20 40 60m

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APPENDIX 3

ENVIRONMENT AGENCY MODELLED AND HISTORICAL FLOOD DATA

Flood risk assessment data

Location of site: 517831 / 276668 (shown as easting and northing coordinates)
Document created on: 10 November 2023
This information was previously known as a product 4.
Customer reference number: JRKWYP755HDJ

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



How to use this information

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

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

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- historic flooding
- modelled data
- climate change modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Not included in this document

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

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

Include a site location map in your request.

Information that's unavailable

This document **does not** contain:

- flood defences and attributes

We aren't able to display flood defence locations and attributes as there are no formal flood defences in the area of interest.

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: EAn_Lower Ouse_Alconbury Brook_2015
Scenario(s): Defended fluvial, defences removed fluvial, defended climate change fluvial
Date: 1 November 2015

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 2.

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

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

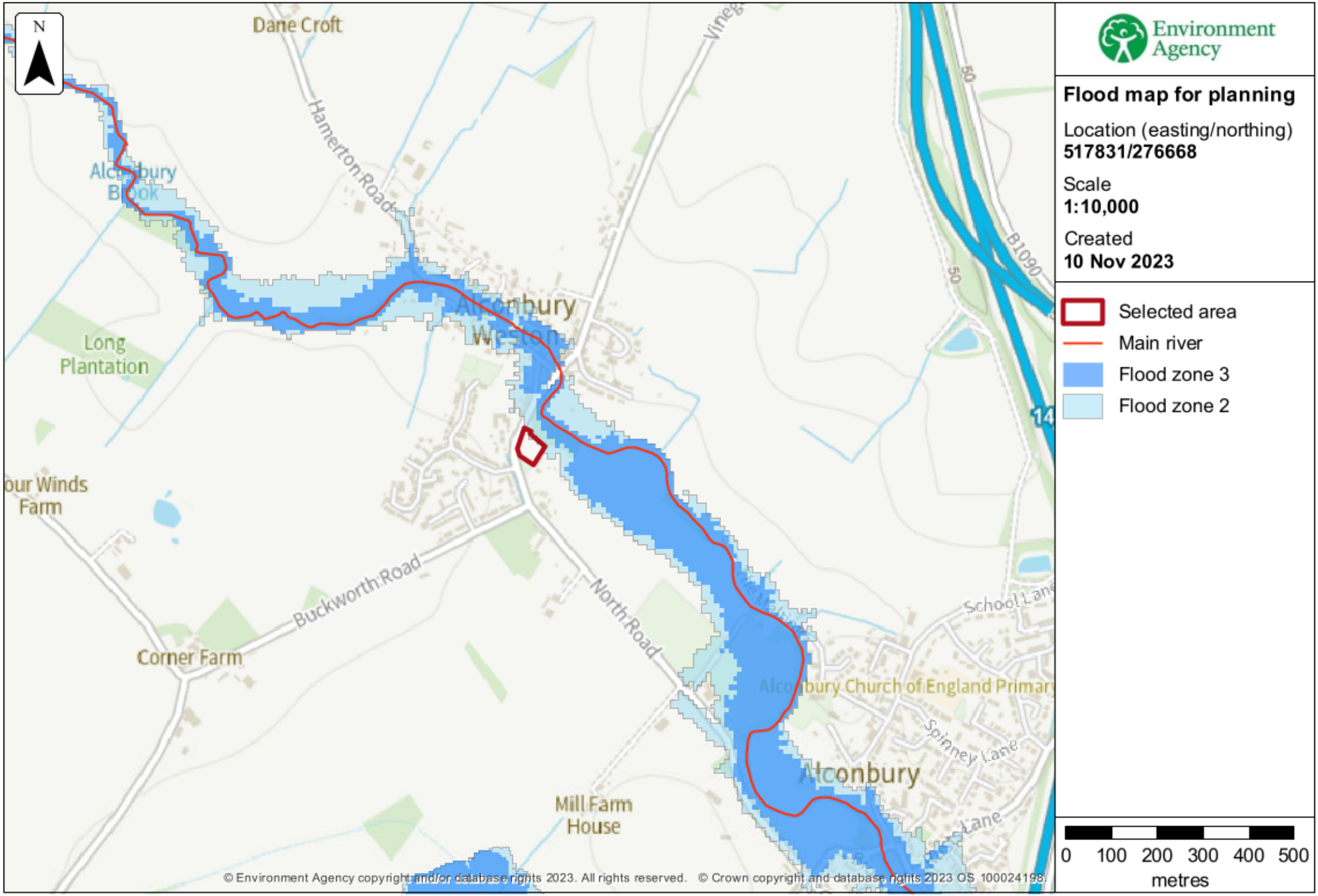
Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

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

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

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

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


N
Dane Croft
Hamerton Road
Alconbury Brook
Alconbury Weston
Long Plantation
our Winds Farm
Buckworth Road
North Road
Corner Farm
Alconbury Church of England Primary
Spinney Lane
Alconbury
Mill Farm House
B1090
50
14
Environment Agency
Flood map for planning
Location (easting/northing)
517831/276668
Scale
1:10,000
Created
10 Nov 2023
Selected area
Main river
Flood zone 3
Flood zone 2
0 100 200 300 400 500
metres
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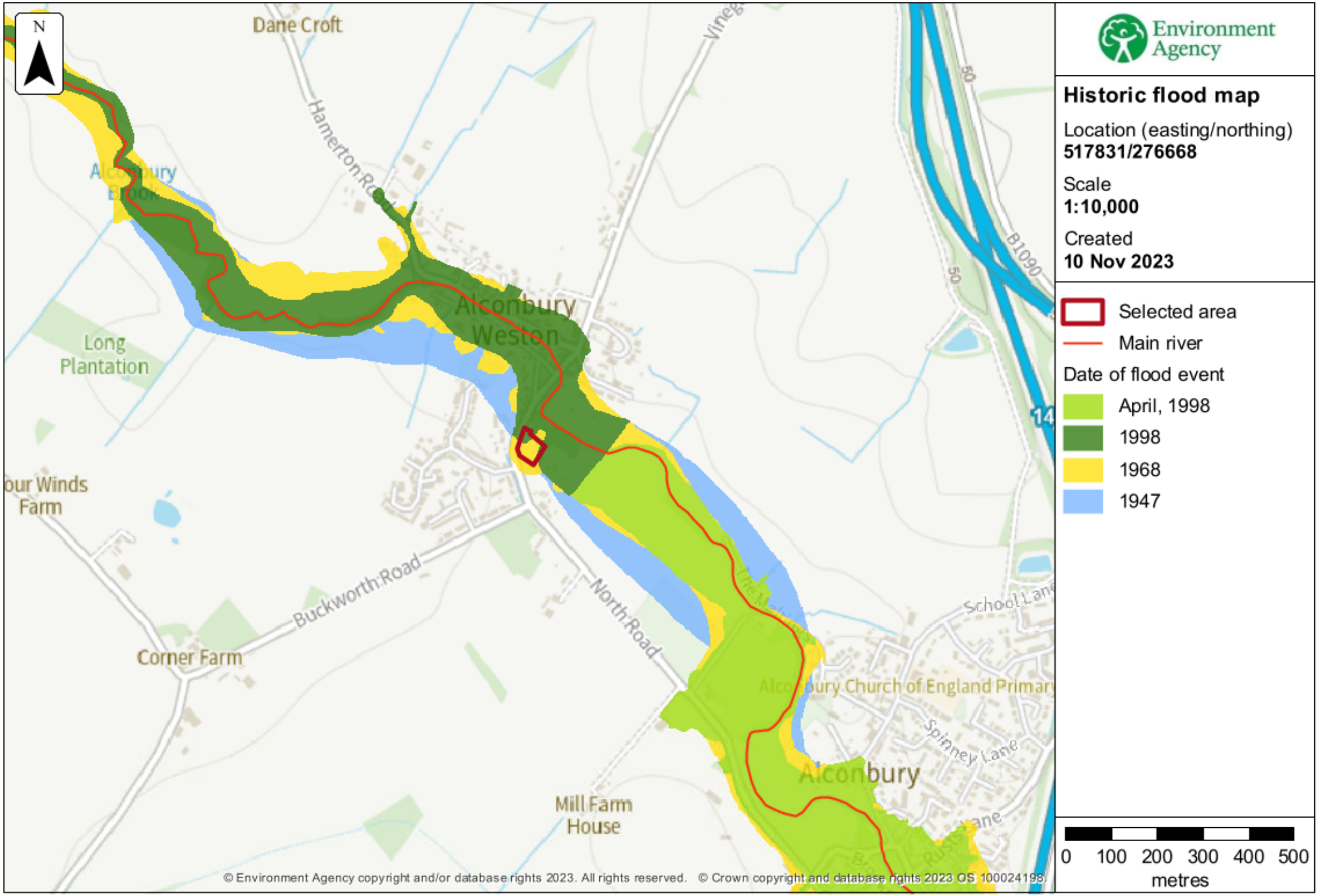
Historic flooding

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
Dane Croft
Hamerton Rd
Alconbury Brook
Alconbury Weston
Long Plantation
our Winds Farm
Buckworth Road
North Road
Corner Farm
Mill Farm House
School Lane
Alconbury Church of England Primary
Spinney Lane
Alconbury
B1090
50
14
Environment Agency
Historic flood map
Location (easting/northing)
517831/276668
Scale
1:10,000
Created
10 Nov 2023
Selected area
Main river
Date of flood event
April, 1998
1998
1968
1947
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
10 April 1998	12 April 1998	main river	channel capacity exceeded (no raised defences)	No
1998	1998	unknown	unknown	Yes
1968	1968	unknown	unknown	Yes
1947	1947	unknown	unknown	Yes

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

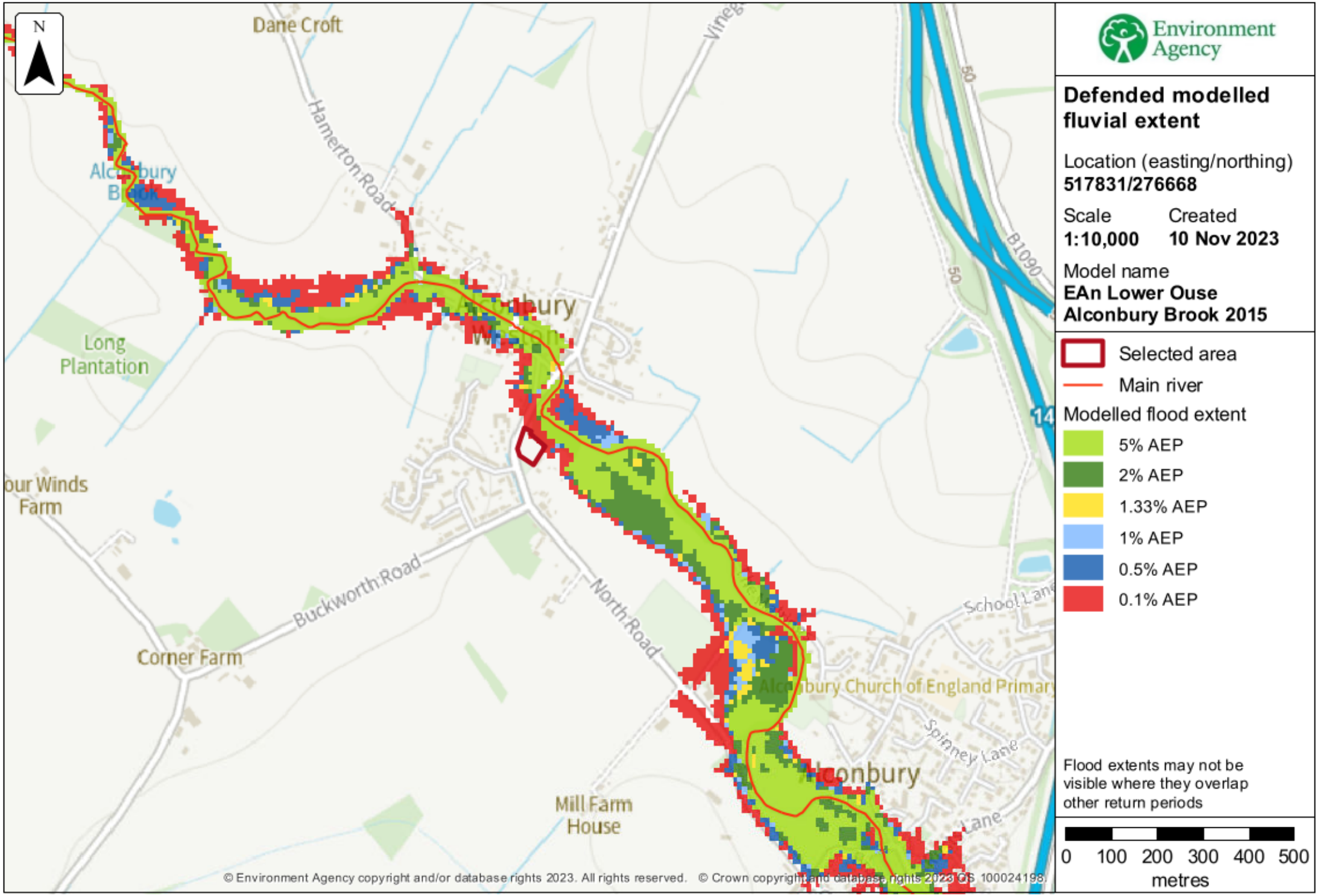
The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

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


N
Dane Croft
Hamerton Road
Long Plantation
Corner Farm
Buckworth Road
North Road
Mill Farm House
School Lane
Spinney Lane
B1090
50
14
Environment Agency
Defended modelled fluvial extent
Location (easting/northing)
517831/276668
Scale
1:10,000
Created
10 Nov 2023
Model name
EAn Lower Ouse Alconbury Brook 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
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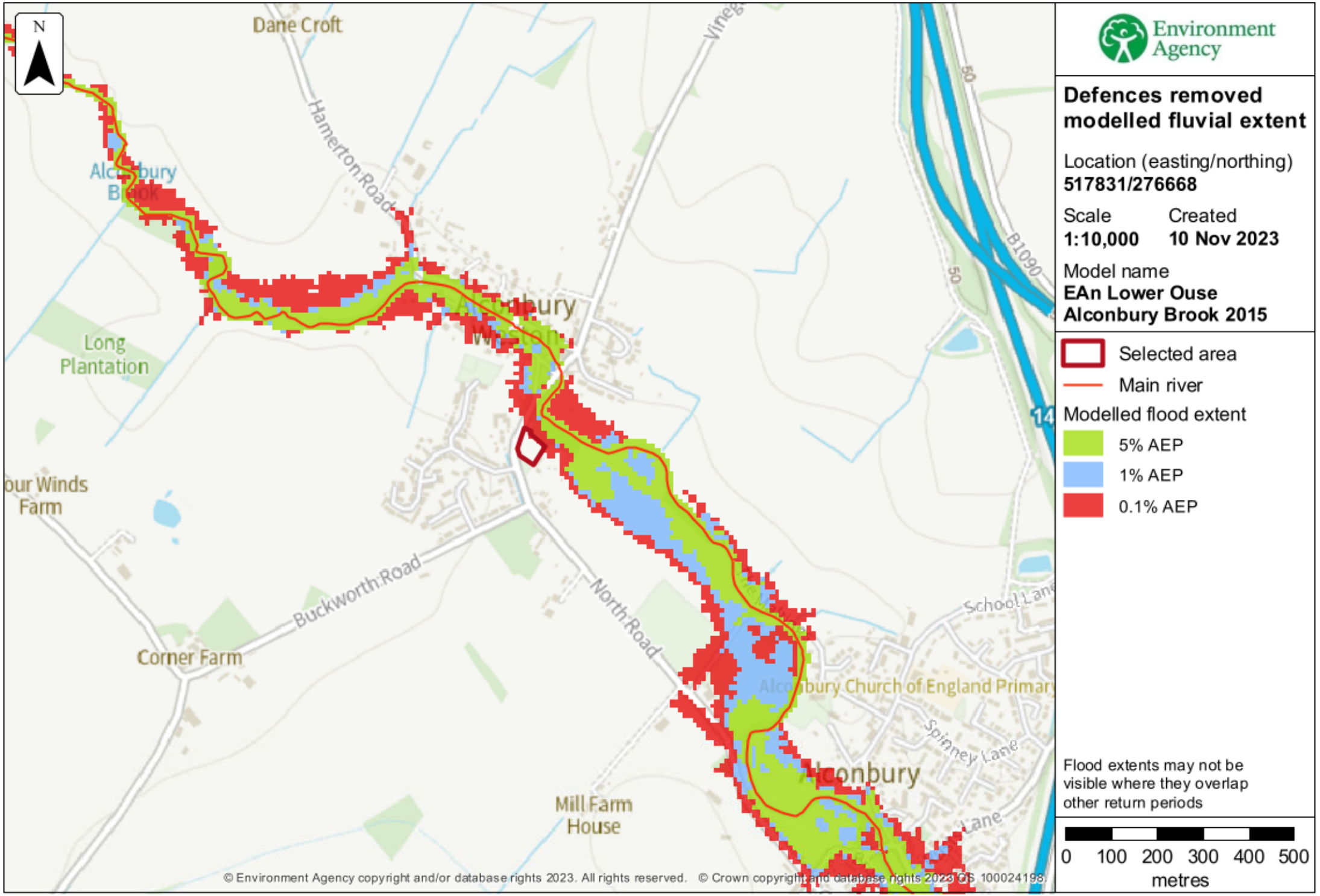
N
Dane Croft
Hamerton Road
Alconbury Brook
Long Plantation
our Winds Farm
Buckworth Road
North Road
Corner Farm
Mill Farm House
School Lane
Spinney Lane
Lane
B1090
50
50
14
Environment Agency
Defences removed modelled fluvial extent
Location (easting/northing)
517831/276668
Scale
1:10,000
Created
10 Nov 2023
Model name
EAn Lower Ouse Alconbury Brook 2015
Selected area
Main river
Modelled flood extent
5% AEP
1% AEP
0.1% AEP
Flood extents may not be visible where they overlap other return periods
0 100 200 300 400 500
metres
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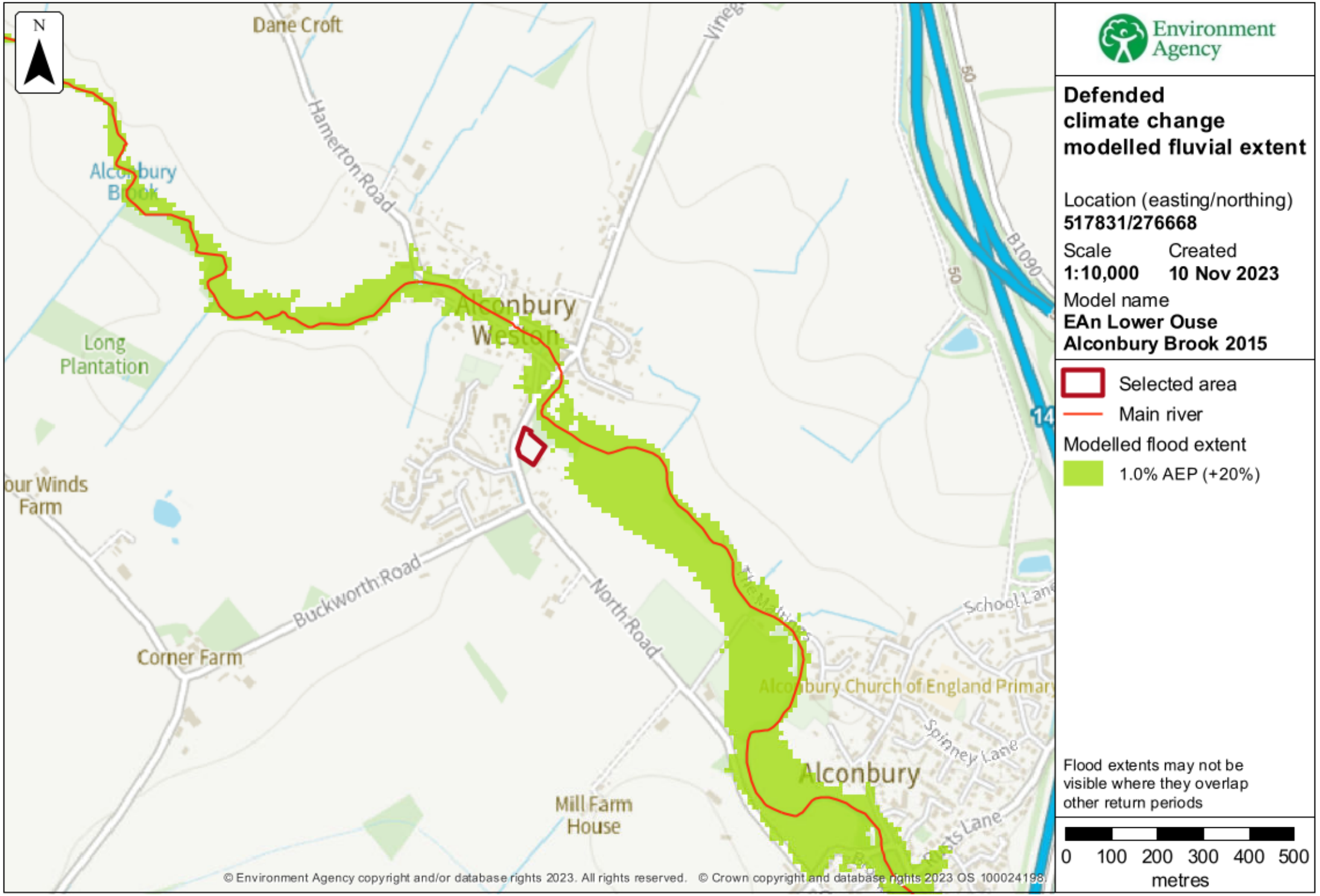

Environment Agency

Defended climate change modelled fluvial extent

Location (easting/northing)
517831/276668

Scale
1:10,000

Created
10 Nov 2023

Model name
EAn Lower Ouse Alconbury Brook 2015

Selected area

Main river

Modelled flood extent

1.0% AEP (+20%)

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)
517831/276668

Scale
1:2,500

Created
10 Nov 2023

Model name
EAn Lower Ouse Alconbury Brook 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	942771	517861	276758	17.29	23.21	17.43	27.09	17.46	28.08	17.48	28.91	17.57	33.09	17.84	45.54
2	942764	517881	276876	17.40	23.21	17.56	27.09	17.59	28.06	17.61	28.87	17.72	32.90	18.07	40.58
3	942770	517885	276788	17.31	23.20	17.46	27.09	17.48	28.07	17.51	28.90	17.60	33.06	17.90	42.71
4	942765	517887	276867	17.39	23.21	17.54	27.09	17.57	28.08	17.60	28.90	17.70	33.11	18.02	45.51
5	942766	517892	276857	17.38	23.21	17.53	27.09	17.56	28.08	17.58	28.90	17.69	33.12	17.99	45.51
6	942769	517901	276809	17.34	23.21	17.48	27.09	17.51	28.08	17.53	28.90	17.63	33.12	17.91	45.72
7	942768	517903	276828	17.36	23.21	17.51	27.09	17.54	28.08	17.56	28.90	17.67	33.11	17.96	46.04
8	942772	517924	276695	17.23	21.88	17.36	24.63	17.39	25.36	17.41	25.97	17.49	29.12	17.73	39.73
9	942773	517965	276670	17.19	22.92	17.33	25.56	17.35	26.24	17.37	26.80	17.45	29.74	17.69	39.93
10	942774	518006	276657	17.16	22.30	17.31	24.27	17.33	24.67	17.35	25.01	17.43	27.28	17.67	35.72

Data in this table comes from the EAn Lower Ouse Alconbury Brook 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.



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Defences removed modelled fluvial node locations

Location (easting/northing)
517831/276668

Scale
1:2,500

Created
10 Nov 2023

Model name
EAn Lower Ouse Alconbury Brook 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	942771	517861	276758	17.29	23.21					17.48	28.91			17.84	45.53
2	942764	517881	276876	17.40	23.21					17.61	28.87			18.07	40.58
3	942770	517885	276788	17.31	23.21					17.51	28.91			17.90	42.71
4	942765	517887	276867	17.39	23.21					17.60	28.90			18.02	45.51
5	942766	517892	276857	17.38	23.21					17.58	28.90			17.99	45.51
6	942769	517901	276809	17.34	23.21					17.53	28.91			17.91	45.72
7	942768	517903	276828	17.36	23.21					17.56	28.90			17.96	46.04
8	942772	517924	276695	17.23	21.88					17.41	25.97			17.73	39.74
9	942773	517965	276670	17.19	22.92					17.37	26.81			17.69	39.92
10	942774	518006	276657	17.16	22.30					17.35	25.02			17.67	35.73

Data in this table comes from the EAn Lower Ouse Alconbury Brook 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.



Environment Agency

Defended climate change modelled fluvial node locations

Location (easting/northing)
517831/276668

Scale
1:2,500

Created
10 Nov 2023

Model name
EAn Lower Ouse Alconbury Brook 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%)	
				Level	Flow
1	942771	517861	276758	17.57	33.14
2	942764	517881	276876	17.72	32.96
3	942770	517885	276788	17.60	33.12
4	942765	517887	276867	17.71	33.17
5	942766	517892	276857	17.69	33.17
6	942769	517901	276809	17.63	33.18
7	942768	517903	276828	17.67	33.17
8	942772	517924	276695	17.49	29.16
9	942773	517965	276670	17.45	29.78
10	942774	518006	276657	17.43	27.31

Data in this table comes from the EAn Lower Ouse Alconbury Brook 2015 model.
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Any blank cells show where a particular scenario has not been modelled for this location.



Environment Agency

Defended modelled fluvial extent and height

Location (easting/northing)
517831/276668

Scale
1:500

Created
10 Nov 2023

Model name
EAn Lower Ouse Alconbury Brook 2015

Selected area

Main river

Modelled 2D grid
Water level in mAOD

- 0 - 17.0
- 17.0 - 17.125
- 17.125 - 17.25
- 17.25 - 17.375
- 17.375 - 17.5
- 17.5 - 17.625
- 17.625 - 17.75
- 17.75 - 17.875
- 17.875 - 18.0

This map shows the 0.1% AEP height data

0 5 10 15 20
metres

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	517829	276625	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	517843	276625	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	517815	276639	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	517829	276639	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
5	517843	276639	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	517801	276653	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	517815	276653	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
8	517829	276653	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	517843	276653	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	517857	276653	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	517801	276667	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	517815	276667	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
13	517829	276667	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
14	517843	276667	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	517857	276667	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	517871	276667	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.18	17.76

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	517801	276681	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	517815	276681	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
19	517829	276681	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	517843	276681	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	517857	276681	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.11	17.77
22	517815	276695	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	517829	276695	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.01	17.77
24	517843	276695	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
25	517815	276709	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
26	517829	276709	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Data in this table comes from the EAn Lower Ouse Alconbury Brook 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.



Environment Agency

Defences removed modelled fluvial extent and height

Location (easting/northing)
517831/276668

Scale
1:500

Created
10 Nov 2023

Model name
EAn Lower Ouse Alconbury Brook 2015

Selected area

Main river

Modelled 2D grid
Water level in mAOD

- 0 - 17.0
- 17.0 - 17.125
- 17.125 - 17.25
- 17.25 - 17.375
- 17.375 - 17.5
- 17.5 - 17.625
- 17.625 - 17.75
- 17.75 - 17.875
- 17.875 - 18.0

This map shows the 0.1% AEP height data

0 5 10 15 20
metres

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	517829	276625	NoData	NoData					NoData	NoData			NoData	NoData
2	517843	276625	NoData	NoData					NoData	NoData			NoData	NoData
3	517815	276639	NoData	NoData					NoData	NoData			NoData	NoData
4	517829	276639	NoData	NoData					NoData	NoData			NoData	NoData
5	517843	276639	NoData	NoData					NoData	NoData			NoData	NoData
6	517801	276653	NoData	NoData					NoData	NoData			NoData	NoData
7	517815	276653	NoData	NoData					NoData	NoData			NoData	NoData
8	517829	276653	NoData	NoData					NoData	NoData			NoData	NoData
9	517843	276653	NoData	NoData					NoData	NoData			NoData	NoData
10	517857	276653	NoData	NoData					NoData	NoData			NoData	NoData
11	517801	276667	NoData	NoData					NoData	NoData			NoData	NoData
12	517815	276667	NoData	NoData					NoData	NoData			NoData	NoData
13	517829	276667	NoData	NoData					NoData	NoData			NoData	NoData
14	517843	276667	NoData	NoData					NoData	NoData			NoData	NoData
15	517857	276667	NoData	NoData					NoData	NoData			NoData	NoData
16	517871	276667	NoData	NoData					NoData	NoData			0.18	17.76

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	517801	276681	NoData	NoData					NoData	NoData			NoData	NoData
18	517815	276681	NoData	NoData					NoData	NoData			NoData	NoData
19	517829	276681	NoData	NoData					NoData	NoData			NoData	NoData
20	517843	276681	NoData	NoData					NoData	NoData			NoData	NoData
21	517857	276681	NoData	NoData					NoData	NoData			0.11	17.77
22	517815	276695	NoData	NoData					NoData	NoData			NoData	NoData
23	517829	276695	NoData	NoData					NoData	NoData			0.01	17.77
24	517843	276695	NoData	NoData					NoData	NoData			NoData	NoData
25	517815	276709	NoData	NoData					NoData	NoData			NoData	NoData
26	517829	276709	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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517831/276668

Scale
1:500

Created
10 Nov 2023

Model name
EAn Lower Ouse Alconbury Brook 2015

Selected area

Main river

Modelled 2D grid
Water level in mAOD

- 0 - 17.0
- 17.0 - 17.125
- 17.125 - 17.25
- 17.25 - 17.375
- 17.375 - 17.5
- 17.5 - 17.625
- 17.625 - 17.75
- 17.75 - 17.875
- 17.875 - 18.0

This map shows the 1.0% AEP +20% height data

0 5 10 15 20
metres

Sample point data

Defended climate change

Label	Easting	Northing	1% AEP (+20%)	
			Depth	Height
1	517829	276625	NoData	NoData
2	517843	276625	NoData	NoData
3	517815	276639	NoData	NoData
4	517829	276639	NoData	NoData
5	517843	276639	NoData	NoData
6	517801	276653	NoData	NoData
7	517815	276653	NoData	NoData
8	517829	276653	NoData	NoData
9	517843	276653	NoData	NoData
10	517857	276653	NoData	NoData
11	517801	276667	NoData	NoData
12	517815	276667	NoData	NoData
13	517829	276667	NoData	NoData
14	517843	276667	NoData	NoData
15	517857	276667	NoData	NoData
16	517871	276667	NoData	NoData

Label	Easting	Northing	1% AEP (+20%)	
			Depth	Height
17	517801	276681	NoData	NoData
18	517815	276681	NoData	NoData
19	517829	276681	NoData	NoData
20	517843	276681	NoData	NoData
21	517857	276681	NoData	NoData
22	517815	276695	NoData	NoData
23	517829	276695	NoData	NoData
24	517843	276695	NoData	NoData
25	517815	276709	NoData	NoData
26	517829	276709	NoData	NoData

Data in this table comes from the EAn Lower Ouse Alconbury Brook 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.

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 East Anglia Environment Agency team at enquiries_eastanglia@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 4

SITE SURVEY AND 1 IN 1000 YEAR FLOOD LINE

REV	DATE	DESCRIPTION/REASON FOR ISSUE	APPR
A	02.02.24	UPDATED 1/100 YR LEVEL	EG

ENGINEERING
MTC Engineering (Cambridge) Ltd.
Ground Floor, 24 High Street
Whittlesford, Cambridgeshire, CB22 4LT
Tel (01223) 837270, fax (01223) 835648
E-mail office@mtcengineering.co.uk

TITLE

LAND EAST OF NORTH ROAD ALCONBURY WESTON SITE SURVEY AND 1 IN 1000 YEAR FLOOD LINE

ORIG M.B	DATE 05-06-19
CHKD	SCALE 1:200
APPR	DRAWING NO 2358-01 REV A

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TREE BLOCK

1 in 1000 year flood line - 17.84m AOD

Molecatchers Cottage

Cemy

APPENDIX 5

PROPOSED SITE LAYOUT



CAMPBELL McCRAE Limited

architectural services

Chapel House, 5 The Stiles, Godmanchester, Huntingdon, Cambridgeshire, PE29 2JF
Tel: 01480 433073 Web: www.campbell-mccrae.co.uk
Registered number: 7830594. Registered in England and Wales. Registered address: 88 High St, Ramsey, Cambs, PE26 1BS

Project:	Drawing title:	Scale	Date	Drwg No.	Revision
Land at North Road,	Preliminary site layout plan	1:250@A1	Feb '21	21914_02	B

Use figured dimensions only, do not scale.
Campbell McCrae Ltd can accept no responsibility for the interpretation of this drawing when the practice is not named as contract administrator in the building contract.