Flood risk assessment data



Location of site: 332352 / 441409 (shown as easting and northing coordinates)

Document created on: 29 September 2023

This information was previously known as a product 4.

Customer reference number: ENMHG28YAW9R

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)
- 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 Cumbria and Lancashire Environment Agency team at inforequests.cmblnc@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:

- historic flooding
- flood defences and attributes

We do not have historic flooding data for this location.

Please note that:

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

You can contact your Lead Local Flood Authority or Internal Drainage Board to see if they

have other relevant local flood information. Please note that some areas do not have an Internal Drainage Board.

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 <u>long term flood risk service</u> 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: Hillylaid Pool 2013

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

defences removed climate change fluvial

Date: 1 February 2012

Model name: Wyre Estuary_Tidal 2014

Scenario(s): Defended tidal, defences removed tidal, defended climate change tidal,

defences removed climate change tidal

Date: 30 July 2014

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

Terminology used

Annual exceedance probability (AEP)

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

Metres above ordnance datum (mAOD)

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

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 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

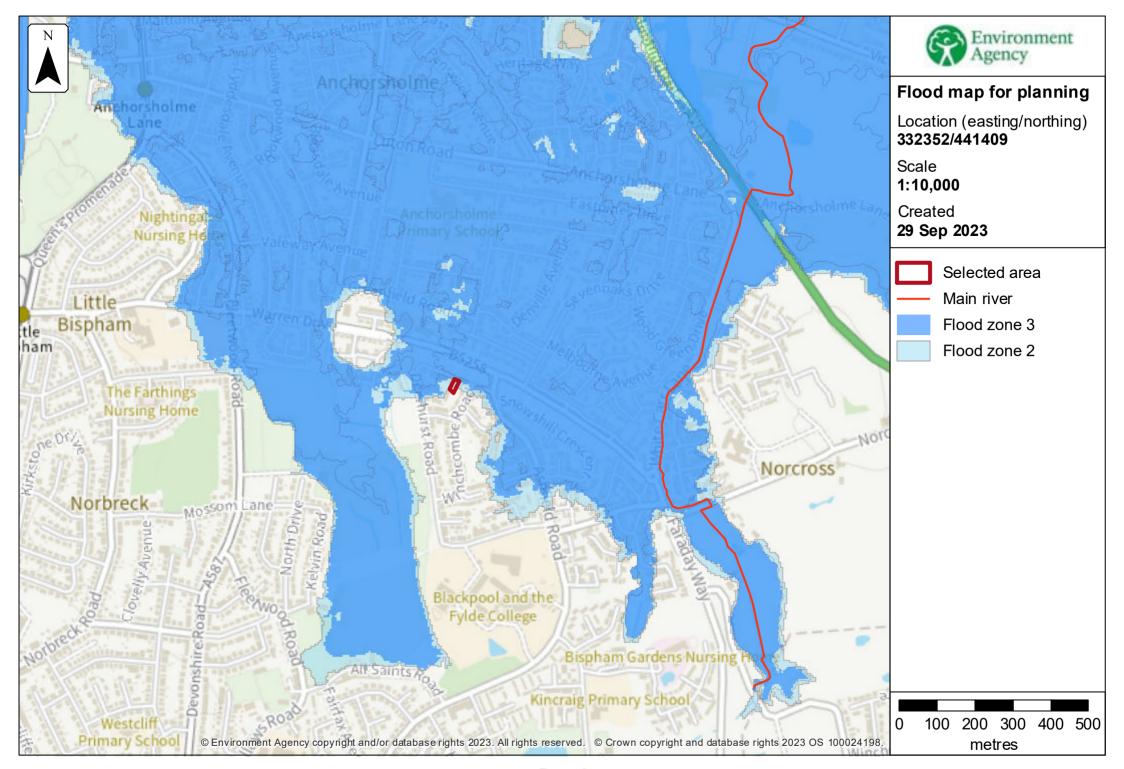
Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- 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.



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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

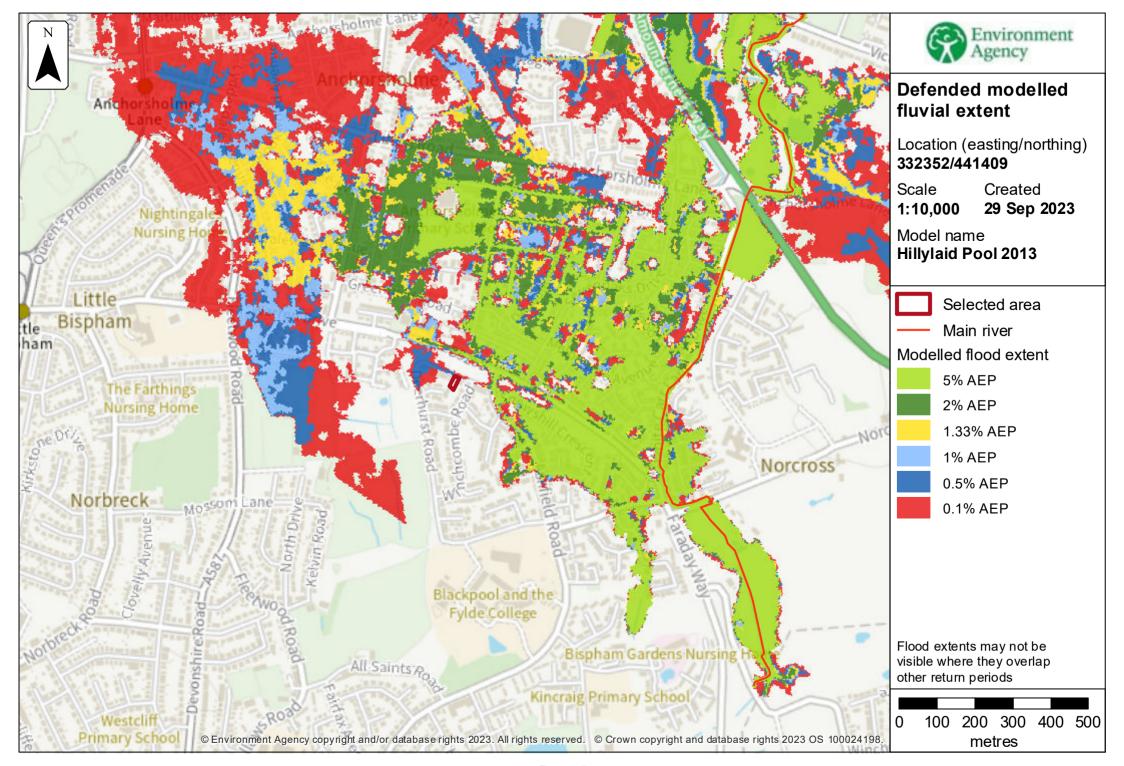
The climate change data included in the models may not include the latest <u>flood risk</u> <u>assessment climate change allowances</u>. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

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.

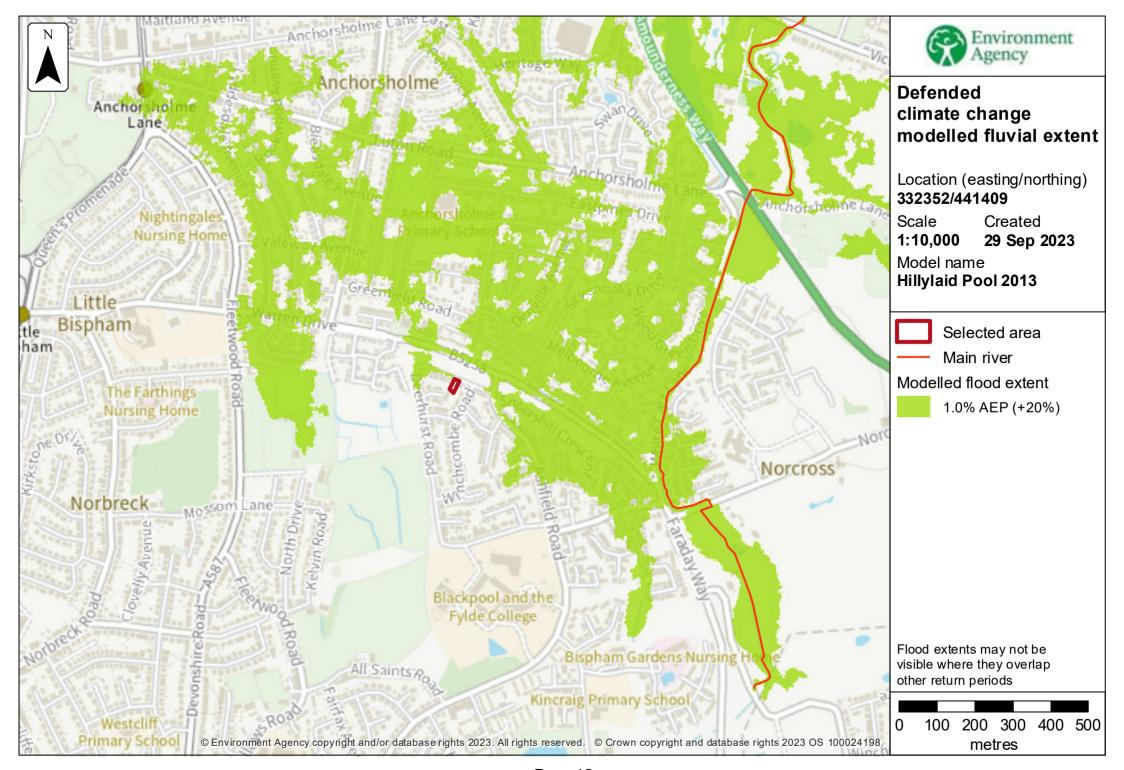
Modelled scenarios

The following scenarios are included:

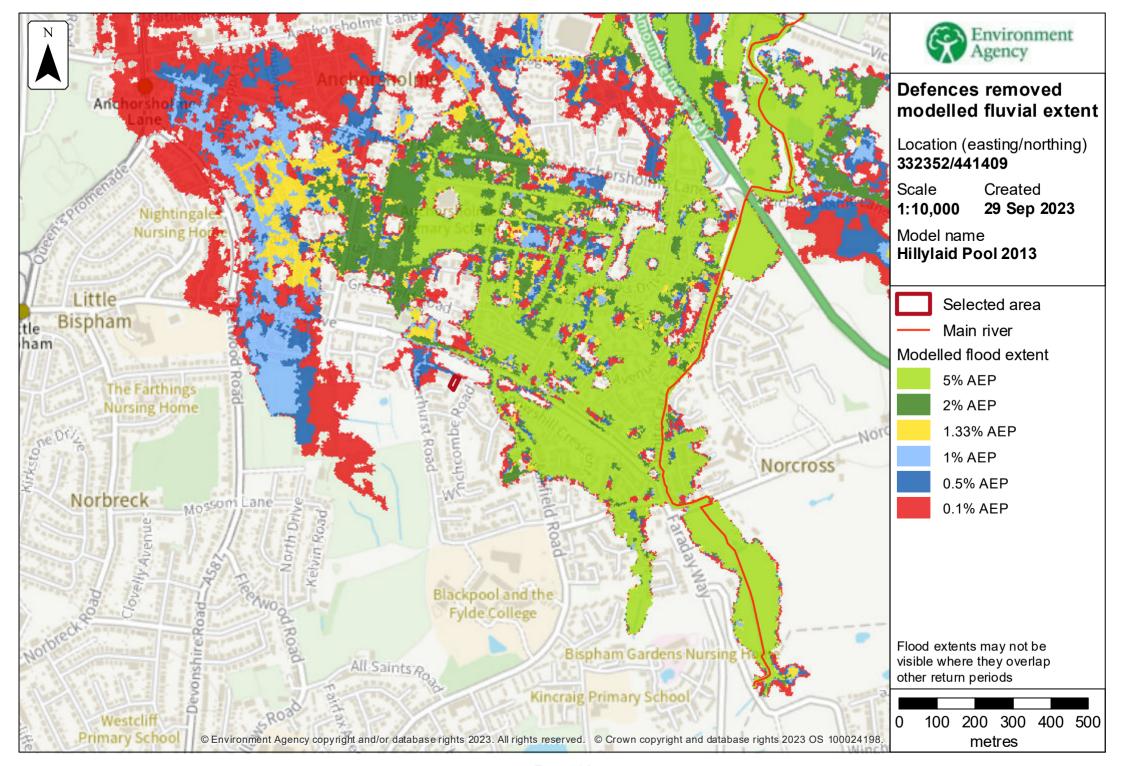
- Defended modelled fluvial: risk of flooding from rivers where there are flood defences
- Defences removed modelled fluvial: risk of flooding from rivers where flood defences have been removed
- Defended modelled tidal: risk of flooding from the sea where there are flood defences
- Defences removed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



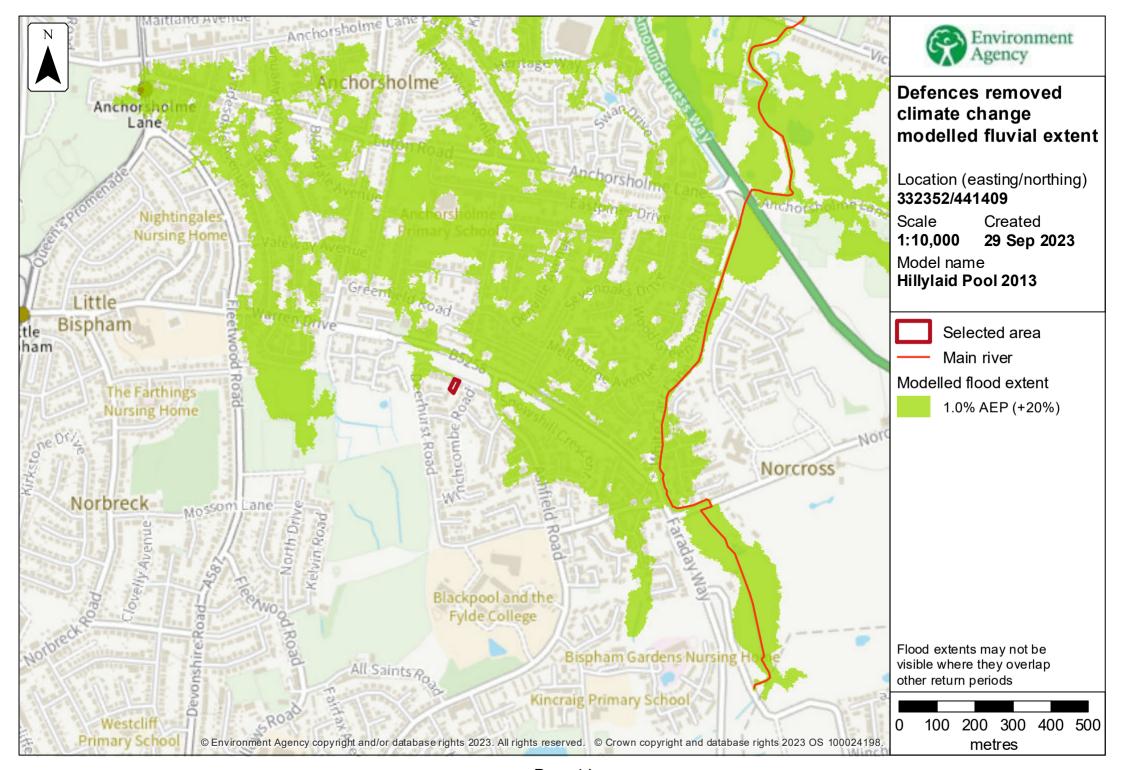
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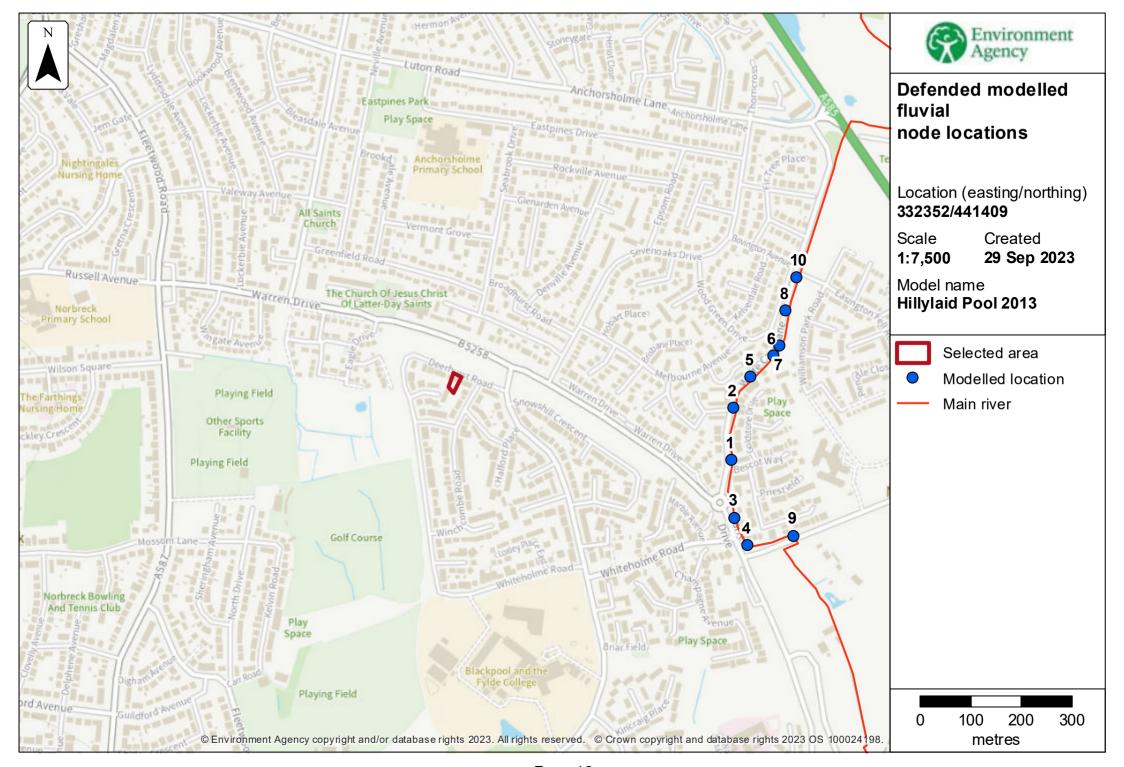
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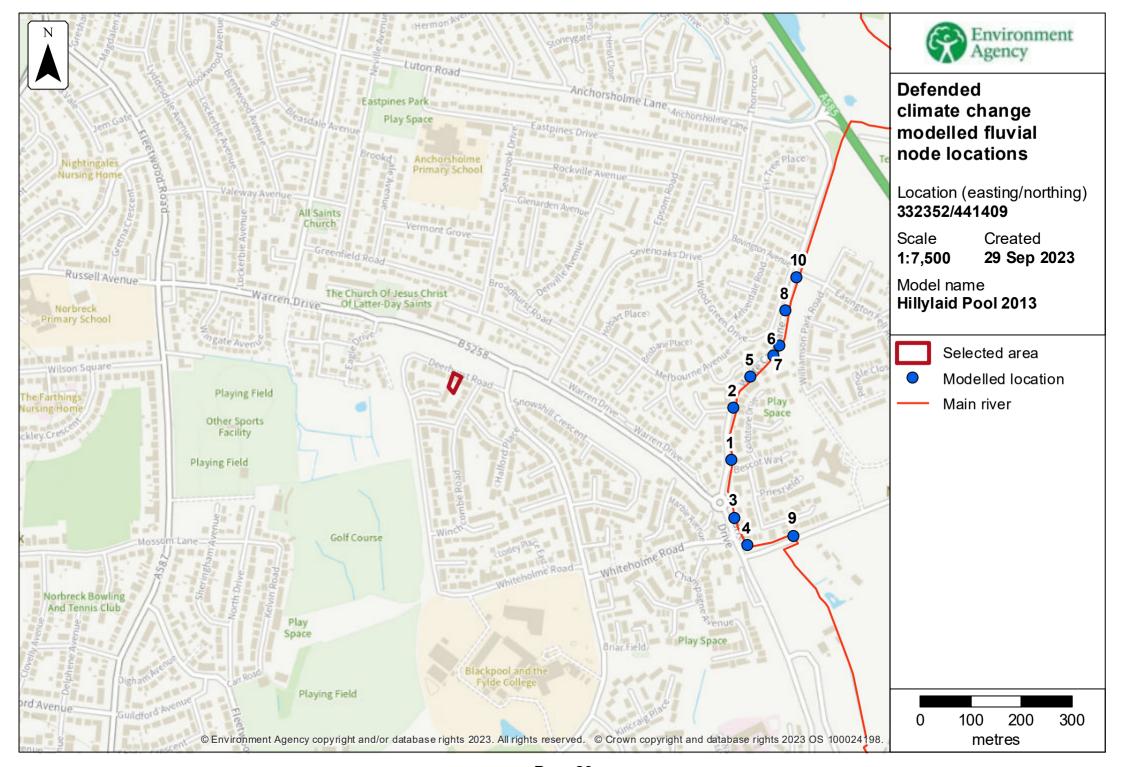
Defended

Label	Modelled location ID	Easting	Northing	5% AEF	•	2% AEF	•	1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	992784	332901	441256	4.47	0.53	4.50	0.43	4.53	0.29	4.55	0.35	4.57	0.37	4.73	0.50
2	992854	332905	441358	4.46	0.61	4.49	0.60	4.51	0.62	4.53	0.66	4.55	0.75	4.66	1.0
3	992805	332908	441141	4.48	1.28	4.50	1.47	4.53	1.56	4.54	1.68	4.56	1.96	4.65	2.85
4	992809	332932	441086	4.48	1.84	4.51	2.27	4.53	2.49	4.54	2.68	4.57	3.14	4.65	4.70
5	992812	332938	441420	4.46	0.73	4.49	0.70	4.51	0.72	4.52	0.75	4.55	0.69	4.65	0.81
6	992926	332984	441461	4.46	0.80	4.49	0.76	4.51	0.78	4.52	0.68	4.55	0.72	4.65	0.74
7	992945	332997	441482	4.46	0.80	4.50	0.76	4.53	0.78	4.54	0.68	4.57	0.72	4.65	0.74
8	992862	333009	441552	4.46	0.83	4.50	0.82	4.52	0.84	4.53	0.87	4.56	0.82	4.64	0.91
9	992847	333024	441106	4.50	0.71	4.52	0.74	4.55	0.74	4.56	0.75	4.60	0.78	4.70	0.83
10	992820	333029	441617	4.47	1.0	4.51	1.04	4.54	1.03	4.56	1.10	4.59	1.14	4.64	1.23

Data in this table comes from the Hillylaid Pool 2013 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.

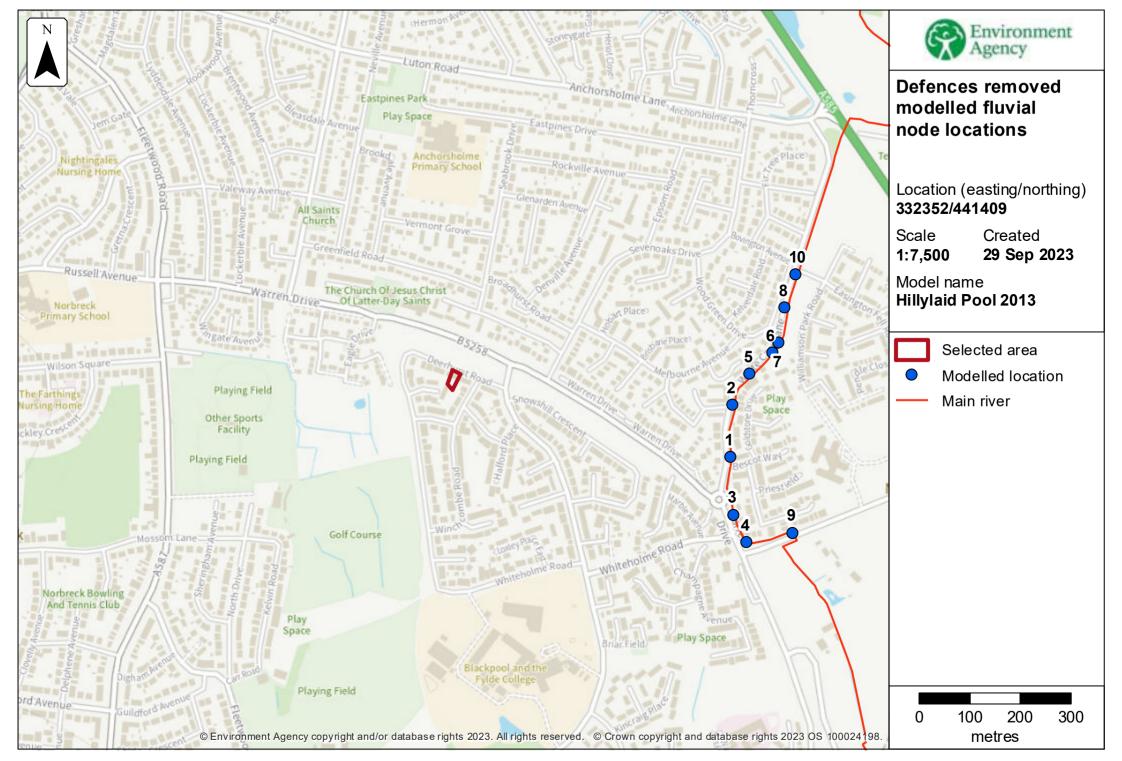


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Defended climate change

Label	Modelled location ID	Easting	Northing	1.0% AEP (+20%)		
				Level	Flow	
1	992784	332901	441256	4.57	0.40	
2	992854	332905	441358	4.55	0.73	
3	992805	332908	441141	4.57	2.02	
4	992809	332932	441086	4.57	3.23	
5	992812	332938	441420	4.55	0.70	
6	992926	332984	441461	4.55	0.37	
7	992945	332997	441482	4.57	0.36	
8	992862	333009	441552	4.57	0.82	
9	992847	333024	441106	4.60	0.78	
10	992820	333029	441617	4.60	1.14	

Data in this table comes from the Hillylaid Pool 2013 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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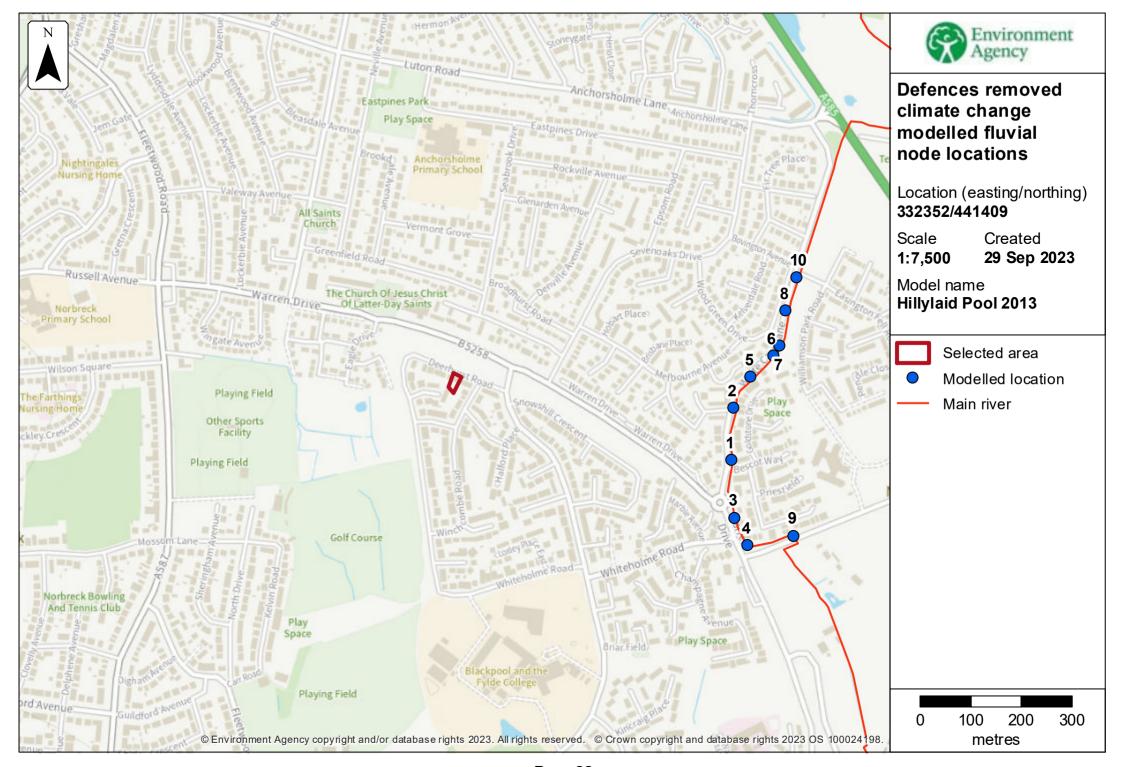
Defences removed

Label	Modelled location ID	Easting	Northing	5% AEF	•	2% AEF	•	1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	992784	332901	441256	4.47	0.30	4.50	0.25	4.52	0.36	4.53	0.36	4.56	0.38	4.76	0.53
2	992854	332905	441358	4.47	0.53	4.50	0.52	4.51	0.57	4.53	0.58	4.55	0.70	4.66	0.97
3	992805	332908	441141	4.48	1.26	4.51	1.43	4.53	1.56	4.54	1.66	4.57	1.96	4.66	2.91
4	992809	332932	441086	4.49	1.84	4.51	2.27	4.53	2.48	4.54	2.67	4.57	3.13	4.66	4.78
5	992812	332938	441420	4.47	0.68	4.50	0.62	4.51	0.68	4.53	0.67	4.55	0.60	4.64	0.71
6	992926	332984	441461	4.47	0.76	4.50	0.70	4.51	0.41	4.53	0.33	4.55	0.36	4.64	0.54
7	992945	332997	441482	4.48	0.76	4.50	0.70	4.53	0.41	4.55	0.33	4.60	0.36	4.77	0.54
8	992862	333009	441552	4.48	0.79	4.50	0.74	4.54	0.79	4.55	0.77	4.57	0.72	4.70	1.22
9	992847	333024	441106	4.50	0.72	4.53	0.71	4.55	0.73	4.56	0.75	4.60	0.77	4.72	0.83
10	992820	333029	441617	4.50	1.01	4.50	1.08	4.57	1.09	4.57	1.10	4.62	1.14	4.73	1.22

Data in this table comes from the Hillylaid Pool 2013 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 climate change

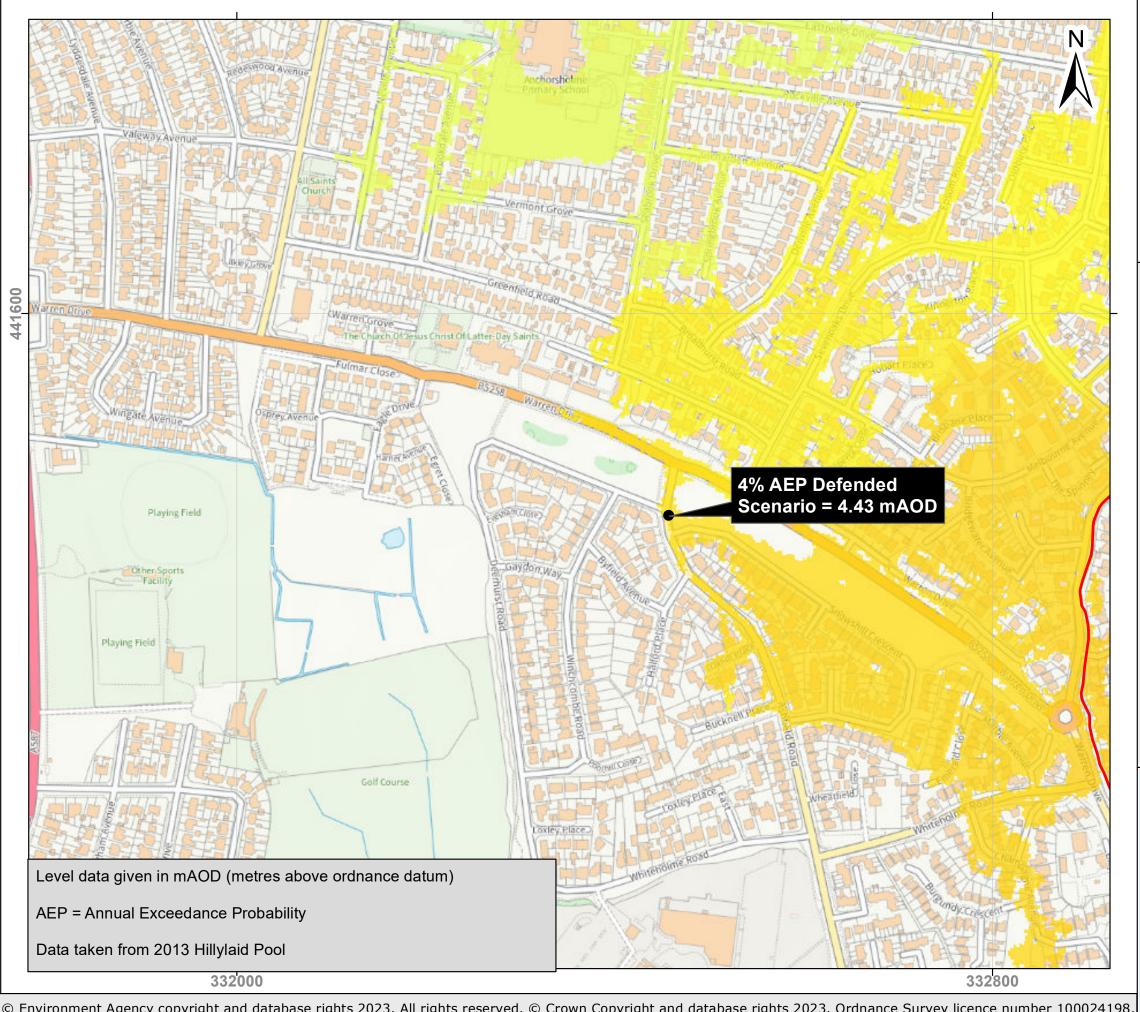
Label	Modelled location ID	Easting	Northing	1.0% AEP (+20%)		
				Level	Flow	
1	992784	332901	441256	4.56	0.40	
2	992854	332905	441358	4.56	0.70	
3	992805	332908	441141	4.57	2.0	
4	992809	332932	441086	4.57	3.21	
5	992812	332938	441420	4.56	0.69	
6	992926	332984	441461	4.56	0.37	
7	992945	332997	441482	4.60	0.36	
8	992862	333009	441552	4.58	0.80	
9	992847	333024	441106	4.60	0.78	
10	992820	333029	441617	4.64	1.15	

Data in this table comes from the Hillylaid Pool 2013 model.

Level values are shown in mAOD, and flow values are shown in cut

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.





Location (easting/northing) 332352/441409

Model Name Hillylaid Pool 2013 Created: 29/09/2023

Key

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**Statutory Main Rivers** 

#### 4% AEP Defended Scenario

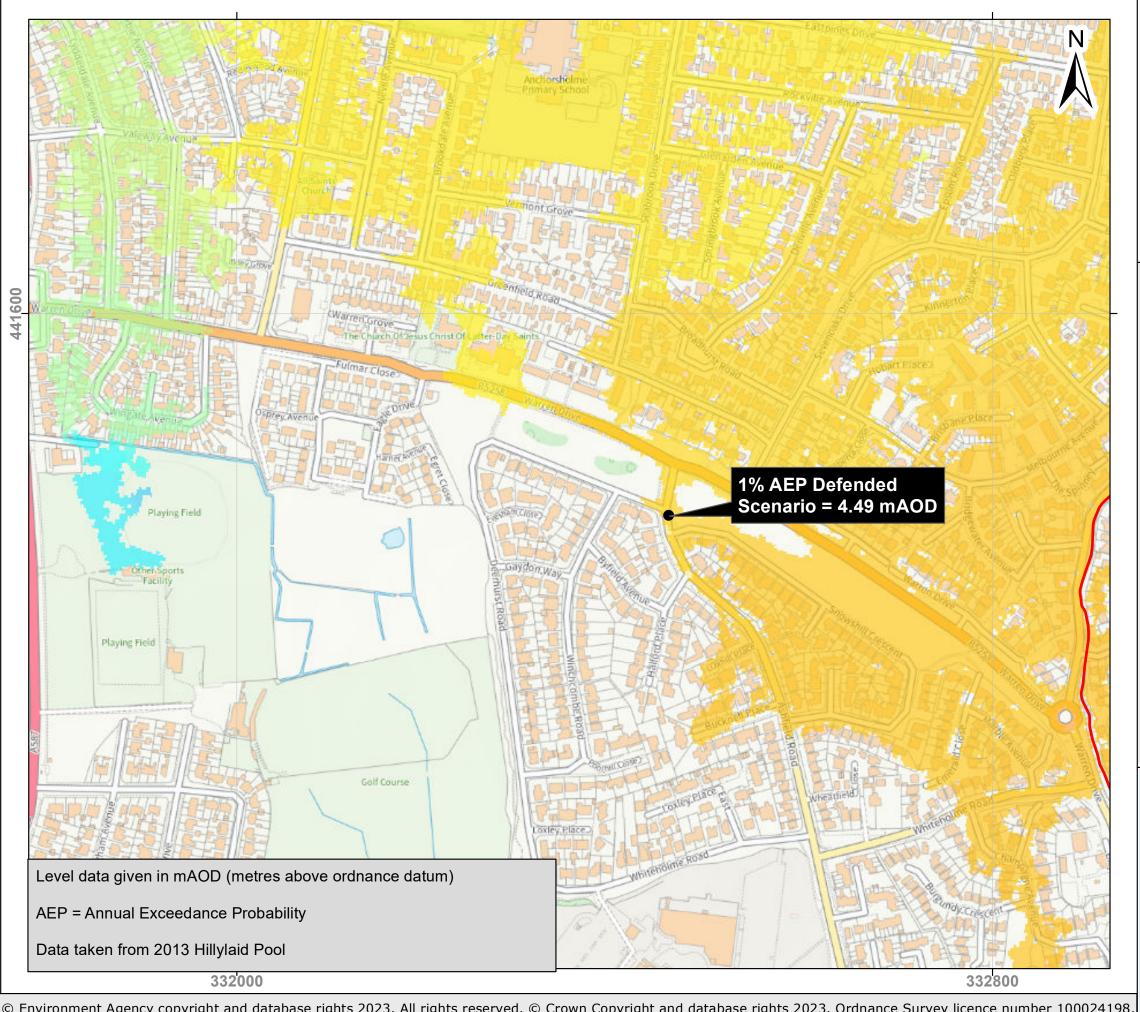
#### **mAOD**

High: 5



Low: 3







Location (easting/northing) 332352/441409

Model Name Hillylaid Pool 2013 Created: 29/09/2023

# Key

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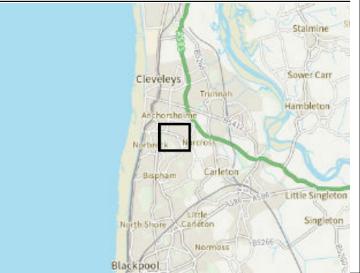
**Statutory Main Rivers** 

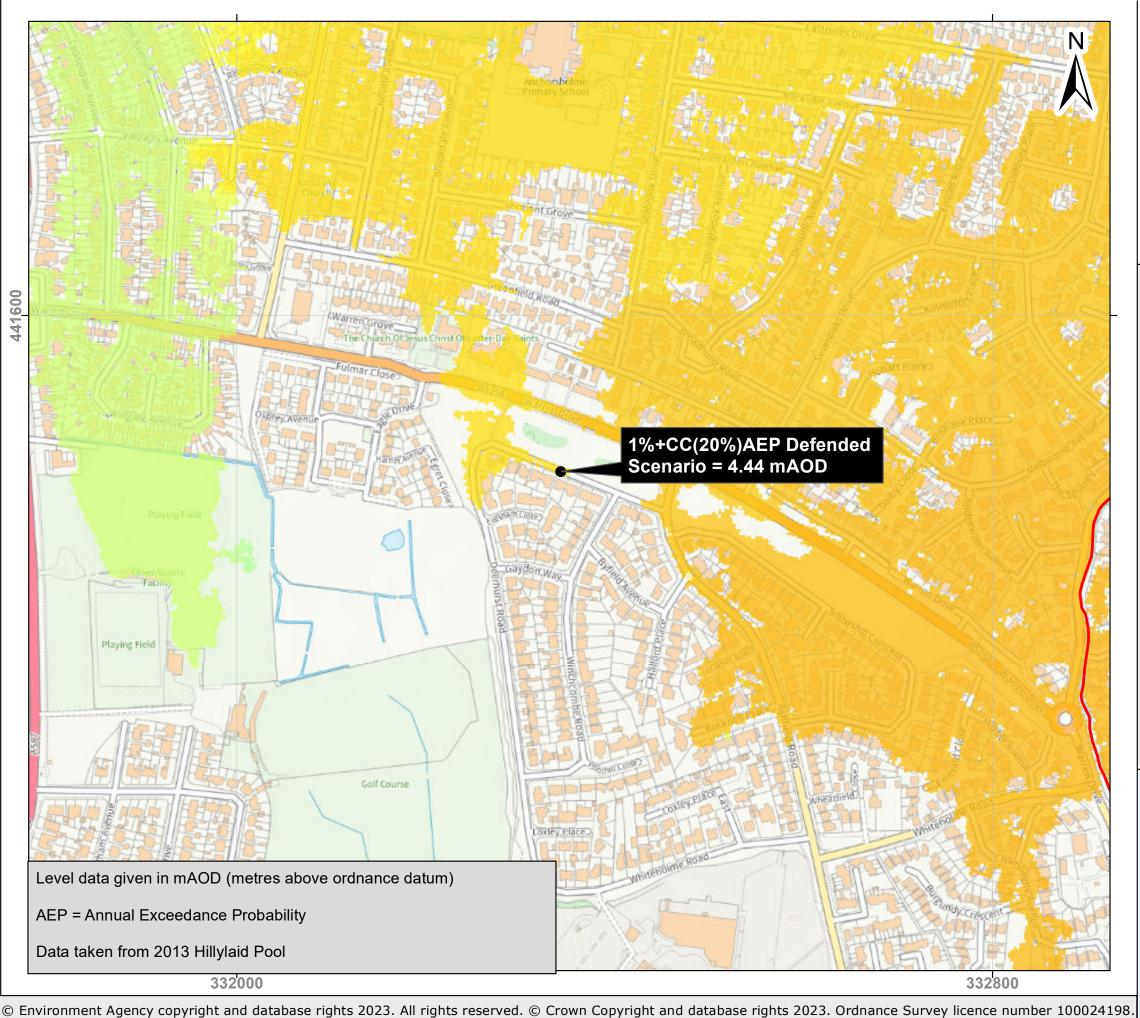
#### 1% AEP Defended Scenario

#### mAOD

High: 5

Low: 3







Location (easting/northing) 3322/441409

Model Name Hillylaid Pool 2013 Created: 29/09/2023

# Key

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Statutory Main Rivers

1%+Climate Change(+20%) AEP Defended

mAOD

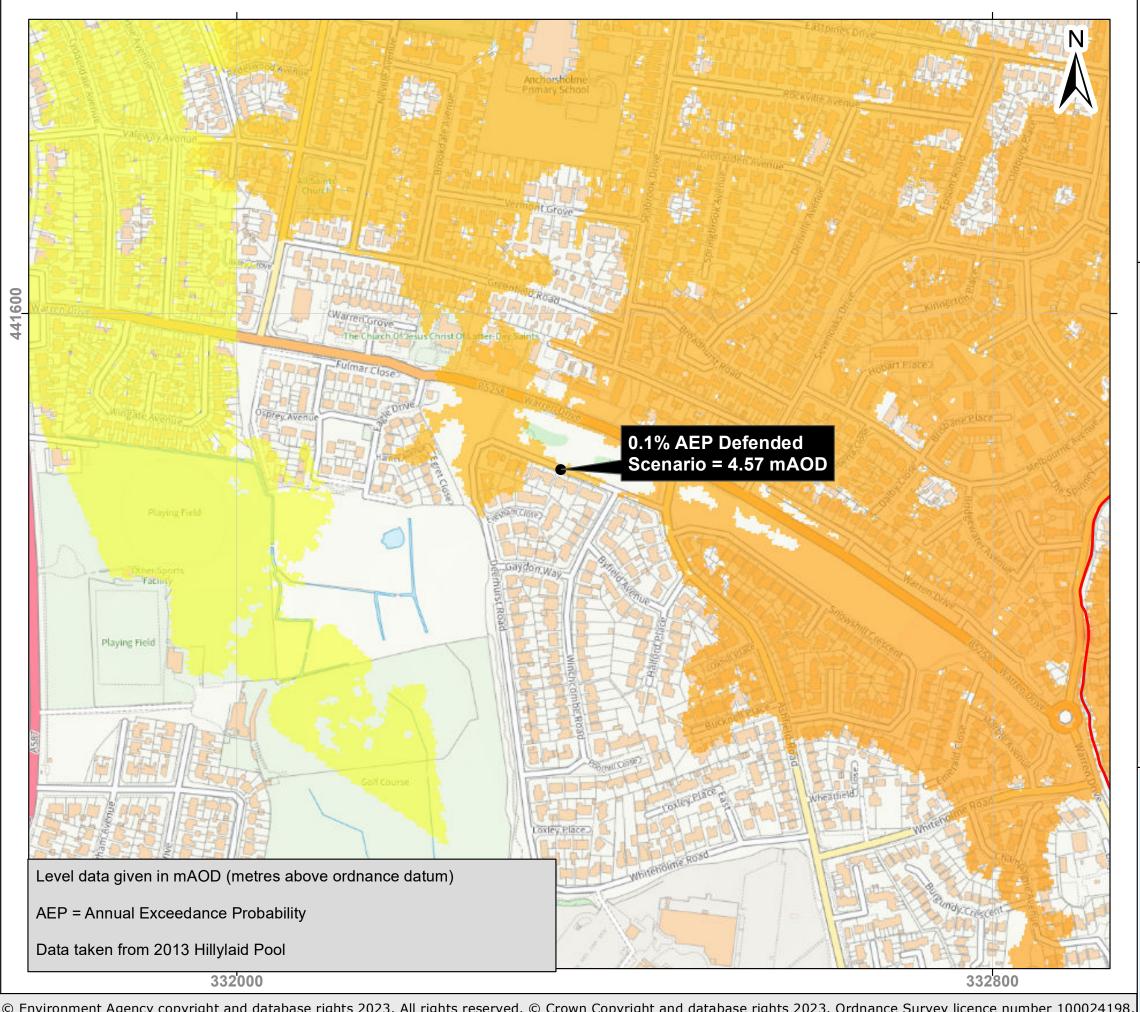
Н

High: 5



Low : 3







Location (easting/northing) 332352/441409

Model Name Hillylaid Pool 2013 Created: 29/09/2023



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Statutory Main Rivers

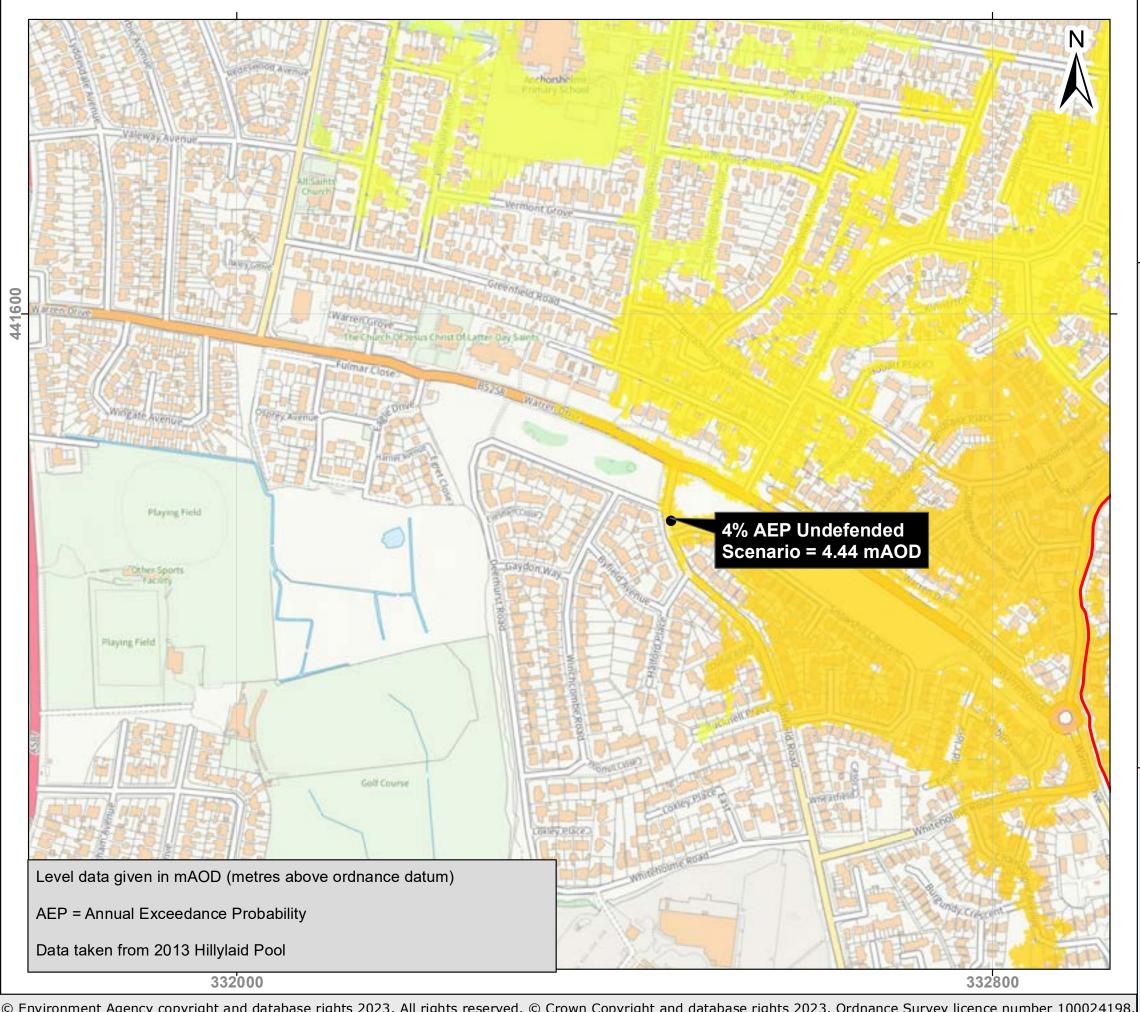
0.1% AEP Defended Scenario

mAOD

High: 5

Low: 3







Location (easting/northing) 332352/441409

Model Name Hillylaid Pool 2013 Created: 29/09/2023

Key

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Statutory Main Rivers

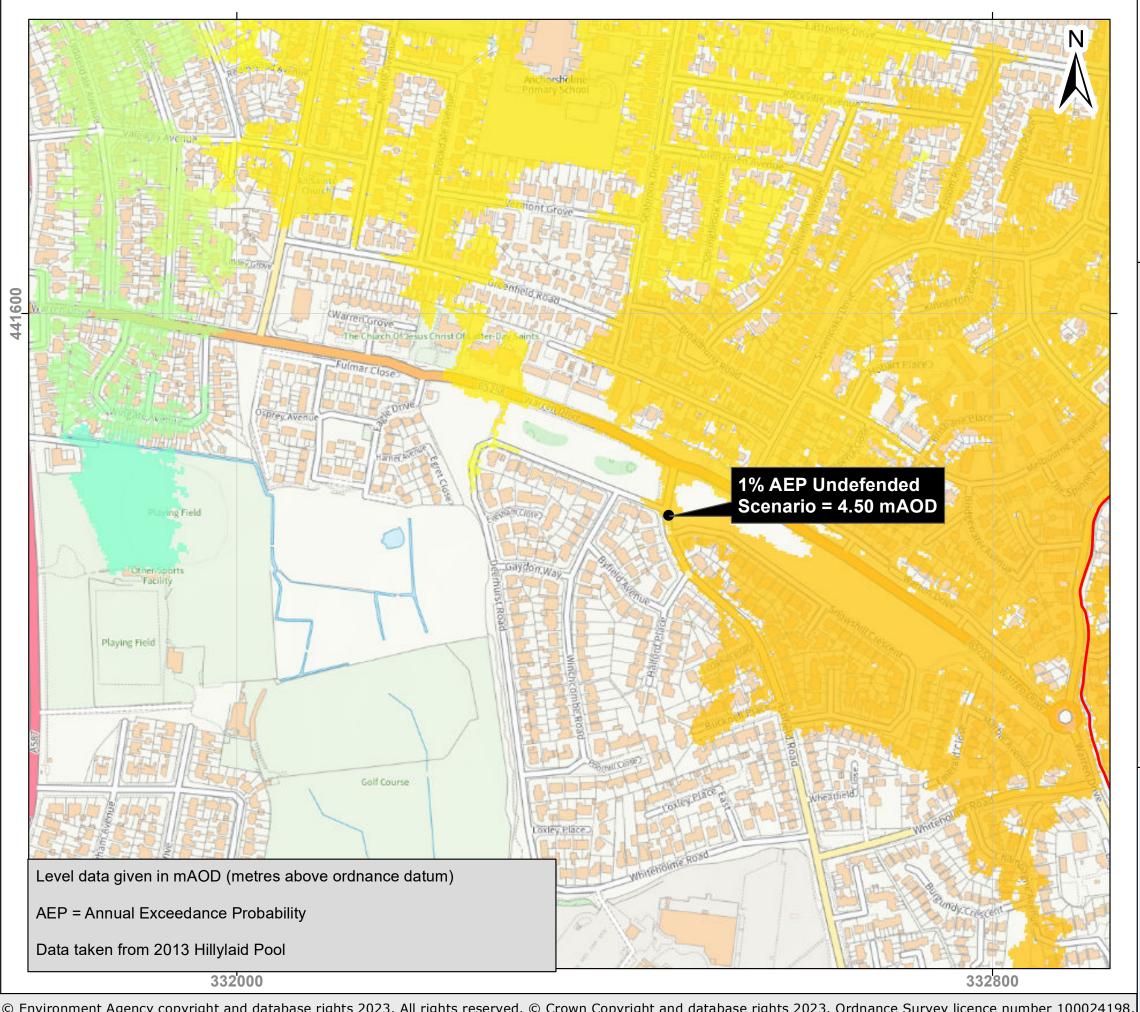
4% AEP Undefended Scenario

mAOD

High: 5

Low: 3







Location (easting/northing) 332352/441409

Model Name Hillylaid Pool 2013 Created: 29/09/2023

Key

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Statutory Main Rivers

1% AEP Undefended Scenario

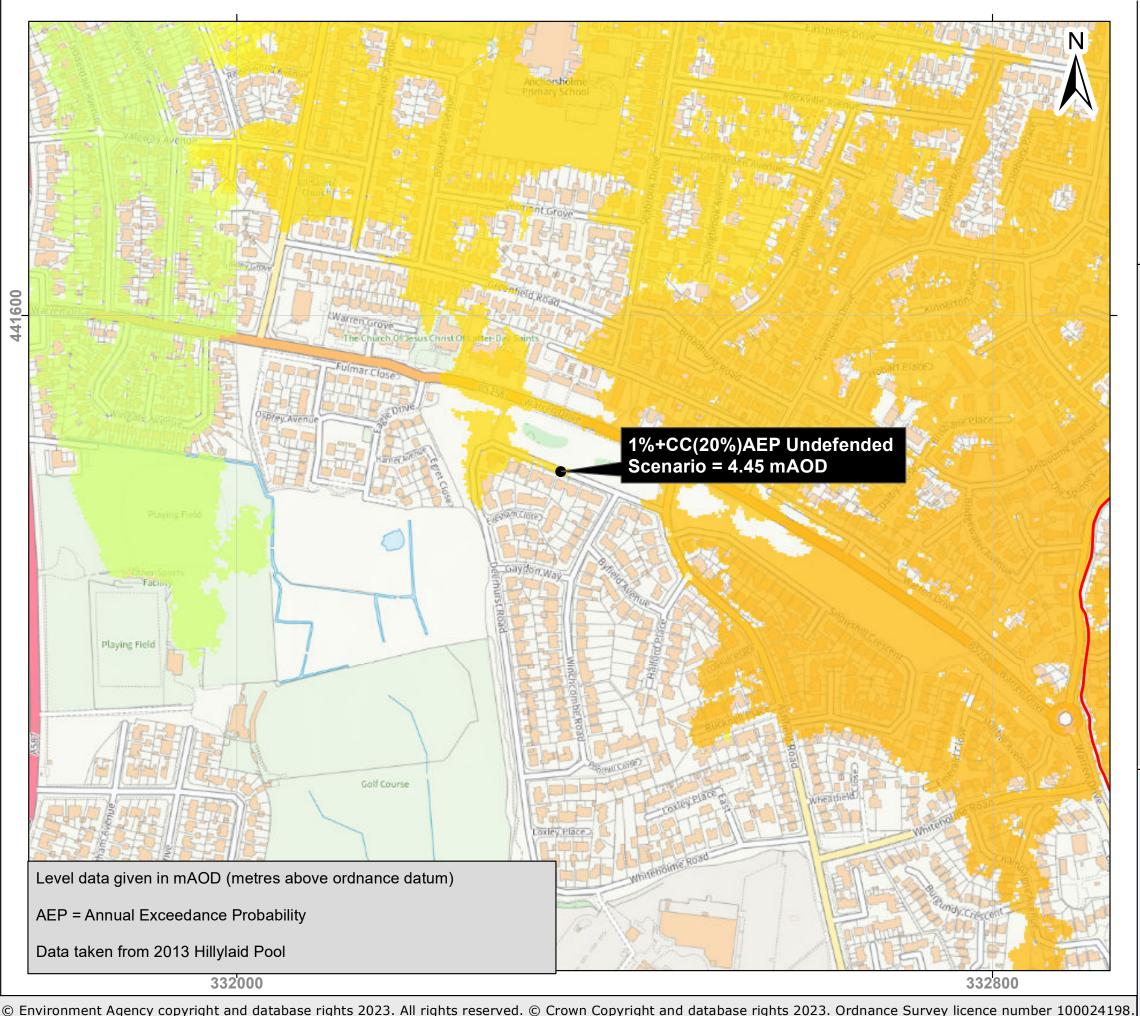
mAOD

High: 5



Low: 3







Location (easting/northing) 332352/441409

Model Name Hillylaid Pool 2013 Created: 29/09/2023

Key

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**Statutory Main Rivers** 

1%+Climate Change(+20%) AEP Undefended

mAOD

High: 5

Low: 3

Cleveleys Sower Carr

Trushah

Anchorsheime

North Shore

Carleton

North Shore

Cardeton

North Shore

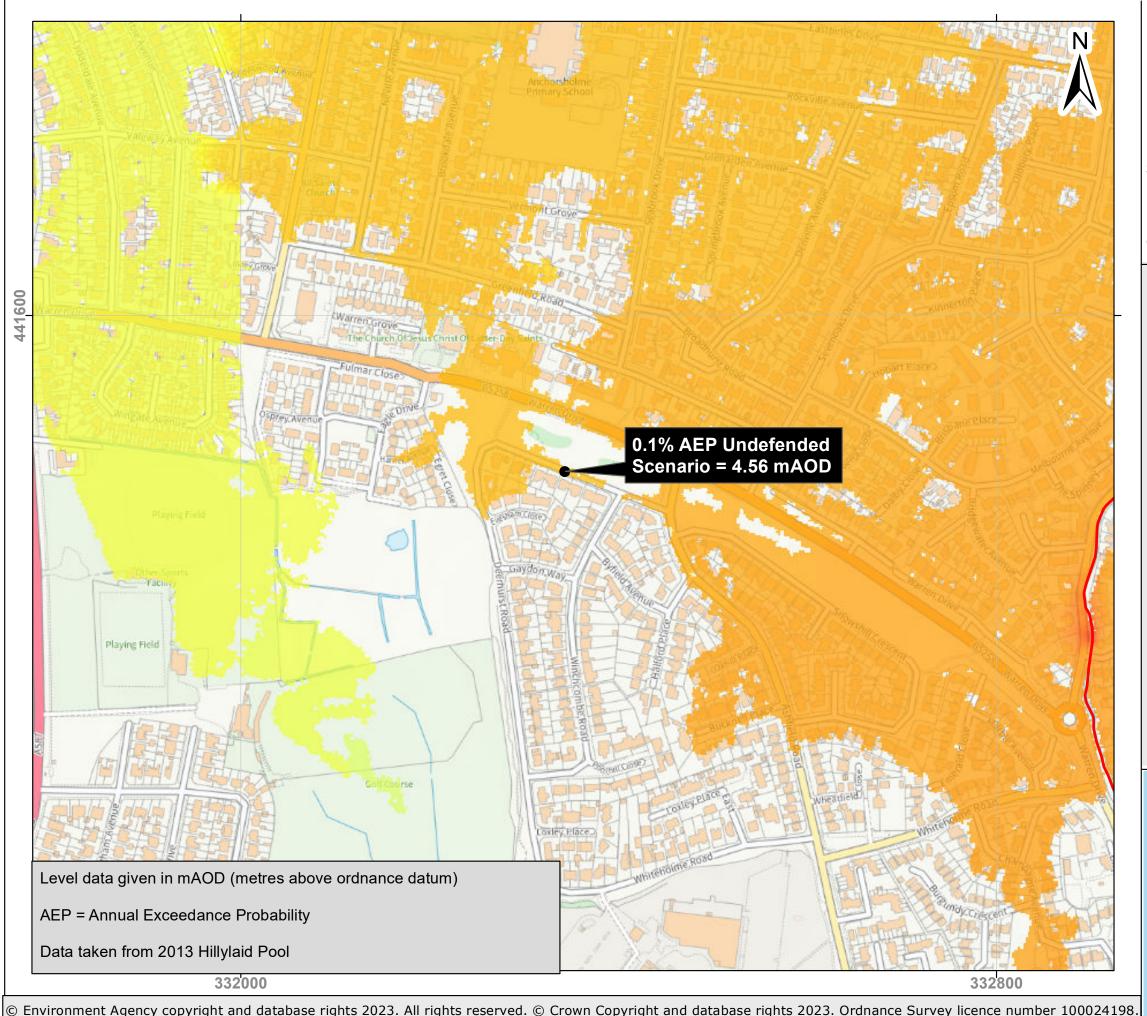
Cardeton

North Shore

Singleton

North Shore

Singleton





Location (easting/northing) 332352/441409

Model Name Hillylaid Pool 2013 Created: 29/09/2023

## Key

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**Statutory Main Rivers** 

## 0.1% AEP Undefended Scenario

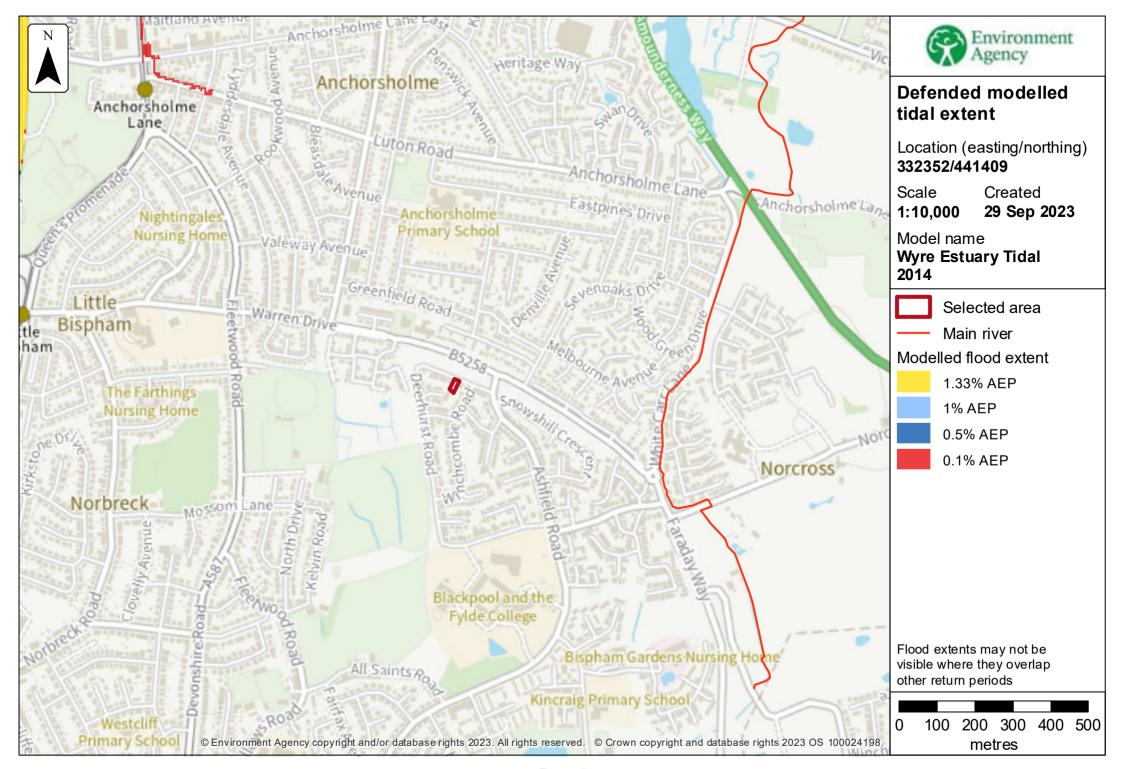
mAOD

High: 5

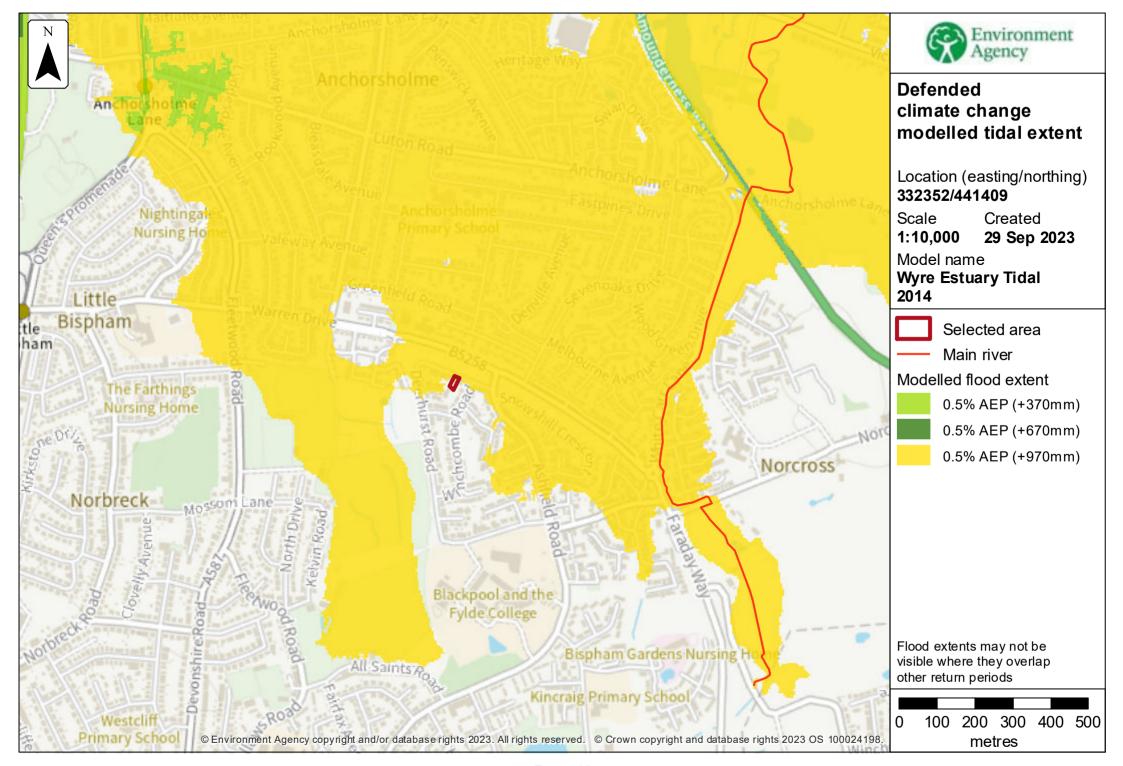


Low: 3

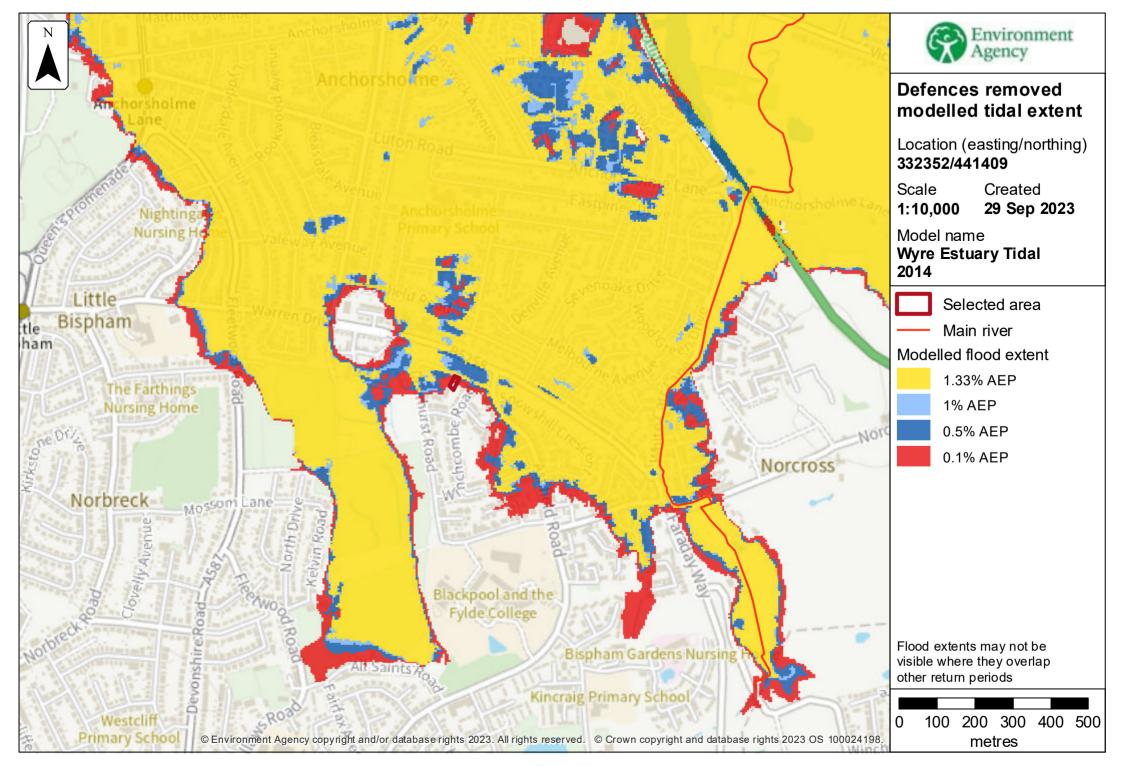




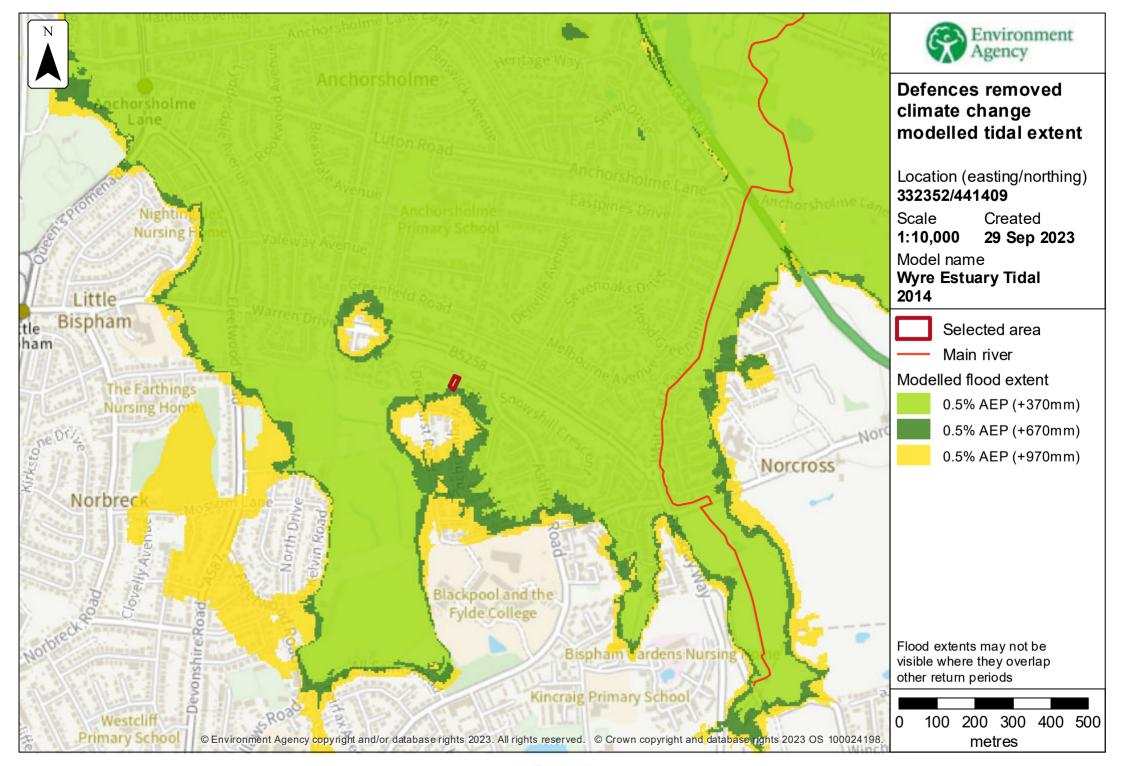
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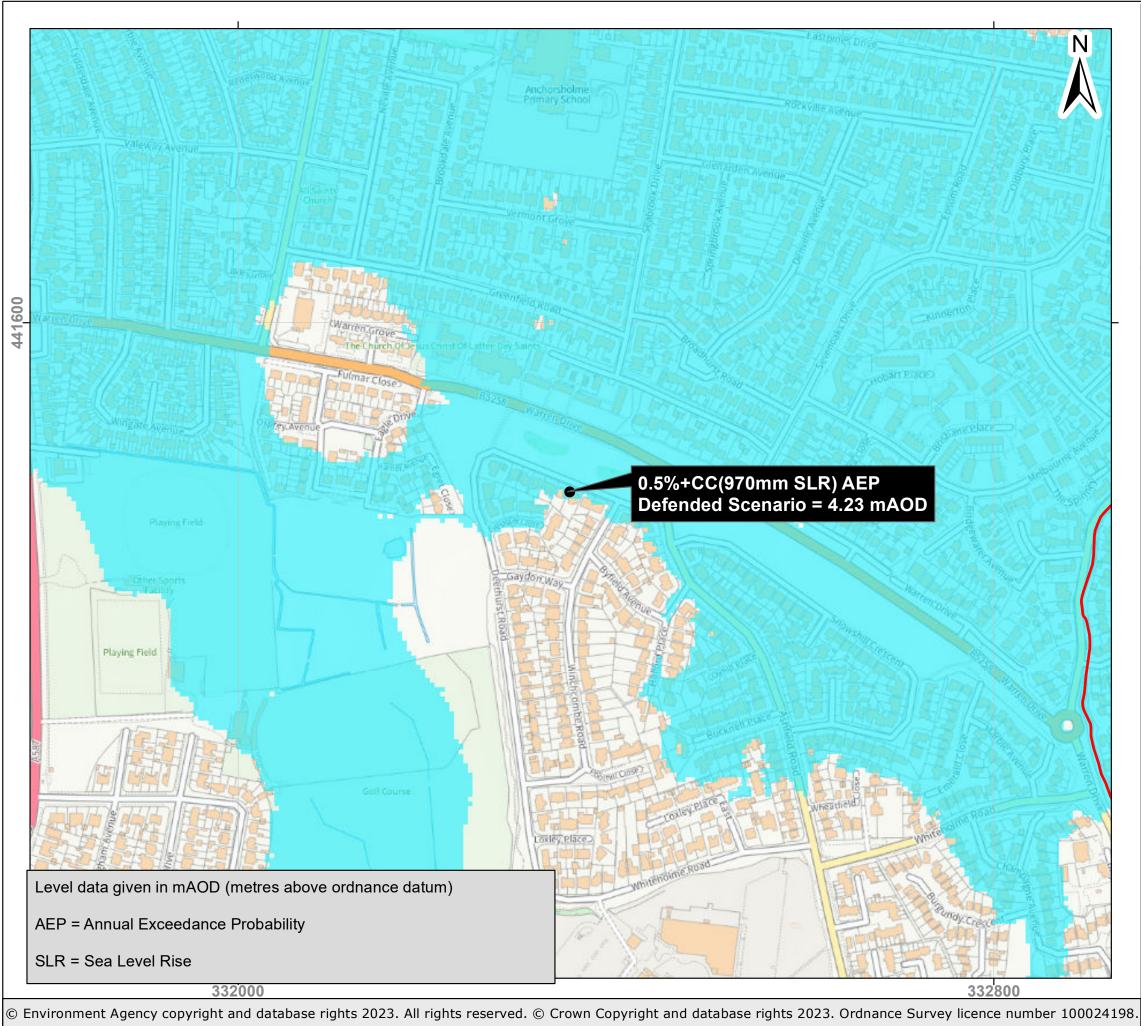
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**Location (easting/northing)** 332352/441409

**Model Name** Lancashire Tidal ABD 2014 Created: 29/09/2023

# Key

Statutory Main Rivers

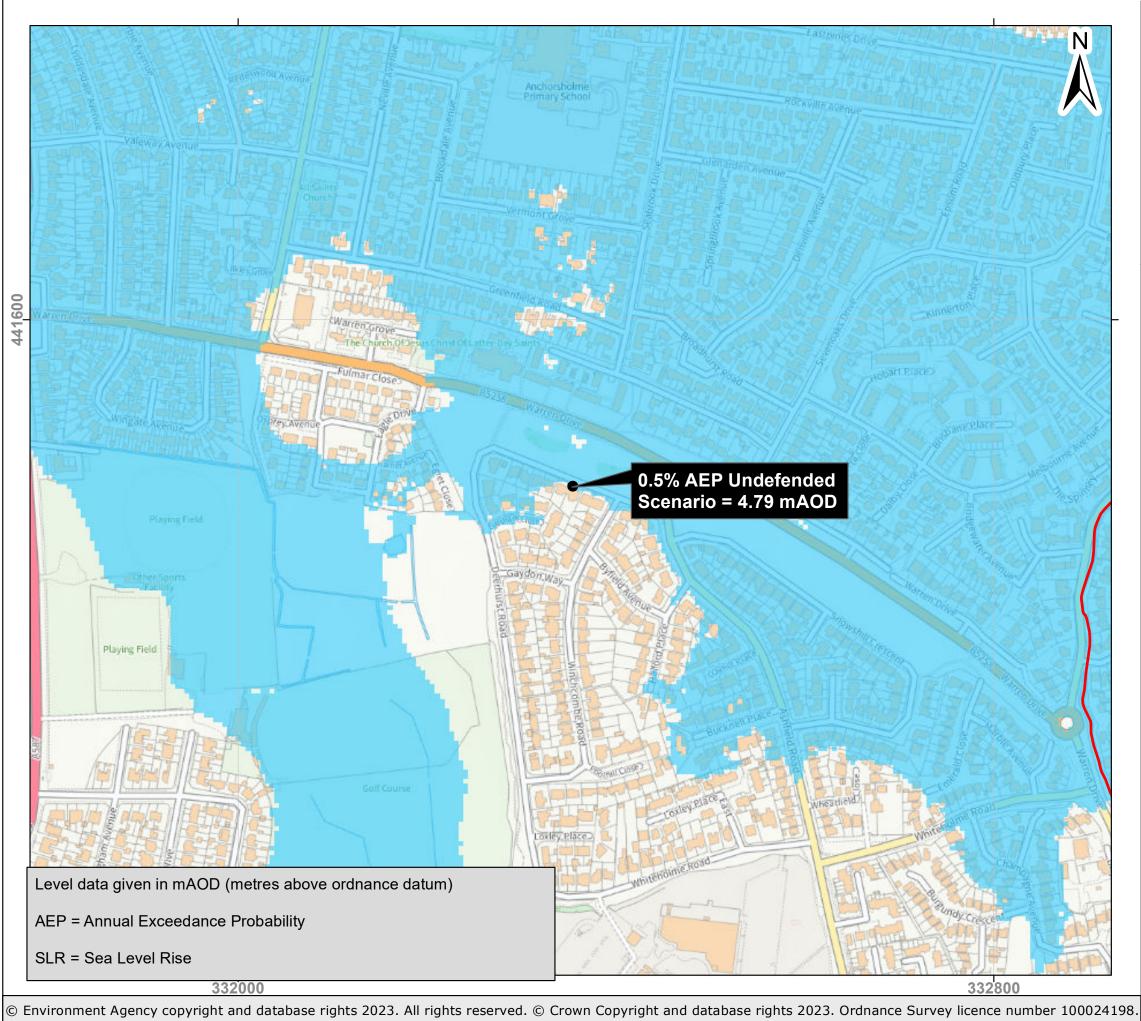
0.5%+Climate Change (970mm SLR) **Annual Exceedance Probability Defended Scenario** 

#### mAOD



High: 7

Low:4





**Location (easting/northing)** 332352/441409

**Model Name** Lancashire Tidal ABD 2014 Created: 29/09/2023

Key

Statutory Main Rivers

# 0.5% Annual Exceedance Probability **Undefended Scenario**

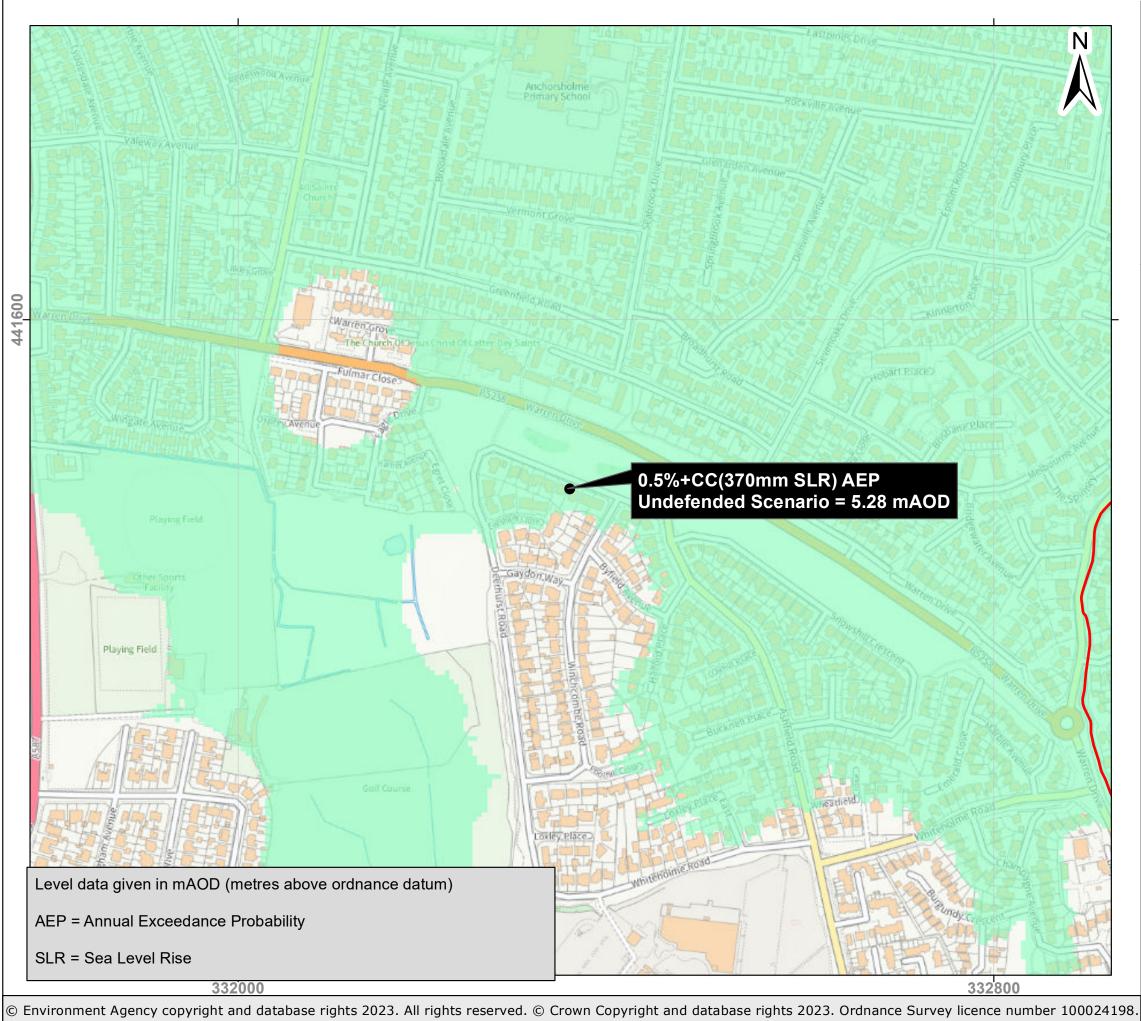
mAOD



High: 7

Low: 4

Singleton





**Location (easting/northing)** 332352/441409

**Model Name** Lancashire Tidal ABD 2014 Created: 29/09/2023

# Key

Statutory Main Rivers

0.5%+Climate Change (370mm SLR) **Annual Exceedance Probability Undefended Scenario** 

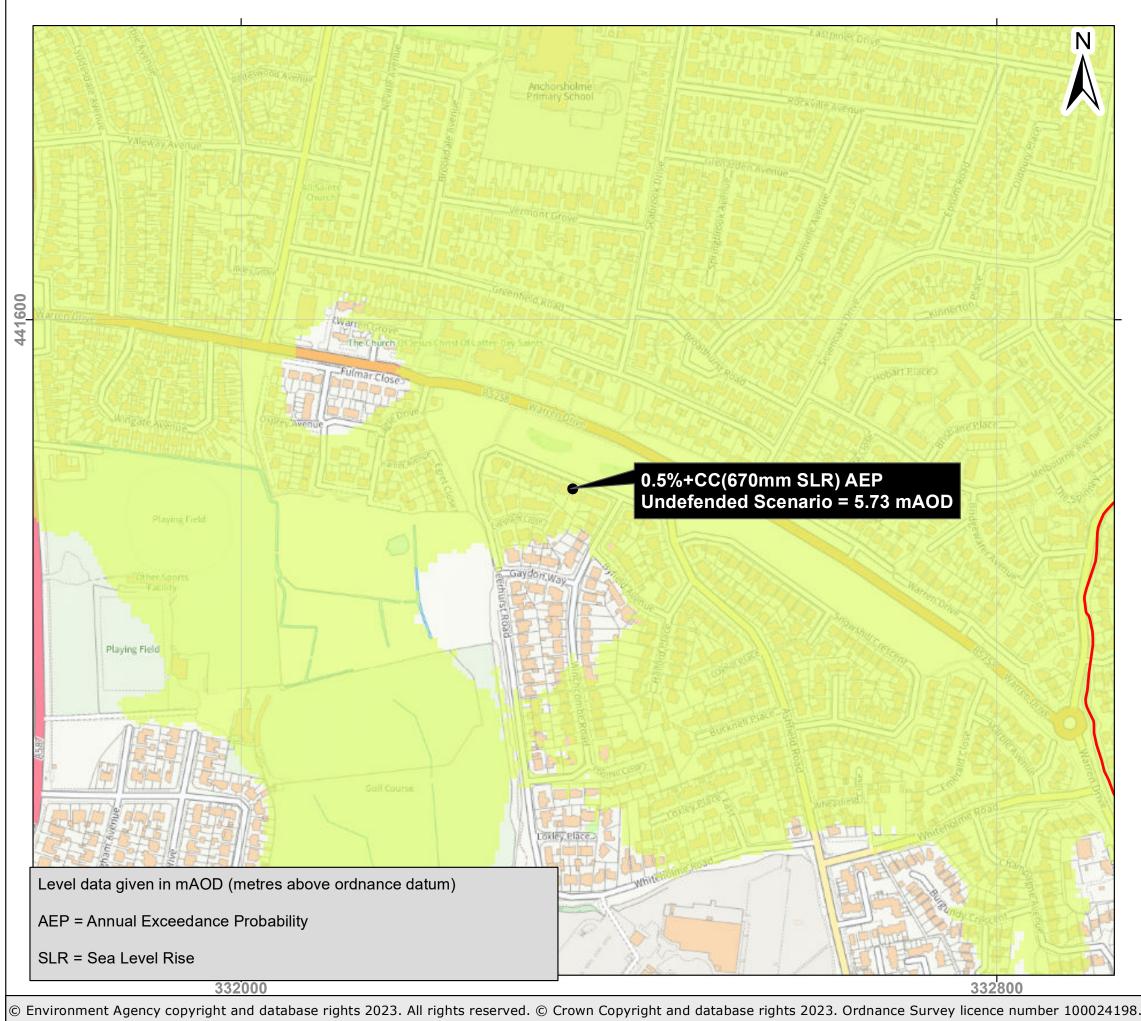
#### mAOD



High: 7

Low:4

Singleton





**Location (easting/northing)** 332352/441409

**Model Name** Lancashire Tidal ABD 2014 Created: 29/09/2023

# Key

Statutory Main Rivers

0.5%+Climate Change (670mm SLR) **Annual Exceedance Probability Undefended Scenario** 

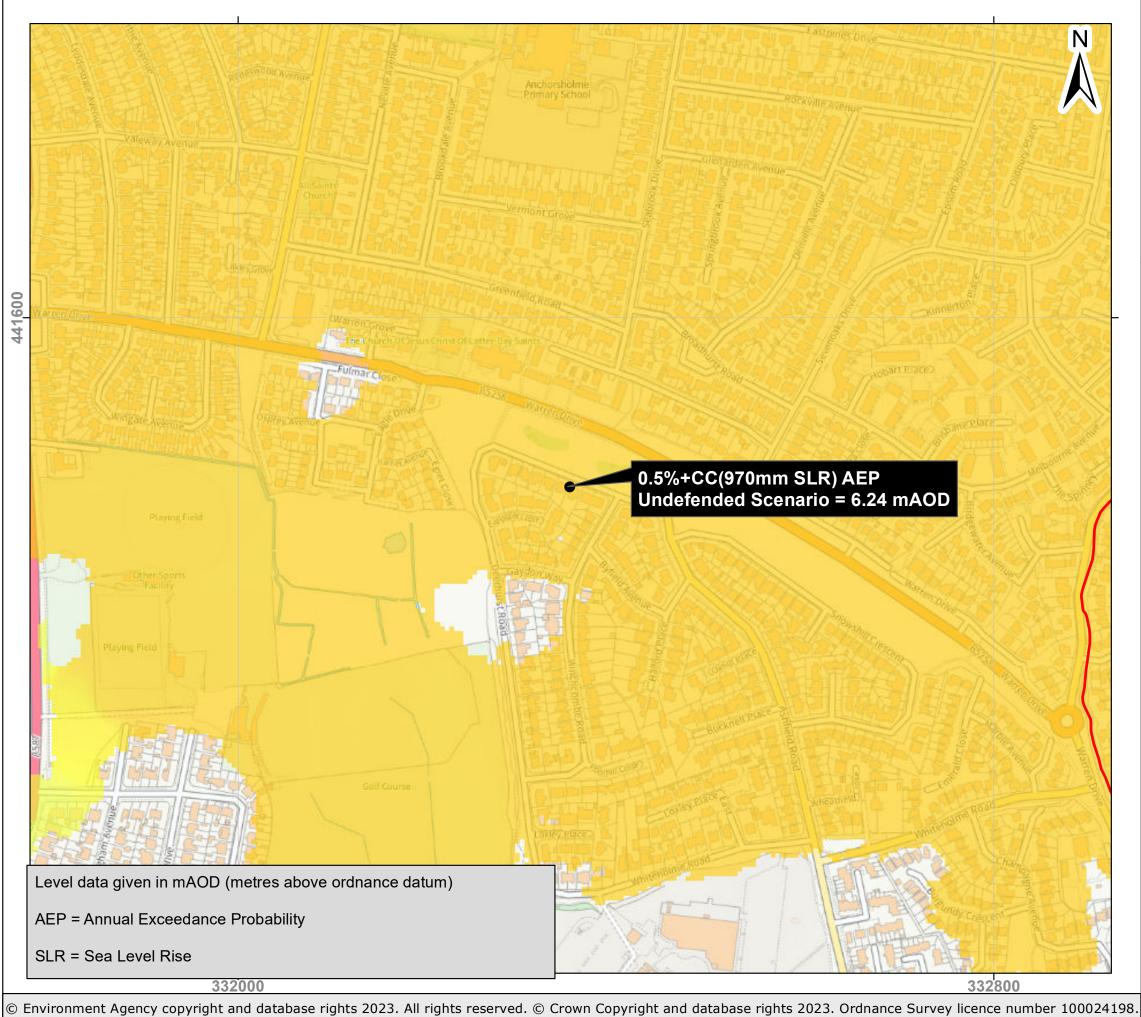
#### mAOD



High: 7

Low: 4

Singleton





Location (easting/northing) 332352/441409

Model Name Lancashire Tidal ABD 2014 Created: 29/09/2023

# Key

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Statutory Main Rivers

0.5%+Climate Change (970mm SLR)
Annual Exceedance Probability
Undefended Scenario

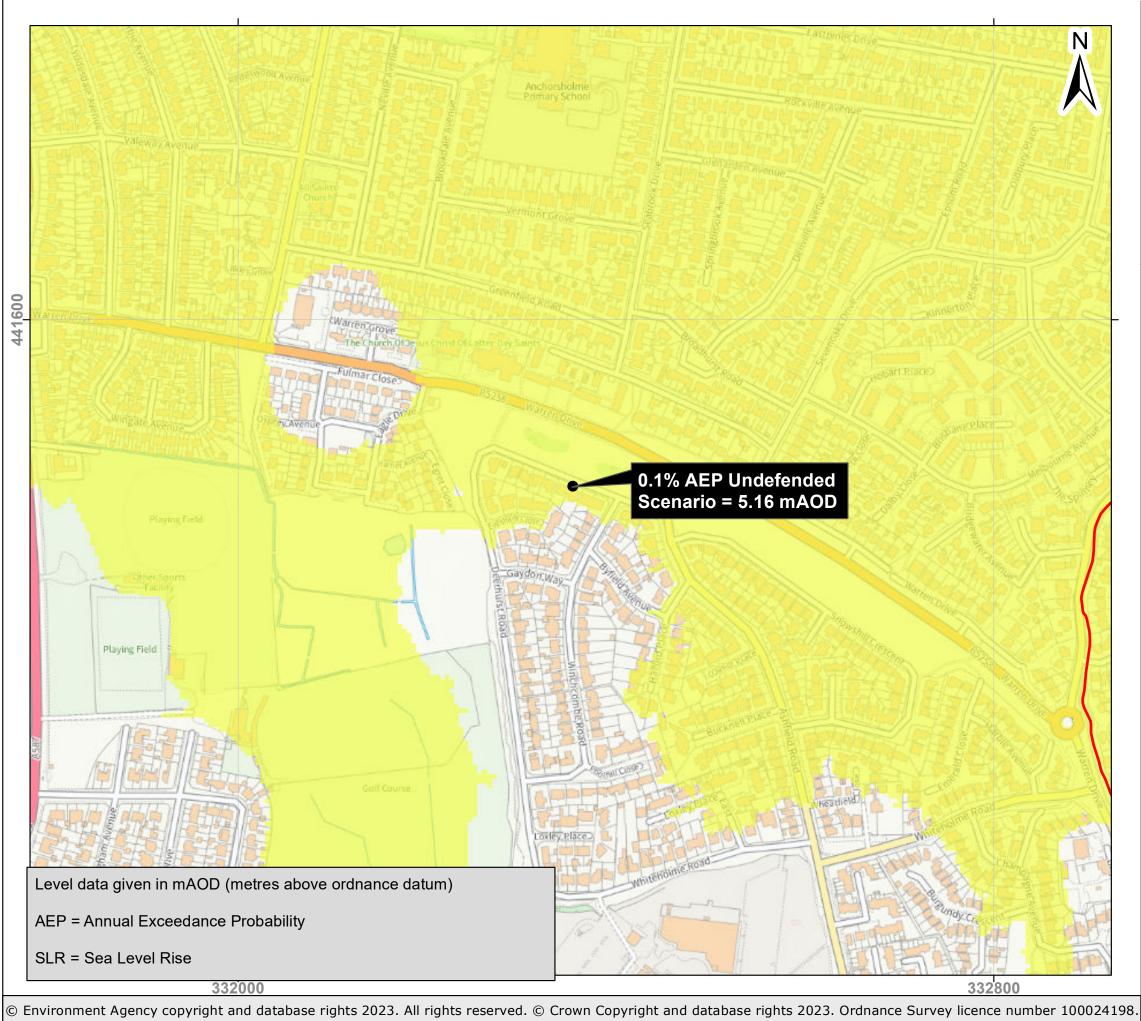
mAOD



High: 7

Low: 4

Cleveleys Sower Carr
Themah
Anchorshome
North Shore Carleton





Location (easting/northing) 332352/441409

Model Name Lancashire Tidal ABD 2014 Created: 29/09/2023

Key

Statutory Main Rivers

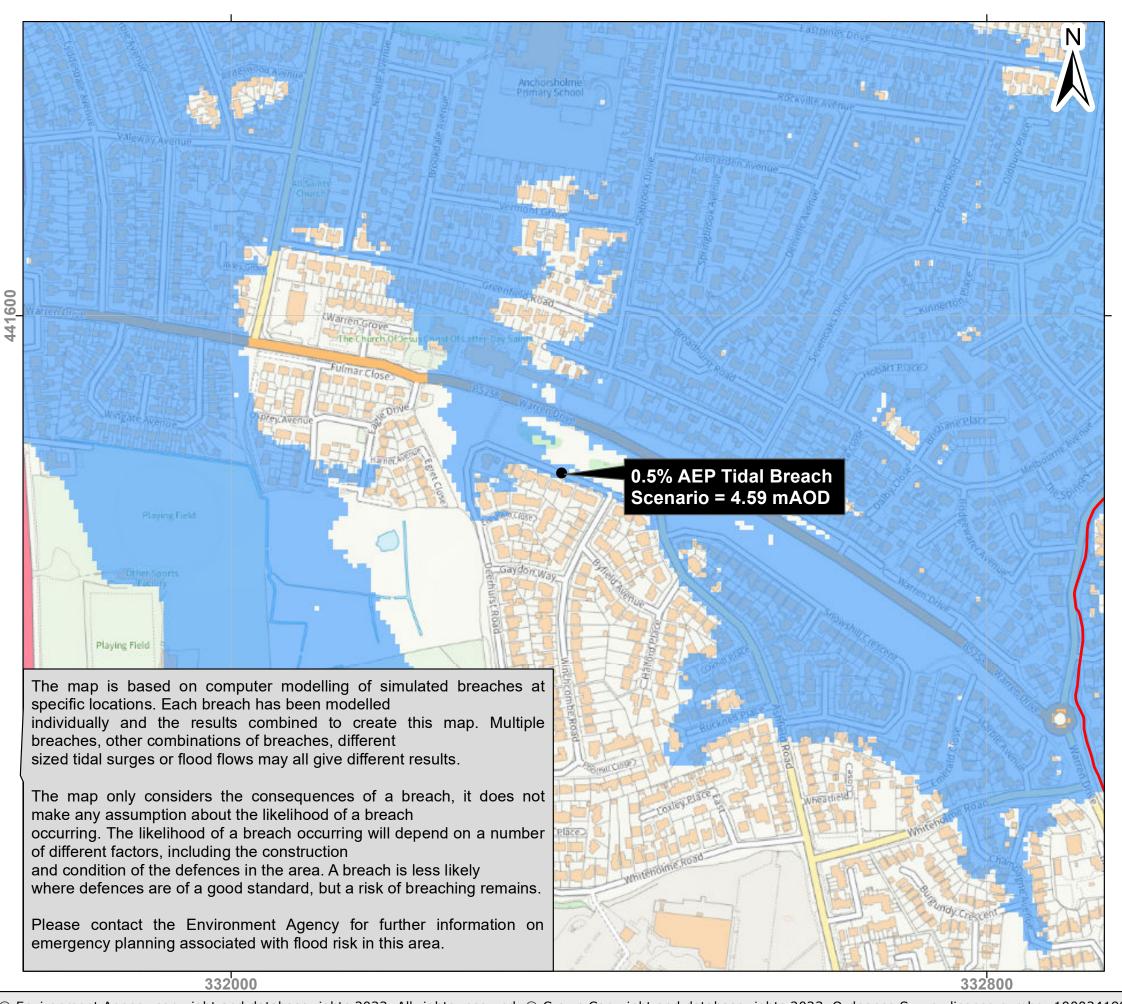
0.1% Annual Exceedance Probability **Undefended Scenario**

mAOD



High: 7

Low: 2





Location (easting/northing) 332352/441409

Model Name Lancashire Tidal ABD 2014 Created: 29/09/2023

Key

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Statutory Main Rivers

0.5% Annual Exceedance Probability Tidal Breach Scenario 2

mAOD



High: 7

Low:4

Cleveleys Sower Carr

Thirmah

Anchorsholme

North Shore

Carleton

North Shore

Singleton

North Shore

Singleton

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