

Appendix C Environment Agency's Data and Information

Product 4 (Detailed Flood Risk) for 16, 18 & 20 High Street, Maidenhead, Berkshire SL6 1PZ Our Ref: THM344630

Product 4 is designed for developers where Flood Risk Standing Advice FRA (Flood Risk Assessment) Guidance Note 3 Applies. This is:

- i) "all applications in Flood Zone 3, other than non-domestic extensions less than 250 sq metres; and all domestic extensions", and
- ii) "all applications with a site area greater than 1 ha" in Flood Zone 2.

Product 4 includes the following information:

Ordnance Survey 1:25k colour raster base mapping;
Flood Zone 2 and Flood Zone 3;
Relevant model node locations and unique identifiers (for cross referencing to the water levels, depths and flows table);
Model extents showing *defended* scenarios;
FRA site boundary (where a suitable GIS layer is supplied);
Flood defence locations (where available/relevant) and unique identifiers; (supplied separately)
Flood Map flood storage areas (where available/relevant);
Historic flood events outlines (where available/relevant, not the Historic Flood Map) and unique identifiers;

Statutory (Sealed) Main River (where available within map extents);

A table showing:

- i) Model node X/Y coordinate locations, unique identifiers, and levels and flows for *defended* scenarios.
- ii) Flood defence locations unique identifiers and attributes; (supplied separately)
- iii) Historic flood events outlines unique identifiers and attributes; and
- iv) Local flood history data (where available/relevant).

Please note:

If you will be carrying out computer modelling as part of your Flood Risk Assessment, please request our guidance which sets out the requirements and best practice for computer river modelling.

This information is based on that currently available as of the date of this letter. You may feel it is appropriate to contact our office at regular intervals, to check whether any amendments/ improvements have been made. Should you re-contact us after a period of time, please quote the above reference in order to help us deal with your query.

This information is provided subject to the enclosed notice which you should read.

This letter is not a Flood Risk Assessment. The information supplied can be used to form part of your Flood Risk Assessment. Further advice and guidance regarding Flood Risk Assessments can be found on our website at:

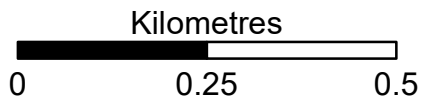
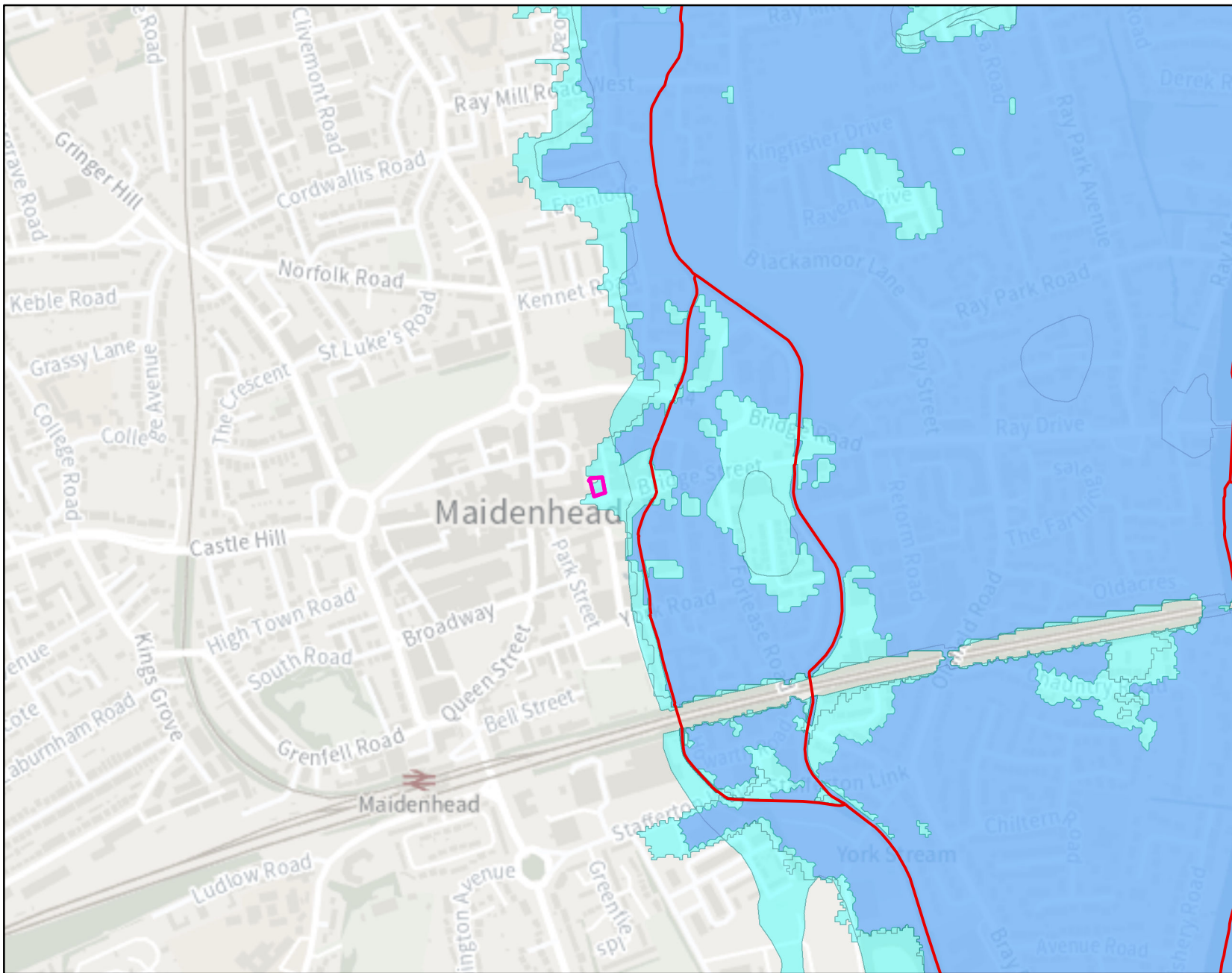
<https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities>

If you would like advice from us regarding your development proposals you can complete our pre application enquiry form which can be found at:

<https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

Detailed Flood map for planning centred on 16, 18 & 20 High Street, Maidenhead

Created on 06/02/2024 REF: THM344630



Legend

- Main River
- Site
- Flood Map - Flood defences
- Flood Map - Flood Storage Areas
- Flooding from rivers or sea (FZ3)
- Extent of extreme flood (FZ2)

Flooding from rivers or sea without defences (Flood Zone 3) shows the area that could be affected by flooding:
- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

The Extent of an extreme flood (Flood Zone 2) shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

Defence information

Defence Location: No defences on Main River

Description: This location is not currently protected by any formal defences and we do not currently have any flood alleviation works planned for the area. However we continue to maintain certain watercourses and the schedule of these can be found on our internet pages.

Model information

THM344630

Model: **Thames (Bourne End to Datchet) 2019**

Description: The information provided is taken from the Lower River Thames Modelling Study which was completed in December 2019. The model was developed using ISIS-TUFLOW. The flood-frequency behaviour of the Lower Thames is assessed in this project using the multitude of river flow and level records that are available, concentrating mostly on the flow record at the Kingston/Teddington gauge site. Flow records are also available at other gauging sites along the modelled section of the River Thames.

This model has been partially superseded by the Thames (Hurley to Bourne End) 2020 and Thames (Datchet to Teddington) 2023 models.

This model includes the Jubilee River (part of the Maidenhead, Windsor and Eton Flood Alleviation Scheme). The design capacity for the Jubilee River is limited to approximately 180m³/s and is designed to remain in-bank irrespective of any increase in flows in the River Thames. Where appropriate this will need to be considered when assessing flood risk.

The modelling looks at the interactions between the River Thames and its tributaries. Along the Thames between Bourne End and Datchet, the Cut has additionally model results and these will need to be assessed to ensure the correct site-specific values are being used at this location.

Throughout the majority of the catchment, the model has replicated the flow and level variations observed from gauges during flood events with a high degree of accuracy (± 150 mm), however at some sites this was not possible across the whole event. This reflects local variations rather than a fundamental issue with the model (e.g., Bray, Romney and Penton Hook Lock).

Model design runs and mapped outputs: 1 in 2 / 50% Annual Exceedance Probability (AEP); 1 in 5 / 20% AEP; 1 in 10; 10% AEP; 1 in 20 / 5% AEP; 1 in 30 / 3.3% AEP; 1 in 40 / 2.5% AEP; 1 in 50 / 2% AEP; 1 in 75% / 1.33% AEP; 1 in 100 / 1% AEP; 1 in 100+15% / 1% AEP plus 15%; 1 in 100+25% / 1% AEP plus 25%; 1 in 100+35% / 1% AEP plus 35%; 1 in 100+70% / 1% AEP plus 70%; 1 in 200 / 0.5% AEP; 1 in 1000 / 0.1% AEP

Model accuracy: Levels ± 150 mm

Modelled in-channel flood flows and levels

THM344630

The modelled flood levels and flows for the closest most appropriate model node points for your site that are within the river channel are provided below:

Node label	Model	Easting	Northing	Flood Levels (mAOD)											
				20% AEP	5% AEP	3.3% AEP	1% AEP	1% AEP (+10% increase in flows)	1% AEP (+15% increase in flows)	1% AEP (+20% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP	
061_26_2018_YOR307U	Thames (Bourne End to Datchet) 2019	489100	181035	21.92	22.05	22.17	23.26		23.81		23.95	24.08	24.37	24.23	
061_26_2018_YOR308D	Thames (Bourne End to Datchet) 2019	489078	181151	22.15	22.17	22.26	23.41		23.93		24.04	24.14	24.41	24.28	
061_26_2018_YOR309D	Thames (Bourne End to Datchet) 2019	489112	181237	22.27	22.29	22.37	23.51		24.10		24.21	24.31	24.53	24.43	
061_26_2018_YOR309U	Thames (Bourne End to Datchet) 2019	489100	181287	22.27	22.29	22.38	23.54		24.22		24.36	24.48	24.71	24.61	
061_26_2018_YOR310D	Thames (Bourne End to Datchet) 2019	489116	181334	22.31	22.33	22.42	23.59		24.31		24.46	24.57	24.79	24.70	

Node label	Model	Easting	Northing	Flood Flows (m3/s)											
				20% AEP	5% AEP	3.3% AEP	1% AEP	1% AEP (+10% increase in flows)	1% AEP (+15% increase in flows)	1% AEP (+20% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP	
061_26_2018_YOR307U	Thames (Bourne End to Datchet) 2019	489100	181035	1.04	1.10	1.30	5.22		8.38		8.26	8.20	8.72	8.23	
061_26_2018_YOR308D	Thames (Bourne End to Datchet) 2019	489078	181151	1.05	1.10	1.30	5.22		9.18		9.15	9.07	9.35	9.09	
061_26_2018_YOR309D	Thames (Bourne End to Datchet) 2019	489112	181237	1.07	1.10	1.30	5.22		10.77		12.25	13.03	13.54	13.54	
061_26_2018_YOR309U	Thames (Bourne End to Datchet) 2019	489100	181287	1.08	1.10	1.30	5.22		10.77		12.25	13.03	13.54	13.54	
061_26_2018_YOR310D	Thames (Bourne End to Datchet) 2019	489116	181334	1.08	1.10	1.30	5.22		10.60		11.37	11.41	11.41	11.38	

Note:

Due to changes in guidance on the allowances for climate change, the percentage increase in river flows above should no longer to be used for development design purposes. The data included in this Product can be used for interpolation of levels as part of an intermediate level assessment.

For further advice on the new allowances please visit <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.

Modelled floodplain flood levels

THM344630

The modelled flood levels for the closest most appropriate model grid cells for your site are provided below:

2D grid cell reference	Model	Easting	Northing	flood levels (mAOD)										
				20% AEP	5% AEP	3.3 AEP	1% AEP	1% AEP (+10% increase in flows)	1% AEP (+15% increase in flows)	1% AEP (+20% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP
Floodplain 1	Thames (Bourne End to Datchet) 2019	489,047	181,278	No Data	No Data	No Data	No Data		No Data		24.46	24.55	24.75	24.66
Floodplain 2	Thames (Bourne End to Datchet) 2019	489,039	181,225	No Data	No Data	No Data	No Data		No Data		No Data	No Data	24.65	24.57

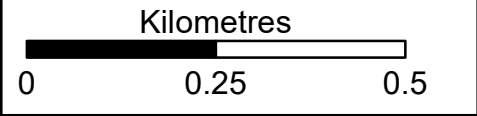
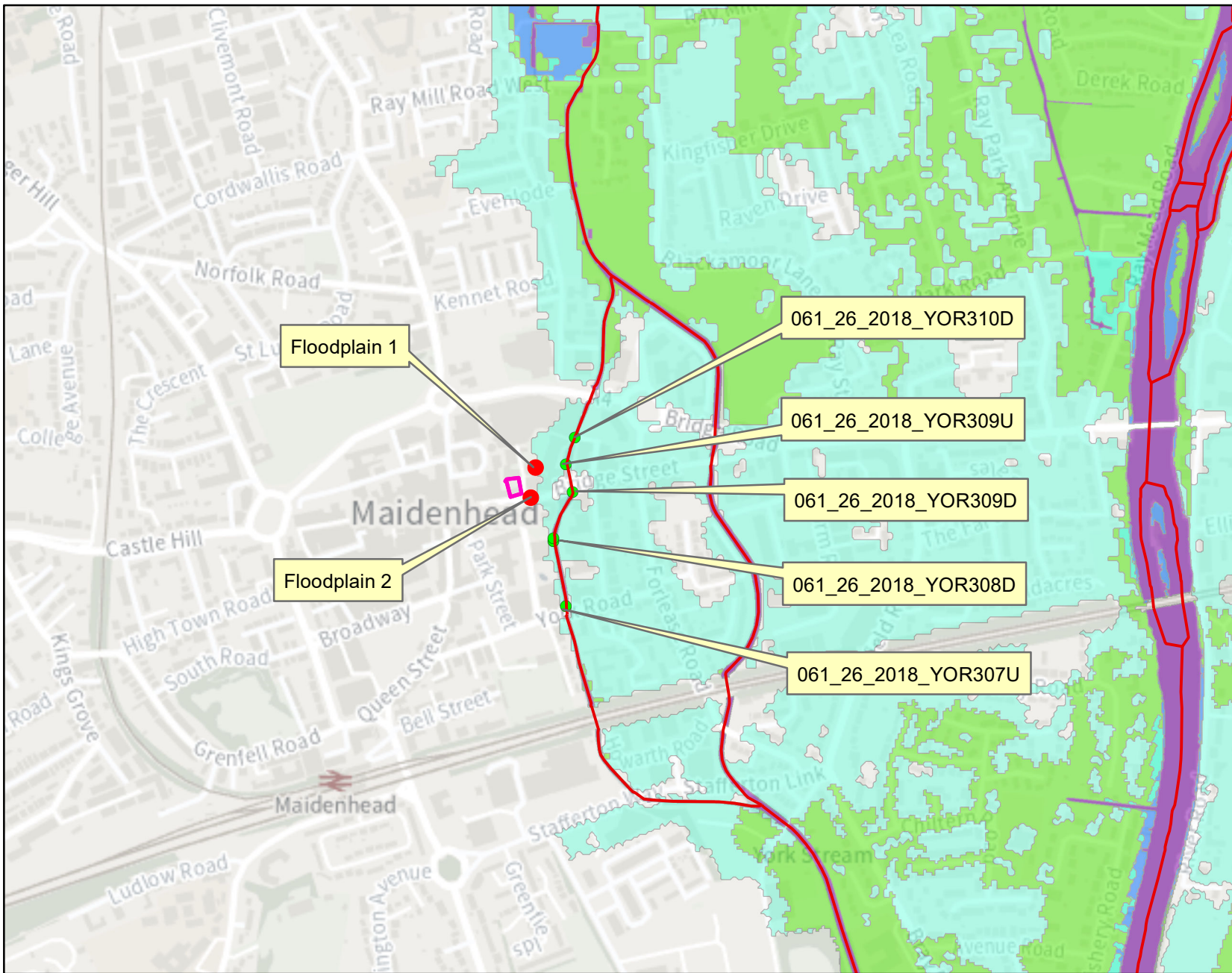
This flood model has represented the floodplain as a grid.
The flood water levels have been calculated for each grid cell.

Note:
Due to changes in guidance on the allowances for climate change, the percentage increase in river flows above should no longer to be used for development design purposes. The data included in this Product can be used for interpolation of levels as part of an intermediate level assessment.

For further advice on the new allowances please visit
<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

Detailed FRA map centred on 16, 18 & 20 High Street, Maidenhead

Created on 06/02/2024 REF: THM344630



Legend

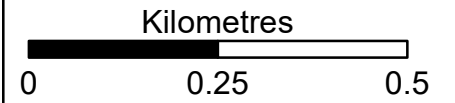
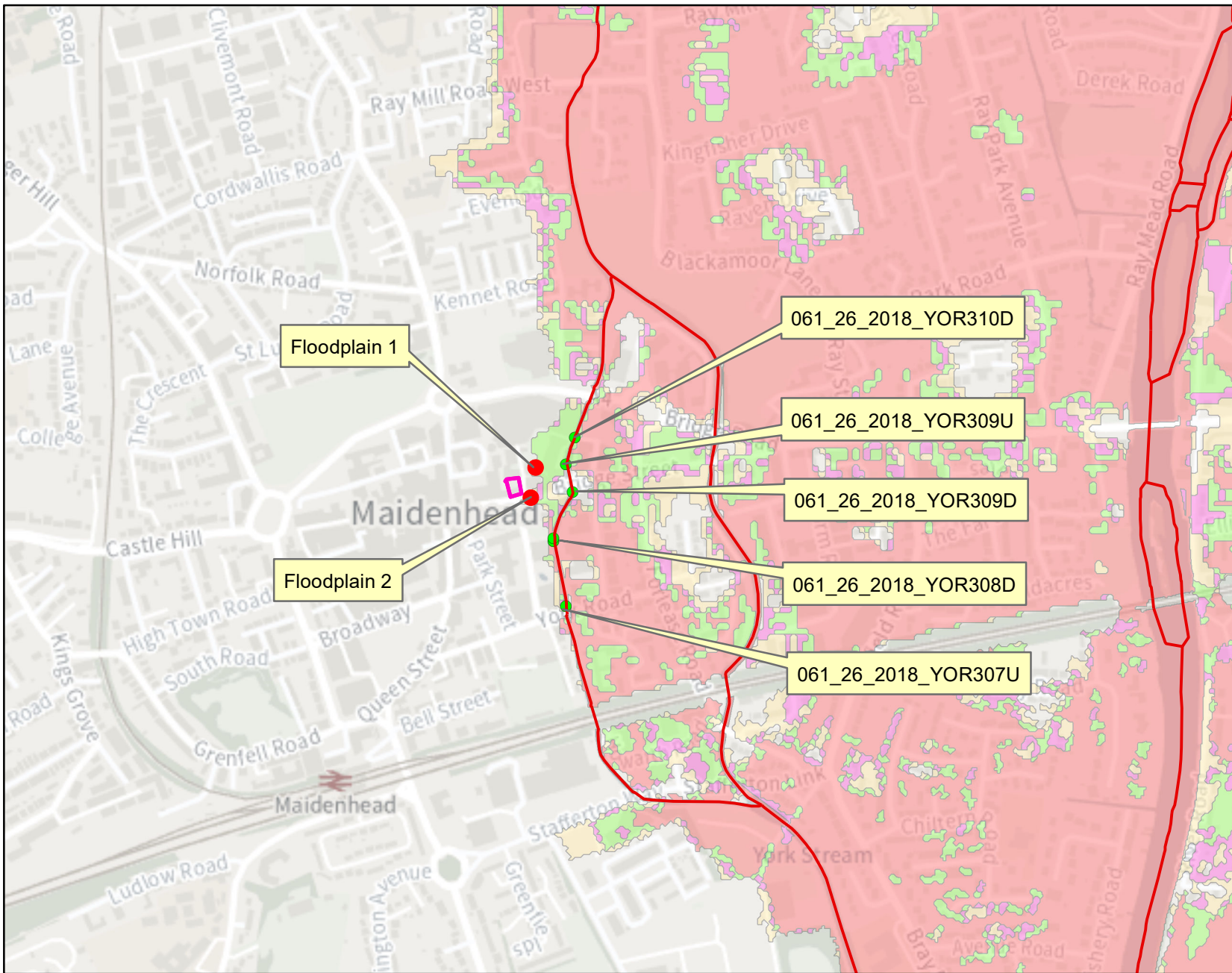
- Main River
- Site
- Nodes
- 20% AEP Flood Outline
- 5% AEP Flood Outline
- 3.3% AEP Flood Outline
- 1% AEP Flood Outline
- 0.1% AEP Flood Outline

AEP = Annual Exceedance Probability
 The probability of a flood of a particular magnitude, or greater, occurring in any given year

Where available climate change extents have been calculated with an additional flow added to an AEP event. An example of how this is written is 1%+20% AEP.

Detailed FRA map centred on 16, 18 & 20 High Street, Maidenhead

Created on 06/02/2024 REF: THM344630



Legend

- Main River
- Site
- Nodes
- 1%+15% AEP Flood Outline
- 1%+25% AEP Flood Outline
- 1%+35% AEP Flood Outline
- 1%+70% AEP Flood Outline

AEP = Annual Exceedance Probability
The probability of a flood of a particular magnitude, or greater, occurring in any given year

Where available climate change extents have been calculated with an additional flow added to an AEP event. An example of how this is written is 1%+20% AEP.

Historic flood data

THM344630

Our records show that the area of your site has been affected by flooding.
Information on the floods that have affected your site is provided in the table below:

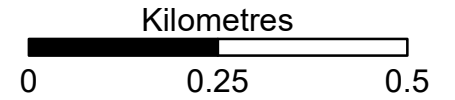
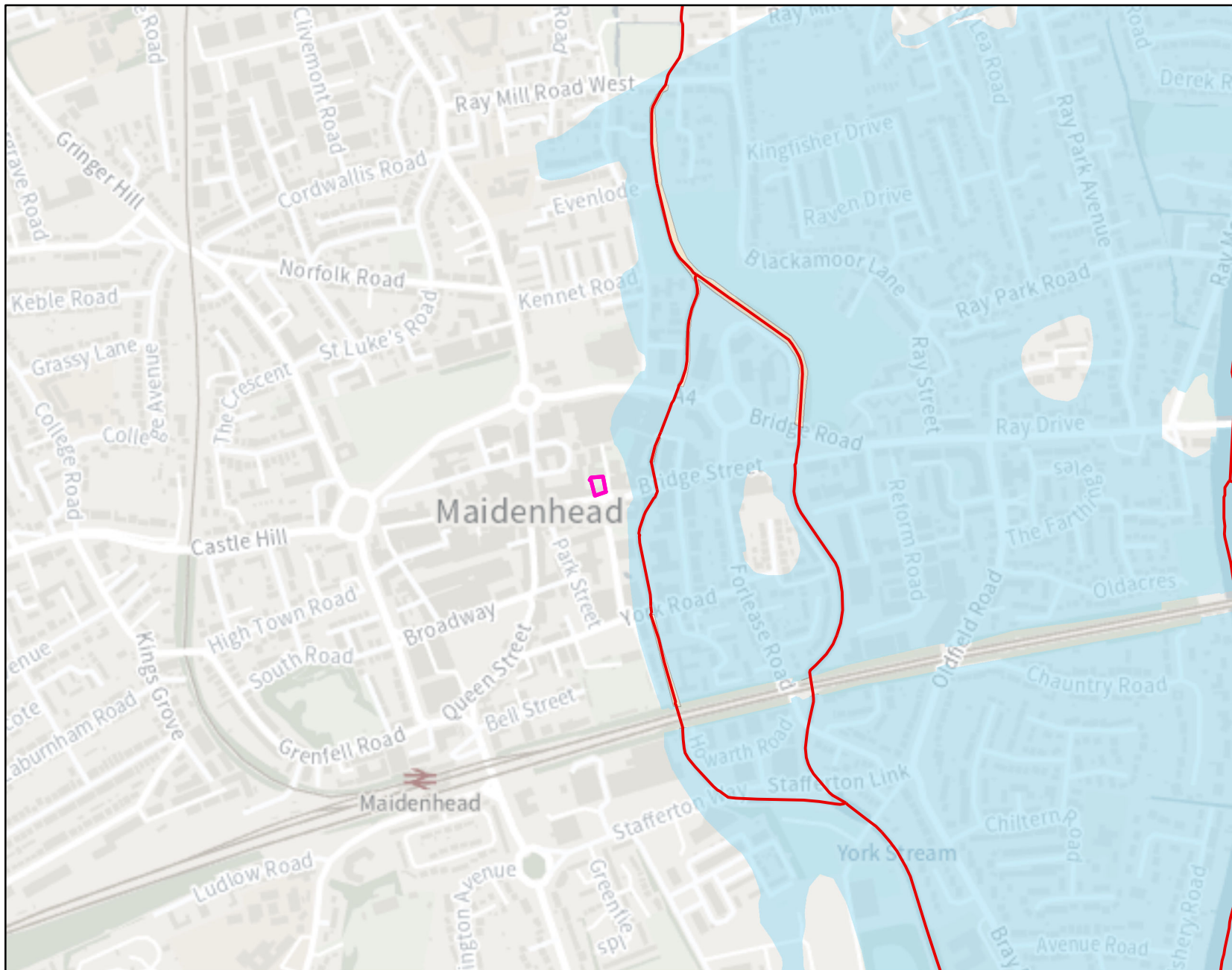
Flood Event Code	Flood Event Name	Start Date	End Date	Source of Flooding	Cause of Flooding
No Historic Information					

Please note the Environment Agency maps flooding to land not individual properties. Floodplain extents are an indication of the geographical extent of a historic flood. They do not provide information regarding levels of individual properties, nor do they imply that a property has flooded internally.

Start and End Dates shown above may represent a wider range where the exact dates are not available.

Historic Flood map centred on 16, 18 & 20 High Street, Maidenhead

Created on 06/02/2024 REF: THM344630



Legend

- Main River
- Site
- 1947
- 1990
- 2000
- 2002/03

Flooding from rivers or sea without defences (Flood Zone 3) shows the area that could be affected by flooding:
- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

The Extent of an extreme flood (Flood Zone 2) shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

Hazard Mapping

Hazard Mapping methodology:

To calculate flood hazard with the debris factor we have used the supplementary note to Flood Risk to People Methodology (see below).

The following calculation is used:

$$HR = d \times (v+0.5) + DF$$

Where HR = flood hazard rating

d = depth of flooding (m)

v = velocity of floodwaters (m/sec)

DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)

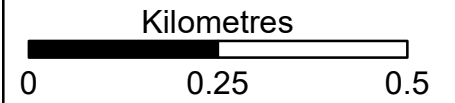
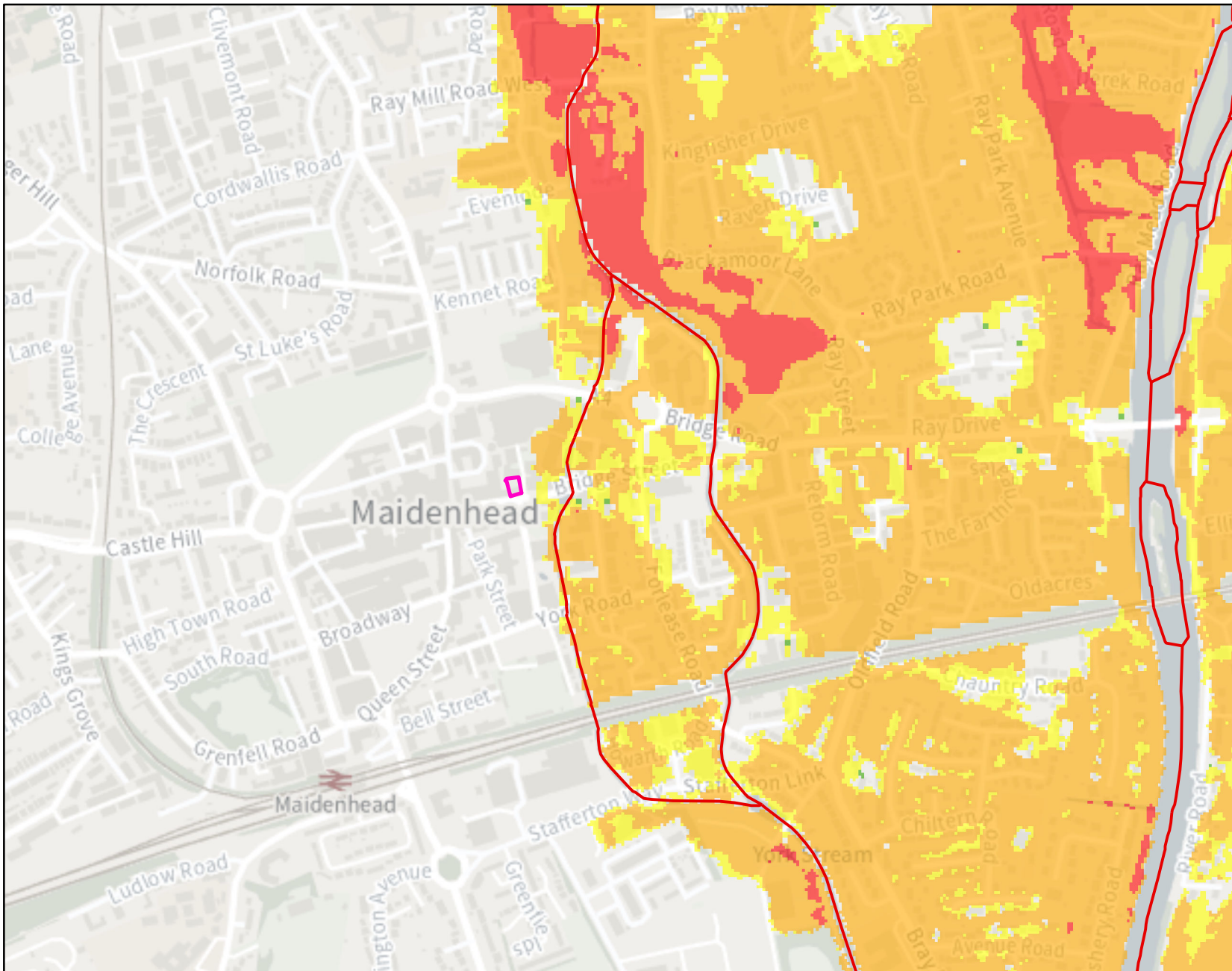
The resultant hazard rating is then classified according to:

Flood Hazard	Colour	Hazard to People Classification
Less than 0.75	Green	Very low hazard - Caution
0.75 to 1.25	Yellow	Danger for some - includes children, the elderly and the infirm
1.25 to 2.0	Orange	Danger for most - includes the general public
More than 2.0	Red	Danger for all - includes the emergency services

REF: HR Wallingford and Environment Agency (May 2008) Supplementary note of flood hazard ratings and thresholds for development planning and control purpose – Clarification of the Table 113.1 of FD2320/TR2 and Figure 3.2 of FD2321/TR1

35%cc hazard map centred on 16, 18 & 20 High Street, Maidenhead

Created on 06/02/2024 REF: THM344630



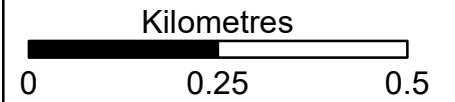
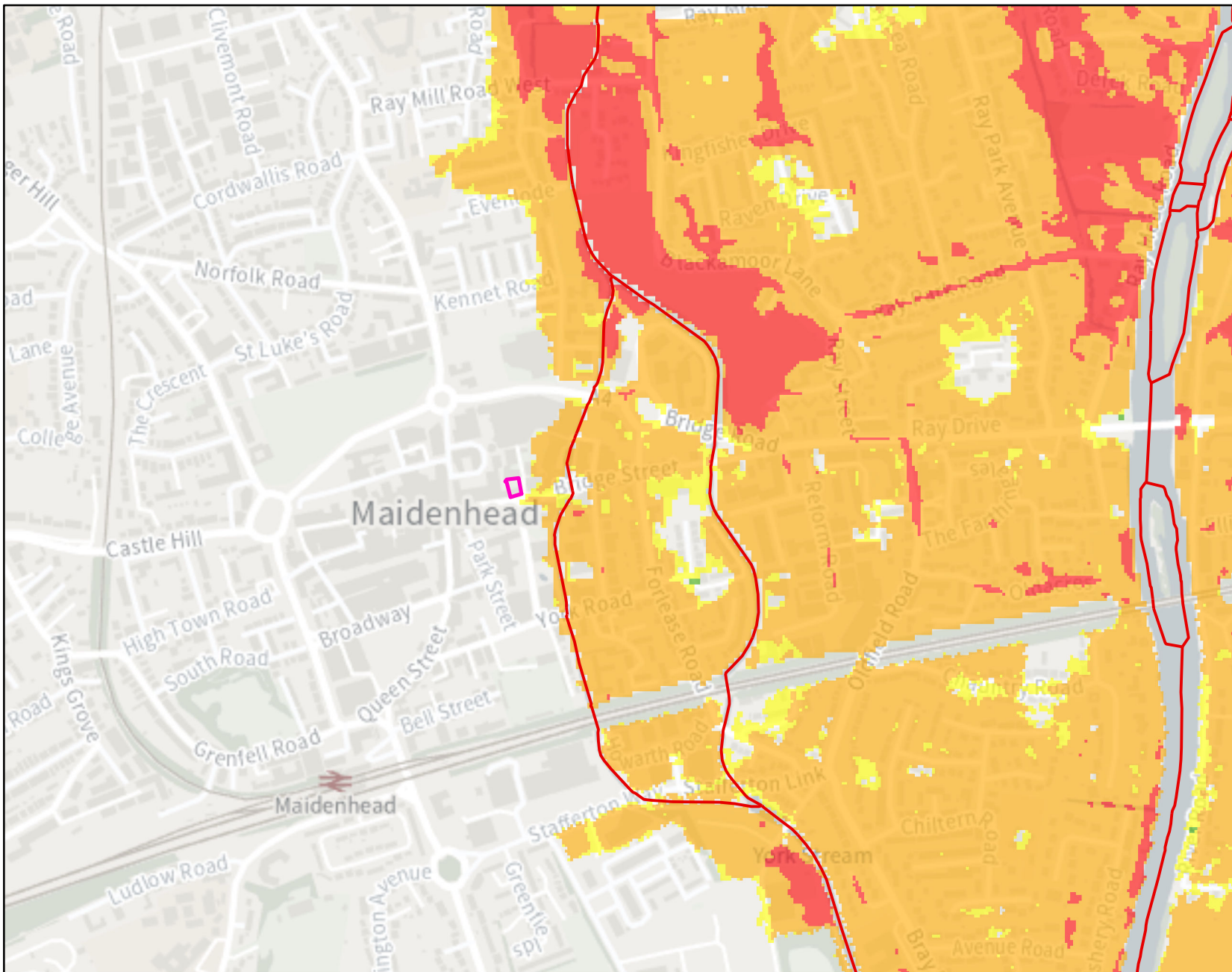
Legend

- Main River
- Site
- Low hazard
- Hazard to some
- Hazard to most
- Hazard to all

For hazard and debris factor we used HR Wallingford and Environment Agency (May 2008) supplementary note on flood hazard ratings and thresholds for development planning and control purpose. The following calculation is used:
 $HR = d \times (v+0.5) + DF$
HR = flood hazard rating
d = depth of flooding (m)
v = velocity of floodwaters (m/sec)
DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)

70%cc hazard map centred on 16, 18 & 20 High Street, Maidenhead

Created on 06/02/2024 REF: THM344630



Legend

- Main River
- Site
- Low hazard
- Hazard to some
- Hazard to most
- Hazard to all

For hazard and debris factor we used HR Wallingford and Environment Agency (May 2008) supplementary note on flood hazard ratings and thresholds for development planning and control purpose. The following calculation is used:
 $HR = d \times (v+0.5) + DF$
HR = flood hazard rating
d = depth of flooding (m)
v = velocity of floodwaters (m/sec)
DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)