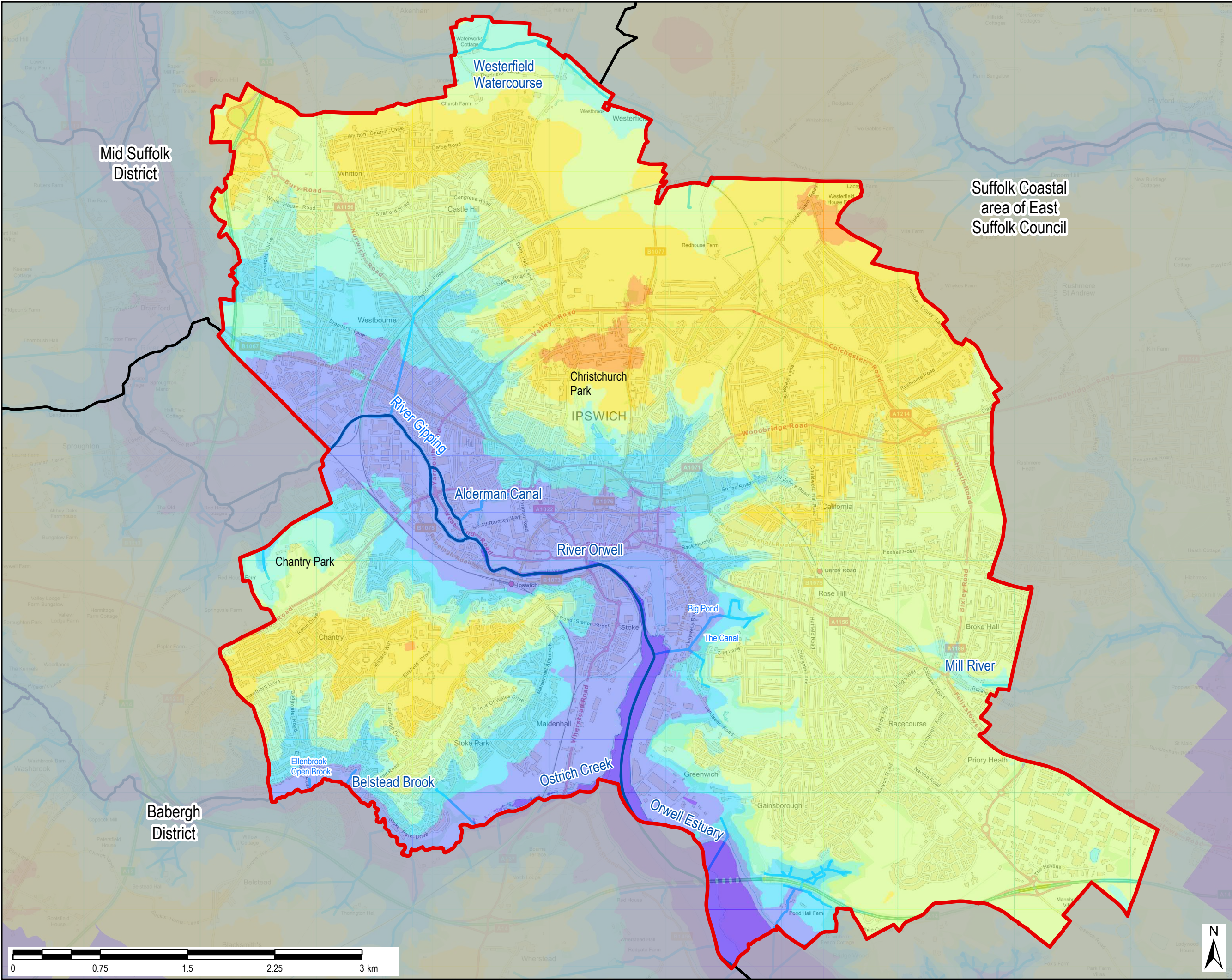


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LEGEND

- Borough Boundary
- Surrounding Districts
- Main Rivers
- Ordinary Watercourses

Topography (m AOD)

- ≤0
- ≤ 10
- ≤ 20
- ≤ 30
- ≤ 40
- ≤ 50
- ≤ 60
- ≤76

Notes

1. Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground.

2. This dataset has a spatial resolution of 2m. The Environment Agency's LIDAR data archive contains digital elevation data derived from surveys carried out since 1998.

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IPSWICH
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Project Title

IPSWICH LEVEL 1 SFRA

Drawing Title

**TOPOGRAPHY
MAIN RIVERS AND
ORDINARY WATERCOURSES**

Drawn HB	Checked SL	Approved EC	Date 09/2019
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AECOM Internal Project No.
60612179

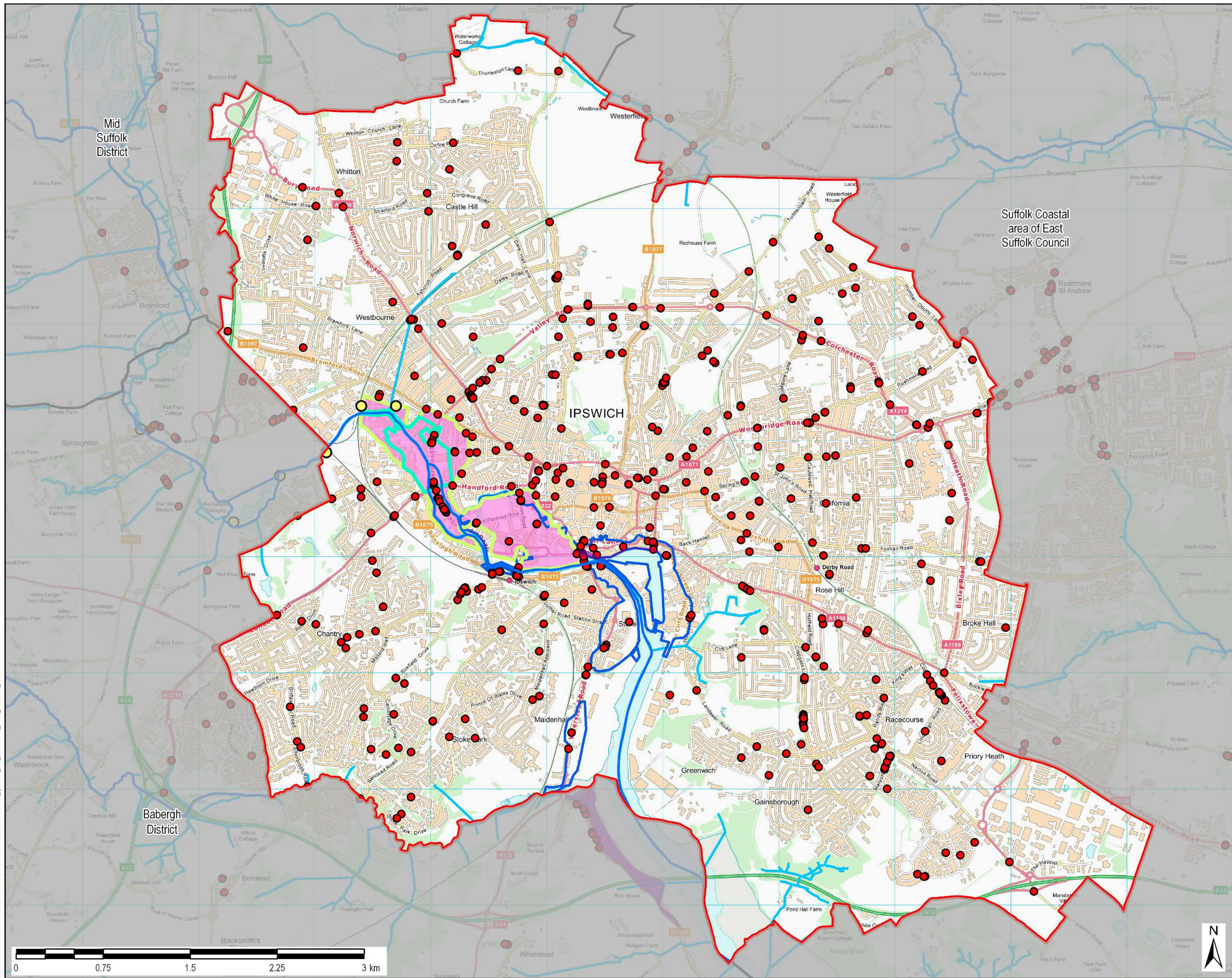
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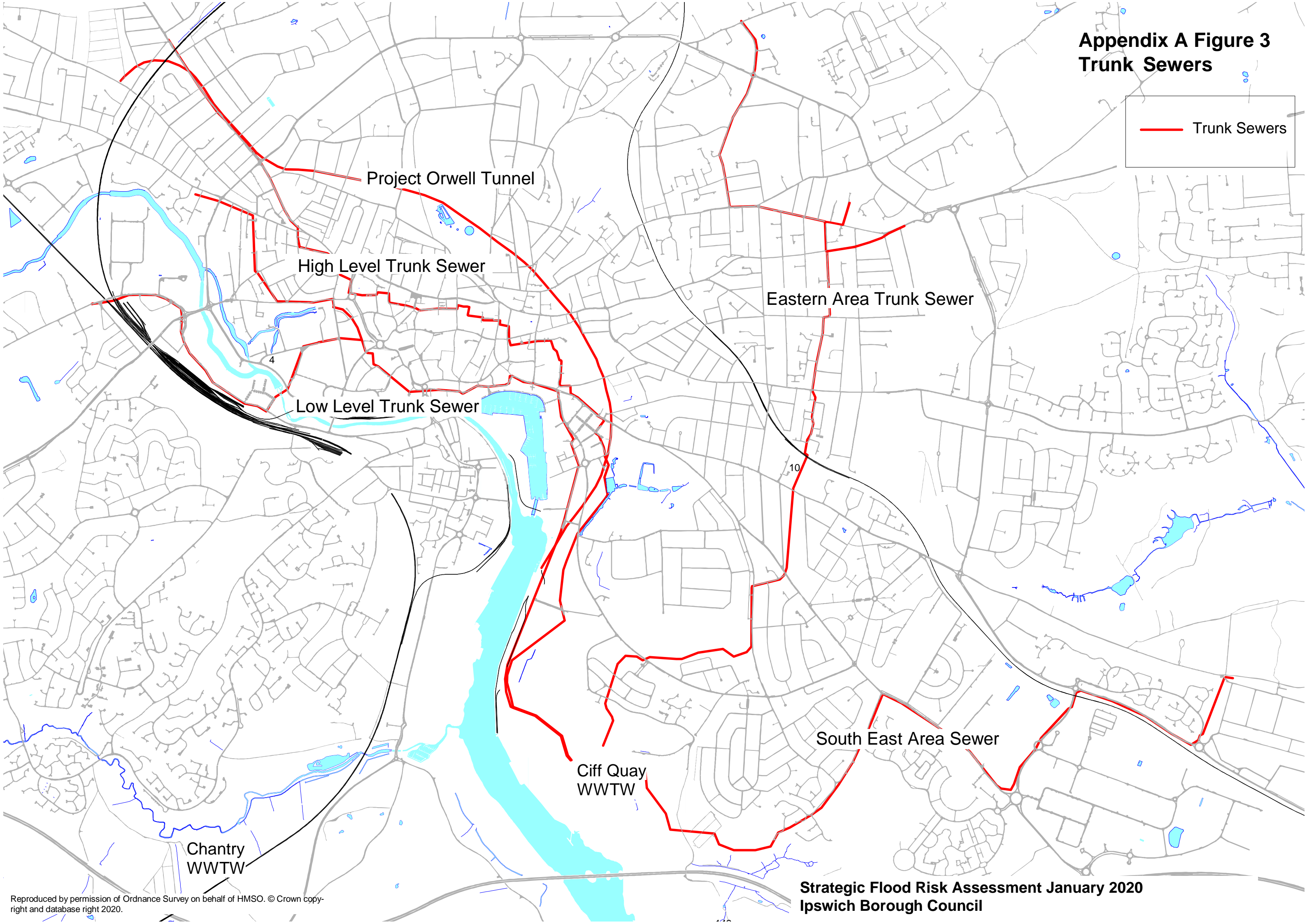
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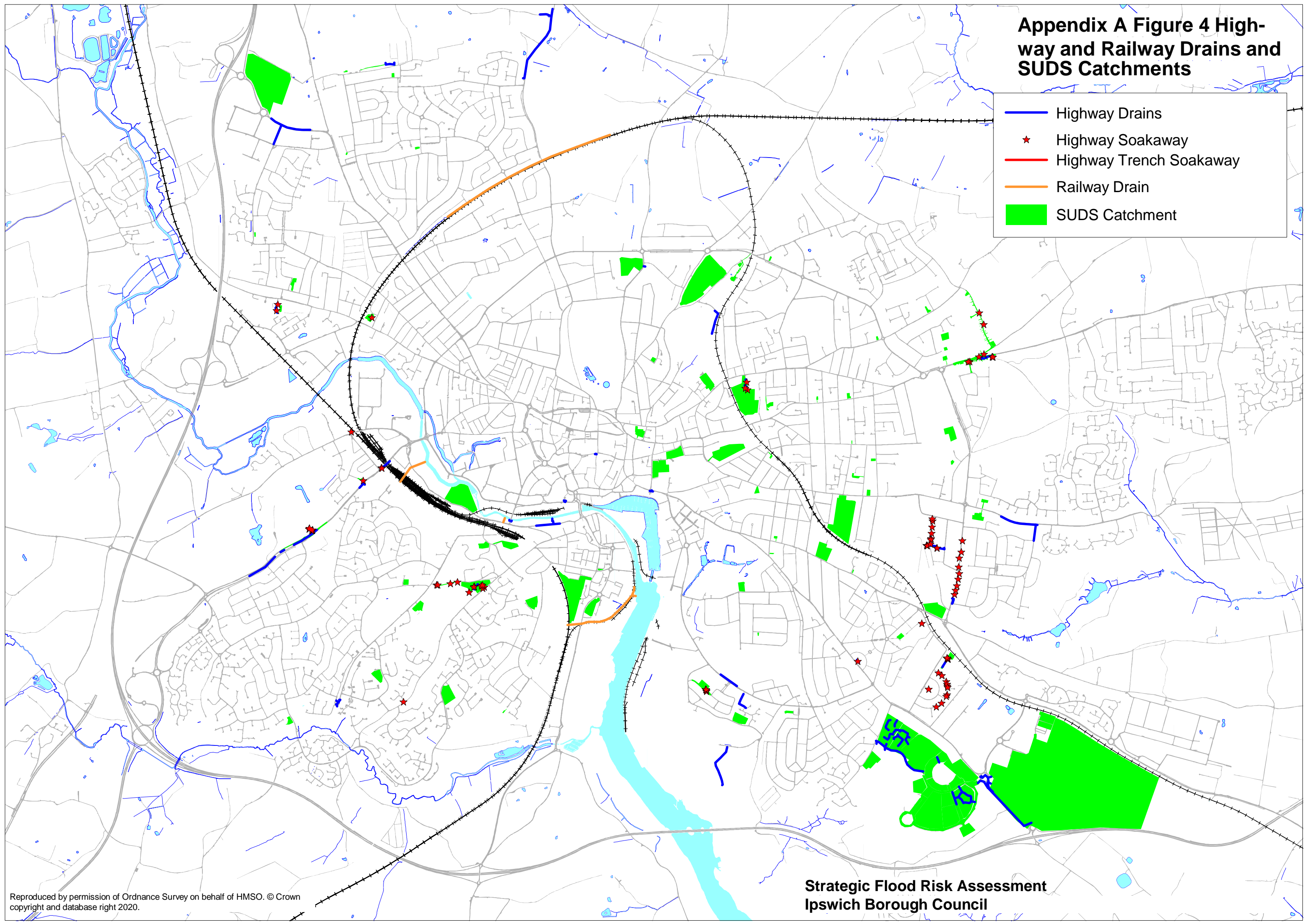


Appendix A Figure 3
Trunk Sewers



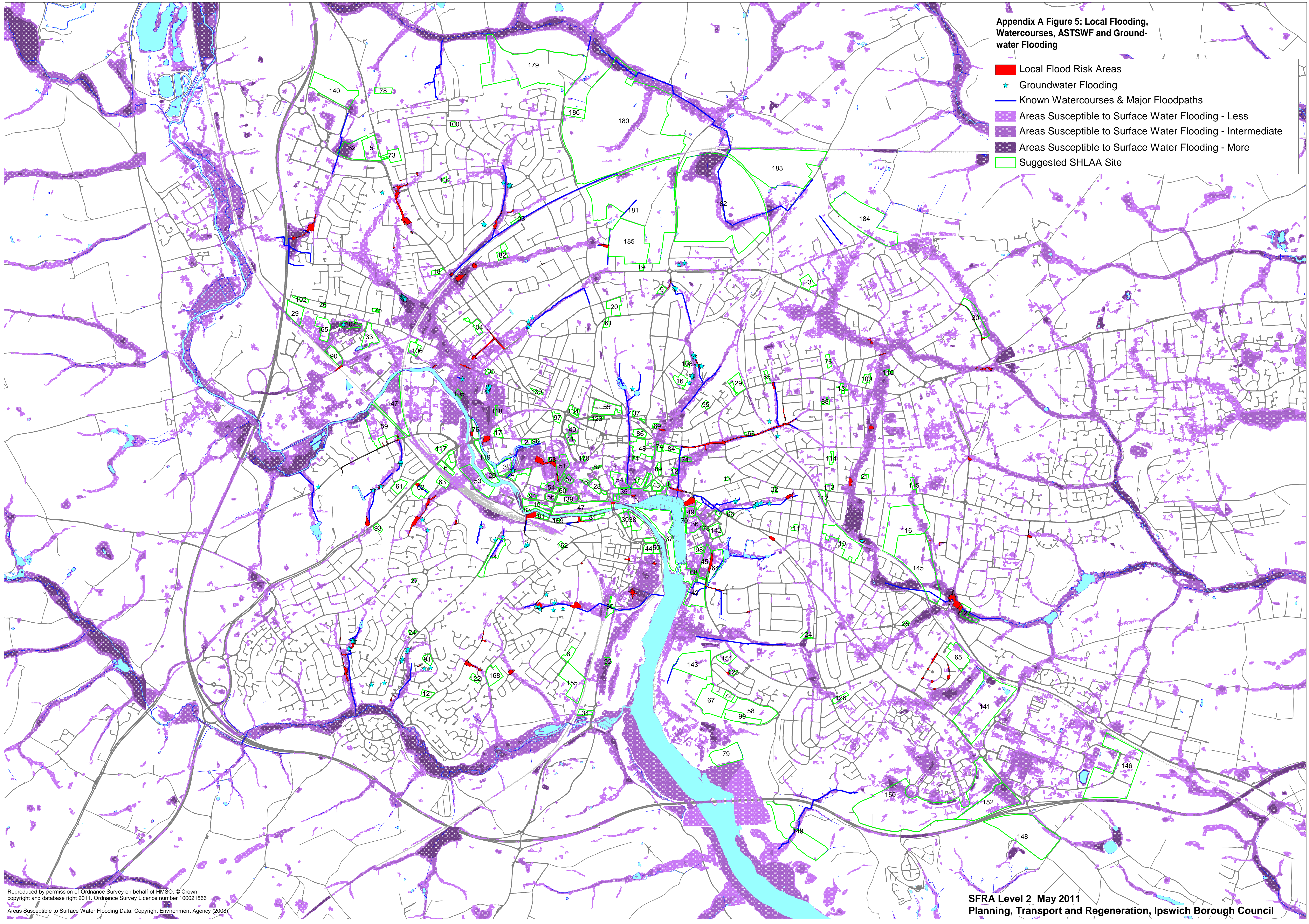
Appendix A Figure 4 Highway and Railway Drains and SUDS Catchments

- Highway Drains
- Highway Soakaway
- Highway Trench Soakaway
- Railway Drain
- SUDS Catchment

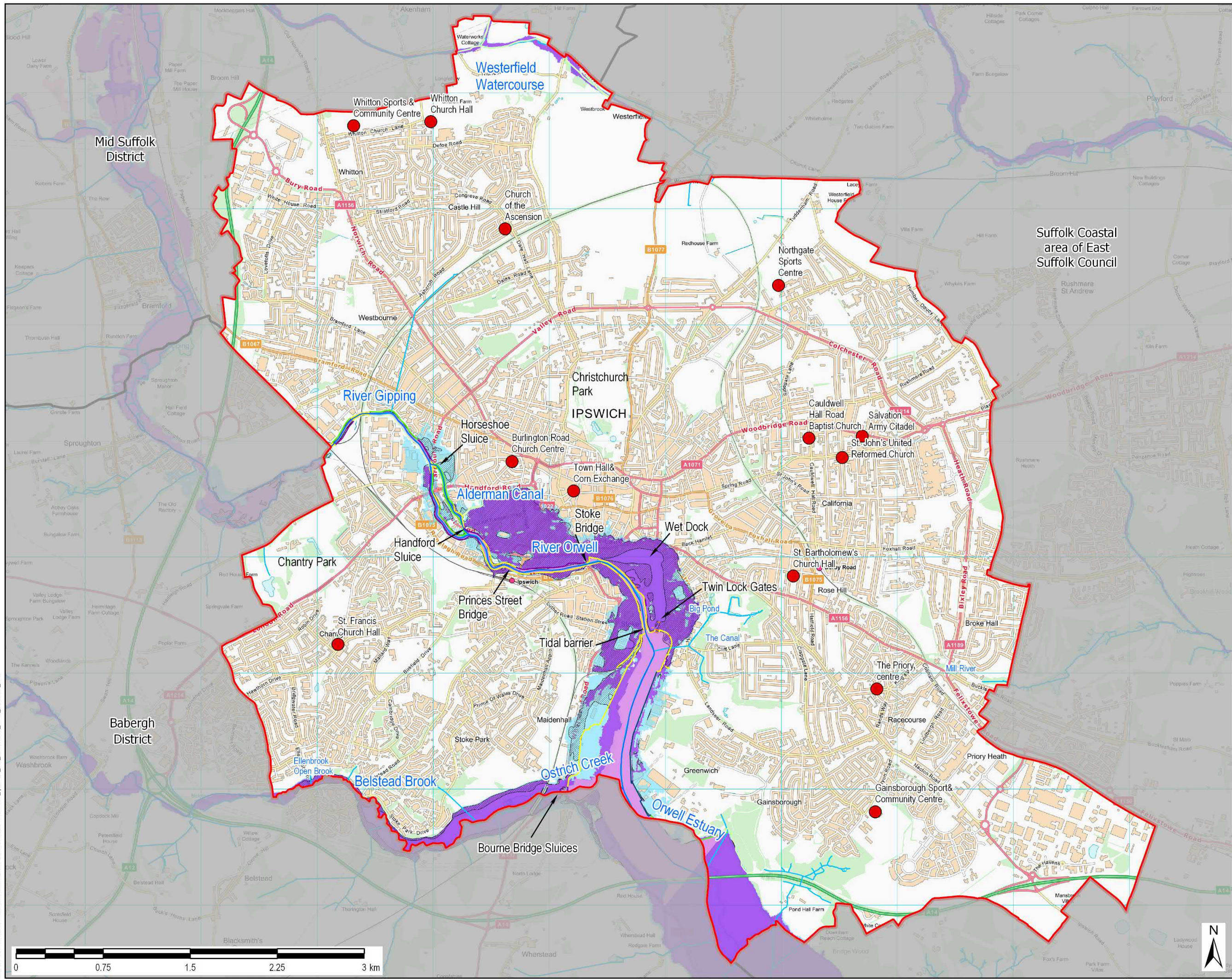


Appendix A Figure 5: Local Flooding, Watercourses, ASTSWF and Groundwater Flooding

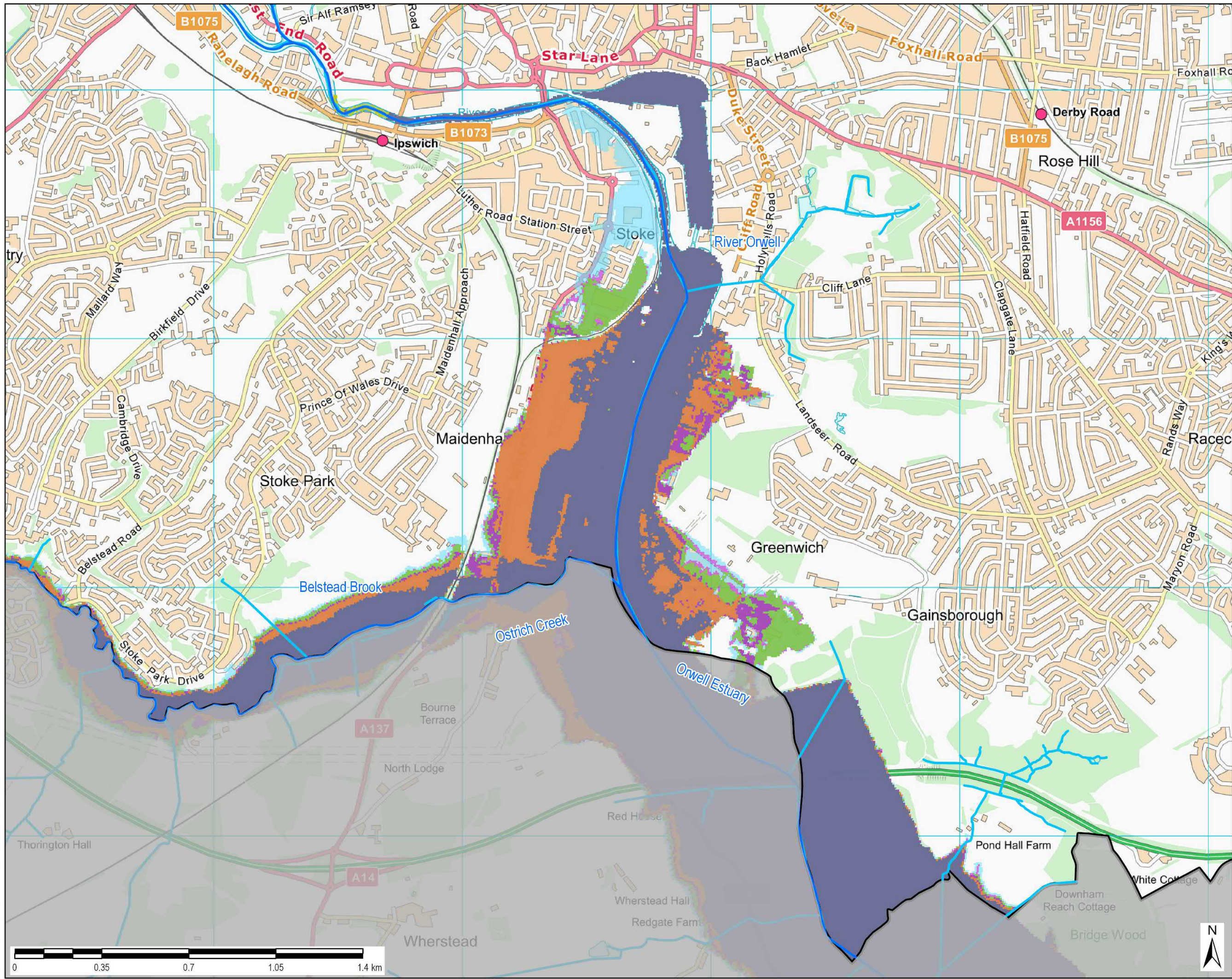
- Local Flood Risk Areas
- Groundwater Flooding
- Known Watercourses & Major Floodpaths
- Areas Susceptible to Surface Water Flooding - Less
- Areas Susceptible to Surface Water Flooding - Intermediate
- Areas Susceptible to Surface Water Flooding - More
- Suggested SHLAA Site



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LEGEND

- Borough Boundary
- Main Rivers
- Ordinary Watercourses
- 1 in 20 year plus climate change (5% AEP plus climate change)
- 1 in 20 year plus the NPPF allowance for climate change (5% AEP plus the NPPF allowance for climate change)
- 1 in 200 year plus climate change (0.5% AEP plus climate change)
- 1 in 200 year plus the NPPF allowance for climate change (0.5% AEP plus the NPPF allowance for climate change)
- 1 in 1000 year plus climate change (0.1% AEP plus climate change)
- 1 in 1000 year plus the NPPF allowance for climate change (0.1% AEP plus the NPPF allowance for climate change)

Notes

- This map shows the Modelled Flood Outlines for the River Orwell and its tributaries including an allowance for Climate Change.
- The modelling outlines included on this map include the 1 in 20, 1 in 200, and 1 in 1000 year events.

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Project Title

IPSWICH LEVEL 1 SFRA

Drawing Title

RIVER ORWELL
FLOOD EXTENTS INCLUDING
CLIMATE CHANGE

Drawn HB	Checked SL	Approved EC	Date 03/20
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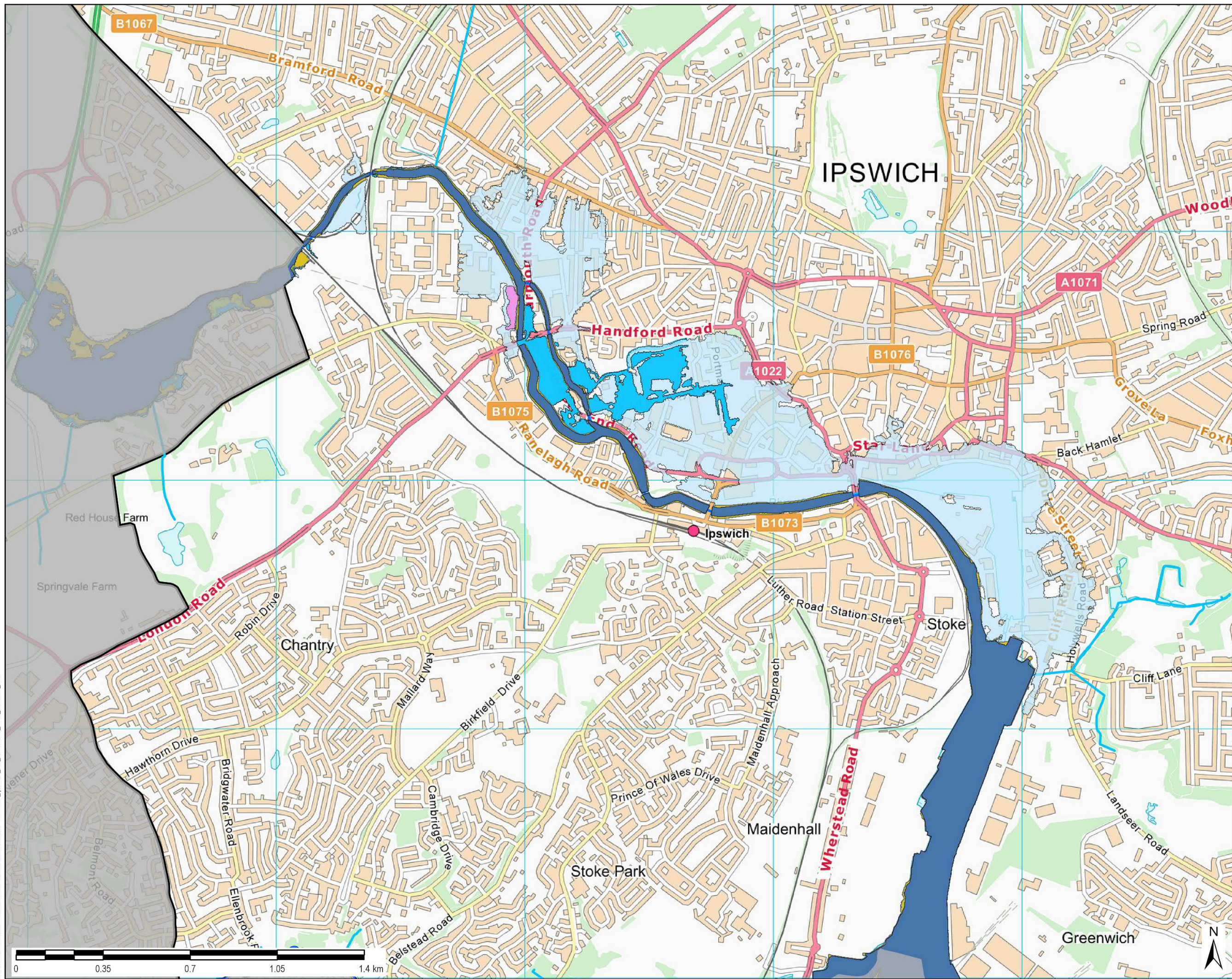
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LEGEND

- Main Rivers
- Ordinary Watercourses
- Borough Boundary
- 1 in 100 year (1% AEP)
- 1 in 100 year plus 25% Climate Change (1% AEP + 25%CC)
- 1 in 100 year plus 35% Climate Change (1% AEP + 35%CC)
- 1 in 100 year plus 65% Climate Change (1% AEP + 65%CC)
- 1 in 1000 year (0.1% AEP)
- 1 in 1000 year plus 25% Climate Change (0.1% AEP + 25%CC)

Notes

- The information on this map is from the River Gipping Modelling Study (Mott MacDonald, on behalf of the Environment Agency, September 2020). The scenarios on this map include the presence of defences.
- The modelling shows that the following events remain 'in bank' and do not result in flooding in the Ipswich study area; 5% AEP (1 in 20 year); 1% AEP (1 in 100 year); 1% AEP (1 in 100 year) including 25% climate change; 1% AEP (1 in 100 year) including 35% climate change allowance.
- The following modelled events do lead to flooding in the study area; 0.1% AEP (1 in 1000 year) event; 1% AEP event including 65% climate change allowance; 0.1% AEP event including 25% climate change allowance.

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Project Title

IPSWICH LEVEL 1 SFRA

Drawing Title

RIVER GIPPING FLOOD EXTENTS

Drawn LL	Checked SL	Approved EC	Date 09/2020
AECOM Internal Project No. 60612179		Scale @ A3 1:14,000	

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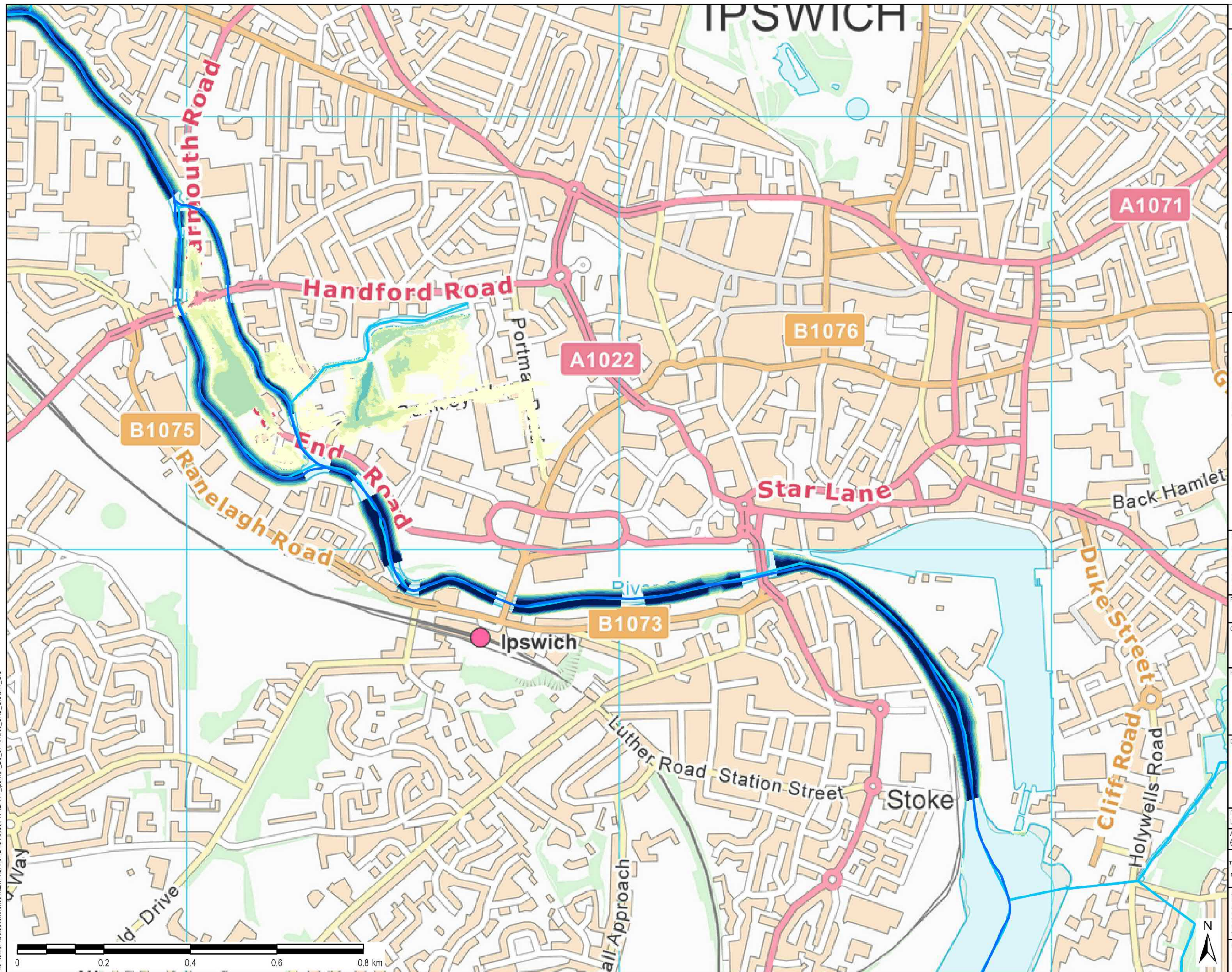
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FIGURE 8A

Rev

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LEGEND

- Main Rivers
- Ordinary Watercourses
- Borough Boundary
- Maximum Depth (metres)
 - ≤ 0.25
 - ≤ 0.5
 - ≤ 1
 - ≤ 1.5
 - ≤ 2
 - ≤ 2.5
 - ≤ 3
 - ≤ 3.5

Notes

- The information on this map is from the River Gipping Modelling Study (Mott MacDonald, on behalf of the Environment Agency, September 2020). The scenarios on this map include the presence of defences.
- The map shows the maximum depth of flooding that occurs in each cell of the model during the model simulation.

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Project Title

IPSWICH LEVEL 1 SFRA

Drawing Title

RIVER GIPPING
MAXIMUM FLOOD DEPTH (M)
1% AEP (1 IN 100YR)
PLUS 65% CLIMATE CHANGE

Drawn

LL

Checked

SL

Approved

EC

Date

09/2020

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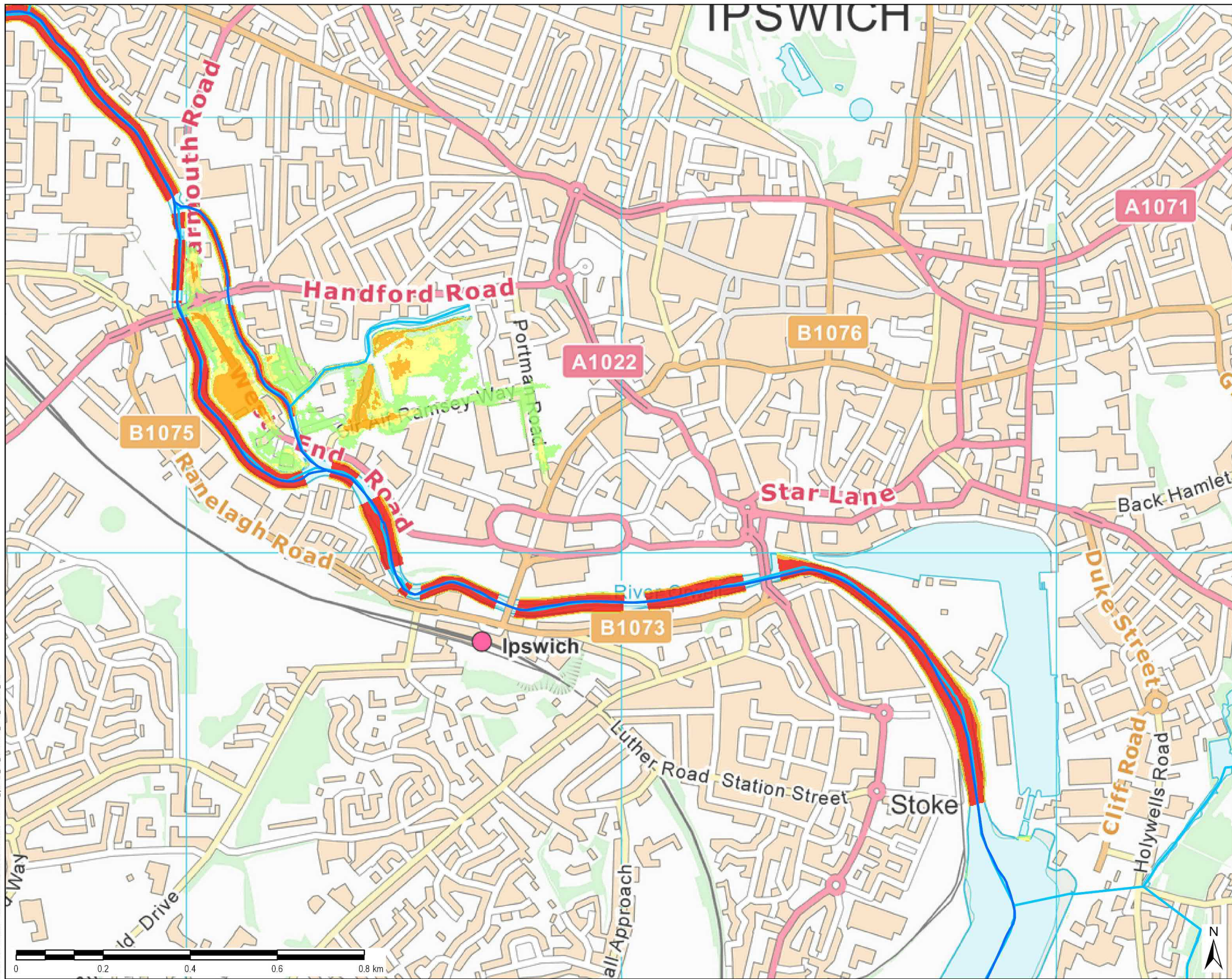
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FIGURE 8B

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LEGEND

- Main Rivers
- Ordinary Watercourses
- Borough Boundary
- Maximum Hazard Rating
 - Low
 - Moderate
 - Significant
 - Extreme

Notes

1. The information on this map is from the River Gipping Modelling Study (Mott MacDonald, on behalf of the Environment Agency, September 2020). The scenarios on this map include the presence of defences.

2. The map shows the maximum hazard rating that occurs in each cell of the model during the model simulation.

3. Values of flood hazard are used to categorise the danger to people. Hazard is a function of the depth and velocity of flood water and a debris factor. The debris factor is derived from the depth and velocity and the dominant land use. The resulting categories of flood hazard are:

- a. Low Hazard: 'Caution'. Shallow flowing water or deep standing water.
- b. Moderate: 'Dangerous for some' (i.e. children).
- c. Significant: 'Dangerous for most people'.
- d. Extreme: 'Dangerous for all'. Extreme danger: deep fast flowing water.

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IPSWICH BOROUGH COUNCIL

Project Title

IPSWICH LEVEL 1 SFRA

Drawing Title

RIVER GIPPING
MAXIMUM HAZARD RATING
1% AEP (1 IN 100YR)
PLUS 65% CLIMATE CHANGE

Drawn LL	Checked SL	Approved EC	Date 09/2020
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LEGEND

- Main Rivers
- Ordinary Watercourses
- Borough Boundary

Maximum Depth (metres)

- ≤ 0.25
- ≤ 0.5
- ≤ 1
- ≤ 1.5
- ≤ 2
- ≤ 2.5
- ≤ 3
- ≤ 3.5

Notes

- The information on this map is from the River Gipping Modelling Study (Mott MacDonald, on behalf of the Environment Agency, September 2020). The scenarios on this map include the presence of defences.
- The map shows the maximum depth of flooding that occurs in each cell of the model during the model simulation.

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IPSWICH LEVEL 1 SFRA

Drawing Title

RIVER GIPPING
MAXIMUM FLOOD DEPTH (M)
0.1% AEP (1 IN 1000YR)
PLUS 25% CLIMATE CHANGE

Drawn	Checked	Approved	Date
LL	SL	EC	09/2020

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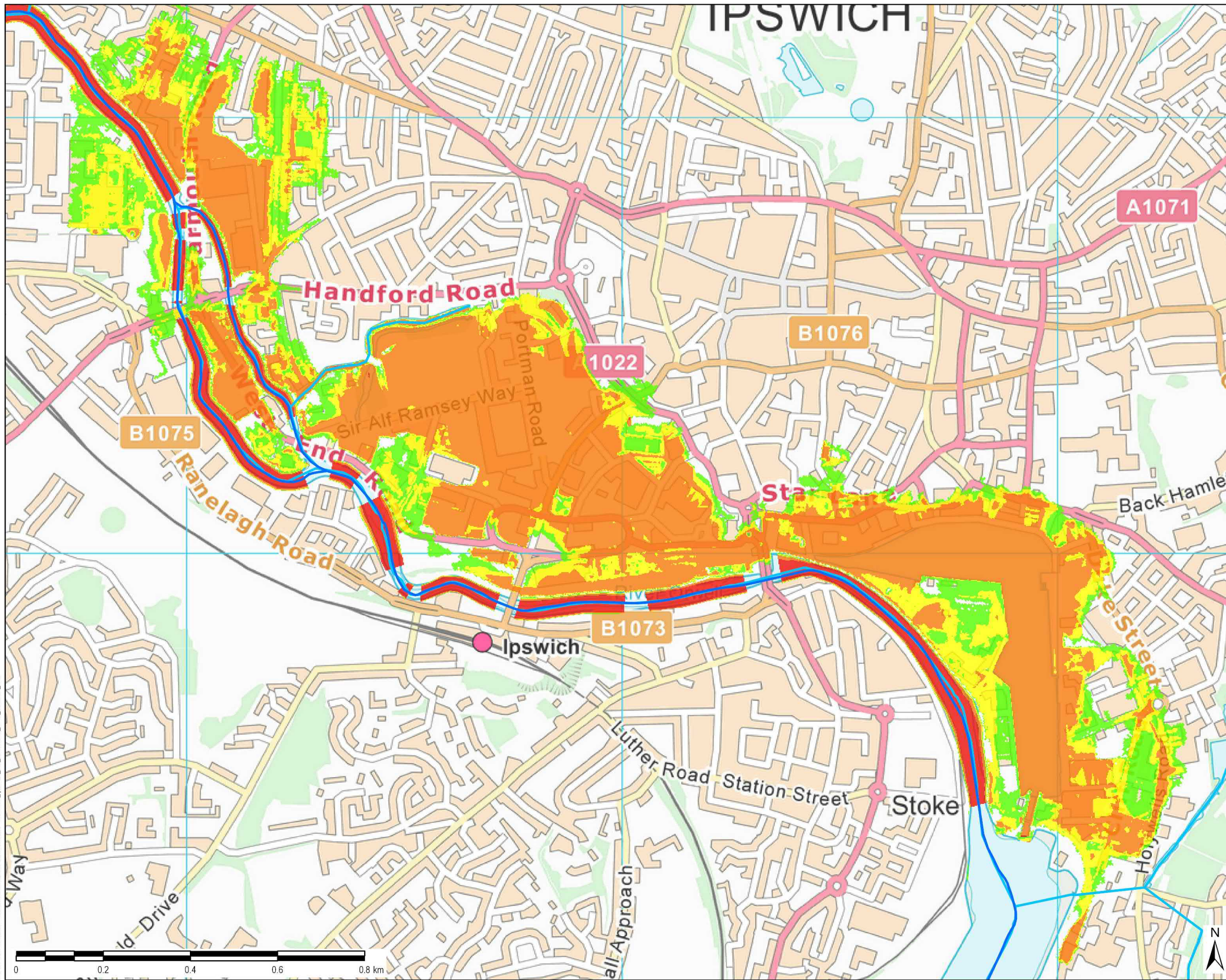
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FIGURE 8D

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LEGEND

- Main Rivers
- Ordinary Watercourses
- Borough Boundary
- Maximum Hazard Rating
 - Low
 - Moderate
 - Significant
 - Extreme

Notes

- The information on this map is from the River Gipping Modelling Study (Mott MacDonald, on behalf of the Environment Agency, September 2020). The scenarios on this map include the presence of defences.
- The map shows the maximum hazard rating that occurs in each cell of the model during the model simulation.
- Values of flood hazard are used to categorise the danger to people. Hazard is a function of the depth and velocity of flood water and a debris factor. The debris factor is derived from the depth and velocity and the dominant land use. The resulting categories of flood hazard are:
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 - b. Moderate: 'Dangerous for some' (i.e. children).
 - c. Significant: 'Dangerous for most people'.
 - d. Extreme: 'Dangerous for all'. Extreme danger: deep fast flowing water.

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Drawing Title

RIVER GIPPING
MAXIMUM HAZARD RATING
0.1% AEP (1 IN 1000YR)
PLUS 25% CLIMATE CHANGE

Drawn	Checked	Approved	Date
LL	SL	EC	09/2020

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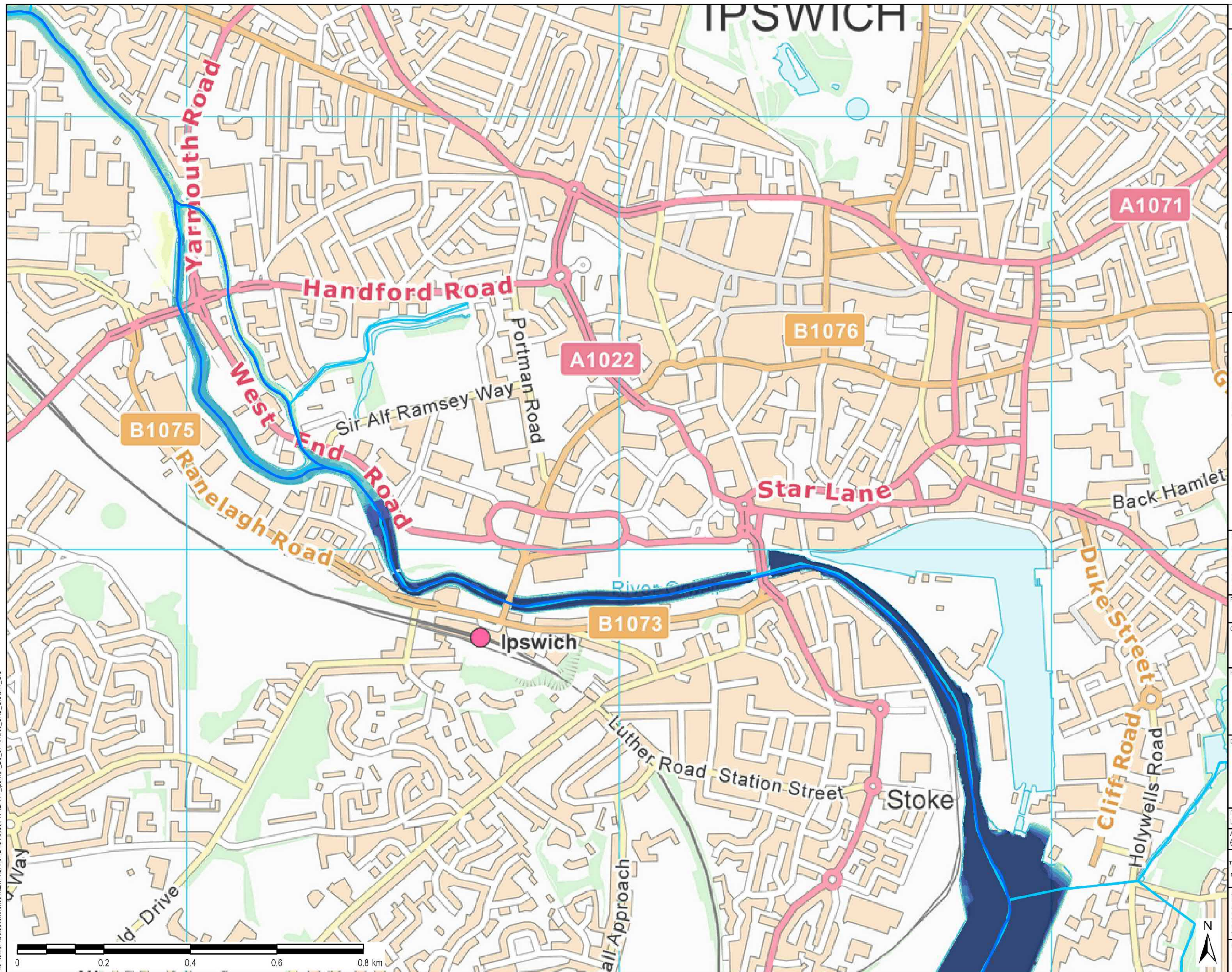
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LEGEND

- Main Rivers
- Ordinary Watercourses
- Borough Boundary

Maximum Depth (m)

- ≤ 0.25
- ≤ 0.5
- ≤ 1
- ≤ 1.5
- ≤ 2
- ≤ 2.5
- ≤ 3
- ≤ 3.5

Notes

- The information on this map is from the River Gipping Modelling Study (Mott MacDonald, on behalf of the Environment Agency, September 2020). The scenarios on this map include the presence of defences.
- The map shows the maximum depth of flooding that occurs in each cell of the model during the model simulation.

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RIVER GIPPING
MAXIMUM FLOOD DEPTH (M)
0.1% AEP (1 IN 1000YR)

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FIGURE 8F

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LEGEND

- Main Rivers
- Ordinary Watercourses
- Borough Boundary
- Maximum Hazard Rating
 - Low
 - Moderate
 - Significant
 - Extreme

Notes

- The information on this map is from the River Gipping Modelling Study (Mott MacDonald, on behalf of the Environment Agency, September 2020). The scenarios on this map include the presence of defences.
- The map shows the maximum hazard rating that occurs in each cell of the model during the model simulation.
- Values of flood hazard are used to categorise the danger to people. Hazard is a function of the depth and velocity of flood water and a debris factor. The debris factor is derived from the depth and velocity and the dominant land use. The resulting categories of flood hazard are:
 - a. Low Hazard: 'Caution'. Shallow flowing water or deep standing water.
 - b. Moderate: 'Dangerous for some' (i.e. children).
 - c. Significant: 'Dangerous for most people'.
 - d. Extreme: 'Dangerous for all'. Extreme danger: deep fast flowing water.

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Project Title

IPSWICH LEVEL 1 SFRA

Drawing Title

RIVER GIPPING
MAXIMUM HAZARD RATING
0.1% AEP (1 IN 1000YR)

Drawn LL	Checked SL	Approved EC	Date 09/2020
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AECOM Internal Project No.
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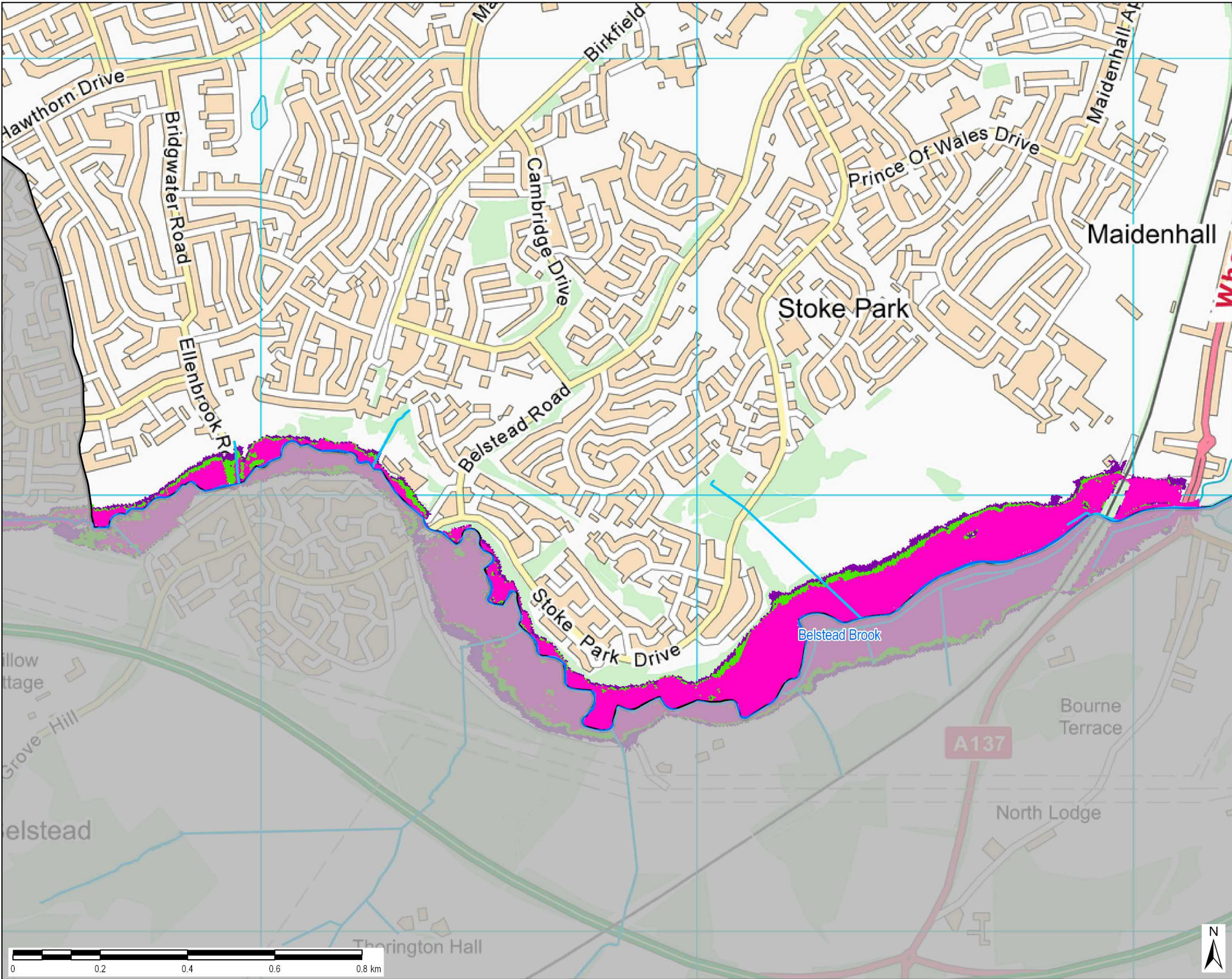
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- LEGEND**
- Borough Boundary
 - Main Rivers
 - Ordinary Watercourses
 - 5% AEP (1 in 20 year)
 - 1% AEP (1 in 100 year)
 - 0.1% AEP (1 in 1000 year)

- Notes**
1. This map shows the Modelled Flood Outlines for the Belstead Brook and its tributaries.
 2. The modelling outlines included on this map do not include climate change allowances, these have been modelled separately for the 1 in 100 year event.

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Client
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Project Title
IPSWICH LEVEL 1 SFRA 2019

Drawing Title
**BELSTEAD BROOK
FLOOD EXTENTS
(PRESENT DAY)**

Drawn HB	Checked SL	Approved EC	Date 12/19
AECOM Internal Project No. 60612179		Scale @ A3 1:8,000	

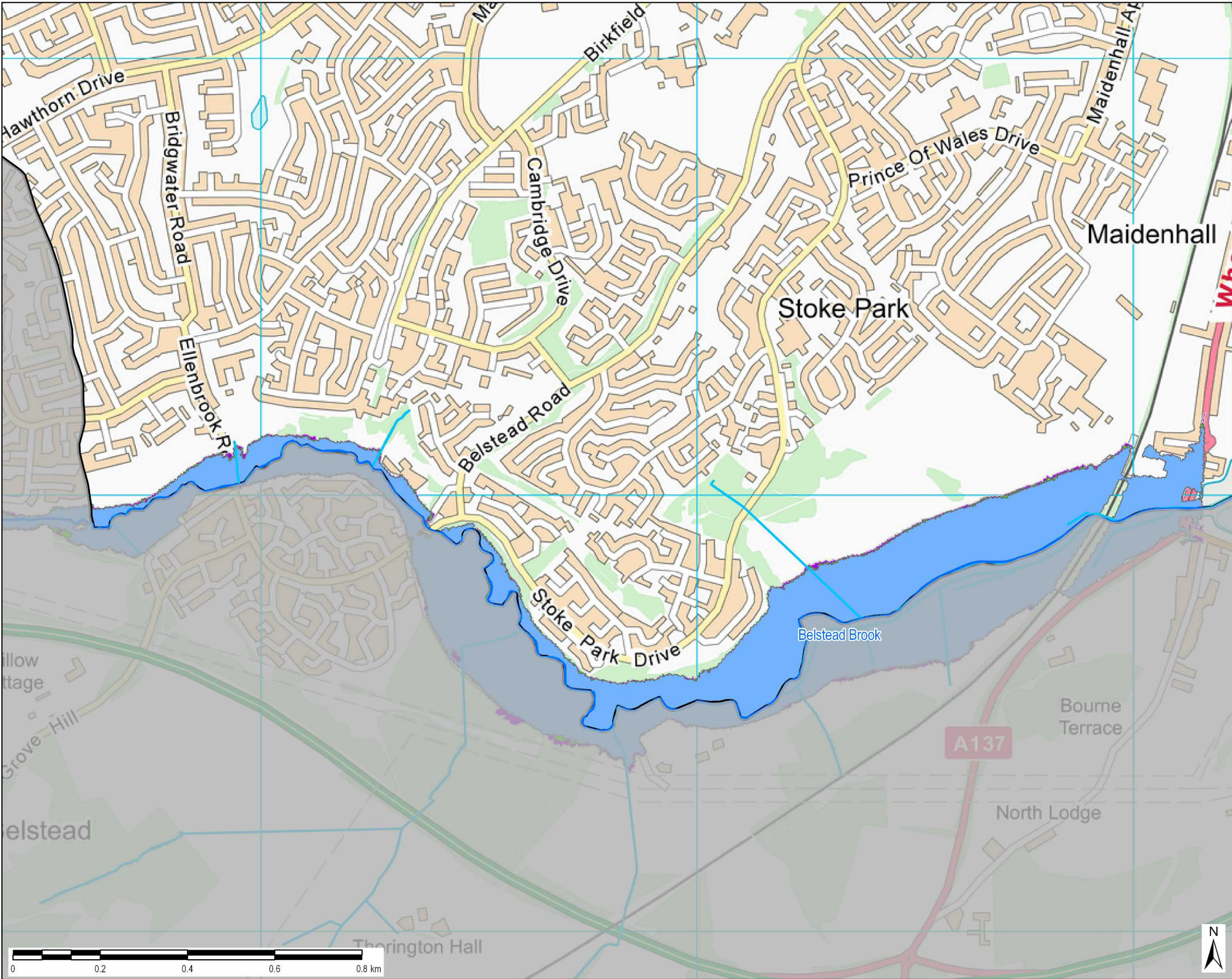
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Legend

- Borough Boundary
- Main Rivers
- Ordinary Watercourses
- 1% AEP + 25% CC (1 in 100 year plus
25% climate change)
- 1% AEP + 35% CC (1 in 100 year plus
35% climate change)
- 1% AEP + 65% CC (1 in 100 year plus
65% climate change)

Notes

- This map shows the Modelled Flood Outlines
for the Belstead Brook and its tributaries.
- The modelling outlines included on this
map include climate change allowances for
the 1 in 100 year event.

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Project Title

IPSWICH LEVEL 1 SFRA 2019

Drawing Title

BELSTEAD BROOK
FLOOD EXTENTS
INCLUDING
CLIMATE CHANGE

Drawn

HB

Checked

SL

Approved

EC

Date

12/19

AECOM Internal Project No.

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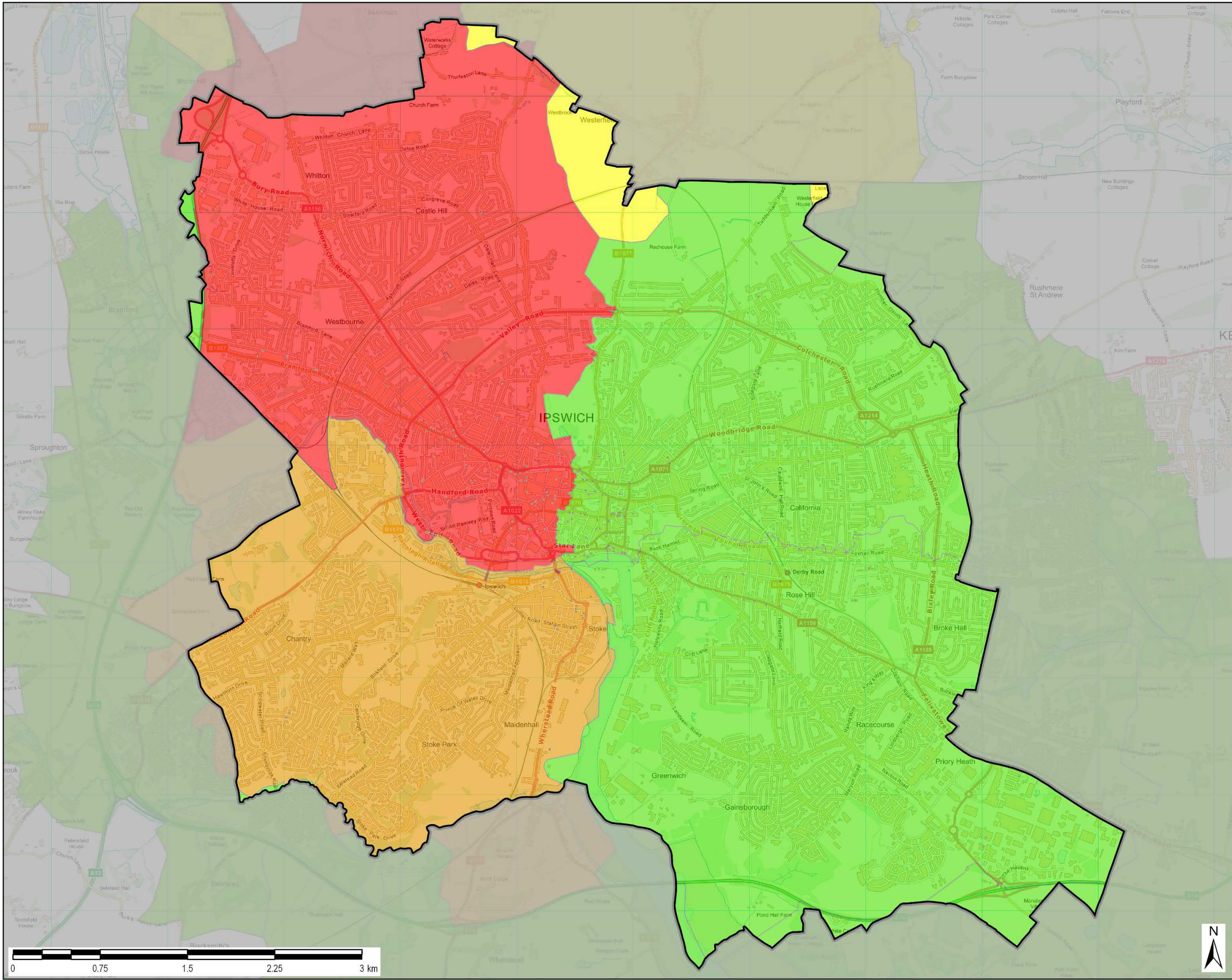
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FIGURE 9B

Rev


01

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



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LEGEND


 Borough Boundary

Internal

 0

 2

 5

 11

Notes

1. AW has supplied records of sewer flooding for the borough through their DG5 register on the total number of properties affected by and at risk of sewer flooding based on historic flooding.

2. This data has been displayed using 3 digit postcode boundaries in the Borough.

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Purpose of Issue

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IPSWICH
BOROUGH COUNCIL

Project Title

IPSWICH LEVEL 1 SFRA

Drawing Title

**INTERNAL SEWER FLOODING
IPSWICH**

Drawn HB	Checked SL	Approved EC	Date 03/20
AECOM Internal Project No. 60612179		Scale @ A3 1:14,000	

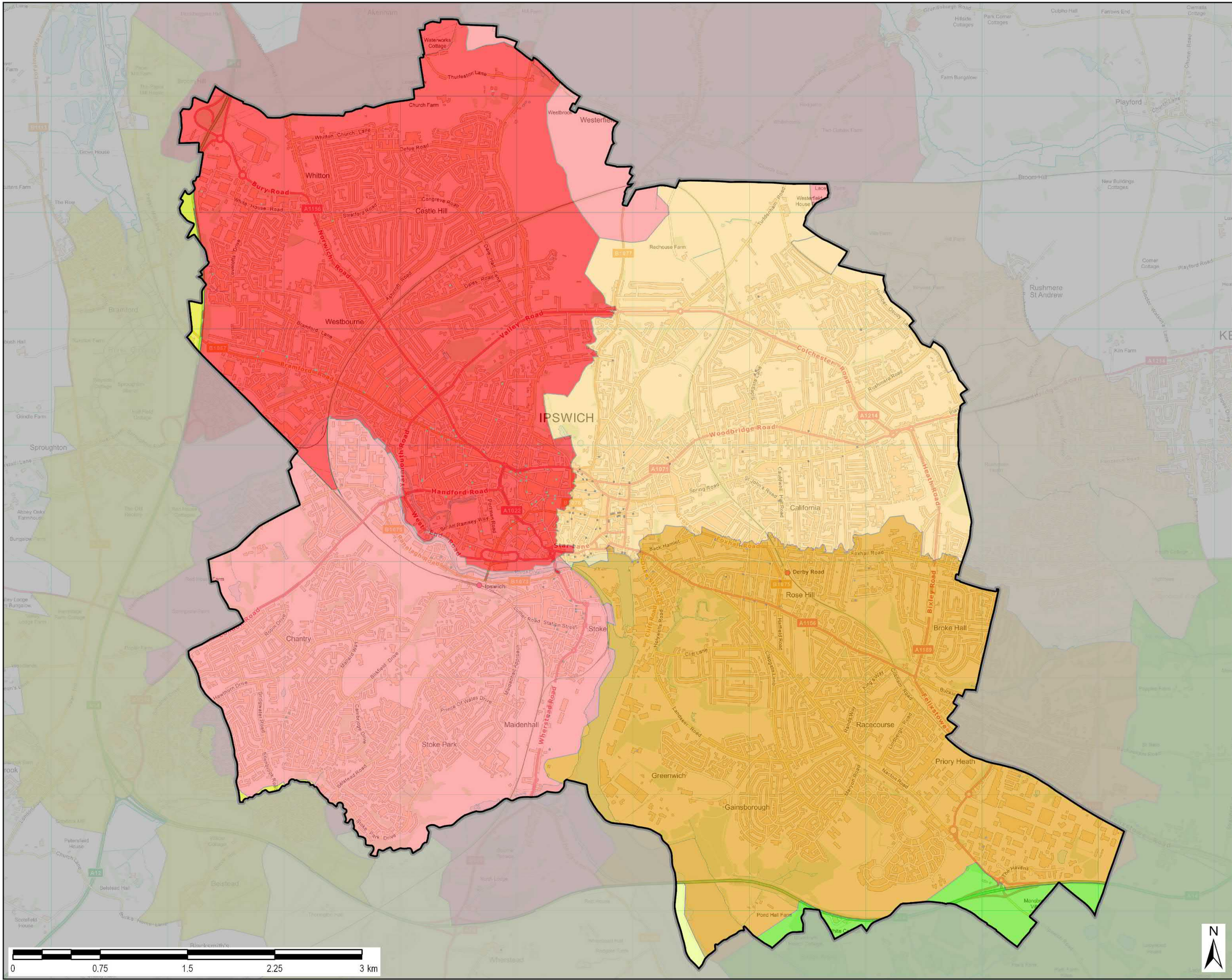
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LEGEND

 Borough Boundary

External

	0
	2
	3
	4
	6
	11
	40

Notes

1. AW has supplied records of sewer flooding for the borough through their DG5 register on the total number of properties affected by and at risk of sewer flooding based on historic flooding.

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**EXTERNAL SEWER FLOODING
IPSWICH**

Drawn HB	Checked SL	Approved EC	Date 03/20
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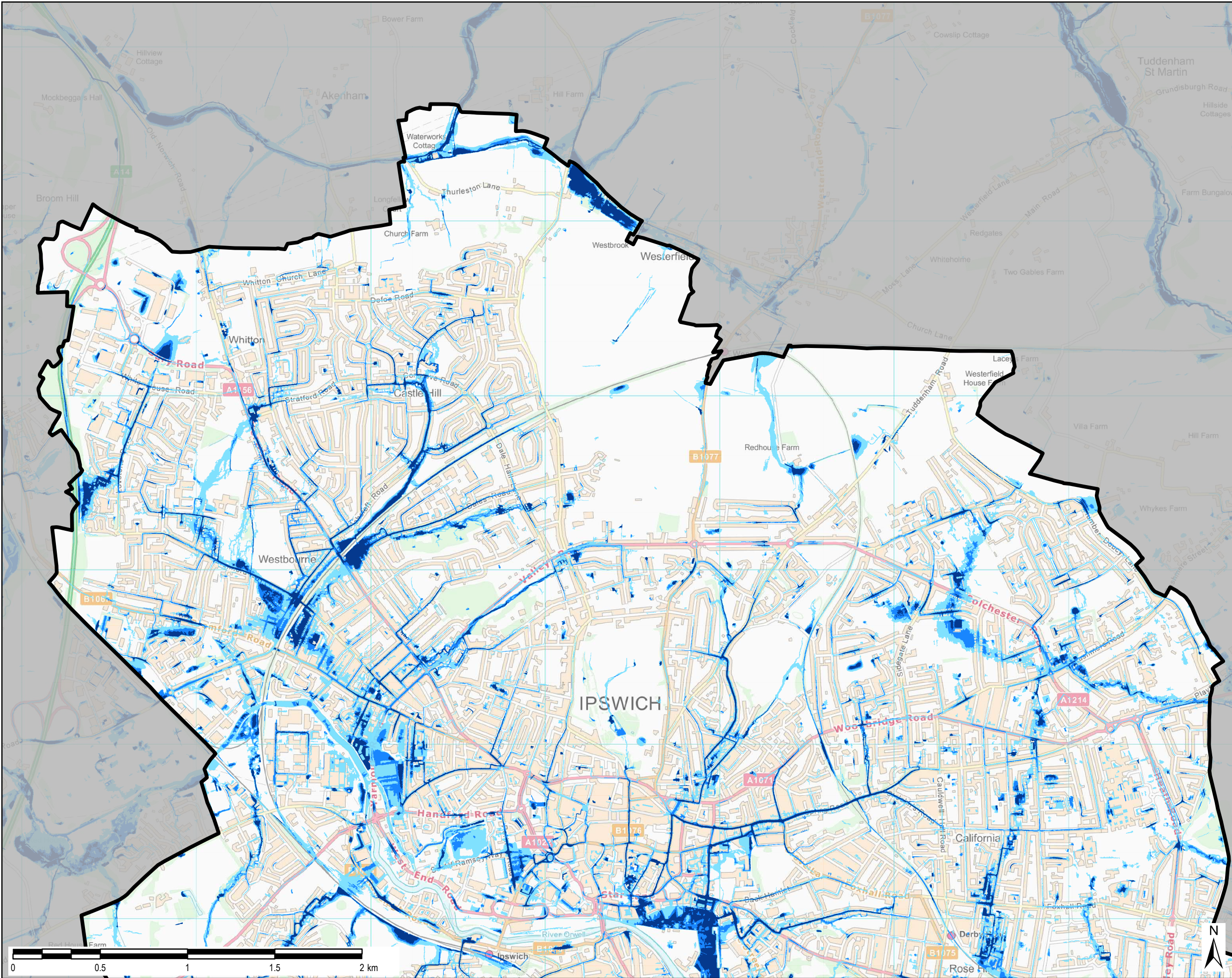
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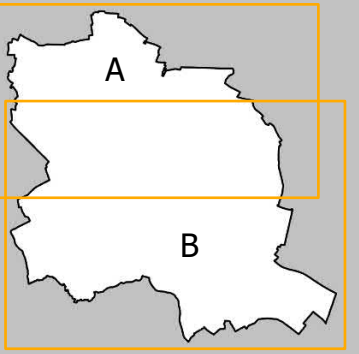
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LEGEND

- Borough Boundary
- High Risk of Flooding
- Medium Risk of Flooding
- Low Risk of Flooding



Notes

- This map shows the predicted likelihood of surface water flooding based on the Environment Agency's Risk of Flooding from Surface Water (ROFSW) data, which may be subject to further analysis in the future. Further information is provided on the Environment Agency website (www.gov.uk/environment-agency).
- The Risk from Surface Water Flooding is divided into categories:
High: each year, the chance of flooding is greater than 1 in 30 (3.3%).
Medium: each year, the chance of flooding is between 1 in 100 (1%) and 1 in 30 (3.3%).
Low: each year, the chance of flooding is between 1 in 1000 (0.1%) and 1 in 100 (1%).
Very Low: each year, the chance of flooding is less than 1 in 1000 (0.1%).
- The potential impact of surface water flooding can vary according to the depth of the water, and its velocity (speed and direction that it is flowing in).
- Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead. This type of flooding can be difficult to predict as it is hard to forecast exactly where or how much rain will fall in any storm.

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RISK OF FLOODING
FROM SURFACE WATER

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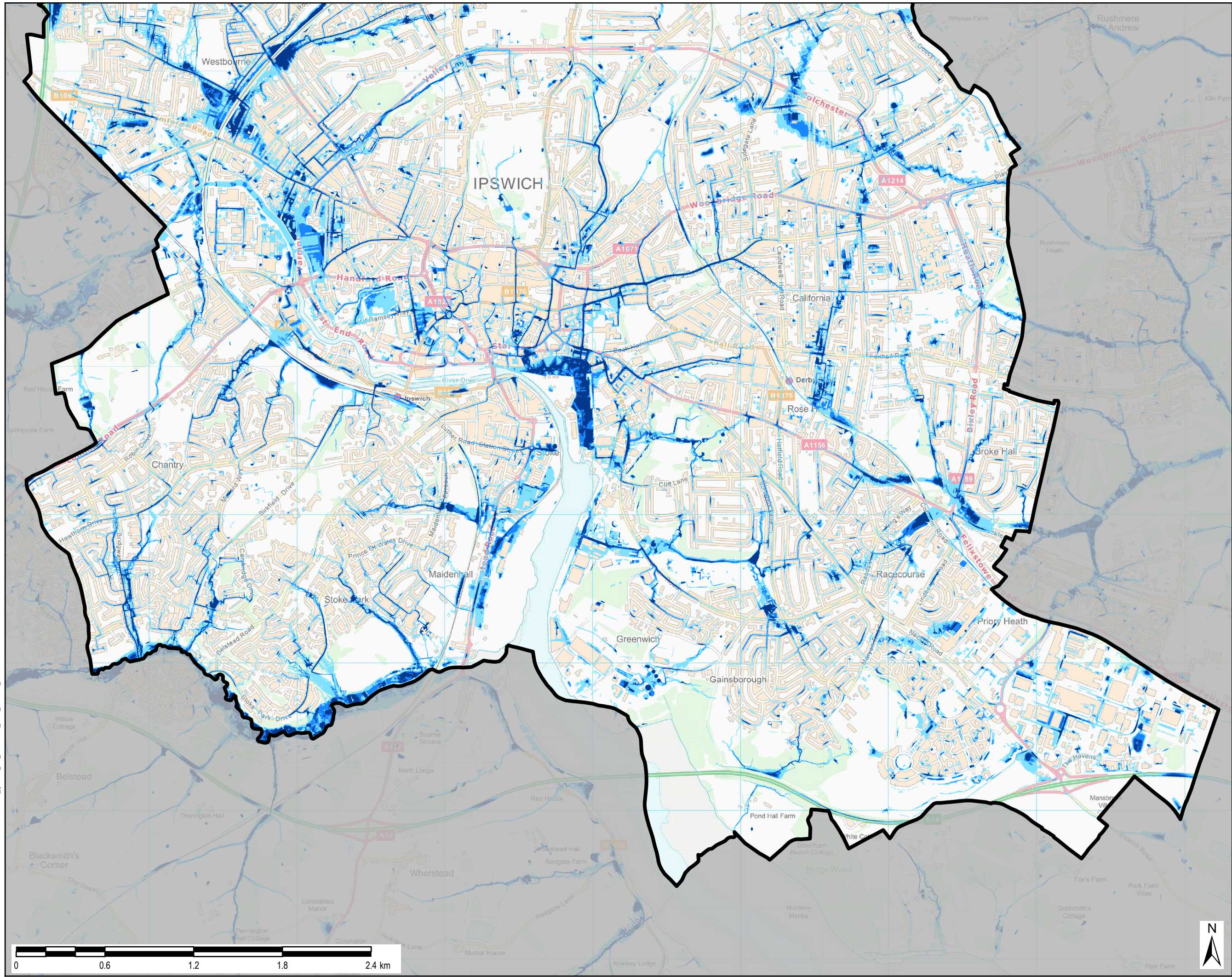
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FIGURE 11 A

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LEGEND

- Borough Boundary
- High Risk of Flooding
- Medium Risk of Flooding
- Low Risk of Flooding

A

B

Notes

1. This map shows the predicted likelihood of surface water flooding based on the Environment Agency's Risk of Flooding from Surface Water (ROFSW) data, which may be subject to further analysis in the future. Further information is provided on the Environment Agency website (www.gov.uk/environment-agency).

2. The Risk from Surface Water Flooding is divided into categories:

High: each year, the chance of flooding is greater than 1 in 30 (3.3%).

Medium: each year, the chance of flooding is between 1 in 100 (1%) and 1 in 30 (3.3%).

Low: each year, the chance of flooding is between 1 in 1000 (0.1%) and 1 in 100 (1%).

Very Low: each year, the chance of flooding is less than 1 in 1000 (0.1%).

3. The potential impact of surface water flooding can vary according to the depth of the water, and its velocity (speed and direction that it is flowing in).

4. Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead. This type of flooding can be difficult to predict as it is hard to forecast exactly where or how much rain will fall in any storm.

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RISK OF FLOODING FROM SURFACE WATER

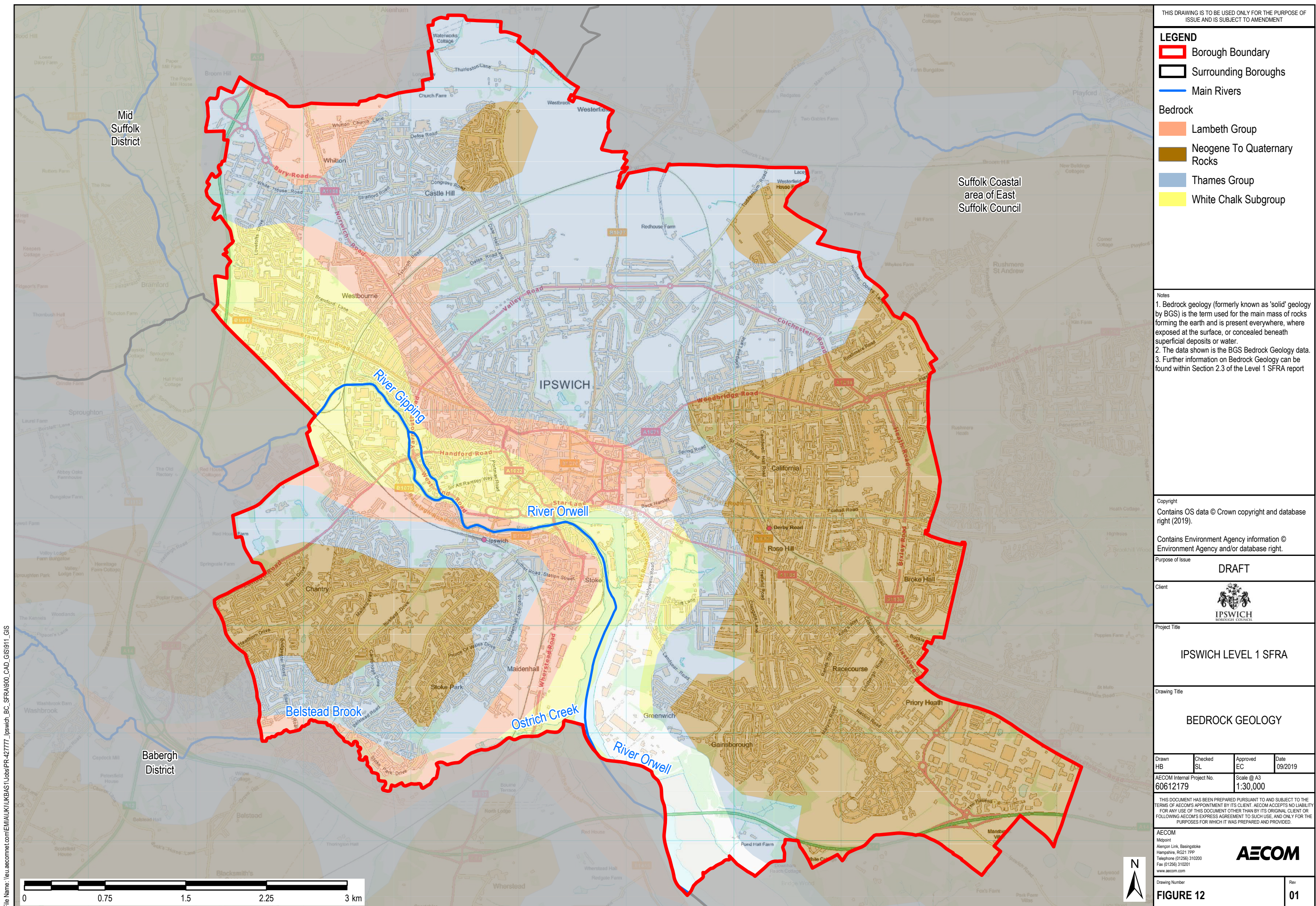
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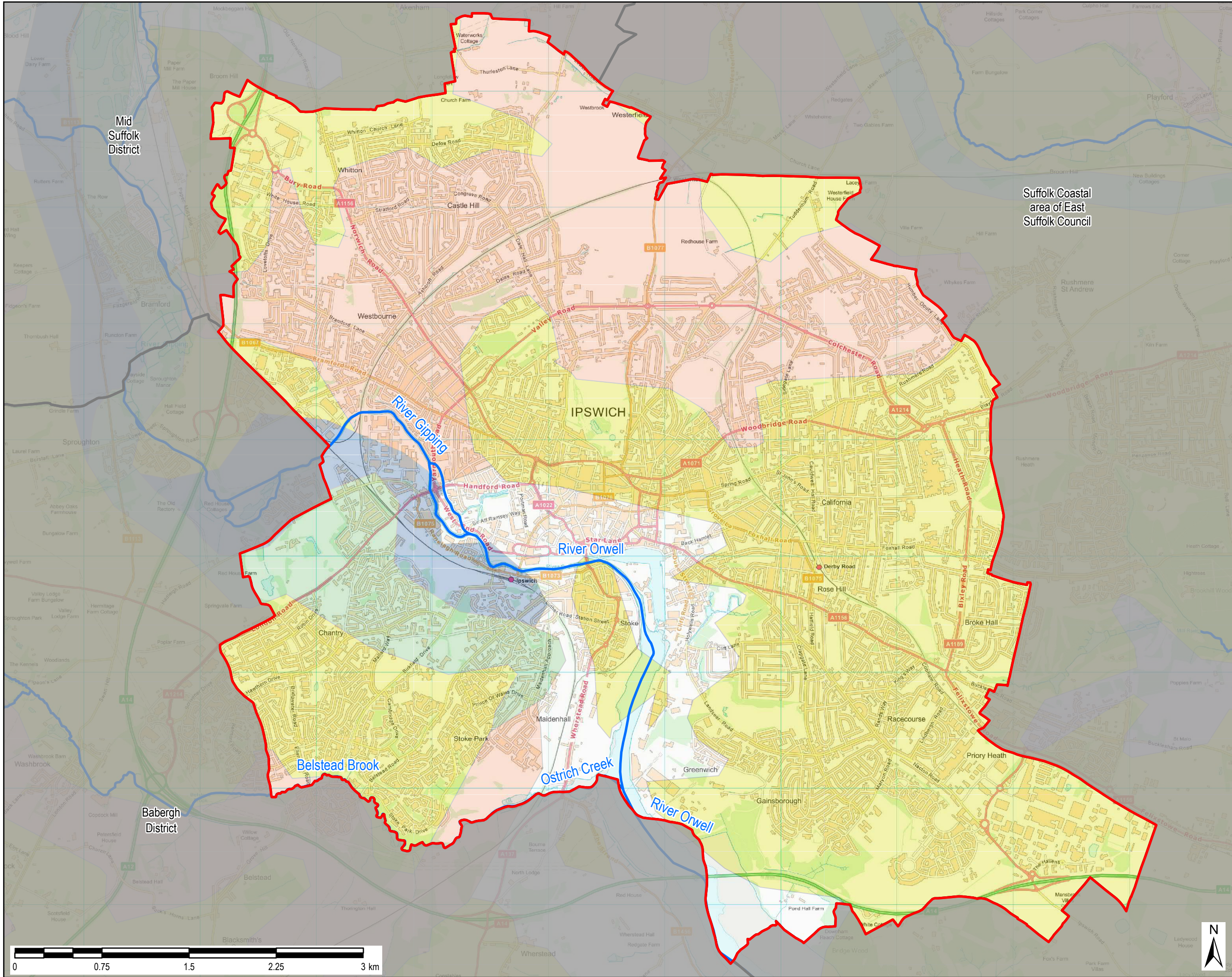
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LEGEND

- Borough Boundary
- Main Rivers
- Superficial Deposits**
 - Alluvium
 - Crag Group
 - Glacial Sand and Gravel
 - River Terrace Deposits
 - Till
 - Surrounding Districts

Notes

1. Superficial deposits (formerly known as 'drift' by BGS) are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 2.6 million years from the present. They rest on older deposits or rocks referred to as bedrock.
2. The data shown is the BGS Superficial Deposits Geology data.
3. Further information on Superficial Deposits Geology can be found within Section 2.3 of the Level 1 SFRA report.

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Drawing Title
SUPERFICIAL
DEPOSITS

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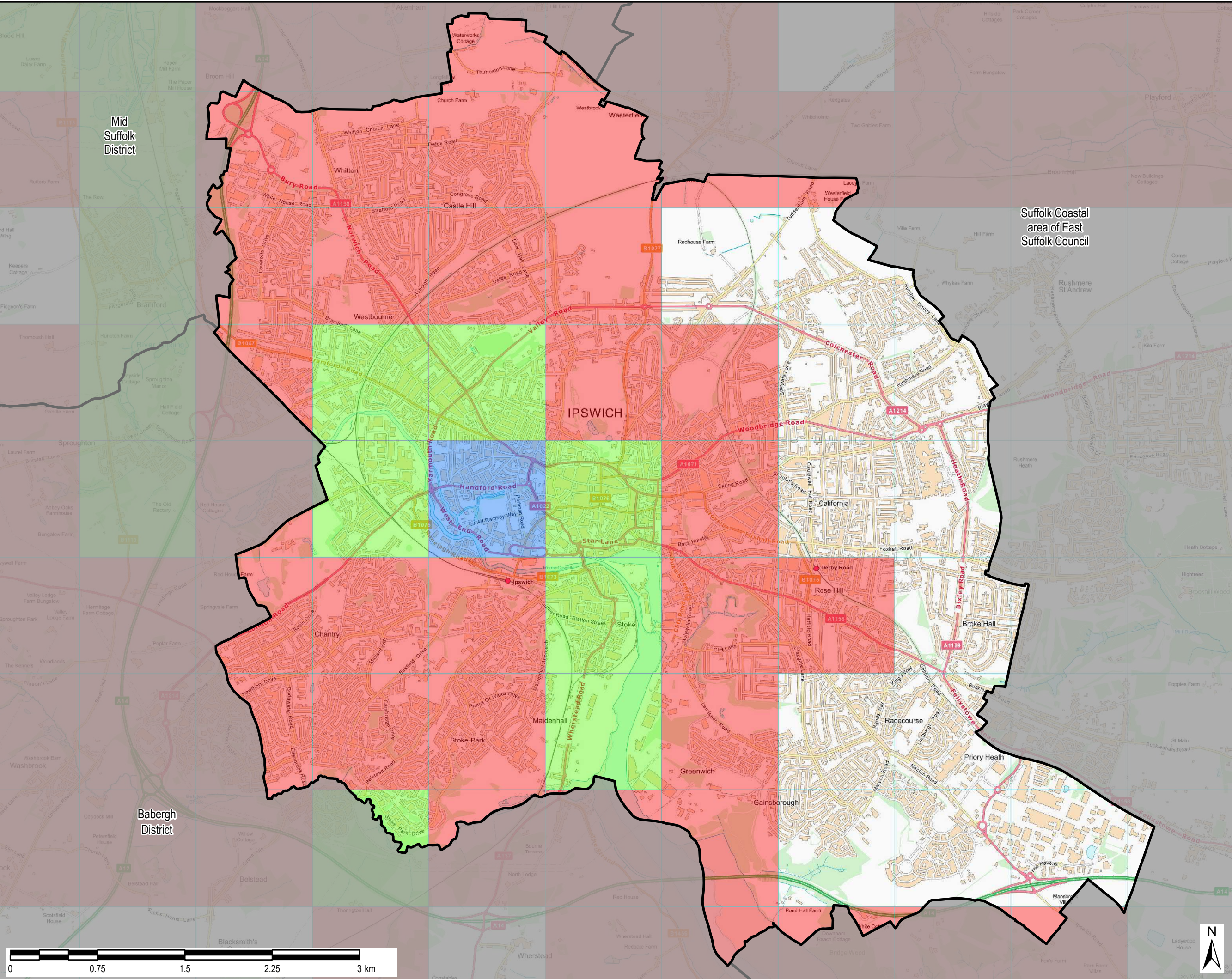
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LEGEND

Borough Boundary

Surrounding Districts

Proportion of each 1km grid square where geological and hydrogeological conditions show that groundwater flooding could occur

< 25%

>= 25% < 50%

>= 50% < 75%

Not considered to be at risk of Groundwater flooding

Notes

1. Areas Susceptible to Groundwater Flooding (ASiGWF) is a strategic scale map showing where groundwater flooding could occur on a 1km square grid. It shows the proportion of each 1km square where geological and hydrogeological conditions show that groundwater flooding could occur. The susceptible areas are represented by one of four categories showing the proportion of each 1km square that is susceptible to groundwater emergence. It does not show the likelihood of groundwater flooding occurring.

2. The absence of values for any grid square means that no part of that square is identified as being susceptible to groundwater emergence.

3. The map identifies areas where further investigation is needed to assess whether groundwater flooding may affect property or infrastructure.

4. This data shown is the Environment Agency dataset 'Areas Susceptible to Groundwater Flooding'.

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AREAS SUSCEPTIBLE
TO GROUNDWATER FLOODING

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LEGEND

- Borough Boundary
- Main Rivers
- Risk of flooding from Reservoirs

Notes

1. In England and Wales, the Environment Agency has a regulatory role for reservoir safety, under the Reservoirs Act 1975. It ensures that reservoirs are regularly inspected and essential safety works are carried out. The Environment Agency has the power to prosecute reservoir owners for failure to carry out essential safety works, and where emergency works are required, it has the power to carry out these works itself.

2. The outline reservoir flood maps do not give any information about the likelihood of reservoir failure, the depth and speed of the flood waters, or the length of time it would take for the flood waters to reach any location.

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Project Title

IPSWICH LEVEL 1 SFRA

Drawing Title

RISK OF FLOODING FROM RESERVOIRS

Drawn HB	Checked SL	Approved EC	Date 09/2019
AECOM Internal Project No. 60612179		Scale @ A3 1:30,000	

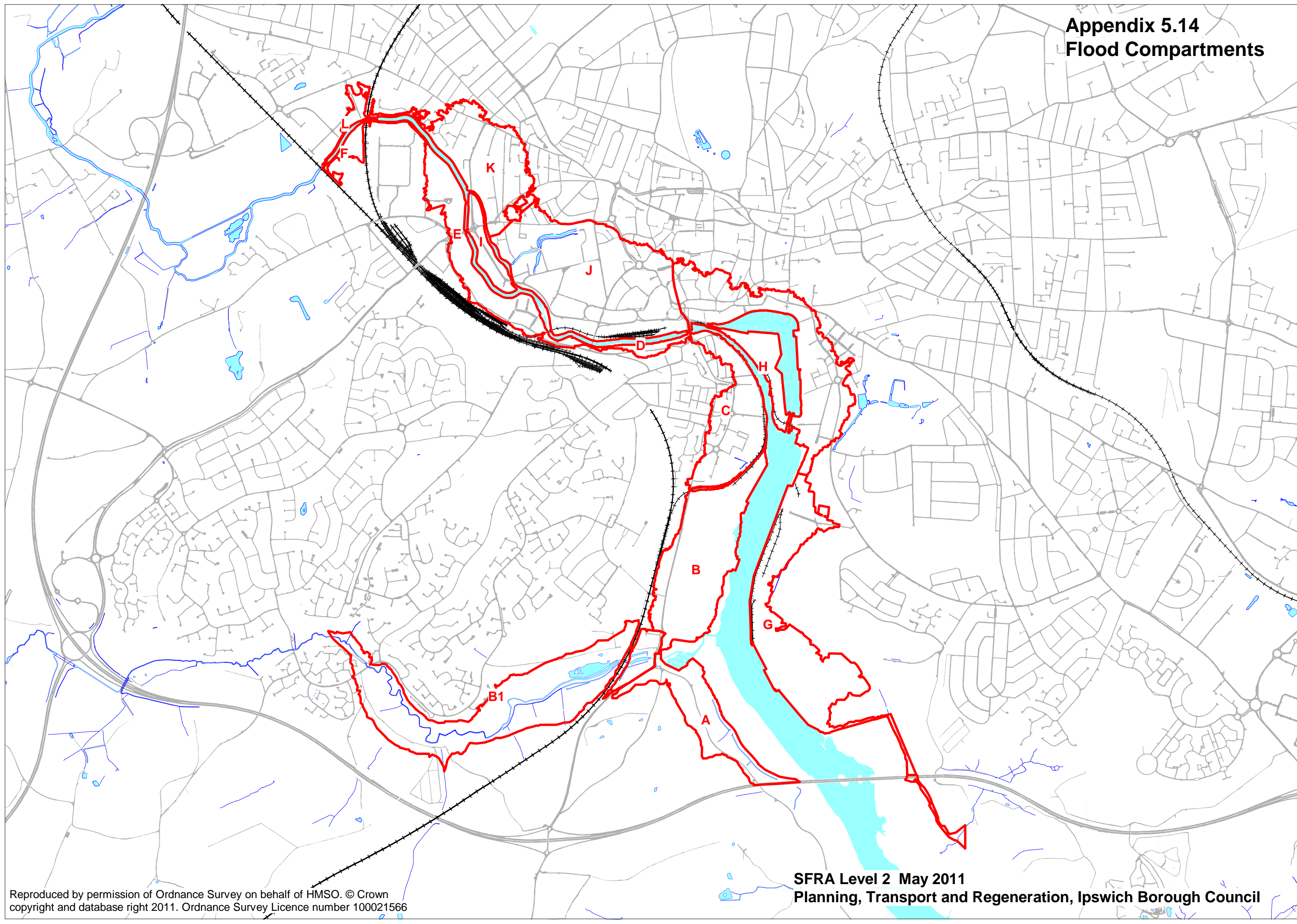
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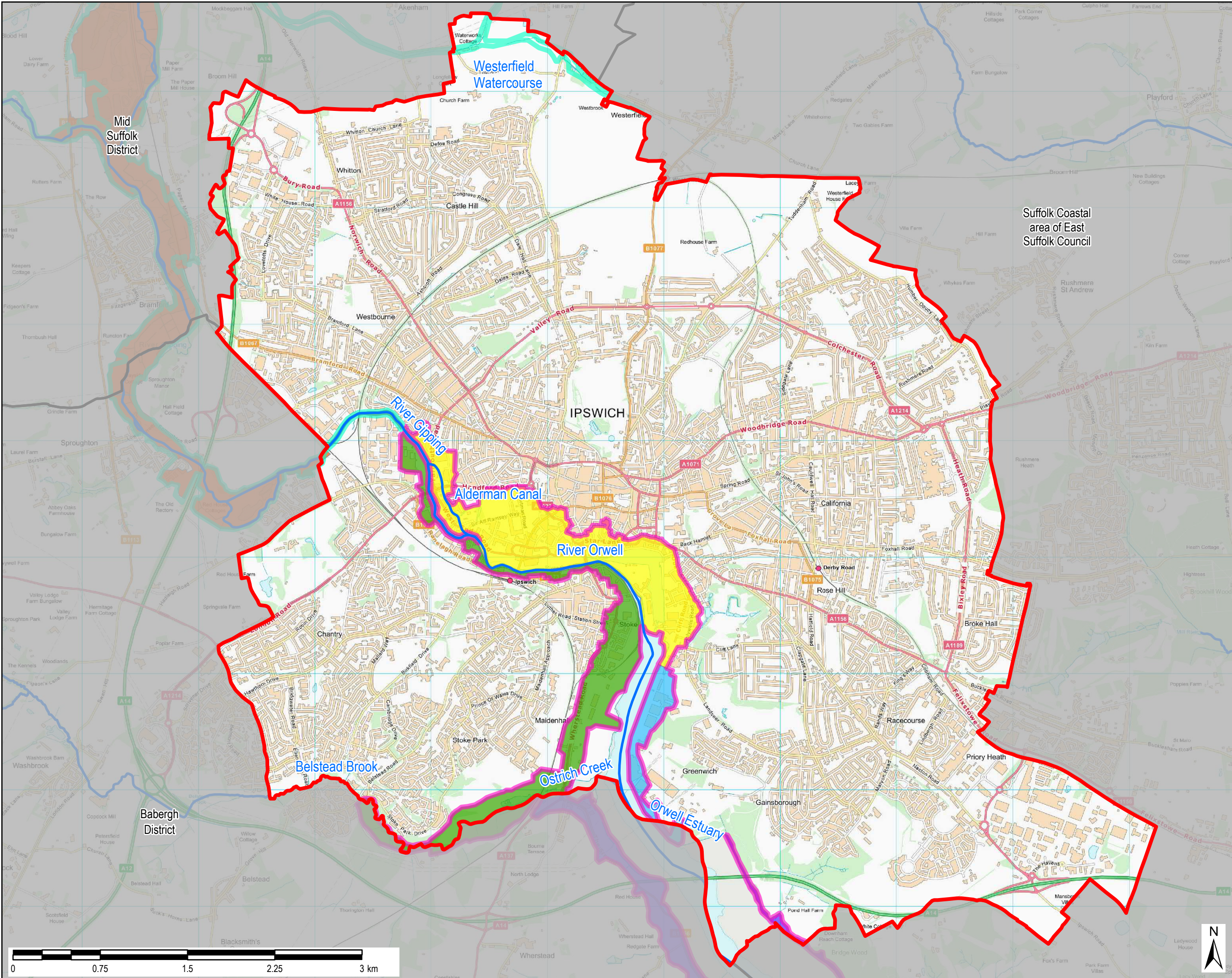
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FIGURE 14

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Appendix 5.14 Flood Compartments



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LEGEND

- Borough Boundary
- Surrounding Districts
- Main Rivers

Flood Warning Area

- The River Gipping from Needham Market to London Road Bridge, Ipswich
- The tidal River Orwell at Cliff Quay industrial area in Ipswich
- The tidal River Orwell at Ipswich wet dock and waterfront, to upstream of Stoke Bridge
- The tidal River Orwell estuary from Felixstowe to Bourne Bridge in Ipswich
- The tidal River Orwell from Bourne Park to Hadleigh Road Industrial Estate

Flood Alert Areas

- The River Gipping, from downstream of Needham Market, to upstream of London Road Bridge, Ipswich
- The Suffolk and Essex coast from Felixstowe to Clacton including Orwell and Stour estuaries

Notes

1. The Environment Agency provide a free flood warning service for many areas at risk of flooding from rivers and the sea. In some parts of England the Environment Agency may be able to provide warnings when flooding from groundwater is possible. The Environment Agency free flood warning service can provide advance notice of flooding and can provide time to prepare.
2. The Environment Agency issue flood warnings to homes and businesses when flooding is expected. Upon receipt of a flood warning, occupants should take immediate action.
3. The Environment Agency issue flood alerts when flooding is possible. Flood alerts cover larger areas than flood warnings and are issued more frequently. Upon receipt of a flood warning, occupants should be prepared for flooding and to take action.
4. If a flood alert for groundwater is available this does not mean that your property is definitely at risk. It is very difficult to predict the exact location of flooding from groundwater as it is often related to local geology. To help people, the Environment Agency provide flood alerts for large areas that could be affected if groundwater levels were high.
5. The 'River Gipping from Needham Market to London Road Bridge, Ipswich' is predominantly upstream of the study area however a small part of the Flood Warning Area extends into the Borough

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Project Title
IPSWICH LEVEL 1 SFRA

Drawing Title
FLOOD WARNING
AREAS AND FLOOD
ALERT AREAS

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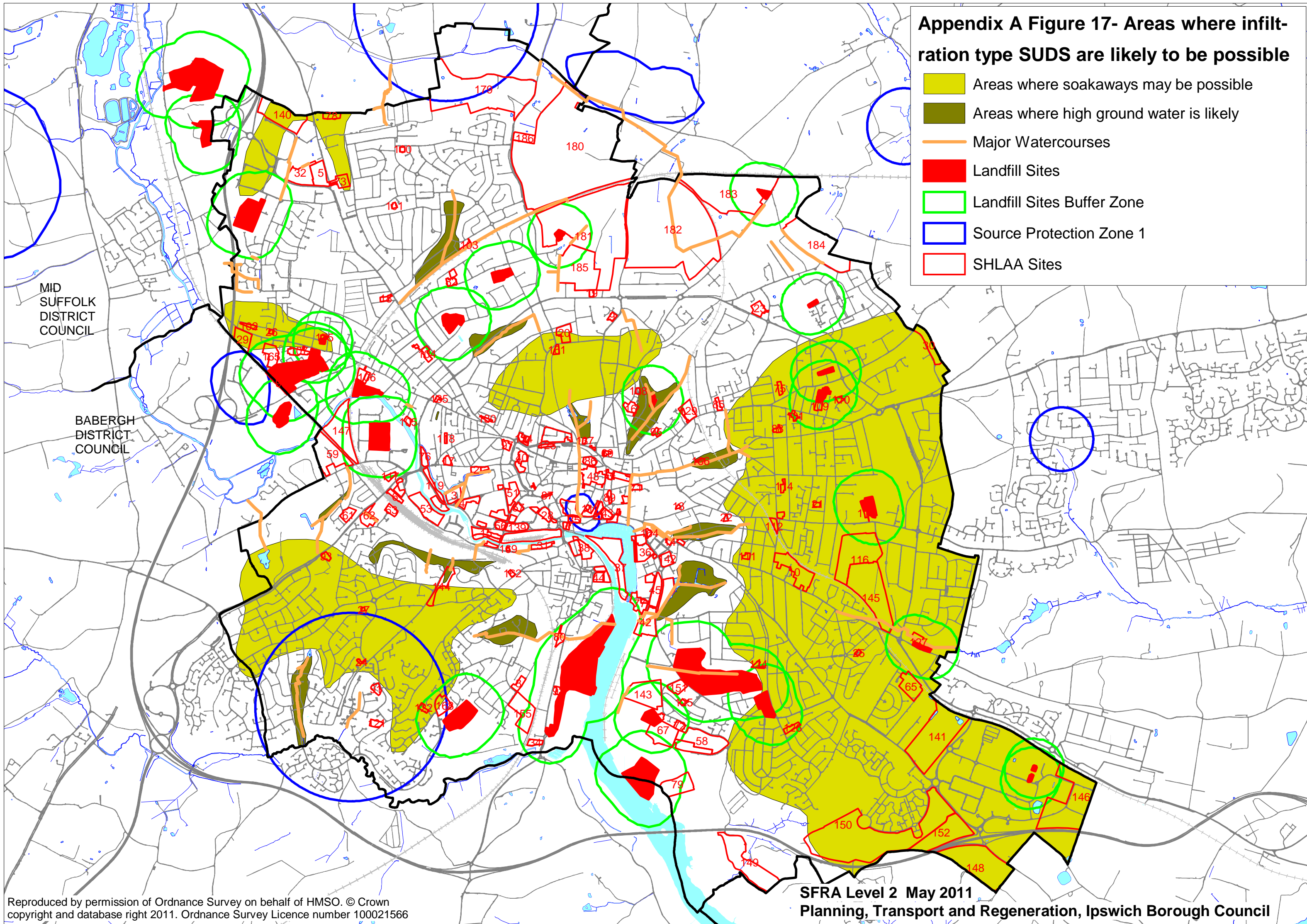
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FIGURE 16

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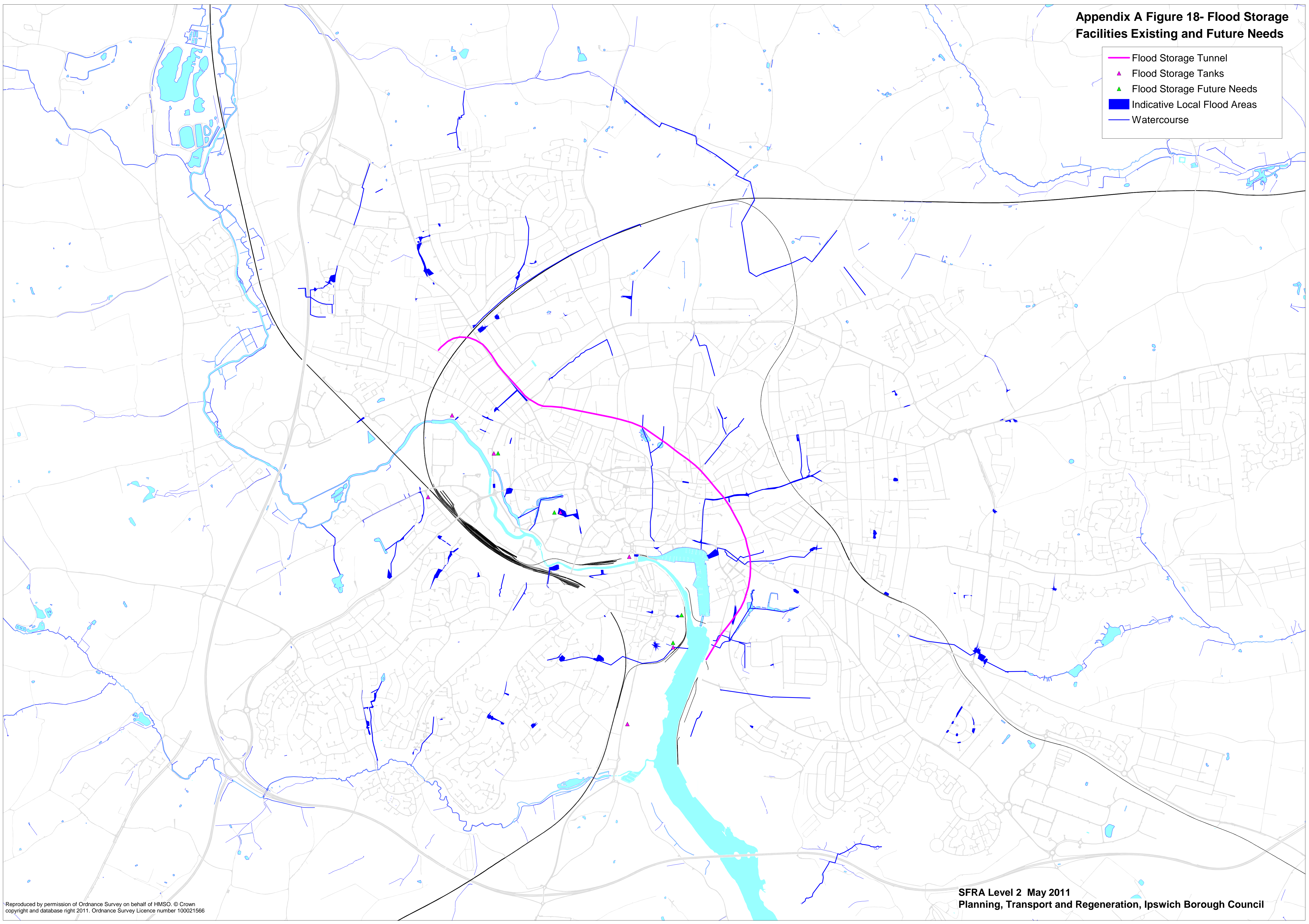
Appendix A Figure 17- Areas where infiltration type SUDS are likely to be possible

- Areas where soakaways may be possible
- Areas where high ground water is likely
- Major Watercourses
- Landfill Sites
- Landfill Sites Buffer Zone
- Source Protection Zone 1
- SHLAA Sites

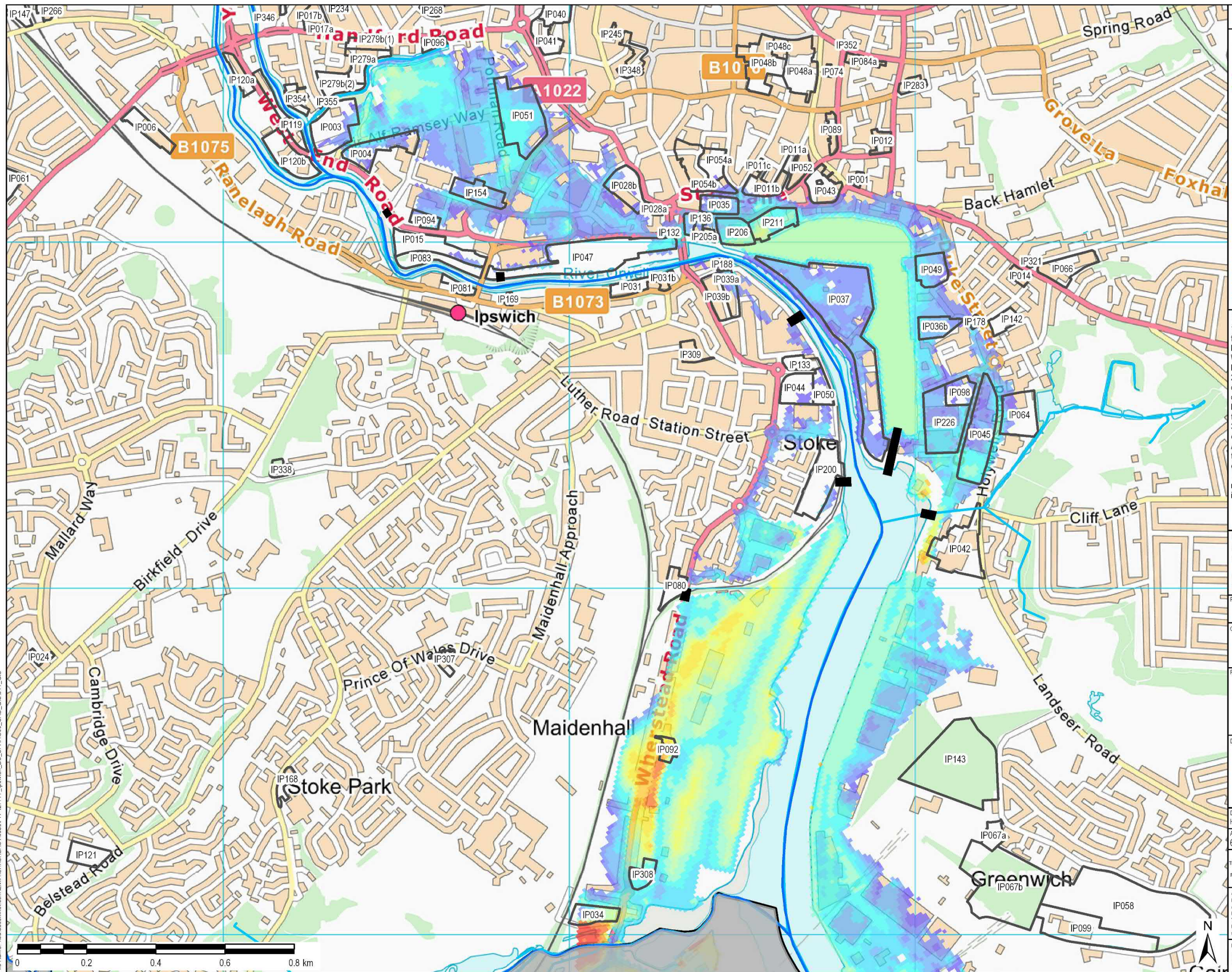


**Appendix A Figure 18- Flood Storage
Facilities Existing and Future Needs**

- Flood Storage Tunnel
- Flood Storage Tanks
- Flood Storage Future Needs
- Indicative Local Flood Areas
- Watercourse



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LEGEND

- Borough Boundary
- Breach Locations
- Main Rivers
- Ordinary Watercourses
- SHELAA sites Ipswich April 2018 - draft update 2019

Flood Depth (m)

- ≤ 0
- ≤ 0.25
- ≤ 0.5
- ≤ 0.75
- ≤ 1
- ≤ 1.25
- ≤ 1.5
- ≤ 1.75
- ≤ 2
- ≤ 2.25
- ≤ 2.5
- ≤ 2.75
- ≤ 3
- ≤ 4
- ≤ 5

Notes

- This map shows the combined flood depth from the following scenarios: IP03 Barrier Closed; BR05 Breach at East bank defence; BR07 Breach at Wherstead Road defences; and IP04 Barrier Closed but pumping station not in operation.
- The breach modelling was updated in 2011 as part of the original SFRA (from EA breach modelling created in 2009) and was sensitivity tested by the Environment Agency in 2019 for inclusion within this updated SFRA.
- Modelling shown includes the raising of flood defences (relative to former SHLAA site 47) to 6m AOD. This defence raising has not been completed, therefore, the local representation of flood hazard and depth may be slightly altered. Development proposals local to this site should further develop breach modelling in consultation with the EA, IBC & LLFA to inform development layout

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Project Title

IPSWICH LEVEL 1 SFRA 2019

Drawing Title

COMBINED FLOOD DEPTH
0.5% AEP 2118
IP03 BR05 BR07; IP04 BR00

Drawn

HB

Checked

SL

Approved

EC

Date

03/20

AECOM Internal Project No.

60612179

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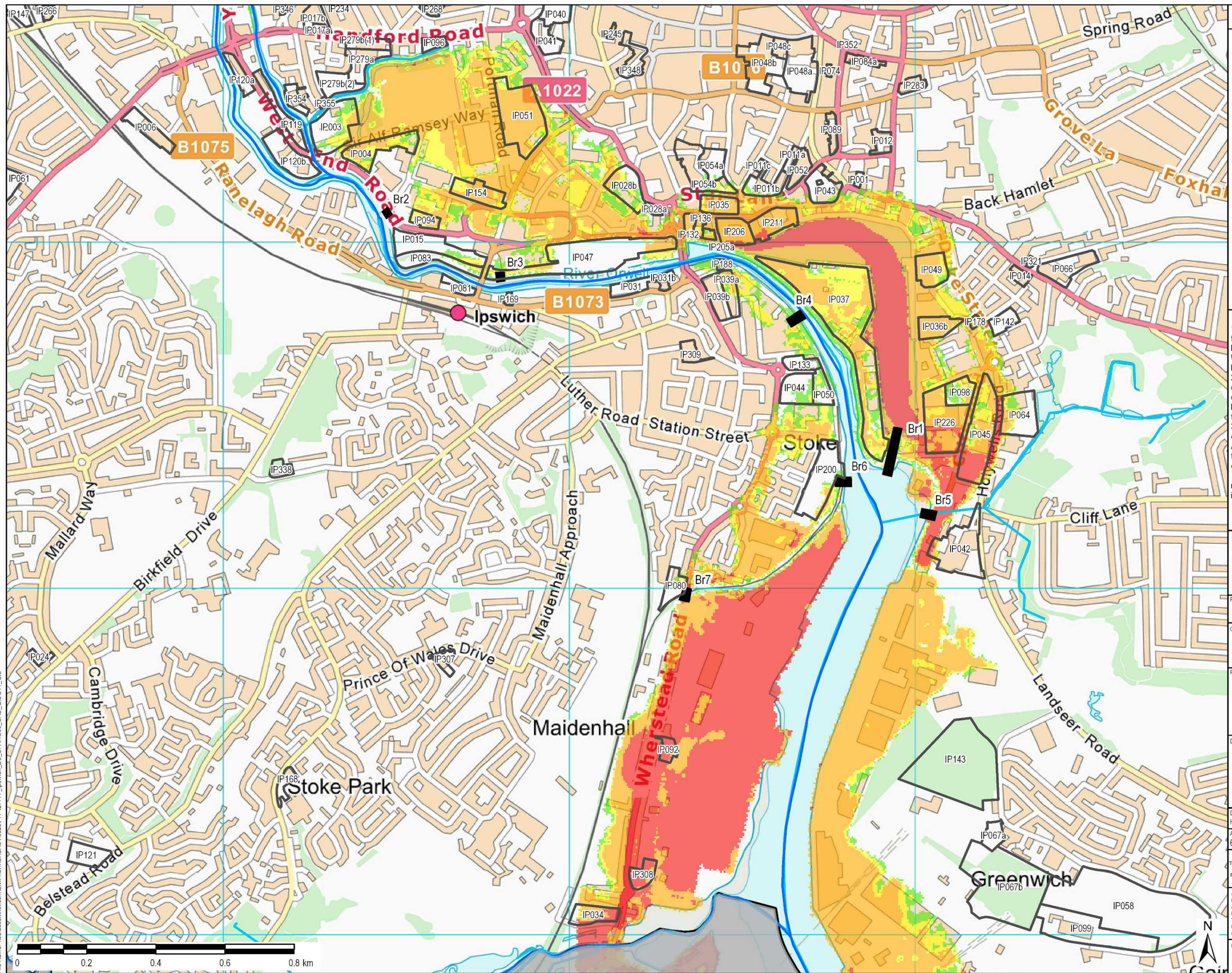
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LEGEND

- Borough Boundary
 - Breach Locations
 - Main Rivers
 - Ordinary Watercourses
 - SHELAA sites Ipswich April 2018 -
draft update 2019
- Hazard Rating
- Caution
 - Danger to Some
 - Danger to Most
 - Danger to All

Notes

- This map shows the combined flood hazard from the following scenarios: IP03 Barrier Closed; BR05 Breach at East bank defence; BR07 Breach at Wherstead Road defences; and IP04 Barrier Closed but pumping station not in operation.
- The breach modelling was updated in 2011 as part of the original SFRA (from EA breach modelling created in 2009) and was sensitivity tested by the Environment Agency in 2019 for inclusion within this updated SFRA.
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Drawing Title

COMBINED FLOOD HAZARD
0.5% AEP 2110
IP03 BR05 BR07; IP04 BR00

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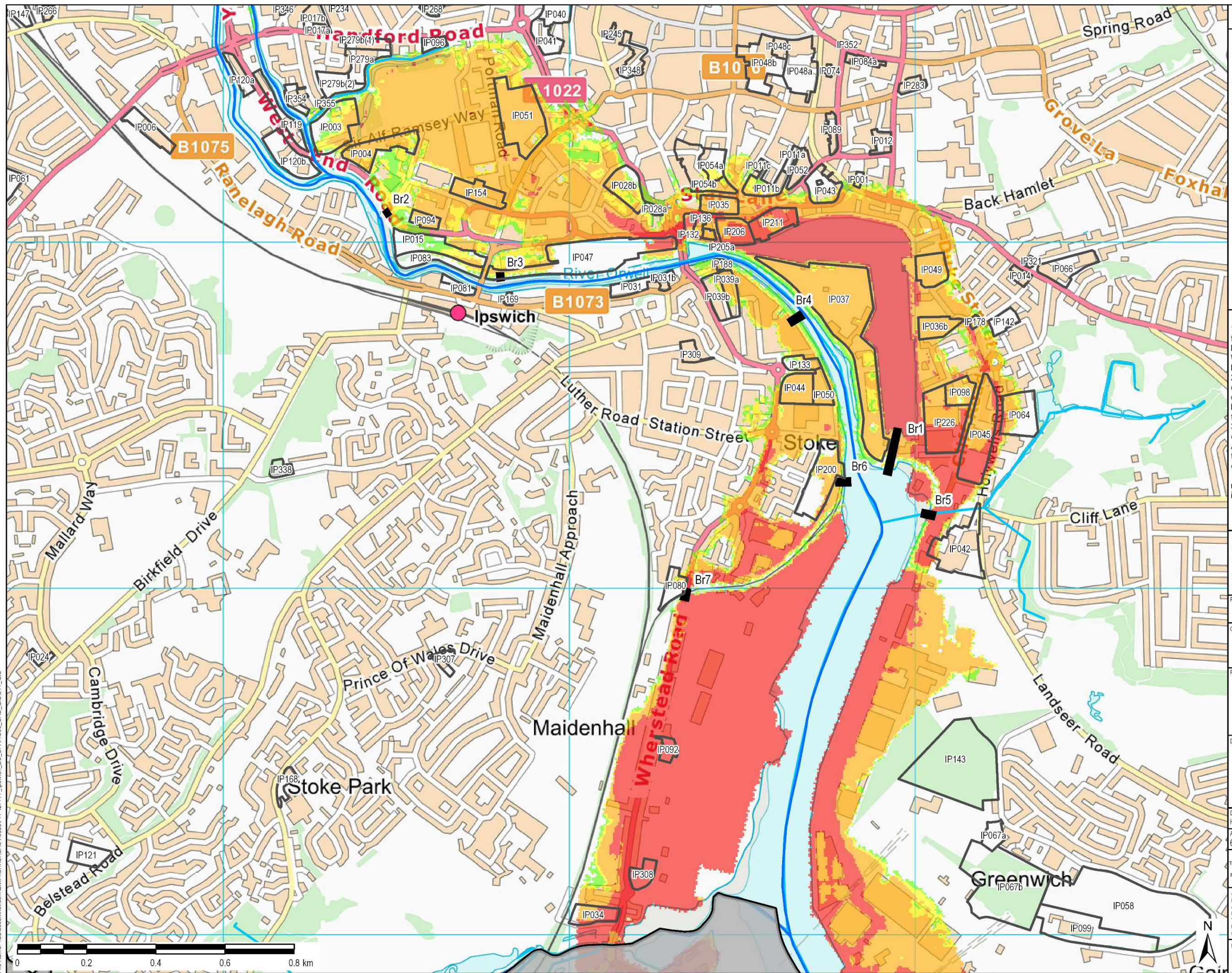
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FIGURE 20

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 - Breach Locations
 - Main Rivers
 - Ordinary Watercourses
 - SHELAA sites Ipswich April 2018 -
draft update 2019
- Flood Hazard
- Caution
 - Danger to Some
 - Danger to Most
 - Danger to All

Notes

- This map shows the combined flood hazard from the following scenarios: IP03 Barrier Closed; BR05 Breach at East bank defence; BR07 Breach at Wherstead Road defences; and IP04 Barrier Closed but pumping station not in operation.
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**COMBINED FLOOD HAZARD
0.1% AEP 2118
IP03 BR05 BR07; IP04 BR00**

Drawn	Checked	Approved	Date
HB	SL	EC	03/20

AECOM Internal Project No.
60612179

Scale @ A3
1:10,000

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Drawing Number
FIGURE 22

Rev
01

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Surface Water Management Plan, June 2012

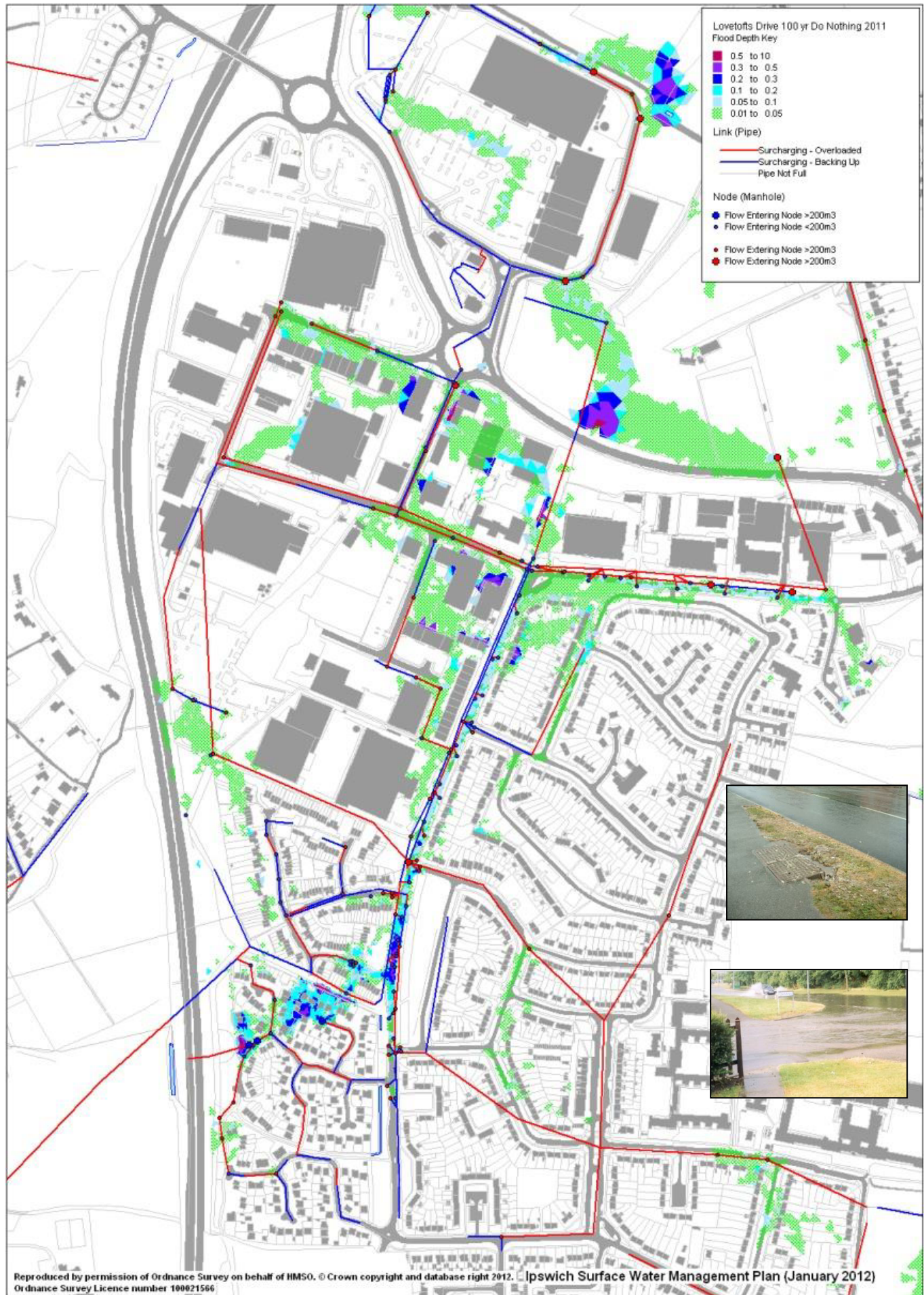
Surface Water Flood Map for Worsely Close / Ellenbrook

From SWMP – 100 Year Return Period @2011

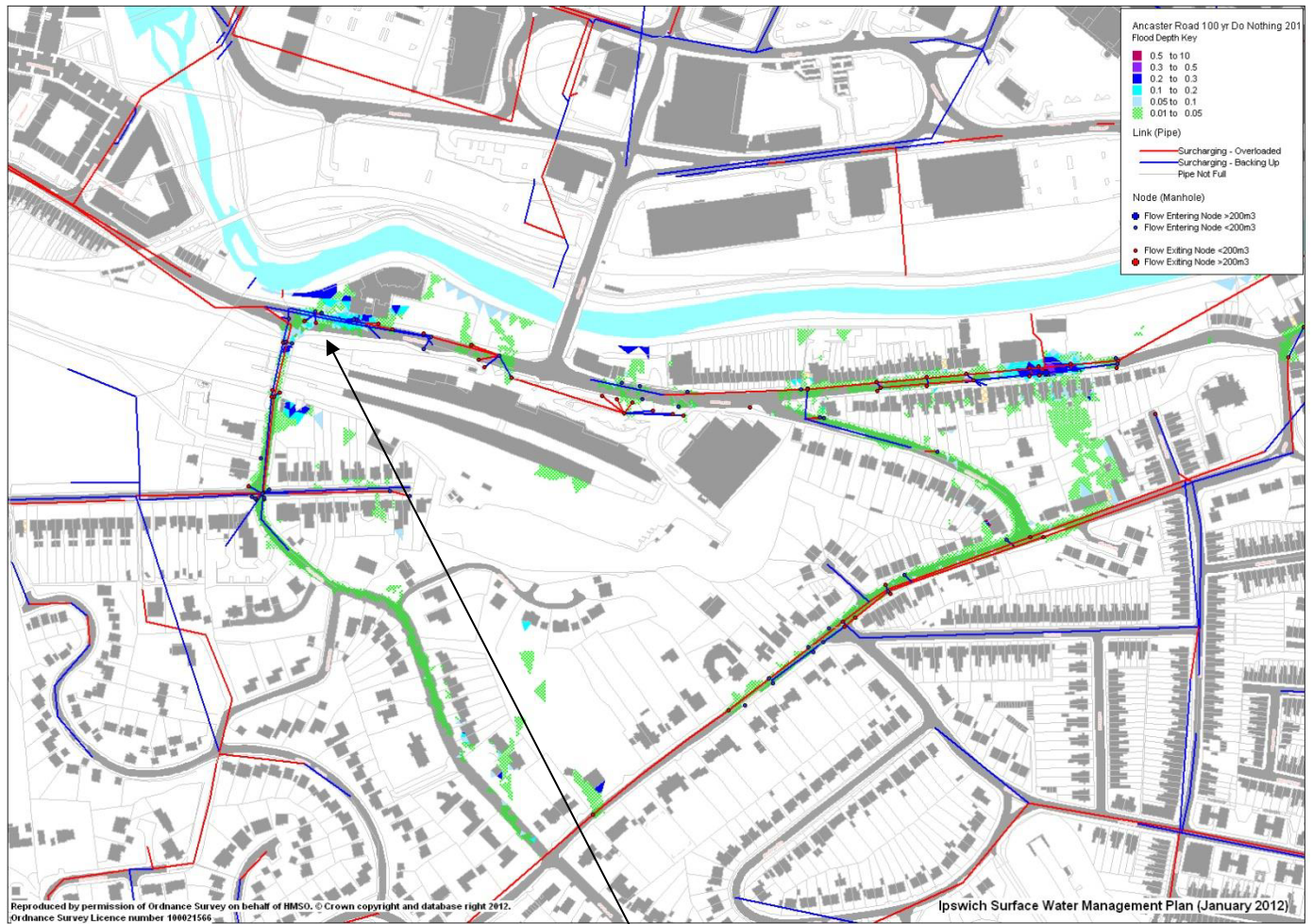


Surface Water Flood Map for Lovetofts Drive area.

From SWMP – 100 Year Return Period @2011

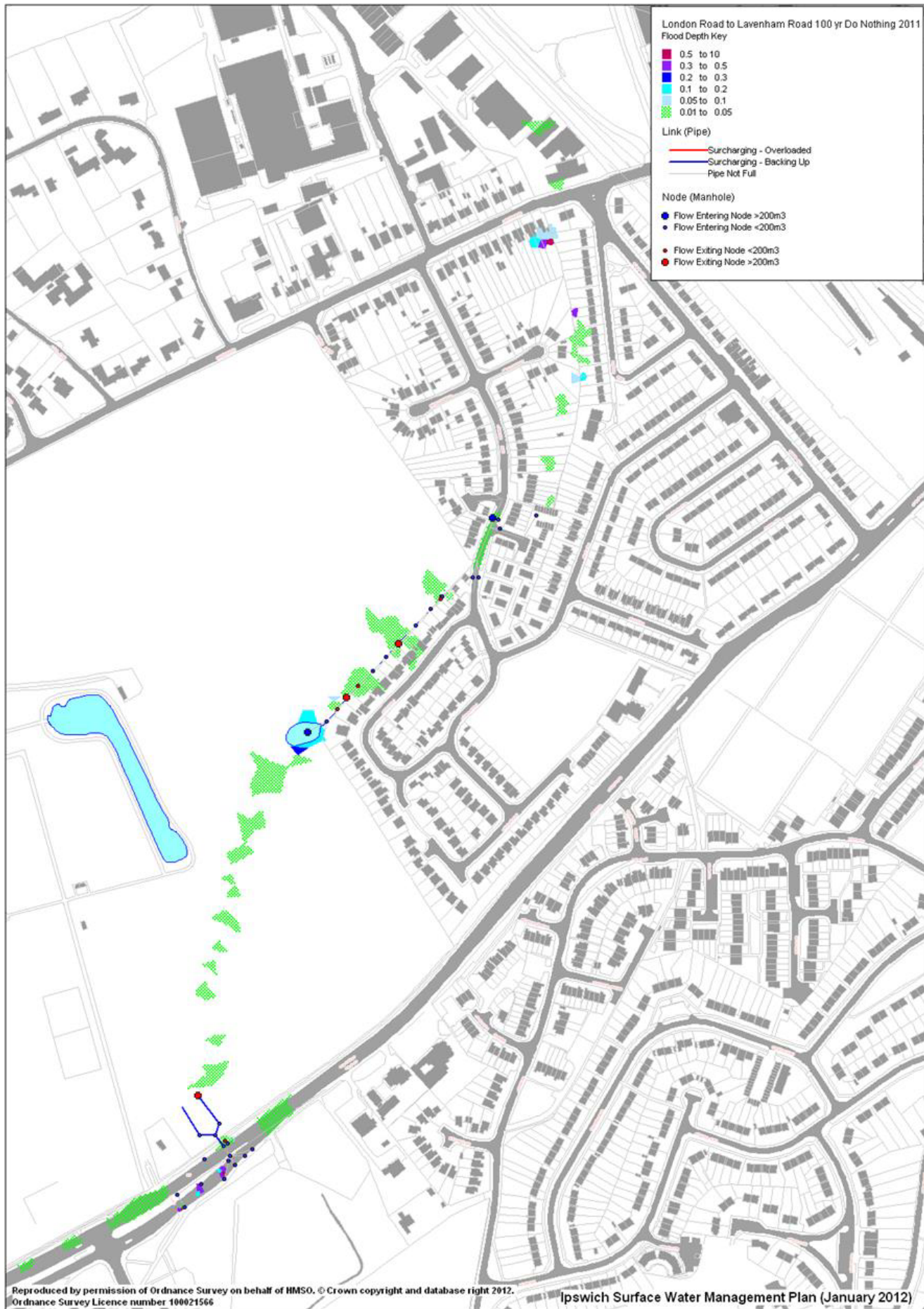


Surface Water Flood Map for Ancaster Road / Burrell Road. From SWMP – 100 Year Return Period @2011

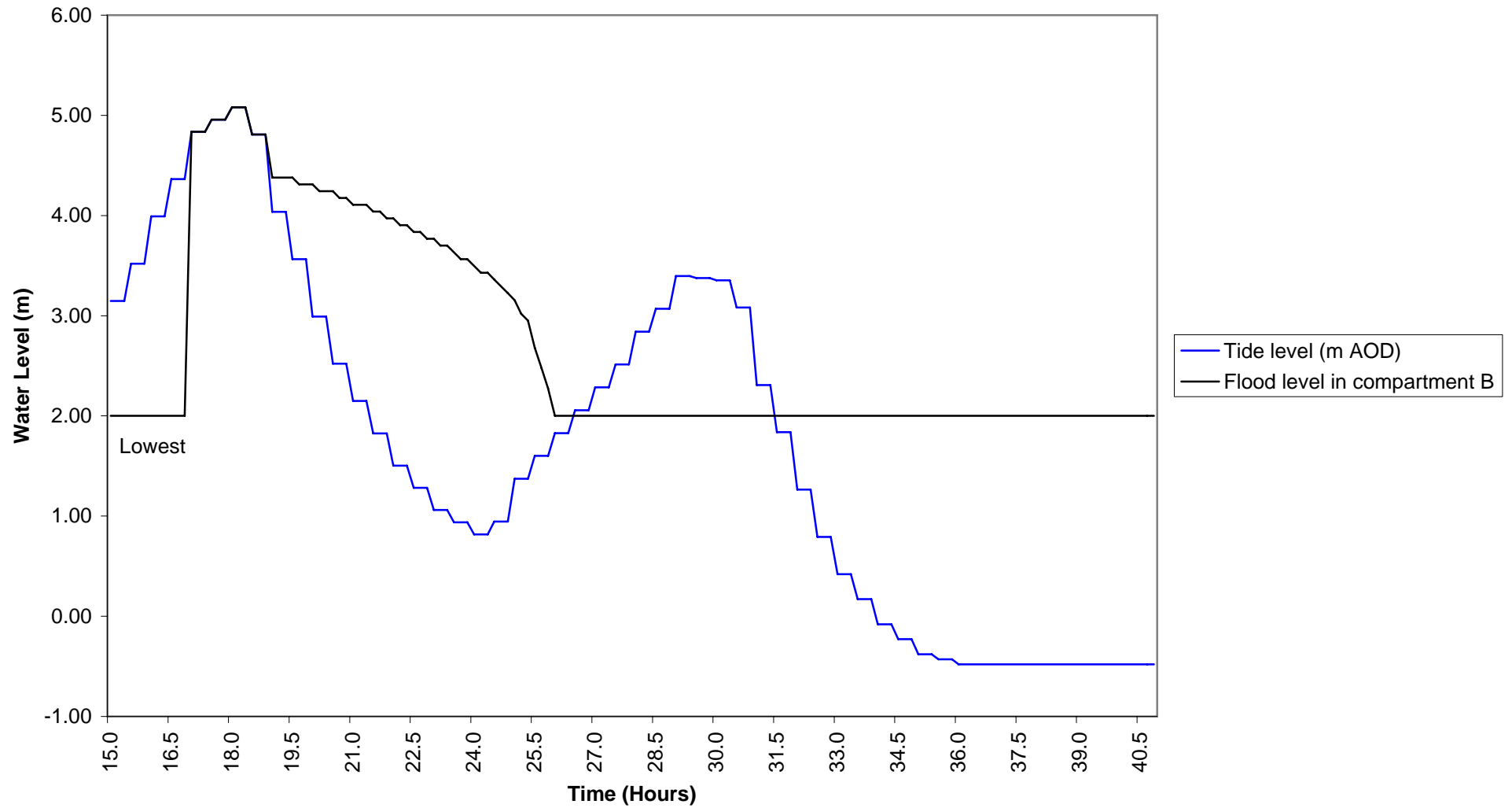


Surface Water Flood Map for London Road & Hadleigh Road.

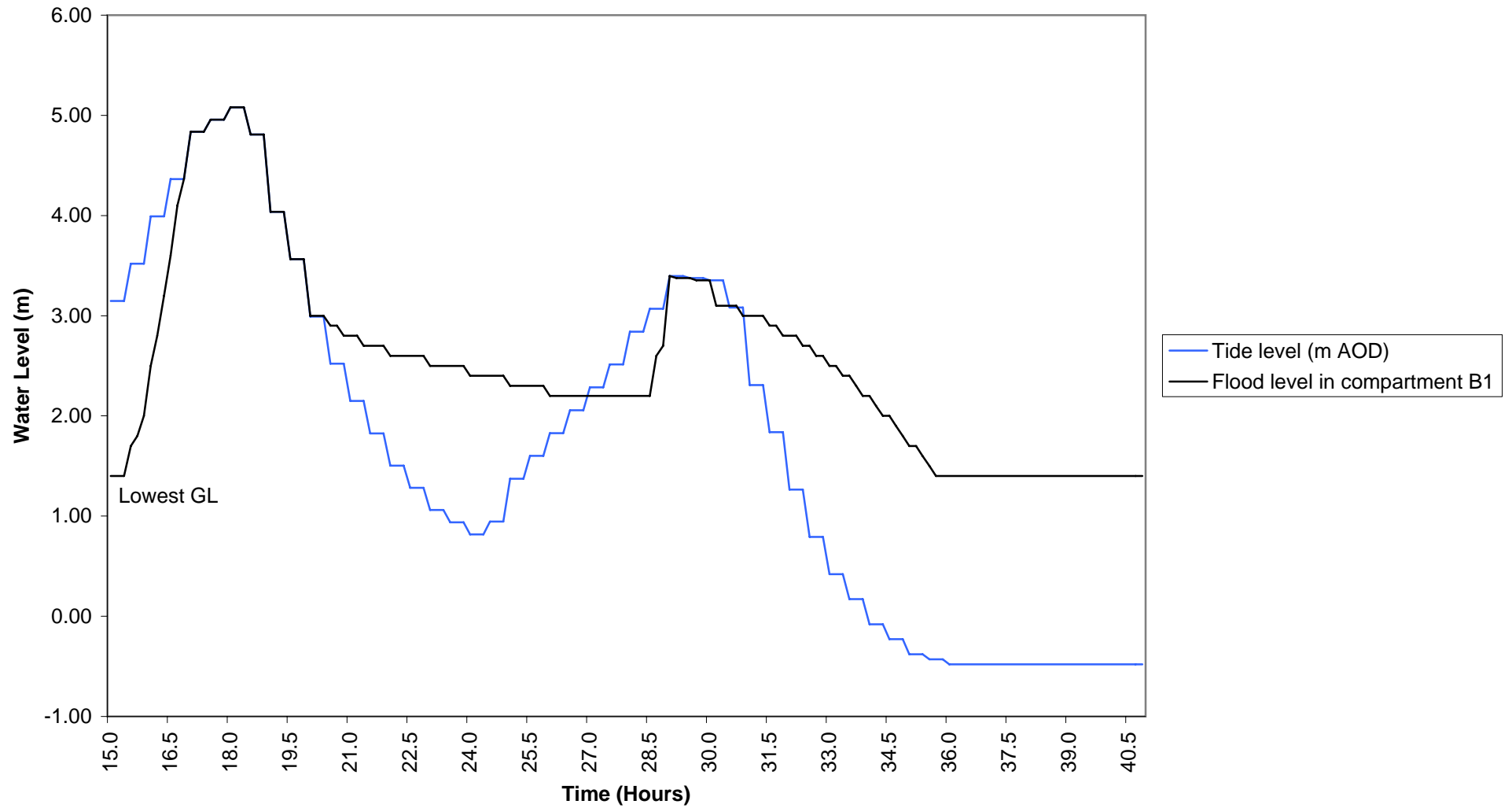
From SWMP – 100 Year Return Period @2011



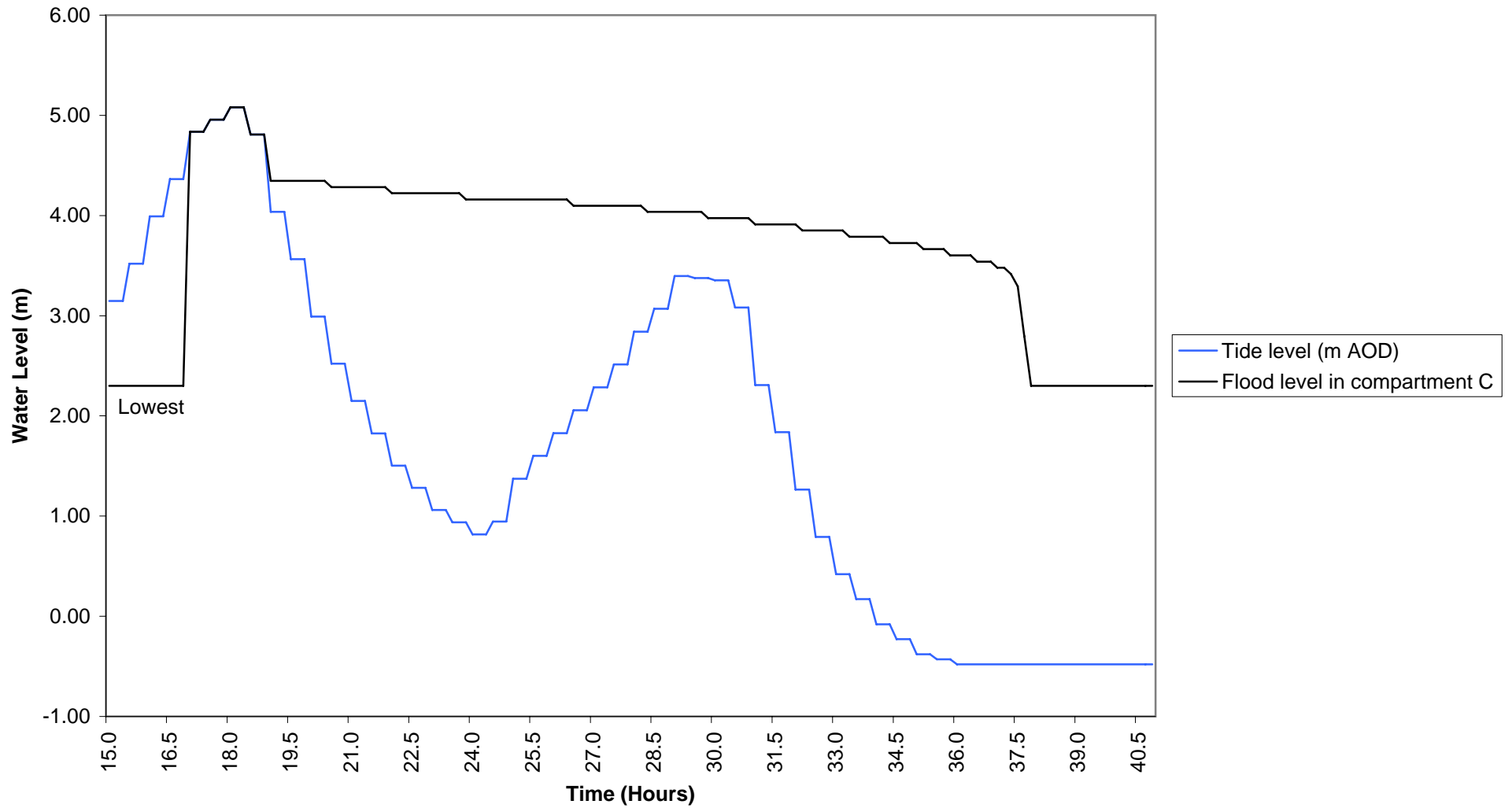
Speed of Onset and Duration Compartment B



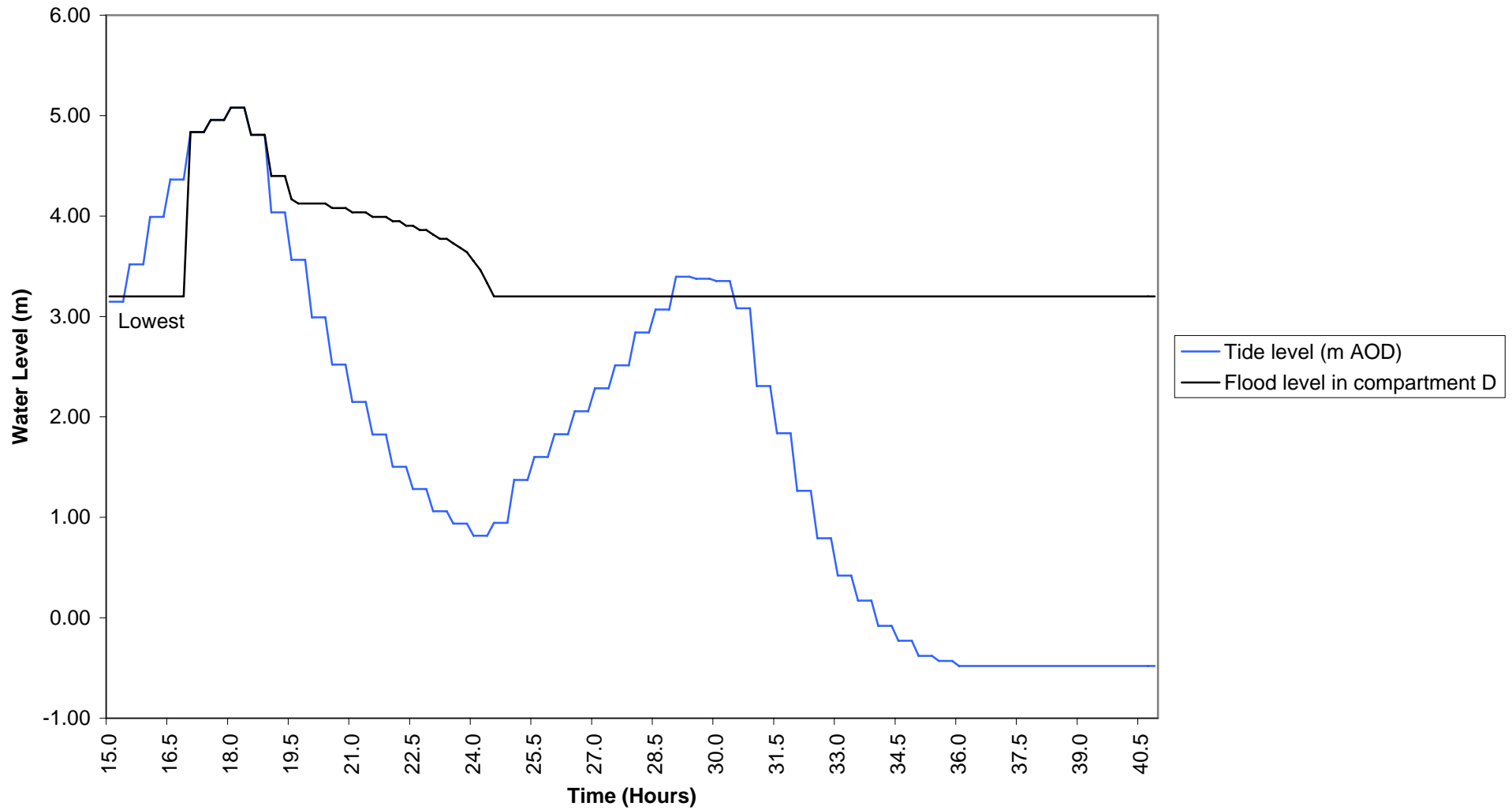
Speed of Onset and Duration Compartment B1



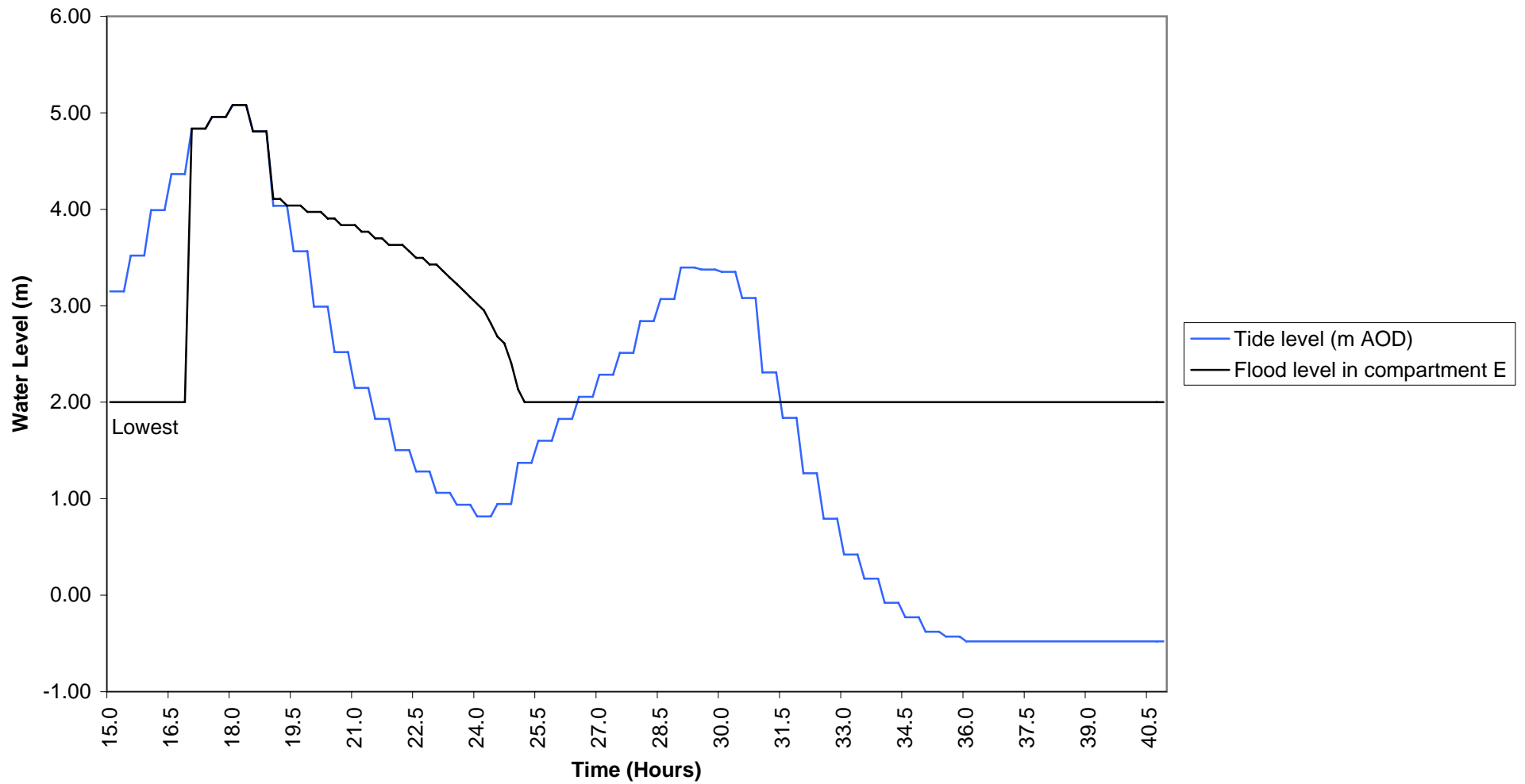
Speed of Onset and Duration Compartment C



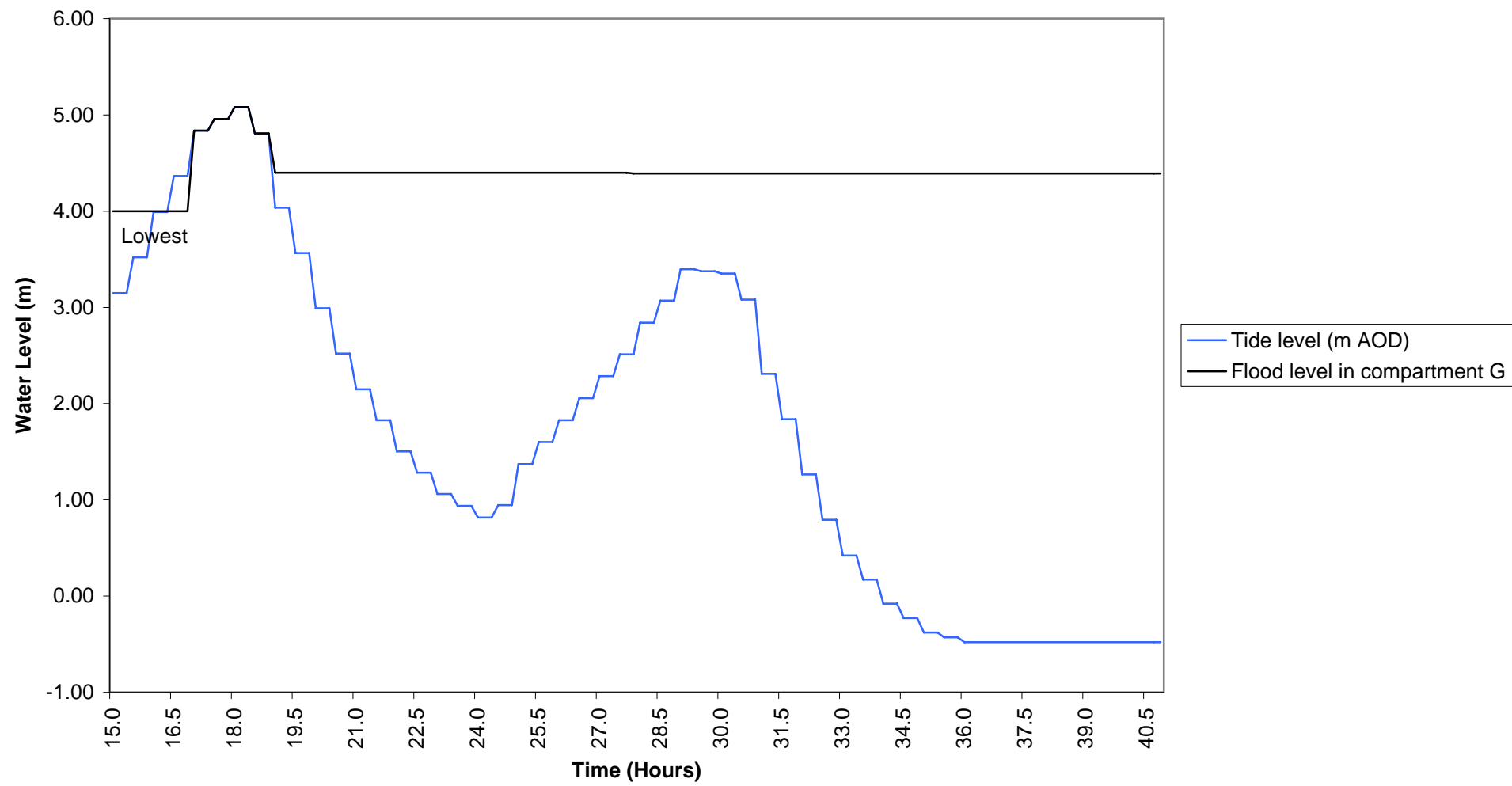
Speed of Onset and Duration Compartment D



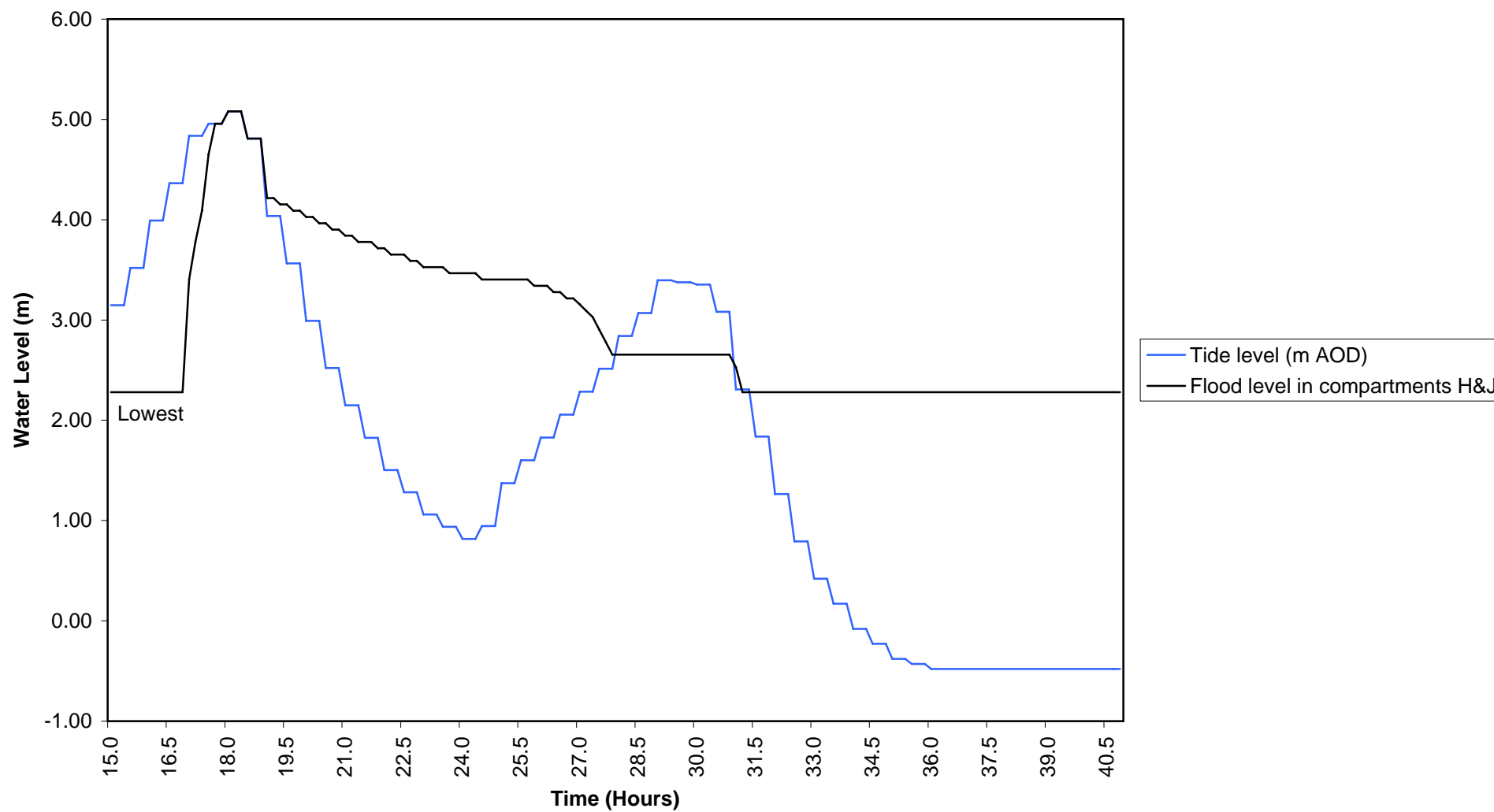
Speed of Onset and Duration Compartment E



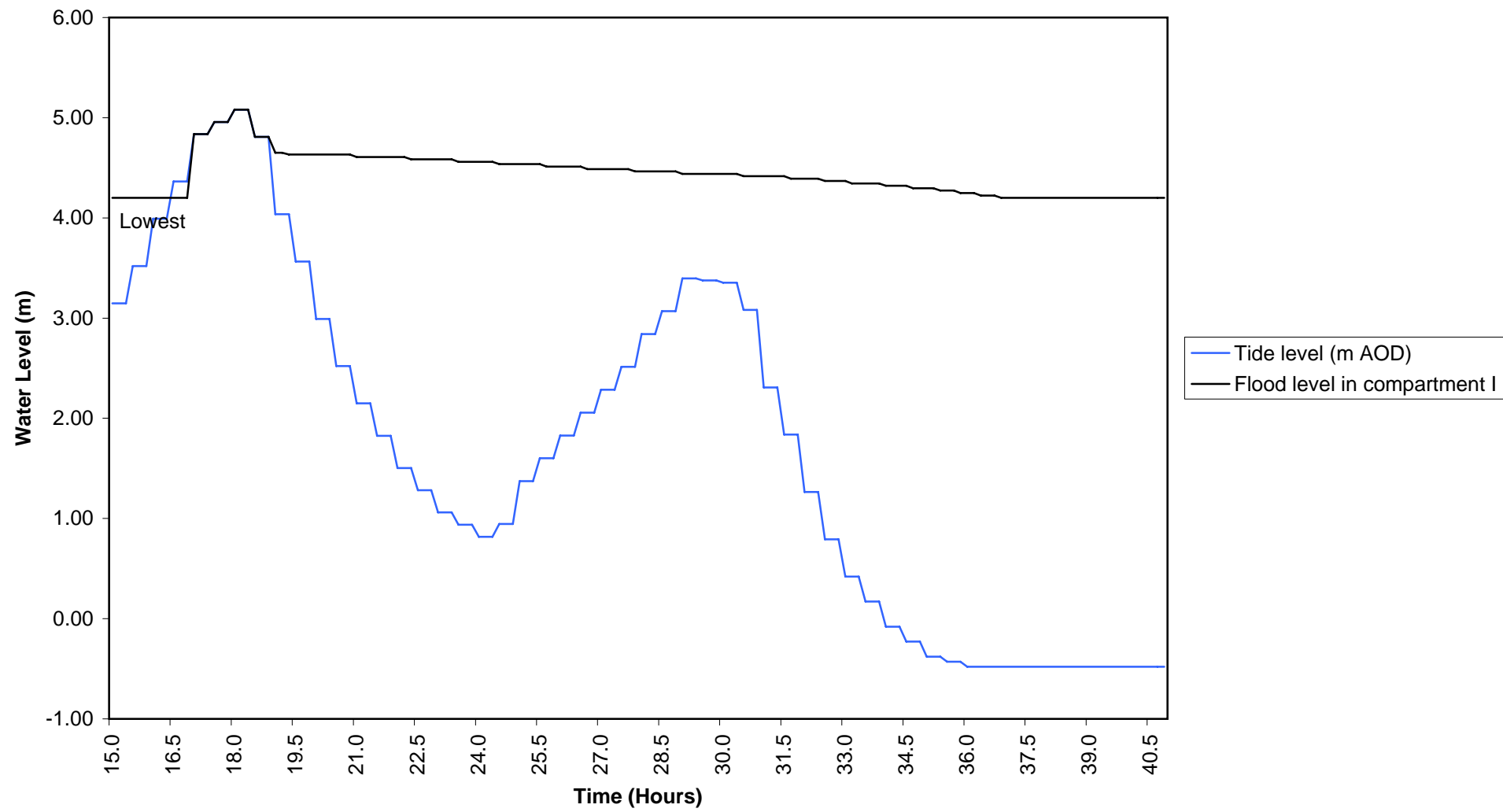
Speed of Onset and Duration Compartment G



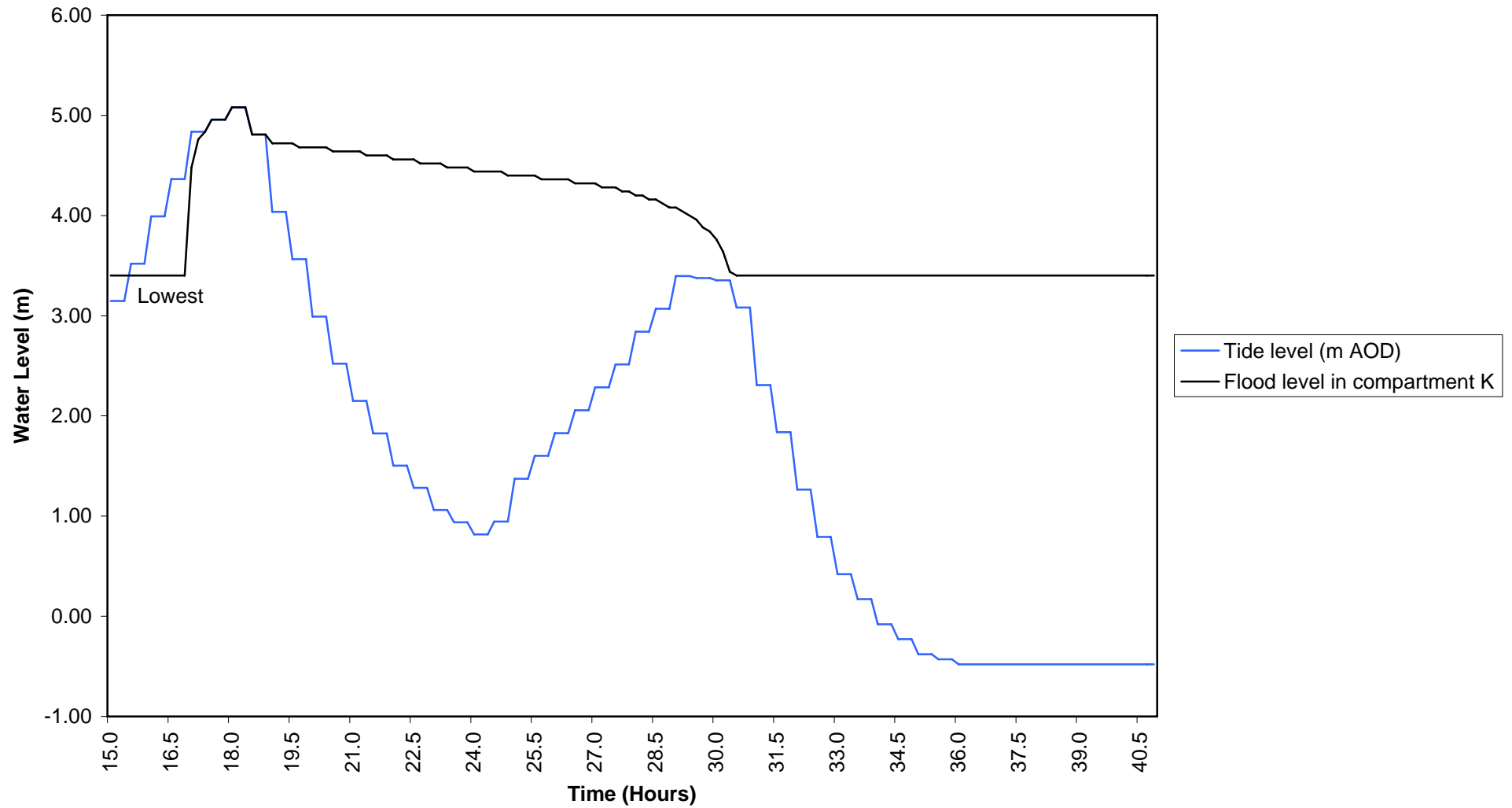
Speed of Onset and Duration Compartments H&J



Speed of Onset and Duration Compartments I



Speed of Onset and Duration Compartments K



IPSWICH BOROUGH COUNCIL SFRA

Appendix E

GUIDANCE FOR DEVELOPERS CONCERNING THE PREPARATION OF FLOOD WARNING AND EVACUATION PLANS

This guidance has been prepared for the purpose of assisting developers required to submit Flood Warning and Evacuation Plans to fulfil Planning Condition requirements associated with property development within the floodplain of Ipswich.

Disclaimer

Every effort has been made to ensure this guidance is accurate and comprehensive as at the date it was prepared, however it is the responsibility of the developer to ensure that any additional risks relevant to a particular property development are fully considered. Ipswich Borough Council will not accept responsibility for any errors, omissions or misleading statements in this guidance or for any loss, damage or inconvenience caused as a result of relying on this guidance.

Planning Practice Guidance (Flood Risk and Coastal Change)

The PPG (Flood Risk and Coastal Change)¹ states that one of the considerations to ensure that any new development is safe, including where there is a residual risk of flooding, is whether adequate flood warnings would be available to people using the development.

Flood warning and evacuation plans will need to take account of the likely impacts of climate change, e.g. increased water depths and the impact on how people can be evacuated. In consultation with the authority's emergency planning staff, the local planning authority will need to ensure that evacuation plans are suitable through appropriate planning conditions or planning agreements.

In advising the local planning authority, the emergency services are unlikely to regard developments that increase the scale of any rescue that might be required as being safe. Even with defences in place, if the probability of inundation is high, safe access and egress should be maintained for the lifetime of the development. The practicality of safe evacuation from an area will depend on:

- the type of flood risk present, and the extent to which advance warning can be given in a flood event;
- the number of people that would require evacuation from the area potentially at risk;
- the adequacy of both evacuation routes and identified places that people could be evacuated to (and taking into account the length of time that the evacuation may need to last), and;
- sufficiently detailed and up to date evacuation plans being in place for the locality that address these and related issues.

¹ <https://www.gov.uk/guidance/flood-risk-and-coastal-change#flood-warning-and-evacuation-plans>

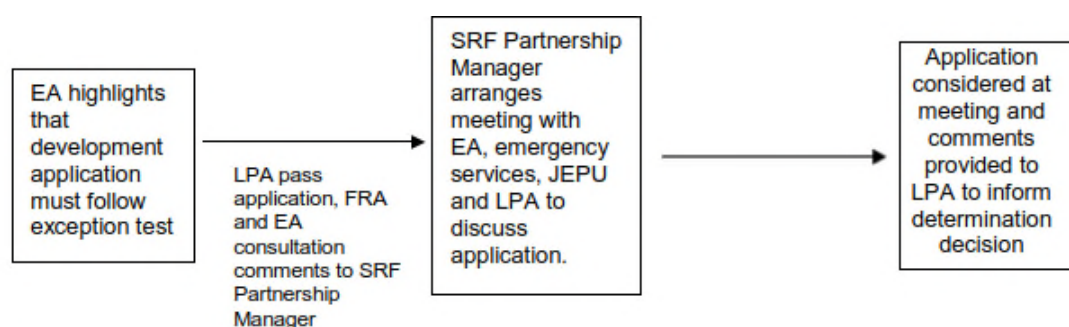
Role of the Suffolk Resilience Forum in relation to developments in flood plains

Planning for flood emergencies within Suffolk is a process that is overseen by the Suffolk Local Resilience Forum (SRF) in accordance with the Civil Contingencies Act². Specifically, the risk of flooding is assessed, and appropriate contingency planning is undertaken. The outcome of these activities is published within the Suffolk Community Risk Register and in the SRF Flood Plan; both documents available at www.suffolkresilience.com.

These documents demonstrate that Suffolk has assessed the risk of flooding within the county and has developed appropriate flood emergency response arrangements to deal with flood emergencies.

Legal advice taken by Suffolk Constabulary, Suffolk Fire and Rescue Services and Suffolk local authority emergency planning indicates that to avoid potential future liability it is not appropriate to provide a definitive statement with regards to the safety or adequacy of flood evacuation plans for developments in flood risk areas. However, recognising its collective responsibility for emergency planning, the SRF has signposted advice to developers on the content of a Flood Emergency Plan (available on the SRF website) along with other information from national and local agencies to help planning in flood risk areas.

A process that brings together the Environment Agency (EA), emergency services, local authority emergency planners and relevant LPA has been developed to allow a collective discussion of planning applications requiring application of the Exception test. This process allows any Suffolk (LPA) to seek advice on planning applications via a single point of contact (the SRF Partnership Manager) and for emergency responders/planners to collectively consider and provide comment on applications considering the associated Flood Risk Assessment. This process is shown as follows³:



The outcome of this collective process is an auditable consultation with emergency services and emergency planners that allows any agency to highlight issues or concerns within the competence of the organisation over the proposed development. The process will not state the development is safe or that the Flood Evacuation plan is adequate.

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This collective approach does not replace existing mechanisms for statutory consultation with the emergency services to comment on any applications under the Town and Country Planning Act.

² The Civil Contingencies Act 2004 (Contingency Planning) Regulations 2005.

³ https://www.suffolkresilience.com/uploads/20190228_-_NPPF_SRF_Exception_Test_Process.pdf

Information that should be included within the Flood Warning and Evacuation Plan

The SRF have provided guidance of their website⁴. The purpose of this guidance is to highlight the areas that need to be considered when developing a Flood Warning and Evacuation Plan, including flood warnings, safe routes and evacuation options. The list is not necessarily a comprehensive list of areas to be included in the plan as developments vary, and plans should be tailored to the individual developments.

Flood evacuation plan contents:

- Name and address of premises
- Purpose and scope of plan
- Location - description and map
- Description of proposed development - residential, commercial, tourism
- Main source of flooding identified / Local indicators of potential flooding
- How occupants are made aware of flood evacuation plan - distribution list, solicitors, part of deeds
- EA Floodline Warnings Direct information in plan
- How will flood warnings be received and by whom? (text, phone, fax, e-mail)
- How will visitors or occupants be notified that the site is closed? Procedures - actions to be taken on receiving flood warnings, isolating utilities, relocation of vehicles / stock (if appropriate)
- Flood Alert Notices - locations
- Occupants - particularly vulnerable or not, if vulnerable special mechanisms in place for alerting / evacuation etc
- Evacuation routes - primary and alternative
- On-site refuge
- Flood Kit advice
- Re-occupation
- Contact lists
- Advice on dangers of flood water

⁴ <https://www.suffolkresilience.com/building-in-a-flood-plain>