



UNIVERSAL DESTINATIONS & EXPERIENCES UK PROJECT

Former Kempston Hardwick Brickworks
and adjoining land, Bedford

Environmental Statement Volume 3

Appendix 12.1 - Flood Risk Assessment

Part 3/6

Report reference: 4.12.1.0

Revision number: 00

Date: June 2025

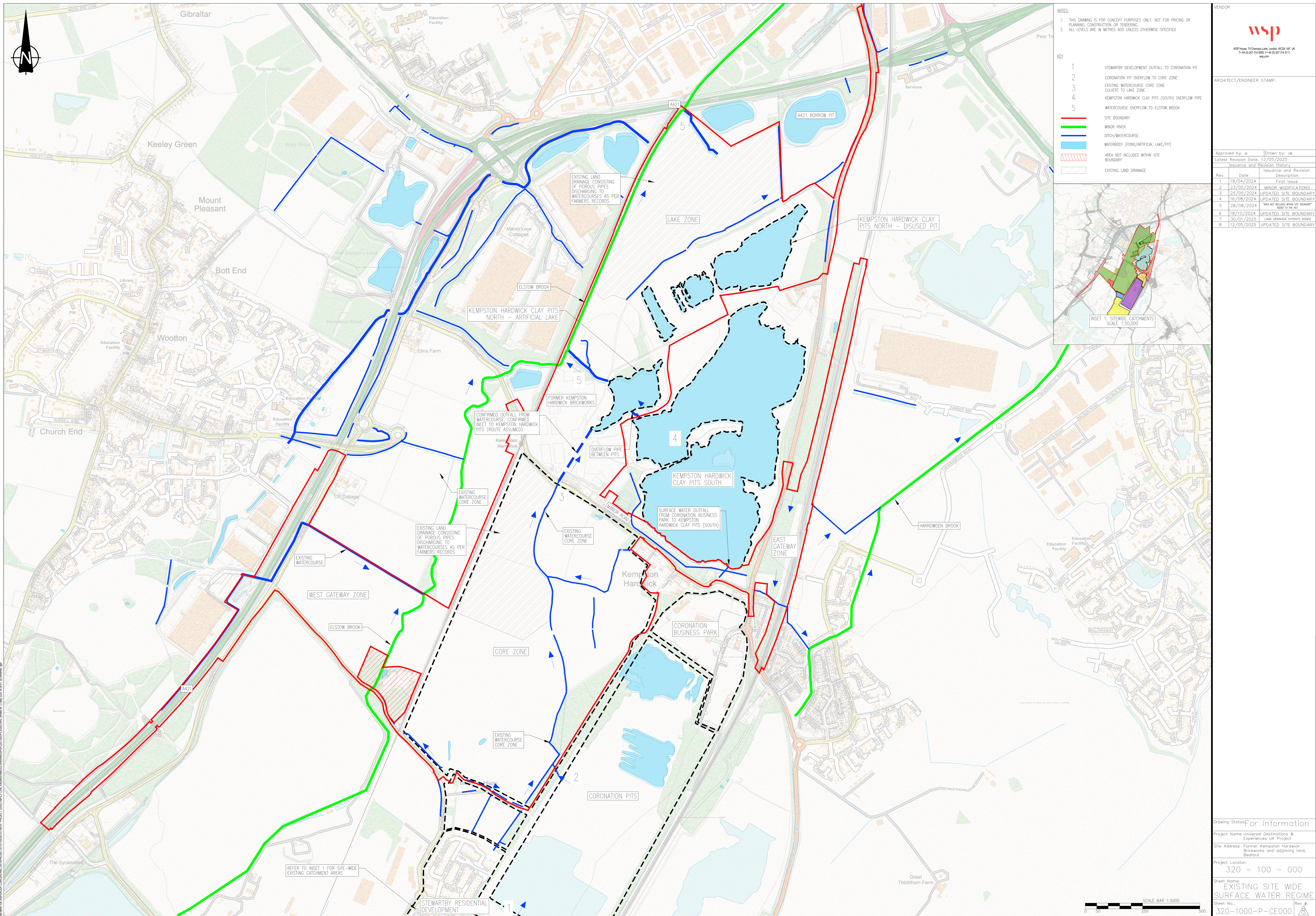




wsp

Annex 4

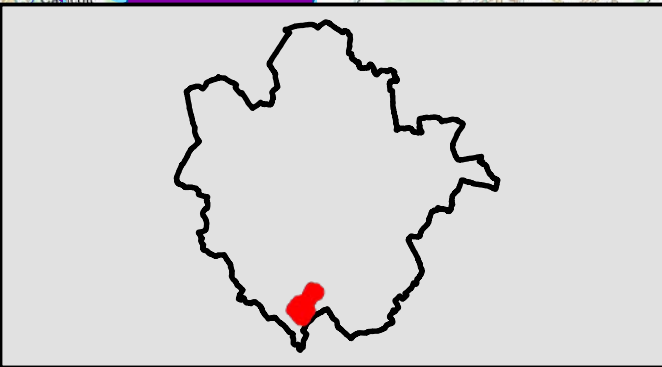
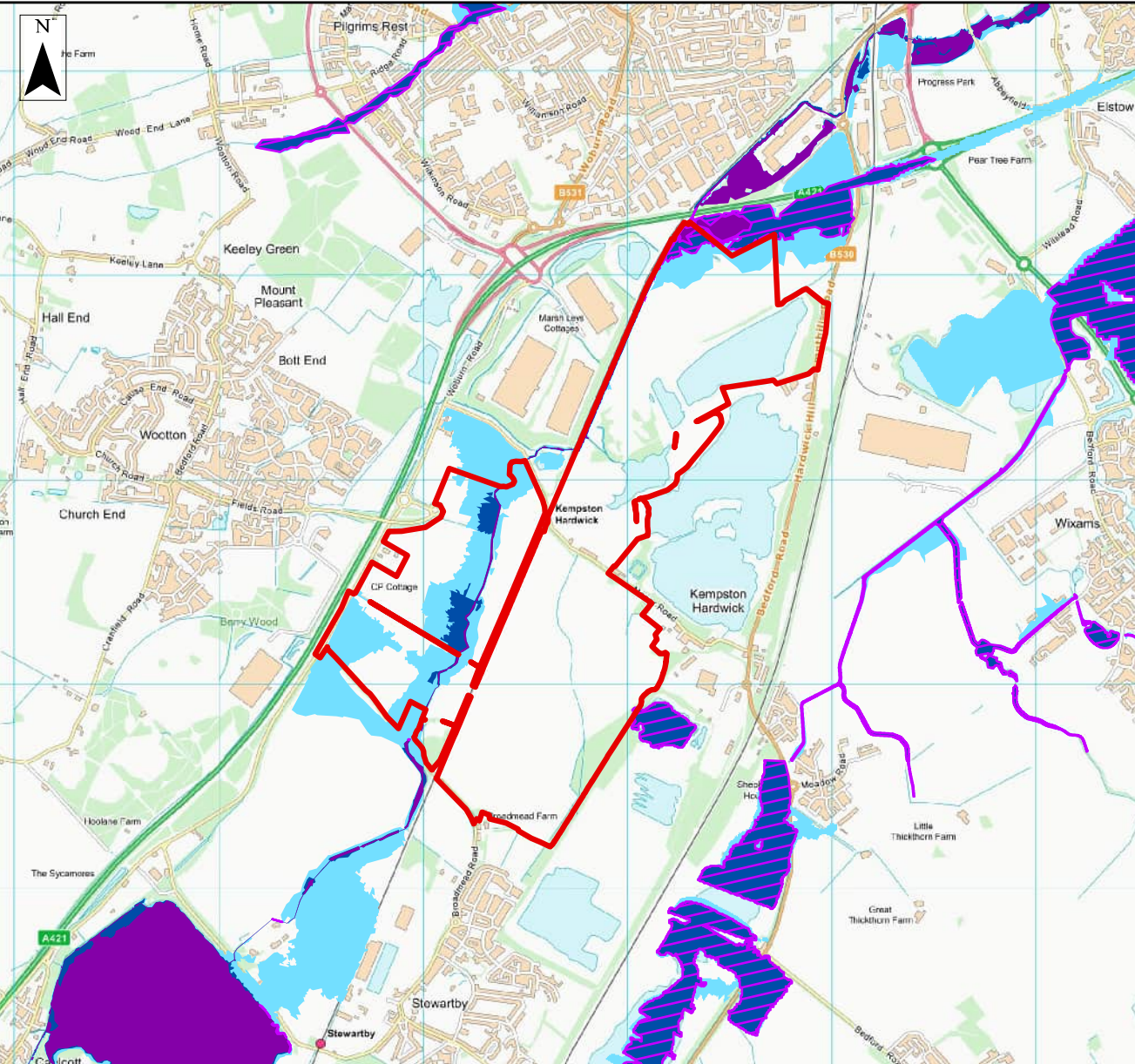
EXISTING SURFACE WATER NETWORK PLAN



Annex 5

RELEVANT MAPS AND DATA





0 0.3 0.6 km

Authority Information

- Authority Boundary
- Site Boundary
- Watercourses

EA Flood Alert and Warning Areas

- Flood Warning
- Flood Alert

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JBA consulting

Bedford Borough Council Level 2 Strategic Flood Risk Assessment

Legend

To use: Click on check box to turn a layer on/off

Fluvial Flood Zones

- ☒ Indicative Flood Zone 3b
- ☒ Flood Zone 3b
- ☒ Flood Zone 3a
- ☒ Flood Zone 2

* Indicative Flood Zone 3b is the Functional Floodplain-land where water can flow or be stored during a flood event.

Fluvial Climate Change Extent (Modelled)

- ☐ 1% AEP plus Central
- ☐ 1% AEP plus Higher Central
- ☐ 1% AEP plus Upper End

Historic

- ☐ Historic Flood Map

Susceptibility to Groundwater Flooding (EA)

- ☐ < 25%
- ☐ >= 25% < 50%
- ☐ >= 50% < 75%
- ☐ >= 75%

Risk of Flooding from Surface Water (EA)

- ☐ 3.3% AEP Extent
- ☐ 1% AEP Extent
- ☐ 0.1% AEP Extent

Flood Defences

- ☐ Bridge Abutment
- ☐ Demountable Defence
- ☐ Embankment
- ☐ Flood Gate
- ☐ High Ground
- ☐ Wall

Risk of Flooding from Rivers and Sea (EA)

- ☐ Very Low
- ☐ Low
- ☐ Medium
- ☐ High

Surface Water Depth (m)

- ☐ 3.3% AEP
- ☐ 1% AEP
- ☐ 0.1% AEP

Surface Water Depth plus Climate Change Allowances (m)

- ☐ 1% AEP Event (+20%) CC
- ☐ 1% AEP Event (+40%) CC

- 0.0 - 0.15
- 0.15 - 0.30
- 0.30 - 0.60
- 0.60 - 0.90
- 0.90 - 1.20
- > 1.20

Surface Water Hazard

- ☐ 3.3% AEP
- ☐ 1% AEP
- ☐ 0.1% AEP

- Caution
- Danger for Some
- Danger for Most
- Danger for All

Surface Water Hazard plus Climate Change Allowances

- ☐ 1% AEP Event (+20%) CC
- ☐ 1% AEP Event (+40%) CC

- Caution
- Danger for Some
- Danger for Most
- Danger for All

Surface Water Velocity (m/s)

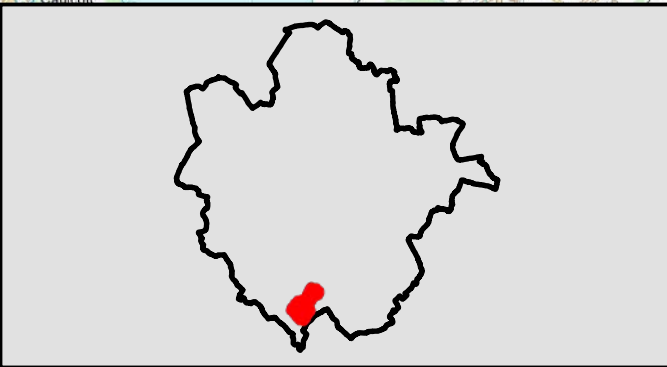
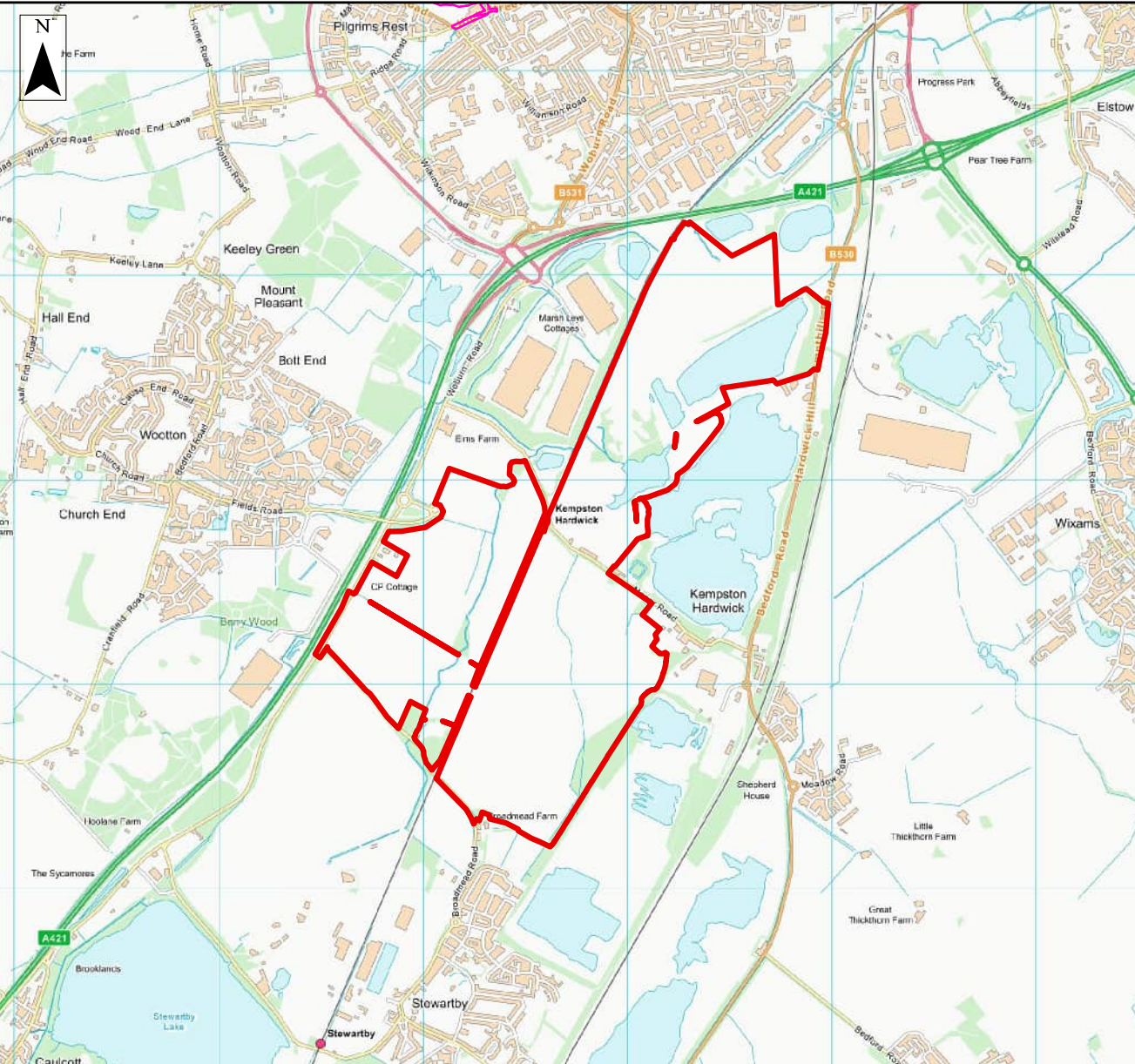
- ☐ 3.3% AEP
- ☐ 1% AEP
- ☐ 0.1% AEP

- 0.00 - 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 2.00
- > 2.00

Surface Water Velocity plus Climate Change Allowances (m/s)

- ☐ 1% AEP Event (+20%) CC
- ☐ 1% AEP Event (+40%) CC

- 0 - 0.2
- 0.2 - 0.5
- 0.5 - 0.8
- 0.8 - 1.4
- 1.4 - 6.8



Authority Information

- Authority Boundary
- Site Boundary
- Watercourses

EA Flood Alert and Warning Areas

- Flood Warning
- Flood Alert

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- ☐ Flood Zone 2

* Indicative Flood Zone 3b is the Functional Floodplain-land where water can flow or be stored during a flood event.

Fluvial Climate Change Extent (Modelled)

- ☐ 1% AEP plus Central
- ☐ 1% AEP plus Higher Central
- ☐ 1% AEP plus Upper End

Historic

- ☒ Historic Flood Map

Susceptibility to Groundwater Flooding (EA)

- ☐ < 25%
- ☐ >= 25% < 50%
- ☐ >= 50% < 75%
- ☐ >= 75%

Risk of Flooding from Surface Water (EA)

- ☐ 3.3% AEP Extent
- ☐ 1% AEP Extent
- ☐ 0.1% AEP Extent

Flood Defences

- ☐ Bridge Abutment
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Risk of Flooding from Rivers and Sea (EA)

- ☐ Very Low
- ☐ Low
- ☐ Medium
- ☐ High

Surface Water Depth (m)

- ☐ 3.3% AEP
- ☐ 1% AEP
- ☐ 0.1% AEP

0.00 - 0.15
0.15 - 0.30
0.30 - 0.60
0.60 - 0.90
0.90 - 1.20
> 1.20

Surface Water Depth plus Climate Change Allowances (m)

- ☐ 1% AEP Event (+20%) CC
- ☐ 1% AEP Event (+40%) CC

0.0 - 0.3
0.3 - 0.6
0.6 - 1.1
1.1 - 1.8
1.8 - 4.8

Surface Water Velocity (m/s)

- ☐ 3.3% AEP
- ☐ 1% AEP
- ☐ 0.1% AEP

0.00 - 0.25
0.25 - 0.50
0.50 - 1.00
1.00 - 2.00
> 2.00

Surface Water Velocity plus Climate Change Allowances (m/s)

- ☐ 1% AEP Event (+20%) CC
- ☐ 1% AEP Event (+40%) CC

0 - 0.2
0.2 - 0.5
0.5 - 0.8
0.8 - 1.4
1.4 - 6.8

Surface Water Hazard

- ☐ 3.3% AEP
- ☐ 1% AEP
- ☐ 0.1% AEP

Caution
Danger for Some
Danger for Most
Danger for All

Surface Water Hazard plus Climate Change Allowances

- ☐ 1% AEP Event (+20%) CC
- ☐ 1% AEP Event (+40%) CC

Caution
Danger for Some
Danger for Most
Danger for All



Bedford Borough Council Level 2 Strategic Flood Risk Assessment

Legend

To use: Click on check box to turn a layer on/off

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☐ Indicative Flood Zone 3b

☐ Flood Zone 3b

☐ Flood Zone 3a

☐ Flood Zone 2

* Indicative Flood Zone 3b is the Functional Floodplain-land where water can flow or be stored during a flood event.

Fluvial Climate Change Extent (Modelled)

☐ 1% AEP plus Central

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☐ 1% AEP plus Upper End

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☐ Historic Flood Map

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☐ >= 25% < 50%

☐ >= 50% < 75%

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☐ > 1.20

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☐ 1% AEP Event (+40%) CC

☐ 0.0 - 0.3

☐ 0.3 - 0.6

☐ 0.6 - 1.1

☐ 1.1 - 1.8

☐ 1.8 - 4.8

Surface Water Velocity (m/s)

☐ 3.3% AEP

☐ 1% AEP

☐ 0.1% AEP

☐ 0.00 - 0.25

☐ 0.25 - 0.50

☐ 0.50 - 1.00

☐ 1.00 - 2.00

☐ > 2.00

Surface Water Velocity plus Climate Change Allowances (m/s)

☐ 1% AEP Event (+20%) CC

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☐ 0 - 0.2

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Surface Water Hazard

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Surface Water Hazard plus Climate Change Allowances

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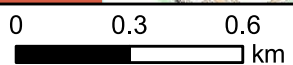
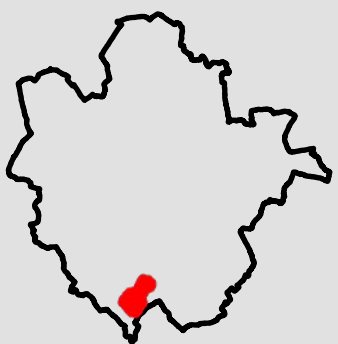
☐ 1% AEP Event (+40%) CC

☐ Caution

☐ Danger for Some

☐ Danger for Most

☐ Danger for All



- Authority Information

☒ Authority Boundary

☒ Site Boundary

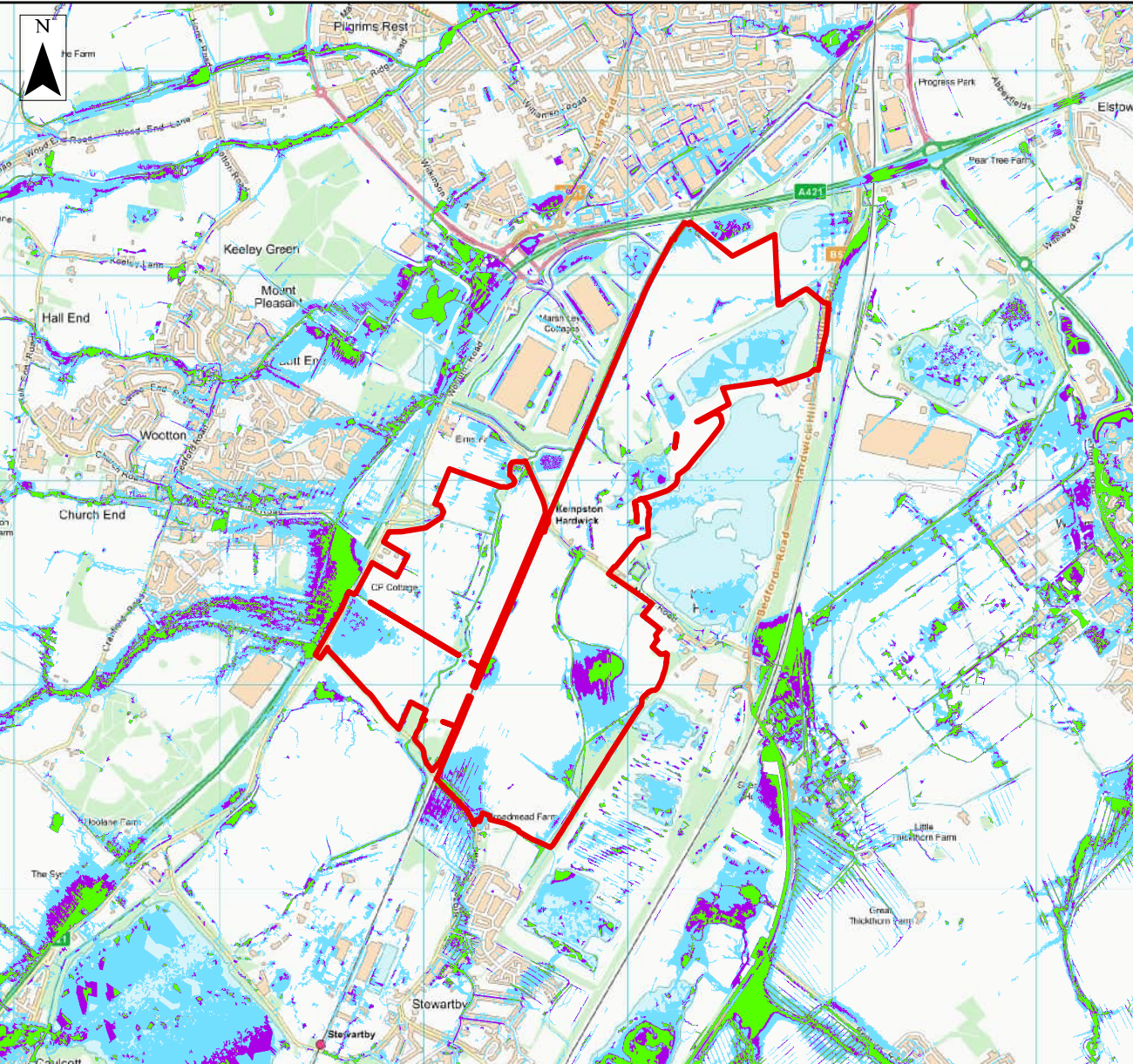
☐ Watercourses
- EA Flood Alert and Warning Areas

☐ Flood Warning

☐ Flood Alert

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  Flood Zone 3b
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  Flood Zone 2

* Indicative Flood Zone 3b is the Functional Floodplain-land where water can flow or be stored during a flood event.





Fluvial Climate Change
Extent (Modelled)

- ☐ 1% AEP plus Central
- ☐ 1% AEP plus Higher Central
- ☐ 1% AEP plus Upper End




Historic

-  Historic Flood Map

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- ☐  < 25%
 >= 25% < 50%
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 >= 75%

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- ☒  3.3% AEP Extent
- ☒  1% AEP Extent
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Flood Defences

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-  High Ground
-  Wall

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- Very Low
Low
Medium
High

Surface Water Depth
(m)

- ☐ 3.3% AEP
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 0.00 - 0.15
 0.15 - 0.30
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 > 1.20

Surface Water Velocity
plus Climate Change
Allowances (m/s)

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- 0 - 0.2
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(m/s)

- ce
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- 1% AEP
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- 0.00 - 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 2.00
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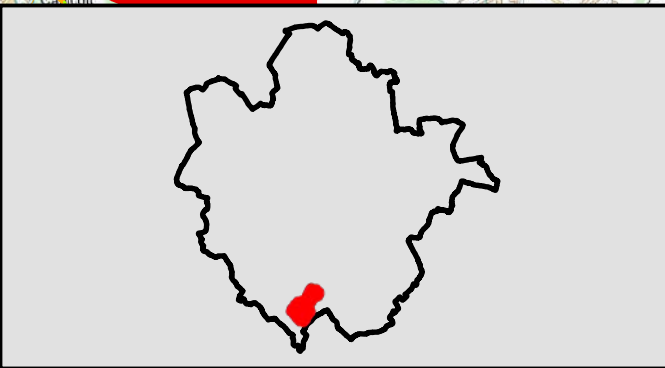
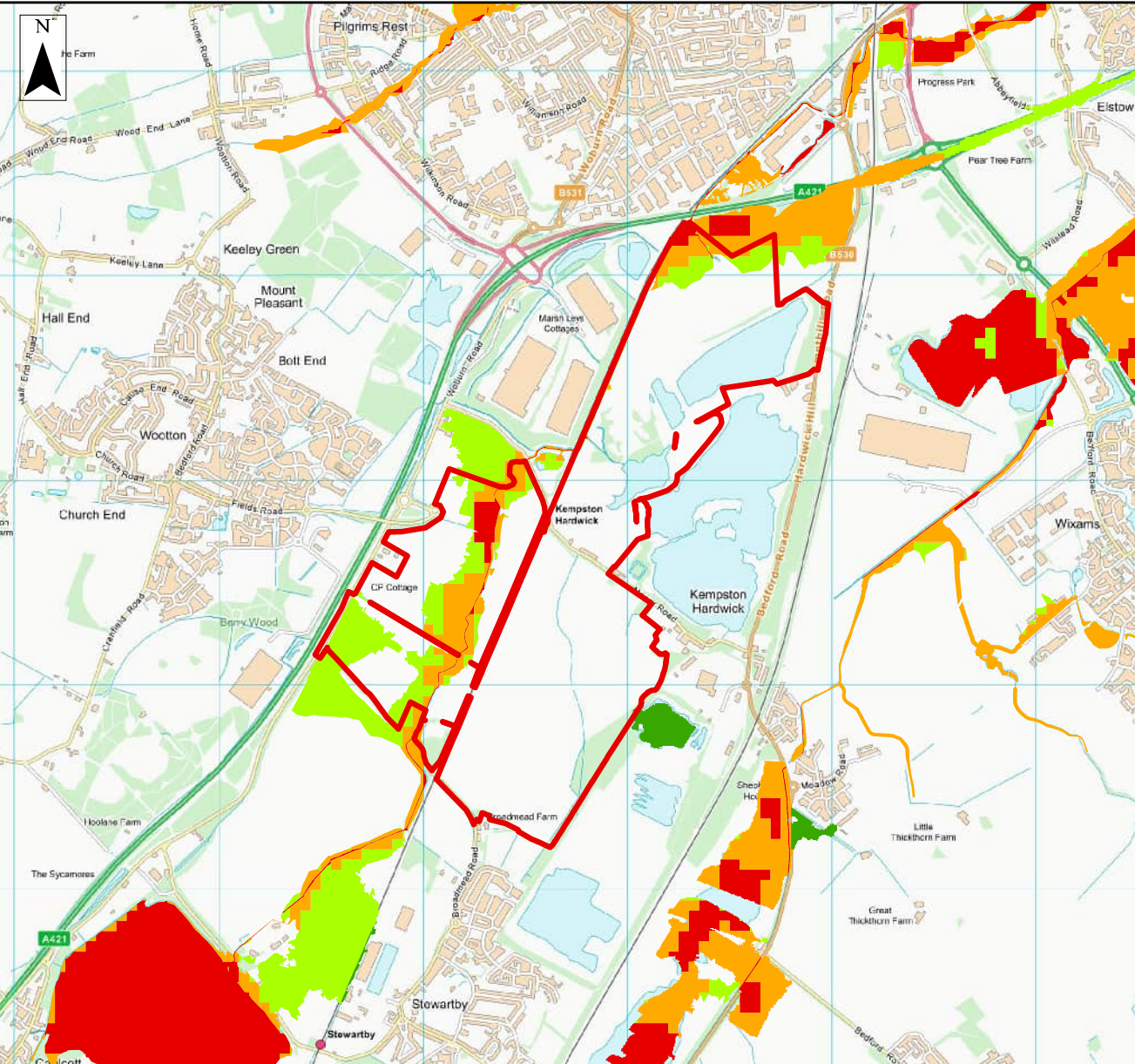
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JBA
consulting





0 0.3 0.6
km

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- ☐ 0.00 - 0.15
- ☐ 0.15 - 0.30
- ☐ 0.30 - 0.60
- ☐ 0.60 - 0.90
- ☐ 0.90 - 1.20
- ☐ > 1.20

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- ☐ 1% AEP Event (+20%) CC
- ☐ 1% AEP Event (+40%) CC
- ☐ 0.0 - 0.3
- ☐ 0.3 - 0.6
- ☐ 0.6 - 1.1
- ☐ 1.1 - 1.8
- ☐ 1.8 - 4.8

Surface Water Velocity (m/s)

- ☐ 3.3% AEP
- ☐ 1% AEP
- ☐ 0.1% AEP
- ☐ 0.00 - 0.25
- ☐ 0.25 - 0.50
- ☐ 0.50 - 1.00
- ☐ 1.00 - 2.00
- ☐ > 2.00

Surface Water Velocity plus Climate Change Allowances (m/s)

- ☐ 1% AEP Event (+20%) CC
- ☐ 1% AEP Event (+40%) CC

0 - 0.2

0.2 - 0.5

0.5 - 0.8

0.8 - 1.4

1.4 - 6.8

Surface Water Hazard

- ☐ 3.3% AEP
- ☐ 1% AEP
- ☐ 0.1% AEP

Caution

Danger for Some

Danger for Most

Danger for All

Surface Water Hazard plus Climate Change Allowances

- ☐ 1% AEP Event (+20%) CC
- ☐ 1% AEP Event (+40%) CC
- ☐ Caution
- ☐ Danger for Some
- ☐ Danger for Most
- ☐ Danger for All