

Site Name: Land east of West End Road					
Site ID:	IP119	Location:	Land east of West End Road	Area (ha):	0.61
Current Use:	Commercial	Proposed Use:	Residential	Vulnerability Classification:	More Vulnerable
Tidal/Fluvial Source:					
Flood Zone 1 (<0.1% AEP):	54%	Flood Zone 2 (0.1% AEP):	42%	Flood Zone 3 (1% AEP):	4%
			Flood Zone 3b (5%AEP):	0%	Area Benefiting from Defences:
					3%

Flood Zones and Flood Defences

The site is located adjacent to the River Gipping. The western part of the site is identified as Flood Zone 2, medium probability of flooding. A small part of the site along the eastern site boundary is located in Flood Zone 3 which is considered to be high probability of flooding, however, this part of the site is benefits from flood defences. This part of the site is therefore at residual risk of fluvial flooding.

Refer to Map 1 below for Flood Zone outlines

Functional Floodplain

The site is located adjacent to, but not within, the functional floodplain.

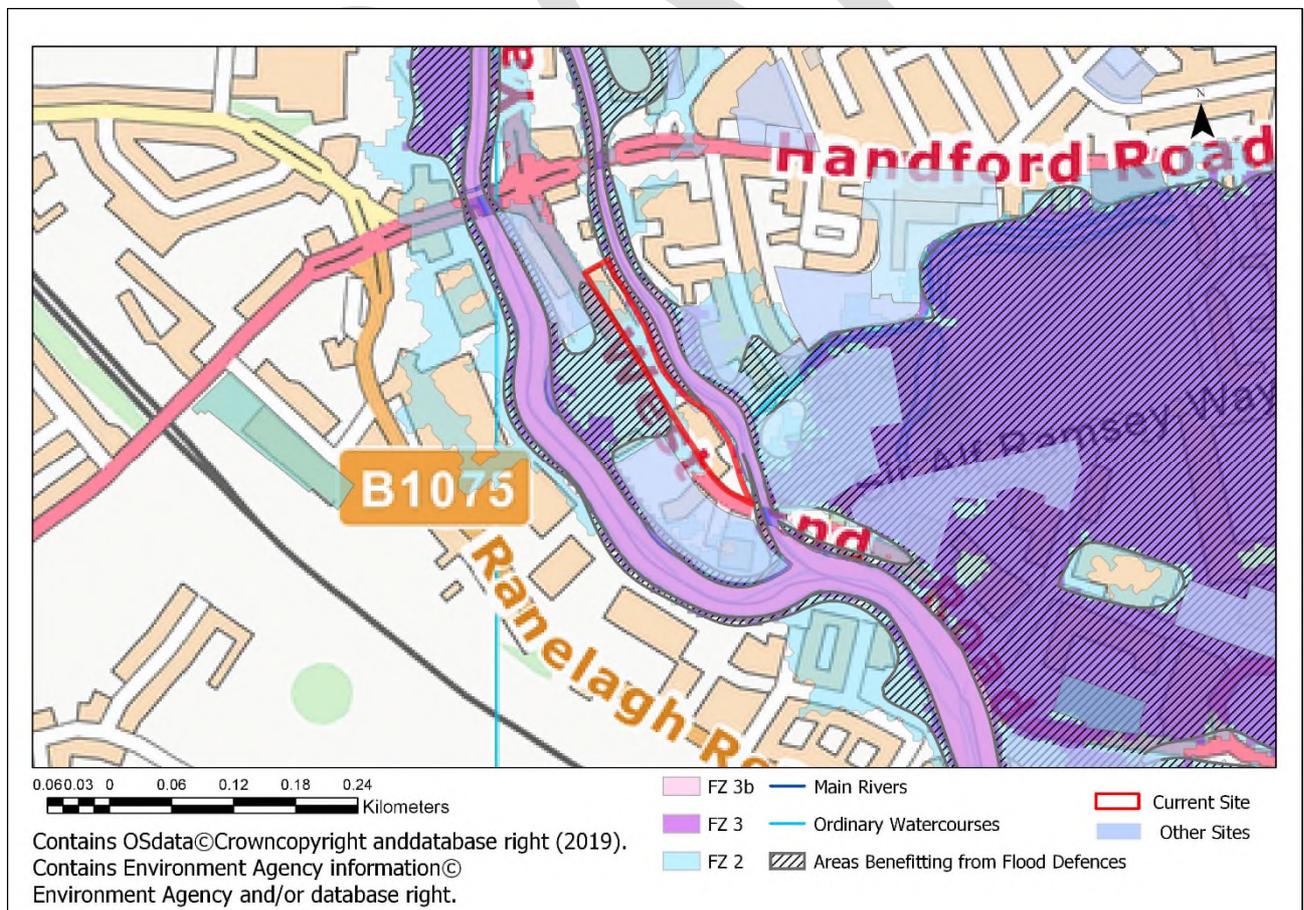
Climate Change

Modelling of the River Gipping shows that water remains in bank in this location during the 1% AEP event including a 20% allowance for climate change. (These modelled scenarios take account of the presence of defences).

Historic Records

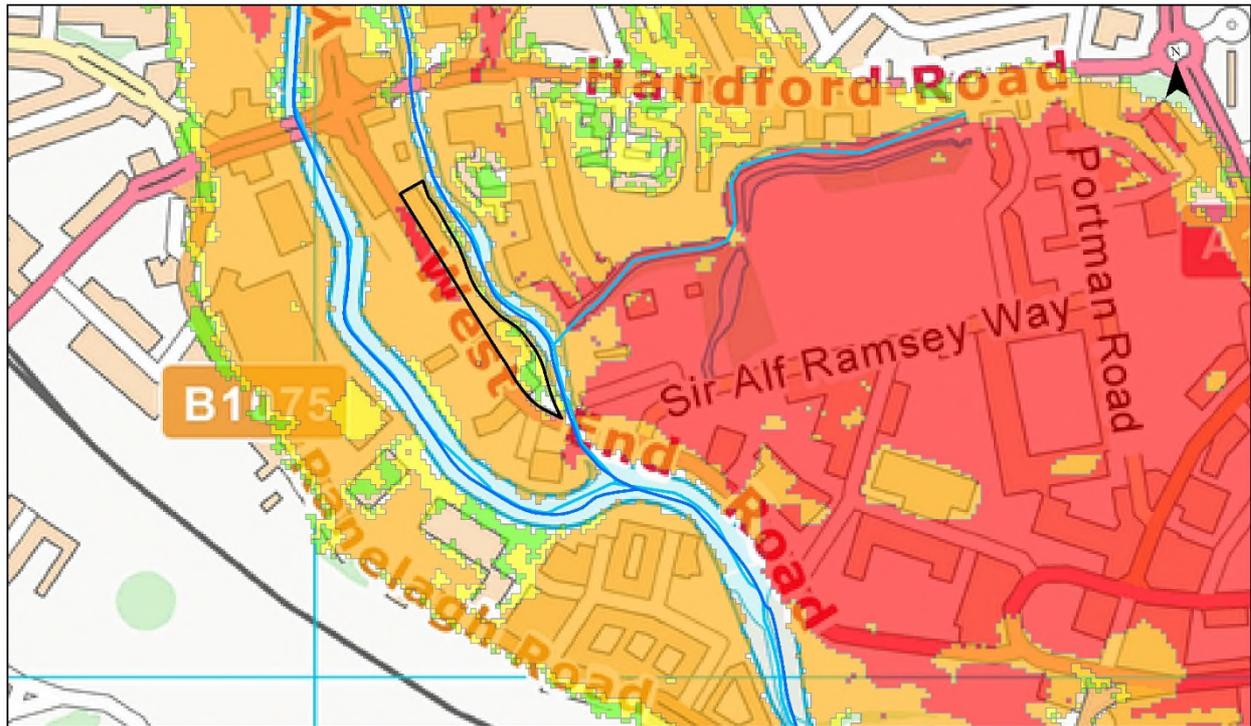
The Level 1 SFRA Figure 10 shows that this site is on the edge of the area that experienced flooding in 1939. Ipswich BC also hold records of flood incidents on West End Road which is adjacent to the site.

Map 1 – Environment Agency Flood Map for Planning Data



Map 2 - Residual Flood Risk – Flood Hazard Mapping at Breach location BR01 Wet Dock Gate Open 0.5% scenario including climate change to 2118

Site Name: Land east of West End Road



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Kilometers

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- | | | |
|-----------------------|-------------------------|----------------|
| Borough Boundary | Breach Location | Hazard rating |
| Main Rivers | BR01 Wet Dock Gate open | Caution |
| Ordinary Watercourses | SITEREF | Danger to some |
| IP119 | | Danger to most |
| | | Danger to all |

Residual Flood Risk – Flood Hazard

This site is protected by the IFDMS and is at residual risk of flooding in the event of failure or exceedance of flood defences.

Hazard mapping above shows hazard ratings with Wet Dock Gate open at BR01 for the 0.5% scenario including climate change to 2118. This breach location has been chosen as it creates the highest residual risk on site – greater than if a breach were to occur at BR02 (refer to main SFRA report for mapping of residual flood risk from all breach locations).

Site hazard rating range from danger to most to caution.

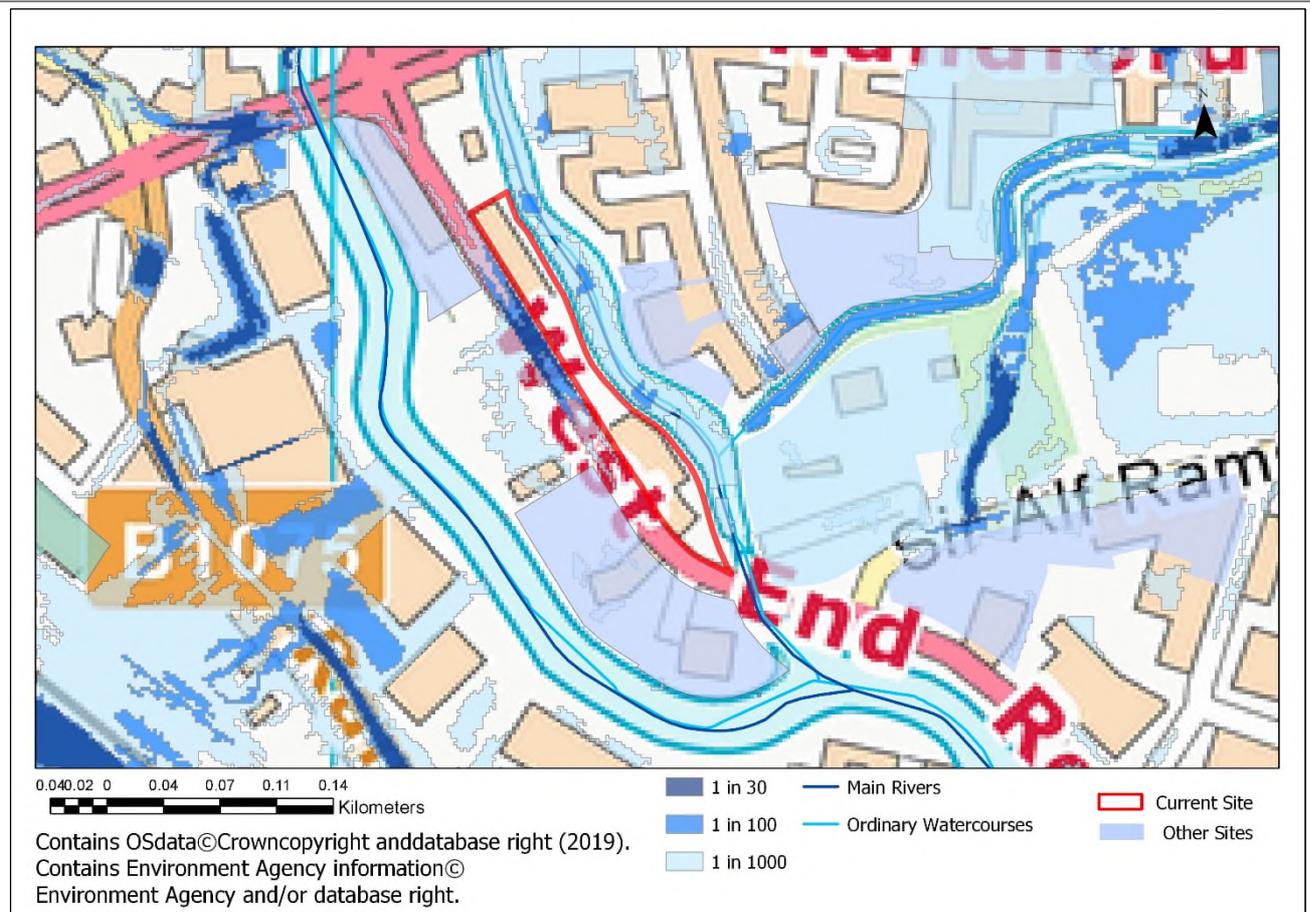
Surface Water Flood Risk

Risk of Flooding from Surface Water (RoFSW)

The RoFSW mapping shows that the roads in this area are susceptible to overland flow and ponding. Whilst the site itself is shown to have a low risk of surface water flooding, the surrounding routes are at high risk.

Site Name: Land east of West End Road

Map 3 - Environment Agency Risk of Flooding from Surface Water mapping (RoFSW)



Groundwater Flood Risk

The AStGWF mapping (Level 1 SFRA Figure 4) shows that the site is located within a 1km square of which 50%-75% is susceptible to groundwater emergence. The risk of groundwater flooding in this area should be further investigated during a site investigation survey.

Due to the brownfield nature of the site, it is likely that made ground is at the surface, a site level ground investigation including soakage tests will be required to inform drainage design.

The brownfield nature of the site could provide an opportunity to create a betterment on the current drainage discharge from the site.

Other sources

The Environment Agency 'Risk of Flooding from Reservoirs' mapping shows that the site is not at risk.

Site Specific Recommendations

Set-back Distance

All development should be set back 16m from the edge of the River Gipping. The Environment Agency need to be consulted and an Environmental Permit obtained for any works within 16m a Main River.

Site Layout and Design

The drainage strategy for the site should be considered early in the site planning process to ensure adequate inclusion of SuDS and adequate provision for the management of surface water, especially given the risk of surface water flooding in the area surrounding the site. SuDS should be considered in accordance with the hierarchy of SuDS (i.e. considering infiltration measures first wherever possible).

Finished Floor Levels

The Environment Agency will seek finished floor levels for new development set 300mm above the 1% AEP including an allowance for climate change for fluvial flood risk. In areas at risk of tidal flooding, the Environment Agency will seek finished floor levels for new development to be set 300mm above the 0.5% AEP event

Site Name: Land east of West End Road

including an allowance for climate change, or 300mm above the maximum water level 4m AOD in Compartment I (Table 7-1), whichever is greater.

Access / Egress

Access to the site may be from West End Road towards Handford Road. The routes that pass northwards are within Flood Zone 1 however, consideration needs to be made of the wider site location, between two watercourses and the impact this has on safe access/egress.

In the event of a failure of the flood defence measures protecting this area, safe dry egress from the southern part of the site may not be possible. It will therefore be necessary to include provision of a safe place of refuge for residents above the 0.1% AEP flood levels including an allowance for climate change.

Emergency planning

The site is shown to be within the Environment Agency Flood Warning Area for the tidal River Orwell at Ipswich wet dock and waterfront, to upstream of Stoke Bridge; occupants should register to receive the warning service. To manage the residual risk of flooding associated with a failure of the flood defence measures in this area, Flood Response Plans should be prepared by occupants of the site including details of egress routes and place of safe refuge.

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Site Name: Land West of West End Road					
Site ID:	IP120b	Location:	Land West of West End Road	Area (ha):	1.02
Current Use:	Commercial	Proposed Use:	Residential	Vulnerability Classification:	More Vulnerable
Tidal/Fluvial Source:					
Flood Zone 1 (<0.1% AEP):	Flood Zone 2 (0.1% AEP):	Flood Zone 3 (1% AEP):	Flood Zone 3b (5%AEP):	Area Benefiting from Defences:	
52%	39%	8%	0%	11%	

Flood Zones and Flood Defences

The site is located adjacent to the River Orwell. The majority of the site is identified in Flood Zone 1, low probability of flooding. However, it should be noted that this site is an island. A small part of the site is identified in Flood Zone 3, high probability of flooding, in the absence of flood defences. This area is shown to benefit from the presence of defences to the south-east of the site. The site is therefore at *residual risk of tidal flooding*, in the event of a failure of these defences. Development should be directed away from Flood Zone 3.

Refer to Map 1 below for Flood Zone outlines

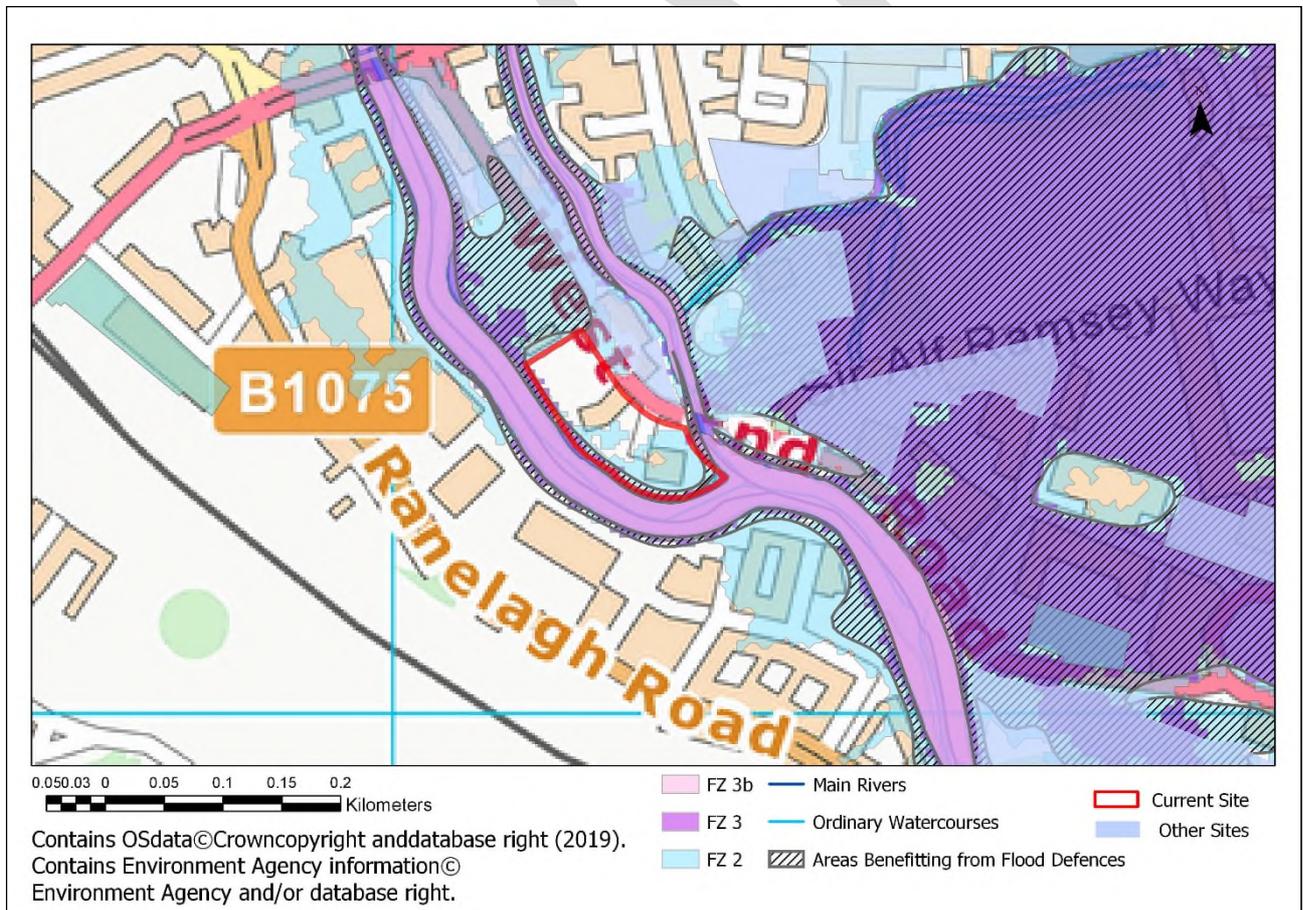
Climate Change

Modelling of the River Orwell shows that water remains in bank during the 0.5% AEP event including climate change i.e. there is no overtopping of flood defences. (These modelled scenarios take account of the presence of defences).

Historic Records

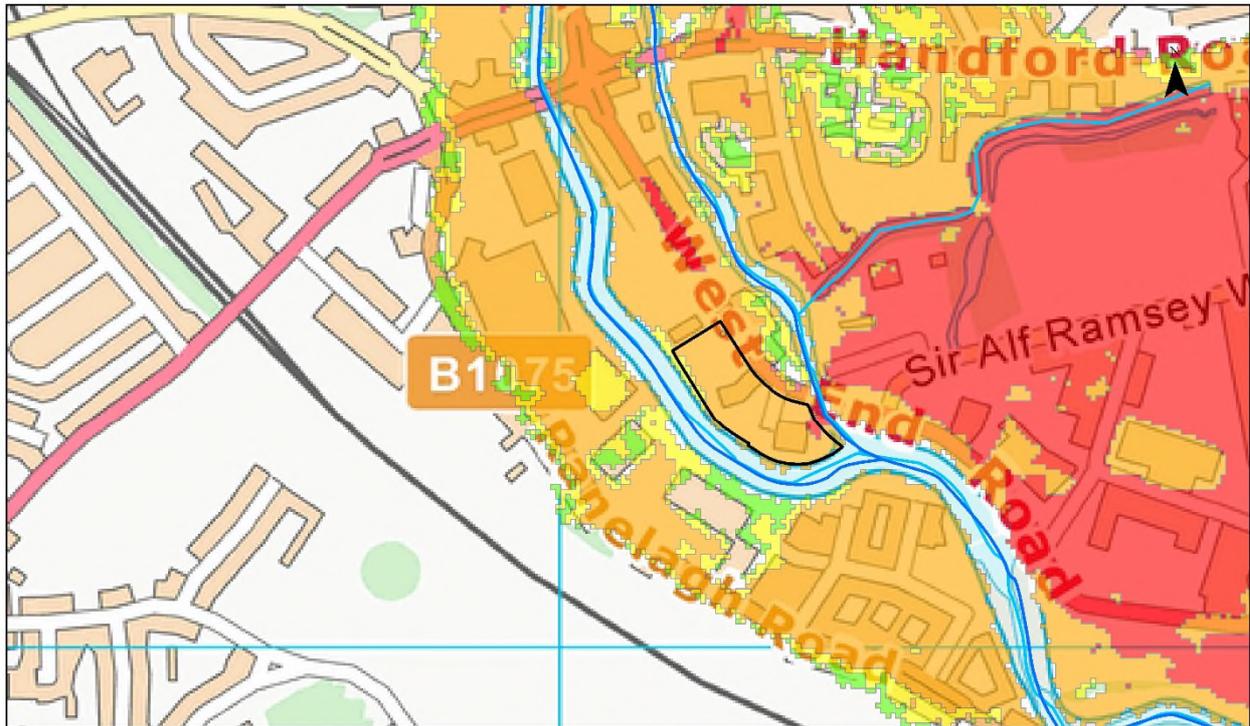
The Level 1 SFRA Figure 10 shows that this site is on the edge of the area that experienced flooding in 1939 and 1953. Ipswich BC also hold records of flood incidents on West End Road which is adjacent to the site.

Map 1 – Environment Agency Flood Map for Planning Data



Site Name: Land West of West End Road

Map 2 - Residual Flood Risk – Flood Hazard Mapping at Breach location BR01 Wet Dock Gate Open 0.5% scenario including climate change to 2118



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Kilometers

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|-----------------------|-------------------------|----------------|
| Borough Boundary | Breach Location | Hazard rating |
| Main Rivers | BR01 Wet Dock Gate open | Caution |
| Ordinary Watercourses | SITEREF | Danger to some |
| IP120b | | Danger to most |
| | | Danger to all |

Residual Flood Risk – Flood Hazard

This site is protected by the IFDMS and is at residual risk of flooding in the event of failure or exceedance of flood defences.

Hazard mapping above shows hazard ratings with Wet Dock Gate open at BR01 for the 0.5% scenario including climate change to 2118. This breach location has been chosen as it creates the highest residual risk on site – greater than if a breach were to occur at BR02 (refer to main SFRA report for mapping of residual flood risk from all breach locations).

The majority of the site is classified as danger to most.

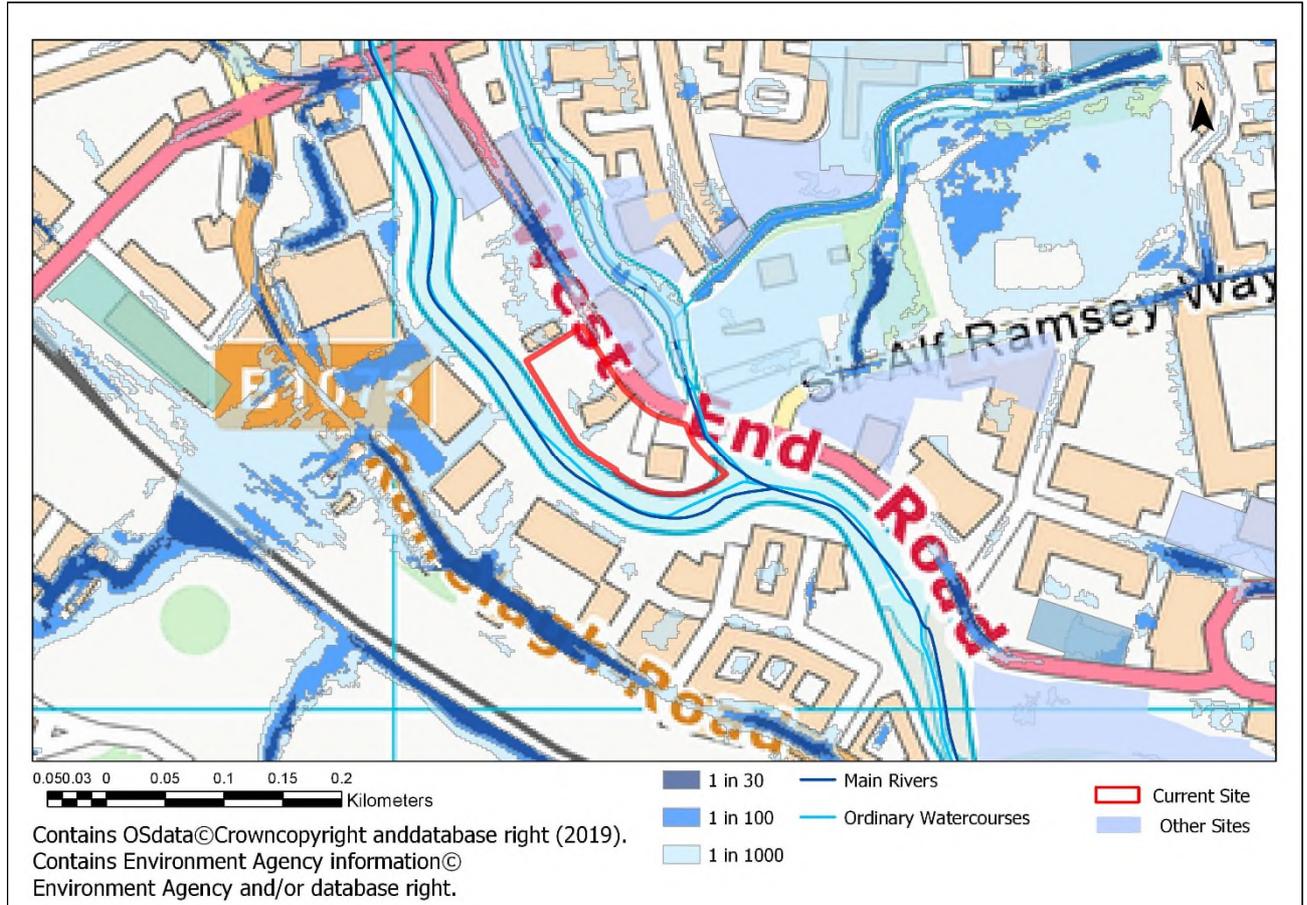
Surface Water Flood Risk

Risk of Flooding from Surface Water (RoFSW)

The RoFSW mapping shows that West End Road (in this area) is susceptible to overland flow and ponding. Whilst the site itself is shown to have a low risk of surface water flooding, the surrounding routes are at high risk.

Site Name: Land West of West End Road

Map 3 - Environment Agency Risk of Flooding from Surface Water mapping (RoFSW)



Groundwater Flood Risk

The ASTGWF mapping (Level 1 SFRA Figure 4) shows that the site is located within a 1km square of which 50%-75% is susceptible to groundwater emergence. The risk of groundwater flooding in this area should be further investigated during a site investigation survey.

Due to the brownfield nature of the site, it is likely that made ground is at the surface, a site level ground investigation including soakage tests will be required to inform drainage design.

The brownfield nature of the site could provide an opportunity to create a betterment on the current drainage discharge from the site.

Other sources

The Environment Agency 'Risk of Flooding from Reservoirs' mapping shows that the site is not at risk.

Site Specific Recommendations

Set-back Distance

Environment Agency need to be consulted and an Environmental Permit obtained for any works within 16m a Main River.

Site Layout and Design

The drainage strategy for the site should be considered early in the site planning process to ensure adequate inclusion of SuDS and adequate provision for the management of surface water, especially given the risk of surface water flooding in the area surrounding the site. SuDS should be considered in accordance with the hierarchy of SuDS (i.e. considering infiltration measures first wherever possible). Attenuation type SUDs may need to be designed for tide-locking.

Site Name: Land West of West End Road*Finished Floor Levels*

The Environment Agency will seek finished floor levels for new development set 300mm above the 1% AEP including an allowance for climate change for fluvial flood risk. In areas at risk of tidal flooding, the Environment Agency will seek finished floor levels for new development to be set 300mm above the 0.5% AEP event including an allowance for climate change, or 300mm above the maximum water level 4m AOD in Compartment I (Table 7-1), whichever is greater.

Access / Egress

Access to the site may be from West End Road to Hanford Road and Ranelagh Road (B1075) onto London Road (A1214) towards Handford Road. The routes that pass northwards are within Flood Zone 1 and therefore lead out of the tidal floodplain. Consideration of the wider site location is required as it is located between two watercourses which may affect the viability of safe access if a watercourse must be crossed to access Flood Zone 1

In the event of a failure of the flood defence measures protecting this area, safe dry egress from the southern part of the site may not be possible. It will therefore be necessary to include provision of a safe place of refuge for residents above the 0.1% AEP flood levels including an allowance for climate change.

Emergency planning

The site is shown to be within the Environment Agency Flood Warning Area for the tidal River Orwell at Ipswich wet dock and waterfront, to upstream of Stoke Bridge; occupants should register to receive the warning service. To manage the residual risk of flooding associated with a failure of the flood defence measures in this area, Flood Response Plans should be prepared by occupants of the site including details of egress routes and place of safe refuge.

Site Name: Land south of Felaw Street					
Site ID:	IP133	Location:	Land south of Felaw Street	Area (ha):	0.37
Current Use:	Commercial	Proposed Use:	Residential	Vulnerability Classification:	More Vulnerable
Tidal/Fluvial Source:					
Flood Zone 1 (<0.1% AEP):	Flood Zone 2 (0.1% AEP):	Flood Zone 3 (1% AEP):	Flood Zone 3b (5%AEP):	Area Benefiting from Defences:	
10%	39%	51%	0%	61%	

Flood Zones and Flood Defences

The New Cut (tidal River Orwell) is located approximately 20m to the west of the site. The eastern part of the site is identified as Flood Zone 3, high probability of flooding, in the absence of flood defences. This area is shown to benefit from the presence of defences; there is a flood defence wall and embankment along the edge of the New Cut to the east of the site, and there is a tidal barrier further downstream on the River Orwell. The site is therefore at residual risk of tidal flooding, in the event of a failure of these defences.

Refer to Map 1 below for Flood Zone outlines

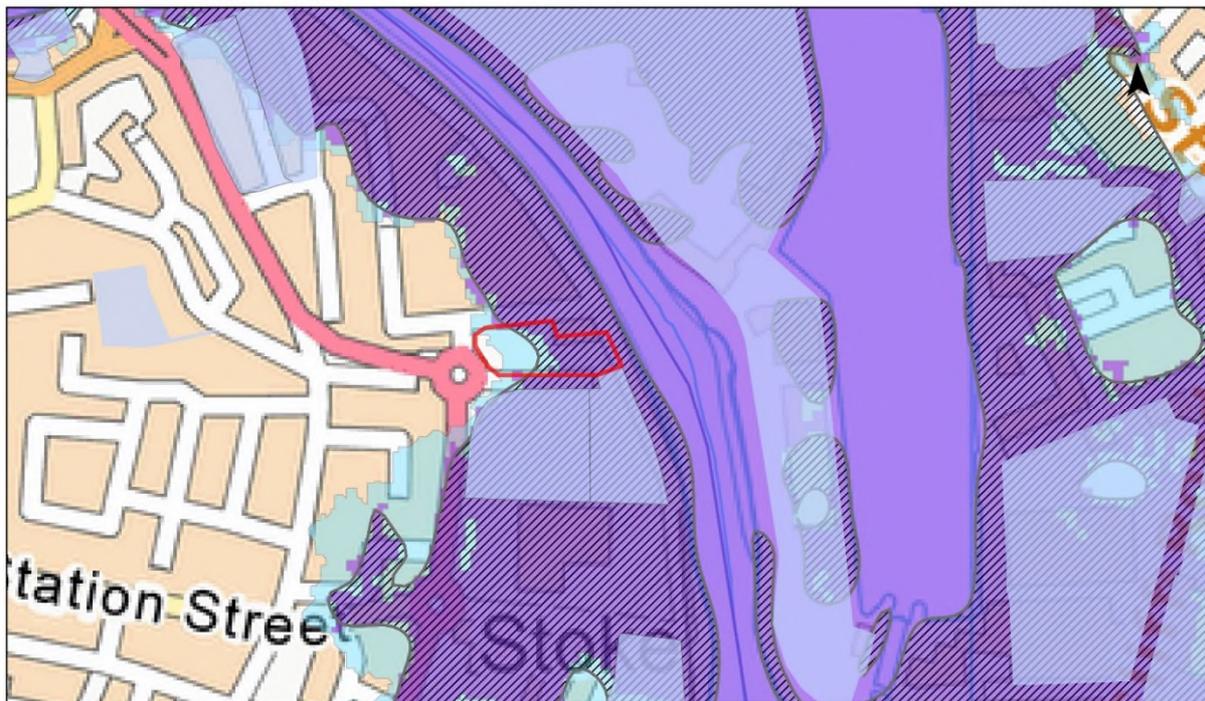
Climate Change

Modelling of the River Orwell shows that water remains in bank during the 0.5% AEP event including climate change i.e. there is no overtopping of flood defences. (These modelled scenarios take account of the presence of defences).

Historic Records

The Level 1 SFRA Figure 10 shows that this site is on the edge of the area that experienced flooding in 1953.

Map 1 – Environment Agency Flood Map for Planning Data



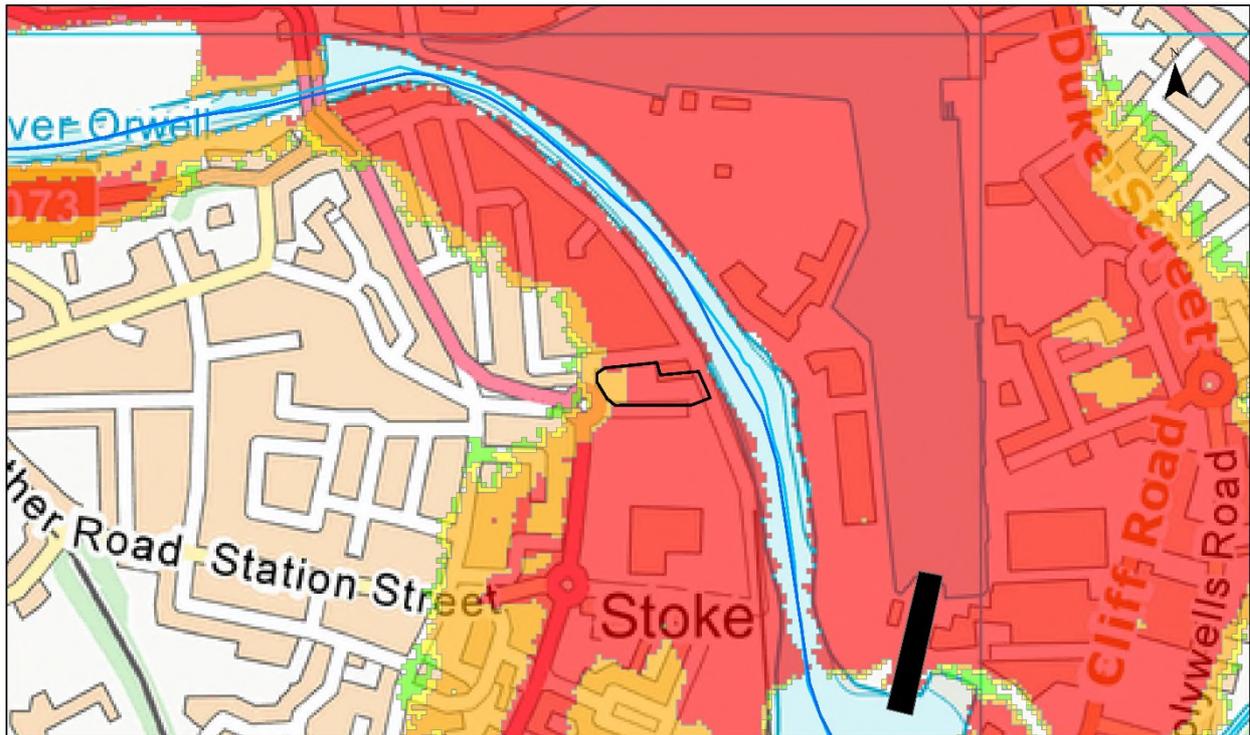
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Kilometers

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FZ 3b
 FZ 3
 FZ 2
 Areas Benefiting from Flood Defences
 Main Rivers
 Ordinary Watercourses
 Current Site
 Other Sites

Site Name: Land south of Felaw Street

Map 2 - Residual Flood Risk – Flood Hazard Mapping at Breach location BR01 Wet Dock Gate Open 0.5% scenario including climate change to 2118



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Kilometers

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Borough Boundary	Breach Location	Hazard rating
Main Rivers	BR01 Wet Dock Gate open	Danger to some
Ordinary Watercourses	Site Reference	Danger to most
	IP133	Danger to all

Residual Flood Risk – Flood Hazard

This site is protected by the IFDMS and is at residual risk of flooding in the event of failure or exceedance of flood defences.

Hazard mapping above shows hazard ratings with Wet Dock Gate open at BR01 for the 0.5% scenario including climate change to 2118. This breach location has been chosen as it creates the highest residual risk on site – greater than if a breach were to occur at BR02 (refer to main SFRA report for mapping of residual flood risk from all breach locations).

The majority of the site is classified as danger to all, reducing to the west across the site as you move away from the river. Safe access likely to be achievable to the west along Vernon Street.

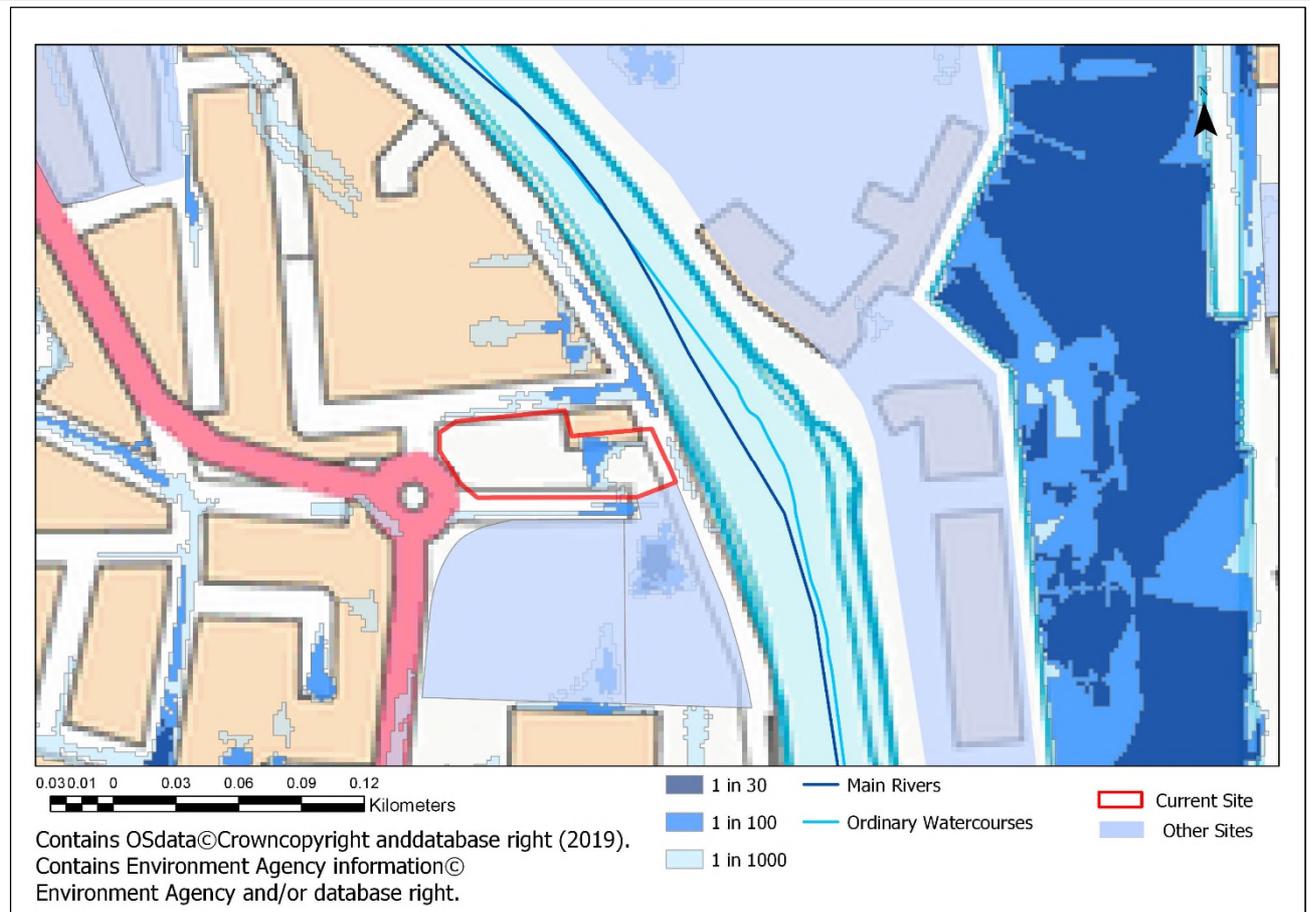
Surface Water Flood Risk

Risk of Flooding from Surface Water (RoFSW)

The RoFSW mapping shows that the roads in this area are susceptible to overland flow and ponding. Whilst the site itself is shown to have a medium risk of surface water flooding, the surrounding routes are at medium risk.

Site Name: Land south of Felaw Street

Map 3 - Environment Agency Risk of Flooding from Surface Water mapping (RoFSW)



Groundwater Flood Risk

The AStGWF mapping (Level 1 SFRA Figure 4) shows that the site is located within a 1km square of which 25%-50% is susceptible to groundwater emergence. The risk of groundwater flooding in this area should be further investigated during a site investigation survey.

Due to the brownfield nature of the site, it is likely that made ground is at the surface, a site level ground investigation including soakage tests will be required to inform drainage design.

The brownfield nature of the site could provide an opportunity to create a betterment on the current drainage discharge from the site.

Other Sources

The Environment Agency 'Risk of Flooding from Reservoirs' mapping shows that the site is not at risk.

Site Specific Recommendations

Site Layout and Design

The drainage strategy for the site should be considered early in the site planning process to ensure adequate inclusion of SuDS and adequate provision for the management of surface water, especially given the risk of surface water flooding in the area surrounding the site. SuDS should be considered in accordance with the hierarchy of SuDS (i.e. considering infiltration measures first wherever possible). The destination for surface water runoff could be the New Cut, however, consideration of storage requirements under tide locked situations would be required.

Site Name: Land south of Felaw Street*Finished Floor Levels*

The Environment Agency will seek finished floor levels for new development set 300mm above the 1% AEP including an allowance for climate change for fluvial flood risk. In areas at risk of tidal flooding, the Environment Agency will seek finished floor levels for new development to be set 300mm above the 0.5% AEP event including an allowance for climate change, or 300mm above the maximum water level 3.5m AOD in Compartment C (Table 7-1), whichever is greater.

Access / Egress

Access to the site may be from Mather Way / Felaw Street onto Vernon Street. The routes that pass westward are within Flood Zone 1 and therefore lead out of the tidal floodplain.

In the event of a failure of the flood defence measures protecting this area, safe dry egress from the southern part of the site may not be possible. It will therefore be necessary to include provision of a safe place of refuge for residents above the 0.1% AEP flood levels including an allowance for climate change.

Emergency planning

The site is shown to be within the Environment Agency Flood Warning Area for the tidal River Orwell at Ipswich wet dock and waterfront, to upstream of Stoke Bridge; occupants should register to receive the warning service. To manage the residual risk of flooding associated with a failure of the flood defence measures in this area, Flood Response Plans should be prepared by occupants of the site including details of egress routes and place of safe refuge.

Site Name: Silo, College Street					
Site ID:	IP136	Location:	Silo, College Street	Area (ha):	0.16
Current Use:	Commercial	Proposed Use:	Residential	Vulnerability Classification:	More Vulnerable
Tidal/Fluvial Source:					
Flood Zone 1 (<0.1% AEP):	0%	Flood Zone 2 (0.1% AEP):	0%	Flood Zone 3 (1% AEP):	100%
			Flood Zone 3b (5%AEP):	0%	Area Benefiting from Defences:
					100%

Flood Zones and Flood Defences

The tidal River Orwell is located approximately 30m to the south of the site. The site is identified as Flood Zone 3, high probability of flooding, in the absence of flood defences. This area is shown to benefit from the presence of defences; there is a flood defence wall and embankment along the edge of the River Orwell to the south of the site, and there is a tidal barrier further downstream on the River Orwell. The site is therefore at *residual risk of tidal flooding*, in the event of a failure of these defences.

Refer to Map 1 below for Flood Zone outlines

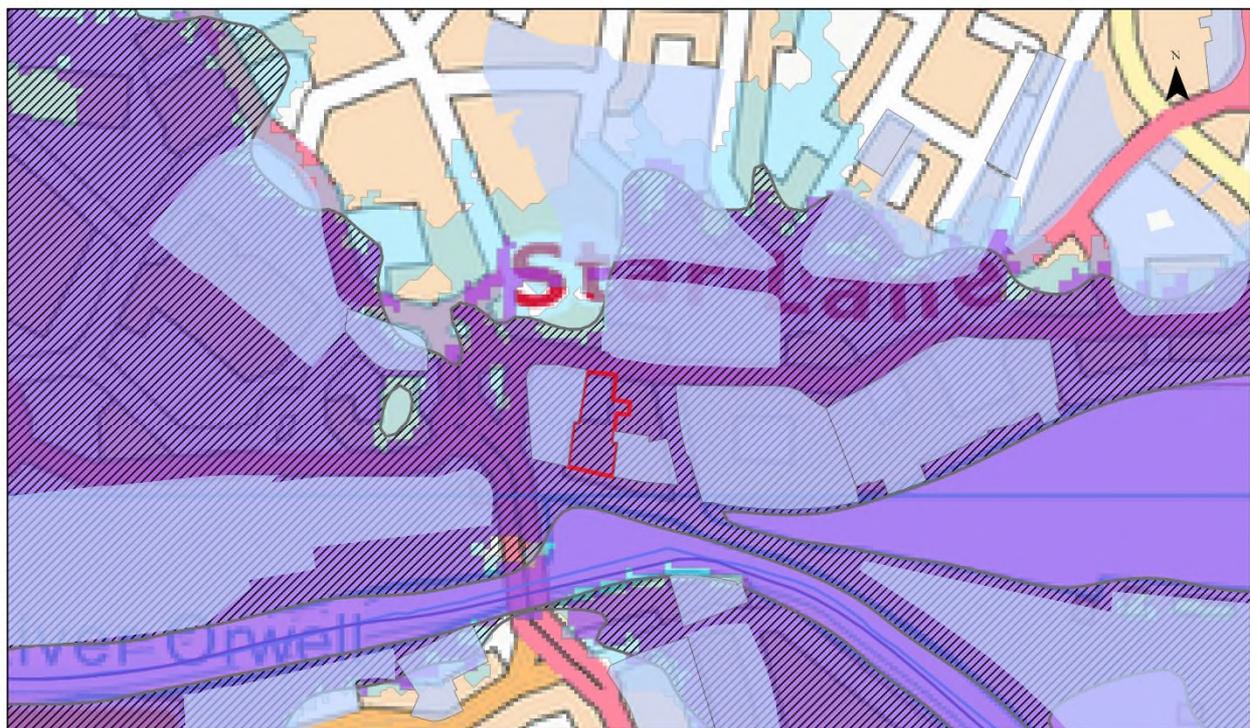
Climate Change

Modelling of the River Orwell shows that water remains in bank during the 0.5% AEP event including climate change. (These modelled scenarios take account of the presence of defences).

Historic Records

The Level 1 SFRA Figure 10 shows that this site is on the edge of the area that experienced flooding in 1953. The site was also flooded by the 2013 tidal flooding event.

Map 1 – Environment Agency Flood Map for Planning Data



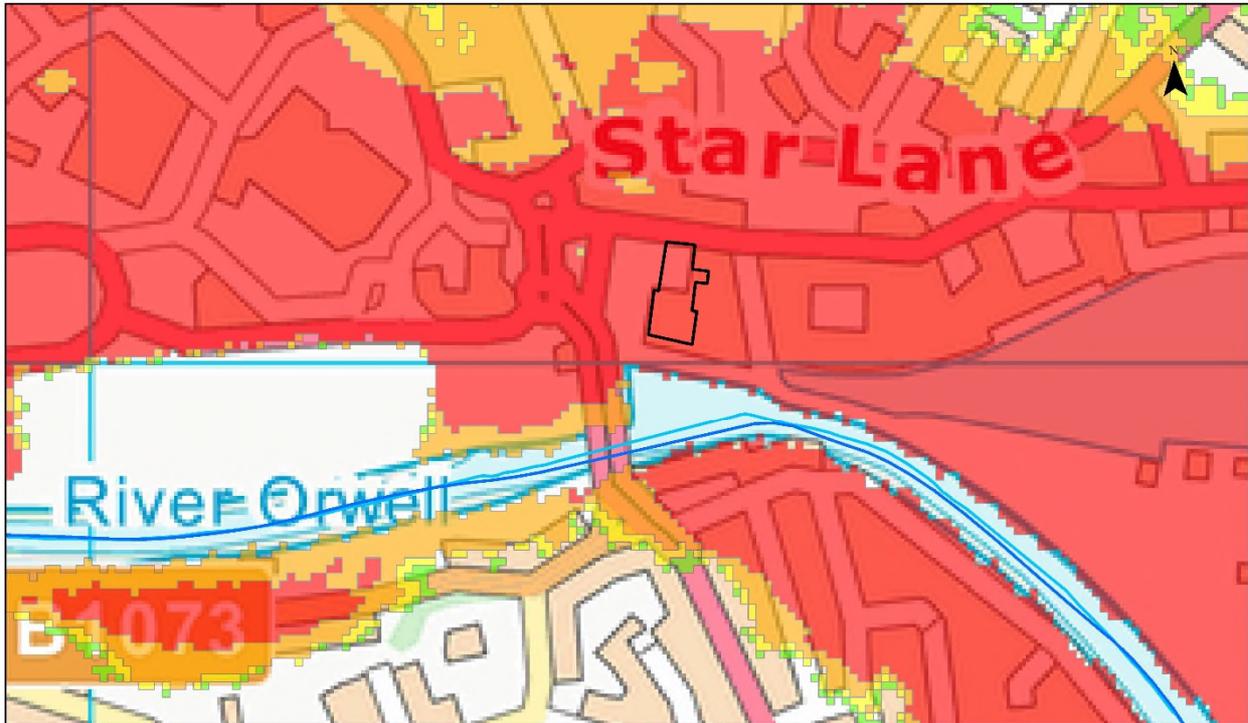
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Kilometers

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- FZ 3b
- FZ 3
- FZ 2
- Main Rivers
- Ordinary Watercourses
- Areas Benefiting from Flood Defences
- Current Site
- Other Sites

Site Name: Silo, College Street

Map 2 - Residual Flood Risk – Flood Hazard Mapping at Breach location BR01 Wet Dock Gate Open 0.5% scenario including climate change to 2118



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Kilometers

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Borough Boundary		Breach Location		Hazard rating	
	Borough Boundary		BR01 Wet Dock Gate open		Caution
	Main Rivers		SITREF		Danger to some
	Ordinary Watercourses		IP136		Danger to most
					Danger to all

Residual Flood Risk – Flood Hazard

This site is protected by the IFDMS and is at residual risk of flooding in the event of failure or exceedance of flood defences.

Hazard mapping above shows hazard ratings with Wet Dock Gate open at BR01 for the 0.5% scenario including climate change to 2118. This breach location has been chosen as it creates the highest residual risk on site – greater than if a breach were to occur at BR02 (refer to main SFRA report for mapping of residual flood risk from all breach locations).

The site is 100% classified as danger to all. Due to proximity to River Orwell, safe access may not be achievable, depending on the location of the breach. Onset of flooding in the event of a breach could be within 1 hour (Appendix D).

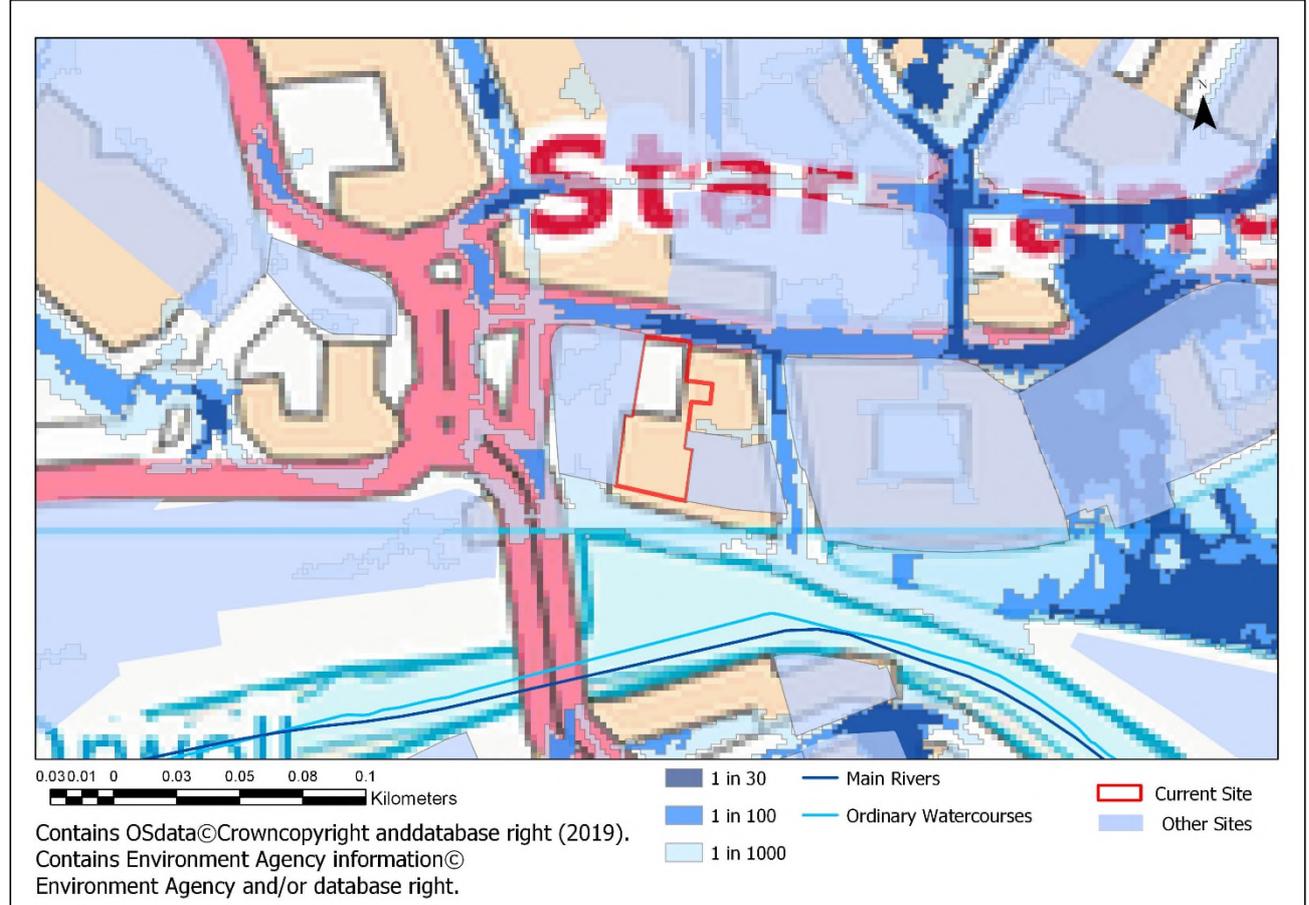
Surface Water Flood Risk

Risk of Flooding from Surface Water (RoFSW)

The RoFSW mapping shows that the roads in this area are susceptible to overland flow and ponding. Whilst the site itself is shown to have a low risk of surface water flooding, the surrounding routes are at medium risk.

Site Name: Silo, College Street

Map 3 - Environment Agency Risk of Flooding from Surface Water mapping (RoFSW)



Groundwater Flood Risk

The ASTGWF mapping (Level 1 SFRA Figure 4) shows that the site is located within a 1km square of which 25%-50% is susceptible to groundwater emergence. The risk of groundwater flooding in this area should be further investigated during a site investigation survey.

Due to the brownfield nature of the site, it is likely that made ground is at the surface, a site level ground investigation including soakage tests will be required to inform drainage design.

The brownfield nature of the site could provide an opportunity to create a betterment on the current drainage discharge from the site.

Other sources

The Environment Agency 'Risk of Flooding from Reservoirs' mapping shows that the site is not at risk.

Site Specific Recommendations

Set-back Distance

All development should be set back 16m from the edge of the River Orwell. The Environment Agency need to be consulted and an Environmental Permit obtained for any works within 16m a Main River.

Site Layout and Design

The drainage strategy for the site should be considered early in the site planning process to ensure adequate inclusion of SuDS and adequate provision for the management of surface water, especially given the risk of surface water flooding in the area surrounding the site. SuDS should be considered in accordance with the hierarchy of SuDS (i.e. considering infiltration measures first wherever possible).

Finished Floor Levels

The Environment Agency will seek finished floor levels for new development set 300mm above the 1% AEP including an allowance for climate change for fluvial flood risk. In areas at risk of tidal flooding, the Environment Agency will seek finished floor levels for new development to be set 300mm above the 0.5% AEP event including an allowance for climate change, or 300mm above the maximum water level 4-5.3mm AOD in Compartment H (Table 7-1), whichever is greater.

Site Name: Silo, College Street

Access / Egress

Access to the site may be from College Street on Star Lane. The routes that pass northwards are within Flood Zone 1 and therefore lead out of the tidal floodplain. However, the distance to Flood Zone 1 and the location of the site in close proximity to flood defences may mean that dry egress from the southern part of the site may not be possible. It will therefore be necessary to include provision of a safe place of refuge for residents above the 0.1% AEP flood levels including an allowance for climate change.

Emergency planning

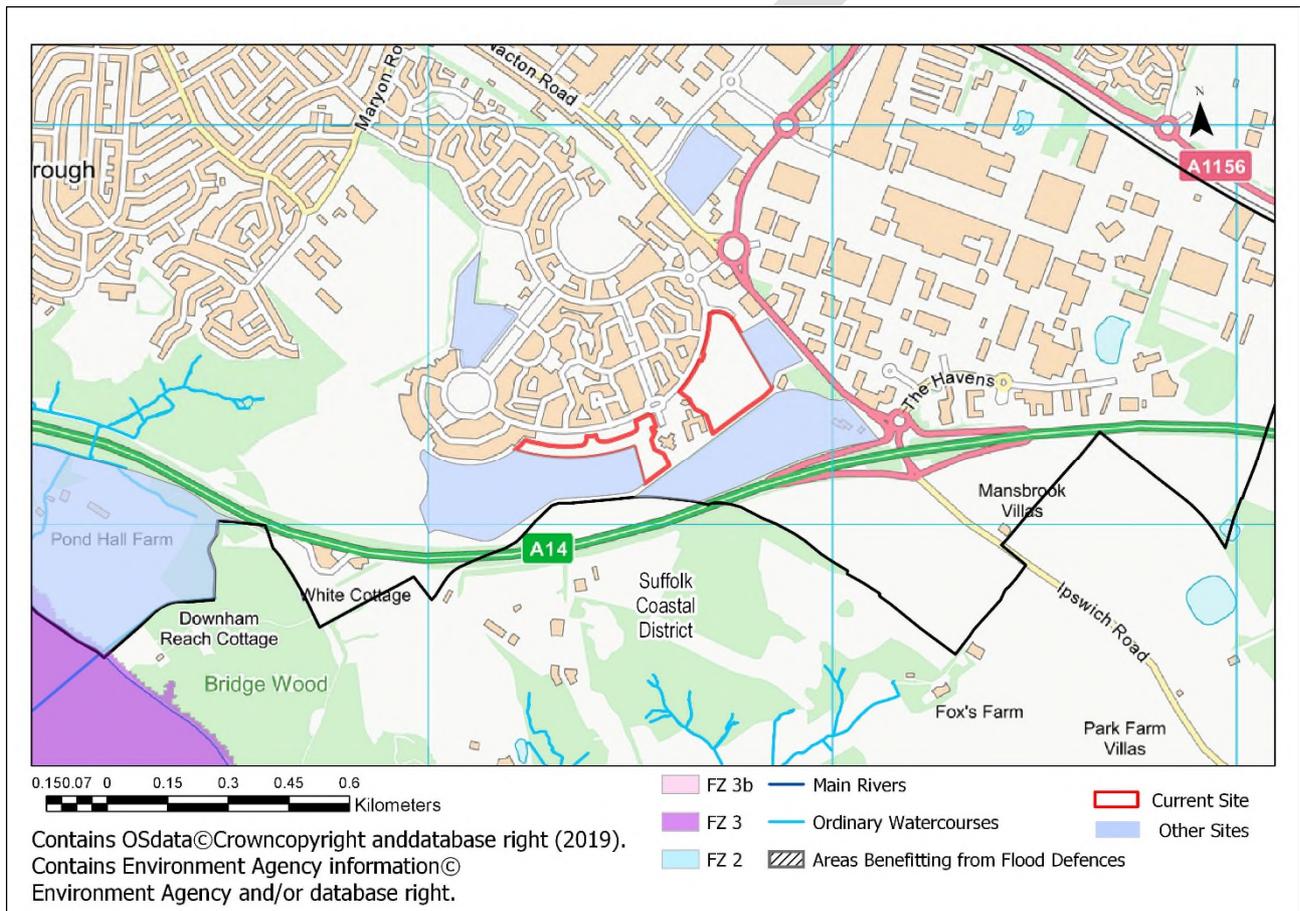
The site is shown to be within the Environment Agency Flood Warning Area for the tidal River Orwell at Ipswich wet dock and waterfront, to upstream of Stoke Bridge; occupants should register to receive the warning service. To manage the residual risk of flooding associated with a failure of the flood defence measures in this area, Flood Response Plans should be prepared by occupants of the site including details of egress routes and place of safe refuge.

DRAFT

Site Name: Ravenswood					
Site ID:	IP150d IP150e	Location:	Ravenswood	Area (ha):	Site IP150d – 1.73 Site IP150e – 3.61
Current Use:	Commercial	Proposed Use:	Residential	Vulnerability Classification:	More Vulnerable

Tidal/Fluvial Source:					
Flood Zone 1 (<0.1% AEP):	100%	Flood Zone 2 (0.1% AEP):	0%	Flood Zone 3 (1% AEP):	0%
Flood Zone 3b (5%AEP):	0%	Area Benefiting from Defences:		0%	

Flood Zones and Flood Defences
 The sites are identified as Flood Zone 1, low probability of flooding from rivers.
Map 1 – Environment Agency Flood Map for Planning Data



Residual Flood Risk

The site is located in Flood Zone 1, there is no residual risk from fluvial or tidal sources, therefore a hazard map has not been included.

Surface Water Flood Risk

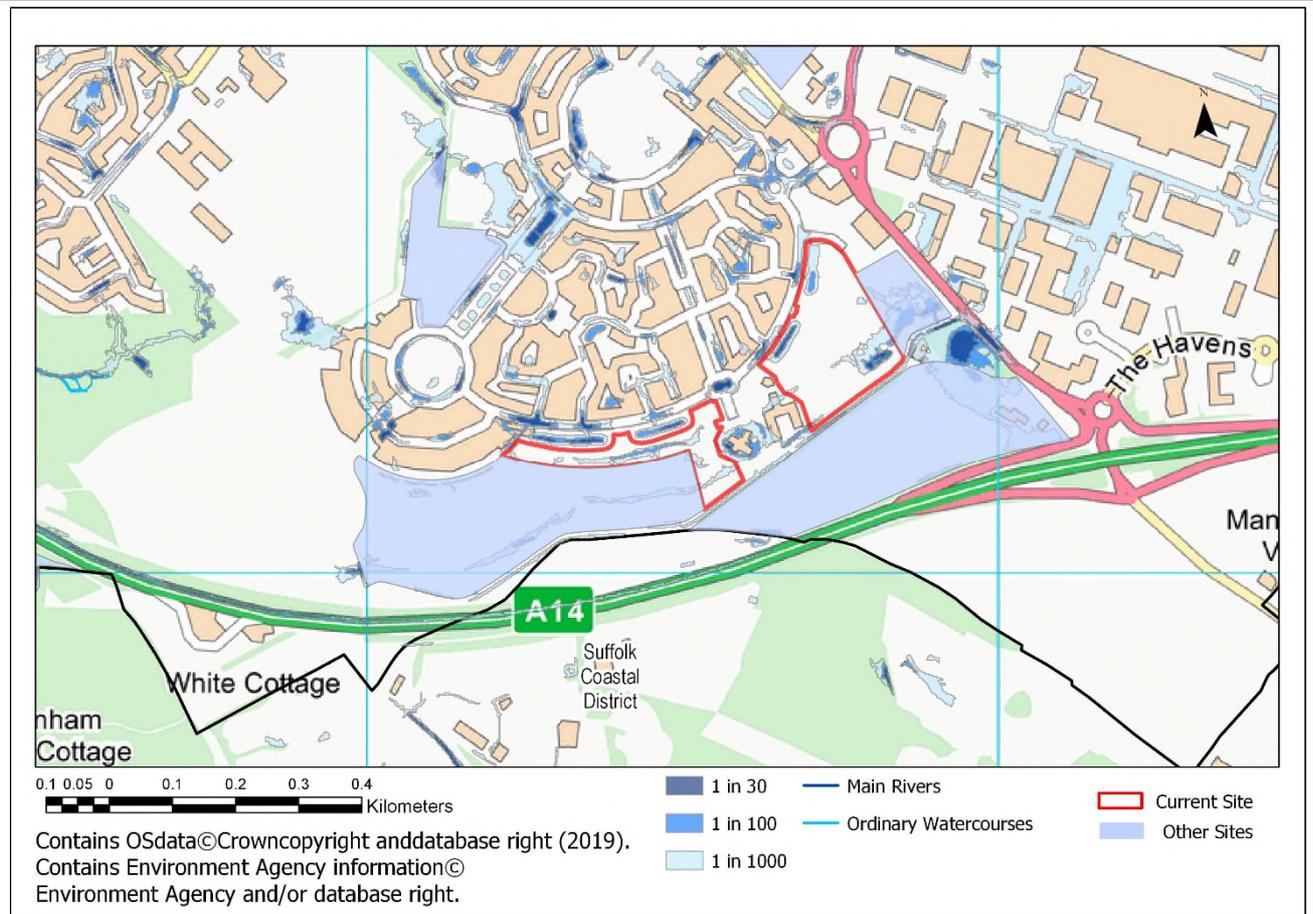
Risk of Flooding from Surface Water (RoFSW)

The RoFSW mapping shows that the roads in this area are susceptible to overland flow and ponding. Sites IP150d is shown to have a medium risk of surface water flooding. Site IP150e is shown to have high risk of surface water flooding.

Geology

The underlying geology in this location is Neogene to Quaternary Rocks which may be permeable and suitable for infiltration techniques within SuDS.

Site Name: Ravenswood



Groundwater Flood Risk

The AStGWF mapping (Level 1 SFRA Figure 4) shows that the site is located within a 1km square not considered to be at risk of groundwater flooding.

Site Specific Recommendations

Site Layout and Design

The drainage strategy for the site should be considered early in the site planning process to ensure adequate inclusion of SuDS and adequate provision for the management of surface water, especially given the risk of surface water flooding in the area surrounding the site. SuDS should be considered in accordance with the hierarchy of SuDS (i.e. considering infiltration measures first wherever possible).

Due to the level of flood risk posed to the site, there are no further site specific requirements.

Site Name:	Site IP184a – Urban Edge of Ipswich Humber Doucy Lane Site IP184b – Land adjacent to Humber Doucy Lane (part Option F) Site IP184c – Urban Edge of Ipswich Humber Doucy Lane				
Site ID:	IP184a IP184b IP184c	Location:	Site IP184a - Urban Edge of Ipswich - Kesgrave Covenant Ltd Site IP184b - Land adjacent to Humber Doucy Lane (part Option F) Site IP184c- Urban Edge of Ipswich - Kesgrave Covenant Ltd	Area (ha):	Site IP184a – 10.15 Site IP184b – 0.84 Site IP184c – 4.01
Current Use:	Commercial	Proposed Use:	Residential	Vulnerability Classification:	More Vulnerable

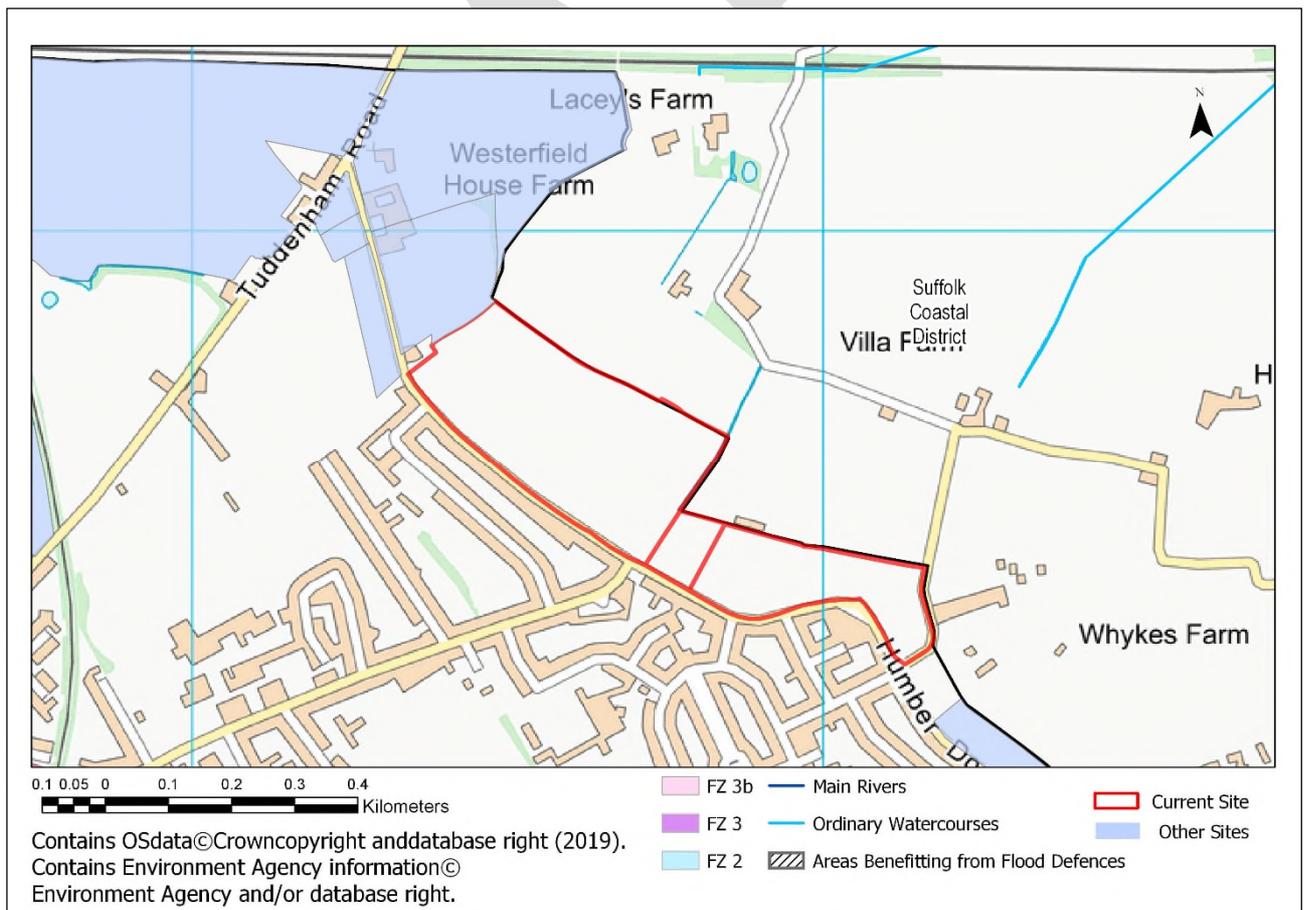
Tidal/Fluvial Source:

Flood Zone 1 (<0.1% AEP):	Flood Zone 2 (0.1% AEP):	Flood Zone 3 (1% AEP):	Flood Zone 3b (5%AEP):	Area Benefiting from Defences:
100%	0%	0%	0%	0%

Flood Zones and Flood Defences

The sites are identified as Flood Zone 1, low probability of flooding from rivers and sea. The closest mapped watercourses are a drain to the north east of the site, that flows northwards to join the River Fynn, and a drain approximately 1.5km west of the site which forms part of the Gipping catchment.

Map 1 – Environment Agency Flood Map for Planning Data



Residual Flood Risk – Flood Hazard

As noted above, the sites are located within 100% Flood Zone 1. There is therefore no residual flood risk, or flood hazard associated with fluvial or tidal sources at the sites.

Site Name: Site IP184a – Urban Edge of Ipswich Humber Doucy Lane
 Site IP184b – Land adjacent to Humber Doucy Lane (part Option F)
 Site IP184c – Urban Edge of Ipswich Humber Doucy Lane

Surface Water Source

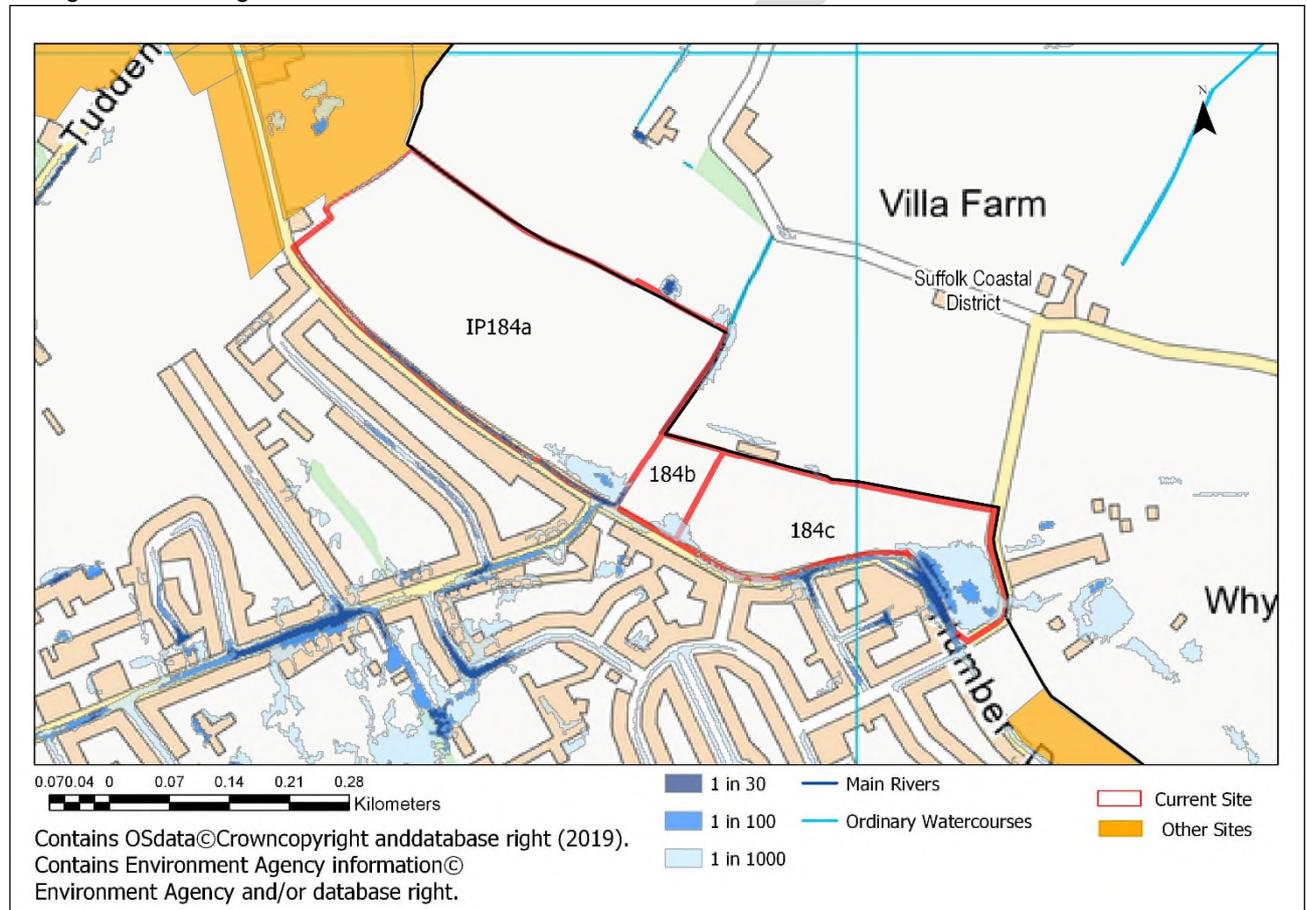
Risk of Flooding from Surface Water (RoFSW)

The RoFSW mapping shows that the roads in this area are susceptible to overland flow and ponding. Sites IP184a is shown to have a medium risk of surface water flooding. Site IP184b is shown to have low risk of surface water flooding. Site IP184c is shown to have high risk of surface water flooding. The percentage of the sites affected by SW flood risk is low and with careful site mitigation sustainable development should be possible at this location, in terms of surface water flood risk.

Geology

The underling geology in at Site IP184a is Neogene to Quaternary Rocks and the Thames Group. Infiltration to be further investigated during a site investigation.

The underling geology in at Site IP184b and IP184c is the Thames Group. Infiltration be further investigated during a site investigation.



Groundwater Flood Risk

The AStGWF mapping (Level 1 SFRA Figure 4) shows part of Site IP184a is located within a 1km square of which 25%-50% is susceptible to groundwater emergence. Sites IP184b and IP184c are not considered to be susceptible to groundwater flooding.

Other sources

The Environment Agency 'Risk of Flooding from Reservoirs' mapping shows that the site is not at risk.

Site Specific Recommendations

Site Layout and Design

The drainage strategy for the site should be considered early in the site planning process to ensure adequate inclusion of SuDS and adequate provision for the management of surface water, especially given the risk of

Site Name:	Site IP184a – Urban Edge of Ipswich Humber Doucy Lane Site IP184b – Land adjacent to Humber Doucy Lane (part Option F) Site IP184c – Urban Edge of Ipswich Humber Doucy Lane
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surface water flooding in the area surrounding the site. SuDS should be considered in accordance with the hierarchy of SuDS (i.e. considering infiltration measures first wherever possible).

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Site Name: Helena Road					
Site ID:	IP226	Location:	Helena Road	Area (ha):	1.85
Current Use:	Commercial	Proposed Use:	Residential	Vulnerability Classification:	More Vulnerable

Tidal/Fluvial Source:				
Flood Zone 1 (<0.1% AEP): 0%	Flood Zone 2 (0.1% AEP): 2%	Flood Zone 3 (1% AEP): 98%	Flood Zone 3b (5%AEP): 0%	Area Benefiting from Defences: 100%

Flood Zones and Flood Defences

The tidal River Orwell is located approximately 20m to the west of the site. The majority of the site is identified as Flood Zone 3, high probability of flooding, in the absence of flood defences. This area is shown to benefit from the presence of defences; there is a flood defence wall and embankment along the edge of the River Orwell to the west of the site, and there is a tidal barrier further downstream on the River Orwell. The site is therefore at residual risk of tidal flooding, in the event of a failure of these defences.

Refer to Map 1 below for Flood Zone outlines

Functional Floodplain

The site is located adjacent to, but not within, the functional floodplain.

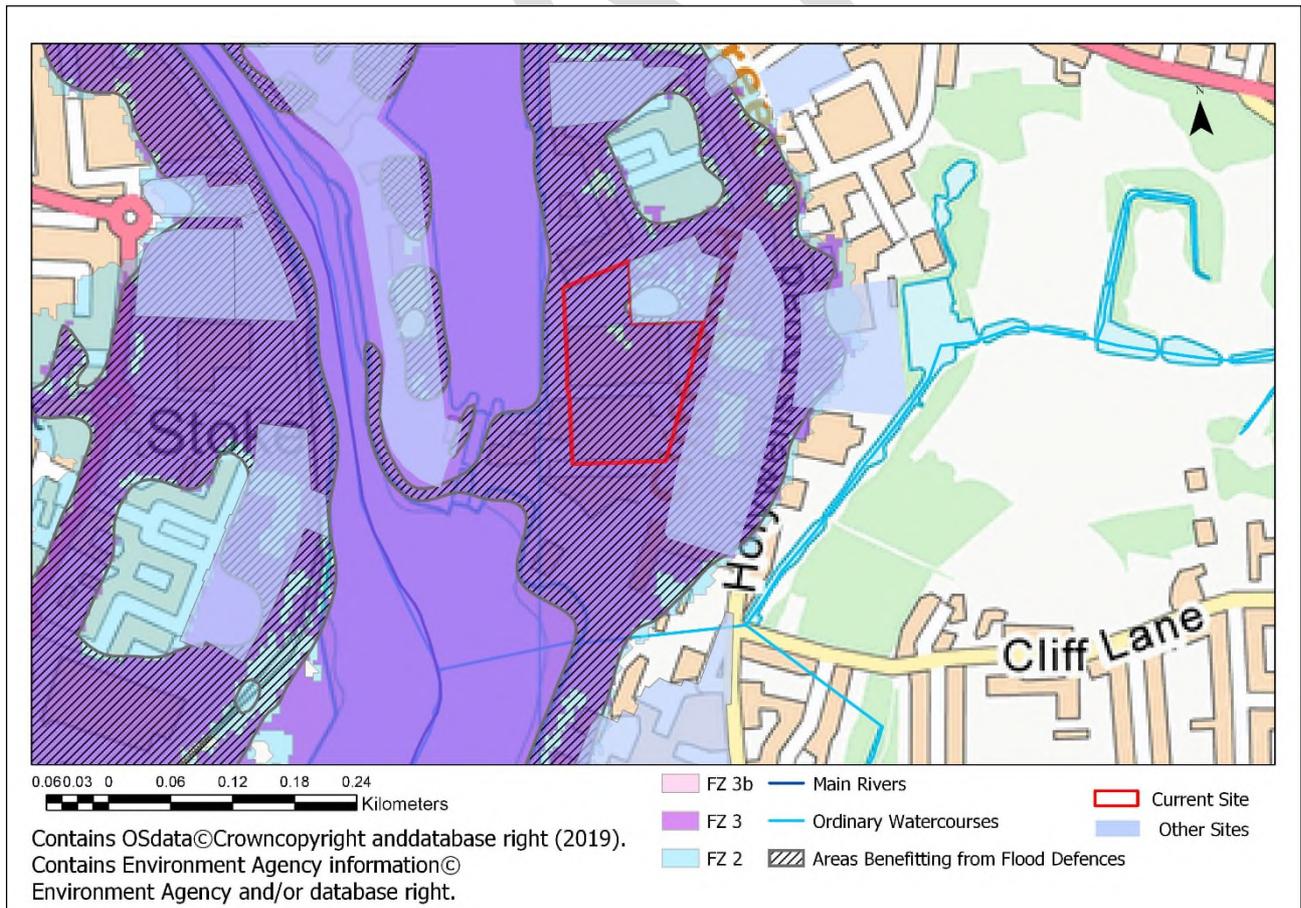
Climate Change

Modelling of the River Orwell shows that water remains in bank in this location during the 0.5% AEP event including an allowance for climate change. (These modelled scenarios take account of the presence of defences).

Historic Records

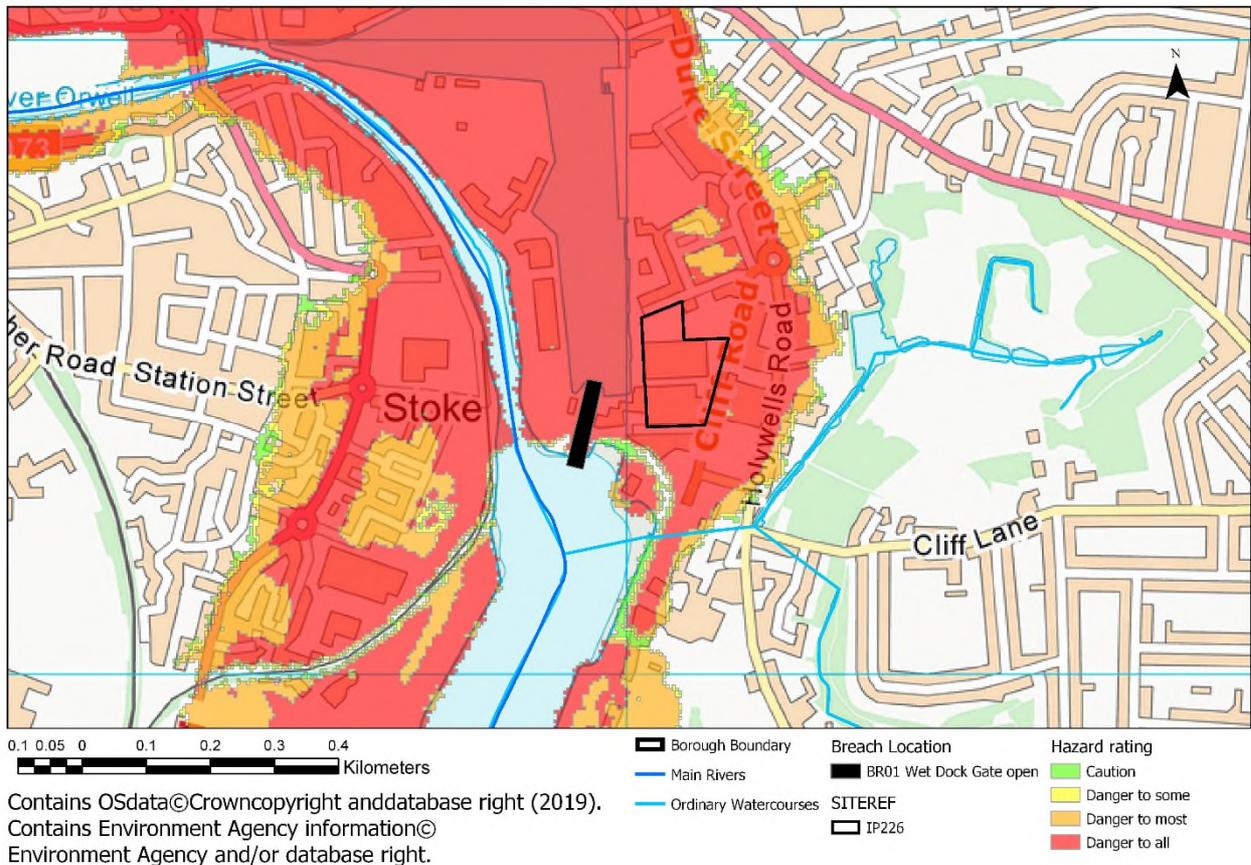
The Level 1 SFRA Figure 10 shows that this site is on the edge of the area that experienced flooding in 1953. Ipswich BC also hold records of road and pavement flooding near to this location on Holywells Road.

Map 1 – Environment Agency Flood Map for Planning Data



Site Name: Helena Road

Map 2 - Residual Flood Risk – Flood Hazard Mapping at Breach location BR01 Wet Dock Gate Open 0.5% scenario including climate change to 2118



Residual Flood Risk – Flood Hazard

This site is protected by the IFDMS and is at residual risk of flooding in the event of failure or exceedance of flood defences.

Hazard mapping above shows hazard ratings with Wet Dock Gate open at BR01 for the 0.5% scenario including climate change to 2118. This breach location has been chosen as it creates the highest residual risk on site – greater than if a breach were to occur at BR02 (refer to main SFRA report for mapping of residual flood risk from all breach locations).

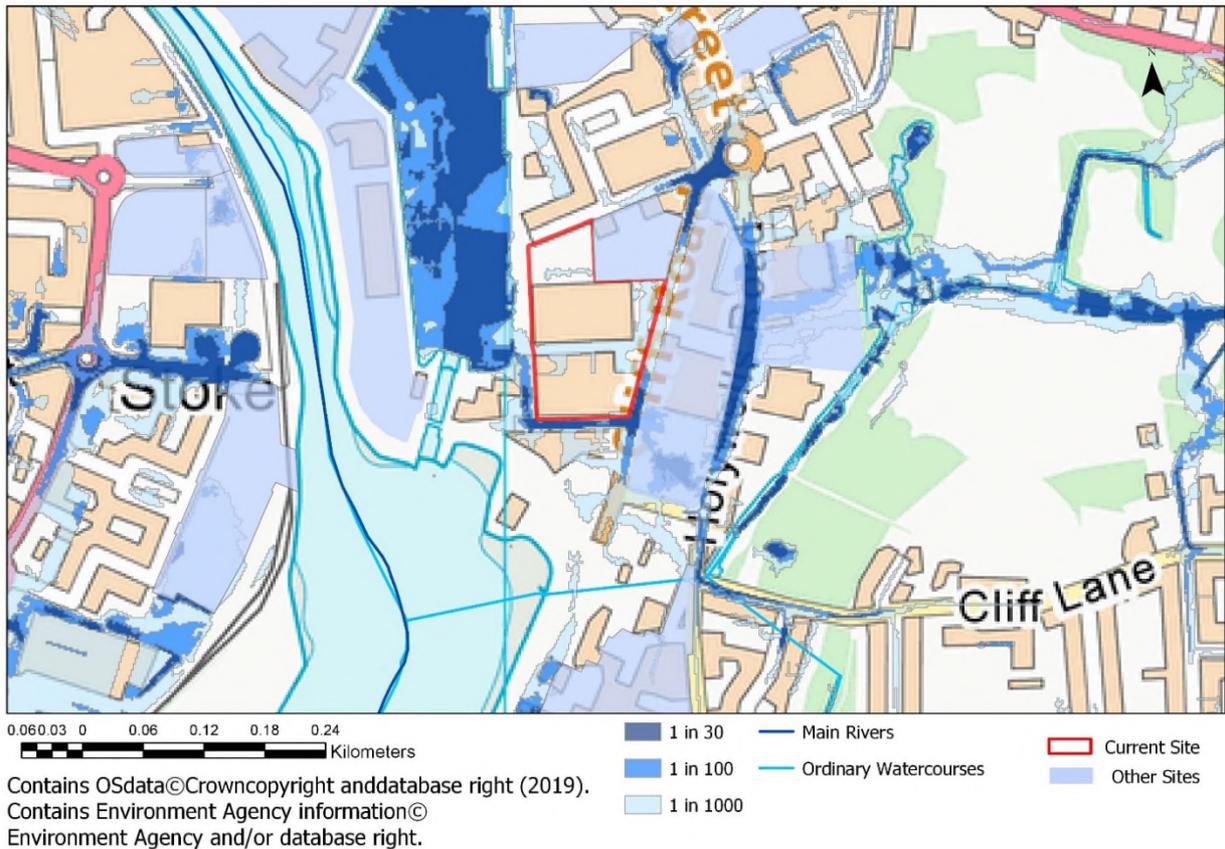
The site is shown to experience a hazard rating of danger to all affecting 100% of the site. The site is entirely within the defended floodplain with limited opportunities for safe access in the event of a breach. Due to the site location, consideration of rate of onset of flooding should be included in a site assessment. Safe refuge should be provided above 5.3m AOD.

Surface Water Flood Risk

Risk of Flooding from Surface Water (RoFSW)

Site Name: Helena Road

Map 3 - Environment Agency Risk of Flooding from Surface Water mapping (RoFSW)



The RoFSW mapping shows that the roads in this area are susceptible to overland flow and ponding. Whilst the site itself is shown to have a low risk of surface water flooding, the surrounding routes are at high risk.

Groundwater Flood Risk

The AStGWF mapping (Level 1 SFRA Figure 4) shows that the site is located within a 1km square of which <25% is susceptible to groundwater emergence.

Due to the brownfield nature of the site, it is likely that made ground is at the surface, a site level ground investigation including soakage tests will be required to inform drainage design.

The brownfield nature of the site could provide an opportunity to create a betterment on the current drainage discharge from the site.

Other sources

The Environment Agency 'Risk of Flooding from Reservoirs' mapping shows that the site is not at risk.

Site Specific Recommendations

Site Layout and Design

The drainage strategy for the site should be considered early in the site planning process to ensure adequate inclusion of SuDS and adequate provision for the management of surface water, especially given the risk of surface water flooding in the area surrounding the site. SuDS should be considered in accordance with the hierarchy of SuDS (i.e. considering infiltration measures first wherever possible).

Finished Floor Levels

The Environment Agency will seek finished floor levels for new development set 300mm above the 1% AEP including an allowance for climate change for fluvial flood risk. In areas at risk of tidal flooding, the Environment Agency will seek finished floor levels for new development to be set 300mm above the 0.5% AEP event including an allowance for climate change, or 300mm above the maximum water level 5.3m AOD (Table 7-1), whichever is greater

Site Name: Helena Road

Access / Egress

Access to the site may be from Cliff Road toward Mytle Road roundabout. The routes that pass north-east are within Flood Zone 1 and therefore lead out of the tidal floodplain.

In the event of a failure of the flood defence measures protecting this area, safe dry egress from the southern part of the site may not be possible. It will therefore be necessary to include provision of a safe place of refuge for residents above the 0.1% AEP flood levels including an allowance for climate change (>5.3m AOD).

Due to the site location, rate of onset should be a consideration at the planning stage.

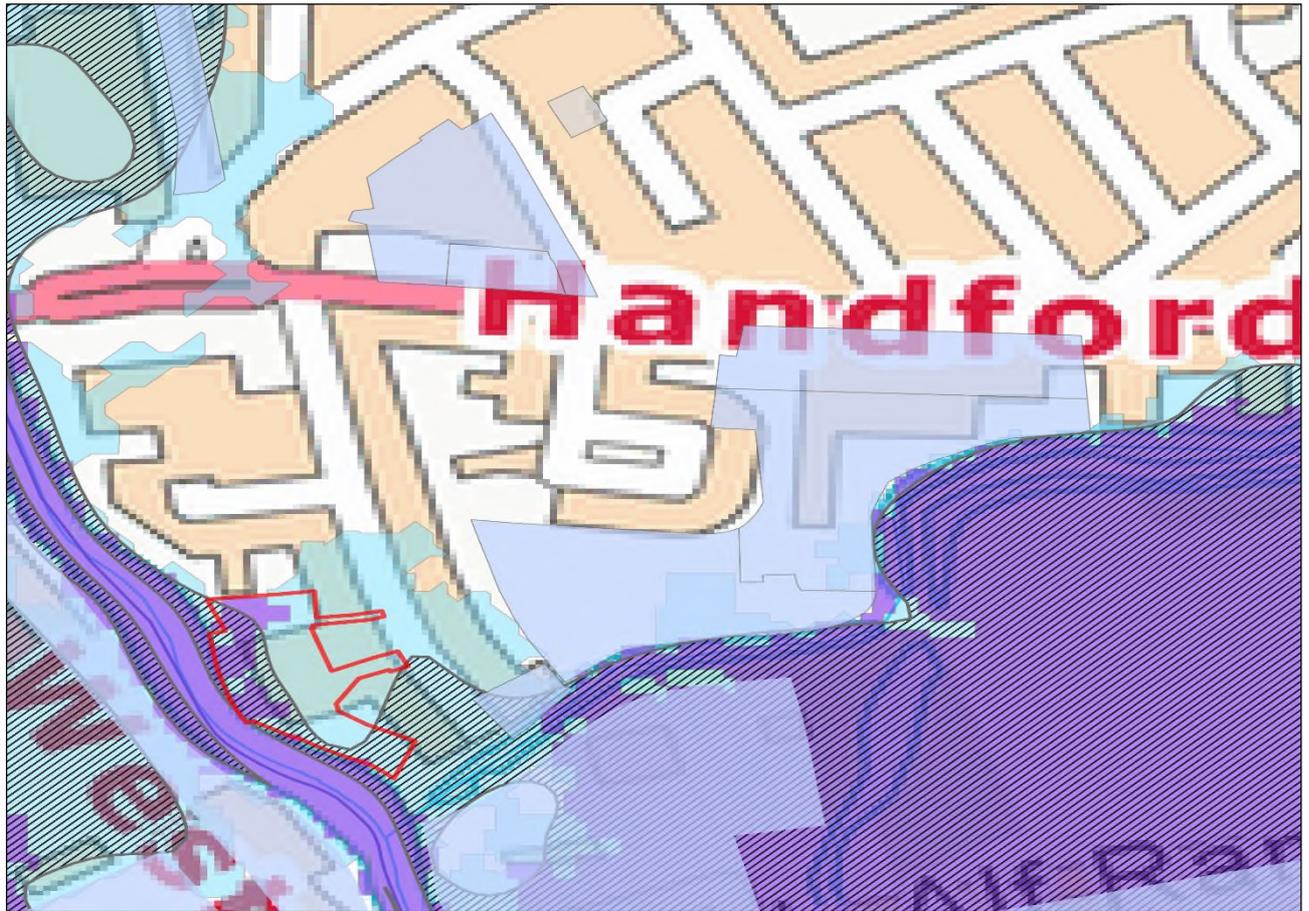
Emergency planning

The site is shown to be within the Environment Agency Flood Warning Area for the tidal River Orwell at Ipswich wet dock and waterfront, to upstream of Stoke Bridge; occupants should register to receive the warning service. To manage the residual risk of flooding associated with a failure of the flood defence measures in this area, Flood Response Plans should be prepared by occupants of the site including details of egress routes and place of safe refuge.

Site Name: 72 (Old Boatyard) Cullingham Road IP1 2EG					
Site ID:	IP354	Location:	72 (Old Boatyard) Cullingham Road IP1 2EG	Area (ha):	0.34
Current Use:	Commercial	Proposed Use:	Residential	Vulnerability Classification :	More Vulnerable
Tidal/Fluvial Source:					
Flood Zone 1 (<0.1% AEP): 0%	Flood Zone 2 (0.1% AEP): 74%	Flood Zone 3 (1% AEP): 26%	Flood Zone 3b (5%AEP): 0%	Area Benefiting from Defences: 45%	
Flood Zones and Flood Defences					
<p>As it flows through Ipswich, the River Gipping becomes the River Orwell. A channel of the River Gipping / Orwell flows south along the western edge of the site and joins with another main channel of the River Orwell. At this location the River Gipping / Orwell is tidally influenced. Most of the site is identified as Flood Zone 3, high probability of flooding, in the absence of flood defences. The site is shown to benefit from the presence of defences; there is a flood defence wall along the edge of the channel to the west of the site, and there is a tidal barrier further downstream on the River Orwell. The site is therefore at <u>residual risk of fluvial or tidal flooding</u>, in the event of a failure of these defences.</p> <p>Refer to Map 1 below for Flood Zone outlines</p>					
Functional Floodplain					
The site is located adjacent to, but not within, the functional floodplain.					
Climate Change					
Modelling of the River Gipping shows that water remains in bank in this location during the 1% AEP event including a 20% allowance for climate change. Modelling of the River Orwell shows that water remains in bank in this location during the 0.5% AEP event including an allowance for climate change. (These modelled scenarios take account of the presence of defences).					
Historic Records					
The Level 1 SFRA Figure 10 shows that this site is on the edge of the area that experienced flooding in 1939.					

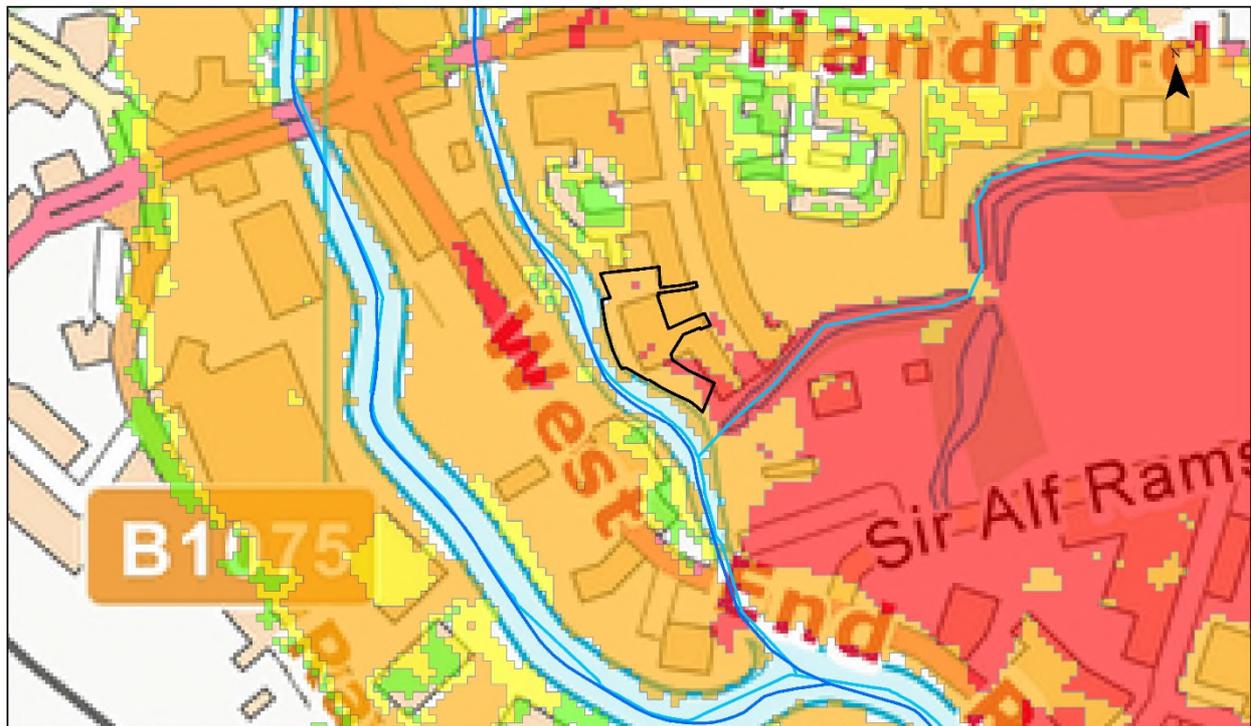
Site Name: 72 (Old Boatyard) Cullingham Road IP1 2EG

Map 1 – Environment Agency Flood Map for Planning Data



Site Name: 72 (Old Boatyard) Cullingham Road IP1 2EG

Map 2 - Residual Flood Risk – Flood Hazard Mapping at Breach location BR01 Wet Dock Gate Open 0.5% scenario including climate change to 2118



0.04 0.02 0 0.04 0.08 0.12 0.16
Kilometers

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Borough Boundary	Breach Location	Hazard rating
Main Rivers	BR01 Wet Dock Gate open	Caution
Ordinary Watercourses	SITEREF	Danger to some
	IP354	Danger to most
		Danger to all

Residual Flood risk – Flood Hazard

This site is protected by the IFDMS and is at residual risk of flooding in the event of failure or exceedance of flood defences.

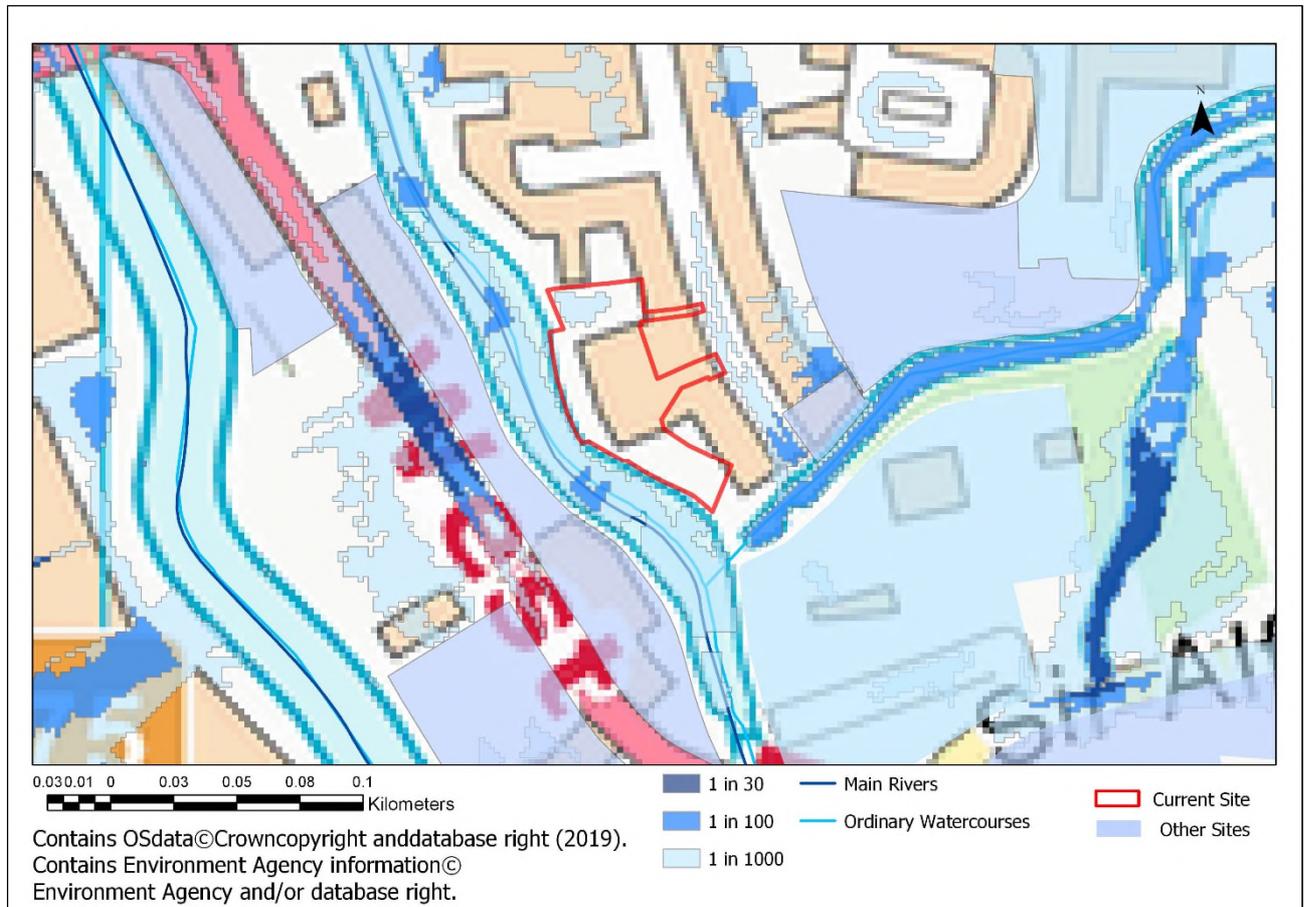
Hazard mapping above shows hazard ratings with Wet Dock Gate open at BR01 for the 0.5% scenario including climate change to 2118. This breach location has been chosen as it creates the highest residual risk on site – greater than if a breach were to occur at BR02 (refer to main SFRA report for mapping of residual flood risk from all breach locations).

The majority of the site classified as danger to most.

Surface Water Source

Risk of Flooding from Surface Water (RoFSW)

The RoFSW mapping shows that the roads in this area are susceptible to overland flow and ponding. Whilst the site itself is shown to have a low risk of surface water flooding, the surrounding routes are at high risk.



Groundwater Flood Risk

The ASTGWF mapping (Level 1 SFRA Figure 4) shows that the site is located within a 1km square of which 50%-75% is susceptible to groundwater emergence. The risk of groundwater flooding in this area should be further investigated during a site investigation survey.

Due to the brownfield nature of the site, it is likely that made ground is at the surface, a site level ground investigation including soakage tests will be required to inform drainage design.

The brownfield nature of the site could provide an opportunity to create a betterment on the current drainage discharge from the site.

Other sources

The Environment Agency 'Risk of Flooding from Reservoirs' mapping shows that the site is not at risk.

Site Specific Recommendations

Set-back Distance

All development should be set back 16m from the edge of the River Gipping / Orwell. The Environment Agency need to be consulted and an Environmental Permit obtained for any works within 16m a Main River.

Site Layout and Design

The drainage strategy for the site should be considered early in the site planning process to ensure adequate inclusion of SuDS and adequate provision for the management of surface water, especially given the risk of surface water flooding in the area surrounding the site. SuDS should be considered in accordance with the hierarchy of SuDS (i.e. considering infiltration measures first wherever possible).

Finished Floor Levels

The Environment Agency will seek finished floor levels for new development set 300mm above the 1% AEP including an allowance for climate change for fluvial flood risk. In areas at risk of tidal flooding, the Environment Agency will seek finished floor levels for new development to be set 300mm above the 0.5% AEP event

Site Name: 72 (Old Boatyard) Cullingham Road IP1 2EG

including an allowance for climate change, or 300mm above the maximum water level 4m AOD in Compartment J (Table 7-1), whichever is greater.

Access / Egress

Access to the site may be from Cullingham Road to Handford Road. The routes that pass northwards are within Flood Zone 1 and therefore lead out of the tidal floodplain.

In the event of a failure of the flood defence measures protecting this area, safe dry egress from the southern part of the site may not be possible. It will therefore be necessary to include provision of a safe place of refuge for residents above the 0.1% AEP flood levels including an allowance for climate change.

Emergency planning

The site is shown to be within the Environment Agency Flood Warning Area for the tidal River Orwell at Ipswich wet dock and waterfront, to upstream of Stoke Bridge; occupants should register to receive the warning service. To manage the residual risk of flooding associated with a failure of the flood defence measures in this area, Flood Response Plans should be prepared by occupants of the site including details of egress routes and place of safe refuge.

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