Cov8 - Canley Regeneration

OSNGR: 429189,277630	Area: 22.1ha		Greenfield	
Flood Zone Coverage:	**FZ3b**	**FZ3a**	**FZ2**	**FZ1**
	6%	8%	12%	88%

Sources of flood risk:

The primary flood risk to the potential development site is fluvial from the Canley Brook located through the centre of the potential development site as well as a small drain. The flood hazard ranges from very low to danger for most. Surface water flood risk is predominately located in the same locations as fluvial flood risk.

Exception Test Required?

Probably, as the flood risk fromt he Canley Brook cuts through the site in the largest area which may constrain where development can be placed. If "More Vulnerable" and "Essential Infrastructure" development is located in FZ3a and for "Highly Vulnerable" development located in FZ2. "Essential Infrastructure" development in FZ3b will also require the Exception Test.

"Highly Vulnerable" development should not be permitted within FZ3a and FZ3b.

"More Vulnerable" and "Less Vulnerable" development should not be permitted within FZ3b.

NPPF Guidance:

• The majority of the site is shown to be located within Flood Zone 1. If development is located away from the Canley Brook and drain and outside of Flood Zones 2 and 3, the Exception Test will not be required. However, the location of the flooding may be a constrain for development and limit the potential to place development away from the flood zones.

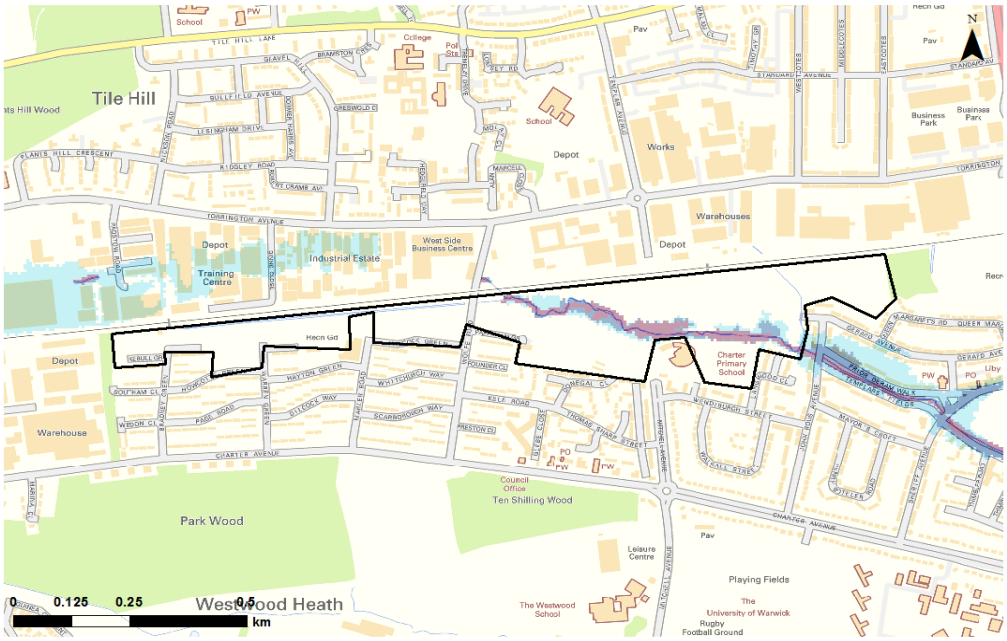
• Sites over 1 hectare will require a site-specific Flood Risk Assessment (FRA), in which the vulnerability to flooding from other sources should be considered.

• If development is placed in Flood Zones 2 or 3 then, depending on the type of the development, the Exception test may be required. To pass Part 'b' of the Exception Test, a FRA should demonstrate that the development will be safe, will avoid increasing flood risk elsewhere, and will reduce flood risk overall.

• The potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off should be considered.

• Developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond, through the layout and form of the development and through appropriate sustainable drainage techniques.

Flood Zone Map



Potential development location | Flood Zone 3b | Flood Zone 3a

Council boundary | Indicative Extent of Flood Zone 3b | Flood Zone 2

Climate Change Map

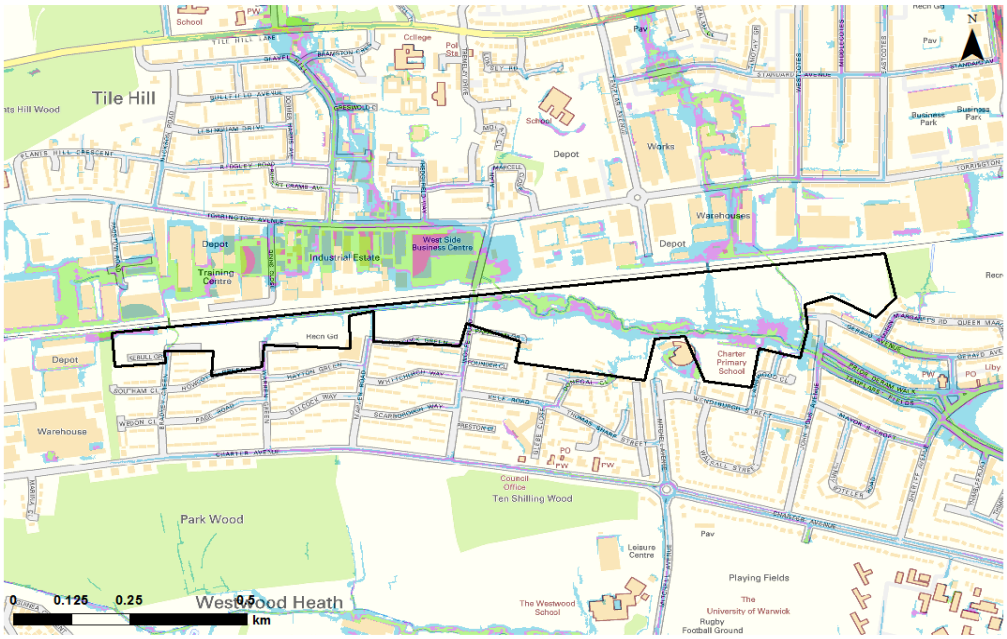
Potential development location

Council boundary

Flood Zone 3 with Climate Change

Indicative Extent of Flood Zone 3 with Climate Change

Surface Water Map



Potential development location

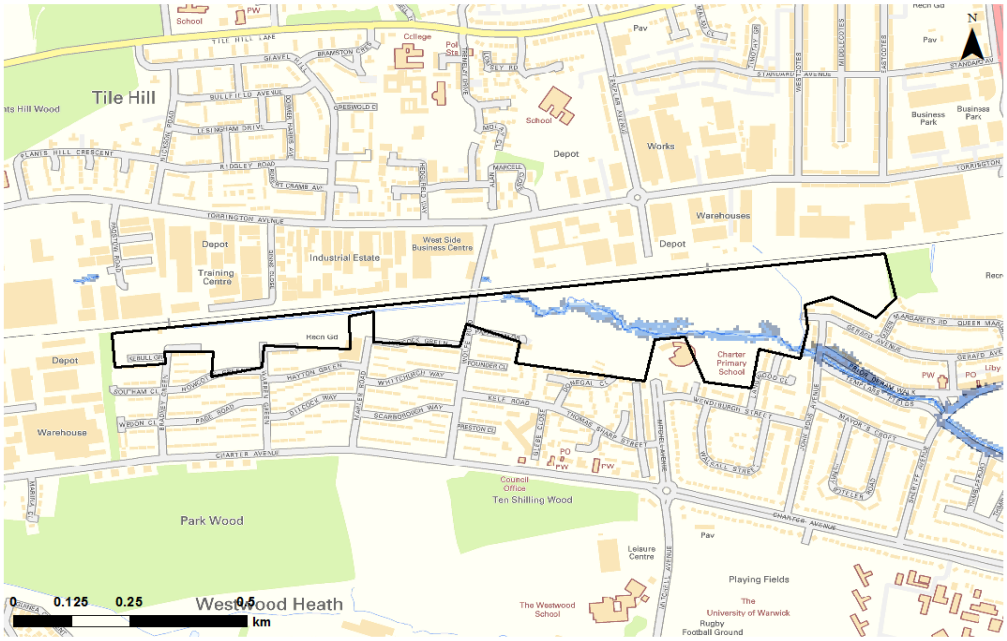
Council boundary

uFMfSW 30-year Extent

uFMfSW 100-year Extent

uFMfSW 1,000-year Extent

Depth Map - fluvial flooding (1 in 100-year event)

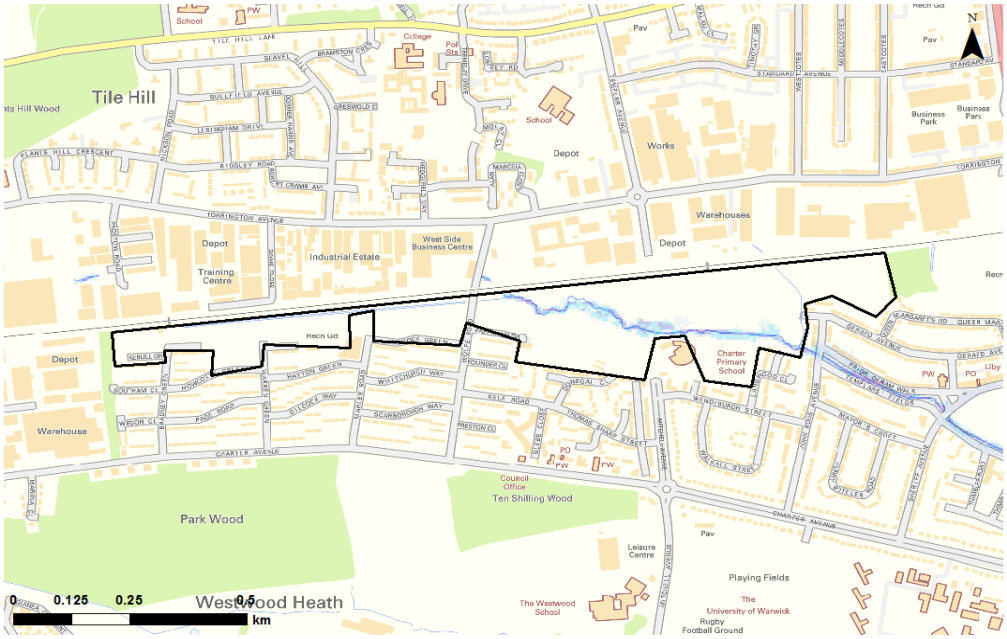


Potential development location
Council boundary

Depth (m)

0 - 0.10	0.50 - 1.00	2.00 - 2.50	3.50 - 4.00
0.10 - 0.50	1.00 - 1.50	2.50 - 3.00	>4.00
	1.50 - 2.00	3.00 - 3.50	

Velocity Map - fluvial flooding (1 in 100-year event)

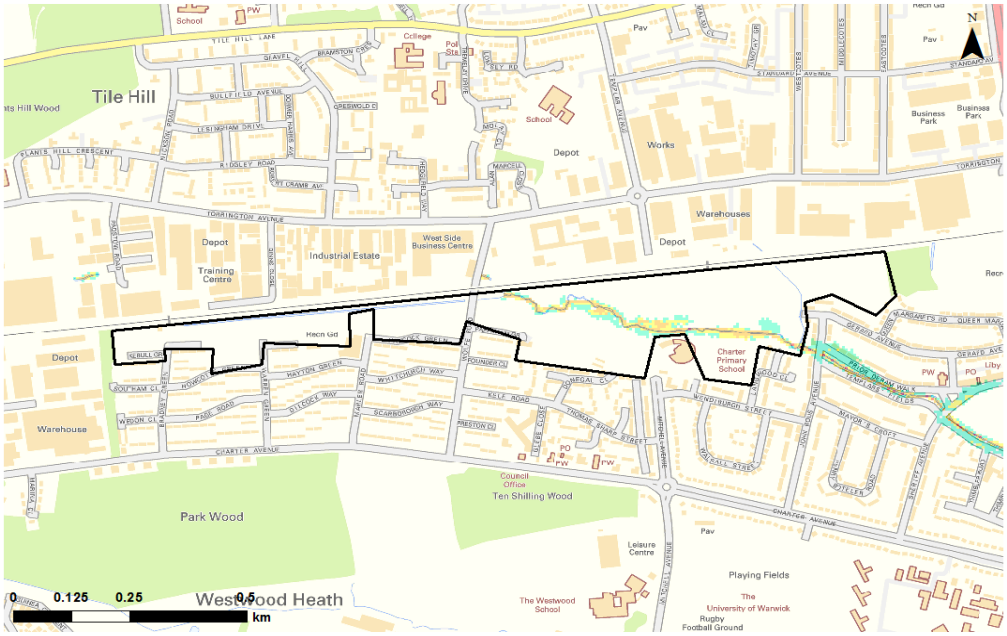


Potential development location
Council boundary

Velocity (m/s)

0 - 0.2	0.2 - 0.5	1.0 - 2.0
	0.5 - 1.0	> 2.0

Hazard Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Hazard Rating

Very low hazard - caution
Danger for some
Danger for most
Danger for all

SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		All forms of source control are likely to be suitable.
Infiltration		Infiltration likely to be suitable. Mapping suggests a low risk of ground water flooding however, site investigations should be carried out to assess potential for drainage by infiltration.
Detention		This option may be feasible provided site slopes are < 5% at the location of the detention feature. A liner maybe required if there any ground contamination issues.
Filtration		This feature is probably suitable provided site slopes are <5% and the depth to the water table is >1m. If the site has contaminated land issues; a liner will be required.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. If the site has groundwater contamination issues, a liner will be required.

• Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

• The site is not located in an area designated by the Environment Agency as a landfill site.

• The site is not located within any Environment Agency designated ground source protection zones.

Flood Defences:

There are no flood defences at this site.

Flood Warning:

This potential development site is not covered by a FWA; however it is partly covered by the River Sowe, River Sherbourne, Canley Brook and Finham Brook Flood Alert Area.

Access & Egress:

Access and egress to the potential development site can be achieved via a number of highways around the site boundary. The majority of these routes are impacted by surface water with some highways potentially impacted by fluvial flooding. Consideration should be given to the safest route to and from the site in times of flood to ensure safe access and egress can be achieved at all times. Fluvial flood risk divides the site into two; it is important that development on both sides of the watercourse have safe access and egress in times of flood.

Climate Change:

• Increased storm intensities.
• Increased water levels in the Canley Brook and the drain.

Flood Risk Implications for Development:

• At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local stands and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
  o Reducing volume and rate of runoff
  o Relocating development to zones with lower flood risk
  o Creating space for flooding.
• A detailed hydraulic model of the unnamed tributary of the Canley Brook may be required to demonstrate the flood risk posed to the development and to help establish a sequential approach to the overall site layout. Detailed models should consider any potential blockage locations to help inform flood risk across the potential development site.
• No ordinary watercourse should be culverted unless there is an overriding need to do so and justification is provided in line with current Environment Agency policy. This is to ensure risk of blockage is minimal and the ecological status of watercourses are not degraded.
• No building, structure (whether temporary or permanent), or planting of vegetation within 5 metres of an ordinary watercourse, even if the watercourse is culverted.
• The peak flows on the Canley Brook and its tributary should be considered when reviewing drainage.
• Any designated features of significance to flood risk should be removed or altered without prior consent from the designated authority.
• No overland flow route or channel is to be become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
• Resilience measures will be required if buildings are situated in the flood risk area.
• New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assess in accordance with National and Local standards and guidance as agreed by the LLFA. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.
• Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
1) an adequate soakaway or some other adequate infiltration system
2) a watercourse
3) surface water sewer.
Surface water discharge to foul or combined systems will not be accepted.

• Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
• Assessment for runoff should include allowance for climate change effects.
• Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. This infrastructure should be used to help improve the quality of water received by the Canley Brook to help its current 'Moderate' WFD status. Consideration should also be given to using Flood Zones 2 and 3 as public open space.
• It is important to ensure that any new connections to sewer systems or watercourses do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
• On-site attenuation schemes would need to be tested against the hydrographs of the Canley Brook and its tributary to ensure flows are not exacerbated downstream within the catchment.
• All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
• Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
• If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
• Safe access and egress will need to be demonstrated.
• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.

bab70 - Eastern Green SUE Option

OSNGR: 428056,280706	Area: 141.1ha		Greenfield	
Flood Zone Coverage:	**FZ3b**	**FZ3a**	**FZ2**	**FZ1**
	1%	2%	3%	97%

Sources of flood risk:

The primary flood risk to the site is fluvial from the Pickford Brook and its unnamed tributary. These watercourses flow through the centre and northern parts of the site. The tributary largely remains in bank, while flooding from the Pickford Brook is largely confined to the channel and areas immediately adjacent. Flood hazard from the Pickford Brook is mainly classed as very low or danger to some. Parts of the site are also shown to be affected by surface water flooding; these areas tend to correspond with the watercourses.

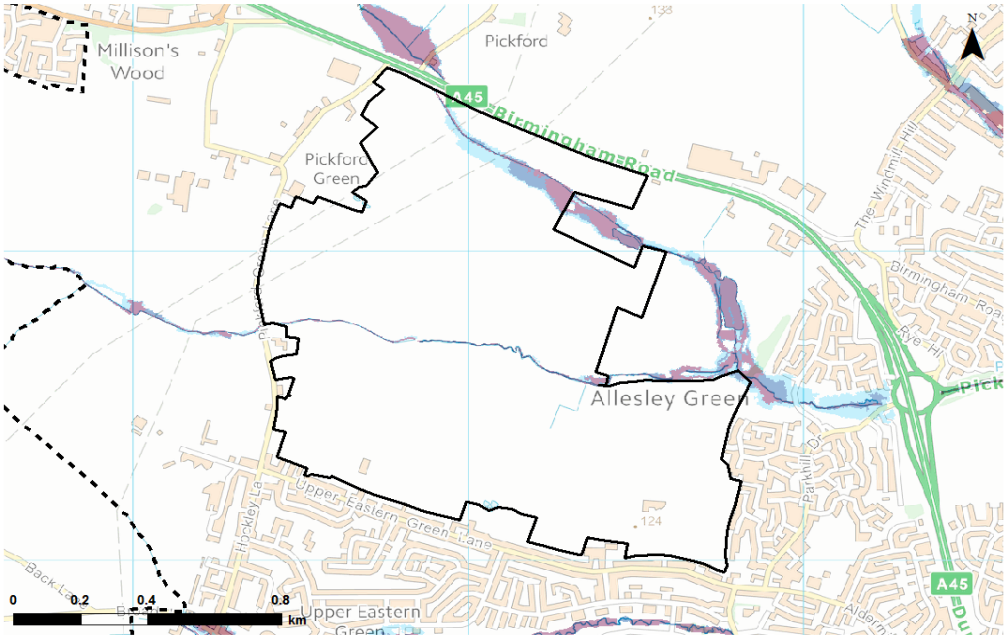
Exception Test Required?

Unlikely, as the majority of the site is located within Flood Zone One. If "More Vulnerable" and "Essential Infrastructure" development is located in FZ3a and for "Highly Vulnerable" development located in FZ2 an Exception test will be required.
"Essential Infrastructure" development in FZ3b will also require the Exception Test.
"Highly Vulnerable" development should not be permitted within FZ3a and FZ3b.
"More Vulnerable" and "Less Vulnerable" development should not be permitted within FZ3b.

NPPF Guidance:

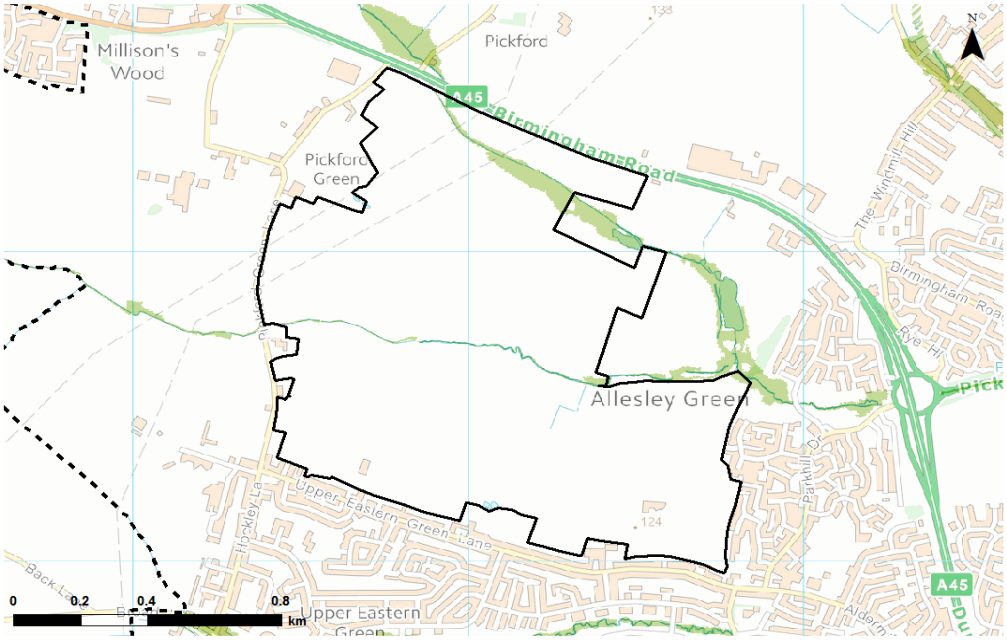
• The majority of the site is located within Flood Zone 1, therefore by ensuring development is placed away from the watercourses and outside of the flood zones, the Exception Test will not be required.
• However, sites over 1 hectare will require a site-specific Flood Risk Assessment (FRA), in which the vulnerability to flooding from other sources should be considered.
• If development is placed in the Flood Zones then, depending on the type of the development, the Exception test may be required. To pass Part 'b' of the Exception Test, a FRA should demonstrate that the development will be safe, will avoid increasing flood risk elsewhere, and will reduce flood risk overall.

Flood Zone Map



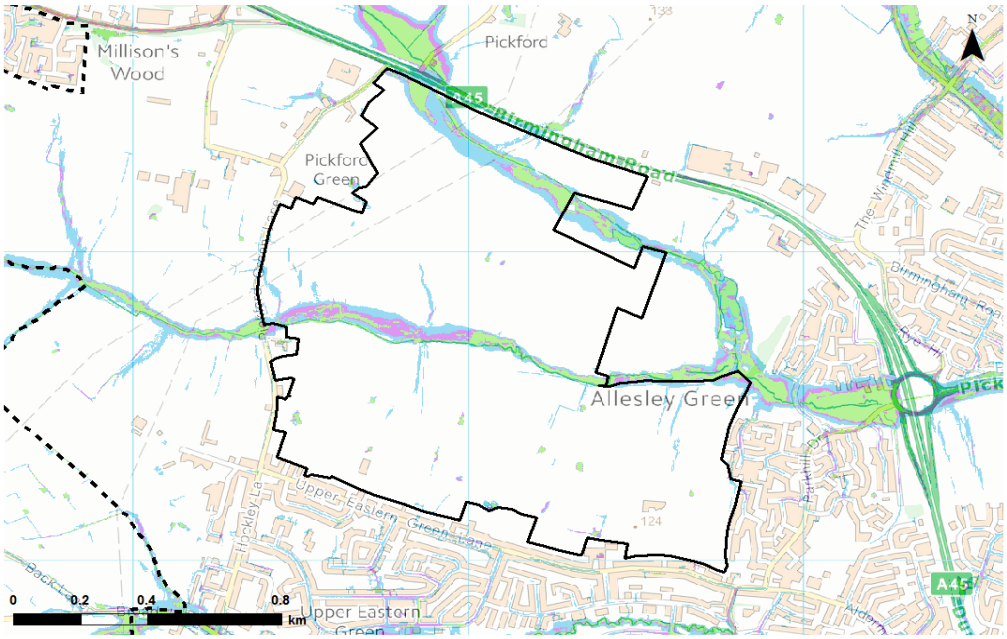
Potential development location
Council boundary
Flood Zone 3b
Indicative Extent of Flood Zone 3b
Flood Zone 3a
Flood Zone 2

Climate Change Map



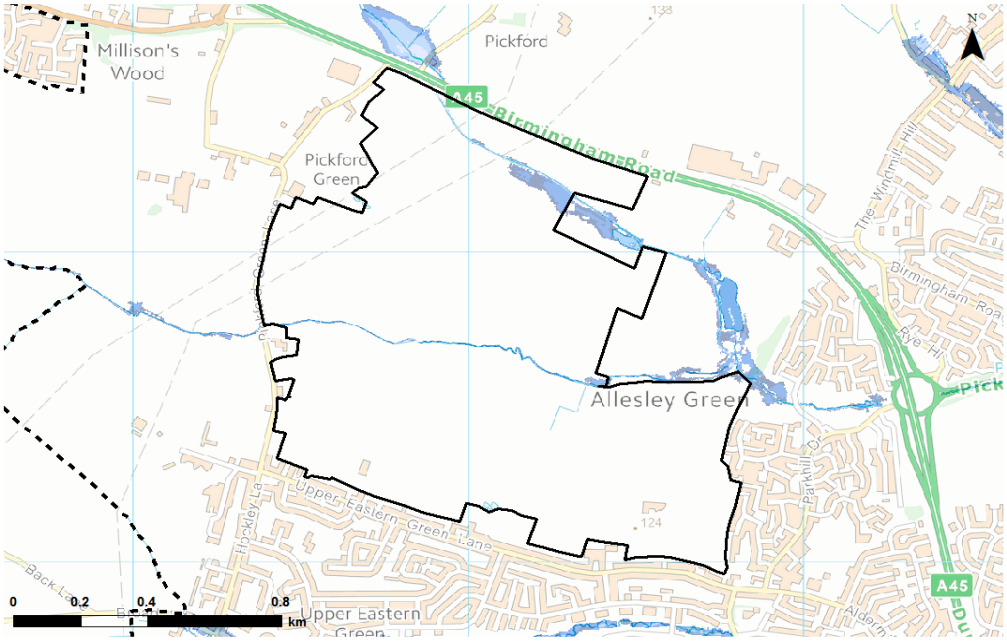
Potential development location
Council boundary
Flood Zone 3 with Climate Change
Indicative Extent of Flood Zone 3 with Climate Change

Surface Water Map



Potential development location
Council boundary
uFMfSW 30-year Extent
uFMfSW 100-year Extent
uFMfSW 1,000-year Extent

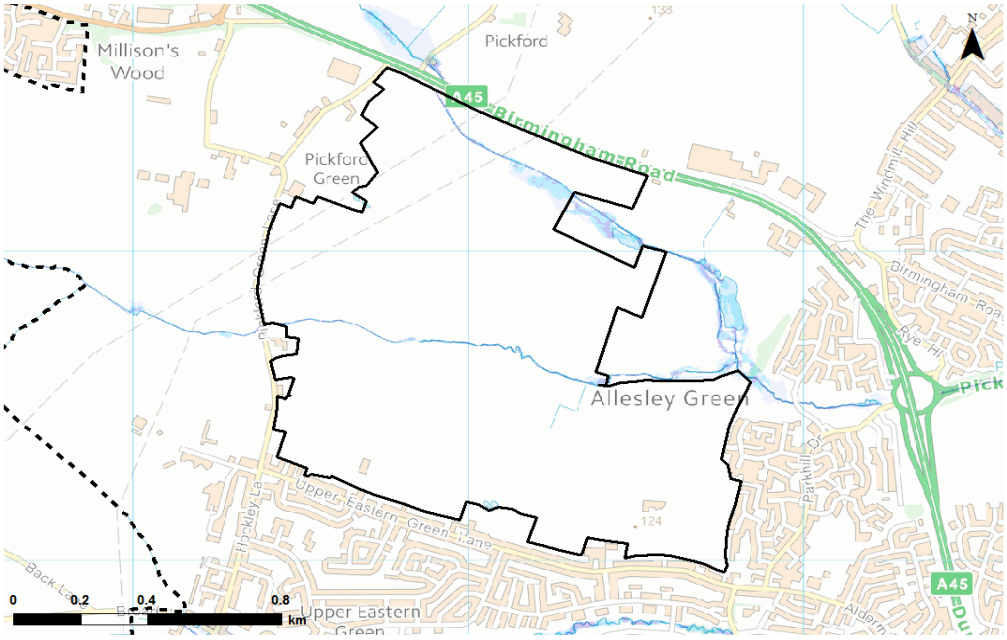
Depth Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Depth (m)
0 - 0.10
0.10 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
2.50 - 3.00
3.00 - 3.50
3.50 - 4.00
>4.00

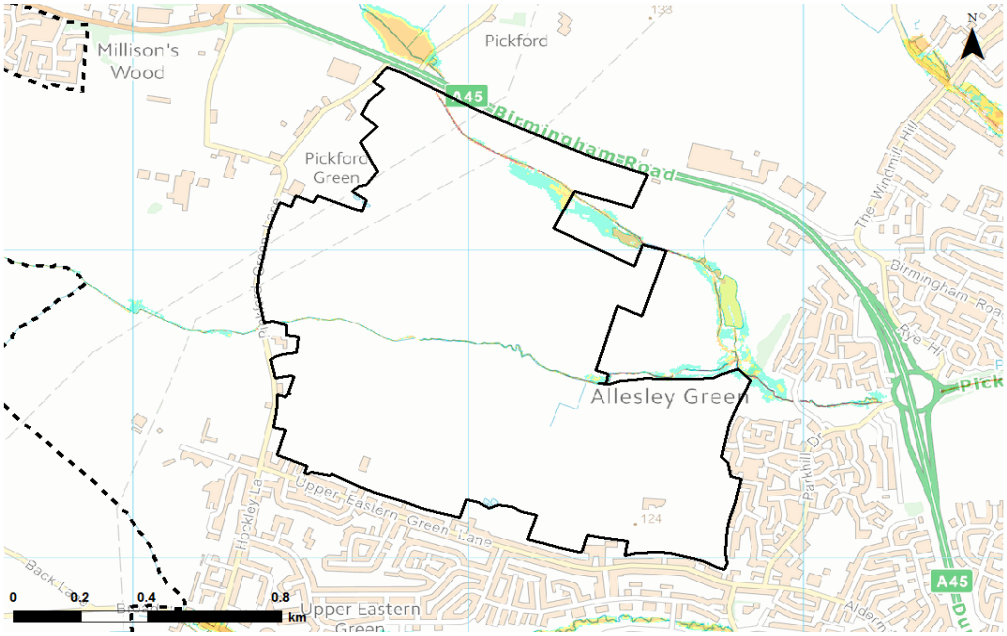
Velocity Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Velocity (m/s)
0 - 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

Hazard Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Hazard Rating

Very low hazard - caution
Danger for some
Danger for most
Danger for all

SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		Most source control techniques are likely to be suitable. Mapping suggests that permeable paving might be unsuitable at some locations within the site due to the existing gradient.
Infiltration		Due to the site being located in groundwater source protection zone infiltration techniques should only be used where there are suitable levels of treatment although it is possible that infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints
Detention		This option may be feasible provided site slopes are < 5% at the location of the detention feature. A liner maybe required if there any ground contamination issues.
Filtration		This feature is probably suitable provided site slopes are <5% and the depth to the water table is >1m. If the site has contaminated land or groundwater issues; a liner will be required.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. If the site has groundwater contamination issues, a liner will be required.

• Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

• The site is not located in an area designated by the Environment Agency as a landfill site.

• The site is located with a zone 3 groundwater protection zone. As such infiltration techniques should only be used where there are suitable levels of treatment although it is possible that infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.

Flood Defences:

There are no flood defences at this site.

Flood Warning:

This potential development site is not covered by a FWA; however it is partly covered by the River Sowe, River Sherbourne, Canley Brook and Finham Brook Flood Alert Area.

Access & Egress:

Primary access and egress to the site can be provided via Birmingham Road (A45) and Pickford Green Lane. These roads are shown to be susceptible to both fluvial and surface water flooding at certain points. However, depending on the location of entrance points to the site it should be able to be accessed in most circumstances.

Climate Change:

• Increased storm intensities.
• Increased water levels in the Pickford Brook and unnamed tributary.

Flood Risk Implications for Development:

• At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local stands and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
  o Reducing volume and rate of runoff
  o Relocating development to zones with lower flood risk
  o Creating space for flooding.
• A detailed hydraulic model of the upper reaches of the Pickford Brook may be required to demonstrate the flood risk posed to the development and to help establish a sequential approach to the overall site layout.
• The Pickford Brook or its tributary should not be culverted unless there is an overriding need to do so and justification is provided in line with current LLFA policy. This is to ensure risk of blockage is minimal and the ecological status of watercourses are not degraded.
• No building, structure (whether temporary or permanent), or planting of vegetation should occur within 5 metres of an ordinary watercourse, even if the watercourse is culverted.
• Potential storage options should be considered to reduce flood risk downstream from the Pickford Brook and its tributary. This will also attenuation flows from watercourses that contribute to the River Sherbourne, providing protection to other areas of Coventry.
• The peak flows on the Pickford Brook and its tributary should be considered when reviewing drainage.
• Any designated features of significance to flood risk should not be removed or altered without prior consent from the designated authority.
• No overland flow route or channel is to be become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
• Resilience measures will be required if buildings are situated in the flood risk area.
• New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assess in accordance with National and Local standards and guidance as agreed by the LLFA. There may be restrictions on the type of SuDS suitable within the site due to the site being located in a Zone 3 groundwater SPZ. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.
• Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
1) an adequate soakaway or some other adequate infiltration system
2) a watercourse
3) surface water sewer.
Surface water discharge to foul or combined systems will not be accepted.

• Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
• Assessment for runoff should include allowance for climate change effects.
• Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. This infrastructure should be used to help improve the quality of water received by the Hall Brook to help its current 'Poor' WFD status. Consideration should also be given to using Flood Zones 2 and 3 as public open space.
• It is important to ensure that any new connections to sewer systems or watercourses do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
• On-site attenuation schemes would need to be tested against the hydrographs of the Pickford Brook and its tributary to ensure flows are not exacerbated downstream within the catchment.
• All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
• Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
• If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
• Safe access and egress will need to be demonstrated.
• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.

L16 - Grange Farm

OSNGR: 435670,284381	Area: 4.0ha		Greenfield	
Flood Zone Coverage:	**FZ3b**	**FZ3a**	**FZ2**	**FZ1**
	0%	0%	0%	0%

Sources of flood risk:

Fluvial flood risk to the site is negligible; the unnamed watercourse flowing through the site is shown to stay within bank. However, the pond upstream of the canal may act to store and attenuate water before reaching the site. If the capacity of the pond were to change (by silting, for example) then the amount of water it could attenuate may be reduced and flood risk to the site could increase. Surface water poses a larger flood riskto the site, particularly in the west of the site around the watercourse before it flows under the M6. There is also residual risk of flooding from the Coventry Canal.

Exception Test Required?

No. The site is Flood Zone 1 with the watercourse remaining in bank.

NPPF Guidance:

• The majority of the site is shown to be located within Flood Zone 1. However, sites over 1 hectare will require a site-specific Flood Risk Assessment (FRA), in which the vulnerability to flooding from other sources should be considered.
• The potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off should be considered.
• Developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond, through the layout and form of the development and through appropriate sustainable drainage techniques.

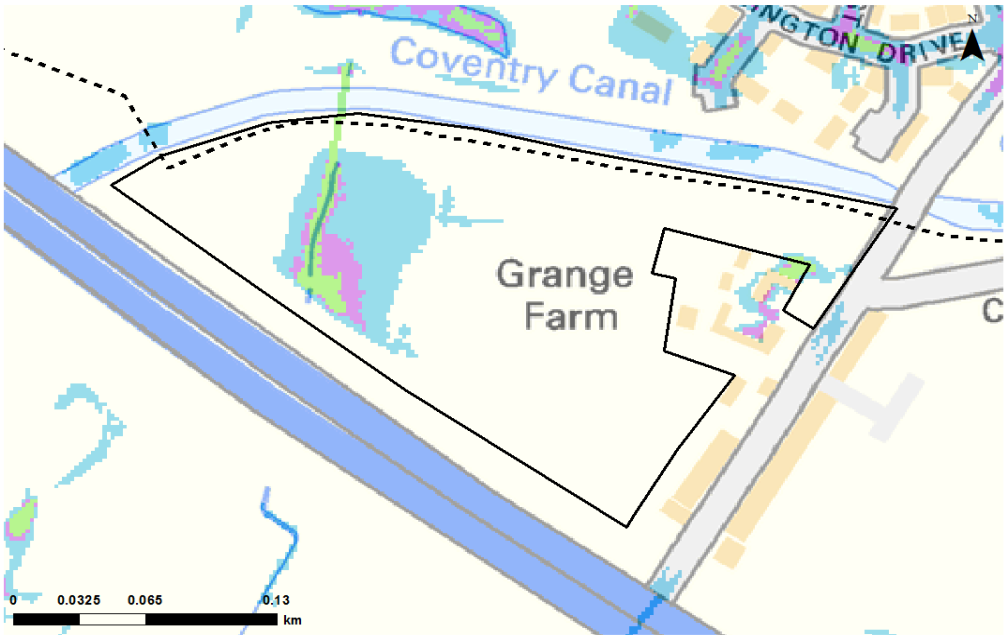
Flood Zone Map

Potential development location
Council boundary
Flood Zone 3b
Indicative Extent of Flood Zone 3b
Flood Zone 3a
Flood Zone 2

Climate Change Map

Potential development location
Council boundary
Flood Zone 3 with Climate Change
Indicative Extent of Flood Zone 3 with Climate Change

Surface Water Map



Potential development location
Council boundary
uFMfSW 30-year Extent
uFMfSW 100-year Extent
uFMfSW 1,000-year Extent

Depth Map - fluvial flooding (1 in 100-year event)

Potential development location
Council boundary

Depth (m)
0 - 0.10
0.10 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
2.50 - 3.00
3.00 - 3.50
3.50 - 4.00
>4.00

Velocity Map - fluvial flooding (1 in 100-year event)

Potential development location
Council boundary

Velocity (m/s)
0 - 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

Hazard Map - fluvial flooding (1 in 100-year event)

Potential development location
Council boundary

Hazard Rating

Very low hazard - caution
Danger for some
Danger for most
Danger for all

SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		Most source control techniques are likely to be suitable. Permeable paving should use non-infiltrating systems due to the risk of groundwater flooding.
Infiltration		Infiltration may be suitable. Mapping suggests a medium risk of groundwater flooding and underlying soils may be permeable. Further site investigation should be carried out to assess potential for drainage by infiltration. If infiltration is suitable it should be avoided in areas where the depth to the water table is <1m.
Detention		This option may be feasible provided site slopes are < 5% at the location of the detention feature. A liner maybe required if there any ground contamination or groundwater issues.
Filtration		This feature is probably suitable provided site slopes are <5% and the depth to the water table is >1m. If the site has contaminated land or groundwater issues; a liner will be required.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. If the site has groundwater contamination issues, a liner will be required.

• Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

• The site is not located in an area designated by the Environment Agency as a landfill site.

• The site is not located within any Environment Agency designated ground source protection zones.

Flood Defences:

There are no flood defences at this site.

Flood Warning:

There are currently no flood warning areas covering this site.

Access & Egress:

Primary access and egress to the potential development site is via Grange Road. This is shown to be largely unaffected by both surface water and fluvial flooding.

Climate Change:

• Increased storm intensities.
• Increased water levels in the unnamed watercourse and Coventry Canal.

Flood Risk Implications for Development:

• At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local stands and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
  o Reducing volume and rate of runoff
  o Relocating development to zones with lower flood risk
  o Creating space for flooding.
• A assessment of flood risk from the Coventry Canal should be conducted as part of site-specific FRA. This should include simulation of a canal breach to assess the impact to the potential development site.
• The detailed hydraulic model for the unnamed watercourse should be used to investigate the impact of the pond located upstream of the site on flood risk. Modelling assumptions based on available data at the time of the study may influence the volume of water retained within the pond and have a direct influence on flood risk within the potential development site. The hydraulic model should also be used to assess blockage to culverts inlets located within the site boundary and their impact on flood risk.
• No ordinary watercourse should be culverted unless there is an overriding need to do so and justification is provided in line with current Environment Agency policy. This is to ensure risk of blockage is minimal and the ecological status of watercourses are not degraded.
• No building, structure (whether temporary or permanent), or planting of vegetation within 5 metres of an ordinary watercourse, even if the watercourse is culverted.
• The peak flows on the unnamed tributary should be considered when reviewing drainage.
• Any designated features of significance to flood risk should be removed or altered without prior consent from the designated authority.
• No overland flow route or channel is to be become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
• Resilience measures will be required if buildings are situated in the flood risk area.
• New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assess in accordance with National and Local standards and guidance as agreed by the LLFA. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.

• Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
1) an adequate soakaway or some other adequate infiltration system
2) a watercourse
3) surface water sewer.
Surface water discharge to foul or combined systems will not be accepted.
• Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
• Assessment for runoff should include allowance for climate change effects.
• Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. Consideration should also be given to using Flood Zones 2 and 3 as public open space.
• It is important to ensure that any new connections to sewer systems or watercourses do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
• On-site attenuation schemes would need to be tested against the hydrographs of the unnamed watercourse to ensure flows are not exacerbated downstream within the catchment.
• All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
• Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
• If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
• Safe access and egress will need to be demonstrated.
• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.

Cov1 - Keresley SUE option

OSNGR: 431314,283854	Area: 154.0ha		Greenfield	
Flood Zone Coverage:	**FZ3b**	**FZ3a**	**FZ2**	**FZ1**
	1%	1%	1%	99%

Sources of flood risk:

The primary flood risk to the potential development site is fluvial from the Hall Brook which flows through the centre of the site. Water is mainly confined to the channel and areas immediately adjacent, except in the east of the site where water backs up behind a series of culverts. Flood hazard is mainly classed as very low. There are also a number of ponds located throughout the potential development site. Parts of the site are also shown to be affected by surface water flooding; these areas tend to correspond with the watercourse and the ponds.

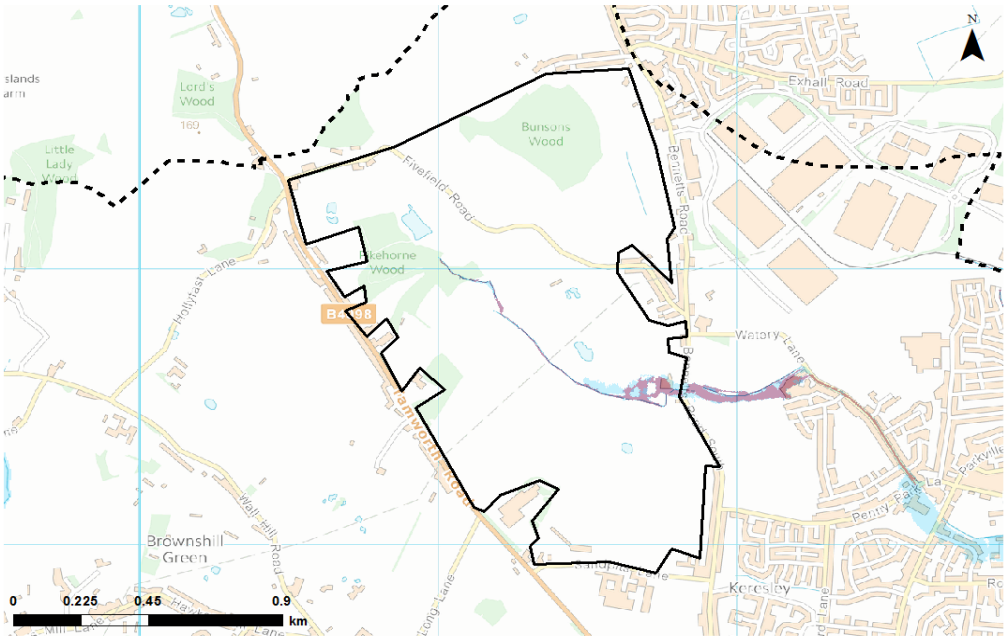
Exception Test Required?

Unlikely, as the majority of the site is located within Flood Zone 1. If "More Vulnerable" and "Essential Infrastructure" development is located in FZ3a and for "Highly Vulnerable" development located in FZ2 an Exception test would be required.
"Essential Infrastructure" development in FZ3b will also require the Exception Test.
"Highly Vulnerable" development should not be permitted within FZ3a and FZ3b.
"More Vulnerable" and "Less Vulnerable" development should not be permitted within FZ3b.

NPPF Guidance:

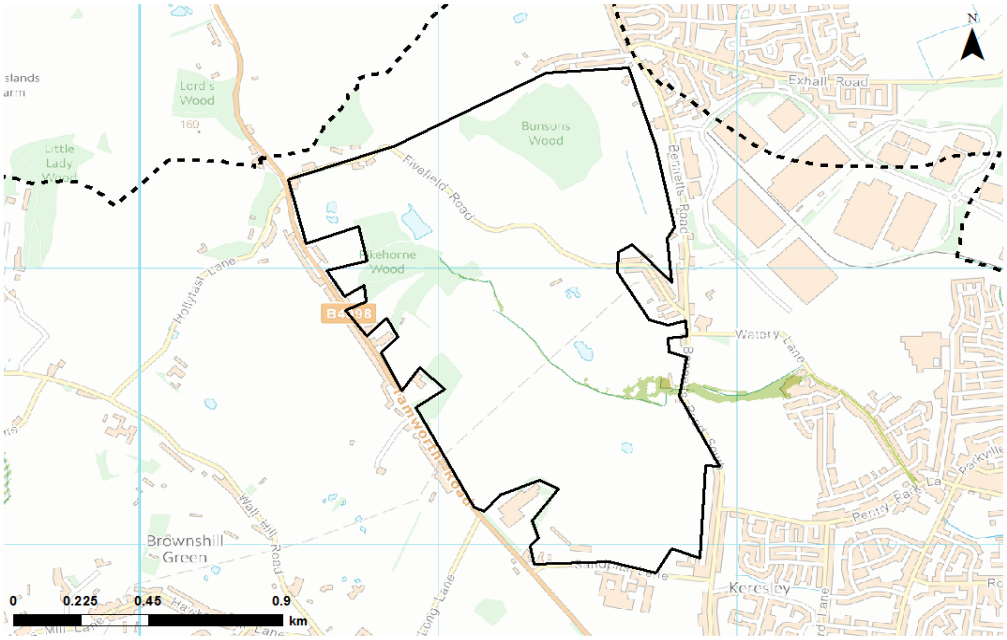
• The majority of the site is located within Flood Zone 1, therefore by ensuring development is placed away from the watercourses and outside of the flood zones, the Exception Test will not be required.
• However, sites over 1 hectare will require a site-specific Flood Risk Assessment (FRA), in which the vulnerability to flooding from other sources should be considered.
• If development is placed in the Flood Zones then, depending on the type of the development, the Exception test may be required. To pass Part 'b' of the Exception Test, a FRA should demonstrate that the development will be safe, will avoid increasing flood risk elsewhere, and will reduce flood risk overall.

Flood Zone Map



Potential development location
Council boundary
Flood Zone 3b
Indicative Extent of Flood Zone 3b
Flood Zone 3a
Flood Zone 2

Climate Change Map



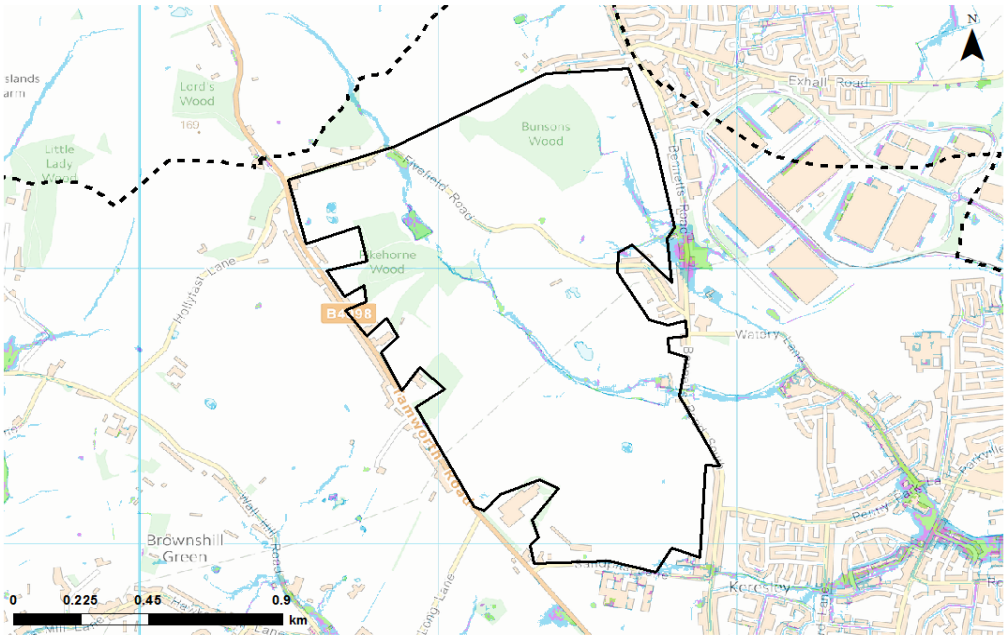
Potential development location

Council boundary

Flood Zone 3 with Climate Change

Indicative Extent of Flood Zone 3 with Climate Change

Surface Water Map



Potential development location

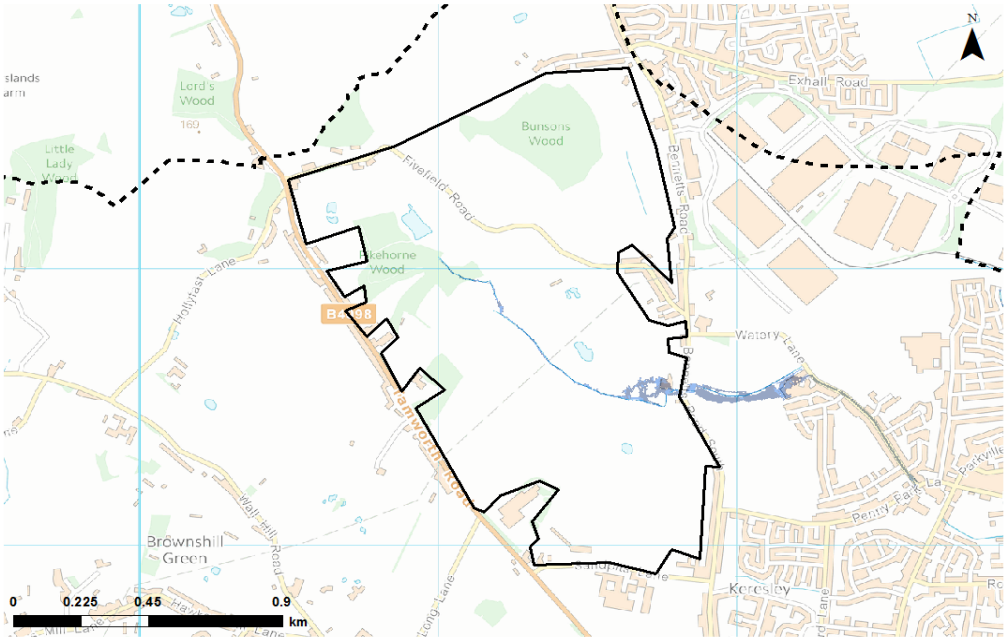
Council boundary

uFMfSW 30-year Extent

uFMfSW 100-year Extent

uFMfSW 1,000-year Extent

Depth Map - fluvial flooding (1 in 100-year event)

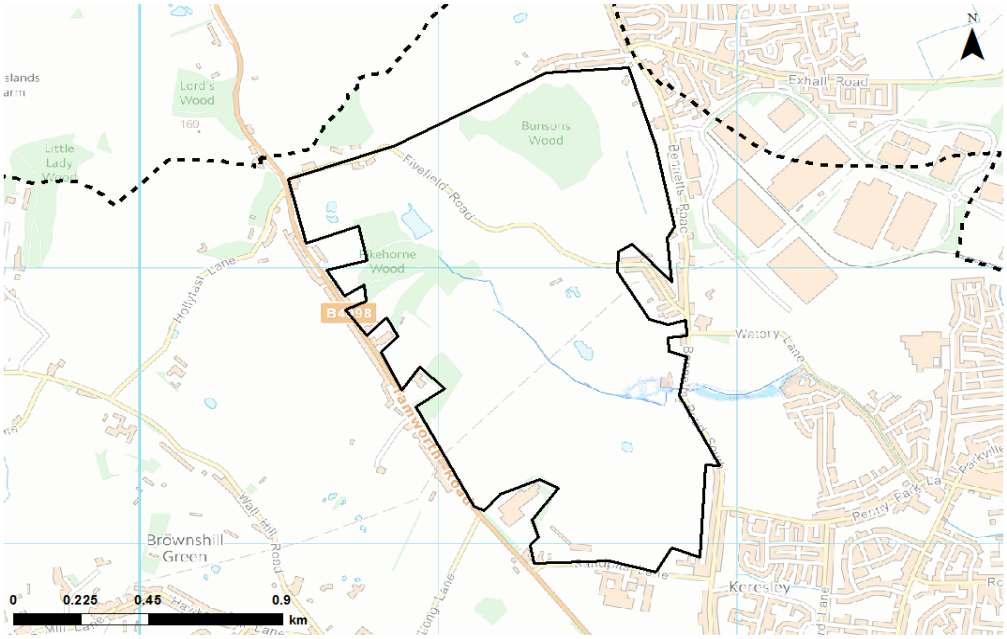


Potential development location
Council boundary

Depth (m)

0 - 0.10	0.50 - 1.00	2.00 - 2.50	3.50 - 4.00
0.10 - 0.50	1.00 - 1.50	2.50 - 3.00	>4.00
	1.50 - 2.00	3.00 - 3.50	

Velocity Map - fluvial flooding (1 in 100-year event)

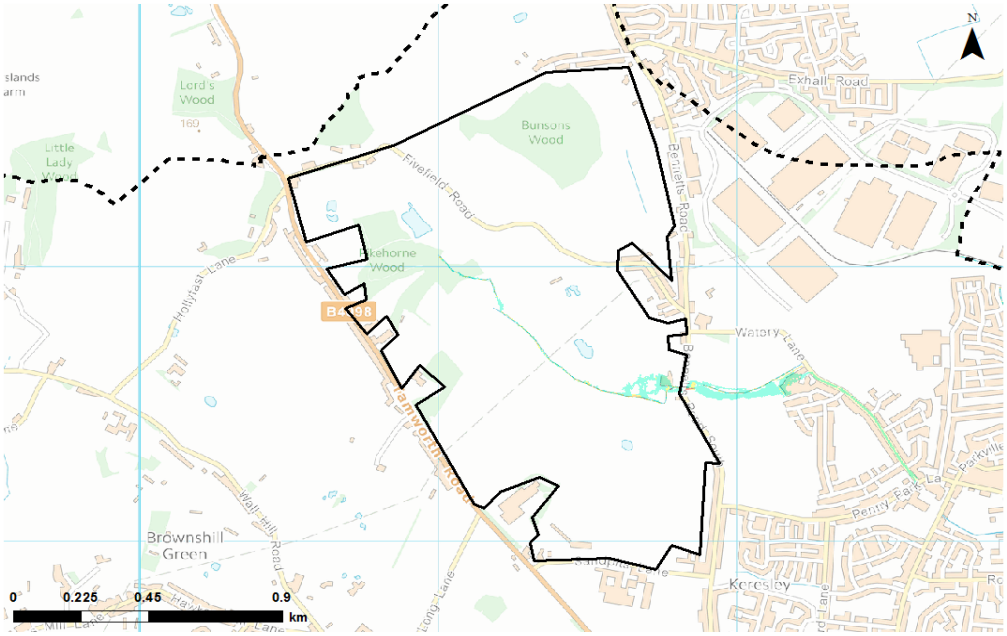


Potential development location
Council boundary

Velocity (m/s)

0 - 0.2	0.2 - 0.5	1.0 - 2.0
	0.5 - 1.0	> 2.0

Hazard Map - fluvial flooding (1 in 100-year event)



Potential development location

Council boundary

Hazard Rating

Very low hazard - caution

Danger for some

Danger for most

Danger for all

SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		Most source control techniques are likely to be suitable. Mapping suggests that permeable paving might be unsuitable at some locations within the site due to the existing gradient.
Infiltration		Due to the site being located in groundwater source protection zone infiltration techniques should only be used where there are suitable levels of treatment although it is possible that infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints
Detention		This option may be feasible provided site slopes are < 5% at the location of the detention feature. A liner maybe required if there any ground contamination issues.
Filtration		This feature is probably suitable provided site slopes are <5% and the depth to the water table is >1m. If the site has contaminated land or groundwater issues; a liner will be required.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. If the site has groundwater contamination issues, a liner will be required.

• Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

• The site is not located in an area designated by the Environment Agency as a landfill site.

• The site is located with a zone 3 groundwater protection zone. As such infiltration techniques should only be used where there are suitable levels of treatment although it is possible that infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.

Flood Defences:

There are no flood defences at this site.

Flood Warning:

There are currently no flood warning areas or flood alerts covering this site.

Access & Egress:

Primary access and egress are achieved via Tamworth Road (B4098), Bennetts Road South and Fivefield Road. These access routes are relatively unaffected by both fluvial and surface water flood risk. However, there is a risk that blockage of the culvert under Bennetts Road could cause water to back up and spill onto the road, potentially causing access issues.

Climate Change:

• Increased storm intensities.
• Increased water levels in the Hall Brook

Flood Risk Implications for Development:

• At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local stands and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
  o Reducing volume and rate of runoff
  o Relocating development to zones with lower flood risk
  o Creating space for flooding.
• The Hall Brook should not be culverted unless there is an overriding need to do so and justification is provided in line with current LLFA policy. This is to ensure risk of blockage is minimal and the ecological status of watercourses are not degraded.
• No building, structure (whether temporary or permanent), or planting of vegetation should occur within 5 metres of an ordinary watercourse, even if the watercourse is culverted.
• Potential storage options should be considered to reduce flood risk downstream from the Hall Brook. This will also attenuation flows from watercourses that contribute to the River Sowe, providing protection to other areas of Coventry.
• The peak flows on the Hall Brook should be considered when reviewing drainage.
• Any designated features of significance to flood risk should be removed or altered without prior consent from the designated authority.
• No overland flow route or channel is to be become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
• Resilience measures will be required if buildings are situated in the flood risk area.
• New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assess in accordance with National and Local standards and guidance as agreed by the LLFA. There may be restrictions on the type of SuDS suitable within the site due to the site being located in a Zone 3 groundwater SPZ. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.
• Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
1) an adequate soakaway or some other adequate infiltration system
2) a watercourse
3) surface water sewer.
Surface water discharge to foul or combined systems will not be accepted.

• Consider opportunities for removing structures/opening up culverts on the Hall Brook in the east of the site where they are currently causing the Hall Brook to back up.
• Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
• Assessment for runoff should include allowance for climate change effects.
• Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. Consider using Flood Zones 2 and 3 as public open space.
• It is important to ensure that any new connections to sewer systems or watercourses do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
• On-site attenuation schemes would need to be tested against the hydrographs of the Hall Brook to ensure flows are not exacerbated downstream within the catchment.
• All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
• Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
• If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
• Safe access and egress will need to be demonstrated.
• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.

L30 - Sutton Stop (Site B)

OSNGR: 436062,284211	Area: 8.6ha		Greenfield	
Flood Zone Coverage:	**FZ3b**	**FZ3a**	**FZ2**	**FZ1**
	0%	2%	2%	98%

Sources of flood risk:

Primary flood risk is from surface water flooding in the southern portion of the site. There is additional fluvial flood risk from an unnamed watercourse in the southern potion of the potential development site. The Environment Agency's Flood Zones in this location are based on generalised 2D modelling and may be overestimating the risk by water backing up behind the M6. Survey was undertaken of the M6 culvert which showns it be be over 3m high and 3m wide which suggests water would not back up. A detailed assessment would need to confirm this.

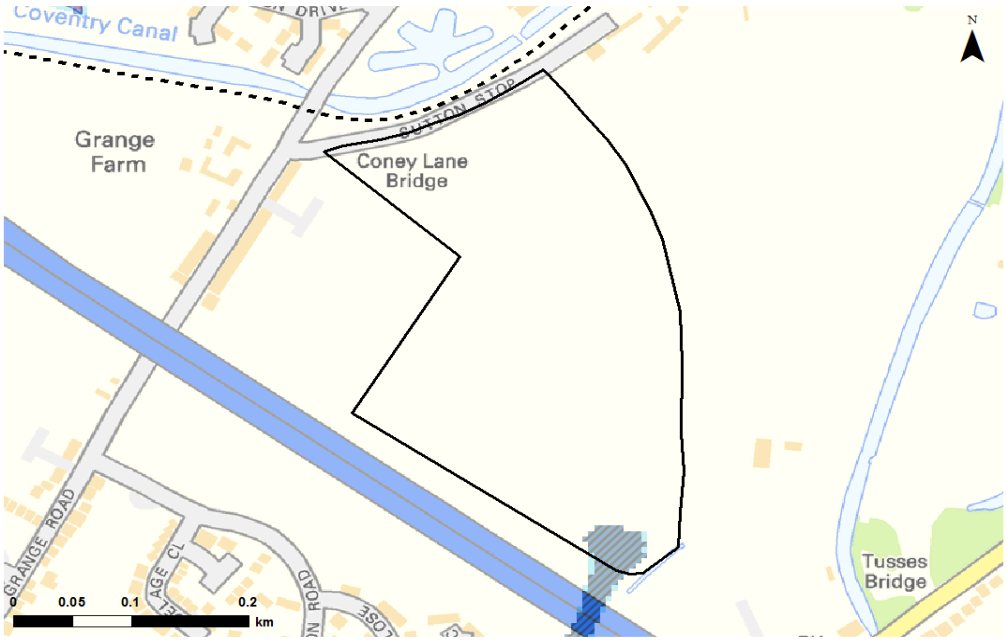
Exception Test Required?

Possibly, depending on a detailed assessment of the risk from the unnamed watercourse.
If "More Vulnerable" and "Essential Infrastructure" development is located in FZ3a and for "Highly Vulnerable" development located in FZ2 an Exception test will be required.
"Essential Infrastructure" development in FZ3b will also require the Exception Test.
"Highly Vulnerable" development should not be permitted within FZ3a and FZ3b.
"More Vulnerable" and "Less Vulnerable" development should not be permitted within FZ3b.

NPPF Guidance:

• The majority of the site is shown to be located within Flood Zone 1. If development is located away from the unnamed watercourse and outside of Flood Zones 2 and 3, the Exception Test will not be required.
• However, sites over 1 hectare will require a site-specific Flood Risk Assessment (FRA), in which the vulnerability to flooding from other sources should be considered.
• If development is placed in Flood Zones 2 or 3 then, depending on the type of the development, the Exception test may be required. To pass Part 'b' of the Exception Test, a FRA should demonstrate that the development will be safe, will avoid increasing flood risk elsewhere, and will reduce flood risk overall.
• The potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off should be considered.
• Developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond, through the layout and form of the development and through appropriate sustainable drainage techniques.

Flood Zone Map



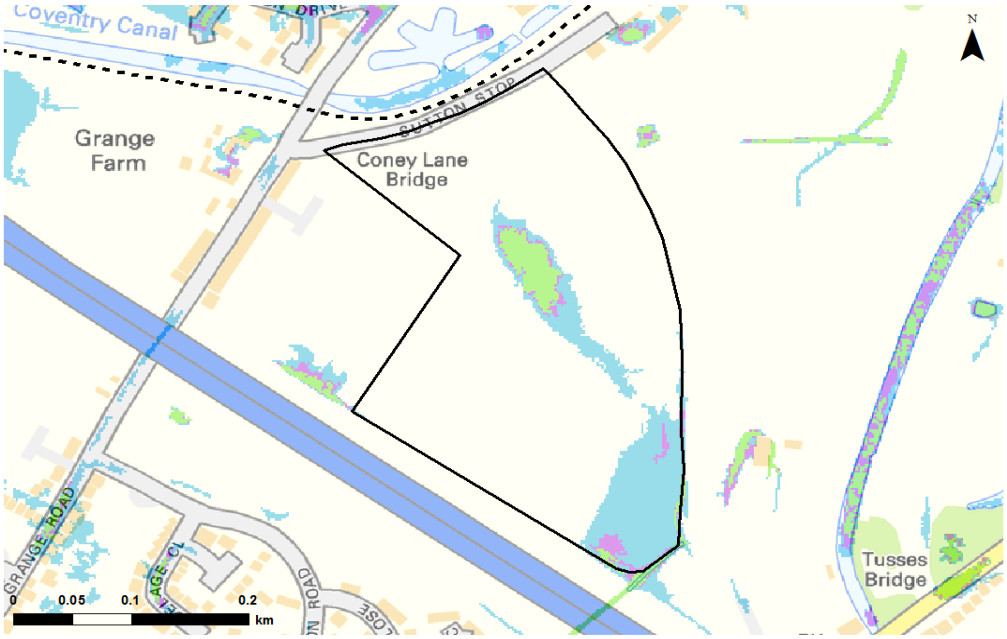
Note: Indicative flood extents have been used to represent FZ3b in certain locations.

Potential development location
Council boundary
Flood Zone 3b
Indicative Extent of Flood Zone 3b
Flood Zone 3a
Flood Zone 2

Climate Change Map

Potential development location
Council boundary
Flood Zone 3 with Climate Change
Indicative Extent of Flood Zone 3 with Climate Change

Surface Water Map



Potential development location
Council boundary
uFMfSW 30-year Extent
uFMfSW 100-year Extent
uFMfSW 1,000-year Extent

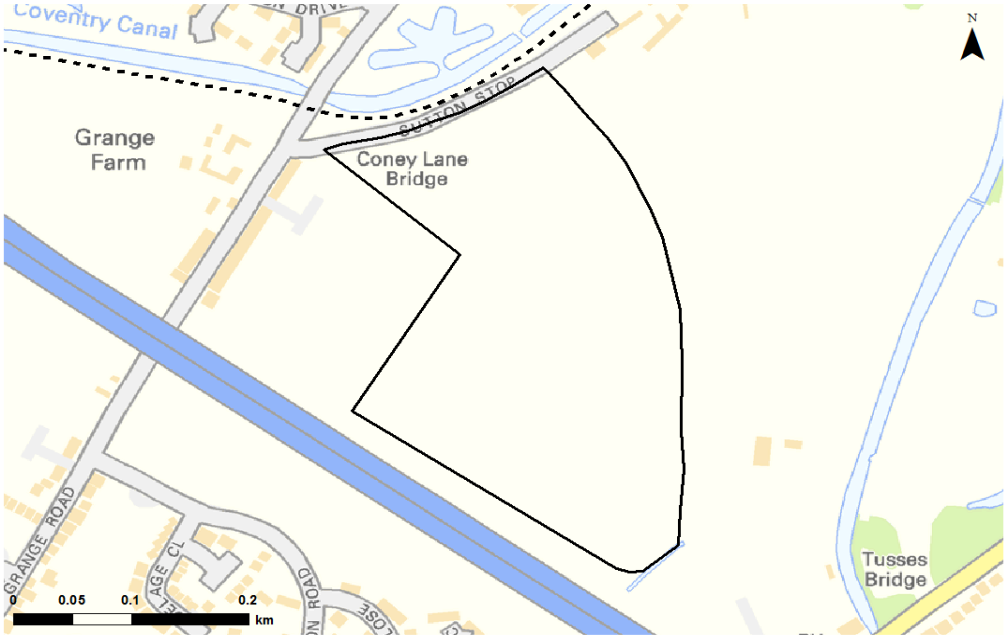
Depth Map - fluvial flooding (1 in 100-year event)

Potential development location
Council boundary

Depth (m)

0 - 0.10
0.10 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
2.50 - 3.00
3.00 - 3.50
3.50 - 4.00
>4.00

Velocity Map - fluvial flooding (1 in 100-year event)

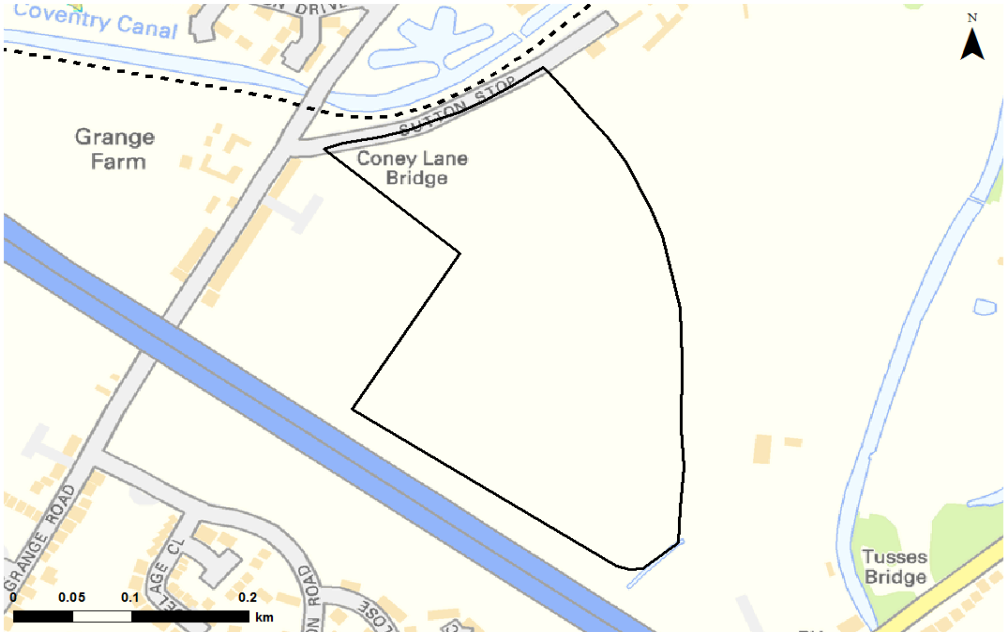


Potential development location
Council boundary

Velocity (m/s)

0 - 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

Hazard Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Hazard Rating

Very low hazard - caution
Danger for some
Danger for most
Danger for all

SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		All forms of source control are likely to be suitable. Permeable paving should use non-infiltrating systems where appropriate due to the risk of contaminated land.
Infiltration		Infiltration likely to be suitable. Mapping suggests a low risk of ground water flooding however, site investigations should be carried out to assess potential for drainage by infiltration given the presents of a designated landfill site adjacent to the site.
Detention		Mapping suggests that the site slopes are suitable for all forms of detention. A liner maybe required due to the potential groundwater contamination issues.
Filtration		All filtration techniques are likely to be suitable. If the site has contaminated land or groundwater issues; a liner will be required.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. If the site has groundwater contamination issues, a liner will be required.

• Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

• This site boundary is adjacent to an area designated by the Environment Agency as being a landfill site. A thorough ground investigation will be required as part of a detailed FRA to determine the extent of the contamination and the impact this may have on SuDS. As such proposed SuDS should be discussed with the relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.

• The site is not located within any Environment Agency designated ground source protection zones.

Flood Defences:

There are no flood defences at this site.

Flood Warning:

This potential development site is not covered by a FWA; however it is covered (or partly covered by) the River Sowe, River Sherbourne, Canley Brook and Finham Brook Flood Alert Area.

Access & Egress:

Primary access and egress to the potential development site is via Grange Road & Sutton Road. These are shown to be large unaffected by both surface water and fluvial flooding.

Climate Change:

• Increased storm intensities.
• Increased water levels in the unnamed watercourse.

Flood Risk Implications for Development:

• At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local stands and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
  o Reducing volume and rate of runoff
  o Relocating development to zones with lower flood risk
  o Creating space for flooding.
• Although not adjacent to the canal, an assessment of flood risk from the Coventry Canal should be conducted as part of site-specific FRA due to the residual risk posed to the site. This should include simulation of a canal breach to assess the impact to the potential development site.
• The detailed hydraulic model for the unnamed watercourse should be used to investigate flood risk to the potential development. The hydraulic model should also be used to assess blockage to culvert inlets located within the site boundary and the impact on flood risk.
• No ordinary watercourse should be culverted unless there is an overriding need to do so and justification is provided in line with current Environment Agency policy. This is to ensure risk of blockage is minimal and the ecological status of watercourses are not degraded.
• No building, structure (whether temporary or permanent), or planting of vegetation within 5 metres of an ordinary watercourse, even if the watercourse is culverted.
• The peak flows on the unnamed tributary should be considered when reviewing drainage.
• Any designated features of significance to flood risk should be removed or altered without prior consent from the designated authority.
• No overland flow route or channel is to be become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
• Resilience measures will be required if buildings are situated in the flood risk area.
• New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assess in accordance with National and Local standards and guidance as agreed by the LLFA. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.

• Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
1) an adequate soakaway or some other adequate infiltration system
2) a watercourse
3) surface water sewer.
Surface water discharge to foul or combined systems will not be accepted.
• Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
• Assessment for runoff should include allowance for climate change effects.
• Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. Consideration should also be given to using Flood Zones 2 and 3 as public open space.
• It is important to ensure that any new connections to sewer systems or watercourses do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
• On-site attenuation schemes would need to be tested against the hydrographs of the unnamed watercourse to ensure flows are not exacerbated downstream within the catchment.
• All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
• Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
• If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
• Safe access and egress will need to be demonstrated.
• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.

Cov2 - Walsgrave Hill Farm (Site A)

OSNGR: 438669,280712	Area: 10.6ha		Greenfield	
Flood Zone Coverage:	**FZ3b**	**FZ3a**	**FZ2**	**FZ1**
	43%	66%	88%	13%

Sources of flood risk:

The site is significantly at risk from fluvial flooding from the Withy Brook which flows through the potential development site. Flood hazard at the site ranges from very low to danger for most in areas where water backs up behind High Bridge and on the left bank flood plain. The areas shown as flooding from surface water follows a similar pattern to fluvial flooding.

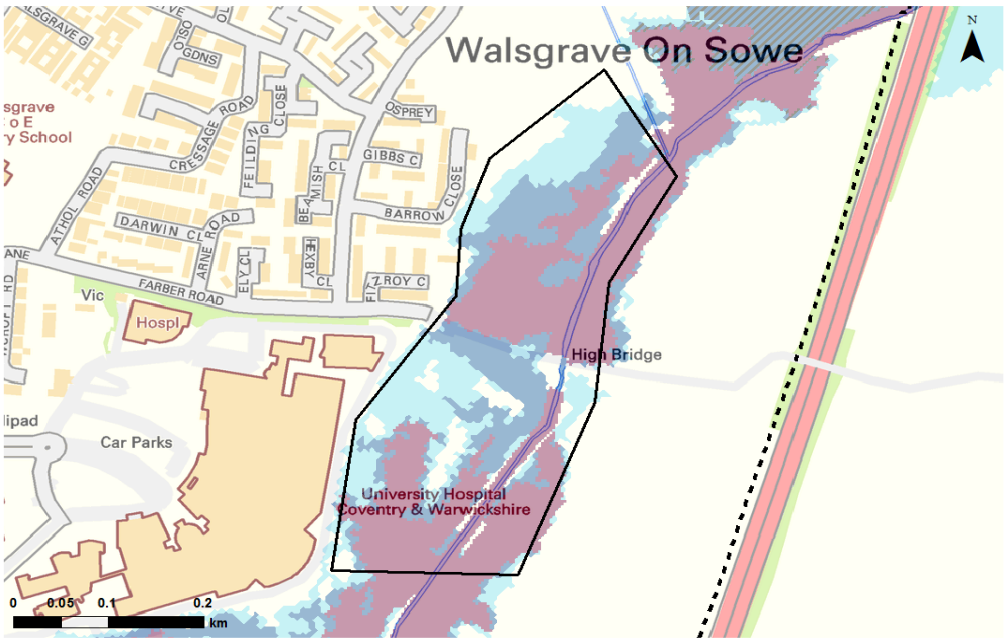
Exception Test Required?

Yes. This site is significantly at risk of flooding from the Withy Brook, with 43% of the site in Flood Zone 3b.
If "More Vulnerable" and "Essential Infrastructure" development is located in FZ3a and for "Highly Vulnerable" development located in FZ2 an Exception test will be required.
"Essential Infrastructure" development in FZ3b will also require the Exception Test.
"Highly Vulnerable" development should not be permitted within FZ3a and FZ3b.
"More Vulnerable" and "Less Vulnerable" development should not be permitted within FZ3b.
It should be noted that due to the high proportion of site located within the FZ3b and FZ3a that it is likely to prove difficult for development to pass the Exception Test.

NPPF Guidance:

• To pass Part 'b' of the Exception Test, a FRA should demonstrate that the development will be safe, will avoid increasing flood risk elsewhere, and will reduce flood risk overall.
• The potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off should be considered.
• Developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond, through the layout and form of the development and through appropriate sustainable drainage techniques.

Flood Zone Map



Potential development location
Council boundary
Flood Zone 3b
Indicative Extent of Flood Zone 3b
Flood Zone 3a
Flood Zone 2

Climate Change Map

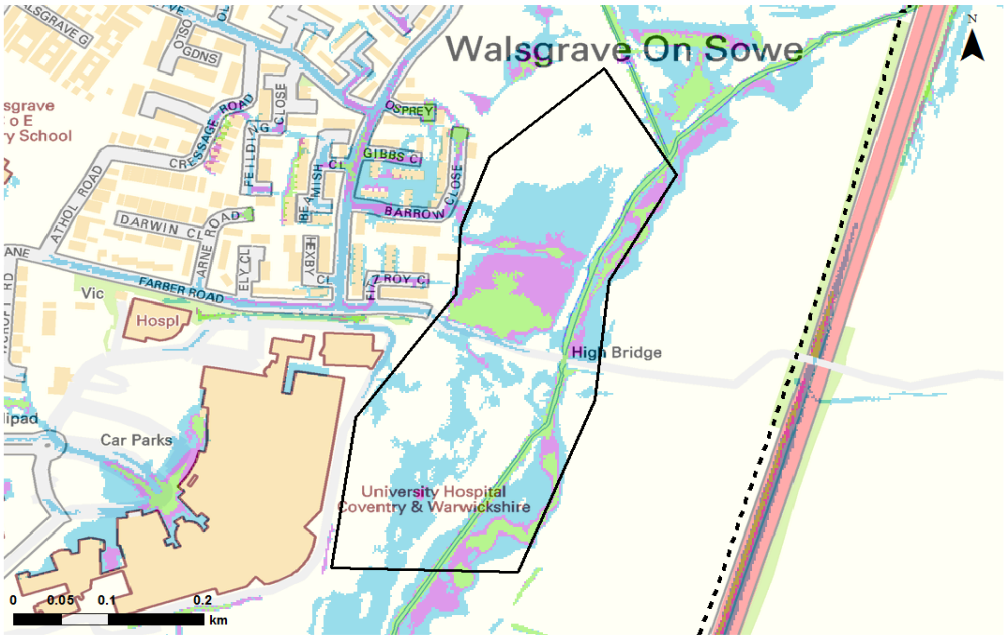
Potential development location

Council boundary

Flood Zone 3 with Climate Change

Indicative Extent of Flood Zone 3 with Climate Change

Surface Water Map



Potential development location

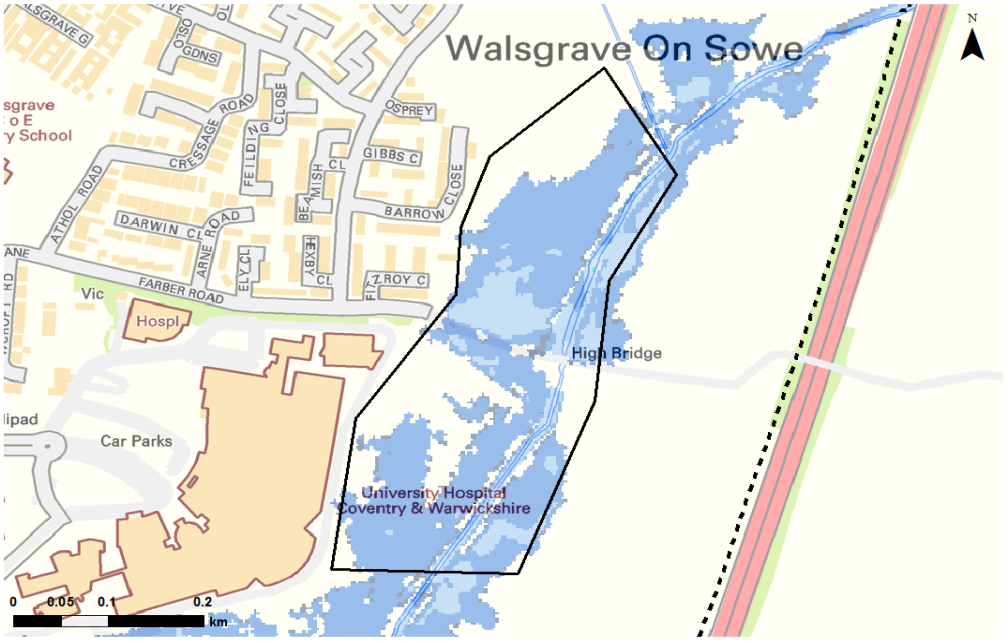
Council boundary

uFMfSW 30-year Extent

uFMfSW 100-year Extent

uFMfSW 1,000-year Extent

Depth Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

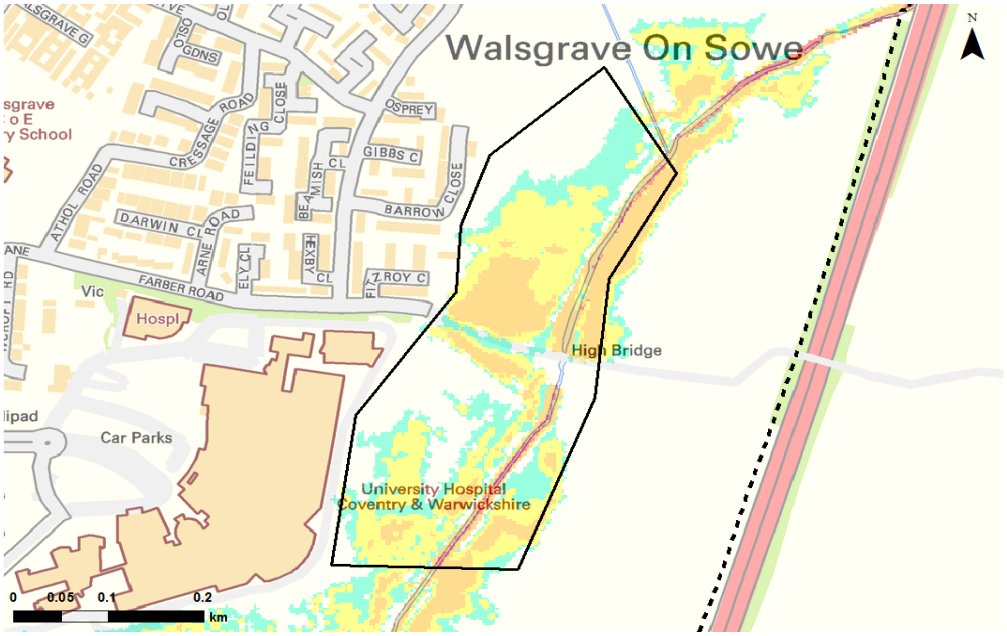
Depth (m)
0 - 0.10
0.10 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
2.50 - 3.00
3.00 - 3.50
3.50 - 4.00
>4.00

Velocity Map - fluvial flooding (1 in 100-year event)

Potential development location
Council boundary

Velocity (m/s)
0 - 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

Hazard Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Hazard Rating

Very low hazard - caution
Danger for some
Danger for most
Danger for all

SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		Most source control techniques are likely to be suitable. Permeable paving should use non-infiltrating systems due to the risk of groundwater flooding. Consideration is needed of the fluvial flood risk which covers the majority of the site to ensure that the SuDS systems are not located in a flood risk area.
Infiltration		Infiltration may be suitable. Mapping suggests a medium risk of groundwater flooding and underlying soils may be permeable. Further site investigation should be carried out to assess potential for drainage by infiltration. If infiltration is suitable it should be avoided in areas where the depth to the water table is <1m.
Detention		Mapping suggests that the site slopes are suitable for all forms of detention. A liner maybe required due to the site potential groundwater flooding.
Filtration		All filtration techniques are likely to be suitable. If the site has contaminated land or groundwater issues; a liner will be required. Consideration is needed of the fluvial flood risk which covers the majority of the site to ensure that the SuDS systems are not located in a flood risk area.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. If the site has groundwater contamination issues, a liner will be required. Consideration is needed of the fluvial flood risk which covers the majority of the site to ensure that the SuDS systems are not located in a flood risk area.

• Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

• The site is not located in an area designated by the Environment Agency as a landfill site.

• The site is not located within any Environment Agency designated ground source protection zones.

• Consideration of fluvial flood risk is needed in regards to which SuDS techniques are viable at the potential development site. Typically SuDS devices should be located outside of the 100-year plus climate change flood extent.

Flood Defences:

There are no flood defences at this site.

Flood Warning:

This potential development site is not covered by a FWA; however, it is mostly covered the River Sowe, River Sherbourne, Canley Brook and Finham Brook Flood Alert Area.

Access & Egress:

Access and egress to the potential development site is via Farber Road and Barrow Close. Both highways only access the western part of the site and are both impacted by surface water flooding according to uFMfSW. Given that the site is shown to be significantly impacted by fluvial flooding consideration is needed to how safe access and egress can be achieved to the whole site in times of flood.

Climate Change:

• Increased storm intensities.
• Increased water levels in the Withy Brook.

Flood Risk Implications for Development:

• At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local stands and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
  o Reducing volume and rate of runoff
  o Relocating development to zones with lower flood risk
  o Creating space for flooding.
• No development can take place in Flood Zone 3b and 3a without the need for floodplain compensation. Given the limited space remaining within the site which are outside the floodplain, it may prove problematic to implement such compensation schemes successfully.
• Potential storage options should be considered to reduce flood risk downstream from the Withy Brook. This will also attenuation flows from watercourses that contribute to the River Sowe, providing protection to other areas of Coventry.
• The peak flows on the Withy Brook should be considered when reviewing drainage.
• Any designated features of significance to flood risk should be removed or altered without prior consent from the designated authority.
• No overland flow route or channel is to be become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
• Resilience measures will be required if buildings are situated in the flood risk area.
• New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assess in accordance with National and Local standards and guidance as agreed by the LLFA. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.
• Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
1) an adequate soakaway or some other adequate infiltration system
2) a watercourse
3) surface water sewer.
Surface water discharge to foul or combined systems will not be accepted.

• Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
• Assessment for runoff should include allowance for climate change effects.
• Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. Consider using Flood Zones 2 and 3 as public open space.
• It is important to ensure that any new connections to sewer systems or watercourses do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
• On-site attenuation schemes would need to be tested against the hydrographs of the Withy Brook to ensure flows are not exacerbated downstream within the catchment.
• All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
• Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
• If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
• Safe access and egress will need to be demonstrated. Given that the site is shown to be significantly impacted by fluvial flooding consideration is needed to how safe access and egress can be achieved to the whole site in times of flood.
• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.

Cov3 - Walsgrave Hill Farm (Site B)

OSNGR: 438876,280689	Area: 10.0ha		Greenfield	
Flood Zone Coverage:	**FZ3b**	**FZ3a**	**FZ2**	**FZ1**
	0.5%	1%	2%	98%

Sources of flood risk:

There is negligible flood risk to this site, with just a small area at risk of fluvial flooding from Withy Brook at High Bridge. The site is not shown to be at risk from surface water flooding.

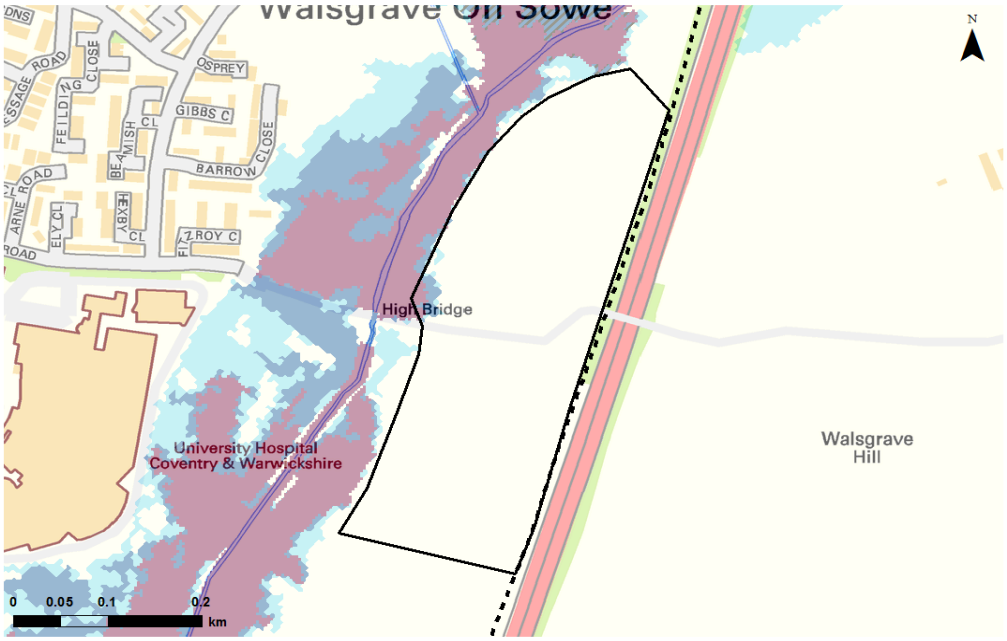
Exception Test Required?

Unlikely. Less than 2% of the site is in the Flood Zones. By adjusting the site boundary the site could be removed from the Flood Zones.

NPPF Guidance:

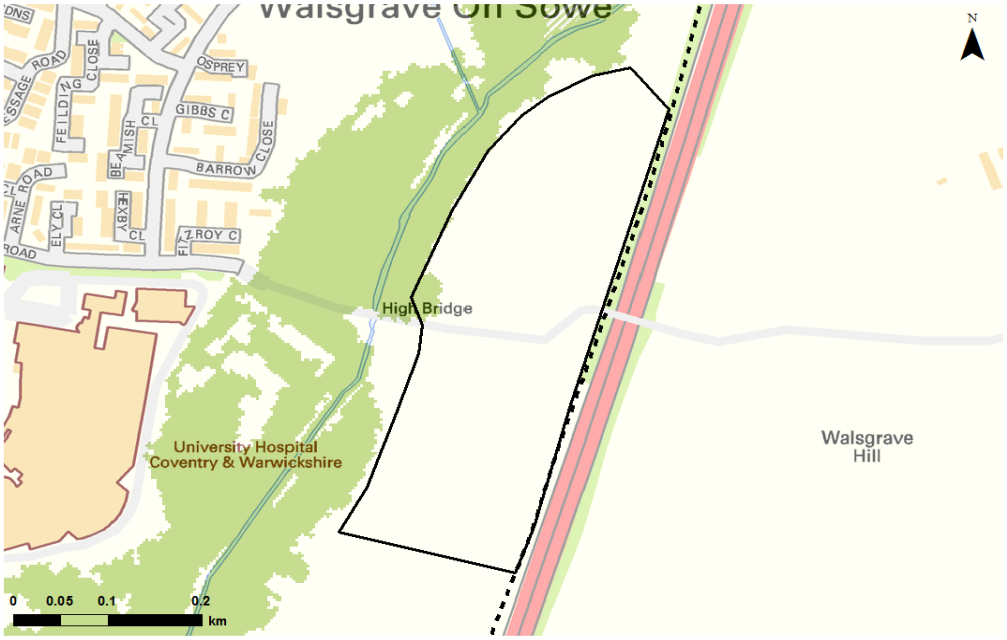
• The majority of the site is shown to be located within Flood Zone 1. By adjusting the site boundary the site can be removed from the Flood Zones. Alternatively the site should be left as open space.
• The site will require a site-specific Flood Risk Assessment (FRA), in which the vulnerability to flooding from other sources should be considered.
• The potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off should be considered.
• Developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond, through the layout and form of the development and through appropriate sustainable drainage techniques. There may be potential to use development at this site to improve flood risk on the Withy Brook and further downstream.

Flood Zone Map



Potential development location
Council boundary
Flood Zone 3b
Indicative Extent of Flood Zone 3b
Flood Zone 3a
Flood Zone 2

Climate Change Map

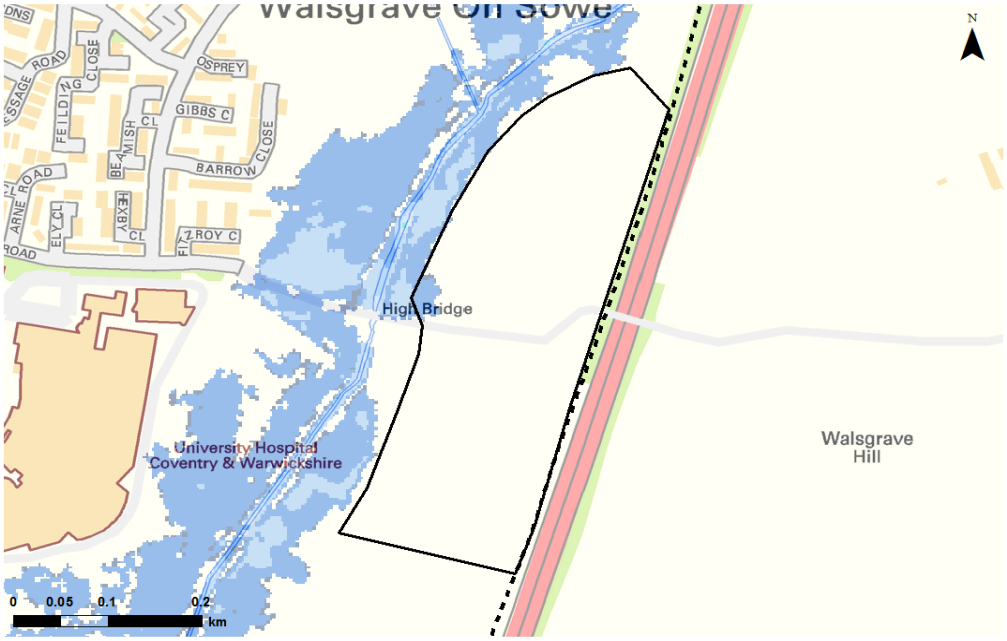


Potential development location
Council boundary
Flood Zone 3 with Climate Change
Indicative Extent of Flood Zone 3 with Climate Change

Surface Water Map

Potential development location
Council boundary
uFMfSW 30-year Extent
uFMfSW 100-year Extent
uFMfSW 1,000-year Extent

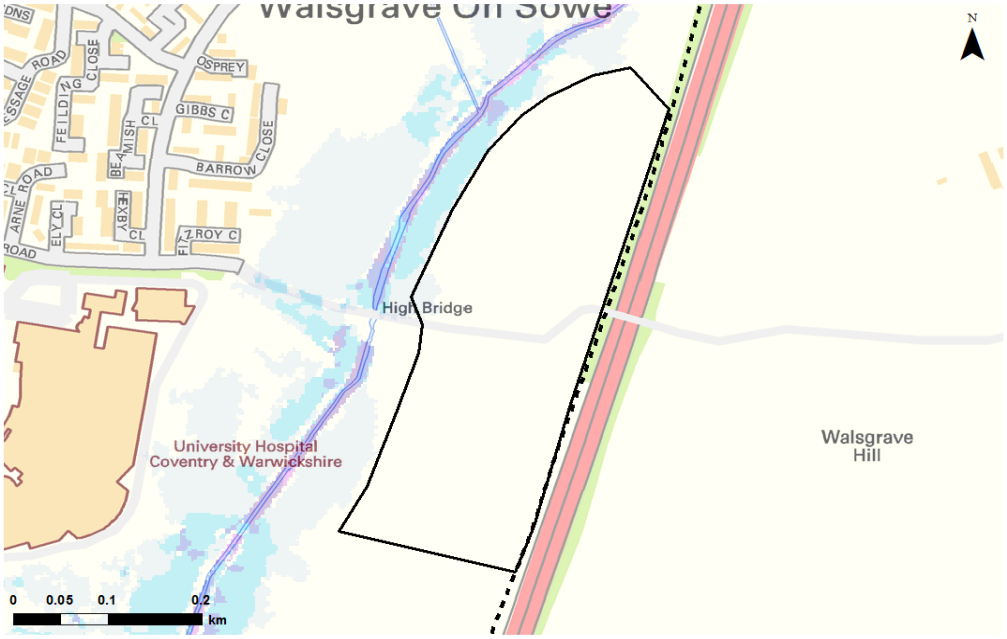
Depth Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Depth (m)
0 - 0.10
0.10 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
2.50 - 3.00
3.00 - 3.50
3.50 - 4.00
>4.00

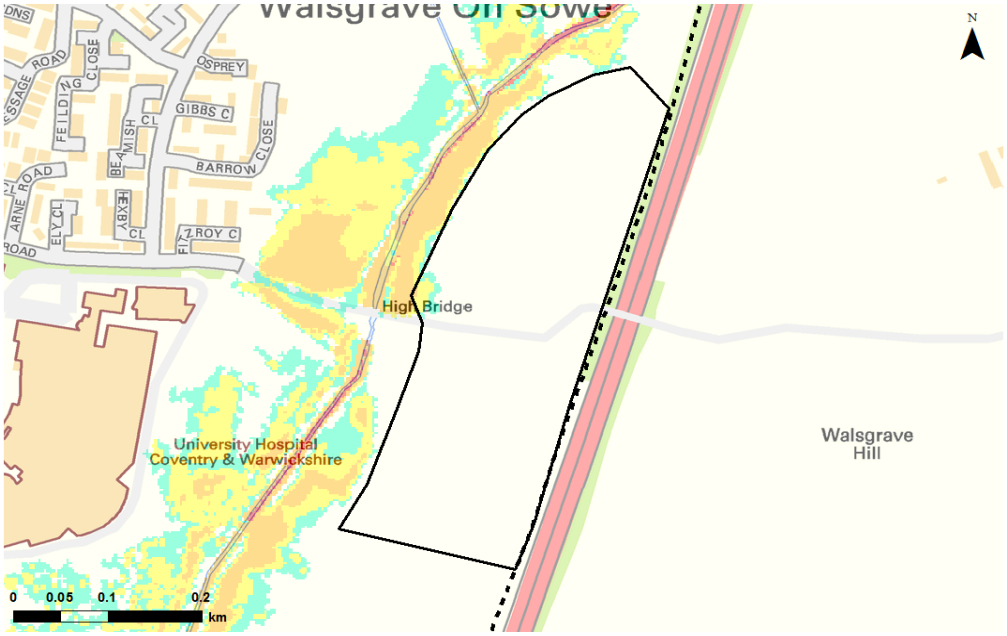
Velocity Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Velocity (m/s)
0 - 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

Hazard Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Hazard Rating

Very low hazard - caution
Danger for some
Danger for most
Danger for all

SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		Most source control techniques are likely to be suitable. Permeable paving should use non-infiltrating systems due to the risk of contaminated land and groundwater flooding.
Infiltration		Infiltration may be suitable. Mapping suggests a medium risk of groundwater flooding and underlying soils may be permeable. Further site investigation should be carried out to assess potential for drainage by infiltration especially given the potential for contaminated land from the adjacent landfill site.. If infiltration is suitable it should be avoided in areas where the depth to the water table is <1m.
Detention		Mapping suggests that the site slopes are suitable for all forms of detention. A liner maybe required due to potential contaminated land and groundwater flooding issues.
Filtration		All filtration techniques are likely to be suitable. If the site has contaminated land or groundwater issues; a liner will be required.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. If the site has groundwater contamination issues, a liner will be required.

• Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

• This site boundary is adjacent to an area designated by the Environment Agency as being a landfill site. A thorough ground investigation will be required as part of a detailed FRA to determine the extent of the contamination and the impact this may have on SuDS. As such proposed SuDS should be discussed with the relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.

• The site is not located within any Environment Agency designated ground source protection zones.

Flood Defences:

There are no flood defences at this site.

Flood Warning:

This potential development site is not covered by a FWA; however, as small part of the site is covered by the River Sowe, River Sherbourne, Canley Brook and Finham Brook Flood Alert Area.

Access & Egress:

Access and egress to the potential development site can be achieved via an unnamed track which cuts through the centre of the site or from the A46 which runs along the eastern boundary. Access from the west via is access track is shown to be impacted by fluvial flooding. All other access and egress routes are shown to not be impacted by flooding.

Climate Change:

• Increased storm intensities.
• Increased water levels in the Withy Brook.

Flood Risk Implications for Development:

• At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local stands and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
  o Reducing volume and rate of runoff
  o Relocating development to zones with lower flood risk
  o Creating space for flooding.
• Potential storage options should be considered to reduce flood risk downstream from the Withy Brook. This will also attenuation flows from watercourses that contribute to the River Sowe, providing protection to other areas of Coventry.
• The peak flows on the Withy Brook should be considered when reviewing drainage.
• Any designated features of significance to flood risk should be removed or altered without prior consent from the designated authority.
• No overland flow route or channel is to be become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
• New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assess in accordance with National and Local standards and guidance as agreed by the LLFA. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.
• Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
1) an adequate soakaway or some other adequate infiltration system
2) a watercourse
3) surface water sewer.
Surface water discharge to foul or combined systems will not be accepted.

• Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
• Assessment for runoff should include allowance for climate change effects.
• Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. Consider using Flood Zones 2 and 3 as public open space.
• It is important to ensure that any new connections to sewer systems or watercourses do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
• On-site attenuation schemes would need to be tested against the hydrographs of the Withy Brook to ensure flows are not exacerbated downstream within the catchment.
• All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
• Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
• If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
• Safe access and egress will need to be demonstrated.
• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.

Cov4 - Walsgrave Hill Farm (Site C)

OSNGR: 439359,280683	Area: 111.6ha		Greenfield	
Flood Zone Coverage:	**FZ3b**	**FZ3a**	**FZ2**	**FZ1**
	0.6%	4%	8%	92%

Sources of flood risk:

The primary flood risk to the site is fluvial from the Withy Brook which flows through the northern portion of the potential development site. The flood hazard from the Withy Brook is mostly classed as low risk. There is also a smaller watercourse or drain that flows into Smite Brook which flows along part of the eastern boundary of the site. Surface water flood risk predominantly corresponds to the watercourses and small ponds within the site boundary.

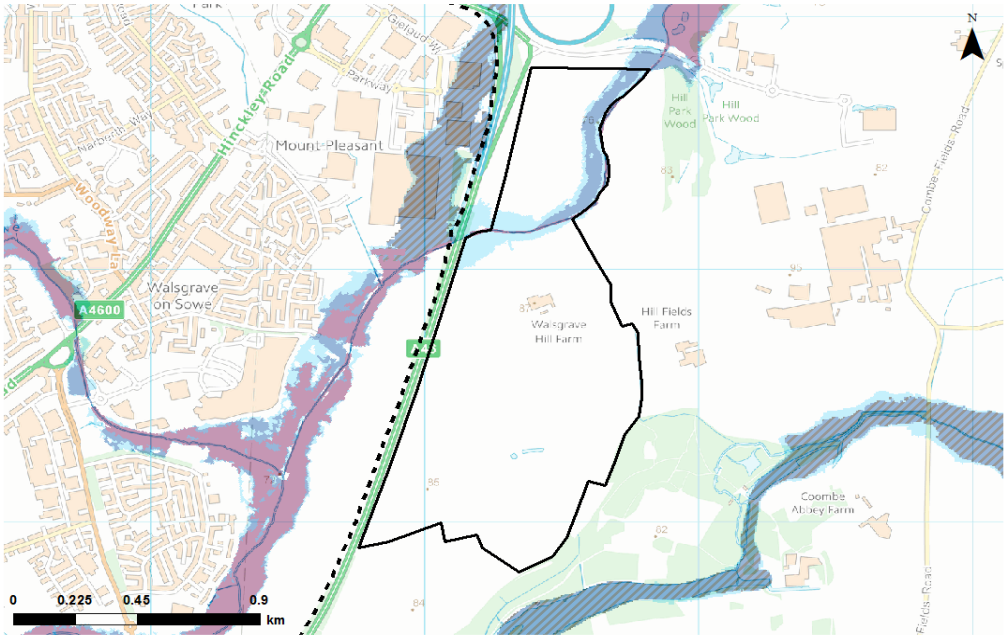
Exception Test Required?

Possibly. Although the majority of the site is located within Flood Zone One, the northern section of the site contains most of the flood risk which may act as a constaint to development in this area. If "More Vulnerable" and "Essential Infrastructure" development is located in FZ3a and for "Highly Vulnerable" development located in FZ2 an Exception test will be required.
"Essential Infrastructure" development in FZ3b will also require the Exception Test.
"Highly Vulnerable" development should not be permitted within FZ3a and FZ3b.
"More Vulnerable" and "Less Vulnerable" development should not be permitted within FZ3b.

NPPF Guidance:

• If development is located away from the Withy Brook and outside of Flood Zones 2 and 3, the Exception Test will not be required.
• However, sites over 1 hectare will require a site-specific Flood Risk Assessment (FRA), in which the vulnerability to flooding from other sources should be considered.
• If development is placed in Flood Zones 2 or 3 then, depending on the type of the development, the Exception test may be required. To pass Part 'b' of the Exception Test, a FRA should demonstrate that the development will be safe, will avoid increasing flood risk elsewhere, and will reduce flood risk overall.
• The potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off should be considered.
• Developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond, through the layout and form of the development and through appropriate sustainable drainage techniques.

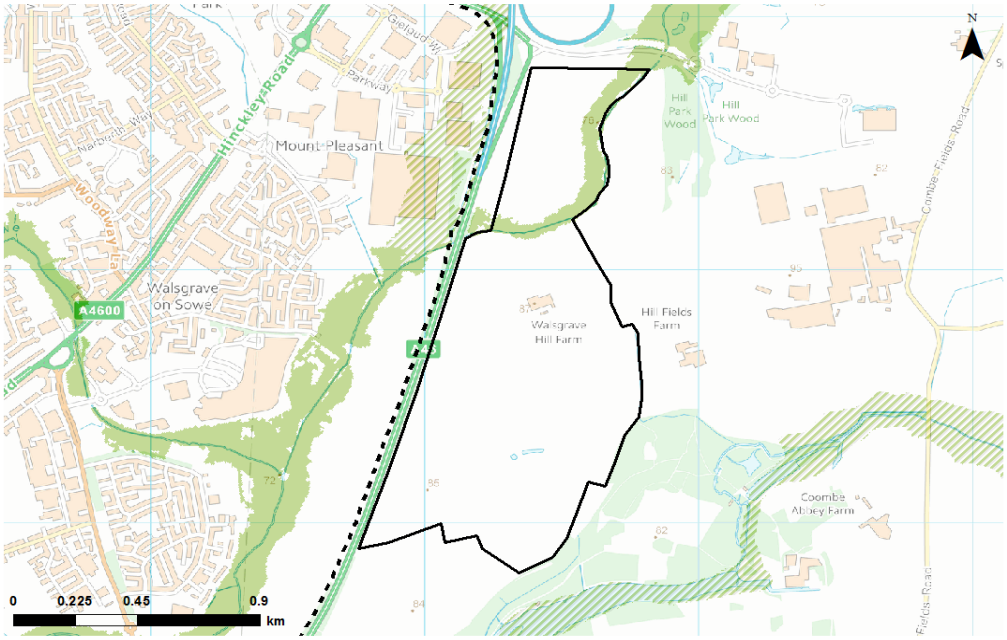
Flood Zone Map



Note: Indicative flood extents have been used to represent FZ3b in certain locations. For more information please refer to section 10 in the main report.

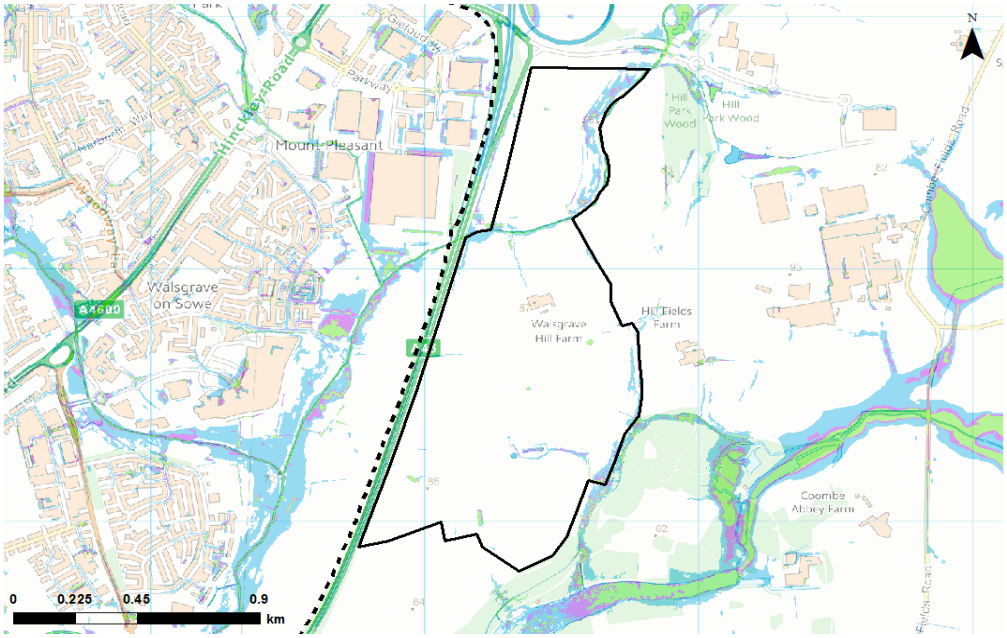
Potential development location
Council boundary
Flood Zone 3b
Indicative Extent of Flood Zone 3b
Flood Zone 3a
Flood Zone 2

Climate Change Map



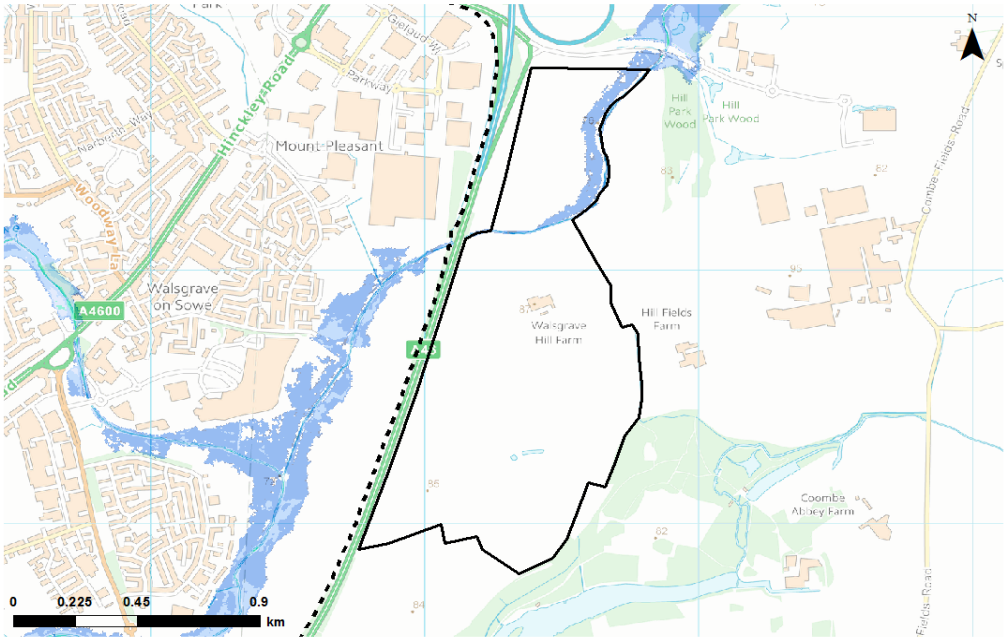
Potential development location
Council boundary
Flood Zone 3 with Climate Change
Indicative Extent of Flood Zone 3 with Climate Change

Surface Water Map



Potential development location
Council boundary
uFMfSW 30-year Extent
uFMfSW 100-year Extent
uFMfSW 1,000-year Extent

Depth Map - fluvial flooding (1 in 100-year event)

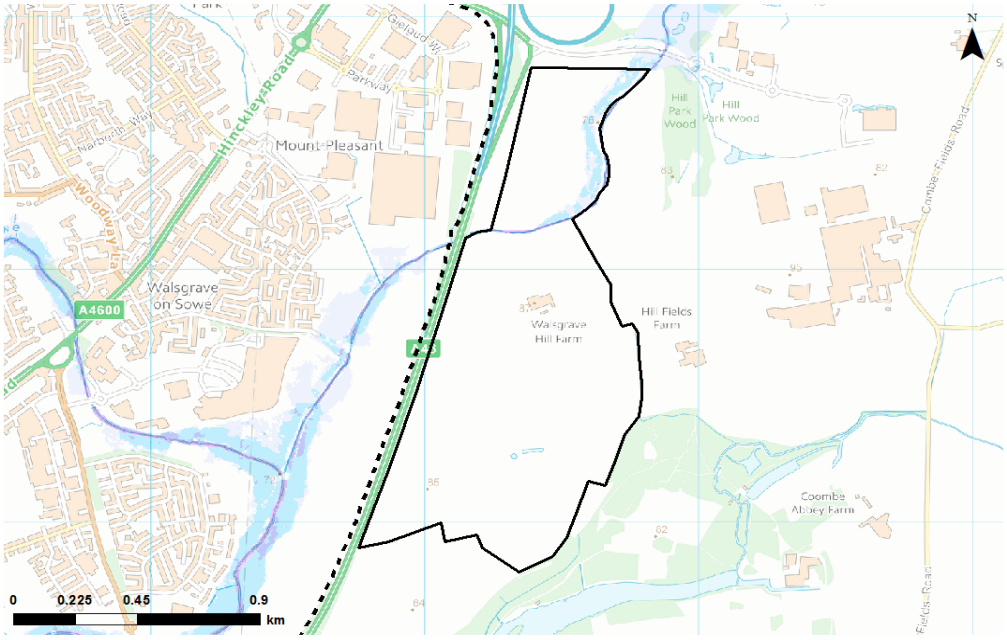


Potential development location
Council boundary

Depth (m)

0 - 0.10	0.50 - 1.00	2.00 - 2.50	3.50 - 4.00
0.10 - 0.50	1.00 - 1.50	2.50 - 3.00	>4.00
	1.50 - 2.00	3.00 - 3.50	

Velocity Map - fluvial flooding (1 in 100-year event)

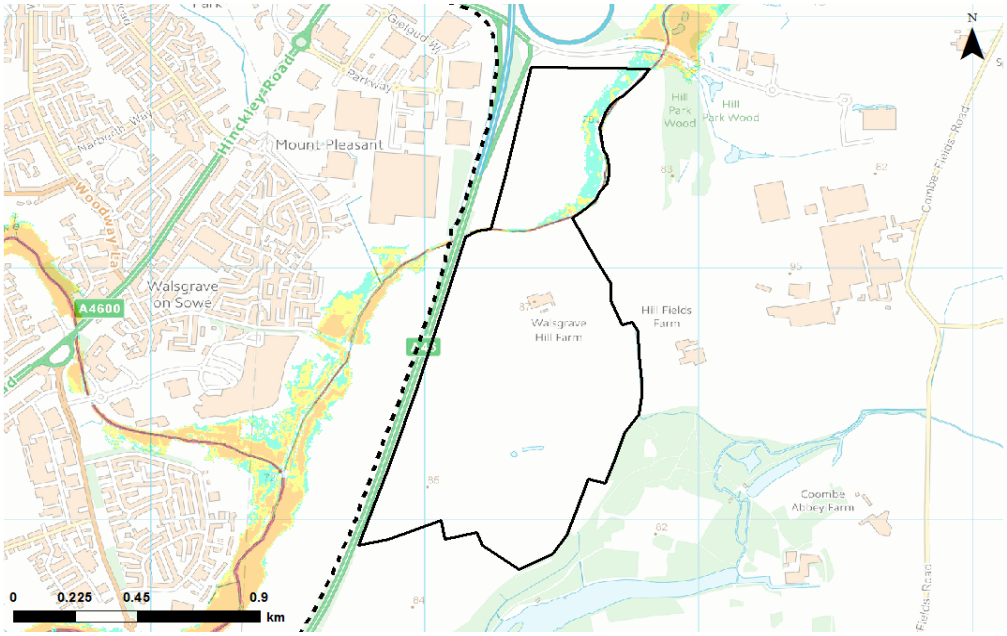


Potential development location
Council boundary

Velocity (m/s)

0 - 0.2	0.2 - 0.5	1.0 - 2.0
	0.5 - 1.0	> 2.0

Hazard Map - fluvial flooding (1 in 100-year event)



Potential development location
Council boundary

Hazard Rating

Very low hazard - caution
Danger for some
Danger for most
Danger for all

SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		Most source control techniques are likely to be suitable. Permeable paving should use non-infiltrating systems due to the risk of groundwater flooding.
Infiltration		Infiltration may be suitable. Mapping suggests a medium risk of groundwater flooding and underlying soils may be permeable. Further site investigation should be carried out to assess potential for drainage by infiltration especially as part of the site is a designated landfill site. If infiltration is suitable it should be avoided in areas where the depth to the water table is <1m.
Detention		Mapping suggests that the site slopes are suitable for all forms of detention. A liner maybe required due to the site contaminated land and potential groundwater flooding issues.
Filtration		All filtration techniques are likely to be suitable. If the site has contaminated land or groundwater issues; a liner will be required.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. If the site has groundwater flooding or contaminated land issues, a liner will be required.

• Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

• This site has areas within its boundary designated by the Environment Agency as being a landfill site. A thorough ground investigation will be required as part of a detailed FRA to determine the extent of the contamination and the impact this may have on SuDS. As such proposed SuDS should be discussed with the relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.

• The site is not located within any Environment Agency designated ground source protection zones.

Flood Defences:

There are no flood defences at this site.

Flood Warning:

This potential development site is not covered by a FWA; however it is partly covered by the River Sowe, River Sherbourne, Canley Brook and Finham Brook Flood Alert Area.

Access & Egress:

Access and egress to the potential development site can be achieved via an unnamed track which cuts through the centre of the site or from the A46 which runs along the western boundary. Access from the west via is access track is shown to be impacted by fluvial flooding. All other access and egress routes are shown to not be impacted by flooding.

Climate Change:

• Increased storm intensities.
• Increased water levels in the Withy Brook and unnamed watercourse.

Flood Risk Implications for Development:

• At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local stands and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
  o Reducing volume and rate of runoff
  o Relocating development to zones with lower flood risk
  o Creating space for flooding.
• A detailed hydraulic model of the unnamed watercourse along the south-eastern boundary may be required to demonstrate the flood risk posed to the development and to help establish a sequential approach to the overall site layout.
• No ordinary watercourse should be culverted unless there is an overriding need to do so and justification is provided in line with current Environment Agency policy. This is to ensure risk of blockage is minimal and the ecological status of watercourses are not degraded.
• No building, structure (whether temporary or permanent), or planting of vegetation within 5 metres of an ordinary watercourse, even if the watercourse is culverted.
• Potential storage options should be considered to reduce flood risk downstream from the Withy Brook. This will also attenuation flows from watercourses that contribute to the River Sowe, providing protection to other areas of Coventry.
• The peak flows on the Withy Brook and unnamed watercourse should be considered when reviewing drainage.
• Any designated features of significance to flood risk should be removed or altered without prior consent from the designated authority.
• No overland flow route or channel is to be become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
• Resilience measures will be required if buildings are situated in the flood risk area.
• New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assess in accordance with National and Local standards and guidance as agreed by the LLFA. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.
• Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
1) an adequate soakaway or some other adequate infiltration system
2) a watercourse
3) surface water sewer.
Surface water discharge to foul or combined systems will not be accepted.

• Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
• Assessment for runoff should include allowance for climate change effects.
• Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. Consider using Flood Zones 2 and 3 as public open space.
• It is important to ensure that any new connections to sewer systems or watercourses do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
• On-site attenuation schemes would need to be tested against the hydrographs of the Withy Brook and unnamed watercourse to ensure flows are not exacerbated downstream within the catchment.
• All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
• Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
• If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
• Safe access and egress will need to be demonstrated.
• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.

Cov5 - Walsgrave Hill Farm (Site D)

OSNGR: 440068,280820	Area: 57.8ha		Greenfield	
Flood Zone Coverage:	**FZ3b**	**FZ3a**	**FZ2**	**FZ1**
	0.5%	5%	7%	93%

Sources of flood risk:

The primary flood risk to the potential development site is predominantly from the Smite Brook (along the southern boundary) and an unnamed tribuatry along the south-western boundary). Flood risk from the Withy Brook is negigble. Flood hazard information from the unnamed tributary of the Smite Brook and the Smite Brook was not available for this study. Surface water flood risk is predominately located in the same locations as fluvial flood risk.

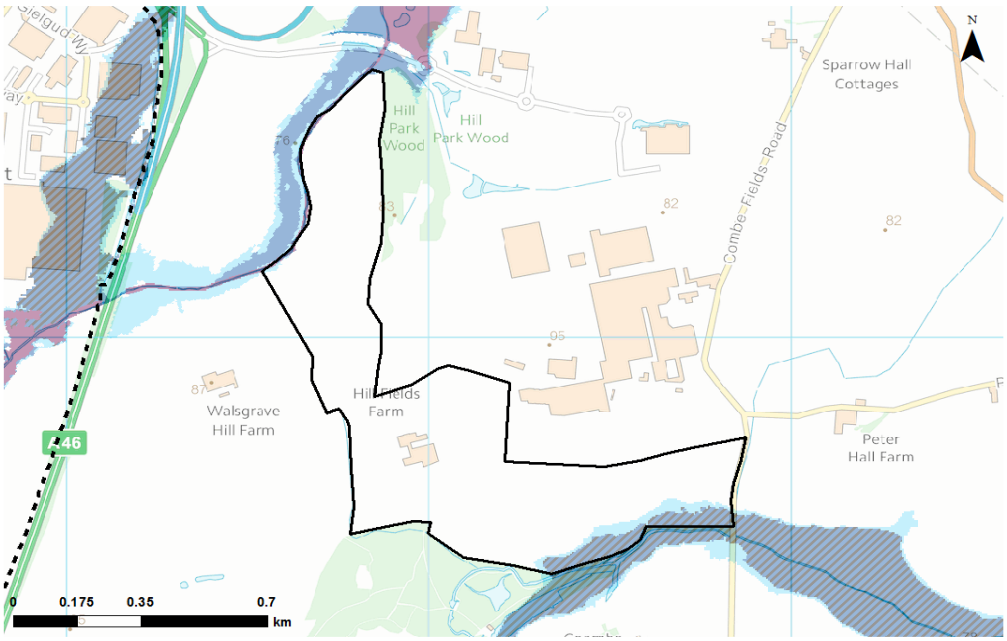
Exception Test Required?

Unlikely, as the majority of the site is located within Flood Zone One. If "More Vulnerable" and "Essential Infrastructure" development is located in FZ3a and for "Highly Vulnerable" development located in FZ2 an Exception test will be required.
"Essential Infrastructure" development in FZ3b will also require the Exception Test.
"Highly Vulnerable" development should not be permitted within FZ3a and FZ3b.
"More Vulnerable" and "Less Vulnerable" development should not be permitted within FZ3b.

NPPF Guidance:

• The majority of the site is shown to be located within Flood Zone 1. If development is located away from the Smite Brook and unnamed tribuatry of the Smite Brook and outside of Flood Zones 2 and 3, the Exception Test will not be required.
• However, sites over 1 hectare will require a site-specific Flood Risk Assessment (FRA), in which the vulnerability to flooding from other sources should be considered.
• If development is placed in Flood Zones 2 or 3 then, depending on the type of the development, the Exception test may be required. To pass Part 'b' of the Exception Test, a FRA should demonstrate that the development will be safe, will avoid increasing flood risk elsewhere, and will reduce flood risk overall.
• The potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off should be considered.
• Developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond, through the layout and form of the development and through appropriate sustainable drainage techniques.

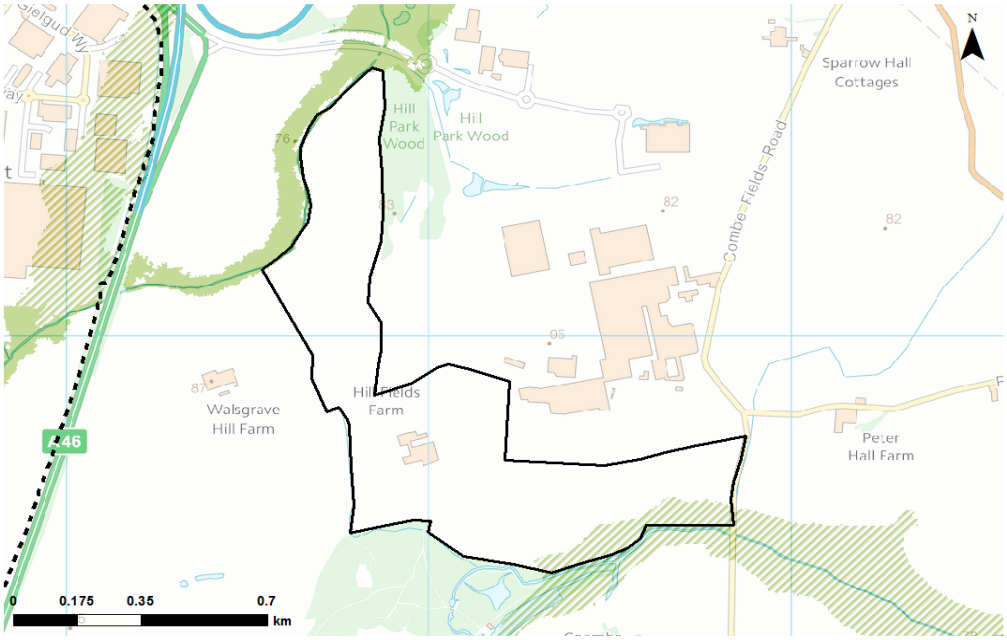
Flood Zone Map



Note: Indicative flood extents have been used to represent FZ3b in certain locations.

Potential development location
Council boundary
Flood Zone 3b
Indicative Extent of Flood Zone 3b
Flood Zone 3a
Flood Zone 2

Climate Change Map



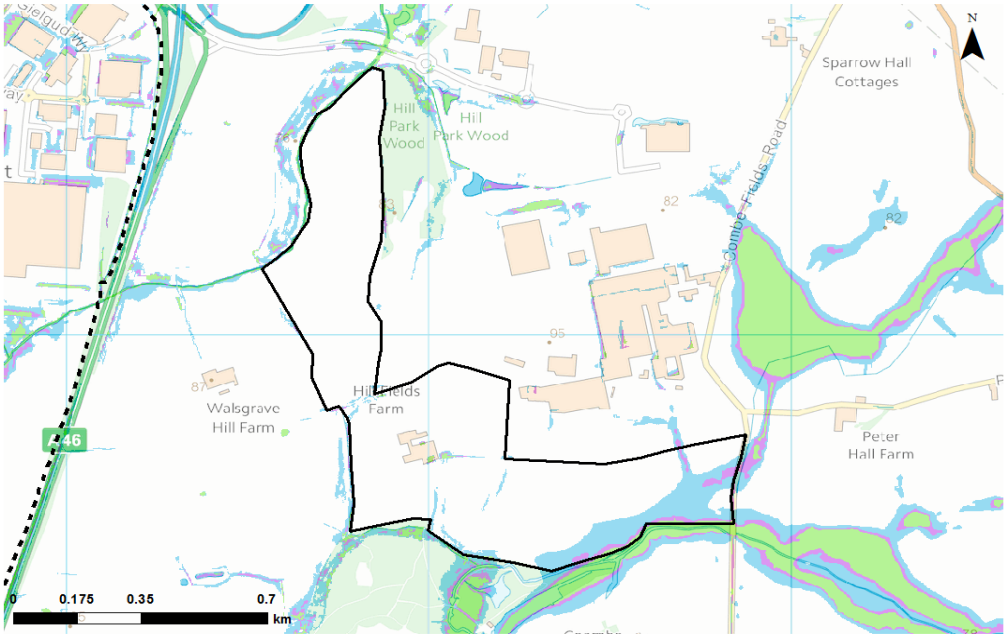
Potential development location

Council boundary

Flood Zone 3 with Climate Change

Indicative Extent of Flood Zone 3 with Climate Change

Surface Water Map



Potential development location

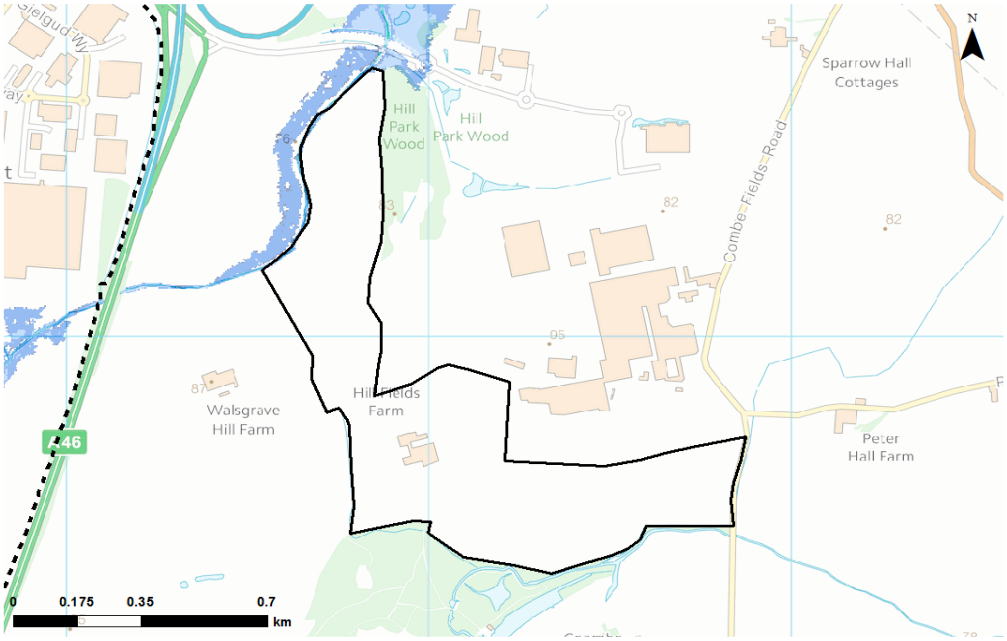
Council boundary

uFMfSW 30-year Extent

uFMfSW 100-year Extent

uFMfSW 1,000-year Extent

Depth Map - fluvial flooding (1 in 100-year event)



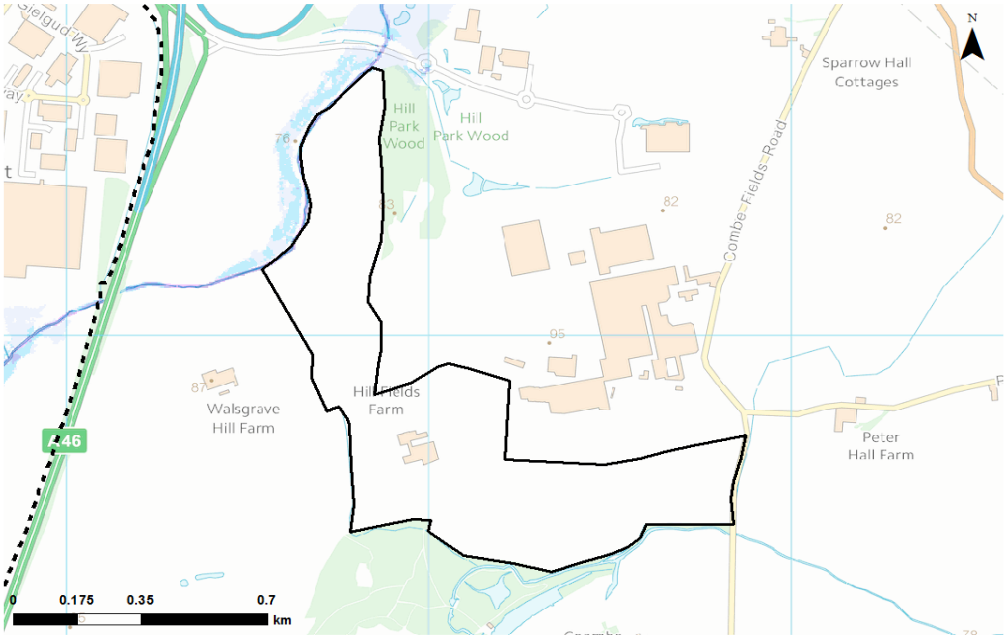
Note: depth information was not available for the Smite Brook and the unnamed tributary

Potential development location
Council boundary

Depth (m)

0 - 0.10	0.50 - 1.00	2.00 - 2.50	3.50 - 4.00
0.10 - 0.50	1.00 - 1.50	2.50 - 3.00	>4.00
	1.50 - 2.00	3.00 - 3.50	

Velocity Map - fluvial flooding (1 in 100-year event)



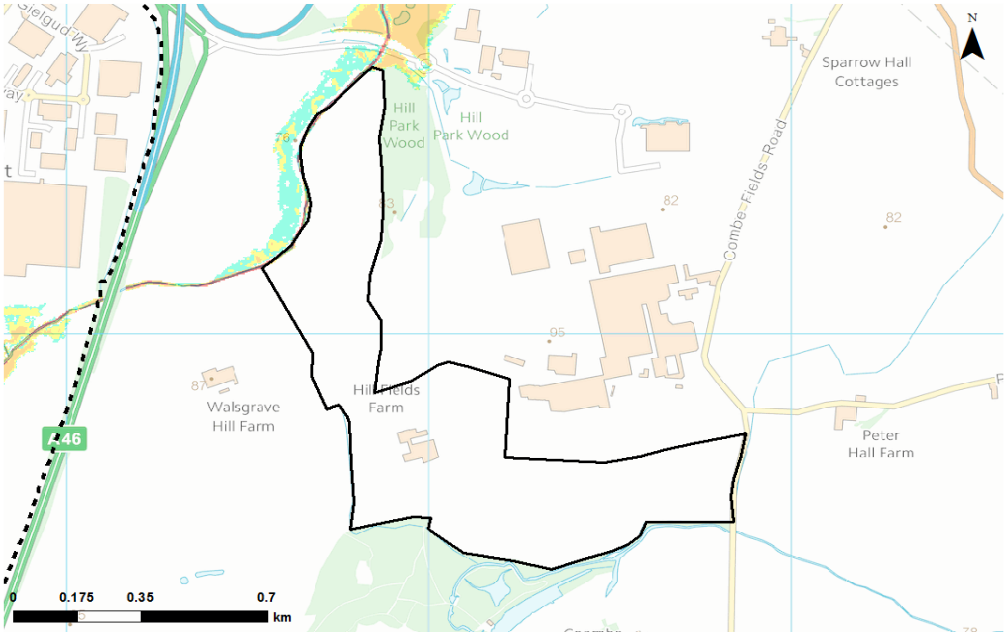
Note: velocity information was not available for the Smite Brook and the unnamed tributary

Potential development location
Council boundary

Velocity (m/s)

0 - 0.2	0.2 - 0.5	1.0 - 2.0
	0.5 - 1.0	> 2.0

Hazard Map - fluvial flooding (1 in 100-year event)



Note: hazard information was not available for the Smite Brook and the unnamed tributary

Potential development location
Council boundary

Hazard Rating

Very low hazard - caution
Danger for some
Danger for most
Danger for all

SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		Most source control techniques are likely to be suitable. Permeable paving should use non-infiltrating systems due to the risk of groundwater flooding.
Infiltration		Infiltration may be suitable. Mapping suggests a medium risk of groundwater flooding and underlying soils may be permeable. Further site investigation should be carried out to assess potential for drainage by infiltration. If infiltration is suitable it should be avoided in areas where the depth to the water table is <1m.
Detention		Mapping suggests that the site slopes are suitable for all forms of detention. A liner maybe required due to the site having potential groundwater flooding issues.
Filtration		All filtration techniques are likely to be suitable. If the site has contaminated land or groundwater issues; a liner will be required.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. If the site has groundwater issues, a liner will be required.

• Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

• The site is not located in an area designated by the Environment Agency as a landfill site.

• The site is not located within any Environment Agency designated ground source protection zones.

Flood Defences:

There are no flood defences at this site.

Flood Warning:

This potential development site is not covered by a FWA.

Access & Egress:

Primary access and egress is achieved via Combe Field Road located along the south-eastern boundary of the potential development site. Access to the majority of the site should be achievable even during flood events.

Climate Change:

• Increased storm intensities.
• Increased water levels in the Withy Brook, Smite Brook and unnamed watercourse.

Flood Risk Implications for Development:

• At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local stands and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
  o Reducing volume and rate of runoff
  o Relocating development to zones with lower flood risk
  o Creating space for flooding.
• A detailed hydraulic model of the unnamed watercourse along the south-western boundary and the Smite Brook along the southern boundary may be required to demonstrate the flood risk posed to the development and to help establish a sequential approach to the overall site layout.
• No ordinary watercourse should be culverted unless there is an overriding need to do so and justification is provided in line with current Environment Agency policy. This is to ensure risk of blockage is minimal and the ecological status of watercourse are not degraded.
• No building, structure (whether temporary or permanent), or planting of vegetation within 5 metres of an ordinary watercourse, even if the watercourse is culverted.
• Potential storage options should be considered to reduce flood risk downstream from the Withy Brook and Smite Brook. This will also attenuation flows from watercourse that contribute to the River Sowe, providing protection to other areas of Coventry.
• The peak flows on the Withy Brook, Smite Brook and unnamed watercourse should be considered when reviewing drainage.
• Any designated features of significance to flood risk should be removed or altered without prior consent from the designated authority.
• No overland flow route or channel is to be become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
• Resilience measures will be required if buildings are situated in the flood risk area.
• New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assess in accordance with National and Local standards and guidance as agreed by the LLFA. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.

• Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
1) an adequate soakaway or some other adequate infiltration system
2) a watercourse
3) surface water sewer.
Surface water discharge to foul or combined systems will not be accepted.
• Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
• Assessment for runoff should include allowance for climate change effects.
• Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. Consider using Flood Zones 2 and 3 as public open space.
• It is important to ensure that any new connections to sewer systems or watercourse do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
• On-site attenuation schemes would need to be tested against the hydrographs of the Withy Brook, Smite Brook and unnamed watercourse to ensure flows are not exacerbated downstream within the catchment.
• All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
• Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
• If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
• Safe access and egress will need to be demonstrated.
• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.