

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 Wither Brook which flows through the northern portion of the potential development site. The flood hazard from the Wither 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 constraint 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.

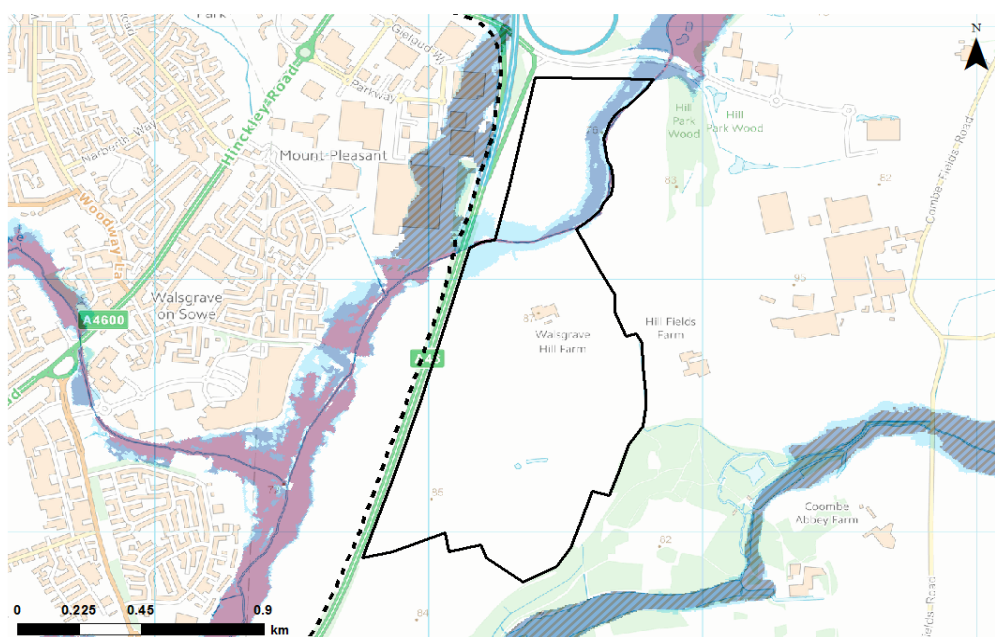
"Highly Vulnerable" development should not be permitted within FZ3a and FZ3b.

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

NPPF Guidance:

- If development is located away from the Wither 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

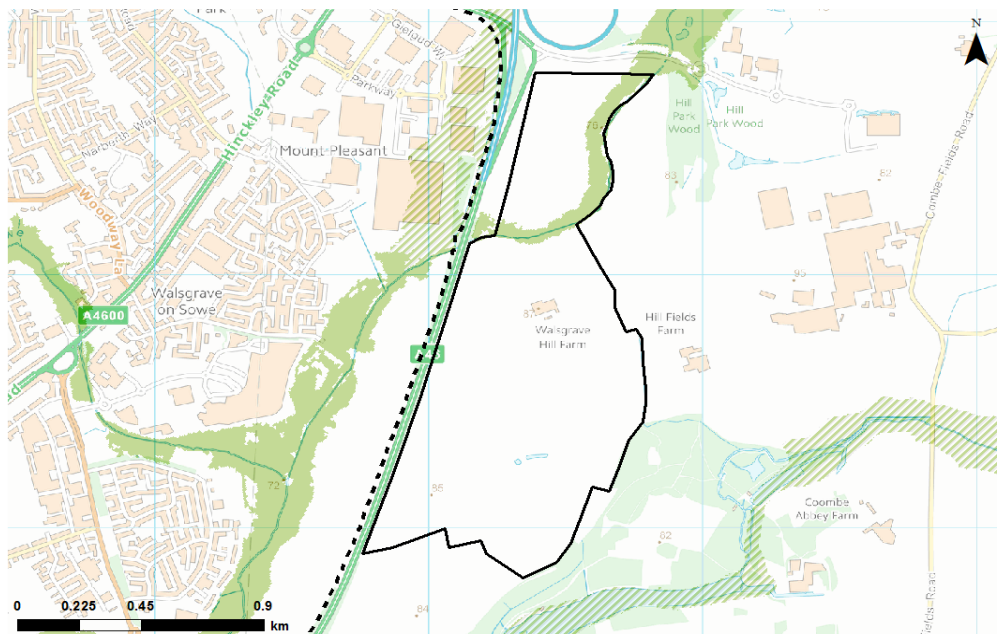


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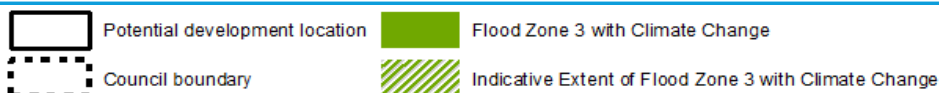
Note: Indicative flood extents have been used to represent FZ3b in certain locations. For more information please refer to section 10 in the main report.

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

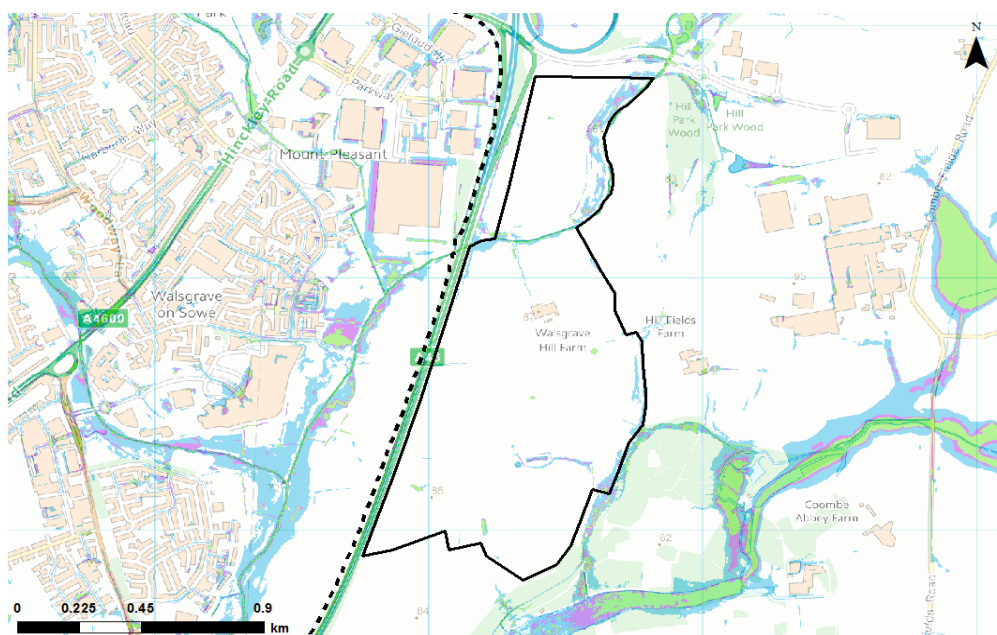
Climate Change Map



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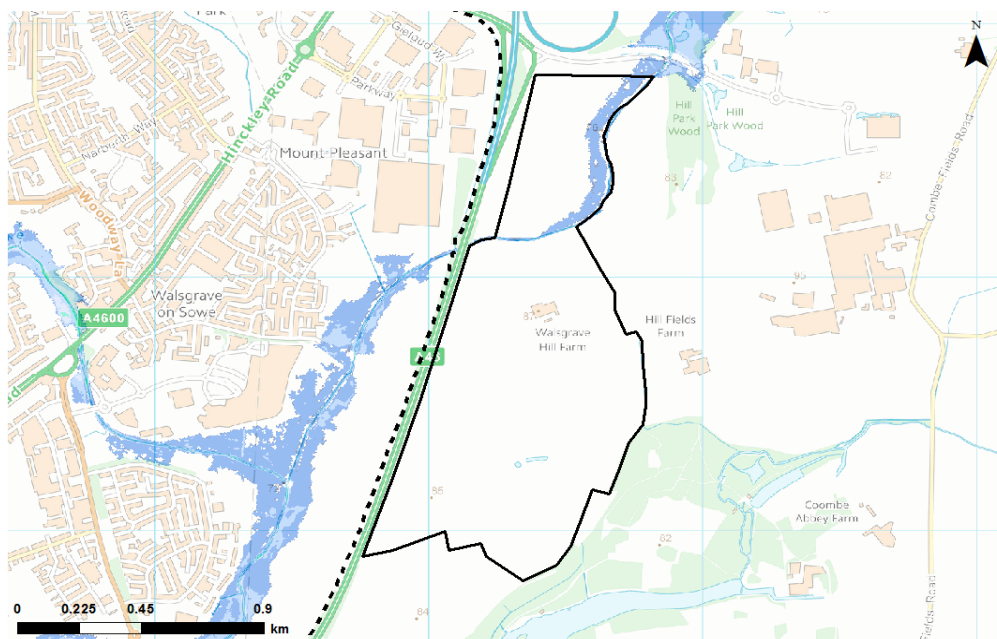
Surface Water Map



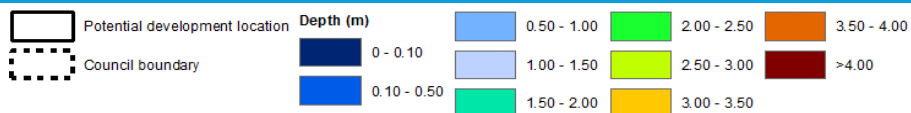
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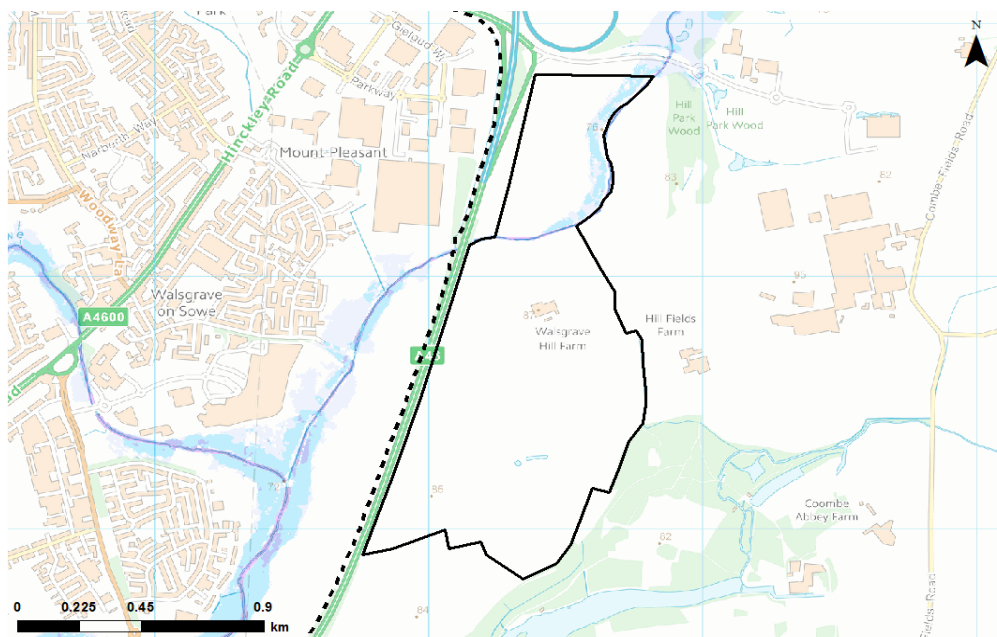
Depth Map - fluvial flooding (1 in 100-year event)



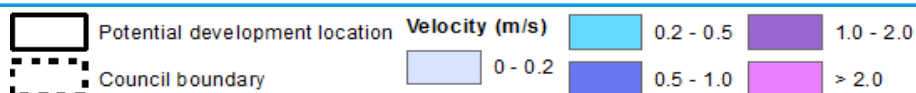
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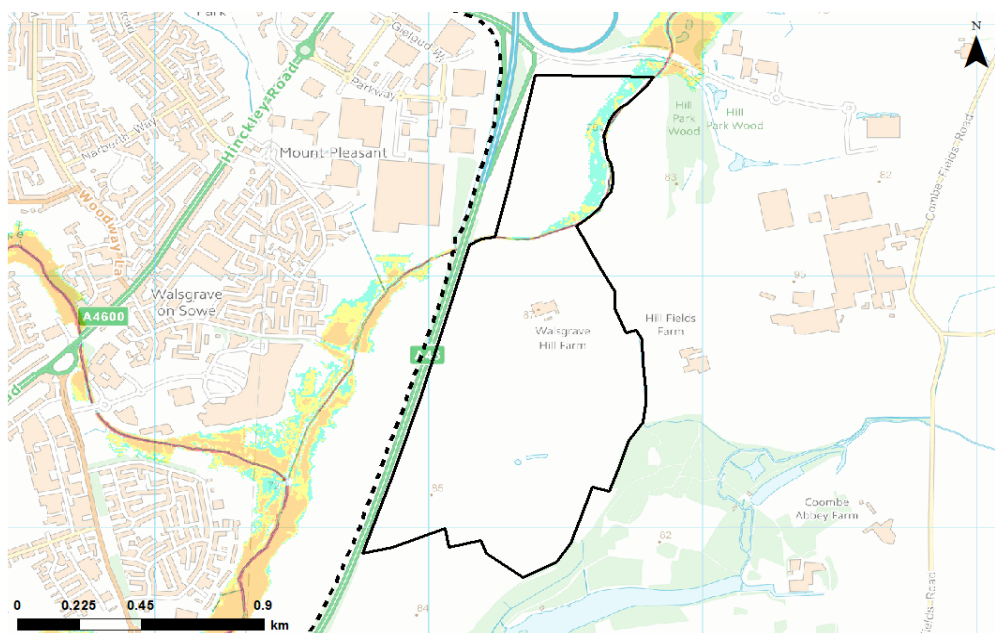
Velocity Map - fluvial flooding (1 in 100-year event)



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



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	Potential development location	Hazard Rating		Danger for some		Danger for all
	Council boundary		Very low hazard - caution		Danger for most	

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 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 standards 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 attenuate 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 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 assessed 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 system 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.