

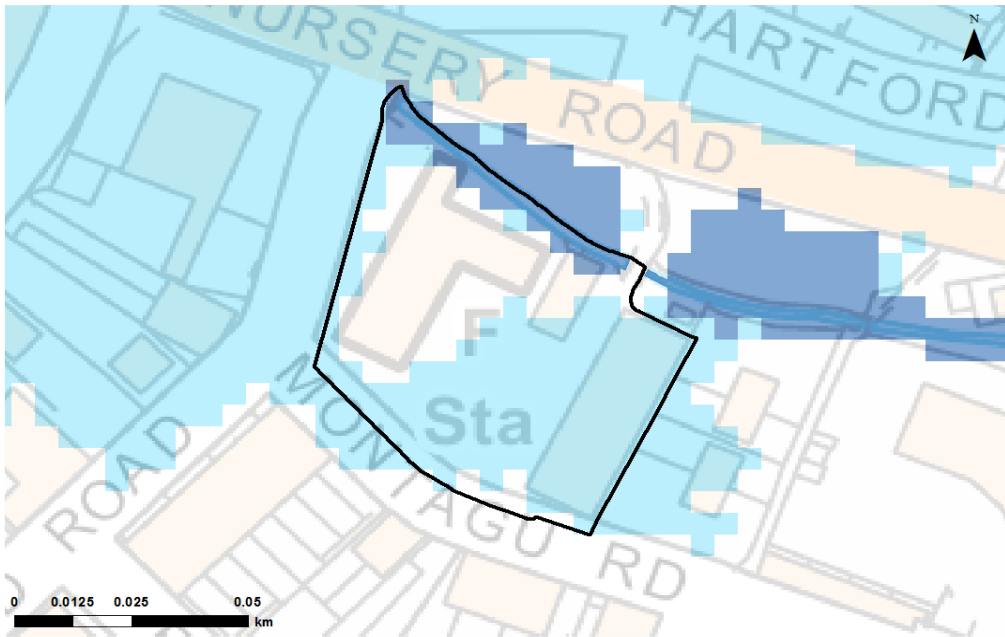
Fire Station, Huntingdon

OSNGR: 524256,271854	Area: 0.4ha		Brownfield	
Flood Zone Coverage:	FZ3b 0%	FZ3a 9%	FZ2 51%	FZ1 41%

Sources of flood risk:
 The main sources of flood risk to the site is from Barracks Brook and surface water. However, fluvial risk during a 1% AEP event is predominantly restricted to the channel; the majority of the site does not flood until the 0.1% AEP event. Surface water flood risk corresponds to the location of fluvial flood risk. Flood risk may be exacerbated by high levels in the River Great Ouse preventing the Brook discharging, or due to blockage or surcharging of culverts.

Exception Test Required?
 Yes, if More Vulnerable and Essential Infrastructure development is located in FZ3a and for Highly Vulnerable development located in FZ2.
 Highly Vulnerable infrastructure should not be permitted within FZ3a.

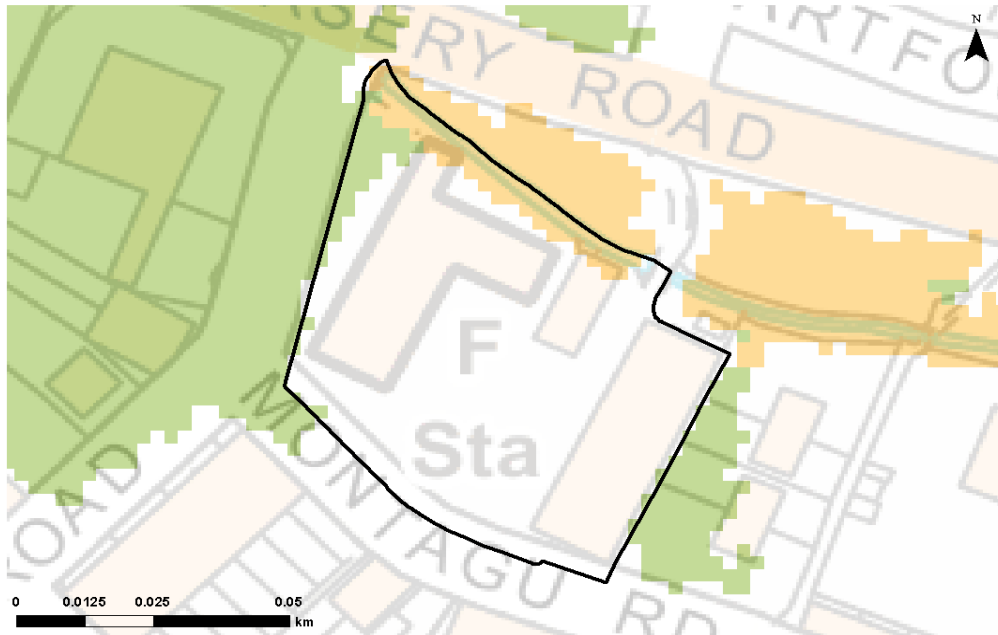
Flood Zone Map



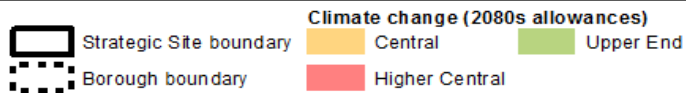
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Potential development location	Flood Zone 3b	Flood Zone 3a
Council boundary	Indicative Extent of Flood Zone 3b	Flood Zone 2

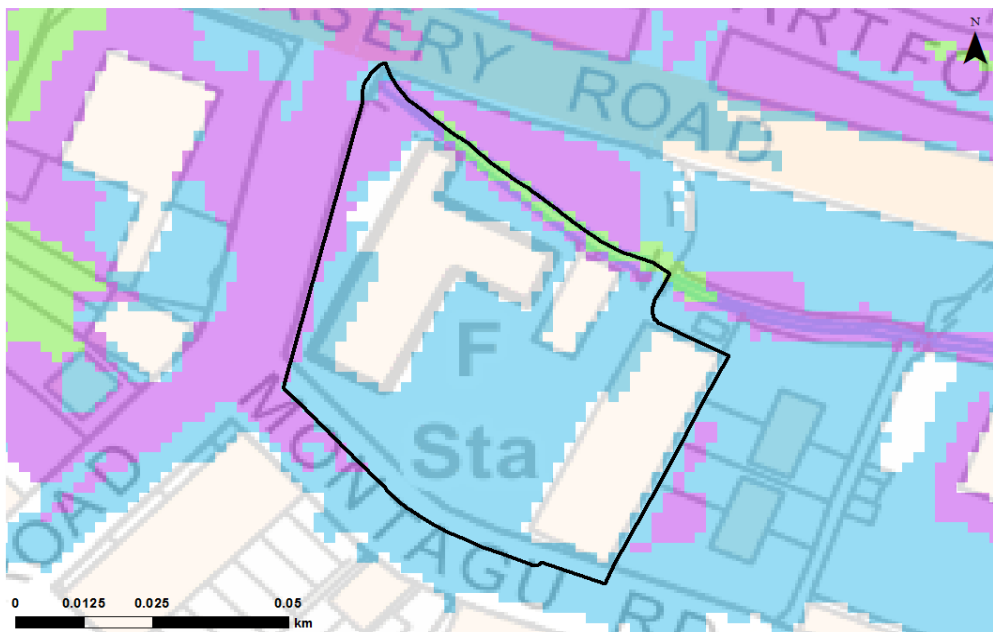
Climate Change Map



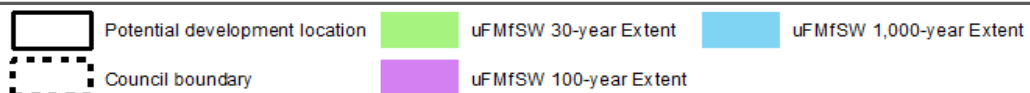
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Surface Water Map



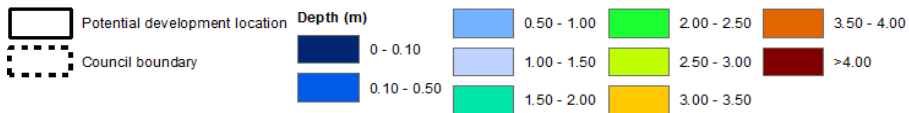
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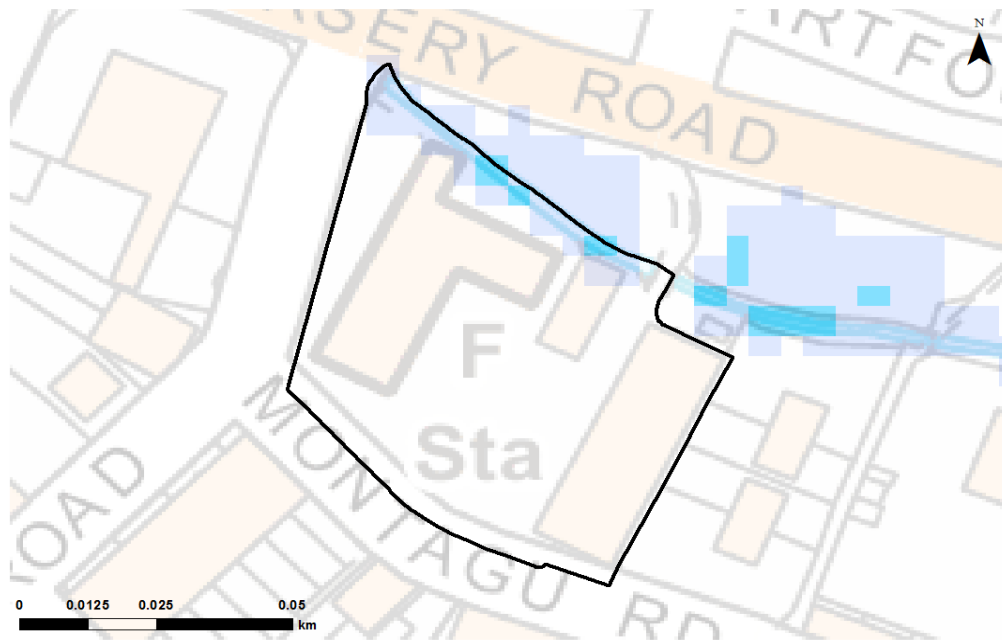
Depth Map - fluvial flooding (1% Annual exceedance probability)



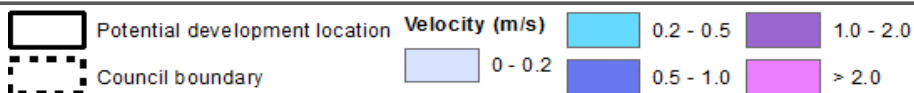
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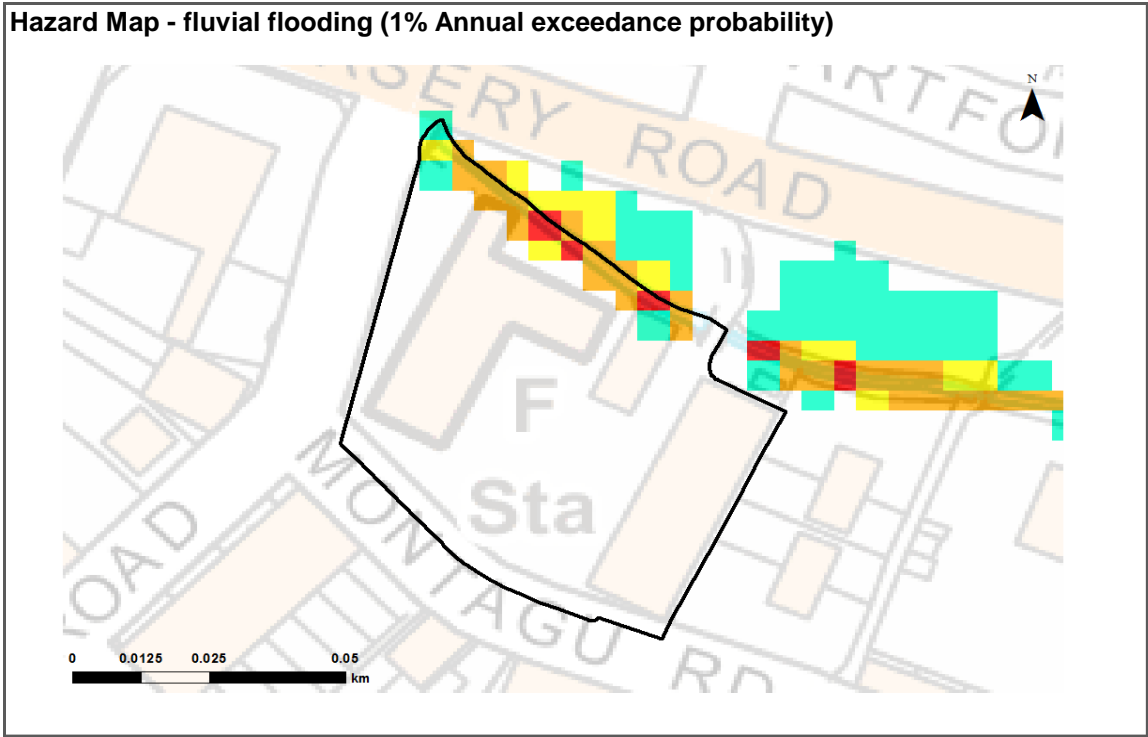


Velocity Map - fluvial flooding (1% Annual exceedance probability)









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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. Mapping suggests that permeable paving may have to use non-infiltrating systems given the possible risk from groundwater and that the site is classified as Brownfield.
Infiltration		Mapping suggests that there is a high risk of groundwater flooding at this location, therefore it is possible infiltration techniques will not be suitable.
Detention		This option may be feasible provided site slopes are < 5% at the location of the detention feature. A liner may be required to prevent the egress of groundwater and if there are any contamination issues.
Filtration		This feature is probably suitable provided site slopes are <5% and the depth to the water table is >1m. A liner may be required to prevent the egress of groundwater and if there are any contamination issues.
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. A liner may be required to prevent the egress of groundwater and if there are any contamination issues.

Drainage strategies should demonstrate that an appropriate number of treatment stages have been delivered. This depends on the factors such as the type of development, primary source of runoff and likelihood of contamination. Guidance should be sought from the LLFA and other guidance documents such as the CIRIA SuDS Manual (C753).

Flood Defences:

There are no flood defences at this site.

Emergency Planning:

This site is covered by the Huntingdon and Hartford Flood Warning Area.

Access & Egress:

Access to the site will be affected during a 0.1% AEP event. It is also affected by surface water events of 1% AEP or higher.

Climate Change:

Modelling shows the 1% AEP event is currently largely contained within the right bank and this is also the case when the 2080s Central and Higher Central climate change allowances are applied. However, modelling shows that when the Upper End climate change allowance is applied a small section of the site, along the western boundary, becomes at risk of flooding.

Implications for Development:

Risk to development could be reduced through using the Sequential Approach to place development outside of the Flood Zones; However, less than half of the site is outside of Flood Zone 2 - approximately 0.2 hectares, therefore there may be limits on the amount and type of development for the site.

Access and egress routes are at risk from both fluvial and surface water flooding; development will need to ensure that safe access and egress routes can be provided for the lifetime of the development. Development should also ensure that there is no increase in flood risk that may exacerbate safe access and egress.

Broadscale assessment of suitable SuDS has indicated a number of different types may be possible; however, given the size of the site and the proportion of the site at risk from flooding, the type of SuDS system used may be influenced by amount of land available; depending on the system used there may be an impact on the amount of land available for development and the cost of development.

The Barrack Brook flows through a predominantly urban area, with much of the watercourse culverted along its path; therefore the potential for upstream balancing is likely to be limited. The influence of levels in the River Great Ouse also means flooding in the site may be influenced by the River Great Ouse rather than levels upstream on the Barrack Brook.

The site is covered by the Environment Agency's Flood Warning Service; however, this warning is based upon levels in the River Great Ouse and not the Barrack Brook. There is the possibility that localised flooding could result in high levels in the Barrack Brook without a corresponding high in the River Great Ouse.

Guidance for Developers:

[Mapping in this table is based on results from the Environment Agency's Barracks Brook 2D model.](#)

At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3. Other sources of flooding should also be considered. Where a site specific FRA has produced modelling outlines which differ from the Flood Map for Planning then a full evidence based review would be required; where this is acceptable to the EA then amendments to the Flood Map for Planning may take place.

Resilience measures will be required if buildings are situated in the flood risk area.

The peak flows on the Barrack Brook should be considered when considering drainage.

Assessment for runoff should include allowance for climate change effects.

New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff.

Onsite attenuation schemes would need to be tested against the hydrographs of the Barrack Brook to ensure flows are not exacerbated downstream within the catchment.

Safe access and egress will need to be demonstrated; currently access and egress is affected by surface water flooding and fluvial flooding from a 0.1% AEP event.

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.
- o Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.

Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.