

**Welby**

<b>OSNGR:</b>	472902,321279	Area: 86.3 ha		Predominantly Greenfield	
<b>Flood Zone Coverage:</b>		<b>FZ3b</b>	<b>FZ3a</b>	<b>FZ2</b>	<b>FZ1</b>
		3%	0%	1%	96%

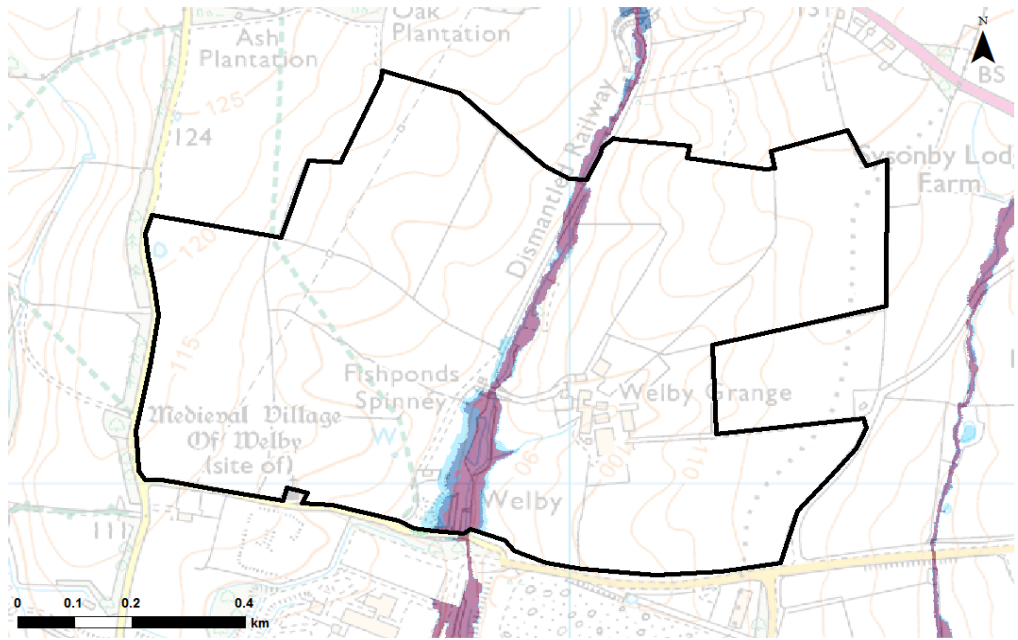
**Sources of flooding:**  
 Part of the site is at risk from fluvial flooding from the Welby Brook, which flows north to south through the centre of the site. Hazard class ranges from very low to danger to most, with the highest hazard occurring when water backs up behind the culvert under Welby Lane.  
 Parts of the site are also shown to be affected by surface water flooding; these areas tend to correspond with the watercourses and a number of smaller drains.

**Exception Test Required?**  
 Unlikely, as the majority of the site is located within Flood Zone One.

**NPPF Guidance:**

- The majority of the site is located within Flood Zone One, therefore by ensuring development is placed away from the unnamed tributary and outside of the flood zones, the Exception test will not be required.
- However, sites over one hectare will require a site specific flood risk assessment, 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.

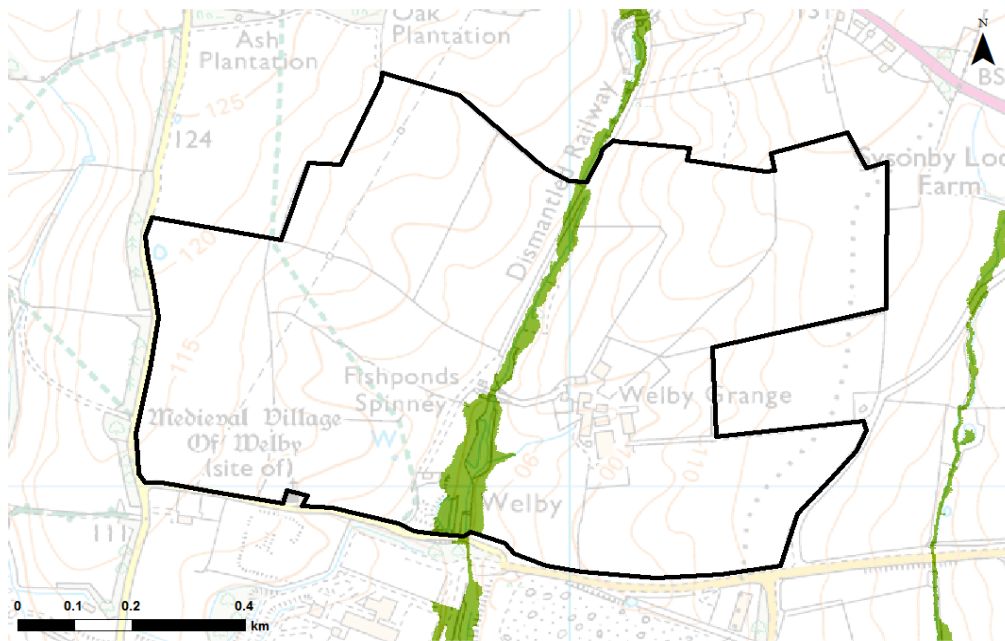
**Flood Zone Map**



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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.

Borough boundary	Flood Zone 3b	Flood Zone 3a
Strategic Site boundary	Indicative Extent of Flood Zone 3b	Flood Zone 2

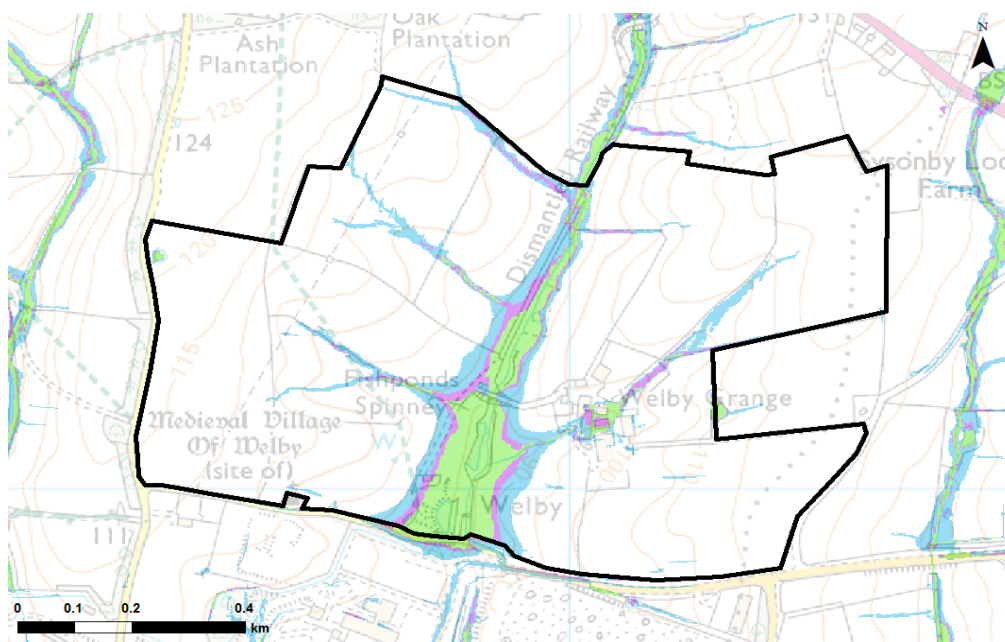
**Climate Change Map**



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- Borough boundary
- Flood Zone 3 with Climate Change
- Strategic Site boundary
- Indicative Extent of Flood Zone 3 with Climate Change

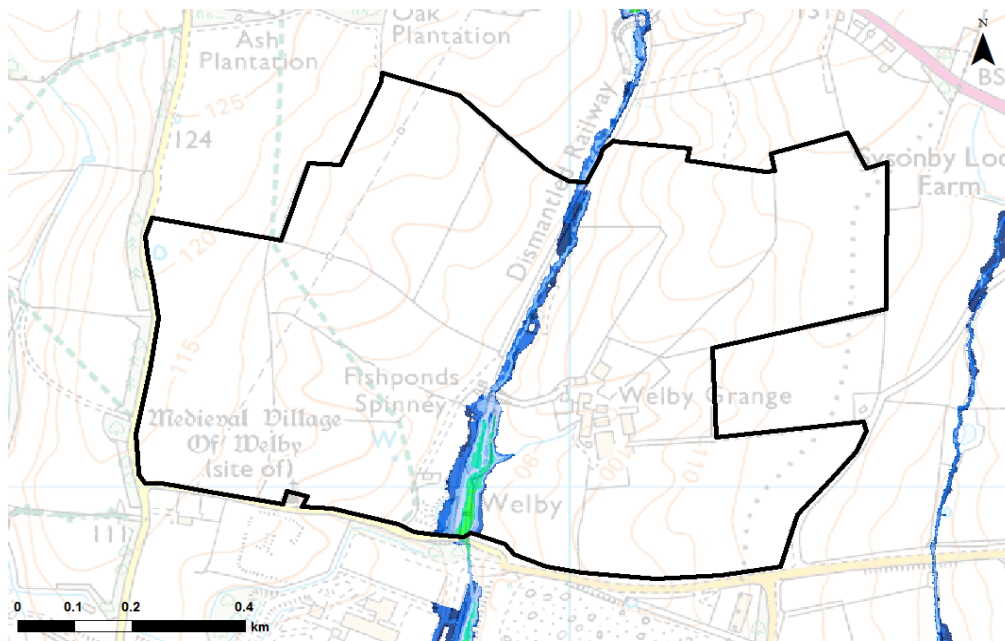
**Surface Water Map**



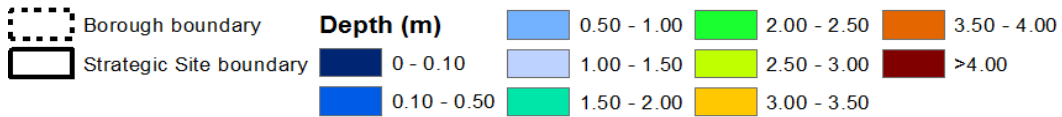
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- Borough boundary
- uFMfSW\* 30-year Extent
- uFMfSW\* 1,000-year Extent
- Strategic Site boundary
- uFMfSW\* 100-year Extent

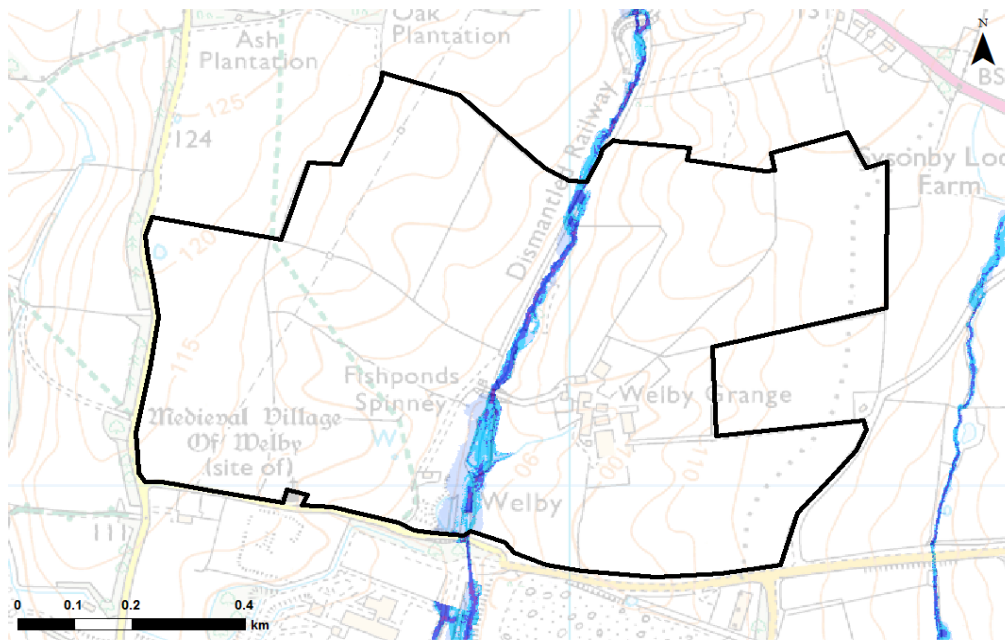
**Depth Map**



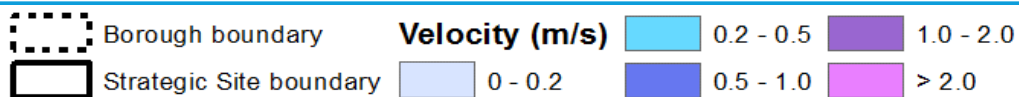
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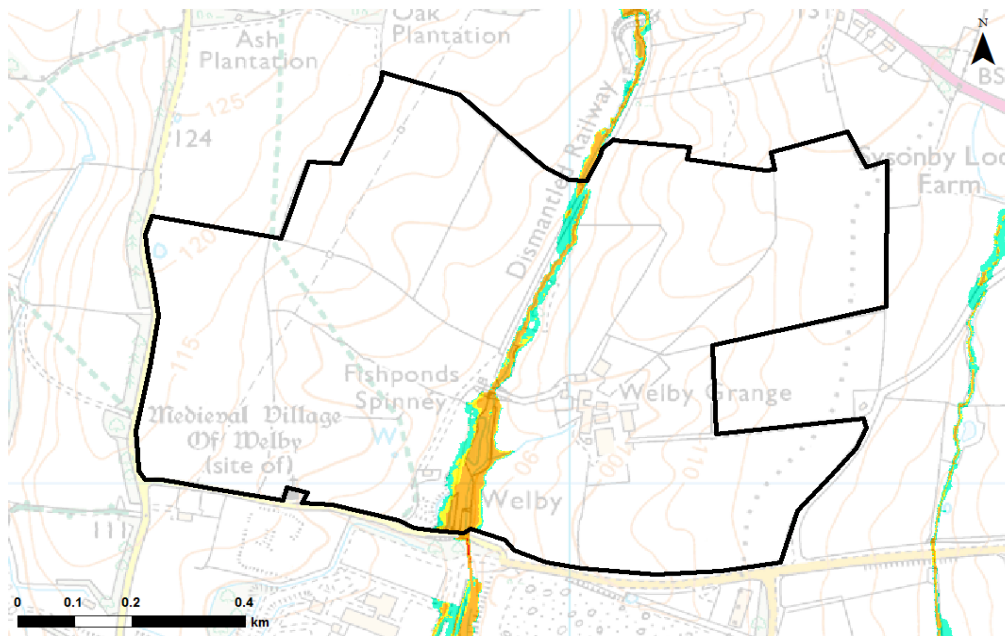
**Velocity Map**



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**Hazard Map**



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Borough boundary	<b>Hazard Rating</b>	Danger for some	Danger for all
Strategic Site boundary	Very low hazard - caution	Danger for most	

**SuDS & the development site:**

SuDS Type	Suitability	Comments
<b>Source Control</b>		Most source control techniques are likely to be suitable. Certain systems such as permeable paving might not be suitable if the site exhibits a significant gradient
<b>Infiltration</b>		Mapping suggests high permeability at this site; site investigations should be carried out to assess potential for drainage by infiltration.
<b>Detention</b>		This option may be feasible provided site slopes are < 5%. Liner is required for permanent wet features in pervious soils.
<b>Filtration</b>		This should be investigated with more detail site specific data as this option may be feasible provided site slopes are < 5%. Mapping suggests that the site may be too steep to allow 'above ground' detention features to be used at this site.
<b>Conveyance</b>		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.

- The site is not located in an area designated as a landfill site.
- The site is not located within a groundwater source protection zone.

**Flood Defences:**

The strategic site is not protected by any formal flood defences.

**Flood Warning:**

There are currently no flood warning areas covering this site.

**Access & Egress:**

The main routes to and from the site (Welby Lane) are mostly unaffected by flooding.

**Climate Change:**

- Increased storm intensities.
- Increased water levels in the Welby Brook.

**Flood Risk Implications for Development:**

- At the planning application stage, a site-specific flood risk assessment will be required for any development greater than 1ha in Flood Zone 1, or if any development is located within Flood Zones 2 or 3.
- Resilience measures will be required if buildings are situated in the flood risk area.
- Development should be located away from the unnamed tributary.
- The peak flows on the Welby 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 hydrograph of the Welby Brook to ensure flows are not exacerbated downstream.
- Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development.
- 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