

## B Potential development area flood risk summary sheets

### B.1 Introduction

The following sections include summaries for each strategic site and key settlement in Vale of White Horse and South Oxfordshire Districts.

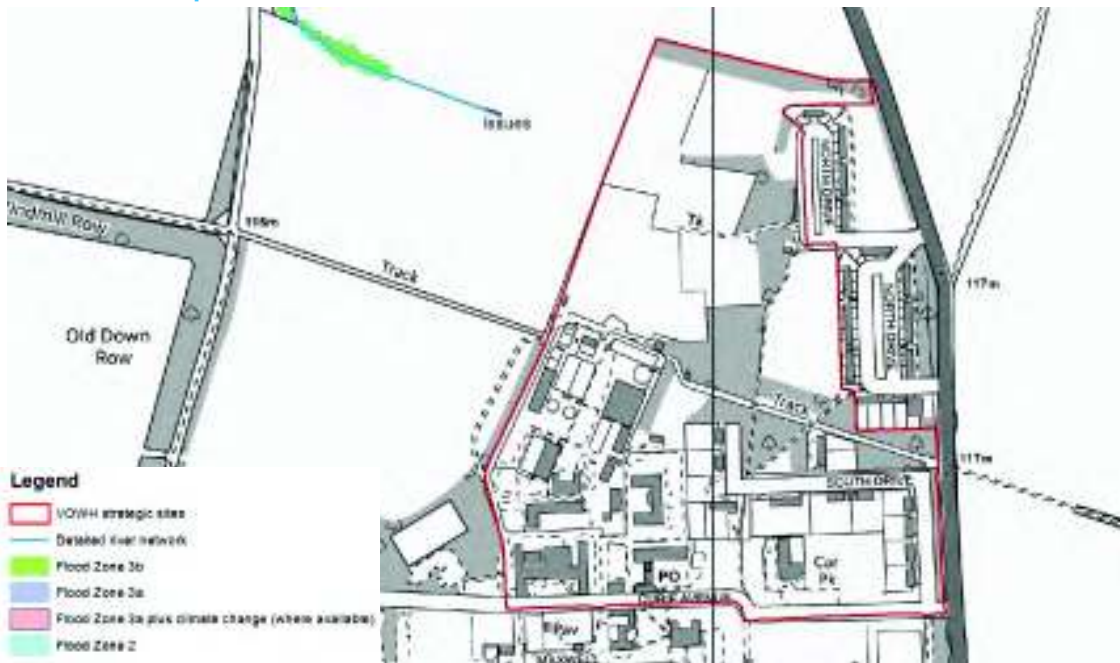
The information given is based on national and detailed mapping provided by the Environment Agency, and local evidence provided by the Councils.

The following points should be noted when interpreting the maps shown:

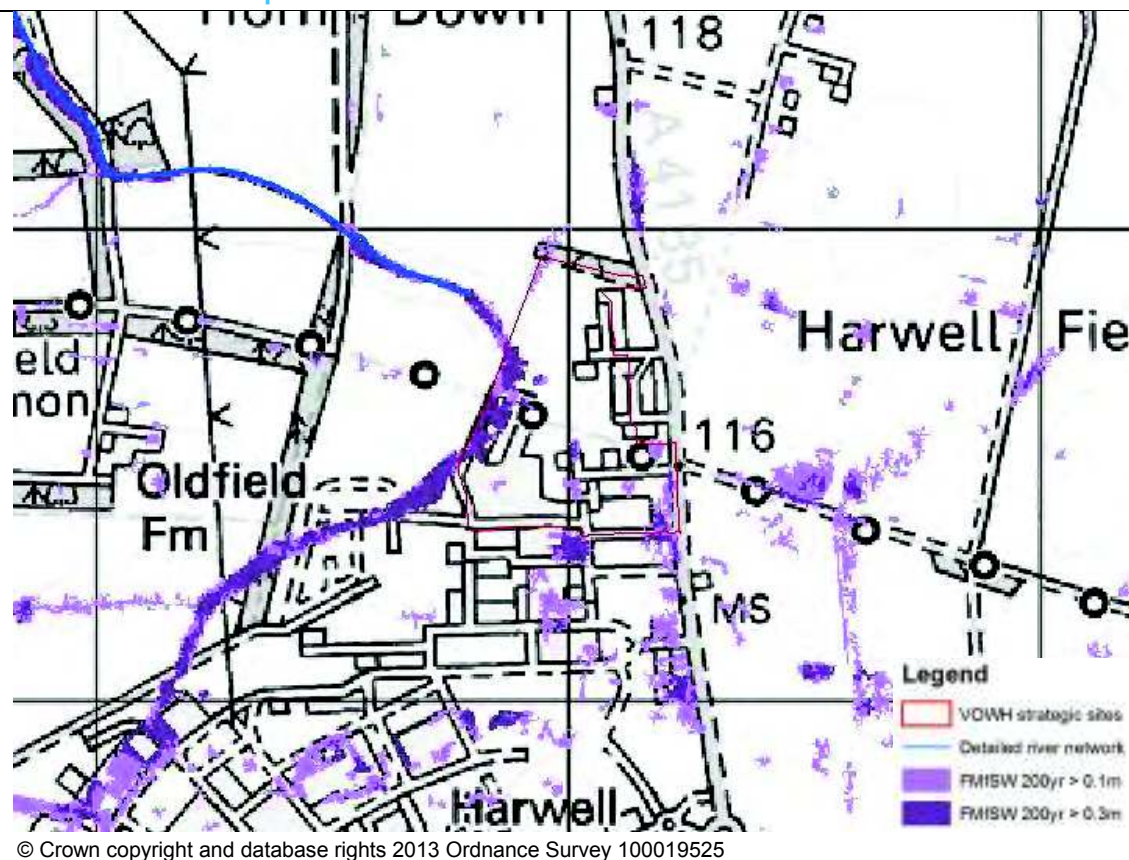
- Flood Zone 3a and Flood Zone 2 are based on the national mapping provided by the Environment Agency.
- Flood Zone 3b is based on the 20 year flood extent where there is detailed model information. Where no detailed information is available, Flood Zone 3a is used as a precautionary approach.
- Flood Zone 3a with climate change is based on the 100 year plus climate change flood extent where there is detailed model information. Where no detailed information is available, Flood Zone 2 is used as a precautionary approach.
- The Flood Map for Surface Water (FMfSW) is shown on a 1:50,000 map background at a 1:10,000 scale (or smaller), as stipulated by the guidance notes provided by the Environment Agency. For clarity, only the more severe 1 in 200 year event has been shown.
- The Areas Susceptible to Groundwater Flooding (AStGWF) map is very broad-scale and has not been shown for individual sites. It can be viewed in Map 6.

## B.2 Vale of White Horse - Strategic sites

### B.2.1 Harwell Oxford Campus, Harwell

| Harwell Oxford Campus  |                                       |  |  |
|--|---------------------------------------|--|--|
| <b>Area:</b><br>17.8ha   | <b>Brownfield/greenfield:</b><br>Both | <b>Proposed use:</b><br>Residential - up to 400 houses | <b>Flood risk vulnerability classification:</b><br>More vulnerable/less vulnerable |
| <b>Summary of flood risk to site</b>   |                                       |  |  |
| <p><b>Fluvial</b></p> <p>There is no known risk from fluvial flooding.<br/>There are no flood defences.</p> <p><b>Flood Zone map</b></p>  <p>© Crown copyright and database rights 2013 Ordnance Survey 100019525</p> |                                       |  |  |
| <p><b>Surface water</b></p> <p>The FMfSW shows a potential flow path shown to west edge of site, and other small areas of ponding. No local evidence to support this.</p> <p><b>Flood Map for Surface Water (200 year)</b></p>   |                                       |  |  |

#### Harwell Oxford Campus



#### Groundwater

The AStGWF map suggests the area is mostly in the lowest category of risk of groundwater flood emergence. No historical record of groundwater flooding.

#### Sewer

No known sewer flooding problems.

#### Effects of climate change

Increased rainfall intensity in the future may exacerbate any surface water flooding problems.

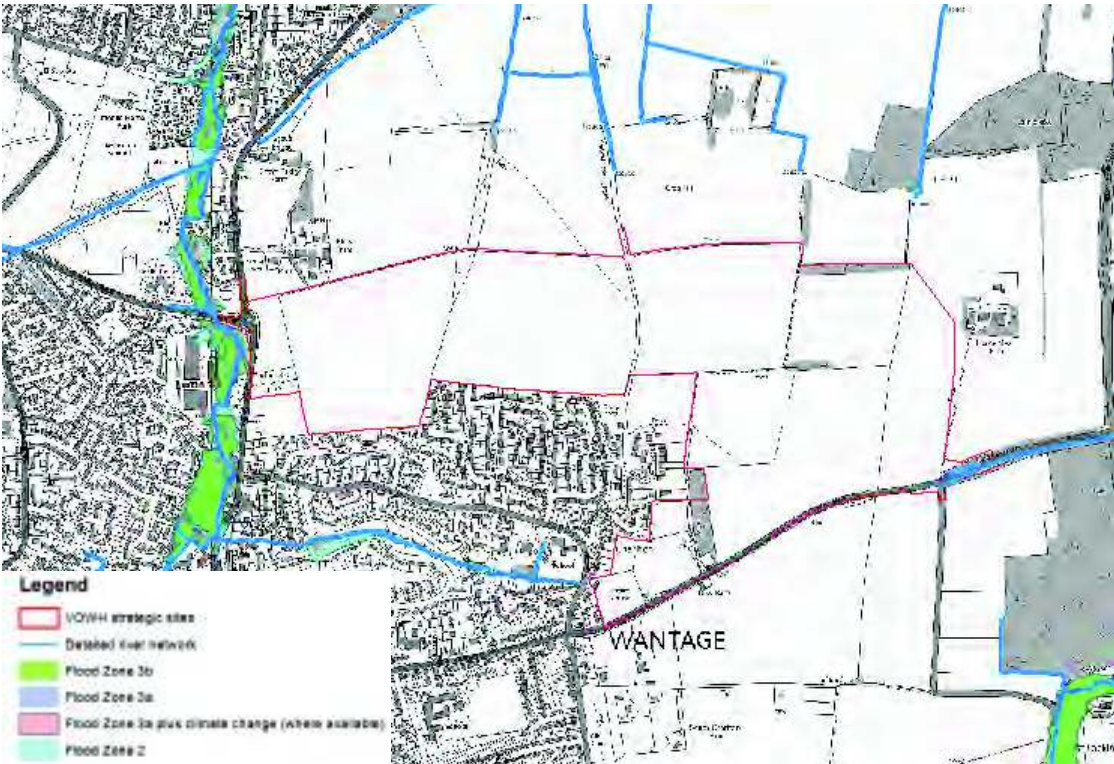
#### Available survey/detailed modelling

No detailed models available.

#### Implications for development

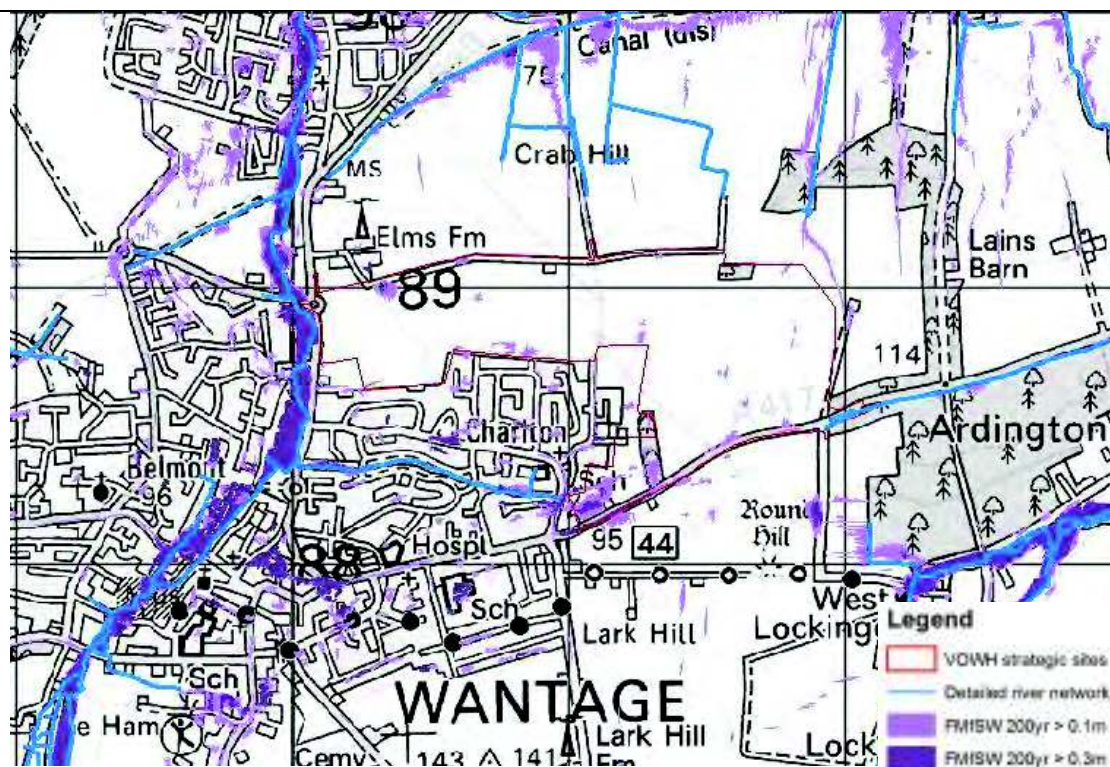
- Requires a full FRA for a site >1ha in Flood Zone 1.
- Drainage strategy should be submitted at an early stage to cover mitigation of any surface water risk and reduce impact downstream through site design and SUDS methods.
- Thames Water should be consulted at an early stage to ensure that there will be sufficient capacity in the wastewater system and any upgrades are carried out where necessary.

## B.2.2 Crab Hill, Wantage

| Crab Hill  |   |   |  |
|--|---|---|--|
| <b>Area:</b><br>96 ha  | <b>Brownfield/greenfield:</b><br>Greenfield | <b>Proposed use:</b><br>Residential/mixed use - up to 1500 homes with services and facilities | <b>Flood risk vulnerability</b><br>More vulnerable/less vulnerable |
| <b>Summary of flood risk to site</b>   |   |   |  |
| <p><b>Fluvial</b></p> <p>There is no known risk from fluvial flooding, although the west of the site is adjacent to the edge of the Flood Zones on Letcombe Brook.</p> <p>There are no flood defences.</p> <p><b>Flood Zone map</b></p>  <p>© Crown copyright and database rights 2013 Ordnance Survey 100019525</p>              |   |   |  |
| <p><b>Surface water</b></p> <p>The FMfSW shows some discrete areas of potential ponding. A larger area (cricket ground) may be at risk at upstream end of Humber Ditch to south of site. The VOWH Flood Database and 2007 flood grant claimants list show several incidents relating to the Humber Ditch including some immediately downstream of the site.</p> <p><b>Flood Map for Surface Water (200 year)</b></p> |   |   |  |



#### Crab Hill



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#### Groundwater

The AStGWF map suggests the area is at low risk of groundwater flood emergence. No historical record of groundwater flooding.

#### Sewer

No reported problems on site (this is a greenfield site). There are existing sewer flooding problems in Wantage (e.g. Manor Road), known through Council flood investigations and newspaper reports.

#### Effects of climate change

Increased rainfall intensity in the future may exacerbate any surface water flooding problems.

#### Available survey/detailed modelling

The following detailed model has been used in the Flood Map:

- Letcombe Brook (Environment Agency, 2009)

#### Implications for development

- Requires a full FRA for a site >1ha in Flood Zone 1.
- The FRA should consider surface water/fluvial flood risk from the upper end of the Humber Ditch.
- Drainage strategy should be submitted at an early stage to cover mitigation of any surface water risk and reduce impact downstream through site design and SUDS methods.
- Thames Water should be consulted at an early stage to ensure that there will be sufficient capacity in the wastewater system and any upgrades are carried out where necessary.

### B.2.3 Monks Farm, Grove (increased scope assessment)

| Monks Farm     |                                      |   |   |
|----------------|--------------------------------------|---|---|
| Area:<br>49 ha | Brownfield/greenfield:<br>Greenfield | Proposed use:<br>Residential/mixed use - up to 750 homes and employment, including the Grove Northern Link Road route | Flood risk vulnerability<br>More vulnerable/less vulnerable |

## Summary of flood risk to site

## Fluvial

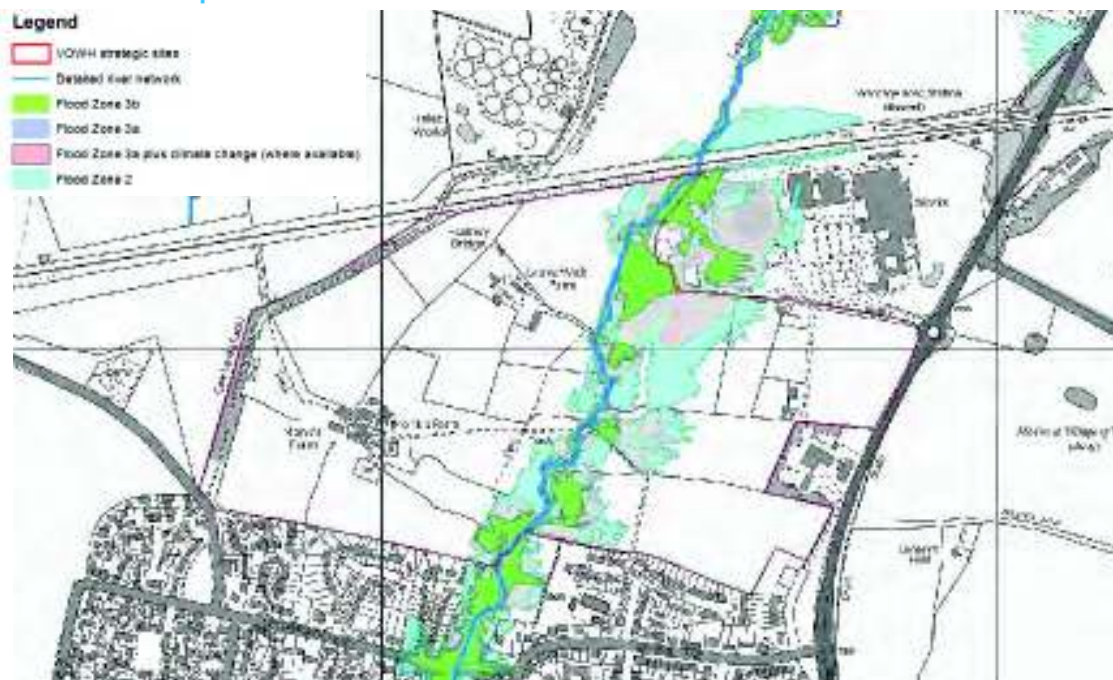
Letcombe Brook flows from south to north through the centre of the site. Flood Zone 2 is significantly more extensive than Flood Zone 3, with a width of up to 250m, mostly on the right bank side of the Brook.

Depths on the floodplain are likely to reach 0.2m for a 100 year event, 0.3m for a 100 year plus climate change event, and 0.4m for a 1000 year event.

There are no flood defences.

A number of properties were flooded in July 2007 by Letcombe Brook downstream of the site in East Hanney.

## Flood Zone map



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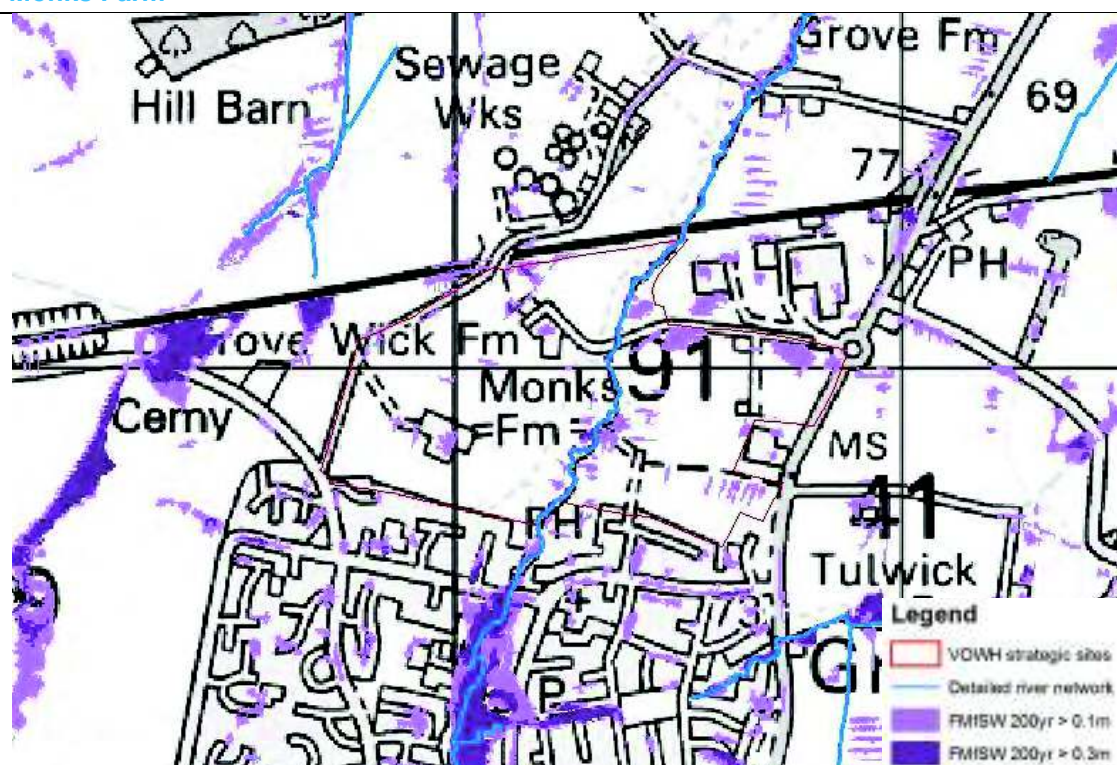
## Surface water

The FMfSW shows some small areas of potential ponding, the largest near the A338 roundabout. The VOWH Flood Database and records of 2007 flood grant claimants show multiple incidents of property flooding in the North Drive area.

### Flood Map for Surface Water (200 year)



#### Monks Farm



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#### Groundwater

The AStGWF map suggests that most of the area is in the highest category of risk of groundwater flood emergence. No historical record of groundwater flooding.

#### Sewer

No reported problems on site (this is a greenfield site). There are existing sewer flooding problems in Wantage (e.g. Manor Road) are known through Council flood investigations and newspaper reports.

The north west corner of site is close to a sewage treatment works, therefore potential for foul sewage to be drained directly to the STW. Odour may be an issue close to the STW.

#### Effects of climate change

Increased river flows will cause more frequent and more severe fluvial flooding from Letcombe Brook. The 100 year with climate change modelled outline is significantly larger in area than Flood Zone 3a.

Increased rainfall intensity in the future may exacerbate any surface water flooding problems.

#### Available survey/detailed modelling

The following detailed model has been used in the Flood Map:

- Letcombe Brook (Environment Agency, 2009)

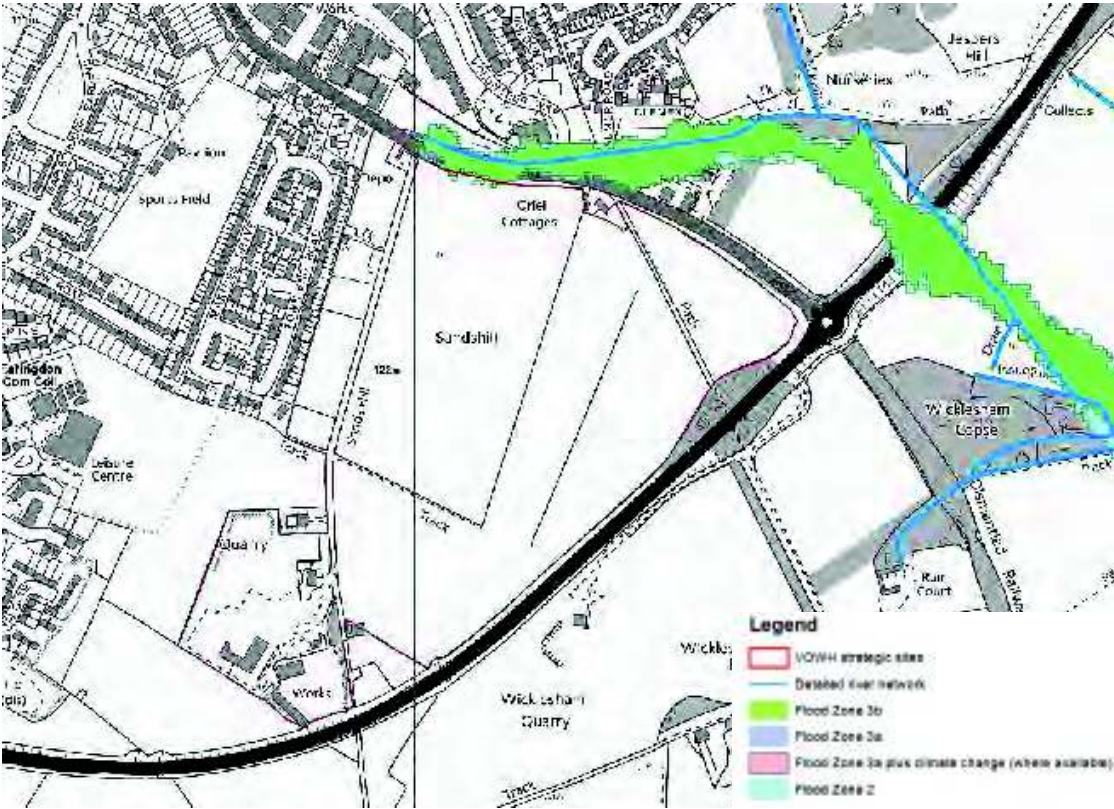
#### Implications for development

- Requires a full FRA for a site in Flood Zone 3.
- It must be demonstrated that the site will be designed sequentially ensuring all development will be outside of Flood Zone 2 with climate change.
- It must be demonstrated that safe, dry access and egress will be available during a severe flood event from both sides of the site.
- Opportunities for enhancing the amenity value of the area within the Flood Zones, although the safety of users in the event of a flood should be paramount.
- The development must not increase existing flood risk downstream. A drainage strategy should be submitted at an early stage to cover mitigation of any surface water risk and reduce impact downstream through site design and SUDS methods. Runoff less than greenfield rates is desirable.
- Thames Water should be consulted at an early stage to ensure that there will be sufficient

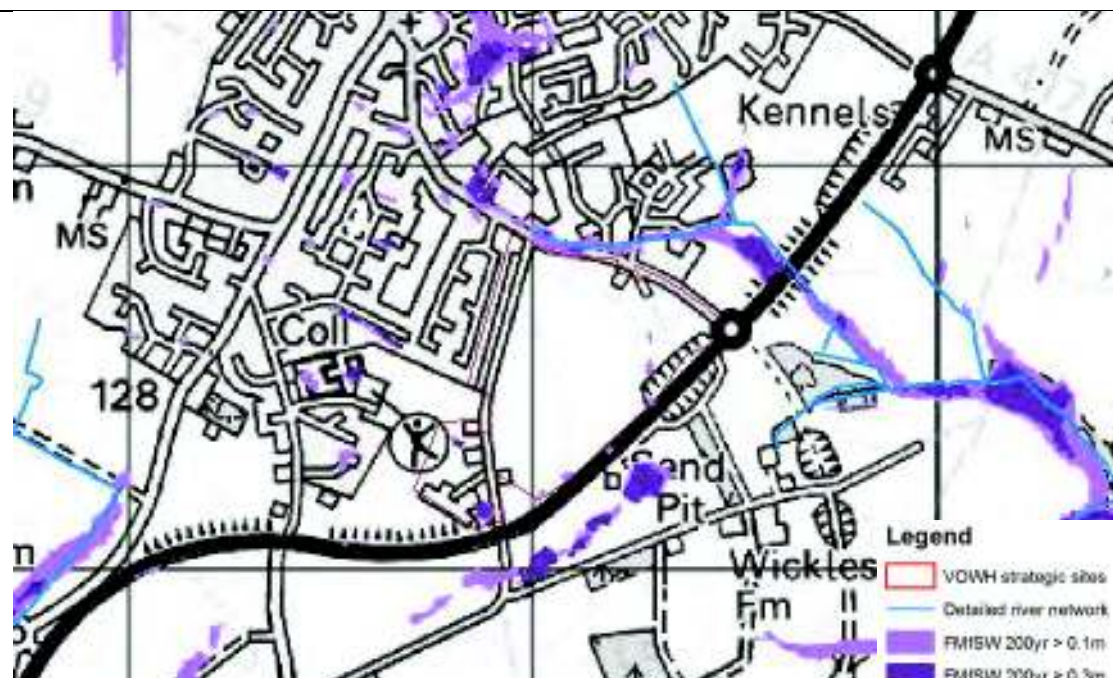
|  |
|--|
| <p><b>Monks Farm</b></p> <p>capacity in the wastewater system and any upgrades are carried out where necessary.</p> <ul style="list-style-type: none"> <li>• An assessment of the impact of foul water discharge into the Letcombe Brook from Wantage STW should be completed, with mitigation if appropriate.</li> </ul>  |
| <p><b>Implications for the Grove Northern Link Road</b></p> <ul style="list-style-type: none"> <li>• A bridge will be required across the Letcombe Brook as part of the Grove Northern Link Road project.</li> <li>• The available modelling suggests that flows through the bridge will be around 14.1 m<sup>3</sup>/s in a 100 year with climate change event, and 22.6 m<sup>3</sup>/s in a 1000 year event. The natural floodplain is relatively wide here, and there are ecological considerations for this natural chalk stream. The road is therefore likely to require a wide span bridge having least possible impact on the natural floodplain.</li> </ul> |



## B.2.4 Land at Park Road, Faringdon

| Land at Park Road  |  |   |  |
|--|--|---|--|
| <b>Area:</b><br>28 ha  | <b>Brownfield/greenfield</b><br>Greenfield | <b>Proposed use:</b><br>Residential/mixed use -<br>around 350 homes | <b>Flood risk vulnerability classification:</b><br>More vulnerable/less vulnerable |
| <b>Summary of flood risk to site</b>   |  |   |  |
| <p><b>Fluvial</b></p> <p>Flood Zone 3 and 2 are immediately adjacent to site to the north. A small watercourse on the opposite side of Park Road enters a culvert just downstream. There are no flood defences.</p> <p><b>Flood Zone map</b></p>  <p>© Crown copyright and database rights 2013 Ordnance Survey 100019525</p> |  |   |  |
| <p><b>Surface water</b></p> <p>The FMfSW shows some small areas of potential ponding. No local evidence was found to support this.</p> <p><b>Flood Map for Surface Water (200 year)</b></p>  |  |   |  |

#### Land at Park Road



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#### Groundwater

The AStGWF map suggests the area is at low risk of groundwater flood emergence. No historical record of groundwater flooding.

#### Sewer

No known problems (site is greenfield).

#### Effects of climate change

Climate change is unlikely to increase the fluvial flood extent significantly (there is little difference between the different zones).  
Increased rainfall intensity in the future may exacerbate any surface water flooding problems.

#### Available survey/detailed modelling

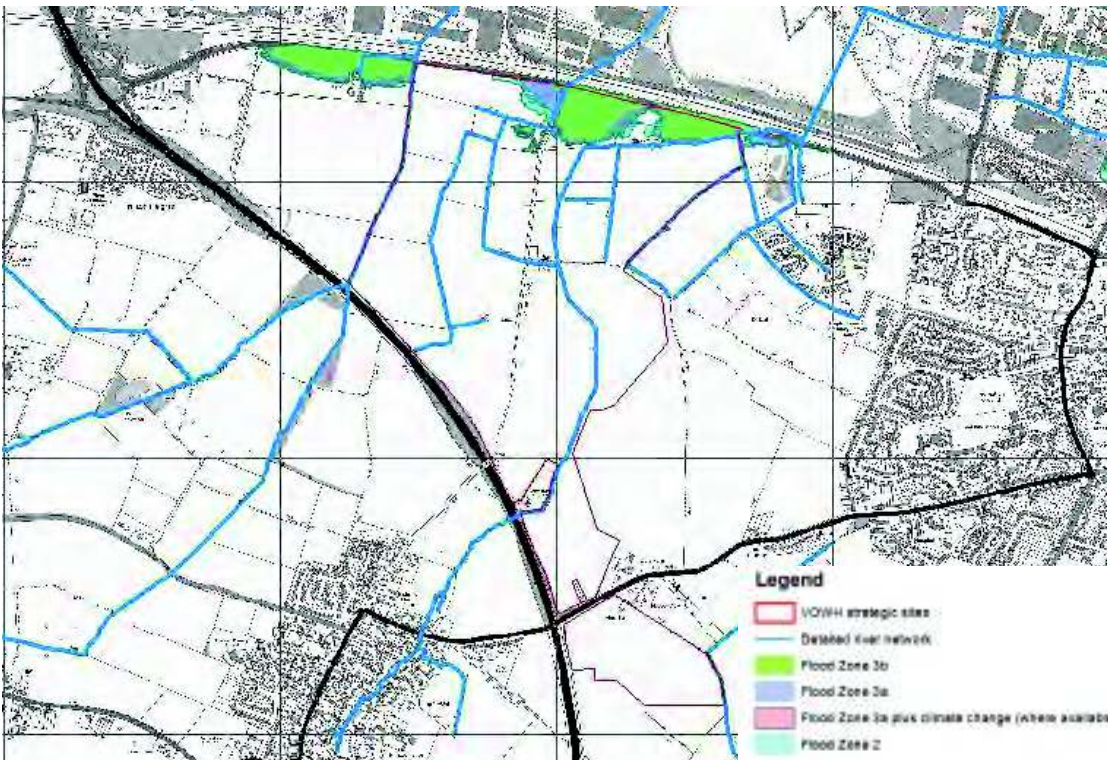
No detailed model available.

#### Implications for development

- Requires a full FRA for a site >1ha in Flood Zone 1.
- The FRA should demonstrate that the development will not be at risk from the small watercourse to the north of the site, taking into account the effects of potential blockage of the culvert, though detailed modelling if necessary.
- Drainage strategy should be submitted at an early stage to cover mitigation of any surface water risk and reduce impact downstream through site design and SUDS methods.
- Thames Water should be consulted at an early stage to ensure that there will be sufficient capacity in the wastewater system and any upgrades are carried out where necessary.

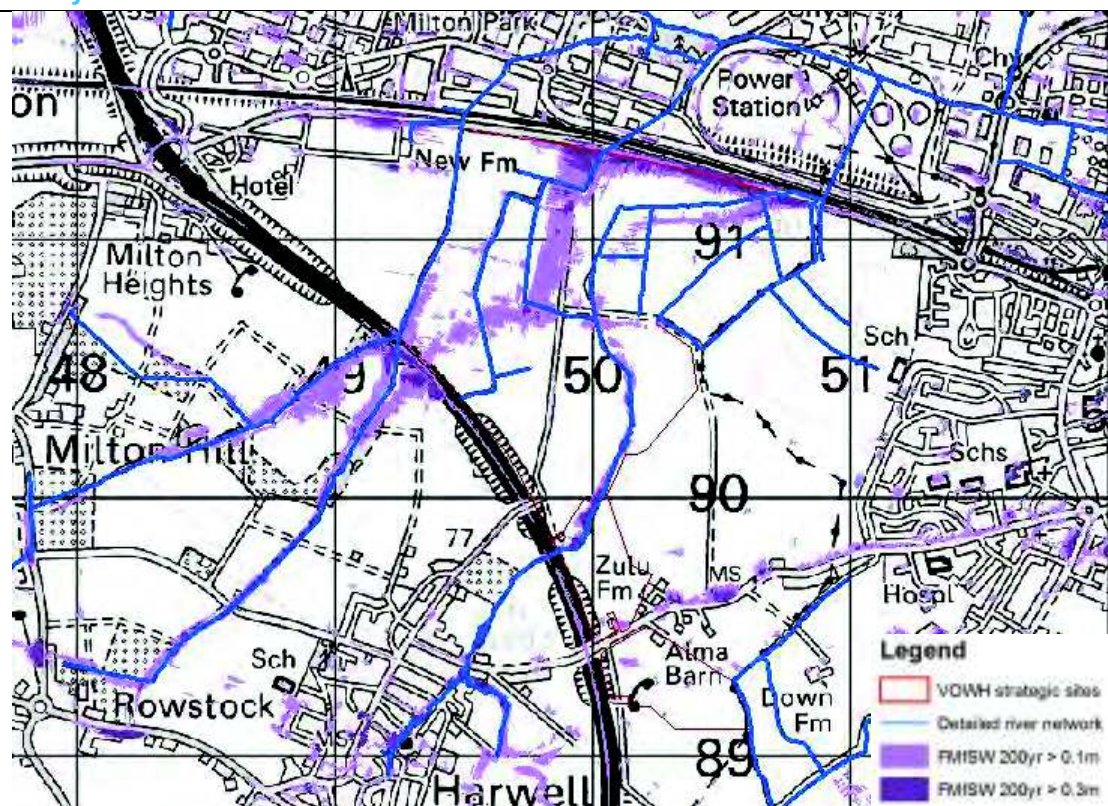


## B.2.5 Valley Park, west of Didcot, Harwell Parish

| Valley Park   |  |                                     |  |
|---|--|-------------------------------------|--|
| <b>Area:</b><br>126 ha  | <b>Brownfield/greenfield</b><br>Greenfield | <b>Proposed use:</b><br>Residential | <b>Flood risk vulnerability classification:</b><br>More vulnerable/less vulnerable |
| <b>Summary of flood risk to site</b>  |  |                                     |  |
| <p><b>Fluvial</b></p> <p>Small area to the north of the site is at risk from fluvial flooding from tributaries of Moor Ditch (Flood Zone 3b, 3a and 2). Depths in this area may reach around 0.8m in a 1 in 100 year event, but velocities are likely to be low. There are a number of minor watercourses crossing the site from south to north and entering Moor Ditch, that are not included in the Flood Zones. There are no flood defences. The watercourses enter three long culverts under Milton Road, the railway and the industrial area around Didcot Power Station.</p> <p><b>Flood Zone map</b></p>  <p>© Crown copyright and database rights 2013 Ordnance Survey 100019525</p> |  |                                     |  |
| <p><b>Surface water</b></p> <p>The FMfSW shows significant potential flow paths across site. No local historical evidence was found but presence of small watercourses supports this assessment.</p> <p><b>Flood Map for Surface Water (200 year)</b></p>   |  |                                     |  |



### Valley Park



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### Groundwater

The AStGWF map suggests the area is at medium to high risk of groundwater flood emergence, with risk increasing towards the northern part of the site. No historical record of groundwater flooding.

### Sewer

No known problems (site is greenfield).

### Effects of climate change

Climate change is unlikely to increase the fluvial flood extent significantly (there is little difference between the different zones).

Increased rainfall intensity in the future may exacerbate flooding from surface water and small watercourses.

Wetter winters may increase groundwater flood risk.

### Available survey/detailed modelling

The following detailed model has been used in the Flood Map:

- Moor Ditch (HR Wallingford, 2007)

### Implications for development

- The area at risk of fluvial flooding was initially excluded from the site but discussions with the Environment Agency concluded that it would be more beneficial to enhance the amenity value of this land as part of the development. It has been included on the understanding that the built development will all be within Flood Zone 1.
- Requires a full FRA for a site in Flood Zone 3.
- The FRA should demonstrate that the development will not be at risk from the small watercourses crossing the site, taking into account the effects of potential blockage of the culverts, though detailed modelling if necessary. The location of existing drains and watercourses should be preserved.
- FRA should include a detailed assessment of groundwater flood risk.
- It must be demonstrated that the site will be designed sequentially ensuring all development will be outside of Flood Zone 2 with climate change, and any flood risk areas or flow routes defined by modelling of small watercourses and groundwater investigation.