

## ENVIRONMENT

Richborough Estates Ltd.  
Land West of Dickens Heath  
Preliminary Flood Risk Technical Note

December 2020

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## 1. INTRODUCTION

- 1.1 This Preliminary Flood Risk Technical Note has been prepared on behalf of Richborough Estates in response to the indicative flood risk review undertaken by Solihull MBC (SMBC) on proposed Local Plan allocation sites.
- 1.2 The SMBC review suggests that the site “is particularly sensitive to flood risk with a large number of historic incidents occurring within the site and adjacent areas”. **Figure 1** below accompanies this assessment and indicates an area of ‘Flood Risk Extents’.
- 1.3 Consultation with the Lead Local Flood Authority (LLFA) at SMBC has confirmed that the image in Figure 1 was originally intended for internal purposes only, as a crude means to flag sites that required more assessment as part of the Level 2 Strategic Flood Risk Assessment (SFRA), and in no way constituted a detailed assessment of flood risk.
- 1.4 This note explores all other available information on flood risk and concludes that, while flood risk will remain an important consideration for the development, the extents shown in Figure 1 do not reflect site conditions and, if used, would unnecessarily place a constraint on housing capacity for the site. This relates specifically, but not exclusively, to the field parcels under label ‘1’ in the image below.

### Site 4: West of Dickens Heath

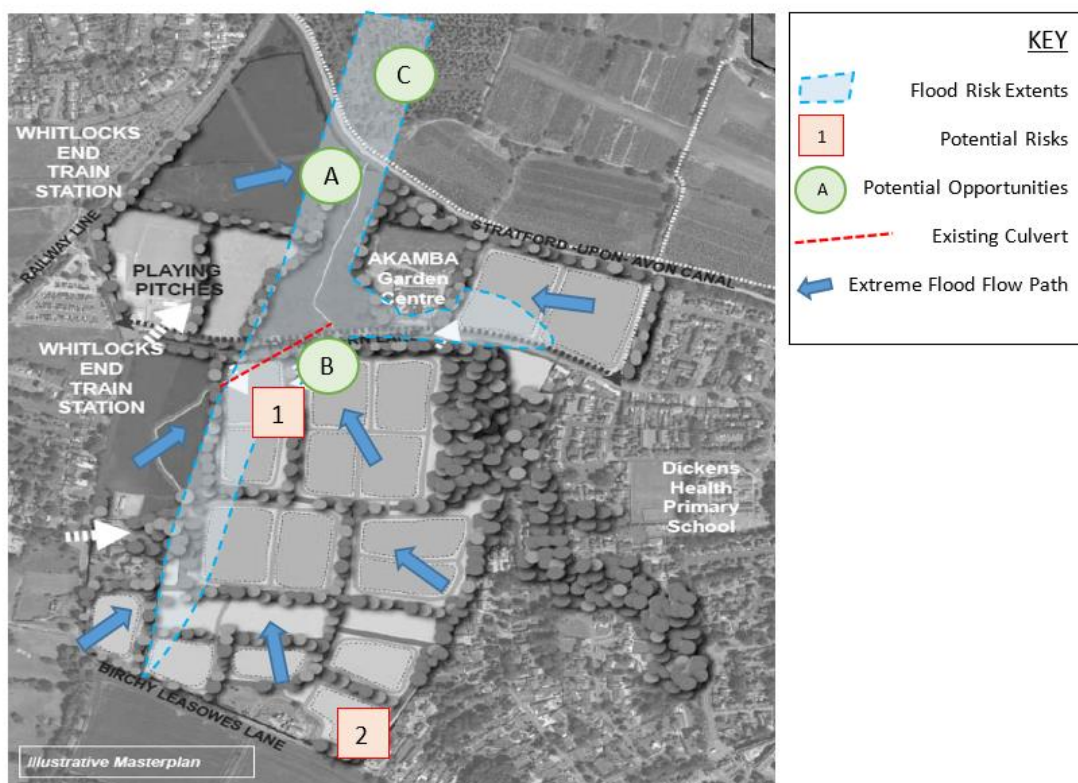


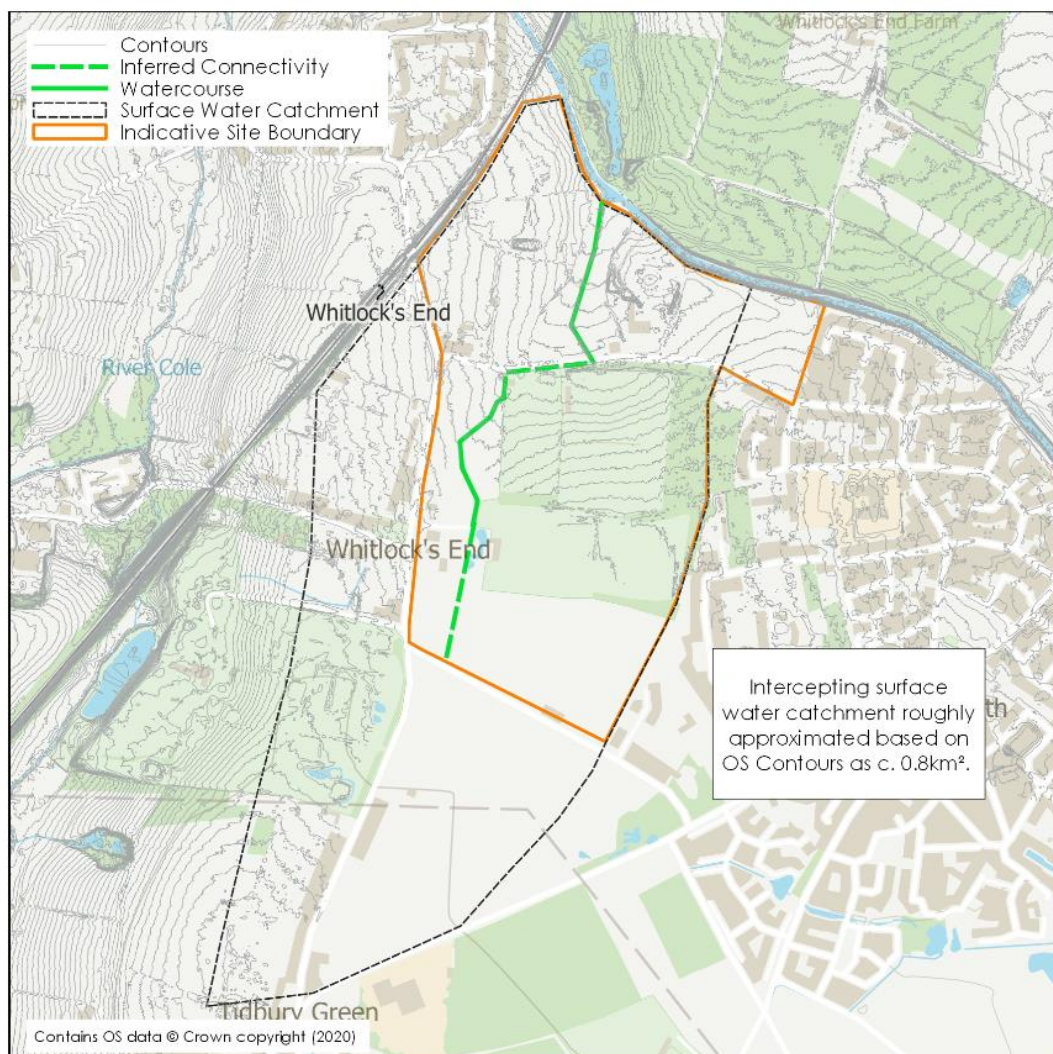
Figure 1 (above) – Flood Risk Constraints Map from Emerging Level 2 SFRA

- 1.5 This note also draws on outputs from the Level 2 SFRA, which supersedes the original high-level assessment summarised in Figure 1 and represents the current best available information.

## 2. TECHNICAL RESPONSES

### Contributing Catchment

- 2.1 The proposed development site is near the head of the catchment with only a relatively small contributing area of c. 0.8km<sup>2</sup> to the downstream most extent of the site – see **Figure 2** below for approximate catchment area. The contributing catchment to the upstream most extent of the site, at Birchy Leasowes Lane, is approx. 0.3km<sup>2</sup>. This is estimated and does not account for the ditches along Birchy Leasowes Lane and Tilehouse Lane, which may further reduce the contributing catchment.



**Figure 2 (above) – Estimate of Contributing Catchment Area (to downstream site extent)**



- 2.2 As the figure above shows the site itself forms a significant proportion of the wider catchment area. Any development will be progressed in line with national and local planning policy with respect flood risk and water management. As such the site itself will be designed to a high standard (100-year plus an allowance for climate change), which will substantially attenuate and control flows from the site.
- 2.3 A review of sewer records confirms the presence of a surface water sewer within Tilehouse Lane, which serves the small residential area to the north of Tidbury Green. This shows that an element of contributing area is directed away from the head of the ditch; however, the surface water sewer may outfall into the ditch along the eastern edge of Tilehouse Lane near to the junction with Tythe Barn Lane, but it doesn't appear to enter the on-site ditches south of Tythe Barn Lane, where the majority of proposed development may be situated,
- 2.4 The Client has commissioned some topographical survey of the highway extent to the south of the site, along Birchy Leasowes Lane. This has confirmed that a proportion of this highway drains toward the site and has been allowed for in the above area. It should be noted that there also appears to be a culvert/ pipe under the highway near the head of the on-site ditch system (see **Figure 3** below). This pipe appears to serve the highway ditches but was heavily silted at the time of site visit. If there is reported flood extents to Birchy Leasowes Lane and/or localised flooding of the southern section of the site, then this may be a contributory factor.

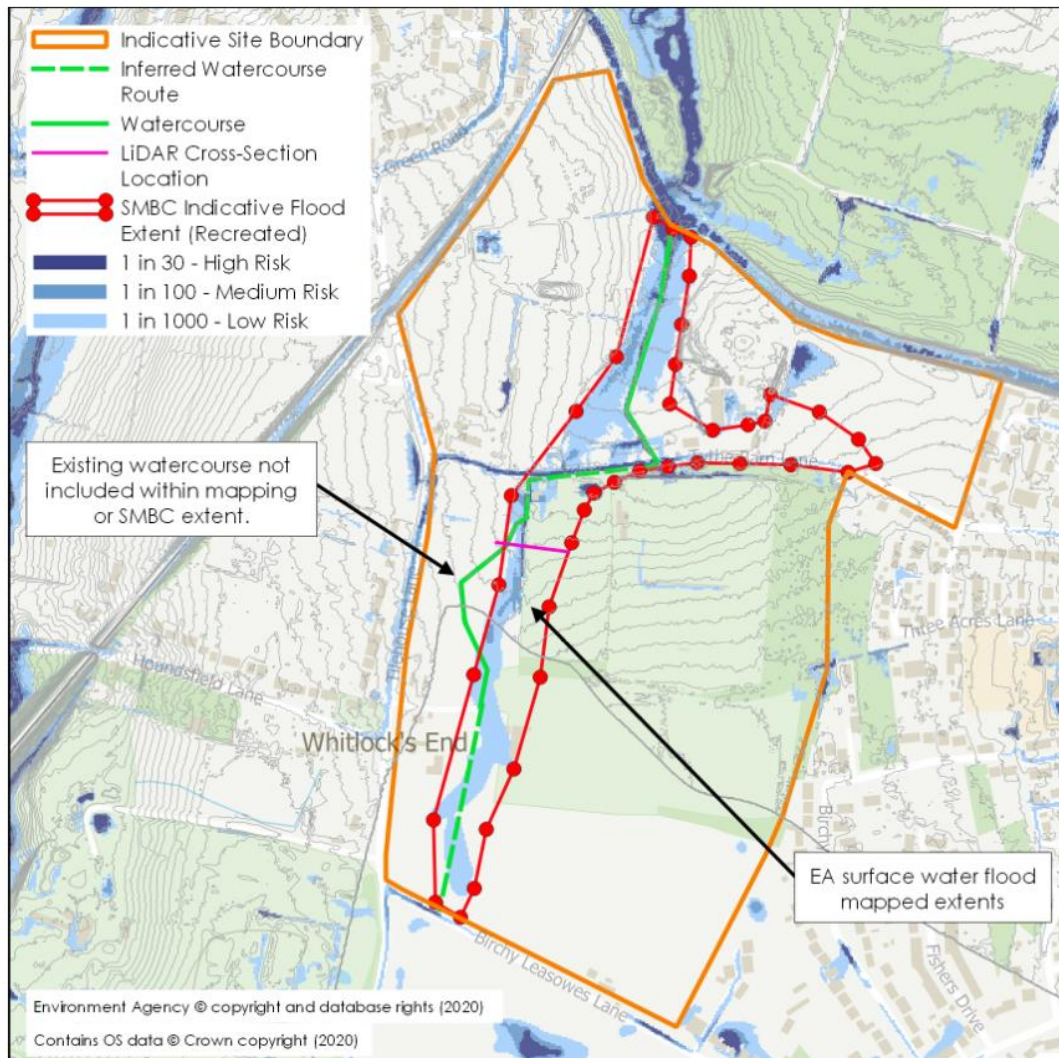


**Figure 3 (above) – Potential pipe/ culvert on Birchy Leasowes Lane**

### **Derivation of Flood Extents**

- 2.5 The flood extents shown in the SMBC document were derived from a coarse representation of the surface water flood maps. **Figure 4** below shows how by broadly drawing around the edge of the extreme 'Low Risk' mapping extent.
- 2.6 It is also evident that the surface water mapping does not accurately reflect the watercourse system and alignment on the ground. It is clear on the OS mapping, and highlighted by use of the green line in **Figure 4**, that there is a leg of the watercourse

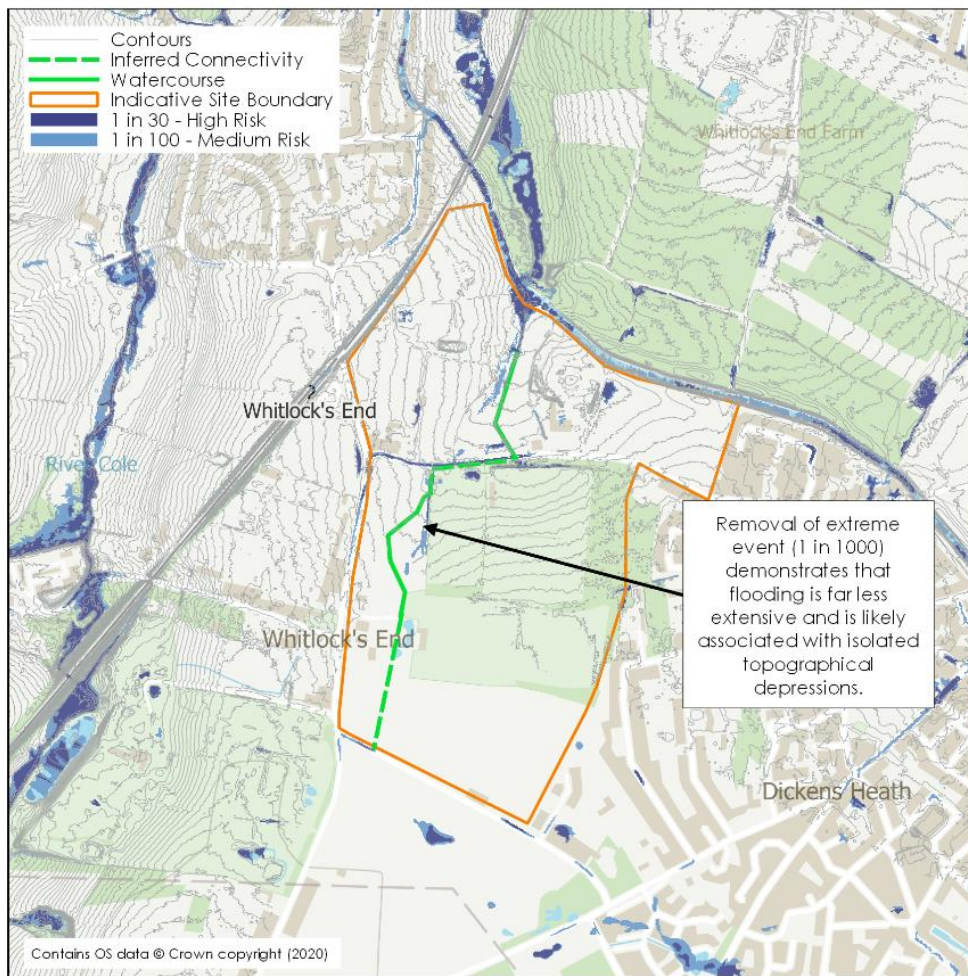
system within the north-western most field parcel (in the land south of Tythe Barn Lane and immediately east of Tilehouse Lane) that is not accounted for in the surface water flood mapping.



**Figure 4 (above) – Example of the LPA Flood Risk Area were broadly derived**

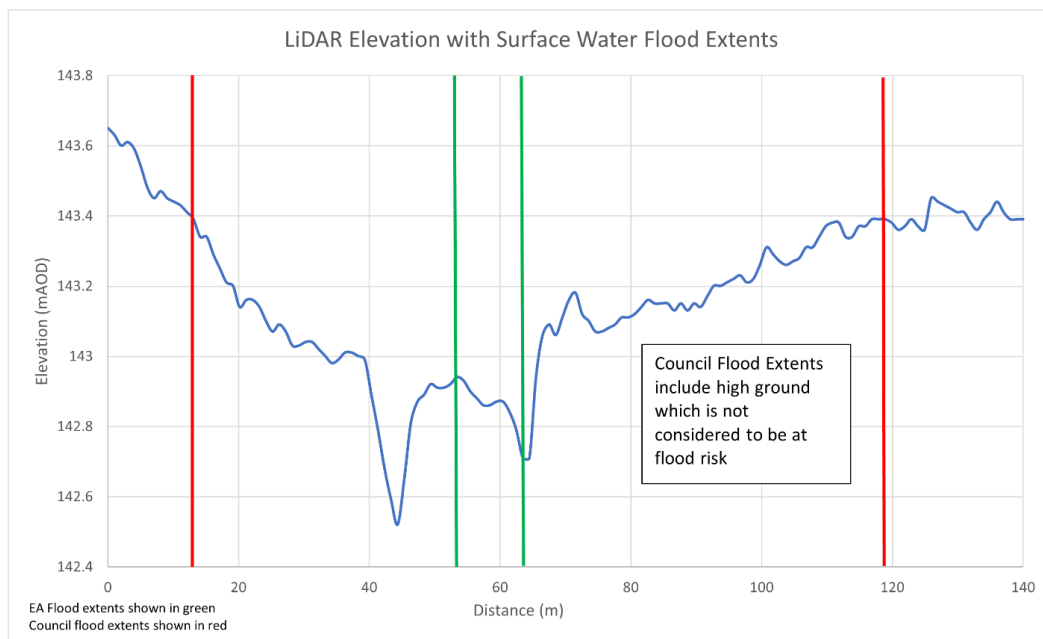
2.7 It should be noted that most of the risk shown represents the 'Low Risk' (1000-year equivalent) surface water flood risk area. When this layer is removed the flood risk to the site represented by medium and high-risk mapping is negligible (see **Figure 5** below). While this is not an accurate representation of flood risk it provides an indication of likely flood extents and suggests that, in line with the limited catchment area, the flood risk to site is likely to be limited.





**Figure 5 – Medium and High Risk Surface Water Flood Extents at the Site**

- 2.8 Use of Lidar supports site observations of two legs of the ditch/ watercourse system south of Tythe Barn Lane. One through the middle of the field parcel, as explained above, and a separate ditch system within the field boundary – generally in line with the predicted SW mapping route. This is picked up in **Figure 6** below.
- 2.9 The cross-section shows the presence of two legs of the ditch/watercourse system. More importantly it shows the low-lying land that would be most vulnerable to any out of bank flooding to be between the two legs i.e. within the western field parcel and **not** within the eastern field parcel that the previous SMBC mapping suggested.



**Figure 6 – Section through Watercourse and field ditch (drawn west to east at the point indicated in Figure 4 above)**

### **Lead Local Flood Authority (LLFA) Consultations**

- 2.10 Consultation with the LLFA has confirmed that the flood risk mapping published by SMBC was for internal use only and was not meant for external publication. The document was meant as a tool to discuss sites that would require further scrutiny within the Level 2 SFRA and in more detailed site-specific Flood Risk Assessments (FRA) at a later stage. The extent of flood risk was drafted in the manner surmised above i.e. as a crude representation only and not based on any detailed assessment at the point of production.
- 2.11 The LLFA have also confirmed that the Level 2 SFRA outputs, coupled with surface water mapping for the upper reaches of the ditch network immediate downstream of Birchy Leasowes Lane form the best available representation.
- 2.12 Alongside a dedicated FRA for the site, the Client has agreed with the LLFA to undertake further checks to determine the overall betterment that the development will have on the surrounding network.
- 2.13 The Client has further agreed to engage early with the LLFA, and throughout the preparation of more detailed development proposals, with respect surface water drainage on the scheme and specifically the implementation of Sustainable Drainage Systems (SuDS). The LLFA has confirmed the desire for developments to minimise below ground piped systems and instead encourage a broader range of above ground features, including roadside SuDS systems. The LLFA has also indicated that, subject to suitable details and agreement on long term maintenance contributions (commuted sums), they would be prepared to adopt SuDS features across the site.

## **Level 2 Strategic Flood Risk Assessment (SFRA)**

- 2.14 Following recommendations made by the LLFA, JBA Consulting (JBA) undertook a more detailed hydraulic modelling assessment of a number of locations across the SMBC area, including for 'Site 4' land west of Dickens Heath. A Technical Note dated July 2020 (JBA Ref:-2020s0744 entitled '*Solihull Site 4 – ESTRY-TUFLOW model build*') is now published on SMBC's website.
- 2.15 The study extent for the Ordinary Watercourse (non-Main River) that runs through Site 4 included the majority of the site starting 430m upstream of Tythe Barn Lane and extending to its confluence with the River Cole.
- 2.16 Figure 4-1 of the JBA Technical Note is further provided below (as **Figure 7** of this report) and shows the 'undefended case (present day) flood extents for the 5%, 1% and 0.1% AEP events'. The mapped flood extents show how limited flood risk is anticipated to be at the site.



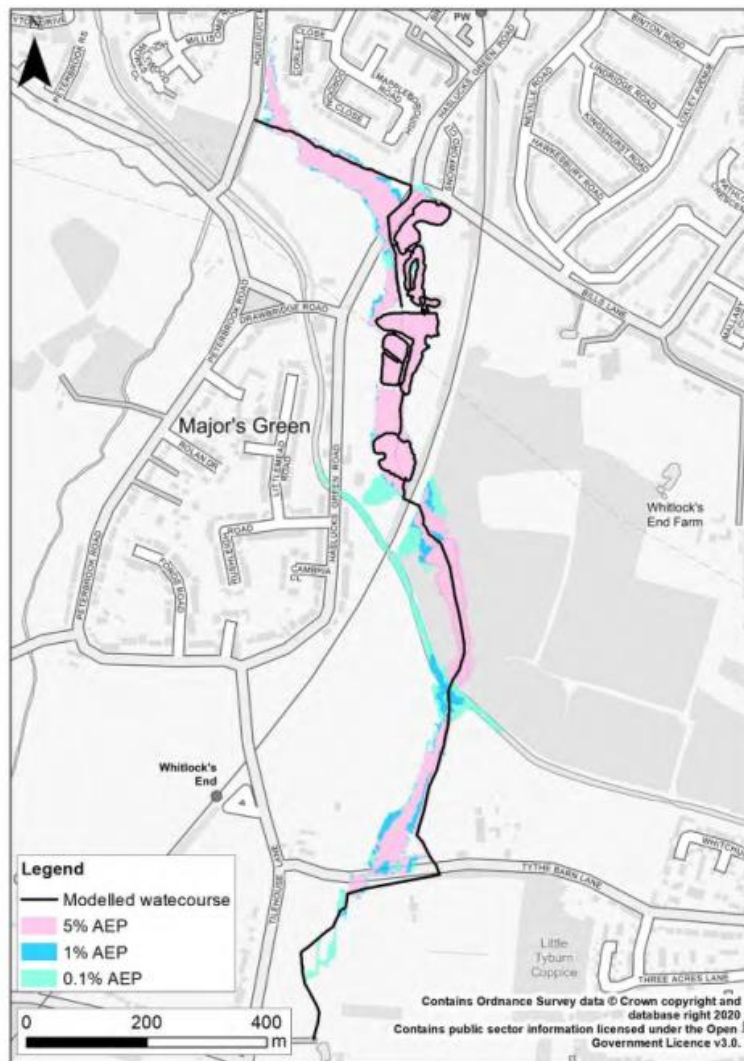


Figure 4-1: Undefended case (present day) flood extents for the 5%, 1%, and 0.1% AEP events



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Figure 7 (above) – Exert from JBA Level 2 SFRA Modelling Technical Note for Site 4

### **Known Flooding Problems in Locality**

- 2.17 In consultations with the LLFA, there are known flooding problems in the locality – specifically around the AKAMBA garden centre and adjacent residential property.
- 2.18 It is anticipated that the historical flood risk is a result of a combination of direct rainfall runoff, highway drainage and residual risk associated with the culverted section of watercourse through part of the site and under Tythe Barn Lane.
- 2.19 The proposed development of Site 4 provides an opportunity to explore and help reduce this existing flood risk mechanism by reducing the extent of culverted watercourse and/or improving the system. The LLFA and promotor of Site 4 agreed in recent consultations that such mechanisms would be explored further in any more detailed site-specific FRA and that works to improve the system would form part of any development proposal, as far as is practicable and within control of the promotor and LLFA to deliver.

## **3. SUMMARY & RECOMMENDATIONS**

- 3.1 This Preliminary Flood Risk Technical Note has been prepared to explore the validity of a plan showing flood risk areas that was published on SMBC website with respect to proposed site allocations for housing.
- 3.2 The LLFA has confirmed that the document published was the output from a high-level assessment of flood risk only, provided to prompt specific further investigations within the Level 2 SFRA. The outputs were not intended for publication and have been agreed to not accurately reflect flood risk at the site.
- 3.3 The actual flood risk at the site is significantly less and the Level 2 SFRA modelling undertaken and published in July 2020 shows this to be the case. As a result, a significant amount of additional land has been confirmed as suitable for housing from a flood risk point of view.
- 3.4 The presence of the culvert under Tythe Barn Lane will require further, more detailed assessment. However, such assessment of site-specific flood risk will be undertaken as part of the production of a FRA for any subsequent planning application and in consultation with the LLFA. Opportunities to reduce flood risk locally will be explored as part of any detailed FRA and planning application.
- 3.5 It is the conclusion of this preliminary flood risk that the site is not at any significant flood risk. The system and flood risk will be explored in further detail and exact flood extents defined, but it is considered unlikely that flood risk will have a significant constraint on development extents.
- 3.6 Opportunities to reduce downstream flood risk will also be explored in line with NPPF and local policy objectives. Given the location of the site near the head of the catchment such opportunities are considered unlikely to be significant, but the development of the site itself – and associated restriction of runoff rates and formal introduction of

attenuation storage – is likely to reduce the responsiveness of the site and help reduce downstream flood risk.

- 3.7 The promotor of Site 4 (the Client) and the LLFA have met to discuss flood risk and drainage matters and committed to work in close consultation to maximise the benefits the site can offer in terms of reduced flood risk locally and the provision of high quality drainage proposals in the preparation of any subsequent FRA and planning application.