Project Number
17246

Title: Topic Note#02 – Flood Risk

Date: 26/03/2018

## 1.0 Introduction

1.1 The site at Land South of Northampton Road, Bromham which is located is located approximately 1.3 km (as the crow flies) west of the centre of the village of Bromham, comprises two fields, the larger of the two fields has been used for the growing of crops while the smaller is grassland.

1.2 The site topography is generally gently undulating, the survey shows that there is a steep and steady fall in gradient across the site, from the north-west to the south-east corner of the site, with a total difference in levels of approximately 19m.

1.3 There is also a steeper drop in levels to a low point in the north western corner. The A428 sits approximately 4-5m below site level to the west, with an earth bank leading from the site boundary down to the A road.

## 2.0 Baseline Conditions

2.1 The proposed site is identified as lying outside of the fluvial and tidal flood risk zone according to the Environment Agency (EA). This estimate of the extent of flooding is based on the absence or failure of all existing flood defences currently protecting the site.

2.2 The EA indicates that the site lies in Flood Zone 1, which corresponds to 'Low Probability' for flooding as per Table 1 of the National Planning Policy Framework (NPPF).

2.3 This zone has less than a 1 in 1000-year annual probability of flooding and the NPPF states that all types of development are suitable for this flood zone.

2.4 Considering surface water flooding, according to the EA, the majority of the proposed site is identified as an area at very low risk of surface water flooding. Within the proposed site there are two small sections of the site identified as low risk, on the southern boundary and in the far north-western corner of the site.

2.5 However, there are no records of overland flooding affecting the proposed site. Based on this and the fact that only a small portion of the site is identified as 'low risk', the proposed site is not considered to be at risk from overland flooding.

2.6 The proposed site is not currently positively drained, however, there is existing Anglian Water sewer network located within the nearby vicinity of the site which serves the surrounding residential areas.

2.7 Due to the existing levels of the surrounding area, any flows from the exceedance of sewers in the area would not impact upon the proposed site, thus the risk to the site from flooding from sewers is low.

2.8 Due to the existing geology underlying the site there is the potential for shallow groundwater on the site. There are however no historic records of groundwater flooding on the site or in the surrounding area and the Bedford Borough Council Level 1 SFRA Report shows that the proposed site is located in an area of low susceptibility to groundwater flooding (<25%). Therefore, it is not considered that flooding from groundwater sources poses a significant risk to the proposed site.

2.9 There are no artificial bodies of water located within or near the proposed site hence there is no associated risk of flooding to the site.

## 3.0 Key Opportunities and Constraints

3.1 A new foul water drainage network will be required to support any development and would collect and convey water to the existing Anglian Water network nearby, but this connection point is above the level of the site and Anglian Water have stated that the existing network does not currently have sufficient capacity to accommodate the foul water associated with the site.

3.2 Considering surface water drainage, given the underlying geology, it is considered that an infiltration solution is less likely to be feasible and that an attenuation and discharge to a local water course solution is considered likely to be the most appropriate solution to serve the site.

3.3 The site is not at risk of tidal or fluvial flooding and it is considered that the development proposals do not increase the flood risk to the site or the surrounding area from tidal or fluvial sources.

3.4 Similarly, the site is not at risk from overland or surface water flooding and the site will incorporate measures/infrastructure to accommodate surface water run-off and thus it is considered that the proposed developments will not increase the flood risk of the site.

3.5 There are no records of ground water flooding from the site and local assessments show that the area surrounding the site is at low susceptibility to ground water flooding. The proposed development is not expected to affect the ground water table and hence the risks of groundwater flooding are not expected to increase.

3.6 There is no flood risk to the site from artificial sources. The development proposals do not impact the risk posed to the site or the surrounding area.

## 4.0 Necessary Mitigation and Enhancements

4.1 As set out earlier Anglian Water have indicated that their existing foul water network does not have capacity to accommodate the site and that the proposed point of connection is above the level of the site.

4.2 Therefore, to serve the site a pumping station will be required to enable foul water to connect into the existing network. However, this would not address capacity constraint issue on the existing foul water network and the developer is currently in discussions with Anglian Water to determine the extent of mitigation and reinforcement required to enable the network to accommodate the proposed developments.

4.3 In terms of surface water, subject to the findings of infiltration testing, the likely preferred solution to accommodate surface water will be to attenuate water onsite and discharge this to a local water course – this will be designed to accommodate the surface water run-off generated by the proposed developments.

4.4 The exact configuration of the attenuation feature would be influenced by other sustainable drainage features that could be employed, for example permeable paving, and this will be informed through further site investigation.

## 5.0 Summary

5.1 The overall risk to the site from various forms of flooding is generally low and the risks would not be increased by virtue of the proposed development. Some mitigation and reinforcement of the network would be required to accommodate foul water drainage, however the extent to which mitigation is require is currently being investigated with Anglian Water.

5.2 Therefore, development at Land South of Northampton Road would be acceptable from a flood risk perspective.