



## ODYSSEY MARKIDES

### TECHNICAL NOTE

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**PROJECT** : **CHAILEY HOUSE, BLEWBURY**

**JOB NO.** : **14-216**

**NOTE TITLE** : **PRELIMINARY FLOODING AND DRAIANGE**

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**DATE** : **02/09/2014**

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#### **1.0 INTRODUCTION**

- 1.1 Odyssey Markides have been commissioned by Fluid Architecture to investigate the flood risk of and prepare drainage strategies for the proposed development site at the land west of Bessel's Way, on the northern boundary of Blewbury.
- 1.2 This technical note provides a preliminary investigation into the Flood Risk and provides outline drainage strategies.
- 1.3 A preliminary opinion has been sought from the Environment Agency, their response can be found attached.

#### **2.0 FLOOD RISK**

- 2.1 Environment Agency (EA) online mapping shows that the site is wholly within Flood Zone 1, defined in the National Planning Policy Framework (NPPF) as having less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).
- 2.2 The EA online mapping indicates some surface water flooding within the site. The surface water flooding issue will be examined and alleviated as part of the drainage strategy which may include an open waterway to connect the ditch adjacent to Bessel's Way with the existing open water course to the northwest of the site.

- 2.3 The South Oxford District Council and Vale of White Horse District Council Strategic Flood Risk Assessment (SFRA) shows a 50%-75% risk of ground water emergence in the vicinity of the site. This will require further investigation to determine the actual ground water level. The method of determining the groundwater level is to be agreed with the EA and/or Oxfordshire County Council (the Lead local Flood Authority) but may include installation of groundwater monitoring boreholes. If it is found that ground water is close to the surface, the site will need to be protected by a series of cut off drains or similar.
- 2.4 The high ground water level may be due to a perched water table. This would be investigated and confirmed during the site investigation.
- 2.5 If the ground water level is found to be near the surface, protective measures may need to be implemented for building foundations and buried services.
- 2.6 The risk of flooding from all other sources (sewers and manmade water features) is expected to be low. A full Flood Risk Assessment (FRA) will be required as the site is over 1 ha.

### **3.0 SURFACE WATER DRAINAGE**

- 3.1 The British Geological Survey online viewer shows the site to be located on chalky soil which should provide good infiltration, therefore it should be possible to discharge all runoff via permeable paving and soakaways. Public Open Space may be utilised for infiltration ponds. This is dependent on the soakage rate and groundwater levels which will require further investigation as described above.
- 3.2 If the soakage rates are low we will need to collect water in a piped network and either drain to the waterway north of the site or to an existing sewer. Records of the existing drainage networks (if any) and a topographical survey will be required to determine the outfall location.
- 3.3 If the soakage rates are suitable, but the ground water levels are high, measures may be required to mitigate the risk of flooding and to allow shallow infiltration devices, such as permeable paving. These measures may include cutoff drains and subsoil soil drainage designed to prevent groundwater rising above 1-1.5m below the surface level. These devices may require an overflow to discharge to existing open drains or sewers. Implementing this strategy would also have added benefit of protecting building foundations, sewers and other buried services from groundwater. The above methods will need approval from the EA and possibly Oxfordshire County Council.
- 3.4 If infiltration is not possible and discharge to the existing watercourse or sewer is required, we will need to limit the flow rate to Greenfield Rates. This will require on site attenuation (e.g. tanks or oversized pipes).
- 3.5 If discharge is to the existing open watercourse to the north west of the site, the developer may need permission to discharge and/or permission to cross any third party land.
- 3.6 Records of the existing surface water sewers in the vicinity of the site are currently awaited. If discharge is to be to an existing surface water sewer, Thames Water will be contacted to confirm the capacity of the sewer and any upgrade works required. Connection to the existing sewer will require a Section 106 application under the Water Industry Act.

3.7 Thames Water are unlikely to adopt a drainage system containing Sustainable Drainage Systems (SuDS); however the Council may adopt the network under an interim agreement prior to DEFRA introduction of the SuDS Approval Body (SAB) under the Floods and Water Management Act.

#### **4.0 Foul Water Drainage**

4.1 Information gathered from the Vale of White Horse's planning website shows that there is an existing foul sewer located in Birdus Way, south of the site.

4.2 Contours shown on the EA online mapping indicates the site to be at a lower elevation than Birdus Way. Therefore, it is likely that a pump station would be required to drain foul water from the site which would discharge into the existing sewer in Birdus Way. Thames Water will be contacted to determine whether any upgrade work would be required to the existing network to allow for the additional flow.

#### **5.0 Conclusions**

5.1 Despite the preliminary nature of this work, it is possible to say that there will be minimal flood risk associated with the proposed development on this site. Subject to further technical work, it is expected that a suitable drainage strategy can be developed and implemented for this site which will minimise flood risk to the site and third parties downstream.

5.2 Where feasible, sustainable drainage devices will be included within the drainage strategy to help minimise the effects of increased runoff volumes and flow rates and to maintain or improve the bio-diversity and aesthetics of the development.

Mr Steven Rooth  
Odyssey  
Elizabeth House  
(39) York Road  
London  
SE1 7NQ

**Our ref:** WA/2014/118534/01-L01

**Date:** 27 August 2014

Dear Mr Rooth

**Pre application enquiry proposed residential development for 200 dwellings including roads and infrastructure.  
Land West Of Bessels Way, Blewbury.**

Thank you for your email dated 14 August 2014 regarding the above site.

Your email includes:

- Drawing number FSW14-1152-50-SK, Site Location Plan, dated 03/2014, produced by Fluid
- A pre-application enquiry form

Please note that from January 2014 the Environment Agency have started charging for the advice we provide on planning enquiries.

Our comments below are a 'preliminary opinion' for the proposed development. This is an initial response which falls outside the charging service. Any further advice other than the information contained within this letter will be chargeable.

### **Surface Water Flood Risk**

The proposed development is located in Flood Zone 1 (low probability) based on our Flood Zone map. Whilst development may be appropriate in Flood Zone 1, paragraph 103 (footnote 20) of National Planning Policy Framework (NPPF) sets out a Flood Risk Assessment should be submitted for all developments over one hectare in size.

As a part of a planning application you should therefore prepare a surface water drainage strategy for the site and include this within the Flood Risk Assessment (FRA).

Environment Agency  
Red Kite House Howbery Park, Wallingford, Oxfordshire, OX10 8BD.  
Customer services line: 03708 506 506  
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

Cont/d..

We are operating a risk based approach to planning consultations where the site falls between 1 and 5 hectares and are not providing detailed comments on surface water.

**However this site falls above this threshold as it is more than 5 hectares in size. Therefore we would be able to provide you with bespoke pre-application comments on your flood risk assessment. However this would be charged for at a rate of £84 per hour.**

The following link directs you to guidance for FRAs in Flood Zone 1 over 1 hectare on the Gov.UK website.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/311502/LIT\\_9193.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/311502/LIT_9193.pdf)

I will also send you our surface water flood risk proforma guidance which we send as guidance for applicants and local planning authorities for sites between 1-5 hectares in size. These documents should also help you to produce your FRA.

### **Further Information**

#### **Nature Conservation**

There will need to be at least an 8 metre ecological buffer zone maintained for the Mill Brook main river from the top of the riverbank. This shall be free from development including fences and walls. Development that encroaches on watercourses has a potentially severe impact on their ecological value. Land alongside watercourses is particularly valuable for wildlife and it is essential this is protected.

#### **Flood Defence Consent**

Under the terms of the Water Resources Act 1991 and the Land Drainage Byelaws 1981, the prior written consent of the Environment Agency is required for any proposed works or structures in, under, over or within 8 metres of the brink of the Mill Brook main river.

Please contact West Thames consents for further information.

[westthamesconsents@environment-agency.gov.uk](mailto:westthamesconsents@environment-agency.gov.uk)

Yours sincerely

**Ms Michelle Kidd  
Planning Advisor**

Direct dial 01491 828455

Direct e-mail [planning-wallington@environment-agency.gov.uk](mailto:planning-wallington@environment-agency.gov.uk)