

DANE/11.1 Surface Water Drainage and Flood Risk – Summary

**Town and Country Planning Act 1990
(As Amended)**

APPEAL BY DANETREE VILLAGE CONSORTIUM

DAVENTRY: DANETREE – SUSTAINABLE URBAN EXTENSION.

Appeal References: APP/M9570/A/08/2071505 & APP/Y2810/A/08/2071504

**SUMMARY
REBUTTAL PROOF OF EVIDENCE BY**

Ruth Goodall, Capita Symonds Ltd.

**PREPARED IN RESPONSE TO RHIANNON SWINDALE (ENVIRONMENT
AGENCY) PROOF OF EVIDENCE ON SURFACE WATER DRAINAGE AND
FLOOD RISK**

18th February 2009

1. Introduction

- 1.1. Capita Symonds have been retained by Danetree Village Consortium (“DVC”) to provide flood risk and surface water drainage advice since 2005.
- 1.2. My evidence, prepared in response to the Proof of Evidence (“POE”) submitted by Ms Rhiannon Swindale of the Environment Agency (“EA”) dated January 2009, sets out:
 - the extensive consultations that have been undertaken with the EA to date; and
 - my specific response to the remaining points of objection in Ms Swindales POE.
- 1.3. Throughout my Proof of Evidence I refer to correspondence and consultations with the EA and supporting documents, copies of which are produced in Appendix 2 of my proof.

2. Surface Water Drainage

- 2.1 In Ms Swindale’s POE and in subsequent correspondence, the EA have maintained an objection to the proposed development on the grounds that there is insufficient information to form a surface water drainage strategy.
- 2.2 Whilst both the Appellant and the EA agree that, it would not be appropriate to provide a detailed drainage design for the site at this stage, Ms Swindale’s Proof of Evidence (Paragraphs 15 to 18) indicates that in the EA’s opinion a number of issues in relation to

the proposed surface water drainage strategy remain outstanding. For each point my proof summarises the EA point of objection, as outlined in Ms Swindale's POE, and my professional opinion and evidence in relation to each.

Climate change was not included in the calculations in line with PPS25, (Para 12 EA Proof of Evidence).

- 2.3 Paragraph 1.14.2 of the October 2008 FRA states that a 30% increase in rainfall depth has been allowed to account for climate change. This allowance of 30% was agreed with the EA at the meeting of the 24th July 2008, (Appendix 2, Page 51). Para 1.21.2 also clearly states that climate change effects have been included in the assessment and Tables 4 and 5 and the final set of tables in Annex 1 set out the calculations and clearly include a 30% increase in rainfall depth as an allowance for climate change.

There was insufficient detail with regard to the location and nature of the SuDS features, (Para 12 EA Proof of Evidence).

- 2.4 This is an outline application and at the current time there is insufficient detail available in relation to the exact location of buildings, open space and infrastructure to allow the location of each SuDS feature to be identified.
- 2.5 The volume of attenuation to be provided within each of the identified sub-catchments has been provided as has a specific discharge rate from each catchment based on conservative assumptions. Technical information was provided to the EA on the 26th January 2009, (Appendix 2, Page 7) to demonstrate the availability of suitable land within each of the sub-catchments to deliver an appropriately sized attenuation pond.

2.6 In my professional opinion the information submitted to the EA to date demonstrates that it is feasible to implement a SuDS based surface water drainage strategy on site. It is my opinion that this matter can be dealt with by a suitable planning condition.

Calculation of the Greenfield Runoff rate and demonstration that it is not exceeded was not provided, (EA Proof of Evidence Para 12).

2.7 The EA have previously agreed to the Greenfield runoff calculations presented in the FRA – see EA email of the 6th January 2009, (Appendix 2, Page 31).

2.8 Demonstration that the Greenfield rates are not exceeded is also provided in the FRA (section 1.14, 1.15 and Tables – specifically those in Annex 1 relate to this issue).

2.9 By adopting a flow restriction in each sub-catchment of either QBAR (2.33 year return period flow) or 13 l/s for the smallest sub catchments, a very significant reduction in runoff from the site is achieved at high return periods.

Demonstration that the SuDS are outside the 1 in 200 year or 0.5% probability floodplain was not provided, (EA Proof of Evidence Para 12).

2.10 The 1 in 200 year return period (0.5% probability) floodplain has been defined by detailed hydraulic modelling for all watercourses on the site.

2.11 The FRA demonstrates the intention to locate SUDS features outside the 1 in 200 year floodplain. If appropriate adherence to the design principles within the FRA can be secured by a suitable planning condition.

Provision for the long term maintenance of the SuDS was not provided. (EA proof of evidence paragraph 12).

- 2.12 Section 1.19 of the FRA considers maintenance and management of the sustainable drainage system. A hierarchy is provided that identifies adoption by Anglian Water, supported by an appropriate commuted sum, as the preferred maintenance strategy.
- 2.13 Given ongoing uncertainty around the general adoption of SuDS based drainage systems DVC are prepared to commit to, in the absence of a suitable adoption route, the ongoing maintenance of the SuDS system through the establishment of a private management company set up for the maintenance of drainage features within the site.

3. Fluvial Flood Risk

- 3.1 Subsequent to Ms Swindale's POE being submitted the EA have confirmed that "the hydraulic modelling is considered fit for purpose" (email dated 9th February 2009, Appendix 2, Page 4).
- 3.2 The EA response indicates that provided the approach outlined in section 1.10.11 of the October 2008 FRA is adopted this "resolves fluvial flood risk". I therefore do not provide any additional evidence in relation to Fluvial Flood Risk.

4. Sewage Treatment Works

- 4.1 The EA have agreed (email dated 9th February 2009, Appendix 2, Page 4) that this issue can be dealt with through the provision of additional surface water attenuation on site to offset a potential

increase in flow downstream of the site from increased STWs discharges which may arise as a result of the development.

- 4.2 Because the potential increase in flows to the STW as a result of the development is currently unknown it is not possible to quantify what (if any) increase in flow leaving Whilton STW will result as a consequence of the development.
- 4.3 The October 2008 FRA for the site sets out that there is additional capacity in the proposed surface water drainage system to achieve a 30% reduction in peak runoff rates compared to the existing situation in the 1 in 200 year return period event. This additional allowance within the surface water system is expected to be more than sufficient to off set any potential increase in flows from the STWs.

5. Pond Breach

- 5.1 Although not mentioned in Ms Swindale's POE the EA has also requested in correspondence dated 24th November 2008 (Appendix 2, Page 41) that mapping of the potential flood hazard arising from a breach in the embankments of the man made ponds (fishing ponds) on site be provided. Technical detail in relation to this matter was provided on the 26th January 2009, (Appendix 2, Page 7) and in correspondence dated February 2009 the EA indicated they were still considering this information.
- 5.2 A recommendation has been made that if the ponds remain within the final development a buffer zone be applied to the area directly downstream of the ponds within which no development would take place. It is also recommended that the detailed landscaping plans for the site are developed to take account of the potential breach

risk from the ponds. I suggest that if necessary this matter can be the subject of an appropriate planning condition and is not grounds for an EA objection to the scheme as proposed.

6. Conclusion

- 6.1 It is concluded that all flood risk issues associated with the proposed development at the Appeal site have been satisfactorily considered. Details appropriate to an outline planning application which set a framework for future detailed design have been provided within the September 2008 Flood Risk Assessment for the site, and in subsequent correspondence with the EA (as detailed in my proof).
- 6.2 My rebuttal proof and the documents referred to within it demonstrate that significant amounts of information in relation to potential flood risk has been provided and that such risk in relation to the Danetree appeal site, and in relation to areas off site have been fully considered in accordance with PPS25.
- 6.3 As appropriate to an outline application for a development of this size the FRA provides a framework within which the future detailed design of the site can take place respecting the principles of flood risk management and flood risk reduction already set.
- 6.4 The development is not at risk of flooding itself and will not cause an increase in flood risk downstream, in fact in extreme events the proposed surface water management strategy will provide a significant reduction in flows in the watercourses leaving the site compared to the undeveloped case.

6.5 It is contended that the evidence submitted on behalf of the appellant is sufficient to satisfactorily address, and remove all of the outstanding issues raised by the EA in relation to surface water drainage and flood risk.