

Our ref: C21505/AdC/TN

25th January 2021



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RE: Land adjacent to Oakhurst Rise, Cheltenham
Appeal Reference: APP/B1065/B1605/W/20/3261154– Technical Note

1. Introduction

- 1.1 My name is Andrew de Croos, I have a Bachelor of Engineering in Civil and Environmental Engineering and have over 15 years' experience working in civil engineering and in particular drainage and flood risk.
- 1.2 I am currently employed as an Associate by Simpson Associates Consulting Engineers LLP, who have offices across the United Kingdom.
- 1.3 Simpson Associates have been employed to provide drainage, flood risk and structural advice relating to the proposed development, which involved the production of a Flood Risk Assessment and Drainage Strategy in support of the planning application.
- 1.4 The Flood Risk Assessment for the site has been developed in accordance with current guidelines and best practice. Surface water runoff generated by the development will be managed sustainably and in accordance with current guides, including the *Non-Statutory Technical Standards for Sustainable Drainage*, which is published by the Local Authority SuDS Officer Organisation (LASOO).
- 1.5 The Lead Local Flood Authority (LLFA) and Severn Trent Water (STW) have both been consulted as part of this planning application, with the LLFA confirming that the proposals demonstrate a feasible strategy and STW confirming that they have no objection to the proposals, subject to the inclusion of a pre-commencement drainage condition.
- 1.6 This technical note has been produced to provide the Inspector with a summary of the 3rd party objections against the development, that relate to drainage and flood risk, which have been listed below.

2. Summary of objection: Overland flows not properly considered

Response:

- 2.1 To ensure no increase in flood risk to the site and surrounding areas, the overland flows discharged from the site, when developed, are restricted to the current greenfield run-

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off rate. The greenfield run-off rate has been determined using the IH124 method of calculation and therefore, is compliant with the section 3.4 and section S2 of the *Non-Statutory Technical Standards for Sustainable Drainage*, which is published by the Local Authority SuDS Officer Organisation (LASOO).

- 2.2 As such, the contention that over land flows have not been properly considered is erroneous. The run-off rate, with the site developed, will be a betterment to the existing situation because the attenuation of storm water flows makes a substantial provision for additional rates of rainfall as a consequence of climate change. The Lead Local Flood Authority is the Council's expert consultee, and they are clearly satisfied with the robustness of the Flood Risk Assessment and Storm Water Drainage Strategy.

3. Summary of objection: Storage capacity is inadequate

Response:

- 3.1 Surface water flows generated by the proposed impermeable areas are to be attenuated within a below ground storage tank, for all storm events up to and including the 1 in 100-year storm event, plus a 40% allowance for climate change and therefore, compliant with section S2 of the *Non-Statutory Technical Standards for Sustainable Drainage*.
- 3.2 Supporting design calculations are included within the FRA and have been undertaken with the industry standard Micro Drainage design software.
- 3.3 The contention is mere assertion and is not substantiated by any cogent technical evidence.

4. Summary of objection: Climate change factor

Response:

- 4.1 The surface water attenuation tank size is based on the 1 in 100-year storm event, with an allowance for a 40% increase in peak rainfall intensity over the lifetime of the development. The 40% allowance is derived from climate changes values on *Table 2: peak rainfall intensity allowance in small (less than 5km²) and urban catchments* on the gov.uk website. The 40% allowance represents the upper end of the potential climate change anticipated.
- 4.2 The Local Lead Flood Authority has clearly accepted that a 40% climate change allowance is appropriate.

5. Summary of objection: Exceedance management

Response:

- 5.1 In the event that the capacity of the surface water drainage network was exceeded, site levels would allow surface water to generally flow towards the site's southern boundary, as indicated on drawings C21505 – SK01C and C210505 – SK02C, included within Appendix E of the FRA and replicate the conveyance routes in the pre-developed greenfield situation.
- 5.2 This approach ensures flood risk on and off the site is not increased and thus complying with section 3.3 of the *Non-Statutory Technical Standards for Sustainable Drainage*.

6. Summary of objection: Potential risk to neighbours and the school

Response:

- 6.1 As mentioned within the above section, the proposed exceedance routes replicate the existing conveyance routes pre-development and therefore there is no increase in flood risk on or off site, thus complying with section 3.3 of the *Non-Statutory Technical Standards for Sustainable Drainage*.
- 6.2 The purpose of the proposed pond is to provide enhancements to the surface water quality and biodiversity. All surface water storage is provided within the below ground attenuation tanks. Supporting calculations are included within Appendix D of the FRA.

7. Summary of objection: No details of SuDS maintenance plans

Response:

- 7.1 The proposed drainage network and associated SuDS features will either be adopted by Severn Trent Water and maintained by them for the life of the development, remain privately owned and maintained by an appointed management company in perpetuity or a combination of both.
- 7.2 Full detail of the proposed management and maintenance arrangements will be submitted to discharge the associated pre-commencement drainage condition, which is in line with the requirements of the LLFA (GCC LLFA Consultee comment 6th May 2020).

8. Summary of objection: Faulty drainage plan specifications

Response:

- 8.1 The topography of the site and the location of proposed drainage outfalls necessitates that a portion of the proposed drainage flows via gravity in the opposite direction to that of the proposed road and the existing site levels, resulting in deeper drainage. The proposals are technically proven, common place on steep sites or those with significant level differences, adoptable by Severn Trent Water and therefore of no concern.
- 8.2 STW, the competent Authority for adoption of drainage, has no objections to the scheme as submitted.

9. Summary of objection: Severn Trent Water Sewer Connection and Capacity

Response:

- 9.1 The proposed surface water outfall is to the existing Severn Trent Water (STW) sewer within Charlton Court Road. A sewer capacity check has been previously undertaken with STW, who advised that, providing the surface water disposal hierarchy is satisfied, STW would accept a new connection to the sewer in Charlton Court Road, with the exact discharge rate to be agreed with the LLFA.
- 9.2 Section 8 of the FRA explains that surface water disposal via infiltration or to a watercourse are not achievable on this site and therefore satisfying the surface water disposal hierarchy.
- 9.3 The proposed surface water flow rates are set at the sites equivalent greenfield runoff rate and therefore compliant with the *Non-Statutory Technical Standards for Sustainable Drainage*.

- 9.4 The LLFA and STW have both been consulted as part of this planning application, with the LLFA confirming that the proposals demonstrate a feasible strategy and STW confirming that they have no objection to the proposals, subject to the inclusion of a pre-commencement drainage condition. The LLFA and STW are both, as competent and informed consultees, satisfied with the proposed surface water connection to the public sewer and the proposed discharge rates.
- 9.5 Please refer to GCC LLFA Consultee comment dated 6th May 2020 and STW Consultee comment dated 5th May 2020.

10. Conclusion

- 10.1 The objections made are unsubstantiated assertion and provide no basis from which to depart from the clear and considered responses from the two informed consultees who provide advice to the Planning Authority on matters relating to flood risk and drainage. The FRA submitted in support of this planning application is compliant with all legislation and standards in determining that the proposed development would not adversely affect flood risk on and off the site.

11. Statement of truth

- 11.1 I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Andrew de Croos
Simpson Associates Consulting Engineers LLP