

Drainage : Rebuttal to Appellants' Proof of Evidence

**Town and Country Planning Act 1990
Appeal under Section 78(1)(a) by Bloor Homes and Sandleford
Farm Partnership**

Witness: Jon Bowden

Subject of Evidence: Drainage

Appeal: APP/W0340/W/20/3265460 – Sandleford Park, Newbury

Site: Sandleford Park, Newtown Road, Newtown, Newbury

Proposal: up to 1,000 new homes; an 80 extra care housing units (Use Class C3) as part of the affordable housing provision; a new 2 form entry primary school (D1); expansion land for Park House Academy School; a local centre to comprise flexible commercial floorspace (A1-A5 up to 2,150 sq m, B1a up to 200 sq m) and D1 use (up to 500sq m); the formation of new means of access onto Monks Lane; new open space including the laying out of a new country park; drainage infrastructure; walking and cycling infrastructure and other associated infrastructure work. Matters to be considered: Access.

Date: 21st April 2021

Council Reference: 20/01238/OUTMAJ

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Jon Bowden : Drainage

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1. INTRODUCTION

- 1.1 This rebuttal is written in response to the proof of evidence of Mr. Witts in respect of matters relating to drainage. The fact that this rebuttal does not seek to respond to each point made by Mr. Witts should not be taken to mean that there is agreement on these points.
- 1.2 This Rebuttal Statement refers to the Appellant's Proof of Evidence on Drainage Matters provided by Mr Lee Witts of Brookbanks Consulting Ltd., namely numbered documents APP16 (main PoE), APP17 (Appendices to PoE) and APP18 (summary of PoE). This statement uses the Section Headings and paragraph numbering as used by Mr Witts.
- 1.3 Mr Witts has taken the "Wheatcroft" Consultation FRA and drainage strategy as the basis for his arguments rather than the original Application FRA and the drainage strategy submitted at ES Vol.3 Appendix K1.
- 1.4 As such, if the "Wheatcroft" consultation is accepted, it has addressed some of the points raised in the Council's Reasons for Refusal 13 : Drainage, as acknowledged in my own Proof of Evidence. However many other new issues in Mr. Witts' documents raise new concerns and these are set out in the following sections.

2. REBUTTAL Drainage Proof of Evidence

Section 3 Application 18-00764/OUTMAJ

- 2.1 In this section Mr Witts deals with the previously refused Application 18/00764/OUTMAJ and the comments made by Charlie Cooper on behalf of WBC in 2018.
- 2.2 3.3-3.12 : It is not disputed that Mr Cooper in principle accepted the design for the 2018 Application based on a similar FRA and drainage strategy to that submitted for the 2020 Appeal Application. However there some small but important changes in information provided as well as policy and guidance changes between the two responses.
- 2.3 An important change between the respective documents is that the 2018 version provided an indicative illustration of the conveyance channel - then referred to as “conveyance swale” - at Figure 4g “Vegetated Swale”, on p20 of 32 of the 2018 document (and reproduced below); this information was missing from the 2020 submission.

- 4.33 The following image shows how the feature may look within the Country Park:

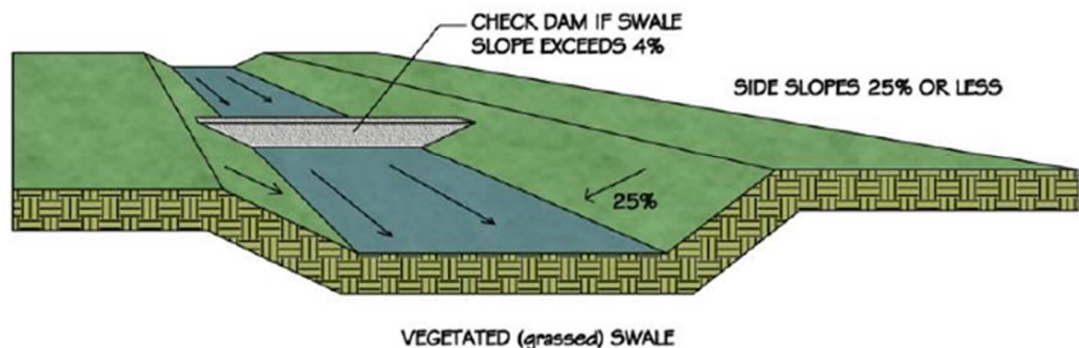


Figure 4g: Vegetated Swale

- 2.4 One of the reasons behind raising RfR 13 was the unknown impact upon the hydrology of the immediate areas resulting from creating a channel of unspecified profile and depth. However, an “Example Design of a 3m Swale” has now been provided on drawing 10309-DR-03 A “Illustrative Surface Water Drainage Strategy” shown in Appendix B of Mr Witts’ Proof of Evidence – although this no longer has the check dam. This may have led to a different understanding of the proposals and my response had this information been available as part of the 2020 Application.

- 2.5 However, this detail does also have a “Stone Drain” or French drain below the base of the swale (channel). This will cause detriment, and will be dealt with later. As a result, it is unlikely that the concerns raised in RfR could have been avoided even if this information had been provided with the application.
- 2.6 Furthermore, Mr Witts’ states that the 2018 and 2020 Applications were identical and therefore should have resulted in the same responses from WBC. However, my assessment of the submission under the 2020 Application was made more than 2 years after my colleague Mr Cooper made his comments. In that time there has been a shift in the way the LLFA assesses SuDS / drainage proposals from a more engineering-based SuDS approach as used by Mr Cooper in 2018, to an approach which pays much more attention to the ‘green aspects’ and benefits of SuDS. I consider that Planning Applications should provide ecological / environmental / amenity benefit as well as flood risk mitigation, as set out in the WBC SuDS Supplementary Planning Document published at the end of 2018 - sometime after the response made by Mr Cooper.
- 2.7 The Objection/Reason for Refusal relating to the 2020 Application was also made with the benefit of having discussions with other colleagues which highlighted potential ecological damage resulting from the proposals, as well as a shift in emphasis in the NPPF giving more weight to the protection of Ancient Woodland for example. These are factors that have come to the fore since Mr Cooper’s 2018 response.
- 2.8 Expanding the ‘green SuDS’ issue further, Mr Witts has highlighted the comment made by Mr Cooper that he was “*pleased to note the indicative inclusion bio-retention features within the development parcels*”. This specifically refers to Figure 4f of the 2018 FRA. That information is again missing from the 2020 submission and, as I will pick up on later, there is no detailed information relating to SuDS within the development parcels shown on the drainage strategy plan, which only shows SuDS measures outside of the development.

Section 4 Core Strategy Policy CS16

- 2.9 4.14- 4.15 : I disagree with Mr Witts’ evidence in these paragraphs relating to ground water (GW) levels, as set out in my own PoE at paras 3.2, 3.3 and 7.6.

- 2.10 As I stated in my original PoE, “September [when the ground investigation work was carried out] is typically when GW levels are at their lowest. Groundwater monitoring should have been carried out during the winter months December – March to provide reliable enough data to prove that GW levels are well below the ground surface”
- 2.11 I also note, as shown quite clearly on the Groundwater Analysis Plan, drawing 10309-SK-04 at App C of APP17 that all ground water information comes from locations within the developed areas and not where the basins and swales are to be located. Since the swale and basin areas are generally in valleys or lower ground, investigation in these areas may well have produced different results.
- 2.12 4.17 : I accept that the FRA / Drainage Strategy has been developed on the basis that “*surface water will be captured and conveyed within each development catchment and stored before being discharged at QBAR*” (i.e. the equivalent of a 1 in 2.3 year rate).
- 2.13 However, if the development moves forward, the greenfield run-off should be reduced to 1 in 1 year greenfield run-off rates.
- 2.14 4.21 : Chapter 7 of the FRA (using the “Wheatcroft” consultation numbering) states “*A hydrology assessment was completed to assess the proposed valley crossing*”, with proposed flow rates of 5.97m³/s and of 11.60m³/s in para 7.5. It also states that the cross section proposed (for the Valley Crossing) would be able to accommodate these flows but no calculations have been provided to support these figures.
- 2.15 4.23 : The basin and swale profiles are noted. As stated in my PoE at para 5.2, if the “Wheatcroft” consultation is accepted then this issue is no longer of material concern in relation to the basin side slopes and areas. Note that this does not hold for the swales (conveyance channels) however.
- 2.16 The inclusion of the stone drain or French drain below the swale will open an easy pathway for groundwater to take thus lowering groundwater levels. I can see no advantage in providing this feature as currently proposed. If however its purpose was to allow water to infiltrate into the ground (contrary to other statements made elsewhere in the Strategy) in order for it to be of any use, the stone drain would need to be constructed

in relatively short sections that are isolated from each other as linear soakaways in order not to create a new underground pathway that would allow rapid below ground flow.

2.17 There is also an issue regarding the effect of the swales and stone drains on the 15m buffer zone which will be dealt with later.

2.18 4.25 : This statement, that the “2-3 stages of treatment to surface water runoff, providing better water quality before it is discharged into the existing watercourse” is of course only relevant when solely considering a post-development scenario with a ‘no-SuDS’ scheme against one that includes the proposed SuDS scheme. If only considering the pre-development situation there is no need for any surface water quality treatment since all surface flows will be in their natural state and will not be causing pollution or other detriment to sensitive areas of the site, as explained in my PoE paras 9.2 & 9.3.

2.19 I consider that the inclusion of this statement by Mr Witts may therefore create the wrong impression if not read with this additional information.

2.20 As a result of the comments above, it is not considered that there is compliance with CS16.

Section 5 Sandleford Park Supplementary Planning Document

2.21 In this section, Mr Witts sets out how he regards the submission to have complied with the Sandleford Park Supplementary Planning Document.

2.22 5.2 : The Sandleford Park SPD (the “SPD”) requires at section H1 that “Surface water drainage methods shall ensure that volumes and peak flow rates of surface water leaving Sandleford Park are no greater than the existing greenfield run-off rates”. Proposed discharge is to be at no greater than Qbar rates, as per comments concerning 4.17 above and confirmed by Mr Witts at para 5.4. This currently aligns with most design guidance. However there is a growing realisation amongst SuDS practitioners of the need for this criteria to be further reduced to the 1 in 1 year greenfield runoff rate instead.

2.23 5.5 : The Sandleford Park SPD further requires at section H2 that “*Surface water drainage shall be managed with a variety of Sustainable Drainage Systems (SuDS).*” Mr

Witts' paragraphs 5.11 & 5.12 note that swales and detention basins have been proposed for each of the three catchments which is acceptable in principle, although the SPD does further specify that basins should have both dry areas and ponds (wet areas).

2.24 This SPD also requires that both source and site control measures are used, whereas the proposed swales and basins are more akin to site control measures, being well away from the development areas in most cases. No evidence has been provided of specific source control measures which would be located within the areas of development.

2.25 To avoid any doubt these source control measures should include but not be limited to green roofs; small & large scale rainwater harvesting measures; bio-retention measures particularly as 'on-parcel SuDS'; tree-pits; ponds & wetlands; carriageway filter strips; roadside swales and attenuation basins with dry and wet areas.

2.26 5.13 : The SPD also requires that "*any road crossing of the wet valley should not impact on the local hydrology*" which Mr Witts deals with by stating "*there is no impact on the local hydrology*". That is not agreed and not evidenced and will depend greatly on the proposed solution for this crossing. The originally proposed crossing with a large embankment would undoubtedly have a negative impact on the valley hydrology. It must however be borne in mind as well that 'hydrology' of the area does not only cover the stream on the surface which the crossing will bridge over but any ground water movement under the surface in what is a wet valley.

2.27 The elevated structure – 3rd Option - in Appendix 4 : Valley Crossing Study of the Appellant's S78 Appeal Statement of Case is less damaging in this respect, as I stated at paras 8.1-8.4 of my PoE, although that option is not completely without risk of having a damaging effect, particularly during construction.

2.28 I should also point out that this structure is referred to as being "*south of High Wood*" in para 5.13 which is not the correct location.

2.29 5.17: In answer to H3 of the SPD quoted at 5.15, any proposed SuDS should "promote biodiversity across the site". To deal with that it states that "SuDS have been used across the proposed development in the form of swales and detention basins.", and "...[they] will also prov[id]e additional habitat for wildlife." The planting mix and whether or not any of the swale & basin areas are designed to remain wet will have a big impact

on how valuable these features will be for biodiversity & habitat however. The LLFA's preference is that wet areas and especially larger scale 'wetlands' must be included as widely as possible, to satisfy the SPD requirements reproduced in the preceding paragraph and in the SuDS SPD.

2.30 5.18 : This paragraph contains a repeat of the point made at 4.25 (essentially, "*The proposed SuDS on site will improve the water quality*"- paraphrased) to which I make the same reply.

2.31 5.21 : A further requirement at H4 of the SPD and quoted at 5.19 is that "The use of externally sourced water should be minimised within the site encouraging the recycling of rain and grey water." Mr Witts' response is that "Bloor Homes have not proposed grey water/ water recycling but aims to limit the use of water in accordance with current building regulations." This is an opportunity missed, is contrary to the SPD, and, as noted in my Consultee Response of 14/9/2020, "...the Applicant should particularly look to include Green roof / rainwater harvesting for the school and C3, A1-A5, B1a, D1 provision".

2.32 The main purpose of the Building Regs 2010 and Approved Documents is to cover the construction and extension of buildings and provide general guidance on how specific aspects of building design and construction can comply with the regulations; they are also intended to protect people's safety, health and welfare in and around buildings. The Regulations are also designed to improve conservation of fuel and power, protect and enhance the environment and promote sustainable development. The SPD was drafted specifically for West Berkshire for this site and has been adopted. Simply because a scheme is alleged to be in compliance with Building Regulations does not mean that the SPD, which is a material consideration, can be ignored. Furthermore, given the climate emergency declared by WBDC, it is not a valid reason for omitting water re-use at this stage of the process.

2.33 As a result of climate change, water poverty is predicted to become an important issue particularly for the south east of the UK even in the medium term future so every opportunity to re-use water should be taken. The requirements of the Sandleford Park SPD as well as the SuDS SPD have not therefore been met and the Appellants' drainage strategy in this respect should be revised to accord with these documents.

- 2.34 5.25 : In relation to L2 of the SPD, it is stated that “The detailed design of the proposed SuDS, to be delivered at Reserved Matters stage, will follow the same principles that have been illustrated on the Strategic Plan”. I comment here that the strategic plan only shows SuDS outside of the proposed development areas and therefore it is not possible to gauge what the overall SuDS proposals will consist of. I will also reiterate that appropriate planting (wildflower mixes perhaps, as agreed by the WBC Ecologist and Landscape Architect) and substantial wet areas should be provided in the swales and basins to increase biodiversity, habitat and amenity in respect of the WBC SuDS SPD.
- 2.35 5.29 & 5.30 : It is noted that “Surface water runoff from the development parcels have not been designed to flow through or runoff into the ancient woodlands” such that “All areas of woodland including ancient woodland will be retained and protected.” (relating to compliance with SPD : L4). This goes some way to allaying the Council’s concerns expressed in RfR 13. However Mr Witts’ evidence then goes on to say that “Only surface water from i) open green space and ii) the ancient woodland will flow through the woodlands.” and that “...surface water flowing through the woodlands is reduced”. Whilst accelerated run-off rates and pollution from impermeable developed areas should not be allowed to flow into or through the woodlands (and hence it is right that this flow is therefore treated and diverted), the overall loss of flow into the woods from the natural state will result in detrimental changes to the hydrology of the woodlands.
- 2.36 In respect of the quotation at 5.27 from the Sandford SPD (at L4) relating to the 15m buffer zones, I understand that the interpretation of the datum for this zone as being the centre of the trunks may be incorrect and will be dealt with by Andrew Giles and/or Susan Deakin.
- 2.37 5.31 : It is stated here that the proposed swales and detentions basins have been placed outside of identified Root Protection Areas but having questioned this with the Council’s Tree Officer, this is not the case and therefore does not deal with my Objection and RfR.
- 2.38 5.35 : Here it states that “*The SuDS are not designed to retain permanent water and therefore, provide additional open space when they are dry.*” As above in my comment relating to 5.15, the LLFA’s requirement is that wet areas are included in the basins (and

swales if possible through the use of check dams or similar) in the final design in order to provide additional biodiversity and habitat opportunities. The Appellants' interpretation of the SPD: L6 requirement is inadequate. Although it could be said there is a potential conflict of interest between H3 and L3 over amenity use and ecology provision, frequent use by people of the SuDS areas when in a dry state will further reduce the ecological benefits that could otherwise be gained from the SuDS if part wet & part dry. If the grass in these areas dries and dies off through drought and is then trampled on from human use, there will be little slowing effect on flow once water does return and no filtering out of silts. In that scenario they will not perform as a vegetated swale is designed to, hence this supports less recreation use being planned for these areas.

2.39 Overall, I consider that there is not compliance with the SPD.

Section 6 Sustainable Drainage Systems Planning Document

2.40 6.3 : As a general comment regarding the Appellants' drainage strategy, surface water management on a development site should be designed in particular to be in accordance with the WBC SuDS SPD "Our Vision" and section 5.3 Principle 3 : Promote and encourage biodiversity. This does not appear to be the case.

2.41 6.11 : This paragraph refers to "*the Site Level Plan (10309-SK-03) located in Appendix B*". However the drawing provided at Appx B is 10309-DR-03, the further revised "Illustrative Surface Water Drainage Strategy". I cannot find drawing 10309-SK-03.

2.42 6.12 : I make the same comment here regarding ground water levels as I did for 4.14/4.15 above, essentially that the site investigation work was carried out in September rather than in the winter months and they are not representative.

2.43 6.18 : The quoted design criteria for impermeable areas – that of 55% - is now considered to be low. A more typical figure should be in the region of 65-70% for modern development layouts, excluding urban creep.

- 2.44 6.22 : All of the swales (conveyance channels) and basins discussed in the Appellants' drainage PoE are outside of the development area in the form of site control features. Source control features including 'green SuDS' measures as set out in response to 5.5 above should be located within the development parcels as well in order to comply with the Sandford and SUDS SPDs, the SuDS Manual C753 and good SuDS design practice. Currently I do not consider the Drainage Strategy proposes sufficient, if any, of these measures within the development area.
- 2.45 6.24 : Referring also to 5.35 above as basins are not designed to be permanently filled (wetted), the potential ecological / biodiversity benefit is much reduced than if there were designed wet areas and thus does not comply with the requirements of the Sandford & SuDS SPDs.
- 2.46 6.30 : The proposed CEMP will be an important document and needs to be very comprehensive. It should contain details of environmental & ecological issues affecting the site as well as purely flood risk matters since pollution during construction is likely to be one of the biggest environmental risks that result from the development. This is particularly so relating to construction works carried out during wet periods and in the valleys, when high volumes of slurry will be generated from plant movement.
- 2.47 Overall, the scheme is not in accordance with our SuDS SPD.

Section 7 Surface Water Drainage Design

- 2.48 7.3 : Mr Witts states that "*the drainage strategy for the site uses SuDS, being a combination of swales and detention basins across the development*". I again point out that these proposed measures are all located outside of the development areas and are therefore 'site control measures' rather than 'source control measures'. A good and comprehensive drainage strategy will consist of both source and site control features. This strategy is inadequate in this respect.
- 2.49 7.7 & 7.8 : All existing surface water run-off currently flowing through the ancient woodland does so in a natural way but post-development, it will be captured and controlled thereby reducing the volume reaching the woodland. Clearly surface water

run-off from the completed development should not be left 'un-controlled' as inevitably with new hard surfaces the rate of flow / run-off will be dramatically increased as well as carrying more pollutants. This resultant flow would be to the detriment of the ancient woodlands.

2.50 In order to protect the ecology and sensitive habitat of these woodland areas, the development run-off must therefore be managed to remove pollution but to still allow exactly the same pattern of flow into those areas as currently happens pre-development. Any attempt to control flow that would then only allow discharge into the woodland through one or two concentrated point locations would not fully replicate the natural catchment and would eventually be to the detriment of the natural environment, contrary to the SuDS and Sandleford SPDs. Further hydraulic assessment would therefore be required for both pre- and post- development scenarios to demonstrate how water reaching the ancient woodland receptors will not be changed as a result of the development, since currently insufficient information to assess this has been provided. A more comprehensive & detailed watershed analysis similar to that provided at APP13 by Mr David West may be appropriate in order to replicate the natural catchment as well as it possibly can be in this respect.

2.51 7.9 : Both relating to this paragraph and in conjunction with the above comments, whilst accepting that run-off from residual greenfield areas which remain after development MAY continue to flow into the Copse areas / ancient woodland from part of that residual area, this won't hold if there are development areas in between the greenfield 'source' areas and the receiving woodland receptors.

2.52 7.11& 7.12 : Ideally the final discharge from the site should be based on a 1 in 1 year greenfield rate rather than Qbar as in comments relating to 4.17 above.

2.53 7.15 : States that "The northern basin for DPN1 is also in a location where the treated surface water can be discharged directly out through the ancient woodland." The assumption is that this "northern basin" is part of Basin B but as this is a newly introduced descriptor without confirmation.

- 2.54 7.16 : If “*The detention basins have been placed adjacent to, but outside of, the 8m existing watercourse buffer zone*”, this potentially deals satisfactorily with the refusal reason, subject to there being no to other adverse impact on the ancient woodland or existing watercourses, i.e. the 15m ancient woodland buffer zone.
- 2.55 7.17 : It is acknowledged that “The site currently does not have a system in place that improves the quality of surface water before discharging into the watercourse” but there is no need for this since currently surface water flow is a natural process needing no water quality improvement and therefore this statement is irrelevant and could well lead to misunderstanding of the current position.
- 2.56 7.20 : It is accepted that no SuDS have been placed in areas of identified flood risk.
- 2.57 7.22 : It is also accepted that generally infiltration across the site is unviable, and hence is a reason for not utilising certain SuDS types. However, there is a certain amount of residual infiltration available as noted in the Site Investigation report and elsewhere so therefore SuDS measures should be allowed to infiltrate into the ground where conditions allow and high ground water levels do not prevent it.
- 2.58 7.23 : Despite no presence of groundwater being identified in the ground investigation, further groundwater monitoring at the appropriate time of year must be carried out in order to inform the design of SuDS at final detail stage. This could have taken place between the decision being issued and the inquiry
- 2.59 7.24 : A long-term maintenance schedule has been provided within Chapter 6, Table 6-10 of the FRA, but this only deals with the types of SuDS measures so far proposed. There are other types of SuDS which should be included in the developed areas in particular as set out in my Consultation Response of 14/9/2021 and in the SuDS and Sandford SPDs and therefore any maintenance proposals should take into account these other measures.

Section 8 Decision Notice: 20/01238/OUTMAJ

- 2.60 8.4 1) : I have already covered what I consider to be deficiencies in the ground investigation, namely that this was carried out in September, the driest time of the year, and that further site investigation and groundwater monitoring should have been carried out during the winter months December to March in order to provide more meaningful results. Therefore I do not necessarily agree that the SuDS measures as proposed will not be adversely impacted by groundwater as the supplied information is not reliable enough.
- 2.61 2) : The drainage strategy drawing 10309-DR-03 A that is located within APP17 Appendix A is a new layout, with the main SuDS elements depicted being quite different from the original Application submission and the Wheatcroft consultation. Those points which Mr Witts has referred to in Section 8 will be dealt with against the respective paragraph numbers; I will make additional comments regarding this revised plan under 8.17 below.
- 2.62 The way that surface water run-off may affect the copse areas/ancient woodland has been dealt with in 7.7/7.8 above. In summary, the proposals are not acceptable as they will harm these areas. Irrespective of them not being wet woodlands it is likely that the existing flora and fauna will have developed over time in response to the pattern of water flow into and through the woodland from the surrounding areas as dictated by the topography. It is clear that as currently proposed, the surface water drainage strategy will alter the flow of water through these areas (reducing it as per the statement in 8.4) which I expect to have a detrimental impact on the ecology of these areas.
- 2.63 Furthermore, it is stated that “Treated water from the northern detention basin for DPN1 also has the opportunity to discharge surface water back through Slocketts Copse” but it is difficult to see how this can be achieved given that the ground contours shown on this drawing indicate this basin to be lower than the majority of the area of Slockett’s Copse.
- 2.64 I would also point out that this basin was formerly referred to as Basin B in the submitted versions of the FRAs and was shown as 2 separate basins covering a much larger area

than that indicated on this drawing thus with more capacity. It is now shown as having a direct discharge point to the existing stream rather than to this Copse.

- 2.65 8.5 : This paragraph states “The trees within the ancient woodlands receive water through their roots directly from the groundwater, not from the surface water flows from the upstream catchments.” This is a direct contradiction in relation to evidence given earlier about groundwater depths. It will be for the Tree Officer to indicate how deep the root systems of the species found in these Copses will extend, but it is unlikely that both statements concerning : a) depth of groundwater; and b) the woodlands not depending on surface water flow for a water source, can both be correct.
- 2.66 8.6 : I accept that open green spaces within the development parcels will allow infiltration (although this is contrary to other evidence given as referred to above) and that this will lead to a degree of “*replenishing [of] the groundwater that feeds the ordinary watercourse that flows through Crooks Copse*”. However in the Appellants’ Ecology Evidence put forward by Mr West, there is acknowledged to be a substantial reduction in the amount of infiltration that will occur, as is inevitable with the level of impermeable surface that the development will create. It is certain that without adequate measures incorporated into the SuDS and surface water management system within the developed areas, ground water will not be recharged in those catchment areas compared to the pre-development level, thus causing detriment to the hydrology of the area overall.
- 2.67 8.7 : As acknowledged already infiltration is not part of the overall drainage strategy due to existing geological conditions. However it has to be accepted that a certain amount of infiltration does naturally occur otherwise for example the existing streams would likely be visibly more prominent through taking the level of existing greenfield run-off. But it is important not to reduce existing levels of infiltration below their current levels. However, that then introduces a certain level of pollution risk from developed area run-off which must be dealt with, hence a compromise needs to be worked into the final design to achieve acceptable infiltration without pollution.

- 2.68 8.9-8.12 incl. : Following a review of the Wheatcroft consultation, the data in relation to the basin sizes and profiles etc. is noted and, as I have accepted previously, this removes the Objection relating to that aspect of the basins.
- 2.69 8.14 : Drawing 10309-DR-02 A, the drainage strategy plan included with the Wheatcroft consultation, does indeed show the full area of the site in comparison to the un-revised strategy plan 10309-DR-02 originally submitted and this is not therefore of concern anymore.
- 2.70 In respect of the flow arrows, the label in the key showing “Existing Surface Water Flow Direction” on both versions of the strategy plan (albeit with supplementary information in the Wheatcroft consultation key) was misinterpreted in our assessment, since the existing flow directions were not relevant for the developed areas in my opinion as the topography will inevitably be subject to a small degree of change post development. In some places on that plan, as stated in our Objection, those arrows are also pointing in-line with the contours rather than perpendicular to them.
- 2.71 8.15 : Previously there was no information provided concerning how surface water from existing greenfield areas to be developed would be dealt with post construction and how it would affect the Copses. It was only possible to make an assumption which in a Planning Appeal situation is not acceptable. Having had confirmation that all development area run-off will be collected and discharged to the proposed SuDS now changes my understanding of the proposals, but it does then raise other issues as already commented on concerning how the reduction in run-off through the ancient woodland adversely affects the ecology there.
- 2.72 8.16 : Since “*Only surface water from open green space and the ancient woodland will flow through Dirty Ground Copse and Slockett’s Copse.*”, it is not clear which ‘open green spaces’ will be able to contribute to future flow through those Copses, again leading to questions about detriment from reduced flow to the ancient woodland ecology as a result.
- 2.73 8.17 : The further revised surface water drainage strategy plan (10309-DR-03 A) located in APP17 Appendix B is noted, as above.

2.74 The main differences compared to the two previous submissions 10309-DR-02 and DR-02 A appear to be that :

- the Basins at B have been reduced from 2 to 1, with the remaining basin being smaller and having a direct connection to the existing watercourse;
- there are 2 new basins to the south of Slockett's and High Wood Copses, each with direct discharge connections to the northwest to southeast flowing stream;
- there is a new conveyance channel from the amended Basin B to the new basin south of Slockett's Copse;
- there is a new conveyance channel from Slockett's Copse West into the new basin south of Slockett's Copse;
- the flow direction arrows have been revised so that generally they better reflect the flow direction as indicated by the ground contours;
- the route of the conveyance channel from Dirty Ground Copse has been slightly realigned, including where it discharges to Basin A;
- the shape of Basins A and C have been revised and the location of the discharge connections into the stream has been changed.

2.75 I accept that there appear to be one or two 'improvements' shown on the new plan 10309-DR-03 A compared to the previous 2 versions, the main one being that Basin C and its discharge outfall are now likely to be far enough away from an ancient tree adjacent to the east to west footpath to no longer risk of damaging this particular tree. However the plan has been submitted rather late in the process and ideally more time is needed to fully review it. This will be done prior to the inquiry.

2.76 The Appellants have also failed to provide updated modelling to substantiate that there is sufficient capacity in the revised basins.

2.77 Furthermore the southern edge of the Application site has again been omitted from this plan as was the case with the original Application submission 10309-DR-02 in ES Vol.3 Appx K1, although it was included in the subsequent Wheatcroft consultation version 10309-DR-02 A. I refer here back to my comment against [8.14](#).

2.78 [8.18](#) : Technical note 10309 TN10 Rv2 is included in APP17 Appendix E with two further alternative Drainage Strategy layouts shown on drawing 10309-DR-04 A. These are entitled Option 1 and Option 2.

- 2.79 Regarding Option 1, the Basin arrangement at B has changed to become 3 basins, each with their own discharge connection to the north to south stream. There are then no conveyance channels between Slockett's and High Wood Copses and this may potentially remove the problem of the adverse effect those conveyance channels would otherwise have being as they were proposed to be located within the ancient woodland 15m buffer zone.
- 2.80 Additionally there is a further new basin to the south of Slockett's Copse West with a direct discharge channel into the northwest to southeast stream. The conveyance channel feeding this cuts through the 15m buffer zone and possibly even through the Copse area itself contrary to NPPF para 175c, whilst the basin is right on the edge of the buffer zone. This matter is likely to cause issues covered by my Ecology and Tree Officer colleagues.
- 2.81 Regarding Option 2, the additional basin and conveyance channel are shown as for Option 1, with the same comments applicable. However Basin B has reverted to a single basin along with 2 large underground storage or attenuation tanks located within the development area. Whilst this option again does not have the conveyance channels running between Slockett's and High Wood Copses, which is potentially better as set out above, the use of underground storage instead of at-surface 'green' SuDS is a retrograde step and would not be acceptable as it does not provide the habitat, biodiversity and amenity benefits required of the SuDS and Sandford SPD as well as the NPPF.
- 2.82 It is unfortunate that the Appellants' team have chosen to show both of these additional options as plan 'extracts' only and have failed to include the whole site on each drawing to enable the whole picture to be seen. It is not understood why this is the case and the Council reserves the right to comment further should full plans be provided.
- 2.83 8.20 : Matters relating to infiltration testing and groundwater levels have already been dealt with above.
- 2.84 8.21 : Matters relating to surface water flow through the areas of ancient woodland have already been dealt with above. The buffer zone around any of the Copse areas should be at least 15m, not 8m as stated ("*Swales and detention basins will be constructed with*

an 8m buffer from existing streams and the edges of Dirty Ground Copse and Slockett's Copse").

- 2.85 Additionally, there are a number of discharge or outfall points now more clearly indicated. Currently no details are provided as to what the headwall arrangements may consist of, but there may be further impact on Ancient Woodland and other sensitive habitat from their construction which I or other colleagues are unable to assess as it stands as the Appellants have failed to provide sufficient information.

3. CONCLUSION

- 3.1 Some aspects of the Drainage Objection RfR 13 are now capable of being overcome. However with the additional information provided in Mr Witts' Proof of Evidence, new questions and concerns have emerged as to the effect of the drainage proposals on areas of ancient woodland in particular.
- 3.2 The information I now have emphasises how much the drainage strategy concentrates on drainage provision downstream of the developed areas. Whilst the risk of direct damage or longer term detriment to sensitive environmental areas through adverse changes to the hydrology of these areas these proposed downstream measures will cause could be capable of being, there is little information concerning how surface water drainage in the development areas upstream will be dealt with to show how the drainage strategy will work as a whole. This is inadequate and of concern at this late stage.
- 3.3 Furthermore the lack of 'green SuDS' within the development areas that will help preserve the existing hydrology of the site overall is contrary to the relevant SPDs, NPPF and other guidance.
- 3.4 Overall, the new options provided at the proof of evidence stage are still not acceptable to the Council.

J Bowden