

LAND AT OWLSTONE CROFT, NEWNHAM, CAMBRIDGE

APPEAL BY The Queens' College of St Margaret and St Bernard, University of Cambridge

PINS APPEAL REF: APP/Q0505/W/23/3323130

**CLOSING STATEMENT
ON BEHALF OF THE FRIENDS OF PARADISE NATURE RESERVE
RULE 6 PARTY**

1. These closing submissions focus on the matters in dispute between the Friends of Paradise Nature Reserve ('the Friends') and the appellant¹. The Friends support the Council's case on the reasons for refusal. Where overlap is anticipated, these submissions provide a summary of the main points on which the Friends rely.

Building and landscape design and context

Loss of openness and tranquillity

2. There is no doubt that considerable effort has gone into the design of the proposed buildings. It is not the Friends' case that the design is poor. The fundamental problem is that the proposal treats its landscape context purely as a backdrop and a resource for itself, rather than a place with its own special character which is protected in the local plan². The impact if the proposal goes ahead will not be neutral. The question for the Inspector is whether it will be positive or negative. That cannot be answered without considering the existing character of the Paradise LNR ('the reserve').
3. Mr Marshall accepted in cross examination that the description of the Paradise Nature Reserve as "*wild, purposely-untamed woodland and marshland*"³ is a character

¹ SoCG signed 27 September 2023

² Policy 67

³ CD5.7 para 3.2 p.9

assessment. It is extraordinary that this was left off the list of relevant LCAs in his evidence⁴. It is also clear that Mr Marshall's landscape design was not informed by a genuine understanding of the reserve's character. When asked about the CAA character assessment Mr Marshall insisted that buildings are not, in principle, at odds with a "wild, purposely untamed" place. That position is difficult to understand. It appears to be explained by Mr Marshall's repeated references to the appeal site being "urban edge" : the way to improve an urban edge site, argues the appellant, is to improve the urban element (i.e. the buildings).

4. If the appeal site were indeed "urban edge" (which is not supported by the LCA⁵ and the Friends do not accept) that might be true up to a point. But when the building mass is greatly increased and brought much closer to the boundary with a long established and protected natural space, it ceases to be true. No matter how attractive the design, these are still residential buildings very close to a designated site which is protected in the local plan. It is also important that no part of the reserve is, at present, an ersatz landscape designed to complement Owlstone Croft. It is entirely self-sufficient.
5. The new development is not self-sufficient : the diffuse boundary is required in order to create the wetland/SuD's feature.⁶ Mr Marshall explained that one version of his landscape design retained the eastern boundary trees, but that evidence is not before the inquiry and cannot be tested. A transparent acceptance by the appellant, at an early stage in the application process, of this practical reason for removing the eastern boundary trees would have been welcome. It could then have been addressed practically, and (for example) alternative layouts which accommodate SuDS elsewhere (including a smaller development footprint) could have been considered in a transparent manner. But the removal of trees was not confirmed until (according to Mr Marshall in oral evidence) the fourth pre-application meeting⁷. The removal of the poplars and the two Ash trees is a necessity for the proposal and not a benefit to the reserve. The 'opening up' of the LNR by removal of the trees will lead to a loss of tranquillity.

⁴ CD7.5B para 3.4

⁵ CD5.9 p23 – Paradise is in the River Corridor / Commons character type, not River Corridor / Urban edge.

⁶ SoCG Appellant/Friends para 2.37

⁷ Removal of the trees appears to have been under consideration since at least November 2021 (correspondence between Pam Gatrell (Friends) and Guy Belcher (LPA Ecology), Appendix 2 to Andrew Bryce rebuttal PoE).

6. Dr Burgess accepted in during cross examination by the Council's advocate there would be a change to the "established character" of the appeal site. That is clearly true. The lawn would no longer be mostly unused, quiet space. The proposed buildings would be far more than "slightly more" visible compared to the current buildings when seen from the boardwalk - contrary to Mr Marshall's assertion in his proof⁸. That is a blatant underassessment if the verified views⁹ at Year 5 are representative. If it really is the appellant's case that the buildings will eventually be screened behind a 10 metre hedge (with some gaps to allow the character of the reserve to "flow into the site", and vice versa) then this should also have been presented in a verified view. The fact that Council did not ask for views beyond year 5 is not an answer : there was nothing to prevent the appellant from producing them for the appeal.

7. Even if the proposed hedgerow is to grow to 10 metres (which is not evidenced and seems improbable if native species are to be used) then that would bring its own problems. The vegetation between the boardwalk and the site is currently a wide strip (compared to what is proposed) containing a rich variety of trees and vegetation. It is a woodland buffer – which is nevertheless effective at screening the Owlstone Croft buildings in summer - and not a garden screen. The hedgerow, even if effective as a screen in the future, would not have the same natural woodland character.

8. The Friends disagree with the officers' view that the proposal would not generate any more noise or disturbance than the current use¹⁰. No matter how quiet postgraduate students are compared to undergraduates, they will still be going about their daily lives within a few metres (in the case of Terrace 4) of the reserve. Student numbers on the site will increase by about one third. There will be a new café, and attractive outdoor spaces, some of which face towards the reserve. Unless the future residents are unusually monastic in their daily habits, there will inevitably be an increase in the comings and goings of daily life. The lawn will no longer be a quiet space.

9. There is no sense that the appellant appreciates the potential consequences for biodiversity: it is well established that wildlife (particularly bats) are disturbed by noise¹¹, and the Council's pre-application advice identified this as a concern to be

⁸ CD7.5B para 6.1.11

⁹ CD16A-C

¹⁰ CD4.1 para 9.195

¹¹ CD14.20 p.16 table 2.1. Also in the 2016 Guidance CD10.1G p.14

resolved¹². Proposed noise conditions limit construction, machinery noise and noise from the gym/Café PA system. They could not reasonably limit noise which is incidental to residential use, but nevertheless has the potential to disturb (outside conversations, TV, music, informal gatherings etc). The change to the character of the boardwalk from the visual impact of the new buildings will inevitably be magnified by the new residents simply going about their lives, closer to the reserve boundary than has ever been the case in the past.

10. If the development goes ahead it will, as a matter of fact, be in “close proximity” to the reserve. It will also, as a matter of fact, result in a loss of openness on the appeal site, and consequently a reduction in the sense of openness on the boardwalk. Whether that would result in a loss of tranquillity is a matter of judgement : there will be more buildings, more people and more activity on Owlstone Croft so it is difficult to see how it would not result in a loss of tranquillity.
11. The appellant may point to the noisier users of the reserve (groups of schoolchildren for example) to suggest that it isn't so tranquil now. But these are transient, occasional sources of disturbance during daylight hours and cannot realistically be compared to new residential development where students will live and socialise.
12. In evidence Mr Marshall argued that the western side of the reserve has a different, more “robust” character than the eastern side by the river, with the implication that it is less sensitive to change. That is not accurate. The eastern side in warmer months is - because of boats, punts, canoes and people on the river and (when the path is not flooded) more walkers - the busier side. The boardwalk is quiet in contrast.
13. The loss of tranquillity and openness caused by the development would harm the essential character of the reserve and particularly the boardwalk. The inquiry has heard evidence that the river path is flooded for weeks at a time in winter (when there are fewer boats on the river and that side is less busy). That evidence was not challenged by the appellant. When the river path is unavailable (which it always is for less mobile users) then the boardwalk is the only option and it would not be possible – unless people go off the path which neither realistic nor desirable – to escape the urban character introduced by the new buildings. The sense of wandering through woodland

¹² CD1.3A pdf 54; pdf61

with only birdsong in the immediate soundscape would be lost. People who birdwatch, stop to enjoy nature, or simply walk along the boardwalk to and from the city centre will have the sense of walking next to urban space. If the existing character of the reserve is appreciated, this is obviously a great loss.

Harm to recreational and amenity value of the reserve

14. The recreational and amenity value of the reserve depends on its character as an untamed, nature-filled space.
15. The appellant's point that the reserve itself is so well-used that any more human activity on the appeal site will make no material difference is unconvincing. Comparing the impact of walkers, birders or nature enthusiasts with future residents site is comparing chalk and cheese : the nature reserve is a reserve for nature. It is not a residential, social, or leisure facility. There are no picnic tables, benches, or seating of any kind
There is barely space to stop and have a conversation on the western side : the boardwalk is narrow and difficult to walk abreast. The reserve is not lit, and is not a welcoming environment for people after nightfall.
16. The amenity value of the reserve draws nothing, at all, from the buildings on Owlstone Croft. These are, currently, not particularly obtrusive and make no claim to any kind of "relationship" with the reserve. Distance and separation is maintained. The proposal, in stark contrast, is attention-seeking. The appellant wants to "blur the boundary" with the reserve and "frame the views" of the proposal from the boardwalk. But the existing view does not harm recreational or amenity value. The poplars screen much of the view in summer – in winter it is not inspiring but nor is it distracting or at odds with the reserve's natural character. Replacing these unobtrusive buildings with the four 'terraces' proposed would radically and permanently alter the recreational amenity of the reserve, through harmful impacts on people and wildlife.
17. The inquiry heard evidence from Mr Bryce, and Mr Bob Jarman, about the rich bird life of the reserve which includes rare species¹³. There are also those who go to the

¹³ Bob Jarman, interested party statement.

reserve with their children to see wildlife that “*isn’t a pigeon or a squirrel*”¹⁴. Groups of schoolchildren visit the reserve to learn about and appreciate nature. Mr Bryce’s evidence that the boardwalk side of the reserve is the ‘back’ side and quieter, so better for birdwatching (including e.g. Nuthatch on the reserve boundary with the appeal site) was not challenged. If the proposal goes ahead the birds’ habitat will be much changed - including the removal of established poplar and ash trees. The birds may go elsewhere in the reserve, or they may leave it altogether.

18. The point is that existing and established habitat and species will be disturbed, both directly by removal of boundary trees and vegetation, and indirectly by the presence of new buildings and human activity. The ecological impact on the reserve has not been assessed (this is addressed below). Plainly change in the behaviour of wildlife, or displacement of wildlife through disturbance would be a significantly harmful impact in its own right as well as on recreational amenity.

Winter groundwater monitoring

19. The Friends object to the proposal due to uncertainties in the appellant’s flooding and drainage strategy. This has implications for the biodiversity of the appeal site and the reserve. The key points are summarised in the annex to these closing submissions.

20. The Friends instructed Mr Clive Carpenter of GWP consultants to assess the appellant’s flood risk and drainage strategies. As Mr Bryce explained in evidence, this was because the local risk of flooding is increasing and there were concerns about how this would affect the development and the biodiversity of the reserve. The key, but not the only, issue identified by Mr Carpenter in his initial letter of 14 October 2022 (**CD10.1F**) was the likely interaction between shallow groundwater levels and the proposed building foundations, particularly in winter when groundwater levels are likely to rise.

21. Important information (infiltration testing) is left to the detailed design stage. The existing infiltration testing results are extrapolated and not accepted by the LLFA.¹⁵ The

¹⁴ Interested party statement made orally.

¹⁵ CD3.7A pdf 2

Friends' position is that the proposal fails to accord with policy 32 of the local plan, in particular because the achievability of peak-rate run-offs which are no greater post-development has not been demonstrated (para (a)), and it is not clear that the discharge locations have capacity to receive all surface water flows (para (d)).

22. Given the potential importance of this issue it is respectfully suggested that if, having considered the written material, the Inspector has any questions these could be put to each expert in writing (before the Inquiry is formally closed) and each expert then be given one opportunity to provide their written answers.

Biodiversity and priority species and habitats

23. The appellant appears to accept that the Friends have submitted a wealth of evidence about the biodiversity value of the reserve including protected and priority species, of birds in particular. There is no doubt or argument that those species are present, and the appellant knew this from the outset¹⁶. The Wildlife Trust did object to the application due to the likely impact on the reserve, and doubts about biodiversity net gain (email of 17.10.22 not in CDs). Nevertheless, the impact of the proposal on species in the reserve has not been assessed.

- ~~Adverse impact on the biodiversity of the LNR (policy 69)~~
24. Paragraph 7.65 of the local plan explanatory text states that “*development will only be supported where it can be adequately demonstrated that proposals will not have an adverse effect on biodiversity*”. That is for the appellant to demonstrate. It cannot be demonstrated without assessing the impact of the development on the receptor. The appellant has not provided any ecological assessment of the biodiversity in the reserve (other than the placement of some bat detectors¹⁷).

25. If the appellant had provided an EclA, this would have identified the ‘zone of influence’ of the development¹⁸ which would necessarily have included part (if not all) of the

¹⁶ CD1.7 para 4.1 Protected Species Scoping Survey Feb 21 included in PEA.

¹⁷ By Mott McDonald in June 2023 - John Durward PoE page 14 (fig. showing all bat detectors)

¹⁸ CD10.3i (CIEEM EclA guidelines) p.13

reserve. A baseline ecological assessment, assessment of likely impacts, and properly detailed mitigation would have followed. None of that was done. There is no “demonstration”, let alone “adequate” demonstration that the proposals will not adversely affect biodiversity.

26. Further, para 7.65 explains that *“proposals on or adjacent to a site of local conservation importance should not be granted without proper consideration of the potential to enhance the designated site’s biodiversity through enhanced management, habitat creation, of the formation of new linkages with adjacent habitat areas.”* There has been no assessment of the designated site’s biodiversity, so no objective basis on which to consider potential enhancements. The appellant assumes that a wetland meadow will function as an enhancement, but this has not been demonstrated. There is no habitat creation proposed in the reserve, and the functionality of the proposed new wetland meadow is simply assumed. There are no “new linkages with adjacent habitat areas” – the appeal site is not a habitat area within the meaning of this policy (i.e. it does not currently exist as such).

27. Contrary to the appellant’s assertion, the policy does not ‘build in’ an allowance for harm. The test is whether there will be an adverse impact on biodiversity. As Dr Burgess said in evidence this is a ‘net test’ i.e. mitigation has to be considered upfront. The difficulty for the appellant is that if harm has not been adequately assessed as explained in para 7.66 ¹⁹(or assessed at all in the case of priority species other than bats) then mitigation is speculative and cannot, rationally, reduce the level of harm to below adverse.

28. In summary, there is no objective evidential basis for the conclusion that the development “will not have an adverse impact on” the biodiversity of the reserve, and so the proposal is not in accordance with policy 69.

Failure to protect priority species and habitats (policy 70)

29. Policy 70 applies to all priority species and habitats including those outside designated sites - in this case it applies to species and habitats within the appeal site and the reserve.

¹⁹ “comprehensive surveys of the historic and existing biodiversity importance, a professional ecological assessment of the impact of the proposed development and details of measures to protect and enhance the habitat or species identified will be required”.

30. The applicant for permission is required to produce the material and assessment in paragraphs (e) to (f) “up-front”²⁰. That allows the decision-maker to assess the development against paragraphs (a) to (c) – the permissive paragraphs of the policy - as well as the final paragraph which contains the “significant harm” test. That assessment has not been carried out. The appellant will no doubt place emphasis on Mr Durward’s acceptance that his evidence does not allege significant harm to bat populations. However there are three difficulties the appellant cannot surmount :

1) Mr Durward did not have the evidence to support that conclusion (the assessment required by paras (e) to (f));

2) It was the appellant’s job (as Dr Burgess conceded to the Council’s advocate in cross examination) to produce that evidence, not Mr Durward’s;

3) Without that evidence the appellant cannot benefit from the permissive paragraphs of the policy, because it cannot demonstrate that the development will ‘protect and enhance’;

4) There is no evidence on the impact of the proposed development on legally-protected species within the reserve (other than limited evidence on bats), nor are there details of measures to “fully protect” the species and habitats;

31. The absence of evidence on “significant harm” to populations cannot rationally support a conclusion that there will be no significant harm, especially when the appellant has accepted (via evidence from Mr O’Connor) that the site could be part of a Core Sustainance Zone for Barbastelle²¹ and so important for maintaining population and conservation status. In summary, given the appellant’s failure to produce the assessment required by Policy 70 paragraphs (e) to (h), the proposal fails to accord with that policy.

²⁰ Local plan para 7.72

²¹ CD14.20 re Barbastelle foraging habitat preferences and definition of CSZ at 3.7.1 as an area which it “may be necessary to ensure no net reduction in the quality and availability of foraging habitat”.

Lighting

32. The appellant's "betterment" argument (that post-development lighting levels will be lower than existing and so provide a better habitat for bats) appears to have altered during the course of the inquiry. The argument now advanced is that currently the nursery lighting is not controlled, but the development lighting will be controlled and that is better for bats. The appellant seems to have resiled from the point that the nursery external lights should be included in the baseline.
33. Nevertheless, the obvious risk arising from students resorting to additional lighting at a higher level than modelled, including the aspect of accessibility and divergent needs/preferences in terms of both internal and external lighting, is still present. Some students may need or prefer higher light levels compared to the general population and the SLL guidelines²² provide the minimum levels that are acceptable for visual task. However these are representative of an 'average' individual whereas personal needs/preferences may be different. With this in mind, (as Dr Ticleanu said at the lighting RTS) proposed lighting levels would have been more reliable if modelled in a worst-case scenario, i.e. higher than the minima in the SLL guidelines.
34. The other, equally important, aspect related to lighting is the practical difficulty of setting sufficient control measures that prevent future occupants from adding their own lighting or replacing light sources that have been specified/installed with higher output luminaries of their choice. That Dr Burgess was left to speculate about possible practical measures (e.g. fixed desks) while giving evidence, shows how little serious thought has been given to this issue.
35. If the appellant's lighting mitigation does not work as intended then light sensitive bat species (in particular *Barbastelle*), which have been proved to use the eastern site boundary, and may use the northern boundary, will be harmed. Mr O'Connor also accepted that there can be 100% confidence that rarer bats (*Noctule* and *Myotis*- likely Daubenton's) also use the northern boundary which is near the proposed car parking and thoroughfare by Terraces 1 and 2. It is far from clear that the 0.4 lux level can be achieved on that northern boundary given the high post-development light levels

²² CD13.8

(13.64 horizontal lux; 2.75 vertical lux – **CD1.26** table 30) which Turley’s contended could be reduced to 2.0 lux ‘after curfew’ (Response to Bioscan, October 2022 **CD2.8**).

Trees

36. The loss of the poplar and ash trees on the LNR boundary has not been assessed in terms of the ecological impact on the biodiversity of the LNR or the appeal site. The appellant proposes to replace the existing habitat, including the trees, with an expanded ditch and wetland meadow. There is no evidence that this will function as intended i.e. it will not flood in winter or dry out in summer (as the ditch currently does).
37. The likely 10+ year lifespan of the trees does not justify their removal. There is no evidence to suggest that (absent the SuDs feature) the trees could not be allowed to fail naturally²³ or additional trees could not be planted which would grow to replace them. There is insufficient space to plant trees of the same or similar species if the development goes ahead.
38. With reference to policy 71, the trees to be removed have amenity value from the public realm of the boardwalk because when in leaf they screen the Owlstone Croft buildings, and also because they are part of the woodland environment of the reserve and a habitat for birds (as well as having acknowledged roost potential for bats). The appellant does not contend that “demonstrable public benefits” outweigh the amenity value of the trees.
39. The trees are also located within and so part of the character of the protected open space (Nat05), as is the existing ditch. This was not made clear until the inquiry had started. It should have been made clear as part of the planning application so that the committee could exercise its judgment on the application of policy 67 in the light of all the material facts. The physical extent of a designated site is surely a key material fact.
40. The Friends disagree with the appellant that the ‘character’ of POS under policy 67 is purely or principally visual. It includes all layers of character : what can be seen, heard, perceived, understood, recognised as familiar or unfamiliar etc. The boundary trees are (as the appellant acknowledged in the SoCI²⁴) an “important buffer to the surrounding area” i.e. the appeal site. That is a visual and perceptual buffer, as well as a spatial one. Loss of the trees, and failure to replace them with similar new trees, is

²³ This is the Council’s policy for managing trees in the reserve.

²⁴ CD1.4 pdf p.28

an obvious harm to the character of the POS and the proposal fails to accord with policy 67.

Traffic and highways

41. The Friends make the following key points :

- 1) Access to the Owlstone Croft site along Short Lane is constricted. Short Lane is narrow and there is a near 90 degree bend just after the pinch point at the southern end. This will be difficult for large construction vehicles to negotiate.
- 2) There is a high volume of pedestrian (and sometimes cycle) access along Short Lane to and from the reserve.
- 3) Proposed safety measures during the construction phase e.g. a banksperson are theoretically workable but difficult to manage in practice and on such a constrained thoroughfare.
- 4) The outline CMP does not provide any detail on how difficulties will be managed or what will be needed to resolve them, e.g. removal of vegetation and/or trees on the verges.
- 5) If the Council considers that public safety will be compromised during the construction phase, it may (without seeking a temporary stopping up or diversion order as it would need to do in the case of a public right of way) close access to the reserve.
- 6) During the operational stage there will be at least 45 more residents on site with a corresponding increase in online deliveries. These will all access the site via the top of Short Lane i.e. near the pedestrian gates to the reserve. There is an obvious potential conflict between delivery vehicles and pedestrians which has not been considered by the highway authority. There is no evidence that delivery companies do in reality, or could be compelled to, co-ordinate their drops to College premises.

42. All of the above are material planning considerations and should be taken into account.

Planning balance

43. Policy 46 of the local plan is the only relevant policy which clearly supports the proposal. It is not in accordance with policies 67, 69, 70, and 71, or the plan's strategic

objectives²⁵. It is submitted that despite support from policy 46 the proposal fails to accord with the plan read as a whole.

Grange Road

44. The key benefit relied on by the appellant is that the proposal fulfils a need for postgraduate accommodation. That need is not disputed. However the appellant also asserts a wider public benefit that pressure on the housing market will be eased. As a matter of common sense that has to be true. However the extent to which 45 student rooms will ease local housing pressure in circumstances where the council has more than a 5 year supply of housing land, and the corresponding weight to be attached to the wider benefit, has not been evidenced – which is somewhat surprising.
45. The Friends submit that the recent purchase of 12-14 Grange Road by Queens' College ²⁶ is a consideration material to that weighing exercise. Queens' offer was accepted the day after the planning committee meeting²⁷. The College now has 35 student rooms (and associated facilities : a library and study spaces) available which it chooses to use as 'decant' accommodation while other College properties are upgraded - but is not compelled to do so, as Dr Burgess accepted in cross examination. There is no evidence that the rooms at Grange Road are unfit for student accommodation, or could not be made acceptable by simple redecoration.
46. Dr Burgess said that the College will always need accommodation. That may be true, but its needs should be realistically assessed and balanced with other needs and priorities as set out in the development plan. The appellant appears not to appreciate that Paradise reserve is qualitatively different from the other green spaces near the city centre, in that it is the only nature reserve in the area. It is special. The development plan protects its character, habitats, trees and wildlife. The College has the resources to develop other sites in less sensitive locations (such as Grange Road, if it so chooses).
47. The benefits are limited and do not outweigh the irremediable harm to the ecology, character and amenity of the reserve. The Friends respectfully submit that the appeal should be dismissed.

²⁵ Particularly 1, 2, 4, 6 and 7.

²⁶ Appellant/Friends SoCG para 2.21

²⁷ Ibid

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Annex : Friends' case on drainage and flooding

The purpose of this annex is to summarise the Friends' and appellant's arguments on flooding and drainage.

GWP consultants (Mr Clive Carpenter, FGS. CGeol. EurGeol. C.WEM. MCIWEM. AMAE) summarised the need for winter groundwater monitoring data in his first report for the Friends on October 2022 (CD10.1F) as follows:

"No winter groundwater monitoring at the site has been provided to ensure a robust basis for design of effective attenuation and infiltration systems during the winter months. It is considered highly likely that such monitoring will demonstrate that the current design will not function as designed during periods when groundwater levels are high. As such the proposed on-site storm water run-off scheme is considered to be ineffective and does not prove pre-development run-off rates can be achieved during winter months."

48. Smith and Wallwork (the appellant's drainage engineers) replied to the points raised in Mr Carpenter's report including the winter groundwater issue on 15 December 2022 (**CD2.10**), contending (see pdf p.9) that :

"Should winter groundwater levels rise by 500mm as implied in the 14th October 2022 GWP letter, groundwater would temporarily be located 213mm above the base of the ground beam. However, as the ground beams will not extend through the full depth of the River Terrace deposits it will not create a 'damming effect', with groundwater able to flow laterally beneath and around the foundation structure. The only additional penetration into the groundwater zone would be the piles which are of relatively small diameter (350mm) and intermittently spaced (circa 3m). It is noted that the buildings are interspersed with substantial areas of soft landscape which provide considerable alternative flow paths for groundwater. Based on the above information the impact on the hydrogeological regime is considered minimal".

49. Following agreement at the CMC that the groundwater issue could best be dealt with by written submissions, Mr Carpenter prepared a further report which is at appendix 1 to Mr Bryce's PoE (**CD10.3C**). It contains the following response to Smith and Wallwork's assertions on the interaction between groundwater and building foundations in their 15 December 2022 letter (emphasis added) :

"On Page 8 of the Applicants Report dated December 2022, the Applicant identifies the base of the ground beam will be at 7.857m AOD. The Applicant recognises that winter groundwater levels are likely to rise to 8.07m AOD, as previously stated, truncating the

thickness of the groundwater flow by some 0.21m. The thickness of sand and gravel deposit encountered on the site as reported by the Applicant, was mostly between 0.10 and 0.60m thick, reaching 1.25 and 1.90m thickness at two locations. It is clear that the foundation beams will be below groundwater level in winter months and will, depending on location, entirely or partially truncate groundwater flow beneath the site, at a time when groundwater levels are at their shallowest. Where full truncation of groundwater flow occurs, groundwater is likely to rise to ground surface. Where groundwater flow is partially truncated, groundwater will rise proportional to the extent of truncation, and will increase the risk of groundwater flooding. **The Applicant goes onto concede soft landscape would provide alternative (ie above ground level) flow pathways for groundwater. This is an admission by the Applicant that their foundation design are likely to result in raising groundwater levels to above ground surface, which is by any definition groundwater flooding.**"

50. The nub of the Friends' concerns is as set out by Mr Carpenter at the end of that report (emphasis added):

"Consequences for other Planning Matters

Whilst I cannot comment on the direct consequential impact on bats of any revised surface water drainage scheme area and/or depths, nor impacts associated with revised finished floor level or height of the 3 blocks:

- any expanded attenuation ponds could result in the loss of trees which could have an additional impact bat activity;
- groundwater levels reaching ground surface could/will impact on moisture damage and water ingress to the buildings, potentially compromising their structural integrity as well as liveability;
- and the blocks may need to be raised if the foundation slabs need to be raised to not intercept groundwater flows.

It is self-evident from the points above, that groundwater level monitoring over the winter period is required to inform the likelihood of the above issues occurring and determine if they can be adequately mitigated. Without such monitoring, the above points cannot be addressed adequately, nor consequences of required mitigation measures potentially impacting on other planning considerations (landscape/visual, ecology etc)> Therefore the planning application should be refused.

Any groundwater monitoring should extend over at least two winter periods to confirm the repeatability of the winter groundwater level observations (as typically requested by the Environment Agency)".

51. Unknown to the Friends, the appellant had conducted winter groundwater monitoring between January and May 2023 – the results of which were not disclosed until the exchange of proofs of evidence at the beginning of September. The data is in Appendix 1 to Dr Burgess' PoE (**CD7.8C** pp25-34). Due to the appellant's delay in disclosing the data – despite having known since October 2022 that the absence of this data was a key concern – Mr Carpenter was not able to give his view on it in his written report for the inquiry (**CD10.3C**). That set in motion the 'back and forth' between GWP and the

appellant's engineers which culminated in the documents submitted late to the inquiry : a further reply from GWP which is at **CD14.11**, and the 'final word' from Smith and Wallwork at **CD14.18**.

52. Mr Carpenter's response to the winter groundwater monitoring data (**CD14.10**) was that :

"The Appellant's groundwater level data lacks coverage of variations in interannual maxima – a routine request of the Environment Agency. Groundwater levels at ground surface have been ignored by the Appellant raising questions about the reliability of the groundwater monitoring network.

Unaddressed On-Site Flooding: Observations of on-site flooding on 20 March 2023 have not been explained at all. No comments have been made about possible source or combination of groundwater, run-off and/or river sources, leaving uncertainty over the Appellant's understanding of flood risk.

- In conditions similar to those observed by the Appellant on site on 20 March 2023, the proposed surface water management scheme will not operate as intended as either overland flow from the swales cannot reach the eastern ditch, or the eastern ditch is already full of water.

- Foundation Truncation: The Appellant states they accept that foundation-induced groundwater flow truncation will occur. However, no attempt has been made to quantify the extent of potential impacts resulting from the associated groundwater level rise.

Given these concerns it is my opinion that the Appellant's responses fall short in assessing flood risk adequately and in the absence of adequate groundwater monitoring and assessment of groundwater flood risk impacts, the planning appeal should be dismissed for this development"

53. Smith and Wallwork replied (**CD14.7**) to the effect that :

- i) 2 years groundwater monitoring is disproportionate and "unreasonable" (para 4.1.1) and Met Office records demonstrate that 2023 was an unusually wet year;
- ii) GWP have misinterpreted the reference to on-site flooding on 20 March 2023 : this referred to borehole 2 (BH2) and not to the site. The borehole was flooded due to exceptionally high rainfall and therefore the groundwater level reading was purposely excluded from the analysis (para 4.1.2)
- iii) The borehole data overall is reliable because "known erroneous data" (i.e. the flooding on 20 March 2023) is excluded (para 4.1.3);
- iv) GWP are wrong to suggest that overland flow routes from the swales may not reach the ditch system. This is because the lowest point of the drainage system (the attenuation basin) is above the 1:100 plus climate change fluvial level as

well as the peak level winter groundwater level as measured at borehole 2 (BH2), so water will continue to flow to the eastern ditch in all conditions (para 4.1.4).

- v) The eastern boundary ditch is not required for onsite water retention: its purpose will remain the same i.e. as a conveyance route to the River Cam (para 4.1.5).

54. Mr Carpenter's final response (**CD14.7**) was, in summary :

- i) There is still doubt about the infiltration capacity/function of the attenuation ponds which are only 0.63m above maximum groundwater level (the required vertical separation is 1.0m under the CIRIA SuDS guidance). The appellant says these are not required for infiltration but they are shown as unlined on the application drawings, as is the porous paving. They are marked as draining to ground. Some form of infiltration is needed to reduce both peak and total flows to pre-development levels (responses to Smith and Wallwork paras 3.1.1-3.1.4).
- ii) Groundwater flooding cannot be ruled out and is widely recognised as causing damage to buildings. The appellant accepts that partial truncation will occur but has not quantified this impact) (response to Smith and Wallwork paras 3.1.5 – 3.1.6).
- iii) The EA requires 2 years of groundwater monitoring as standard. Data for a single year cannot be compared to other years. Seasonal maxima are typically March-April, but this is not always the case. The monitoring data is still inadequate (response to para 4.1.1).
- iv) Without testing borehole 2, it is not possible to tell whether the water is surface or groundwater. If the borehole data is reliable (as the appellant says) then logically the water ponding on the surface was groundwater. However if, as the appellant says, the borehole 'unintendedly' allowed surface water ingress, then it is not hydraulically separate from surface water run-off (which is a standard requirement) and the collected data is unreliable. BH2 is located between an attenuation pond outlet and the boundary ditch. If surface water (not groundwater) was ponding near the borehole, then it was obviously not draining off the site – this demonstrates that post-development attenuation pond water

will also pond on the site and the drainage scheme will not work as planned. (responses to paras 4.1.2 – 4.1.4).

- v) The base elevation of the eastern boundary ditch and its bank heights are below the winter groundwater levels, and so may be full of groundwater during the winter period. If this is the case, then it has no/less capacity to convey surface water to the Cam (response to para 4.1.5).
- vi) Given truncation of groundwater by the foundation structures, it is inevitable that groundwater levels will rise and find alternative flow routes increasing groundwater flood risk and reducing the available storage volume for storm water retention response to para 4.1.6).

55. Smith and Wallwork's 'last word' (**CD14.18**) does not concede any of these points. The Friends' position is that the proposal fails to accord with policy 32 of the local plan, in particular because the achievability of peak-rate run-offs which are no greater post-development has not been demonstrated (para (a)), and it is not clear that the discharge locations have capacity to receive all surface water flows (para (d)).

06 October 2023

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