

55 Fitzroy Park**Further comments on LBH Wembley drainage responses**

Item Ref.	Further comments
Executive summary Surface water Point 3	We agree that the surface water run-off and drainage should be maintained as existing but we have reservations that this can be achieved given the extent of the groundworks, including changes in level, proposed on site.
Surface water Point 4	It is stated that there is no plan to alter the discharge to the Heath, however, the proposals show a swale running down the side of the lane and a new discharge pipe under the road discharging on the Heath.
ABA a)	There does now appear to be an acknowledgement that the applicant's team misunderstood CoL's view on their proposals. CoL responded on 26 October 2018 making it clear that they would not support any request to discharge water onto Hampstead Heath. However, the drawings continue to show a new pipe constructed below Millfield Lane discharging onto the nature reserve and Bird Sanctuary site.
ABA b)	The response refers to a drainage report, updated 5 July 2018, presumably the same Hydrological & Hydrogeological assessment which our comment referred to. This does include diagrams and Figures with various statements of intent such as 'landscaping directs surface water away from houses to run-off route', but as previously noted this is vague and it is unclear how the levels will work.
ABA c)	<p>The response indicates that the swale will be backfilled with free draining material, creating a linear soakaway, which will allow ground water to percolate via the sides and base into a permeable layer that "currently exists". However, the Hydrological & Hydrogeological assessment confirms that the site is generally underlain by London Clay with a buried channel feature to the west and made ground over. The report notes that 'these soils exhibit only limited permeability' London Clay is generally considered as impermeable with regards to soakaways. Permeability tests on the adjacent Water House site also indicated low permeability and that soakways were unlikely to be effective. It seems very optimistic therefore to assume that the attenuation tank and filled swale will provide the attenuation storage indicated and also allow the ground water to percolate away through permeable layers. It appears more likely that the ground water will flow over the top of the filled swale and discharge over Millfield Lane along the length of the swale, running into the nature reserve.</p> <p>We remain concerned that the excavations for the tank and swale will also affect the stability of the road and tree roots and have seen no correspondence to suggest that the CoL requested the swale be located outside the site fencing for ease of maintenance.</p>
ABA d)	The response confirms the complexity of the drainage proposals, with much of the surface water to the east of the site directed towards the pond. This will result in an increase in water flow to the pond and therefore an increase in the out flow towards the Heath. The re-infiltration of collected water relies on the permeability of the uppermost layers of soil and there is a risk that following the extensive groundworks this is altered. If the

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	permeability is reduced, flooding on site is possible. It is wishful thinking to suggest that the existing regime will be maintained and preserved exactly as it is.
ABA e)	The ABA comments relate to the proposals for pumping the foul water from the sewer which currently passes below the tennis court, along with the foul water from plots 4 and 5 up to the combined sewer in Fitzroy Park. The response refers to the existing surface and groundwater regime and is not relevant.
ABA f)	It is difficult to see how it is possible to preserve the existing surface and groundwater regime in the natural environment of the large garden, given the extent of the proposed groundworks. The proposed regime is intended to be much more heavily controlled and engineered, but still relies on groundwater permeating through the soils above the London Clay, after these have been disturbed and/or compacted during the works, in order to maintain the 'status quo'. This is unlikely. The response notes that in the permanent condition more contaminated water is being separated off and directed to the sewer, which directly contradicts the response to ABA e) which states there will be no significant increase in the discharge to the TW sewer.
ABA g)	<p>The greatest risk of contamination of the pond and Heath will be during construction when it is proposed that the contractor constructs impermeable water retention bunds around some of the ground works areas to collect water for analysis prior to disposal. Any leaks in the bund or overtopping could lead to contamination of the pond and/or the nature reserve. As the permanent drainage regime relies on groundwater flows through the near surface soils these temporary impermeable bunds will have to be removed entirely to reinstate the 'status quo'. This is unlikely to happen.</p> <p>It is incorrect to say that plots 1, 2 and 3 have minimal ground works as these are cut into the slope at the front of the properties as are plots 4 and 5. The attenuation tank and pump chamber are large excavations which were not part of the earlier proposals, thereby increasing the risk of contamination during the works.</p>
FPRA i)	The suggestion that the pond is also spring-fed was made by the owner of the site, Professor Lynne Turner-Stokes in correspondence in July 2008. The risk of dewatering the pond comes from the close proximity of excavations for plot 5 in the temporary condition.
FPRA ii)	The extent and depth of the 'permeable layer' referred to is unclear. See ABA c) above. The Hydrological & Hydrogeological assessment notes the soils over the London Clay exhibit 'only limited permeability' so it is unclear at what rate the water will percolate via the sides and base of the attenuation tank and swale. It is unlikely that there will be much percolation through the base. It is reasonable therefore to highlight the risk of localised flooding along the Lane and surcharging Bird Sanctuary.
FPRA iii)	The Key point here is that the arrangement currently shown on the proposed drawings is not acceptable to CoL.
FPRA iv)	CoL have also made it clear that they will not support the proposed stormwater drain below Millfield Lane which is shown discharging on the Heath.
FPRA v)	The linear swale is new in that there is no existing swale in this location, nor any evidence that one used to exist. We understand that this is to be filled and acts as a linear soakaway. We have reservations regarding constructing a soakaway beside and partly under the road as there is a risk of settlement and instability. We have seen no evidence of a CoL request to locate the linear swale outside the boundary/site fencing.

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	See FPRA i) regarding the pond being spring fed.
FPRA vi)	See FPRA v) regarding the proposed swale which would be a new feature on the site. Despite the lengths taken to preserve the existing regime, the extent of the works on site is such that there is likely to be some change, most likely an increase in the flows to the pond (refer to ABA d)), the overflow rates and then the flows into the tank and swale and eventually the discharge to the Heath, particularly if a pipe were to be constructed below Millfield Lane.
FPRA vii)	See ABA g) regarding the extent of excavations. There must be more spoil if there are more excavations. Whether this increases HGV numbers will depend on whether this spoil is kept on site or taken away for disposal. In either event, major changes are proposed.
FPRA viii)	'Relatively modest' is a vague description of the proposed pumping chamber. Presumably the proposed monitoring would be to 'eliminate' uncertainty not 'elevate' it.
FPRA ix)	IF there are cost implications for the maintenance of the private sewer then this is likely to be a concern to the owners of the properties affected.
FPRA x)	The construction of the pond is not explained in detail in the assessment. It is noted to be man-made and sits in part over an ancient valley feature infilled with head deposits. The assessment concludes that the pond is fed by groundwater over the top of the London Clay and surface water run-off. The presence of spring lines on the slope above the site is acknowledged, but no account has been taken of the site owner, Professor Turner-Stokes, comments that the pond is in part spring fed.
FPRA xi)	There is some discussion in the Hydrological & Hydrogeological assessment and the Geotechnical assessment regarding contamination. Some broad statements are included on forming bunds around some of the plots to trap contaminated water, but until detailed proposals are provided which incorporate protection around all of the proposed groundworks this cannot be discounted. Given the extent of the proposed excavations it is difficult to see how the risk can be removed entirely.
FPRA xii)	Given the close proximity of the attenuation tank and the swale it is difficult to see how these can be excavated, even by hand, without damaging existing roots. Similarly there is little room for the proposed hedge and tree planting alongside the swale, because of the close proximity of the tank
FPRA xiii)	If the swale is to be backfilled and acts as a linear soakaway it should not be constructed this close to the roadway, as it could affect its stability. Typically soakaways should be a minimum of 5m from a road. We have seen no correspondence from CoL in relation to the swale.
FPRA xiv)	This sounds over optimistic. How will the developer ensure the orchard area receives exactly the same amount of water as at present and that the permeability of the near surface soils remains the same when much of this is to be re-profiled as part of the works? We understand that most of the soil excavated for piles and basements is to be retained on site and incorporated in landscape. Most of this soil will be impermeable clay.
NP Page 1 Para 3	Nexus to confirm, but we understand that CoL considers that the additional information submitted to date does not address the concerns previously expressed in the letters of 17 December 2018 and 2 July 2019.
NP	See ABA a) above.

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Page 2 Para 3	
NP Page 2 Para 4	A pipe discharging onto the Heath is still shown on the proposed drawings.
NP Page 2 Para 5	We understand that CoL would prefer to see the existing arrangement maintained, with no change in flow. They would not accept a pipe below the road or a stone/concrete channel across the road.
NP Page 2 Para 6	The current proposals show a new pipe under Millfield Lane discharging onto the Heath. This does alter the means of discharge to the Heath and CoL have made it clear they would not accept it.
NP Page 3 Para 1	See ABA a) to g) above
NP Page 3 Para 2	See ABA f) and g)
NP Page 3 Para 3	Noted, but given the extent of the groundworks on site it is difficult to see how these works can be carried out without affecting the groundwater regime in both the temporary and permanent conditions, with the inherent risk that this will affect the Heath and in particular the Bird Sanctuary.
NP Page 3 Para 4	See ABA g)
NP Page 3 Para 5	However, given the scale of development it seems likely that the natural habitats and biodiversity will be affected locally. How can the applicant be sure they aren't changing anything given the nature of the existing hydrology and the extent of changes on site?
NP Page 3 Para 6	As above
NP Page 3 Para 7	The current proposals show a new pipe under Millfield Lane discharging onto the Heath, which is not acceptable to CoL. The existing drainage regime should be preserved, but it appears that there is a risk of increased discharge across Millfield Lane from the linear soakaway, thereby threatening the wetland nature reserve.
NP Page 4 Para 2	See ABA g)
NP Page 4 Para 3	See NP Page 1 Para 3 above.