

2 January 2015

Cranleigh Society c/o 15 Mount Road Cranleigh GU6 7LT

Dear Councillor

Re Application Number WA/2014/0912 Land South of High Street between Alfold Road and Knowle Lane, Cranleigh

The Cranleigh Society (which is a civic society) was formed to speak up for Cranleigh on issues that affect the village.

The complexity of assessing the risk to life and property arising from the development of this site should not be underestimated. The 5 January 2015 will be the fifth date this application has been scheduled to be considered by the Joint Planning Committee. The Applicant has had more than enough time to show there will be no risk of flooding as a consequence of granting this application, but is still unable to do so.

This planning application is for the largest green field site to come before the Joint Planning Committee (JPC) for decades. This development is being proposed on a site equivalent to 29 football pitches much of which is shown on the current Environment Agency (EA) planning maps for flood risk within flood zones 2 and 3. The Cranleigh Society is convinced that this site is at serious risk from flooding.



Figure 1: Underlying Map is Current Environment Agency Flood Map for Planning (Rivers and Seas <u>ONLY</u>)

1. Topography and Geology

The topography of Cranleigh means that Cranleigh has historically developed largely in the higher North and East of the settlement with a reduced risk of flooding. Engineered culverts channel rainwater from the Surrey Hills down towards Environment Agency (EA) designated major rivers which run to the lowest ground to the south of Cranleigh High Street, through the Berkeley Homes site where they then join the Cranleigh Waters. From here they run into Bramley and Godalming before connecting with the River Wey.

The geology of Cranleigh as verified by Waverley Borough Council's engineers and upheld by WSP (Berkeley Strategic's consultants) in their Flood Risk Assessment is heavy Weald Clay, which has low permeability and does not allow water to be easily absorbed into the ground. Water therefore is prone to collect and rise on the lower ground and road surfaces to the South of the High Street (see Appendix A).

2. Cranleigh Flood History

Cranleigh village was cut-off by flooding on Christmas Eve 2013 and flooding remained on the Alfold Road and Elmbridge Road and Run Common Road for several weeks. Pressure on the sewage system resulted in seepage into homes. An elderly couple on the Elmbridge Road had to be rescued from their home by the fire brigade on Christmas Eve and were only able to return in October 2014. We have a copy of their Flood Investigation and Property Level Flood Protection Survey dated 3 June 2014 by RAB Consultants, (www.rabconsultants.co.uk) prepared by Ray Pickering CEng MCIWEM C.WEM MCGI MEPS. In the report Mr Pickering states:

"the property suffered extensive fluvial flooding to depths of up to 570mm when the Cranleigh Waters exceeded its channel capacity. Based on recorded flood levels, it is estimated that the magnitude of flooding on this occasion was greater than the modelled 1% (1 in 100 year) annual probability flood plus an allowance for climate change and only 56mm lower than the modelled 0.1% (1 in 1,000 year) annual probability flood."

At nearby Elmbridge Retirement Village, which is adjacent to Cedar Court Dementia Care Home, several units were flooded. These residences are close to the Cranleigh Waters (the main river) and only a few hundred metres downstream from the site of this application. Residents are extremely concerned about the risk of increased cumulative run-off from this development.

Robust evidence exists of regular and severe flood events in Cranleigh:

1.3 HISTORIC FLOODING

1.3.1 In the recent past a number of storms have caused watercourses to break their banks within the catchment areas of the River Wey, including the Cranleigh Waters, and the River Blackwater (a tributary of the River Loddon). A significant proportion of these cases have occurred in rural areas where little risk to people or property exists, however, some have resulted in damage to property, infrastructure and inundation of roads. The recorded events of particular note include those that occurred in 1968, 1990, 1999 and 2000. More recent flood events have also been recorded in July 2007 and December 2008 / January 2009. Areas within the catchment with known flooding problems include the parishes of Bramley, Chiddingfold, Cranleigh, Dunsfold, Farnham, Godalming and Haslemere.

The Cranleigh Society has gathered evidence of flooding for the dates mentioned in Figure 2, as well as flood events going back to the 1850s. Severe flooding occurred in July 2007, December 2013, February 2014 and June 2014 and even more recently on 23 November 2014 when one night of heavy rain resulted in a flood alert for the Cranleigh Waters and flooding yet again on the Alfold Road. Severe flooding on the Alfold Road has been put down to a blocked highway drain. However on 23 November 2014, after this blockage was reported to have been rectified, Alfold Road flooded again at the main access and evacuation point to the site (see Appendix B).

3. Fluvial Risk (flooding by rivers and seas)

The Environment Agency is a statutory consultee for fluvial flooding i.e. flooding from rivers and seas and they only act in an advisory role for other sources of flood risk.

WSP, Berkeley Strategic's consultants, have challenged the EA planning flood map for rivers and seas (see Figure 1) and submitted a remodelled map indicating that the central area of flooding across the site no longer existed. The EA has not yet updated its flood maps. This is supported by the officers' report (page 61). The EA say that "the source data used in the Applicant's model are based on our 2009 modelling information and our current flood map for planning is also based on these data. However, we are currently reassessing detailed modelling undertaken by the Environment Agency in 2012 to see if the Applicants model is comparably suitable to update the Flood Map." This is data is still in draft and so the published EA maps do not as yet reflect the Applicant's remodelling of the site which is based on the old 2009 data and not the latest available.

4. Safe Access and Egress

According to the Environment Agency it is the responsibility of Waverley Borough Council and Surrey County to assess whether there is safe access and egress to and from the site.

Although the EA withdrew their objection with regard to safe access and egress in their letter of 21 October 2014 they make it extremely clear that this is only with regard to fluvial flood risk, which is the area within their remit as statutory consultee and NOT with regard to flooding from other sources i.e. surface water or groundwater. The letter draws attention to the fact that there is a 'danger to most' hazard rating relating to surface water flooding outlined in table 2, page 4 of the WSP Access Appraisal October 2014. The EA tells WBC and SCC they must fully consider the implications this may have on the proposed development and future occupants prior to determining the planning application.

Waverley officers consulted with Surrey County Council (SCC) as Lead Local Flood Authority and received an email from Mr Bava Sathan, Flood & Water Services Manager for SCC on 28 October 2014. In this email Mr Sathan refers to the risk from surface water and indicates there is "a danger to most" for access along Alfold Road and states that "the depth of flood water is only one aspect, there is the velocity of that flood water to be taken into account and the unseen dangers of displaced manhole covers and other dangers hidden by flood water. I would not recommend adding a condition either, as without proof that safe access exist, it is deemed that the Exception Test has failed and therefore planning permission should be refused."

We infer from this reference to the Exception Test that Mr Sathan believes that the site has passed the Sequential Test (which Planning Counsel disputes, see other letter) but he is still saying that based on the information he has seen the further Exception Test has failed and planning permission should be refused.

Mr Sathan also points out that if the road is actually *lower* than the theoretical modelling data then the flooding may well be deeper, not less, on the Alfold Road.

there is danger to most for access along Alfold Road. I take note of the argument on page 5 of that same report in that there is a discrepancy between the modelled data and the actual road level, which according to the report are lower than the LIDAR information used. WSP report argues that the EA has lowered the LIDAR data by 0.125m (page 4 of the access report), which according to the report would be an overestimate of flooding depth. In the same logic, by the road being in reality lower than the theoretical value, then the actual flooding depth should be deeper and not less. I accept that modelling is not as simplistic as that and without the benefit of local knowledge and catchment characteristics (and more time to assess the proposal), I would therefore have to take the view that the danger to most should be maintained at that location.

Figure 3: Email from Surrey County Council (Bava Sathan) 28 October 2014

As nothing further has been heard from Mr Sathan, WBC Officers appear to be relying on Odyssey Markides to address the fact that a 'hazard to most' has been identified at the Alfold Road access point. However Odyssey Markides have conducted a superficial desktop exercise which we understand relies on the 2009 modelling relied on WSP. Odyssey Markides have no local knowledge or knowledge of the catchment characteristics on which to base their analysis.

There was serious and well documented flooding at the Alfold Road access point in December 2013/January 2014 which made the road impassable to all vehicles other than 4 wheel drive vehicles.

Much more recently there has been flooding from surface water and through drains and displaced manhole covers at this location. See Appendix B.

Therefore we do not accept that Councillors are entitled to rely on the OM Report to provide the necessary assurance that there is no 'hazard to most' at this access because recent photographs show that even low to moderate levels of rainfall are still causing flooding at this point.

We also think that it is important to note that based on figures obtained from the Environment Agency the EA measuring point on the Alfold Road upstream from the development site (known as the Cranleigh Flash Bridge) shows a general upward trend in the river level, indicated by a red line on the graph below, demonstrating an increase of 38 centimetres (about 15 inches) over the previous eight year period. According to the EA this trend will increase in line with forecasted severe and frequent rainstorms (Flooding in England: A National Assessment of Flood Risk 2009).



Figure 4: EA Flash Bridge data Jan 1998- Nov 2013

The UK Climate Change Risk Assessment: Government Report January 2012 also states that there will be an increasing frequency of extreme events, like those seen in Cranleigh in summer of 2007 and the winter of 2013.

5. Surface Water Run Off and Sustainable Urban Drainage Systems (SuDS)

Increasing urbanisation has caused problems with increased flash flooding after sudden rain. SuDS are an approach to managing surface water run-off which seeks to mimic natural drainage systems and retain water on or near the site as opposed to traditional drainage approaches which involve piping water off site as quickly as possible. SuDS involve a range of techniques including soakaways, infiltration trenches, permeable pavements, grassed swales (shallow drainage channels), ponds and wetlands.

WSP confirmed in the Flood Risk Assessment that due to the impermeable nature of the clay soil SuDS methods that rely on absorption will not work on this site.

The assessment of flood risk and SuDS is an extremely complex area demanding high degrees of technical expertise. As well as difficulty in assessing the capacity of SuDS there are costs and risks for local authorities with their ongoing maintenance. Authorities that adopt SuDS have a difficult task in predicting and planning for their operation and potential system's failure. In a response to a government consultation in the autumn of 2014, District Council's Network (DCN), of which Waverley Borough Council is a member, key concerns highlighted by DCN were:-

- The lack of long term maintenance and management of SuDS and the liability and cost burden for local authorities.
- The lack of technical expertise and funding for SuDS within the local planning authority (LPA).
- The number of risks in dealing with SuDS as a planning condition.
- The preference for one, technically proficient, and properly funded body to be appointed as a statutory consultee in conjunction with the planning process.

Berkeley Homes' consultants have provided all the information relating to surface water run-off rates and none of this has been double checked by a suitably qualified third party.

The officer recommendation is to deal with this complex area with huge associated risks when the SuDS fail to people and property in a planning condition.

After an appropriately qualified local resident queried the run-off rates we subsequently applied the HR Wallingford Drainage Tool which is a sophisticated and well-known greenfield run off estimation tool to the application site as it exists at the moment. The results are given in Table 1.

Run-off Rates	HR Wallingford Drainage Tool - litres per second l/s	Berkeley Homes WSP - litres per second I/s
1 in 30 years	195.57	144.14
1 in 100 years	271.25	195.13

Table 1

We are struggling from a practical point of view to understand how the estimated and limited **1100m3** of flood storage proposed will provide the buffering effect to the Littlemead Brook to the South of the site especially as the FRA report recognises key "overland flood routes from land adjacent to Cranleigh Methodist Church, St James's Place, and the car park to the North". In very simple terms 20mm of rain falling on this site (208,000m2) will generate in excess of 4,000m3 (if it was 100% impermeable surface). If we take only 50% of this figure that is still 2,000m3 from a single rainfall event.

In one single event 56.8mm of rain fell on Cranleigh (source EA measurement taken between 10:30 on 23/12/13 and 05:15 on 24/12/13). Any flood balancing lagoon could well be subject to multiple rainfall events before being fully discharged.

When these SuDS fail the risk from a development of this size to the Cranleigh Community and to residents and property downstream will be catastrophic. This site has a regular and recent history of overland surface water flows which has been well documented by local residents. Photographic evidence is logged against the planning application.

We also cannot ignore the cumulative impact and the wider effects of multiple schemes around the village. Outline planning has already been approved for 125 dwellings on the Amlet's Lane site. This sits on the higher north side of Cranleigh and additional run-off will enter the Nuthurst Stream which subsequently runs to the North West of the Berkeley's site. This has not been taken into account in the current calculations.

There is no need for Councillors to take this risk on a site the size of 29 football pitches when Councillors can reject this application on legal grounds due to the failure of the site to pass the Flood Risk Sequential Test.

6. Local Lead Flood Authority Role

After a Government consultation in September 2014 it was recognised that Local Lead Flood Authorities (LLFAs) are best placed to provide technical advice to Local Planning Authorities (LPAs) on developments with Sustainable Urban Drainage Systems (SuDS) and should play an increasing role in planning applications, pending the next stage to appoint them as statutory consultees. This was announced in a statement to Parliament on 18 December 2014 by DCLG, DEFRA and the EA to take effect from April 2015. It is aimed at strengthening existing planning policy relating to the design and maintenance of Sustainable Urban Drainage Systems (SuDS) and to ensure that LPAs have access to appropriate technical expertise.

Under these new arrangements LPAs should consult the LLFA on the management of surface water drainage, satisfy themselves that minimum standards of operation of SuDS are appropriate and ensure that arrangements are put in place for the ongoing maintenance of sustainable drainage systems over the lifetime of the development. It also confirms that the Secretary of State's recent Statement "should be taken into account in the preparation of local and neighbourhood plans and **may be a material consideration in planning decisions**" (their emphasis).

To date Surrey County Council as LLFA has NOT provided a formal response with regard to the surface water drainage strategy on the site. Therefore the risk and liability for ensuring that the technically complex Sustainable Urban Drainage Systems (SuDS) are designed and maintained appropriately and the cost and accountability when the SuDS fail, is based firmly with Waverley Borough Council.

Given the scepticism cast on the Berkeley estimate of the run off rates and taking that together with the evidence from RAB Consulting that last winter's flooding was of a magnitude greater than the modelled 1% event (1 in 100 year) and only 56mm lower than the modelled 0.1% event (1 in 1,000 year), residents of Cranleigh clearly have legitimate grounds for challenging the officer recommendation to leave the issue of SuDS 'to a condition'.

7. Odyssey Markides Report

Waverley Borough Council commissioned Odyssey Markides (OM) to review 5 WSP documents regarding access appraisal and surface water flood mitigation. As previously stated in this letter, this report is superficial desk top study. In addition there are some quite obvious errors.

7.1 For instance, OM say at 6.2 in their report (repeated in the Waverley officer's report) that 'it should be noted that the development site itself is outside the flood plain'. In an email from Niall Connolly of the Environment Agency on 3 September 2014 copied to Mr Barry Lomax, Mr Connolly explained that the application site was "remodelled [by WSP] and found mostly to be in flood zone 1 with some parts in zones 2 and 3". This is reflected in the maps showing the remodelled zones contained in WSP's own Sequential Test Report which clearly shows areas of flood zones 2 and 3 within the application area.



7.2 The Odyssey Markides Report highlights that the flood risk has been assessed by WSP using Defra's 2006 Flood Risks to People Methodology. OM comment that flood risk velocities used for the assessment are unknown and OM makes the assumption that these figures are based on WSP's own figures. Calculating flood risk velocities is about calculating risk to people. Councillors must be certain that these figures are based on accurate and robust data. This is certainly not at all clear in this case.

OM mention in the report that:

2.7 It is noted that the majority of flood flows that were shown to be inundating the site are not out of bank flows from the reaches of the Nuthurst Stream and Littlemead Brook at the site but overland flows emanating from Nuthurst Stream exceeding the capacity of the culverts approximately 600m upstream of the site.

Figure 5: Point 2.7 Odyssey Markides Report

This photo was taken by a local resident at that time on 1 January 2014 at 1.20pm, at or about the 600m mark. As you can see the Littlemead Brook had not burst its banks and there were no blockages or surface water run-off at the point OM say there was.



Figure 6: Photo taken 01/01/2014 of Littlemead Brook

8. Groundwater

As far as we are aware Waverley has not consulted with the LLFA or received any independent advice on the groundwater aspects of the development.

According to WSP a complex hierarchical drainage system will need to be established on the site as ground water investigation undertaken in 2014 confirms that the geology of the site is not suitable for infiltration SuDS which would enable surface water to slowly soak back into the ground. In the WSP Flood Risk Assessment from Berkeleys 17 out of 41 (42%) of the trial boreholes across the site showed the presence of groundwater, with 9 (22%) of the total showing groundwater at less than a metre from the surface. From a site of this is a significant amount of groundwater to deal with. The Officers' Report only mentions the 9 boreholes showing groundwater very close to the surface.

Furthermore the site sits entirely on an aquifer i.e. a body of saturated rock. We have added the rough outline of the Berkeley Homes site on the Environment Agency groundwater map below for identification purposes only. This means that water may be discharged from this area by upward seepage through the overlying clay. Previously saturated weald clay has "rapid run-off behaviour", this means water exits the site far more aggressively than the "dry-soil" models used suggest. Should percolation rates and leakage paths etc be modelled for a compound weather event (which is what nature does when it feels like it!) the resulting numbers for run-off would be far worse.



Figure 7: Environment Agency Groundwater Flood Map

9. Insurance

Councillors must bear in mind that residents of this site will not be guaranteed flood insurance as houses built after the 1 January 2009 are not covered by the FloodRe flood risk insurance scheme. Therefore a miscalculation of the potential for flood risk could have very serious consequences. If parts of this development flood in the future, properties in the affected areas or postcode could find

that they are unable to obtain insurance against flood risk, maintenance of which is a standard mortgage requirement. That is why Councillors need to be absolutely certain that the information they have been provided with by the Applicant covers all possible sources of flooding and is both comprehensive and accurate and that it is has been thoroughly tested and examined by suitably qualified independent experts.

10. Conclusion

At this moment in time Cranleigh's risk from flooding has not been officially or independently assessed for some time and is apparently in the process of being updated by the Environment Agency, but recent events and evidence points to a significantly increased level of risk.

In a separate letter to Councillors we explain why there are legal grounds available to Councillors to reject this application due to the failure of the site to pass the Flood Risk Sequential Test. This test has been developed to steer new development away from areas susceptible to flooding so that Councils and Councillors are spared the problem of trying to assess complex issues relating to hydrology – exactly the situation that Waverley now faces.

If as Councillors you feel that you are unable to reject this site on the basis that it has failed the Flood Risk Sequential Test then you must be convinced that as the local planning authority Waverley Borough Council has the relevant technical expertise to assess the multiple sources of flood risks on this site and that all necessary assessments of surface water run-off, groundwater, risk of fluvial flooding, safe access and egress during a flood event and SuDS have all be satisfactorily conducted. They must be persuaded that the Odyssey Markides Report has had a wide enough scope and been sufficiently thorough and answers the very serious concerns raised by Surrey County Council as LLFA. Furthermore Councillors must be assured that the critical drainage system proposed for this site is adequate and that an appropriate maintenance programme is in place to mitigate the catastrophic failure of the SuDS. And finally they must be certain that the risk of flooding is not increased elsewhere as a result of this development.

Based on many hours of detailed analysis and years of local knowledge it is the view of the Cranleigh Civic Society that the application site cannot demonstrate that it is not at risk from flooding and this application should be refused on this basis.

Yours faithfully

On Behalf of the Cranleigh Society

Appendix A Cranleigh topography Appendix B Cranleigh flood evidence 23 November 2014 Appendix C FloodRe Article