ENVIRONMENTAL
FLOOD RISK
DRAINAGE
ECOLOGY

3rd April 2014

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F.A.O : Alan Filby

Re: Redevelopment of existing gypsy and traveller site involving reduction of plots from 21 to 15 together with site manager's office accommodation.

Further to our recent correspondence, I write to address the comments received from the Environment Agency (EA) for the redevelopment of the existing gypsy traveller site off Siskin Drive, Coventry. This letter is issued as an addendum to Clear Environmental Consultant's Flood Risk Assessment Report (Ref: CL1614/005/001).

Background Information

The EA flood map shows the site to lie within Flood Zones 1 and 2 of the EA flood maps and is therefore defined as having a low to moderate probability of flooding. A small section of the southern boundary of the site is shown as intercepting Flood Zone 3, with a high probability of flooding.

In terms of the Flood Risk Vulnerability Classification given in Table 2 of the Technical Guidance to the National Planning Policy Framework, the proposed use at the site is categorised as "buildings used for dwelling houses" and this implies a vulnerability classification of "more vulnerable". Table 2 of the Technical Guidance to the NPPF suggests the 'more vulnerable' development is permitted within Flood Zones 1 and 2.

The proposed dwellings are to be contained within the areas of the site affected by Flood Zone 1 and 2. Flood Zone 3 is shown to enter less than 5% of the site along the southern boundary. The site is protected further through the presence of a landscaping bund reaching approximately 67.5mAOD. This bund is partially dilapidated and it has been proposed that this is reinstated during the development of the site.

Environment Agency Comments

The Environment Agency have raised an objection and recommended the refusal of the planning application as "the submitted FRA fails to confirm the flood risk of the site and the risk to occupants."

Original consultation with the EA stated "There are no Environment Agency flood defences affecting this site." This suggests that the existing landscaping bund forms a private defence which is not considered within the EA flood map. The Coventry City Council Strategic Flood Risk Assessment (SFRA) states that the hydraulic model used to generate flood level data has been created using LiDAR data which is unlikely to include specific ground level data for the site and the landscaping bund.

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Consideration of the topographical survey provided for the site shows existing ground levels along the southern boundary of the site to lie between 66.18mAOD and 66.28mAOD with the existing bund varying between 67.04mAOD and 67.48mAOD.

Modelled flood levels provided by the Environment Agency for points along the Avon in the vicinity of the site are between 63.68mAOD and 64.71mAOD for a 1 in 100 year + climate change and between 64.92mAOD and 65.07mAOD in a 1 in 1000 year event. Therefore even if the existing landscaping bund was breached it is unlikely that flood waters would encroach the site due to the change in topography. Consequently the risk to life is assumed to be nil for the 1 in 100 year + climate change event.

Breach Analysis

The EA have suggested that a simple breach analysis for the landscaping bund within the site is required to assess the risk to human life posed during the breach of the private flood defence. A simple breach analysis has been completed using the DEFRA FD2320/TR2 methodology.

At present the landscaping bund is considered the be in poor condition however it is proposed that this will be reinstated during the construction of the site and therefore analysis has been completed based on a condition of "very good" being applied. Therefore it is considered that there is a 10% chance of breaching in the 1 in 100 year flood (1% annual probability). This event will have a (0.10 x 1% =) 0.1% chance of occurring in any year. Consequently the impact of the breach obtained from Table 1.0 below has a 'Low danger for some' hazard rating at the site.

Table 1: Probability of inundation (DEFRA, 2005)

Danger to people	Annual probability of inundation			
	Prob ≥ 1%	1% > prob. ≥ 0.5%	0.5% > prob. ≥ 0.1%	Prob ≤ 0.1%
Danger for all	High	High	High	Medium
Danger for most	High	Medium	Medium	Low
Danger for some	Medium	Medium	Low	Low

Although the likelihood of a breach occurring along the defences is slim, given the proposed reinstatement of the bund, a simplified breach analysis has been undertaken to assess the level of risk to the proposed development site. Table 2 below provides a look up table taken from the DEFRA Report FD2320/TR2 which assesses the danger to people from breaching relative to the distance from the defence.

Table 2: Danger to people from breaching relative to distance from defence (DEFRA, 2005)

Distance from breach (m)	Head above floodplain (m)				
	0.5	1	2	3	4
100					
250					
500					

Key
Danger for all
Danger for most
Danger for some
Danger for none

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The site lies between 2-3m above the 1 in 100 year + climate change flood level and approximately 10m away from the defence at its closest point. Based on the information in Table 2 the risk to the proposed development site is defined as a “danger for none”. This is due to the topography of the land between the floodplain and the proposed development site.

The bund should be reinstated with compacted earth to ensure its continued integrity and sufficient protection against the higher return period events. Where necessary the existing bund will have to be removed and reinstated as this has become dilapidated. To prevent future deterioration of the bund due to the occupants of the site, it should be fenced to prevent access.

Conclusion

Details portrayed within the EA flood maps show approximately 5% of the site to lie within Flood Zone 3. This area comprises the southern boundary of the site, approximately 10m from the nearest (proposed) dwelling. The existing landscaping bund has been highlighted as being in ‘poor’ condition and therefore unlikely to be affective at controlling flood waters. It is therefore of vital importance that this bund is reinstated during the development works, as suggested within the original FRA report.

The EA have expressed concerns that should the bund breach, the site would suffer inundation which may pose a risk to property and human life. However a comparison of flood level data (provided by the EA) and topographical data for the site shows that the site currently lies between 2-3m above the 1 in 100 year + climate change flood level and therefore even during a breach, flood waters are unlikely to enter the site.

In summary, the topography of the site suggests that a breach of the existing landscaping bund is unlikely to move the site into Flood Zone 3 and therefore there is no significant threat to property or life.

We trust that this is satisfactory to address the comments received from the EA however if you have any further questions regarding the information provided within this letter, please do not hesitate to contact me to discuss the matter further.

Yours sincerely,

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For and on behalf of Clear Environmental Consultants Ltd.

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