LANMOR Consulting

Civil Engineers & Transportation Planners

Sipson

Flood Risk Assessment

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LANMOR Consulting

Civil Engineers & Transport Planners

LANMOR Consulting Ltd,
Thorogood House, 34 Tolworth Close
Surbiton, Surrey, KT6 7EP

Tel: 0208 339 7899 Fax: 0208 339 7898
E-mail: info@lanmor.co.uk
Internet: www.lanmor.co.uk

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1 INTRODUCTION

1.1.1 This flood risk assessment has been produced in support of a planning application for the development off Sipson Road in Sipson, Middlesex, UB7 0JH.

1.1.2 The application seeks approval for the development of a 140 bed hotel, 66 residential units, 2,400m^2 of light industrial units and the replacement of the existing garden centre. The total site area is approximately 7.32ha.

1.1.3 This flood risk assessment will demonstrate that the site will not be subject to flooding with a probability of 0.1% or a 1 in 100 annual chance of fluvial flooding, so the proposed residential dwellings will be free from flooding and a safe access can be provided at all times.

2 SITE LOCATION

2.1.1 The site is bounded by the M4 motorway to the north and east, Sipson Lane to the south and Sipson Road to the west. Location plan of the proposed development site is shown in Figure 1 below. The red line indicates the site boundary.

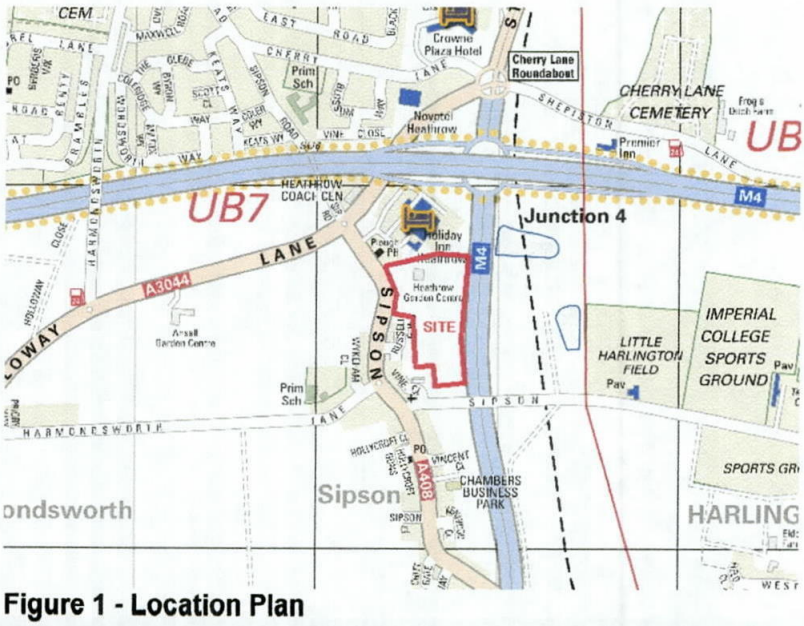

Figure 1 - Location Plan

2.1.2 The British Geology Survey records indicate that the underlying ground is London Clay Formation consisting of Clay, Silt and Sand. Overlaid by clay and silt superficial deposits of the Langley silt member. The site is indicated as being on a secondary aquifer but it is not in a ground water protection zone.

3 SOURCES OF FLOODING

3.1 Fluvial/Tidal Flooding

3.1.1 The proposed site is within flood zone 1, this is defined as land assessed as having a less than 0.1% probability of fluvial flooding in any year. Figure 2 shows an extract from the Environment Agency flood mapping. The site is some distance from the main river and therefore will not be subject to fluvial flooding.

Figure 2 – Extract of EA Flood Map

3.1.2 The nearest major river is the River Colne. The Colne is a tributary of the River Thames it rises near North Mymms in Hertfordshire. It runs south west to Watford and then south to Uxbridge where it runs parallel to the Grand Union Canal. It flows mainly through Hertfordshire and forms the boundary between the South Bucks district of Buckinghamshire and the London Borough of Hillingdon. It splits off into several separate branches, some of which re-joins it, before it flows into the River Thames on the reach above Penton Hook Lock at Staines. The River Colne at its nearest point to the site is approximately 2.2km away.

3.2 Surface Water Flooding

3.2.1 Appendix B of the Strategic Floor Risk Assessment states that there were 21 reported incidents of surface water flooding in the last 10 years due to the overloading of the existing sewers. However the proposed site was not affected.

3.3 Other Sources of Flooding

3.3.1 There are no known of flooding incidents from groundwater or other sources that have affected the site.

3.4 Existing Flood Defences

3.4.1 There are no flood defences in the vicinity of the site that provide any protection from fluvial flooding.

4 MODELLED FLOOD EVENTS AND CLIMATE CHANGE

4.1 Modelled Flood Levels

4.1.1 The Environmental Agency has confirmed they do not hold flood data for the site. The site is classified by the Environment Agency as zone 1, having a risk of flooding with a probability of 0.1% or less.

4.1.2 This Assessment has considered changes in water level due to climate change, however as the proposed site is positioned some distance from flood zones 2 & 3 and well above this flood level, climate changes will not result in an increased risk of flooding to the site. The site is still some distance from flood zone 3 even when climate changes are factored in.

5 FLOOD PROBABILITY AND LOCAL RESTRICTIONS

5.1 Flood probability

5.1.1 The principal source of flooding of the site is likely to come from surface water run-off. The natural fall of the ground is from south to north.

5.1.2 The Environment Agency's mapping indicates that the site lies within the projected flood plain for an event with a 0.1% probability or less. When climate change has been factored into the flood levels the site is still some considerable from the 1 in 100 year flood level plus climate change.

6 IMPACT OF FLOODING

6.1 Impact on Flood Waters

6.1.1 The proposed development is outside of flood zone 2 and 3 so it will not be subject to flooding with a probability of 0.1% or greater. There is no historical record on flooding on the site. It is some distance from the nearest river and there are no flood paths or routes through the site that the development would obstruct.

6.1.2 Surface water flooding has not been a problem on site; however there was flooding in the lower lying land to the north of the site which has flooded in the past when the sewer system was overwhelmed. The extent of flooding resulting from the extreme rainfall event did not reach the site. The development will therefore not have any impact on flood waters in the area.

6.2 Impact on Storage Volumes

6.2.1 The proposed development is outside of flood zone 2 and 3 and will therefore not result in the loss of flood storage for a flood event with a probability of 0.1% or greater. When increases in flood levels due to climate change are factored in, the site is still outside flood zone 2 and 3 so even in an extreme case of flooding the development will still not result in the loss of flood storage volumes.

6.3 Flooding Impact on Development

6.3.1 The site is a considerable distance from the nearest source of fluvial flooding; there is no recorded history of the site flooding in the past. The development proposals will not change levels across the site, buildings will be set at round the existing ground levels and therefore above the 1.0% flood level. Given the building will be above the 1.0% flood level including allowances for climate change they will not be subject to flooding.

6.4 Access From Site

6.4.1 As explained previously there are no records that the site have been subject to flooding in the past, it is unlikely that a 1% or greater probability event would cause flooding of the site, so a safe access could be provided to and from the site at all times.

6.5 Residual Risk

6.5.1 The residual risk is considered to be negligible given it is in flood zone 1, its elevation above flood zone 3 and the fact that a dry access can be provided to the site at all times

7 ON SITE DRAINAGE

7.1.1 A drainage strategy has been prepared for this site dealing with both foul and surface water discharges from the site. The foul will discharged direct to the adopted sewer in Sipson Road.

7.1.2 Discharge of surface water will be via SUDs where possible and ground conditions permit. The Strategy has found the site to be on London Clay so the use of infiltration techniques is likely to be limited. For the residential units soakaways and preamble paving will be provided, however for the benefit of the strategy it has been assumed the use of soakaways will be limited and therefore attenuation from these areas have been based on the worst scenario that all runoff will have to be attenuated.

7.1.3 The light industrial and community facility will discharge runoff direct to one of the water features in the development. The outflow from this will be controlled to the rate of the existing Greenfield runoff. For the hotel and garden centre, permeable paving will used in the car parks. The remainder of the runoff will be discharge to SWALES around the building. discharges form both the hotel and garden centre will be restricted to the existing Greenfield runoff rate.

7.1.4 The existing Greenfield runoff rate from the site has been estimated at 11.55 l/s based on IH124 report. The combined discharge of all the different uses on site will be restricted to 11.55 l/s. Attenuation will be provided by the use of permeable paving, SWALEs, open basins and underground storage to ensure the proposed development will not increase the runoff form the site and will not increase the risk of flooding to neighbouring properties.

7.1.5 Full details of the on site drainage including the calculations for the existing runoff, drainage layouts and attenuation provisions can be found in the Drainage Strategy report reference 120406/DS/01.

8 SEQUENTIAL TEST

8.1.1 The principal of the sequential test is to assess locations and prioritise development to areas at less risk of flooding. NPPF suggest that Regional Planning Bodies and Local Planning Authorities should ensure their regional spatial strategies include a broad consideration of flood risk.

8.1.2 As the proposed development is in flood zone 1 defined as "low risk" by the NPPF. The allowable uses in low flood risk areas are defined as all. The proposed development will have a mixture of "less" and "more vulnerable" uses, as these are all acceptable uses in flood zone 1 the development proposals meets the sequential test set out in NPPF to allocate development to areas at less risk of flooding.

9 SUMMARY AND CONCLUSION

9.1.1 The site is within flood zone 1 so therefore it will not be subject to flooding from an extreme event with a probability of 0.1% or greater including allowance for climate change. The site will not present a restriction of flood waters or result in a loss of storage volumes; it will not suffer damage as a result of flooding. A safe access can be provided at all times to an area within flood zone 1.

9.1.2 This site meets the sequential test to allocate development to areas at less risk of flooding in accordance with NPPF. SUDs will be used to discharge surface water runoff were possible, however the ground conditions are known to be poor in terms of infiltration. Attenuation will therefore be required to restrict the discharge to the existing Greenfield runoff rate. Swales, permeable paving and the open water features will be used throughout the site to provide attenuation of the surface water runoff with backup provided by underground storage tanks.

9.1.3 For the above reason we do not believe the proposed development will have any impact on the current flood plain and can see no reason why the site is not suitable for the development.