

FLOOD RISK ASSESSMENT

**SALEM MILL
HYDE BANK ROAD
NEW MILLS**

ON BEHALF OF

AIM ENGINEERING

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CONTENTS

1. EXISTING INFORMATION
2. DEFINITION OF FLOOD HAZARD
3. PROBABILITY OF FLOODING
4. CLIMATE CHANGE
5. PROPOSED DEVELOPEMNT PROPOSALS
6. FLOOD RISK MANAGEMENT MEASURES
7. CONSTRUCTION
8. CONCLUSIONS

APPENDIX

- | | |
|------------|---|
| Appendix 1 | Site Location Plan |
| Appendix 2 | Topographical Survey |
| Appendix 3 | Site Plan Indicating 1 in 100 year +
Climate Change Flood Levels |

This Flood Risk Assessment has been prepared in accordance with the FRA Pro-forma guide contained in the Planning Policy Statement 25 Practice Guide. June 2008 and Annex E of Planning Policy Statement 25 paragraph E3.

The Planning Policy Statement 25 Practice Guide. The Assessment of Flood Risk. Paragraph 3.78 states that the content of a FRA should always be appropriate to the scale and nature of the development.

1.0. Existing Information.

- 1.1.** The Environment Agency has provided a series of 1 in 100 year flood levels for the River Sett upstream of the Hyde Bank Road bridge adjacent to the site.
- 1.2.** When this flood level is applied to the site area a part of the site is shown to be affected by flood zone 3. Also a part of the site may be affected by flood zone 2. See drawing number PM/3008/01.
- 1.3.** The highest 1 in 100 year flood level that affects the site is 143.41m above Ordnance Datum for the River Sett. This also affects a part of the site area.
- 1.4.** A detailed topographical survey has been made of the site and its environs and the level information related to Ordnance Datum. See drawing reference number 7199:100:1:1 by Formby Surveys of Formby, Merseyside.
- 1.5.** The position of the existing building to be retained and converted to residential use is shown on the topographical survey plan used to show the flood levels. See drawing number 2142/001/P1.

2.0. Definition of Flood Hazard.

- 2.1.** The proposed development is to take place on an already serviced site. The foul and surface water drainage facilities already exist.
- 2.2.** The major flood risk to the site is from the River Sett that abuts the site along its northern boundary.

- 2.3.** There are several small reservoirs upstream along side the River Sett and Kinder reservoir in Hayfield about 6 kilometres upstream of the site that may be considered as a potential flood risk but as they are remote from the site any resultant flood surge may have dissipated before it reaches the site.
- 2.4.** There is no known flood risk from the public sewerage systems that service the area. Any sewage flooding from a blocked sewer will flow along the road system and drain directly into the River Sett.
- 2.5.** There is no risk of flooding from the highway drainage system and there is no ground water regime that is likely to cause any flooding on the site.
- 2.6.** The site is not shown to be at risk from coastal inundation flooding.

3.0. Probability of Flooding.

- 3.1.** Part of the application site is shown on the Environment Agency's flood map as being affected by flood zones 2 and 3. Therefore there is a risk from fluvial flooding during a 1 in 100 year (climate change) flood event.
- 3.2.** The critical 1 in 100 year (climate change) flood level is estimated to be 143.60m above Ordnance Datum for the River Sett at the northern site boundary and 143.38m to the west of the site.
- 3.3.** The proposed residential units are to be built into the existing mill footprint together with new build structures with residential floor levels 600mm above the estimated 1 in 100 year (climate change) flood level of 143.60m at a minimum level of 144.20m AOD. That is a minimum of 600mm above the 1 in 100 year, climate change flood level. See drawing number 2142/001/P1.

4.0. Climate Change.

- 4.1.** The detailed design of the on site surface water drainage system will be in accordance with United Utilities requirements for no surface flooding to occur during a site critical 1 in 30 year storm event.
- 4.2.** Any necessary on site attenuation to limit the rate of surface water discharge to protect the local watercourses will be designed using rainfall intensities that have been increased by 30% to allow for the

effects of global warming over the next 100 years, the projected life of the development.

- 4.3.** The flood levels in the River Sett that have been supplied by the Environment Agency are the 1 in 100 year flood. I have therefore had to estimate the effect of an increase of 20% in the flood flow to allow for the effects of climate change until the year 2115.

5.0. Proposed Development Proposals.

- 5.1.** The existing Mill building and new properties are accessed off Hyde Bank Road and the buildings are to be 2 and 3 storey residential units with residential accommodation on the ground floors
- 5.2.** Housing is classified as 'more vulnerable' in table D2 PPS 25.
- 5.3.** The proposed residential floor levels will be set at minimum levels of 144.20m and 144.00mAOD that is 600mm above the 1 in 100 year (climate change) flood level.
- 5.4.** See drawing number 2142/001/P1 that shows the minimal impact of the proposed residential units on the zone 3 flood plain. There is no additional loss of zone 3 flood plain volume by the proposed redevelopment of the site.

6.0. Flood Risk Management Measures.

- 6.1.** The proposal is to redevelop the Mill building and its environs for residential use. The proposal has been discussed in some depth with the Local Planning Authority and as the buildings are not affected by flood zone 3 the proposals does not need to be considered under the sequential test analysis protocol.
- 6.2.** The proposed new residential dwellings makes use of the existing mill building footprint on the site and the residential floor level are all to be sited above the zone 3 flood plain with all residential floor levels a minimum of 600mm above the zone 3 flood level.
- 6.3.** The proposed new residential dwellings will therefore remain unaffected by the 1 in 100 year (climate change) flood.

7.0. Residual Risk and Health and Safety Issues.

- 7.1.** The 1 in 100 year (climate change) flood will encroach onto the river bank and gardens at the rear of the properties. The flood will be shallow but the velocity of the flood will be significant as it is adjacent to the main flood flow along the main river channel.
- 7.2.** The pedestrian and vehicular access paths to the property are located at the front of the Mill buildings and will be protected from the worst effects of the inundation by the 1 in 100 year (climate change) flood.
- 7.3.** There will always be a dry pedestrian route to the south of the properties to the side road off Hyde Bank Road that rises in level to the south during any emergency flood event.
- 7.4.** If necessary there will be a flood risk document prepared for the property that will advise the occupiers how to obtain flood warnings from the Environment Agency and the media from weather forecasts and flood warnings all in accordance with the Environment Agency's document 'Preparing for a Flood'.
- 7.5.** It will also advise as to what action to take in respect of turning off mains services to reduce fire risk and also give advice in respect of moving valuables to the first floor level and also to take food, potable water, a portable radio and torches. Also a mobile phone if one is available.

8.0. Construction.

- 8.1.** Where appropriate all construction will be carried out in accordance with the DTLR document 'Interim guidance for improving the flood resistance of domestic and small business properties' and 'Improving the Flood Performance of new buildings. Flood Resilient Construction. 2007.'
- 8.2.** As the mill building footprint is to remain unchanged there will be no loss of flood plain volume during the 1 in 100 year flood.
- 8.3.** Sustainable Urban Drainage will be built into the on site surface water drainage systems wherever possible by the construction of a soak away drainage system, this will also assist in draining the porous paving of the drive area. The final drainage system will be confirmed during the final drainage design process. This will reduce the existing surface water rate of discharge from the site to the River Sett.

9.0. Conclusions.

- 9.1.** The proposed redevelopment of the Mill building and the new residential units are to be located mainly within the footprint of the existing on site buildings. They will have residential floor levels set 600mm above the flood zone 3 flood levels and can be constructed safely without putting the new units or their residents at risk from flooding from the River Sett.
- 9.2.** There will be no impediment to the passage of flood water along the river channel by the redevelopment of the Mill buildings in their present position as shown.
- 9.3.** That a safe emergency access can be maintained at all times during a 1 in 100 year (climate change) flood event.
- 9.4.** Surface water run off will be controlled and reduced as far as possible to ensure that the proposed residential units will not impact on the flood regime of the River Sett both upstream and downstream of the site.
- 9.5.** There is no evidence to indicate that there will be any impact on the flora and fauna that depends on the watercourses for its survival.