HPK/2010/0282

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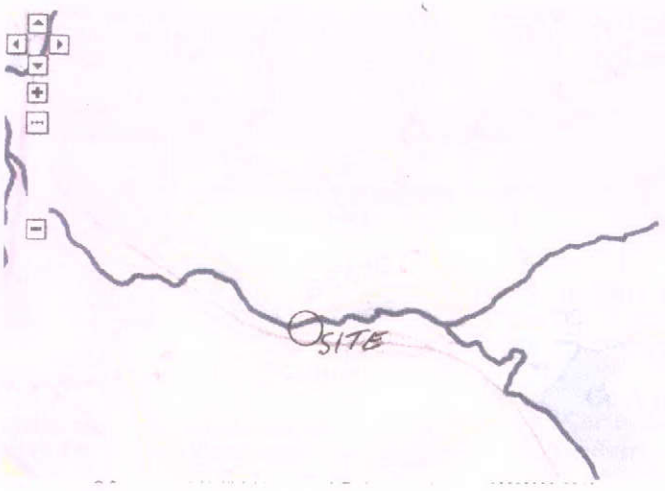
Proposed mixed residential and workshop development at, Cadster Mill. Chapel Road, Whaley Bridge. Randal Carr Brook. Flood Risk Assessment. PPS 25.

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.

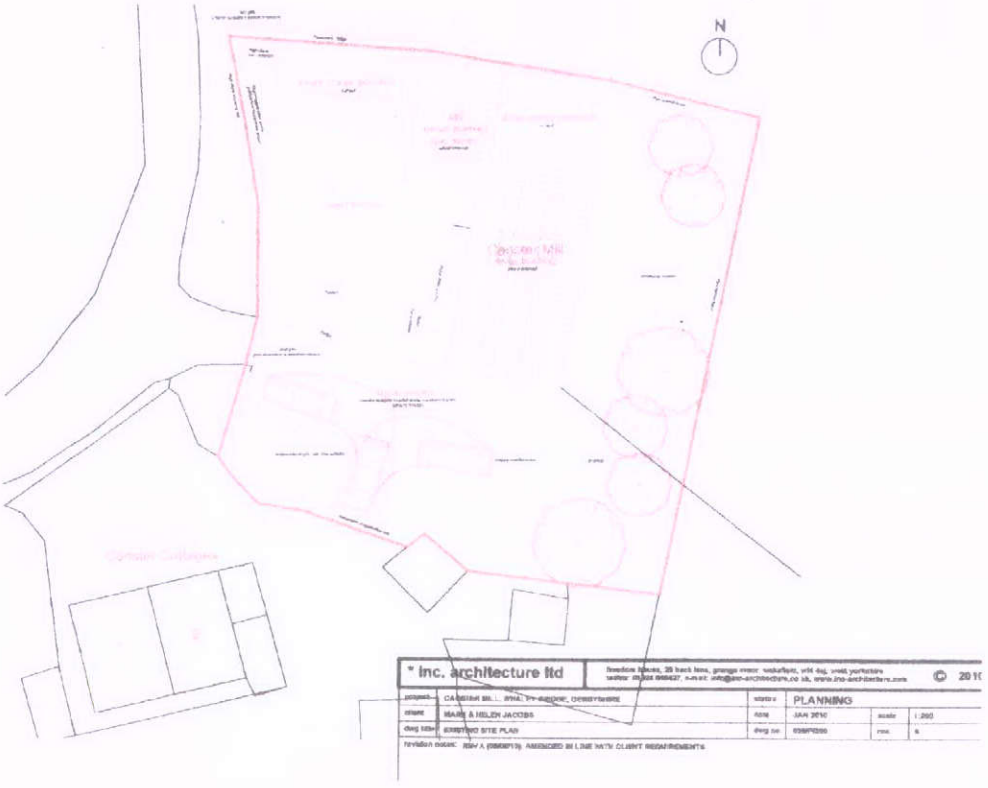
1.1. . The site is shown to be adjacent to flood zone 3 and partially affected by flood zone 2 when viewed on the Environment Agency's flood map. See extract below.



1.2. As the proposed development is shown to be affected by flood zone 2 it has been necessary to write a Flood Risk Assessment to accompany the planning application for the proposed mixed use development.

1.3. The Environment Agency do not have an accurate estimation of flood levels for this part of the Randal Carr Brook.

1.4. The proposed development layout is shown on proposed site plan 035/P/200 rev A prepared by inc. architecture. See extract below.



2.0.Definition of Flood Hazard.

2.1. The proposed development is to take place on a brown field site. There are no public foul sewers available to cater for the proposed development.

2.2. The mixed residential and workshop use is classified as 'more vulnerable' in table D2 in PPS 25.

2.3. The site is shown to be affected by flood zone 2.

2.4. 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.

2.5. The site is not shown to be at risk from coastal inundation flooding.

3.0.Probability of Flooding.

3.1. The site lies to the south of the Randal Carr Brook just upstream of the access road bridge from Chapel Road to Cadster Mill.

3.2. As the Environment Agency do not have flood levels for the Randal Carr Brook it has been necessary to estimate the 1 in 100 and 1 in 1,000year flood flows and hydraulically model the river channel and the effect of the downstream bridge crossing to estimate the flood levels adjacent to the site.

3.3. Calculations for the flood flows have been submitted to and agreed with the Environment Agency, the 1 in 100 year flood being increased by 20% to account for the impact of global warming, PPS 25.

3.4. Hydraulic modelling of the brook and the downstream bridge using Hec Ras software. The flood levels for the 1 in 100 year (cc) and the 1 in 1,000 year events have been submitted to and agreed with the Environment Agency.

3.5. The flood levels have been plotted on drawing number PM/3073/01

3.6. The proposed redevelopment of the buildings to residential and workshops are shown with floor levels at or above the existing ground levels. The buildings are shown to be outside the 1 in 1,000 year flood level of 187.15m.

3.7. Residential floor levels will be set a minimum of 600mm above the 1 in 100 year (climate change) flood level of 186.71m. That is a minimum of 187.31m.

3.8. The site of the proposed development is now shown not to be at risk from fluvial flooding.

4.0.Climate Change.

4.1. The detailed design of the on site surface water drainage system will be in accordance with the requirement 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 the Randal Carr Brook or to soak aways 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 estimated maximum rate of surface water discharge required to control the surface water discharge to a minimum will be set to a

maximum of 5.0l/s, this is set by the size of the minimum acceptable flow control that meets with Building Regulation requirements, if soak away drainage cannot be utilised.

5.0. Proposed Development Proposals.

5.1. The proposed development is accessed off Chapel Road, the buildings are to be used for residential and workshop purposes.

5.2. Residential and workshop use is classified as 'more vulnerable' in table D2 PPS 25.

5.3. The proposed development has been shown to be situated in flood zone 1.

5.4. There is residential accommodation within the site that will have floor levels at least 600mm above the 1 in 100 year (climate change) flood level as required by the Environment Agency.

6.0. Flood Risk Management Measures.

6.1. The proposal is to convert the existing buildings to residential and workshop use. The proposal has been discussed with the Local Planning Authority and as the proposals have been shown not to be affected by flood zones 2 & 3 the proposal does not need to be considered under the sequential test analysis protocol.

6.2. The proposed redevelopment of the buildings are not affected by flood zones 2 & 3 and are therefore not at risk from fluvial flooding.

6.3. The proposed system of surface water drainage discharge to the Randal Carr Brook or to soak aways will ensure that all surface water drainage will take place and be controlled within the site boundaries. This will ensure that there will be no off site flood flows during extreme weather conditions that may affect third party land ownerships.

6.4. There are open pathway areas that will allow any on site flooding from blocked sewers or from a rainfall event that exceeds the design parameters of the on site drainage systems to drain from the site without creating any on site flooding.

6.5. The final surface water drainage design will be verified by micro drainage simulation during the detailed design procedures.

7.0. Residual Risk and Health and Safety Issues.

7.1. The pedestrian and vehicular access paths to the units are located at front of the buildings and communicate with the access road that leads to Chapel Road the estimated flood levels show that this route remains dry during a 1 in 1,000 year flood event.

7.2. Therefore there will always be a dry vehicular and pedestrian route to the north west of the site to Chapel Road.

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. The proposed new development building footprints are outside the zones 2 & 3 flood plain therefore there will be no loss of flood plain volume that needs to be considered during the 1 in 100 year flood event.

8.3. Sustainable Urban Drainage will be built into the on site surface water drainage systems by the construction of either a discharge control and attenuation system or a soak away drainage system.

8.4. The final drainage system will be confirmed during the final drainage design process. This will also stop any existing surface water discharges from the site to the public sewers that service the area.

9.0. Conclusions.

9.1. The proposed redeveloped buildings will be located in flood zone 1 and can be constructed safely without putting the new house or its residents at risk from flooding.

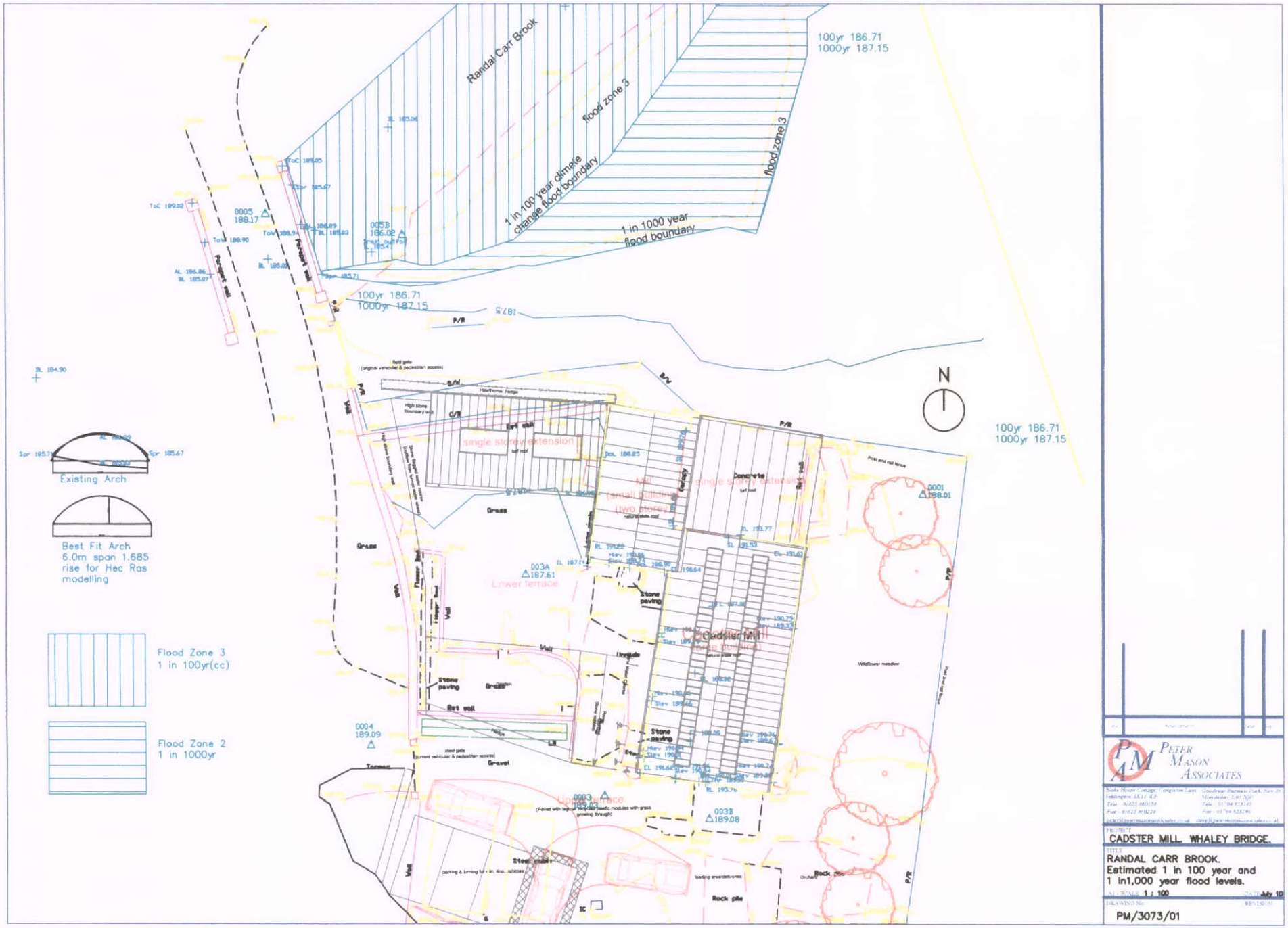
9.2. That a safe emergency access can be maintained at all times during a 1 in 100 year (climate change) flood event.

9.3. Surface water run off will either be to a control and attenuation system or a system of soak aways to minimise the impact of the development on the local watercourses and public sewers that drain the general area around the development.

9.4. This will also ensure that there are no off site overland flood flows generated by the proposed development.

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.

Peter Mason
Peter Mason Associates Ltd
5 August 2010



PETER MASON ASSOCIATES

CADSTER MILL. WHALEY BRIDGE.

RANDAL CARR BROOK.
Estimated 1 in 100 year and 1 in1,000 year flood levels.

SCALE 1 : 100

DATE July 10

DRAWING No. PM/3073/01

REVISION