INTRODUCTION

This Flood Risk Assessment (FRA) is accompanying documentation to the planning application for material change of use of the Spring Tavern which is part public house and part domestic dwelling into two separate 2 storey dwelling houses.

ENVIRONMENT AGENCY GUIDANCE

A Topographical Survey of the site was carried out in early 2009 by SD Land Survey Ltd which provided data on the current levels throughout the site. This information has been provided to the Environment Agency for comparison with the existing flood data levels contained within the Upper Mersey Flood Risk Mapping Study, 2009.

The Environment Agency has reviewed the information and stated that the site currently lies within **Flood Zone 2**.

Planning Policy Statement 25 states that dwelling houses (classed as 'More Vulnerable' buildings) are compatible with Flood Zone 1 & 2.

PPS25 also states that planning applications for development proposals of 1 hectare or greater in Flood Zone 1 and all proposals for new development located in Flood Zones 2 and 3 should be accompanied by a FRA.

The detail of this FRA submitted with the planning application is considered to be appropriate to the scale, nature and location of the development as required by PPS 25, and covers the requirements for information set out in the EA Standing Advice.

SUPPORTING INFORMATION ON SITE & PREDICTED FLUVIAL FLOOD LEVELS

The current threshold level and finished floor level of the existing building is 120.11 at its lowest point.

The predicted fluvial flood levels, as advised by the EA, are calculated at reference node ea01325_Etherow_cs27, as being (see appendix 1):

20yr return period	-	120.03
100yr return period	-	120.16
100yr (plus climate change) return period	-	120.24
1000yr return period	-	120.47

OTHER SOURCES OF FLOODING TO THE SITE

In addition to the risk of fluvial flooding to the development, there are other sources of possible flooding set out in PPS25 that need to be taken into account within a FRA. These possible sources are detailed within the Peak Sub Region Strategic Flood Risk Assessment; information has been taken from this study and applied on a site specific level to this development.

Flooding from Sewers

Sewer flooding occurs when the drainage networks become overwhelmed and maximum capacity is reached. Water companies covering the study area were contacted by Halcrow and information on past flooding events has been incorporated in to the SFRA at four digit postcode level outlining a series of large geographical areas. Within each postcode area is an indication of how many incidents have occurred. Sewer flood risk has then been classified according to the number of properties flooded from overloaded sewers within each postcode area. The categorisation is as follows:

- Low sewer flood risk: 1 to 5 properties
- Medium sewer flood risk: 6 to 15 properties
- High sewer flood risk: >15 properties

The information on the above is illustrated within drawing entitled 'Strategic Flood Risk Map Showing Flooding from Sewers'. This map shows the site to be in an area identified as Low for sewer flood risk.

Flooding from Surface Water Run Off

Surface water flooding occurs when excess water runs off across the surface of the land. Flooded roads and waterlogged land result when the amount of water arriving on a particular area is greater than the capacity of the drainage facilities that take it away.

The SFRA contains details on drawing entitled 'Strategic Flood Risk Map Showing Flooding from All Sources' of historical data and locations of surface water flooding. The information indicates that no such flooding has occurred at the site nor the surrounding area. However the SFRA also states that 'it should be recognised that

extensive records of surface water flooding do not exist, nor do maps showing predicted areas of surface water flooding.'

The topography and surface treatment of the housing development to the 'rear' of the site is a possible source of surface water run off which could make its way to the site. The development is one of large detached houses with large lawned gardens front and rear connected to the A57 by a secondary street 'Tavern Road' with 3 adjoining tertiary streets connecting the development.



Ariel view of the surrounding housing development

Due to the topography the pathway for flood water to reach the development would be to follow the contours of the road network, down Tavern Road onto the A57 where the topography levels out, and then turn towards the development site.

Flooding from Impounded Water Bodies

This type of flooding would be from canals, reservoirs or similar artificial sources. As part of the SFRA British Waterways was consulted to gain information on past reservoir breach and overtopping incidents of canals, while the Environment Agency was consulted to gain a comprehensive overview of reservoirs currently held under the Reservoirs Act, and any breach and overtopping information of these reservoirs. The findings for the High Peak area were:

- One canal is located in the Borough to the east of Furness Vale and Newtown, called the Peak Forest Canal. There are no recorded incidents of breaches or overtopping, or any other local flood risk instances associated with this canal.
- Four reservoirs are located within the Borough. There is one record of breaching/overtopping within the High Peak Borough Council area at Toddbrook in 1964.

Neither the canal nor the recorded breach/overtopping are in the vicinity of the development site.

Flooding from Groundwater

Groundwater flooding occurs as a result of water rising from the underlying rocks or from water flowing from abnormal springs. The SFRA carried out by Halcrow states:

Across the Peak Sub-Region, the following was found:

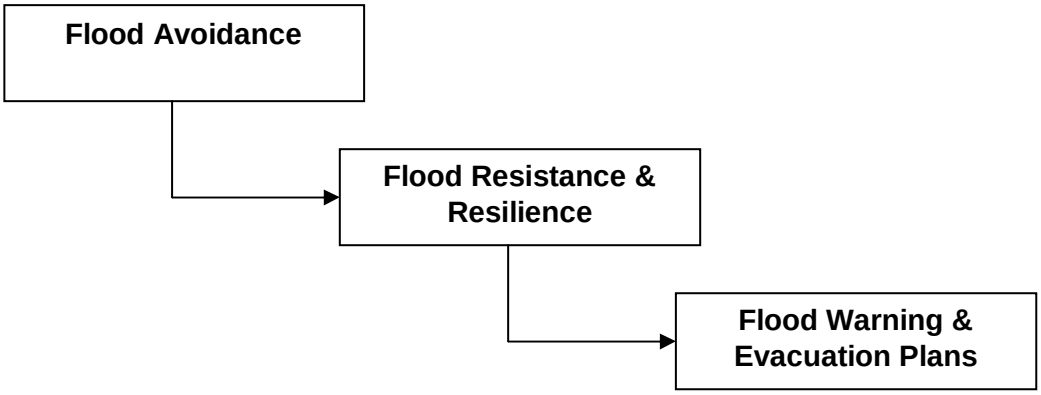
- There are no known problems with flooding from groundwater within the study area. However, peat deposits are found which are typically waterlogged and may breach the surface.

There current and previous owners of the building have advised that for the duration of occupancy spanning the last 30 years, there has been no incidence of groundwater flooding to the property

FLOOD RISK ANALYSIS

The information above has identified the possible sources of flooding to the development. The risk of fluvial flooding has been quantified and can subsequently be addressed as part of a flood management strategy for the building. Considering the scale and nature of the development, it is felt that quantifying the impacts on flood water levels from other sources of flooding would be economically disproportionate and resulting residual flood risks would still remain.

The residual risk of flooding will be managed hierarchically through:



FLOOD AVOIDANCE

The 1 in 100 year plus climate change event has been calculated at reference node ea01325_Etherow_cs27 as being 120.24mAOD (see appendix) as advised by the Environment Agency. The existing building will have the ground floor raised and set above this level.

Due to the fact that the building is existing, it is not possible to provide the 'freeboard' which is requested on new buildings as current headroom limitations will not permit raising the ground floor further than stated above. Therefore the residual risk of flooding above this level will be dealt with through Flood Resistant and Flood Resilient construction methods, and the implementation of an appropriate Flood Warning & Evacuation Plan.

RESISTANT/RESILIENT CONSTRUCTION

Initial discussions have taken place with building control on the requirements for flood resistant & resilient construction techniques that will be implemented as part of the alterations to the building. Final solutions appropriate to development are to be agreed with Building Control, however initially the types of construction to be utilised will include, but not be limited to.

- raising the electrical distribution board and sockets, telecoms outlets and gas boiler above the 1 in 1000yr level
- sealing incoming services penetrations through building fabric

- sealing any gaps at the connection of window/door frame and walls
- solid wall construction of the separating wall of the properties
- use solvent seal/non return valves to waste water pipes below the 1 in 1000yr level to prevent waste water backing up into property
- ensure DPM is adequately lapped and sealed/joined
- fit gasket/seals to all external door openings, and where appropriate (i.e. rear doors) have doors opening outwards so that lateral hydrostatic pressure creates a stronger seal minimising the chance of water entering the property.
- external doors to be manufactured from either uPVC or solid wood with waterproof adhesive
- specification preference for insulation to be foam or closed cell type (to be detailed with due regard to Building Regs Part L & Part E for performance criteria).

FLOOD WARNING, EVACUATION & RESCUE

The current building is already registered to receive flood warnings and guidance from the EA/Local Authority. The proposed new dwelling/address information will be notified to the relevant local bodies to ensure similar notifications are available and in place prior to completion.

Prior to completion of the development, consultation will take place with High Peak Borough Council Emergency Planning Department to draft up a Flood Warning and Evacuation Plan specific to the development; this information will accompany the documentation provided to future occupier/s. This plan will cover:

- How flood warning is to be provided
- Measures to protect the development and its contents
- Ensuring safe occupancy/access
- Passive forms of flood warning possibly in the form of signage or notices

Approval of the final Plan and documentation will be obtained from the High Peak Borough Council Emergency Planning Department.

FOUL & SURFACE WATER MANAGEMENT

The building has existing connections to the combined public sewer and only minor alterations internally are proposed. The proposals therefore will not increase surface water run off from the site, nor increase the demand on the existing infrastructure. All construction detailing will be in accordance with Approved Document Part H of the Building Regulations.

APPENDICES

Appendix 1 Levels Taken From Upper Mersey Flood Risk Mapping Study, 2009.