

**Land at Riversvale  
off Gadley Lane  
Buxton  
SK17 6UZ**

**Proposed new house**

**Flood risk assessment**

**NGR SK 048 733**

Michael Lambert Associates  
1 Partridge Close  
Winsford  
Cheshire  
CW7 1PY

Tel/fax 01606 862373  
Mobile 07958 964054

Emails  
[floodriskengineer@gmail.com](mailto:floodriskengineer@gmail.com)  
[sudsengineers@sky.com](mailto:sudsengineers@sky.com)

Mr R McKay  
Riversvale  
off Gadley Lane  
Buxton  
SK17 6UZ

## **INDEX**

**1.0 Introduction**

**2.0 Executive summary**

**3.0 Existing site and survey work**

**4.0 Stream system**

**5.0 River modelling and hydrology**

**6.0 Proposals and drainage**

**7.0 National Planning Policy Framework and Technical Guidance**

**8.0 Attachments**



## 1.0 Introduction

A new house is proposed next to an existing house close to Gadley Lane off St. Johns Road in the Rivers Vale area of Buxton. The river Wye is close by also the Riversvale stream from the north and this report covers flood risk, land zoning, and surface water matters.

## 2.0 Executive summary

A new house is proposed on land within Riversdale's curtilage. The land is floodzone 1 and above risk levels either for the river Wye or the Riversvale stream. Access is via the existing road which goes over the Wye on a road bridge. The new house will be separate system drainage and will discharge surface water to the Riversvale stream at a rate in accord with SR744 and the [www.uksuds.com](http://www.uksuds.com) website data.

## 3.0 Existing site and survey work.

The existing site is land belonging to Riversvale and the existing ground levels where the new house is planned are approx 300.8. The riversvale stream flowing from the north has been cross sectioned at points set by us, also the river Wye bed and Gadley Lane footbridge. The existing site is currently grass.

## 4.0 Stream system

The river Wye has a catchment area of 4.68km<sup>2</sup> upstream of the site. Average bedslope is 134.5 m/km, annual rainfall is 1391mm, and SPRHOST is 49.6%. The Wye is joined at the Gadley Lane ford by the Riversvale stream from the north and this has a catchment area of 2.27 km<sup>2</sup>. The Wye then flows east towards Buxton centre.

River risk levels have been purchased from the Environment Agency and these are from a 2010 Halcrow study. The node point closest to the site is WYA14212 and flow data from the study is as follows:-

Frequency 1 in ..... years	Wye m3/sec	Riversvale m3/sec	Wye + Riversvale m3/sec
1 in 100	10.54	5.68 by subtraction	16.22
1 in 100 + CC	12.68	6.76 by subtraction	19.44
1 in 1000	23.13	5.76 by subtraction	28.89

We have obtained descriptors for the Riversvale stream and the Wye and input these to the ReFSR/FEH spreadsheet and 1 in 100 year ReFSR/FEH flows are as follows:-  
Wye-14.2 m3/sec

Riversvale- 6.4 m3/sec

Wye + Riversvale- 20 m3/sec

This does act as an approximate check and no doubt Halcrow will have used WINFAP 2 or 3.

## 5.0 River modelling and hydrology.

The Riversvale 1 in 100 year ReFSR/FEH estimate of 6.4 m3/sec compares reasonably with the Halcrow flow by subtraction of 5.68 m3/sec. The surveyed Riversvale cross sections have been input to Hec Ras 4.1.0 and flow runs performed as follows:-



Frequency	Flow m3/sec	Risk levels AOD
1 in 100 year	5.68	299.98- 300.03
1 in 100 year + CC	6.8	299.97- 300.06
1 in 1000 year	11.36	300.48- 300.53

We have used a different Q1000 Riversvale flow to the Halcrow data and have derived this from using a growth factor of 2 for Q1000/ Q100. In each of the 3 model runs the model exit condition was the known risk level at node 14212.

This shows that the site for the proposed house at an existing ground level of 300.8 is above the 1 in 1000 year risk level and the site is therefore floodzone 1

## 6.0 Proposals and drainage.

A new detached house is nproposed with a slab level of 301.1. The existing Riversvale house has a slab level of 301.45. Drainage will be separate system with surface water discharging to the brook at less than 5 l/sec which is the minimum uksuds discharge rate for any site. Based on a 100m2 roof a 1 in 1 year urban Building Regulations storm will produce surface water runoff of 1.4 l/sec, a 1 in 100 year storm will produce 3.5 l/sec ( GF 2.5) and a 1 in 100 year plus CC storm will produce 4.2 l/sec so surface water storage is not needed.

## 7.0 National Planning Policy Framework and Technical Guidance.

The proposed housing is classed as 'more vulnerable' in Table 2 and is 'appropriate in floodzone 1 as Table 3.

All forms of flooding are (former PPS25 notation)

C4 – rivers – see above

C5 – sea – no tidal influence

C6 – land –any land uphill of the site will discharge to the Riversvale stream

C7 – groundwater – no springs or weep areas on site

C8 – sewers – no local reports of sewer surcharge

C9 – reservoirs, canals – none nearby that can pose a risk

## 8.0 Attachments.

Item	Number	Size
Location plan	1	A3
EA mapping	2-4	A3
EA risk level data	5-6	A4
Survey work	7-9	A3
FEH catchment map	10	A3
FEH catchment descriptors + ReFSR/FEH data	11-16	A4
Modellers log sheet	17	A4
Hec Ras printouts	18-26	A3
UKsuds printouts	27-31	A4

This report is an email report and A3 and A4 attachments are grouped for scanning.  
Should you require Hec Ras files please email [floodriskengineer@gmail.com](mailto:floodriskengineer@gmail.com)

Email files

130319fra01

130319attach1-A3

130319attach2-A3

130319attach3-A4