

320120735P

Flood Risk Assessment

PROPOSED CONVERSION OF A REDUNDANT FIELD BARN INTO A SINGLE RESIDENTIAL DWELLING.

Applicant
Mr S Dobson
Hill House Rd.
Sawley Rd
Grindleton
Clitheroe
BB7 4QS

Site
Jacksons Barn
Bolton By Bowland Rd.
Sawley
Clitheroe
BB7 4NJ

John Welbank
Rural Futures
1 The Creamery Estate
Kenlis Road
Preston
PR3 1GD
01995 600724
johnw@ruralfutures.co.uk



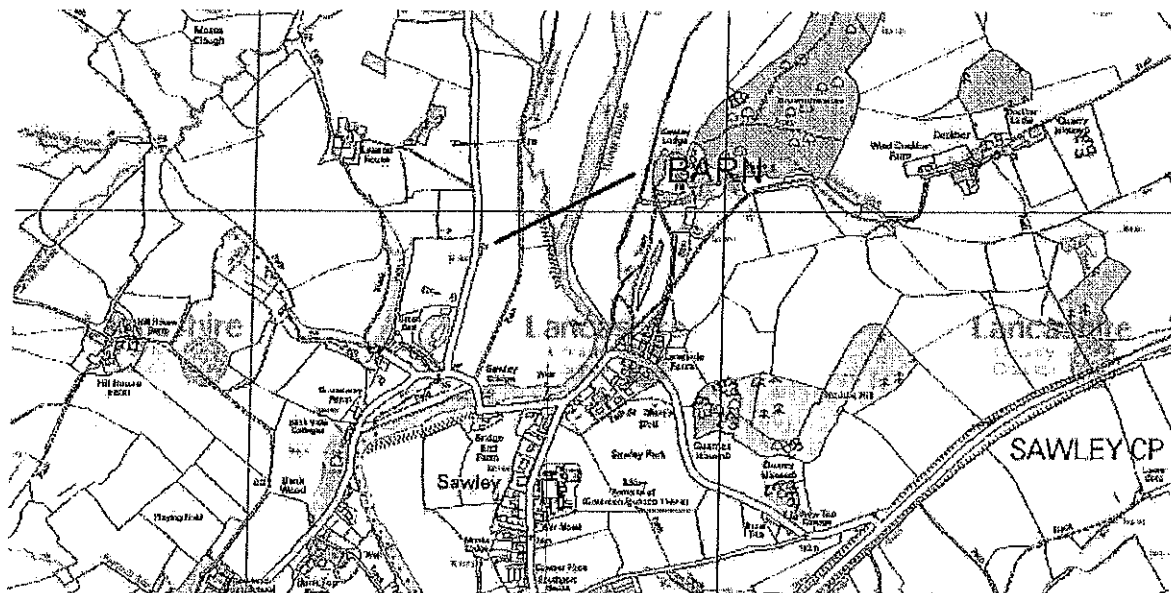
320120735P

General

The purpose of the report is to address the potential flood risk in respect of the proposed residential development of Jacksons Barn, Sawley. The FRA has been constructed using the template provided within Annex 3 of Ribble Valleys Strategic Flood Risk Assessment – May 2010

1a. What type of development is proposed and where will it be located? Include whether it is new development, an extension to existing development or change of use etc.

The area of the proposed development is identified below and comprises of an existing field barn located alongside Sawley Road. The proposal is to convert the existing barn to residential use



1b. What is its vulnerability classification?

Planning is for conversion to residential use. Under PPS25 Vulnerability Classifications residential property is classified as 'More Vulnerable'.

1c. Is the proposed development consistent with the Local Development Documents?

Based on the summary of the Planning Policy Statement it is suggested that the development meets with the Local Development Plan. (See Planning Policy Statement)

1d. Please provide evidence that the Sequential Test and where necessary the Exception Test has been applied in the selection of this site for this development type?

The site lies within Flood Zone 2. As a 'More Vulnerable' use under Table D.3 of PPS 25 the proposed development does not require an 'Exception Test'.

Flood Zone 2 is described as Medium Probability. Under PPS 25 the Policy aim is as follows:

320120735P

'In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage techniques'

Mitigation measures will be described in more detail later in the report as will the use of SUDS. What is of note is that the policy does accept that the proposed use is acceptable in Flood Zone 2 subject to the application of the sequential test for this 'particular location'.

With regard the Sequential Test PPS 25 provides the following guidance:

'The overall aim of decision-makers should be to steer new development to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, decision-makers identifying broad locations for development and infrastructure, allocating land in spatial plans or determining applications for development at any particular location should take into account the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2, applying the Exception Test if required.'

In this instance the key wording is 'reasonably available sites'. The site lies within the Forest of Bowland AONB so landscape considerations are paramount. In addition the Ribble Valley Housing Policy states the following:

HOUSING Policy H2

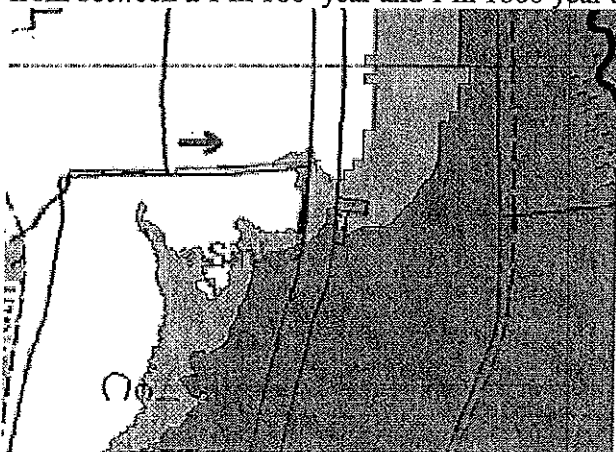
"Outside of settlement boundaries, as defined on the proposals map, residential development will be limited to:

- ii) The appropriate conversion of buildings to dwellings. Provided they are suitably located and the form and bulk and general design are in keeping with their surroundings. Buildings must be structurally sound and capable of conversion without the need for complete or substantial reconstruction (see Policies H15, H16, and H17 for advise)*

Within the immediate area there are very few remaining redundant farm buildings that are available or have the access of the proposed site. There are no similar sites within Flood Zone 1 in the immediate vicinity of Jacksons Barn. As a result PPS 25 allows consideration of available sites in Flood Zone 2. As such the site meets the sequential requirements for this 'particular location'.

2a. What sources of flooding could affect the site? (see annex C PPS25).

The site is located within the Environment Agency designated Flood Risk Zone 2 as shown below within the extract from the EA flood risk plan. Based on the EA plan it shows that the area is at risk from between a 1 in 100 year and 1 in 1000 year annual probability of river flooding.



320120735P

2b. For each identified source, describe how flooding would occur, with reference to any historic records wherever these are available.

The primary risk is associated with river flooding from both the River Ribble and associated stream some 200m to the East. The Ribble plain extends to the north, east and south of the site with the ground rising up to Sawley road.

Previous Flood Events

There is no history of Jacksons Barn ever flooding despite its proximity to the Ribble. The most recent incident in the area was 2004 when areas of both Sawley and Bolton by Boland were flooded. At this time the barn was used for machinery storage associated with the local steam rally. The occupier at that time stated that although the flood waters reached the ground surrounding the barn it never actually reached the barn itself. Sawley Rd has flooded south of the barn but there is no history of flooding at or above the barn.

The table below shows a list of major historical floods in the Ribble catchment that caused widespread flooding and affected local communities.

Major historical floods recorded in the Ribble catchment and RVBC communities worst hit
(Source Ribble CFMP)

1771 Ribble No information available
1775 Ribble No information available
1866 Ribble, Calder, Whalley, Clitheroe, Ribchester,
1881 Ribble, Calder, Hodder Slaidburn,
1923 Ribble, Calder Clitheroe
1936 Ribble, Hodder, Calder Slaidburn, Whalley, Clitheroe, Bolton-by- Bowland
1995 Ribble, Calder, Darwin Ribchester
2000 Ribble, Calder, Darwin Ribchester,
2002 Calder, Darwen Whalley

Of the major historical flood events recorded there appears to have been a concentration of floods in July and August, many associated with short-lived but very intensive convectional rainstorms, often over built-up areas (for example Preston, Burnley, Blackburn) which produced rapid runoff. The months of March, April and May did not experience any major floods.

As previously highlighted there is no history of flooding at this site.

2c. What are the existing surface water drainage arrangements for the site?

There are no existing surface water drains on the site other than the road drain and a gully that takes water from the barn to a small dyke located at the southern end of the site.

The proposed discharge point for both surface water and package treatment will be through the culvert that runs from the west side of Sawley Rd, under the site and field to the East, then into the Ribble at the confluence with the feeder stream. The location of the discharge route is highlighted on the site layout plan.

Full details of the proposed package treatment plant are included in Annex 1 of the Design and Access Statement.

320120735P

3a. Which flood zone is the site within?

Flood Zone 2

3b. If there is a Strategic Flood Risk Assessment covering this site, what does it show?

Ribble Valley Borough Council SFRA Level One -- May 2010. The site lies within the defined Upper Ribble and Hodder area. Policy Option P1 is effective 'No active intervention'.

3c. What is the probability of the site flooding taking account of the contents of the SFRA and of any further site-specific assessment?

A full topographic survey was undertaken on the site. The full drawing accompanies the application. Based on the Environment Agency modelling the following data was derived for the site.

Maximum limit of Flood Zone 3 – 70.86AOD

Maximum limit of Flood Zone 2 – 71.73 AOD

The internal floor of the barn is lower than the external. The lowest internal point within the barn is at a height of 71.01 AOD placing the lowest point in Flood Zone 2. The majority of the barn lies between 71.01 and 71.52.

This would place the barn at risk of flooding from between a 1 in 100 year and 1 in 1000 year annual event.

Inundation of the area would most likely take place from the south east as this is the lowest area of land within the flood plain.

3d. What are the existing rates and volumes of run-off generated by the site?

Average annual rainfall for the site is 1274mm. Based on the existing roof area and area of hard standing the existing surface water runoff calculations are as follows:

Catchment Area x Rainfall (24hrs) x 0.8 (runoff coefficient)

Present:

Maximum rainfall estimated within a 1 in 100 year fluvial event has been established at 86.35mm for a 24hr period. The rainfall level is based on a maximum rainfall of 44.3mm in one hour. An aerial reduction factor has been applied of 0.967 creating a point source hourly maximum of 42.9mm. A run off coefficient of 80% has been applied to runoff from the site. From this assessment the maximum discharge from the site is estimated at 21.14m³ over a 24hr period. This equates to 0.00024m³/sec. During the maximum hour period the discharge from the site will be 0.0036m³/sec.

Future:

Following the development the tin barn to the East will be removed. As a result the discharge levels will reduce as follows:

Maximum discharge from site over 24 hrs – 16.99m³

Maximum discharge 24hrs – 0.000196m³/sec

Maximum hourly discharge – 0.0030m³/sec

As a result of the development the total area of hard surface will reduce by some 20%. This will result in reduced levels of total and peak surface water discharge from the site

320120735P

4a. How is flood risk at the site likely to be affected by climate change?

Surface Water Discharge.

Analysis has also been undertaken to establish the volume of water discharged from the site for a 24-hour 100-year return period rainfall event including an additional allowance of 20% for climate scenario.

Maximum discharge from site over 24 hrs – 20.39m³

Maximum discharge 24hrs – 0.000235m³/sec

Maximum hourly discharge – 0.0036m³/sec

These levels are below the existing surface water run off as a result of the loss of the tin barn.

Flood Risk.

Detailed flood modelling for climate change impacts is not available for the upper Ribble. Based on the datum levels at the site the Environment Agency advised that mitigation of flood risk should be based on the maximum depth of Flood Zone 2 plus a climate change allowance of 600mm.

Flood Zone 2 – 71.73 AOD plus 600mm

The ground floor level within the design has been set at 72.33 AOD.

5a. Please provide details of the development layout, referring to the relevant drawings.

The use is classified as 'More Vulnerable'. The ground floor includes the kitchen and living area. The three bedrooms are located on the first floor. Full drawings are attached to the planning submission

5b. Where appropriate, demonstrate how land uses most sensitive to flood damage have been placed in areas within the site that are at least risk of flooding.

The main area of risk is associated with the residential use of the building. This component of the development is furthest from the source of flooding being on the north western corner of the site. The areas that are most at risk and most likely to flood are the garden areas and then car parking area to the south of the main barn.

6a. How will the site be protected from flooding, including the potential impacts of climate change, over the development's lifetime?

Flood mitigation: The principle flood mitigation measure is associated with the ground floor level. As previously described the maximum height of Zone 2 is 71.73AOD. The ground floor level has been set at 72.33 AOD ie 600mm higher than the maximum predicted flood level including an allowance for climate change. This will result in the residential component of the development being above predicted river flood levels now and in the future.

In addition other design issues have been incorporated based on SUDs Guidance namely:

i) Prevention

Managing the site can significantly reduce the total volume of surface water discharge. For the proposal this has included the following preventative measures.

- Minimising paved areas. The total area of hard surfaces has been kept to the minimum required for the proposed development. Those areas that will be hard surfaces will utilise permeable materials that will slow discharge rates as well as the overall volume (see 'permeable surface' below).

- Good housekeeping

320120735P

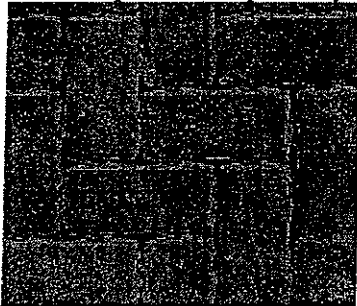
To further improve the onsite systems silt traps and downpipe filters will be incorporated into all external drains. This will maintain the efficiency of the proposed attenuation systems described below.

ii) Permeable surfaces and filter drains

Filter drains and permeable surfaces will be used within the external patios and paths. These systems have a volume of permeable material below ground to store surface water. Runoff flows to the discharge outlet via a permeable surface. This can include:

- Grass (if the area will not be trafficked)
- Reinforced grass
- Gravelled areas
- Solid paving blocks with large vertical holes filled with soil or gravel
- Solid paving blocks with gaps between the individual units
- Porous paving blocks with a system of voids within the unit
- Continuous surfaces with an inherent system of voids

For the proposed development it is proposed to use block paving with gaps between each unit for the external patios and pathways. An example is shown below.



Permeable surface with porous substrate have the additional benefit of filtering impurities out before the water reaches the top water discharge point.

For roads and parking area permeable gravel will be used to increase porosity of the vehicle access points.

iii) Retention Devices

Due to the restricted nature of the site large scale attenuation is not possible however the development will include rain water collection systems for use within the gardens and external areas.

This system uses a combination of filter and a pump to supply rainwater for garden irrigation, car washing and general cleaning. The pump is pressure-sensitive to ensure that electricity consumption is kept to a minimum, and has a 100% water yield.

Through a combination of surface water minimisation, the use of permeable surfaces and rain water harvesting the overall discharge from the site will be significantly less than the existing site. The actual surface water and package treatment discharge point will be through the existing drain to the south end of the site. This drain leads through to the Ribble (See site plan).

Access:

In the event of an extreme flood event the site can be evacuated to high ground immediately to the north and west. Emergency vehicle access will still be available from the north via Sawley Rd.

320120735P

7a. How will you ensure that your proposed development and the measures to protect your site from flooding will not increase flood risk elsewhere?

No infrastructure works are required to protect the site other than the raising of the ground floor level. Overall surface run off volume and rate will reduce due to the reduction in impermeable surfaces. As a result there will be no impact on flood risk elsewhere.

7b. How will you prevent run-off from the completed development causing an impact elsewhere?

As the overall area of hard surfaces at the site will reduce by 20% the impact of the development will be to reduce the volume and speed of surface water discharge.

8a. What flood-related risks will remain after you have implemented the measures to protect the site from flooding?

No flooding of property should occur as a result of a one in 100 year storm event (including an appropriate allowance for climate change). Through the mitigation measures employed the surface water drainage system should ensure that there is little or no residual risk of the property flooding during events well in excess of the one in 100 year return period.

Foul waste is described within the Design and Access statement (Annex 1). The proposed Matrix package treatment plant is designed to operate when submerged. As a result even if the site is submerged the waste treatment route still operates.

8b. How, and by whom, will these risks be managed over the lifetime of the development?

Danger to residents will be low due to the proximity of safe high ground located immediately to the west. In order that the potential threats can be mitigated the development will include two additional components beyond those already provided within the FRA.

Firstly all properties will be made aware of the Environment Agency Flood Warning Alerts System. Secondly a flood management plan will be produced and transferred to all site occupiers. This will include the following components

- In the event of flood directions to the nearest high ground will be provided and plans produced.
- Routes for emergency services will be highlighted taking into account the most likely escape areas.
- Instructions on how to evacuate the properties in a safe and timely fashion.
- Precautions that could be taken to minimise property damage in advance of a flood event.
- Emergency contact number

Summary

The new development is small scale and due to policy constraints there is no prospect for further development at the location.

The application has fully considered the requirements of PPS 25 including the sequential test. Although the site lies within Flood Zone 2 there is no history of the site flooding. Despite this full mitigation has been incorporated into the design including the raising of the ground floor level above Flood Zone 2 levels. Use of SUDs techniques will be included to minimise surface water runoff. As the area of hard surfaces will be reduced by over 20% the site will reduce surface water discharge rates so there will be no impact off site.

320120735P

John Macholc
Building and Development Control
Manager
Ribble Valley Borough Council
Council Offices
Church Walk
CLITHEROE
BB7 2RA

Phone: (01772) 531734
Fax:
Email: douglas.moir@lancashire.gov.uk
Your ref:
Our ref: PJB/ASP/DM
Date: 1 November 2011

F.A.O Rachel Horton

Dear Mr Macholc

PROPOSED: Conversion of a redundant field barn into residential use. Jacksons Barn, Sawley Road, Sawley (3/2011/0790)

Jacksons Barn is a non-designated heritage asset (Lancashire Historic Environment Record PRN 28022), recorded as *Cow Lathe* on the 1st edition Ordnance Survey, 1:10560 map, surveyed in 1847 (Yorkshire Sheet 182) which shows a building of similar size and location as that proposed for conversion.

Information submitted as part of the planning application suggests that the building may date to the 1800s, although the truss arrangement and use of quoins could suggest a slightly earlier late 18th century date.

The building should therefore be considered to be of some historical interest (as a non-designated heritage asset as defined in PPS5), most likely dating from the latter half of the 18th century or the early years of the 19th century, having undergone a number of alterations in response to changes in agricultural practices and economics.

The proposed conversion will have a significant impact on the historic character and appearance of the building, and may result in the loss of some historic fabric. The CBAs '*An Archaeological Research Framework for North West England: Volume 2, Research Agenda and Strategy*' has indicated that "there is an urgent need for all local authorities to ensure that farm buildings undergoing adaptation are at least considered for recording" (p. 140) so that "a regional database of farm buildings can be derived and variations across the region examined." (ibid.). Consequently should the Local Planning Authority be minded to grant planning permission to this or any other scheme, the Lancashire Archaeology Service would recommend that the recording of the buildings prior to conversion be secured by means of the following condition:

320120735 P

Condition: No works shall take place on the site until the applicant, or their agent or successors in title, has secured the implementation of a programme of building recording and analysis. This must be carried out in accordance with a written scheme of investigation, which shall first have been submitted to and agreed in writing by the Local Planning Authority.

Reason: To ensure and safeguard the recording and inspection of matters of archaeological/historical importance associated with the buildings.

Such a recommendation is in accordance with the government's stated objectives in PPS5 Policy HE12.3 (Where the loss of the whole or a material part of a heritage asset's significance is justified, local planning authorities should require the developer to record and advance understanding of the significance of the heritage asset before it is lost, using planning conditions or obligations as appropriate

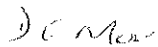
Specifications and a list of professionally qualified building recording consultants and organisations which could carry out the appropriate archaeological works can be obtained from Lancashire County Archaeology Service:

Lancashire County Council
Development Management
Environment and Public Protection Services
PO Box 100
County Hall
Preston
PR1 0LD

tel. 01772 531734

Please note that these comments have been made without the benefit of a site visit. If you have any questions or require any further information please do not hesitate to contact me.

Yours sincerely



Doug Moir
Planning Officer (Archaeology)

320120735 P

ADDENDUM FLOOD RISK ASSESSMENT

This statement relates to our pre-application research in particular to our letter to the environmental agency, dated 6th March 2012 and their response letter dated 12th March 2012 as attached.



S. J. BIALECKI

'Rosedale'
Back Lane
Grindleton
Clitheroe
Lancashire
BB7 4RZ

320120735 P

Phone: 01200 441782
Fax: 01200 441782
Mobile: 07791 676331

Environmental Agency,
P O Box 519,
South Preston,
Lancashire,
PR5 8GD.

6th March 2012

F.A.O. C WELSBY

Dear Cliff,

REF PROPOSED CONVERSION OF JACKSONS BARN
SAWLEY ROAD, SAWLEY

Further to our recent telephone conversation relating to flood risk zone 2, please find attached location plan and existing site layout and elevation of the barn together with this supporting statement.

LOCATION

Jacksons Barn is situated approximately 500mm north of the village of Sawley on the east side of the road leading to Bolton By Bowland

DESCRIPTION

The building is made of sandstone , rectangular in shape under a stone flag roof with one gable set against the road side. The opposite east gable has a timber frame building attached with corrugated sheet cladding which does not form part of this enquiry.

The barn in general terms can be considered sound and in good condition.

320120735 P

There is a small plot of land attached to south elevation of the barn enclosed by a mature stone wall which separates the highway to the west and agricultural land to the east.

ASSESSMENT

Jacksons Barn is of vacant possession and purchased by our client some three years ago , following advise it could be converted into a dwelling

Our client commissioned consultants to apply for Planning Permission for its conversion to a dwelling . Part of the application required a "Flood Risk Assessment" which assessed the application site is located within the Environment Agency designated flood risk Zone 2. Based on the E.A. plan indicates the area is at risk from between 1-in 100 year and 1 in 1000 year annual probability of river flooding.

The flood risk assessment was subject to mitigation measures and the use of SUDS.

The consultants took the view to mitigate measures against probable flooding was to design a raised ground floor level above F.R.Z. 2 level , pro rata raising the roof to allow 2 storey living accommodation.

As we understand these mitigation measures were accepted by the E.A., however the Planning Application was inevitably refused because there is not policy within the Ribble Valley District Local Plan that would allow a raised roof as presented.

The site is now under review to assess the best way forward for an alternative way of changing the use and conversion of the barn.

FURTHER ASSESSMENT

Our client lives with his parents at Hill House Farm, Sawley Road, approximately 1.0km from the application site.

From the farm within one of the farm yard buildings he runs a small business in the form of maintenance and repair of small grass cutting appliances providing a good successful service to the farming community and in habitants local to the area.

Present circumstances now dictate he has the opportunity of diver sing the use of the application site by converting the barn to an appropriate use to suit his personal needs and requirements.

320120735 P

PROPOSALS

It is proposed to construct a small single storey extension on the south elevation within the walled croft of the site , as a trade to demolish the corrugated clad building attached to the east gable

Ground floor of the barn and extension would be used for the clients business purposes in the maintenance and repair of grass cutting appliances.

The first floor would form his residence in the form of a bedroom- bathroom with open plan kitchen living room spaces.

A preferable option would be to use a small section of the ground floor as a kitchen (non-habitable room) as ancillary use to the first floor living accommodation.

There are no principle mitigation measures against flooding , other than what can be practically achieved on site for example control of surface water, permeable surfaces and filter drains which would be defined in a comprehensive report.

As we understand for your consideration in recent times there is no history of Jacksons Barn ever flooding despite its proximity to the River Ribble . The most recent incident in the area was 2004 when areas of both Sawley and Bolton By Bowland were flooded . at this time the barn was used for machinery storage associated with the local steam rally . The occupier at that time stated that although the flood waters reached the ground surrounding the barn it never actually reached the barn itself, Sawley Road has flooded south of the barn, but there is no history of flooding at or north of the barn

SUMMARY

Subject to your favourable comments, we are confident to progress further and approach the Planning Department in the form of pre-application advise with a plan to convert the barn with mixed use complying with relevant planning policies.

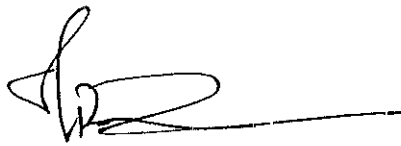
The barn conversion would provide our client with his own business and living use and equally important the up-grading of a redundant building in a prominent location as apposed to its present visible impact and gradual deterioration.

320120735 P

If it would be of use we offer a site meeting and indeed visit the applicant place of work to authenticate our proposals.

We look forward to your comments and advise and hope we can take the project a step further.

Yours sincerely

A handwritten signature in black ink, appearing to be 'S. Bialecki', with a long horizontal line extending to the right.

S. BIALECKI

320120735 P

creating a better place



Environment
Agency

S J Baialecki
Rosedale
Back Lane
Grindleton
Clitheroe
Lancashire
BB7 4RZ

Our ref: JCW/Ribble
Your ref:

Date: 12 March 2012

Proposed conversion of Jacksons Barn, Sawley Road, Sawley.

Dear Mr. Bialecki.

Thank you for your letter dated 6th March 2012.

I can confirm that the Agency would have no objection to the development as proposed.

When applying for planning permission you will need to include a flood risk assessment that should cover the following points.

Confirmation that all habitable rooms will be on the first floor.

All electrical apparatus, plugs etc are set at least 1.0m above floor level. In the downstairs kitchen area the units are set on legs as high as possible and floor and wall coverings are flood resilient.

Flood boards or sandbags should also be stored on site and be made available for immediate use if required

Please also make reference to an emergency evacuation procedure and escape route.

Yours faithfully,

J. C. Welsby
Development & Flood Risk Engineer.



INVESTOR IN PEOPLE

