From: David Baume [mailto:Baume@hookmason.co.uk]
Sent: 17 September 2015 09:23
To: Gibbons, Kelly
Subject: FW: 151698 Land at Former Yeomans Coach Depot, A4110 Canyon Pyon

Kelly,
See further correspondence below in respect of FRA issues fyi.
Regards

David F Baume Director
Hook Mason Limited

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From: Chris Nugent [mailto:cnugent@hydro-logic.co.uk]
Sent: 16 September 2015 17:53
To: Joanna Goodwin <joanna.goodwin@pbworld.com>
Subject: RE: 151698 Land at Former Yeomans Coach Depot, A4110 Canyon Pyon

Joanna,

Thank you for reviewing our FRA for the Canon Pyon Yeomans site, a copy of which is attached for your convenience.

I note that your outstanding concerns relate to the fluvial flood risk and you suggest that we undertake hydraulic modelling, to make the FRA more robust. I have so far resisted hydraulic modelling as an unnecessary expense for our client, on the grounds that the local topography makes it virtually impossible for the brook to flood its left bank.

Please find attached some LiDAR DTM imagery, at 2 m resolution, which I have plotted with a 0.2 m vertical interval. The site is outlined with a dotted red line and the roads shown in solid black. The brook is flowing from south west to north east. You will see that upstream of the road bridge, the left bank of the brook is almost all above 79.0 mAOD, rising well above 79.2 mAOD along the entire site frontage. In contrast, the right bank is below 79.0 mAOD along the 30 m upstream of the bridge, falling to below 78.4 mAOD on the road. Flood flow is conveyed from there to the channel downstream of the road bridge along a flow path below 78.6 mAOD.

The left bank could only be affected by flooding if conveyance across the right bank was insufficient. With a circa 30 m wide flood flow path below 79.0 mAOD to the south of the bridge, there is ample conveyance, as I tried to demonstrate with my Manning "hand calculations". Given the relatively low roughness across this corner of this field and the steep drop on to the road, it would be surprising if floodwater could achieve depths of over 0.2 m and probably over 0.3 m across this broad flow path.

I regret that the LiDAR was not available to us when I produced the FRA report but now we have it, I am more convinced than ever that hydraulic modelling would only tell us what the topography tells us already. We can of course model the situation and charge the applicant accordingly but if you agree with the analysis above, you will see that this does not seem to be strictly necessary. If you need to check the Manning analysis, I can export the calculated parameter values into an Excel spreadsheet for verification.

I would be pleased to discuss fluvial flood risk at this site, if you would like to give me a ring on the number below.

Best wishes

Chris

Chris Nugent
Senior Hydrologist
Hydro Logic Services LLP
01885 485857 / 01885 483789

From: Goodwin, Joanna [mailto:Joanna.Goodwin@pbworld.com]
Sent: 01 September 2015 14:04
To: Gibbons, Kelly
Subject: 151698 Land at Former Yeomans Coach Depot, A4110 Canyon Pyon

Kelly,

Please find attached our response in regard to the FRA submitted to support this proposed development. I apologise for the slight delay.

Kind regards,

Joanna Goodwin MCIWEM C.WEM
Principal Engineer, Water Engineering

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SITE :	Land at Former Yeomans Coach Depot, A4110 Canyon Pyon, Herefordshire
TYPE:	Planning Application
DESCRIPTION:	Proposed demolition of redundant commercial premises to facilitate residential development of ten market dwellings together with associated vehicle access
APPLICATION NO:	151698
GRID REFERENCE:	OS 346222, 249070
APPLICANT:	Mr Kenneth Dean Martin Healey

Introduction

This response is in regard to flood risk and land drainage aspects, with information obtained from the following sources:

- Environment Agency (EA) indicative flood maps available through the EA website;
- EA groundwater maps available through the EA website;
- Ordnance Survey mapping;
- Strategic Flood Risk Assessment for Herefordshire;
- Herefordshire Unitary Development Plan - March 2007.

We have provided a previous response in respect of this application (Ref: ADD36391_NS_23062015). That response was based on the following information:

- Proposed Site Location drawing (Ref: EMS4396);
- Proposed Site Layout drawing (Ref: 5462-1-1a);
- Topographic survey drawings (Refs: MG0602_S1 & MG0602_S1_2D);
- Flood Map Challenge (Ref: K0489);
- Planning Application Request form.

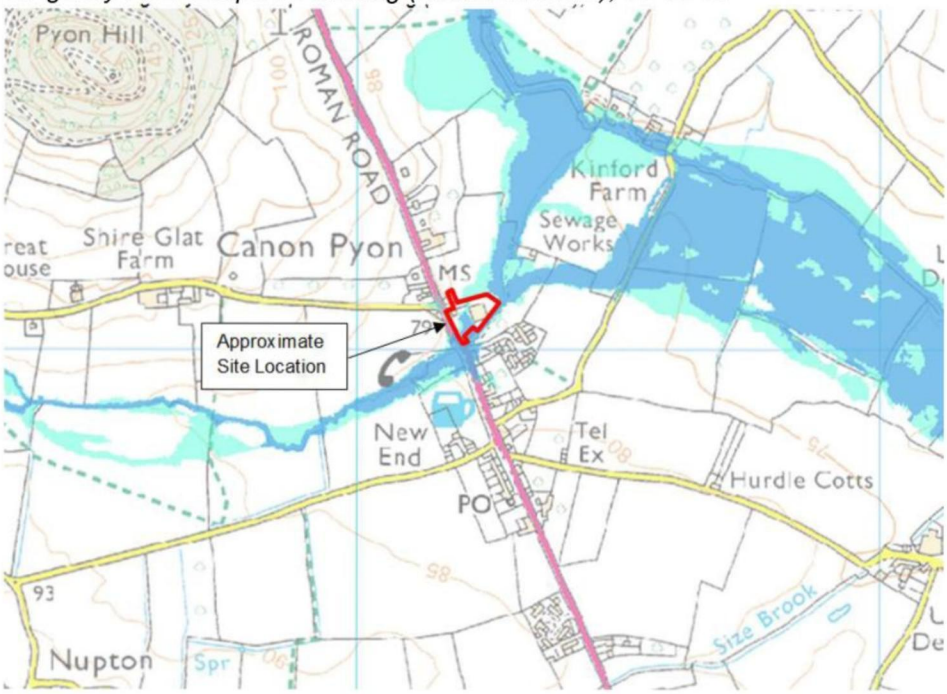
Since then, the applicant has submitted the following additional information:

- Flood Risk Assessment (Ref; K0489/1)

This document primarily considers the information provided in this Flood Risk Assessment (FRA).

Site Location

Environment Agency Flood Map for Planning (Rivers and Sea), 11-08-15



Overview of the Proposal
The Applicant states that the site measures 0.5 hectares (ha) and is situated in the village of Canon Pyon, approximately 10.5km north-west of Hereford. An unnamed tributary to the Wellington Brook runs south-west to north-east along the south-eastern boundary of the site. The tributary is classified as an ordinary watercourse.

The development proposals comprise the demolition of existing buildings at the former coach depot and the redevelopment of the site with ten residential properties.

Flood Risk Assessment

The Applicant has submitted a Flood Risk Assessment (FRA) in accordance with the requirements of the NPPF for sites located in Flood Zones 2 or 3.

The Applicant's FRA states that the site is in Flood Zone 1, 2 and 3. In accordance with the NPPF, the Applicant correctly identifies that the 'more vulnerable' development proposals are acceptable in Flood Zone 1 and in Flood Zone 2 subject to the sequential test. It is also noted however, that the exception test must be applied for development in Flood Zone 3a and that more vulnerable development is not acceptable in functional floodplain, Flood Zone 3b.

The Applicant states that since there is no record of flooding at the site, the Flood Zone map has been challenged. Information within the FRA and Appendix C to the Applicant's FRA describe hand calculations which have been undertaken to challenge the flood map in the area of the site. This information is the same as that provided in the Applicant's Flood Map Challenge document, which has been reviewed in our previous response to this application (Ref: ADD36391_NS_23062015).

Until the concerns highlighted in our previous response to the Flood Map challenge are addressed, we do not consider sufficient information has been submitted to demonstrate the development is located in Flood Zone 1. The NPPF therefore requires that the sequential and exception tests should be applied as outlined in our previous response, and if the site is located in functional floodplain, development will not be considered acceptable. The conclusions of our previous response to the Applicant's Flood Map Challenge are repeated in the summary section of this assessment for ease of reference.

The Applicant states that it is proposed to set finished floor levels for the proposed buildings 300mm above the adjacent ground levels to prevent surface water entering any property. The Applicant states that it is not necessary to raise floor levels 600mm above the 1 in 100 year annual probability of occurrence event, including an allowance for climate change because the site is not expected to be affected by fluvial flooding. However, as discussed above and in our previous response to this application, the Applicant's statement that the site is not expected to be affected by fluvial flooding is in question. We maintain our previous comment therefore that we recommend that finished floor levels are raised to protect the proposed development against flood risk. A freeboard of 0.6m above the predicted (or recorded) 1 in 100 year flood level, allowing for the potential effects of climate change, is preferred. Where this is not possible, a minimum 0.3m freeboard should be provided above the 1 in 100 year flood level, allowing for the potential effects of climate change.

This guidance is in accordance with requirements of the NPPF and the Unitary Development Plan policy DR7.

Guidance on the required scope of the FRA and application of the Sequential Test and Exception Test is available on the EA website at https://www.gov.uk/flood-risk-assessment-for-planning-applications.

Other Sources of Flood Risk
The Applicant has considered the risk of flooding on site from surface water, groundwater, sewers, reservoirs and any other manmade sources. The Applicant states that the only non-fluvial risk of flooding arises due to a high surface water flood risk in the A4110 to the west of the site and due to a low risk of surface water flooding within the site itself, as assessed using the EA's risk of flooding from surface water map.

The Applicant has provided a photograph of flooding along the western side of the A4110 adjacent to the site and states that if the surface water level were increased, the area flooded would widen to the west rather than towards the site. The Applicant's topographic survey indicates that levels on both sides of the road are similar however and the basis of this statement is unclear. Regardless of this, the EA's mapping indicates that there is a low risk of surface water flooding to the site itself. The Applicant states that it is proposed to set finished floor levels for the proposed buildings 300mm above the adjacent ground levels to prevent surface water entering property. Given that flood risk within the site is classified as being low from surface water, this is deemed to be an acceptable means of mitigating this risk.

The Applicant states that any groundwater flooding that might occur would pass into the adjacent watercourse and therefore there is a low risk of flooding from this source.

The Applicant states that no sewer flooding is reported in the SFRA and that there is no known infrastructure with potential to cause flooding.

Surface Water Drainage

The Applicant states that site generated surface water will be infiltrated into the ground where feasible and recommends that infiltration testing is undertaken to BRE Digest 365 standards. The Applicant proposes setting infiltration devices below roadways or gardens where infiltration proves to be a feasible method of discharging surface water.

The Applicant has also calculated that surface water could be attenuated to the greenfield runoff rate and discharged into the adjacent watercourse in the event that infiltration does not prove to be a viable means of discharging surface water.

The Applicant's surface water management proposals are acceptable in principal. However, prior to construction, the applicant should provide a detailed surface water drainage strategy showing how surface water from the proposed development will be managed. The strategy must demonstrate that there is no risk of flooding to the proposed development or increased risk downstream of the site as a result of development up to the 1 in 100 year event and allowing for the potential effects of climate change.

In accordance with the National Standards for Sustainable Drainage and Policy DR4 of the Unitary Development Plan and best practice guidance, the drainage strategy should incorporate the use of Sustainable Drainage (SUDS) where possible. The rate and volume of discharge should strive to provide betterment and be restricted to the pre-development Greenfield values. Reference should be made to the Defra/EA document 'Preliminary Rainfall Runoff Management for Developments' (Revision E, January 2012) for guidance on calculating Greenfield runoff rates and volumes.

Consideration should also be given to the control of potential pollution of ground or surface waters from wash down, vehicles and other potentially contaminating sources. Evidence of adequate separation and/or treatment of polluted water should be provided to ensure no risk of pollution is introduced to groundwater or watercourses both locally and downstream of the site. SUDS treatment of surface water is considered preferential but 'Pollution Prevention Guidance: Use and design of oil separators in surface water drainage systems: PPG 3' provides guidance on the necessity and application of oil separators should one be required in the parking areas.

The Applicant has considered the risks that may arise due to exceedance of the 100 year rainfall event or through failure or blockage of the system. The Applicant proposes increasing the size of orifice used to control discharge into the watercourse in order to reduce the blockage risk and states that the surcharge of all structures on site should be directed along overflow routes into the adjacent watercourse.

Foul Water Drainage

No foul water drainage proposals have been submitted by the Applicant.

We recommend that the Applicant contacts Dwr Cymru Welsh Water in regards to foul water discharge from the site to check whether it is feasible to connect to the public sewers.

Overall Comment

The Applicant's assessment of flooding from all sources other than fluvial sources is considered adequate and the outline drainage strategy proposed by the Applicant is considered acceptable.

However, we maintain our recommendation for an objection to the Applicant's proposals on the grounds of insufficient information to demonstrate the proposal meets the requirements of the Sequential and Exception Tests. We also reiterate our previous comment that the Applicant should consider the implications of a residential development shown in Flood Zone 3, according to the EA Flood Map.

Reference should be made to our previous response to this Application for full details of the information required to assess fluvial flood risk. However, by way of a summary, whilst the Applicant has gone partway to demonstrating that the site is at a lower risk of flooding than illustrated on the EA's Flood Map for Planning, the methodology outlined in the FRA and Flood Map Challenge document is not considered sufficiently robust. In order to demonstrate that flooding does not occur to the site in the 100 year event including an allowance for climate change, we would seek the following information:

- More detailed methodology for the flow estimation;
- Surveyed section at the upstream end of the bridge;
- Surveyed levels for the watercourse a suitable distance upstream and downstream, and suitable calculations to demonstrate that the only source of flooding to the site is the flooding caused by the bridge identified by the Applicant. The channel survey should include bank levels and sufficient definition of the channel gradient and size to accurately identify and assess any constrictions to flow;
- Suitable calculation methods for flow through for the bridge when surcharged;

We expect the Applicant undertakes hydraulic modelling to support any Flood Map challenge as it is unlikely the EA would accept a challenge based solely on anecdotal evidence or simple hand calculations. Whilst we would consider a FRA submission based on hand calculations we expect hydraulic modelling is undertaken to provide a more robust FRA. We have no objections in principle on flooding or drainage grounds subject to successful application of the Sequential test, Exception test (as appropriate) as outlined above. We would object to new residential development in Flood Zone 3b.We note that the location of the site may make it difficult to pass the Sequential Test.

Canon Pyon Yeomans Yard

LiDAR Digital Terrain Model (DTM)