

APPEAL BY

BLOOR HOMES WESTERN LIMITED

**LAND NORTH OF VIADUCT, ADJOINING ORCHARD
BUSINESS PARK, LEDBURY, HEREFORDSHIRE**

STATEMENT ON FLOODING & FLOOD RISK

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1.0 PERSONAL BACKGROUND

- 1.1 My name is Stuart Allan Nemes. I am a Director working in the Environment Group of BWB Consulting Limited at the above address. I have the responsibility for a variety of disciplines within BWB, but my experience relates specifically to river engineering, flood risk and drainage. I hold a B.Sc.(Hons) Degree in Geography and Geology from the University of Leeds and a M.Sc. by Research in to the Implementation of Sustainable Drainage Systems (SuDS) from the University of Gloucestershire. I am a Chartered Environmentalist (C.Env), and a Chartered Water & Environmental Manager (C.WEM) through my professional institute - the Chartered Institution of Water and Environmental Management (CIWEM).
- 1.2 I have 20 years of experience working within an Engineering & Environmental Consultancy managing and undertaking flood risk and drainage work, requiring an appreciation of both rural and urban hydrology & hydraulics, working for water companies, the Environment Agency, district councils, county councils, developers, landscape architects, and various individuals. I have advised on all aspects of river engineering and drainage, with particular interest in the area of flooding and surface water drainage including the use of Sustainable Drainage Systems (SuDS).
- 1.3 This Statement is provided in relation to an Appeal against the refusal of planning by Herefordshire Council at the site know as 'Land North of Viaduct, Adjoining Orchard Business Park, Ledbury, Herefordshire'. The Statement I have prepared, on behalf of Bloor Homes Western Ltd, is true and given in accordance with the code of conduct of my professional institution. I can confirm that the opinions expressed are my true and independent professional opinions.
- 1.4 The reasons for refusal do not relate to flood risk or drainage and there were no objections to the proposals with respect flood risk and drainage by the regulatory bodies. However, there have been both press reports and concerns raised by nearby residents and councillors with respect flood risk to the site and in the locality that may be further discussed within the Inquiry. This Statement summarises the findings of the Flood Risk Assessment, the consultations with the regulatory bodies and further considers the evidence of flooding in the locality that has been presented within the press.

2.0 TECHNICAL OVERVIEW & SUMMARY

- 2.1 This Statement should be read alongside the following key documents submitted as part of the refused planning application:
- 2.1.1 Flood Risk Assessment (BWB Report Ref:- BMW-2470-FRA Rev S2-P2; dated 24/01/17);
 - 2.1.2 Sustainable Drainage Statement (Appendix 5 of FRA); BWB Report Ref:- BMW-2470-SDS Rev S2-P2, dated 24/01/17); and,
 - 2.1.3 Flood Risk & Drainage Technical Note (BWB Ref:- BMW-2470-TN2, dated 14/06/18).
- 2.2 The above reports were prepared by BWB under my management and supervision and in consultation with the Environment Agency (EA).
- 2.3 For context, in the southern section of the site, the River Leadon forms the direct western boundary of the development. In the northern section of the site the River Leadon is removed from the red-line site boundary, but generally runs parallel to the proposed development site along its western extent.
- 2.4 The River Leadon is a 'Main River'. A Main River is usually a large river or stream (watercourse) that the Environment Agency (EA) has powers to carry out maintenance, improvement or construction work on to manage flood risk or undertake works relating to flood defence.
- 2.5 The EA do not hold a hydraulic model of the River Leadon in this location. Instead the 'Flood Map for Planning' in this location is based on a high-level strategic flood risk mapping tool and not a detailed model. The FRA includes the EA flood map for planning as its Figure 1.2 (exert below), which shows the vast majority of the site (as defined by the red-line boundary) to lie within Flood Zone 1, defined as '*land assessed as having a less than 1 in 1000 annual probability of river/ tidal flooding*'. The presence of Flood Zones 2 & 3 along the western edge of the development have been used to inform and influence the canal corridor and the built development areas within the masterplan.

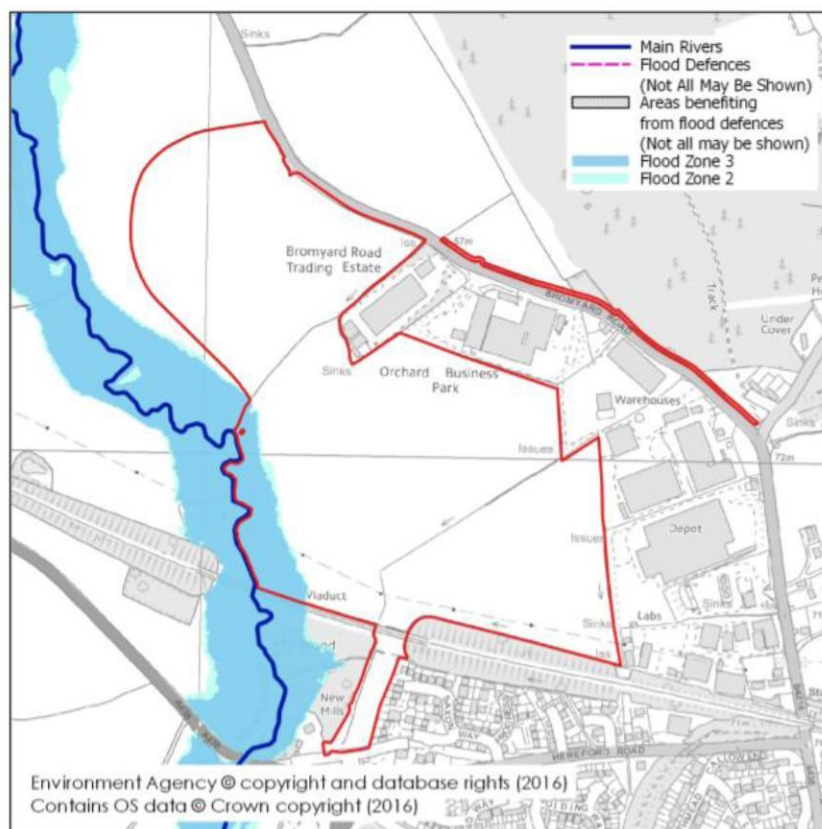


Figure 1.2 - Environment Agency Flood Map for Planning (Rivers and Sea)

- 2.6 As such BWB, through the production of the site-specific FRA, instructed a survey of the River Leaddon local to the site – extending a sufficient distance upstream and downstream of the site to include key local structures, as is best practice (see exert below showing model extent) – undertook a hydrological assessment to determine flood flow estimate and developed a bespoke hydraulic model of the river.

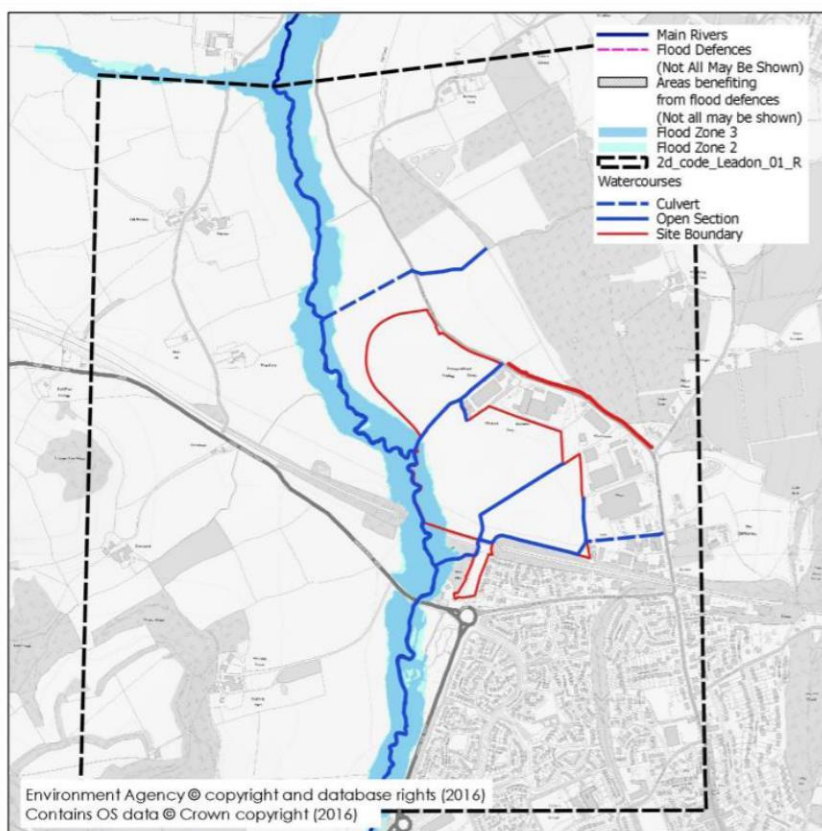


Figure 1 – BWB Flood Model Extent

- 2.7 The figure below (exert of Figure 2.2 in the FRA) shows the modelled flood extents for the site. This shows a general reduction in flood extents when compared against the EA Flood Map for Planning for all events up to and including the design flood (1 in 100-year, or 1% Annual Exceedance Probability (AEP), event plus an allowance for climate change). The allowances for climate change were updated in February 2016 and have been accounted for within the BWB hydrology and model.
- 2.8 The BWB model does predict a shallow extent of flooding across the southern boundary of the site for the theoretical 1 in 1000-year, or 0.1% AEP, event. This is beyond the design flood but has been accounted for within the FRA through the recommendation of appropriate flood risk mitigation measures in this area of the site. These measures include setting appropriate floor levels and providing an offset to the rail embankment to allow such flood routing to continue around the southern boundary of the site.

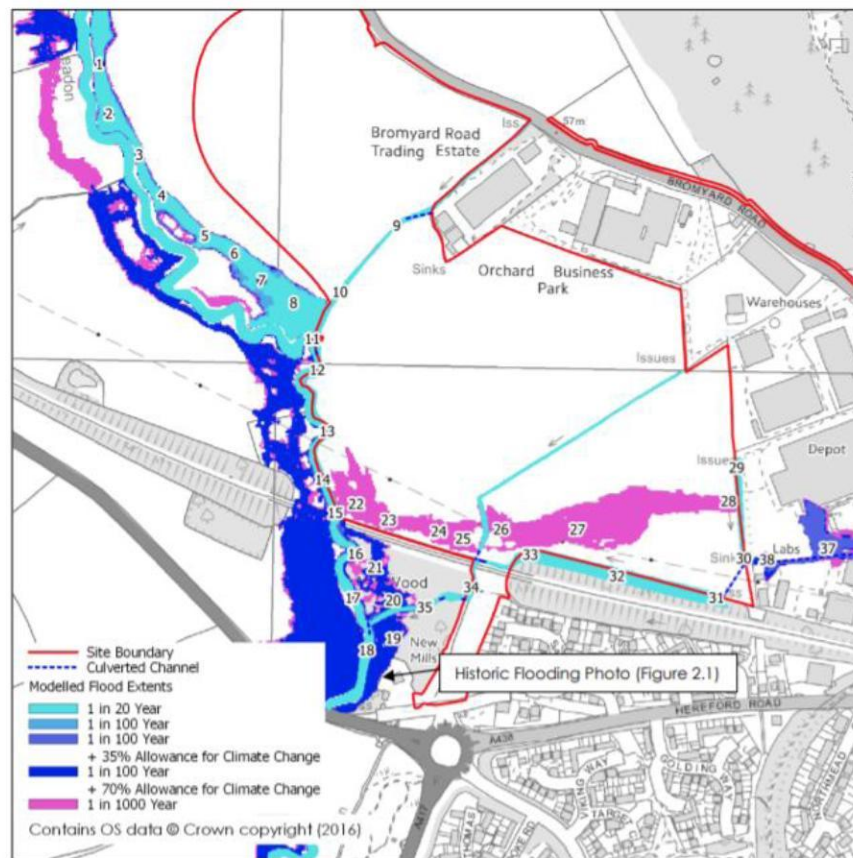


Figure 2.2 – Modelled Flood Extents

- 2.9 The EA also provide mapping showing risk from surface water (pluvial – direct rainfall-runoff) flood risk on the gov.uk web service. An exert of this was included as Figure 2.3 of the FRA (exert below).
- 2.10 A direct comparison of the surface water flood map and the BWB hydraulic model outputs shows a similar outline with respect flood flow routing in the south-east extent of the site, providing further confidence in the outputs provided and that the mitigation measures proposed are also appropriate.

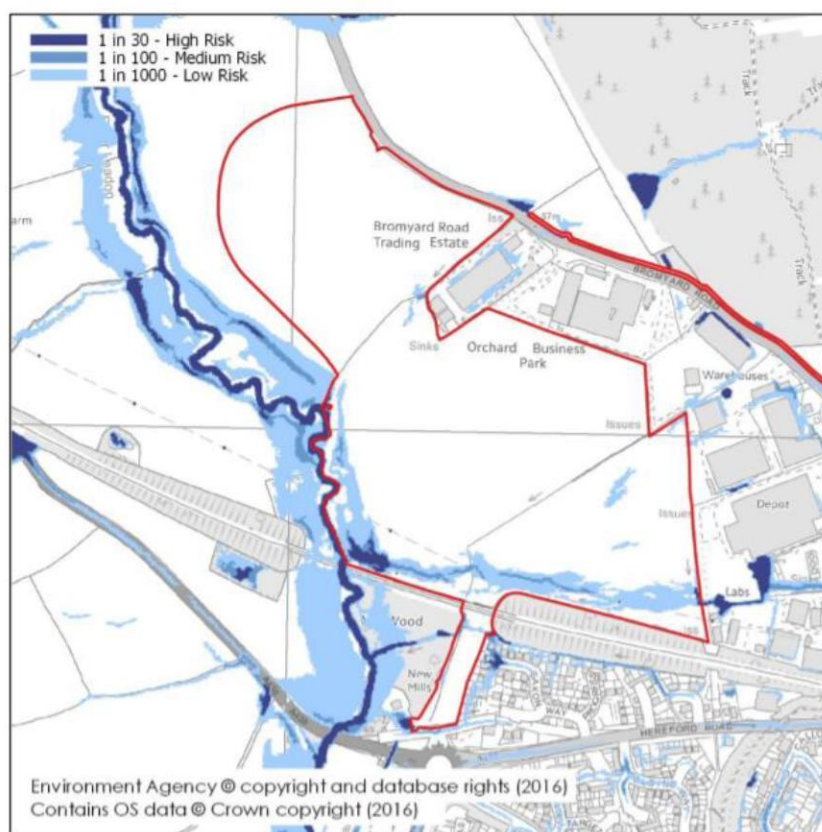


Figure 2.3 - Risk of Flooding from Surface Water Mapping

- 2.11 The general conclusions of the FRA are that the development area is generally at low risk of flooding and that, subject to the provision of appropriate mitigation measures, could be developed to safe from flood risk and without causing any off-site flood risk detriment.

3.0 REVIEW OF ANECDOTAL REPORTS OF FLOODING

- 3.1 During the preparation of the planning application, and associated FRA, and during its period of determination residents and local Councillors raised concerns with respect flood risk in the locality and questioned the reliability of the floodplain extents on which the FRA and development proposals are based. This feedback was received directly during the Public Consultation event held in May 2016, as well as via an email from Councillor Harvey (dated 17th June 2017) and more recently press reports within the Ledbury Reporter on 9th December 2019 (web link - <https://www.ledburyreporter.co.uk/news/18081289.flood-concerns-proposed-new-estate-ledbury/>).

- 3.2 BWB responded to the queries raised within both the Public Consultation event within the FRA directly (Section 2.15), as well as undertaking further sensitivity testing within the hydraulic model (testing sensitivity of the model to variations of flood flow) and liaising with the EA with respect to this additional testing.
- 3.3 Following liaison with BWB and the additional testing referenced above, Graeme Irwin (Senior Planning Officer, EA West midlands Area) responded directly to the queries raised by Cllr Harvey of 20th June 2017 within an email of 10th July 2017 sent directly to Cllr Harvey and copying in the planning officer (Mr Roland Close) at that time. A key excerpt from this email is provided as follows:

With regards to the Viaduct Application (Ref: 171532) BWB could rerun the model with a higher percentage urban area for the catchment or the polytunnel bit of the catchment. Whilst altering the hydrograph by speeding up flows to the Leaden, this is a very small part of the overall catchment (the FRA suggests 57km² total catchment). Also they have undertaken a number of assessments in the FRA which would have far more significant impacts on flooding to the site:

- *Ran 100 year plus 35%*
- *Ran 100 year plus 70%*
- *Doubled the 1000 year flow to 64 cumecs to see how the downstream property could have flooded historically*
- *Ran sensitivity on downstream model boundary, channel roughness and blockages of bridges and culverts.*

The doubling of the 1000 year flow to see the impacts is particularly very precautionary and even with that the FRA stated it showed little impacts on flooding affecting the site.

- 3.4 A further Technical Note (in June 2018) was prepared to summarise the additional work undertaken and submitted as part of the planning application documents.
- 3.5 The more recent press article includes concerns raised by a local 'campaigner' that further suggest that the site is at flood risk, with same campaigner providing photographic 'evidence' of the site flooding. The story relayed through the article is misleading or at very least shows a misunderstanding of the development site and proposals in a few ways, as summarised below:

1. *Reporter Extract - "He has supplied the Reporter with an image, which apparently shows the proposed site of the estate being flooded, after last month's [November 2019] heavy rains"*

S. Nelmes (BWB) Response – the image in the article is provided below as Photograph 1. The suggestion within the article is that this shows the development site. However, it is not and is misleading. Further comparison of site photos and walkover indicates that the photo was likely taken from the north of the application site looking south west towards flooded land that lies outside of the application site and with the Viaduct in the background. Notwithstanding this is not the application site, the area of flooding indicated in the picture is entirely consistent with that shown in the EA and BWB flood maps.



Photograph 1 (above) – taken from the Reporter on-line article (dated 9th Dec 2019)

2. *Reporter Extract (quote from campaigner) – "There is a photo of the flooding at the railway bridge that they wish to use as the only gateway to the site."*

S. Nelmes (BWB) Response – The photo in question is included below as Photograph 2. This does show flooding near the main Bromyard Road crossing under the railway bridge to the north-east of the site. However, the flooding is

removed from the site being upstream and some 260m away from the closest part of the development site boundary and upwards of 800m from the proposed site entrance itself. The site does not contribute to this flooding, nor can it do anything directly to improve or reduce the likelihood of flooding at this location.

There is a suggestion that the development is inappropriate given the site relies on a single gateway on to the Bromyard Road which in turns mean traffic must pass through the observed flooding. However, it is clear from the photo provided that the flooding observed is relatively shallow and can be negotiated by vehicular traffic. Even if such flooding could be greater in more substantive storm conditions, the road layout and levels suggest that any flooding would always remain relatively shallow, would be short duration and would likely be passable by vehicular traffic (including emergency vehicles). It is therefore, in my professional opinion, unreasonable to suggest that a development is inappropriate as a result of the presence of surface water flooding on a highway surface away from the main site entrance.



Photograph 2 (above) - taken from the Reporter on-line article (dated 9th Dec 2019)

3. Hereford Times article (dated Thursday November 21, 2019) – exert below

Thursday November 21, 2019 herefordtimes.com

News



Planners have deferred plans for 625 homes north of the Ledbury viaduct over access concerns. The homes would be build on land on the far side of viaduct which cannot be seen from this vantage point
Photo by Lynn Lagor during the recent flooding

625-home scheme access is 'madness'

By Carmelo Garcia
Local Democracy Reporter



COUNTY planners have deferred a scheme to build 625 homes in Ledbury at last week's planning committee meeting, said the town had been steadfast in its opinion over the site.

"Single access isn't suitable for developments larger than 200 to 300 homes," she said.

"There are many good things about

lem on that road already."

Ledbury mayor Philip Howells, who spoke at length against the prospect of a single access to the site, said it was madness.

"The town is not against the development, the adopted neighbourhood development plan identifies the site

'Photograph 3' – showing flooding south of the viaduct with the development site no visible

S. Nelmes (BWB) Response – The photo in the above article shows flooding locally, associated with the River Leadon and consistent with EA flood maps, to the south-west of the site and on the far side of the viaduct. The note for the photo within the article further acknowledges that this is not of the site and as such is not relevant to the news story and falsely perpetuates a perception that the site is at risk from flooding.

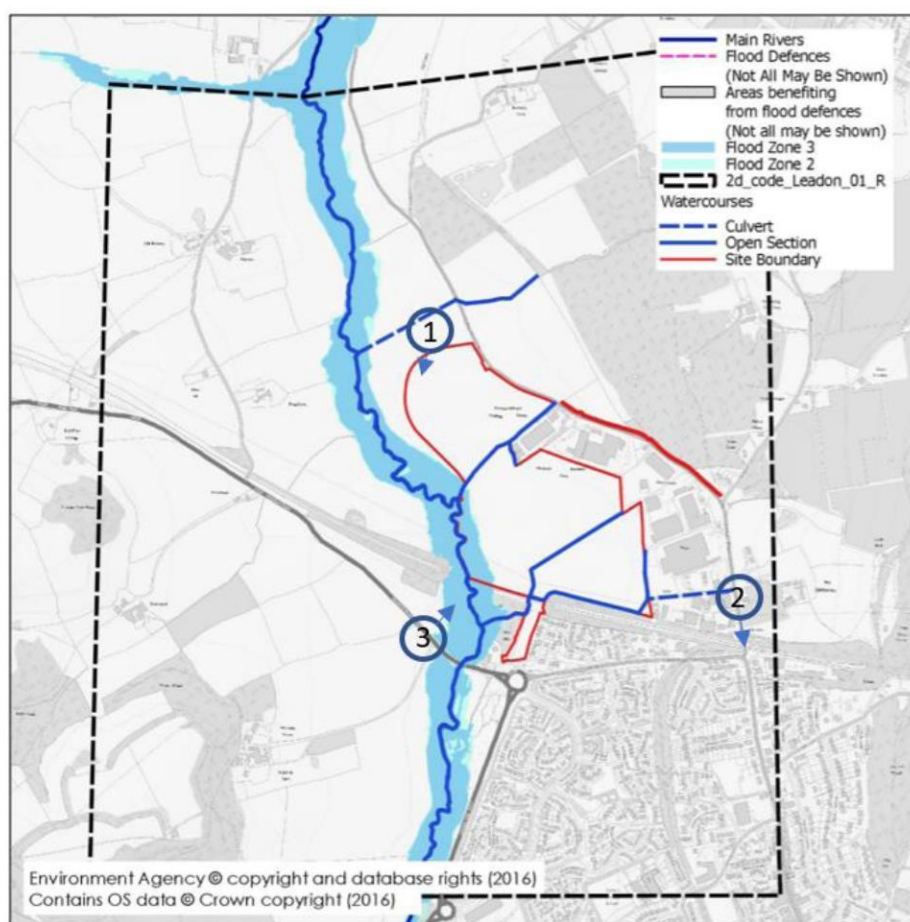


Figure 1 – BWB Flood Model Extent

Figure showing Assumed Reporter Photograph Locations (above)

- 3.6 Further to the reports of flooding in November 2019 relayed to the Applicant (now Appellant) by the planners at Herefordshire Council, and as reported within the Reporter Article (9th Dec 2019), the Appellant visited the site on the 15th November took photos and provided an immediate response to the planners to show that the development site remained free from flooding (see Appendix 1).

4.0 SUMMARY & CONCLUSIONS

- 4.1 The Flood Risk Assessment, supporting Technical Note and key EA correspondence confirm that the proposed development is outside of the high-risk fluvial floodplain. Surface water flood risk has also been accounted for in the development proposals through the proposed inclusion of a corridor along the southern boundary to contain flood flow routing in extreme storm conditions.

- 4.2 While evidence of flooding in the general locality has been provided, there has been no evidence provided that shows the development site itself at direct risk of flooding.
- 4.3 Throughout the preparation of the application and its subsequent determination, BWB has provided further evidence to demonstrate that the floodplain extents used within the FRA are both robust and appropriate and that the development site would be safe from flooding and through the application of a Sustainable Drainage Strategy would not result in any increase in off-site flood risk.

APPENDIX 1

**Correspondence between Bloor Homes & Herefordshire Council
following heavy rain of November 2019**

From: Nick Rawlings
Sent: 04 March 2020 12:36
To: Stuart Nelmes (stuart.nelmes@bwbconsulting.com) <stuart.nelmes@bwbconsulting.com>
Subject: FW: 171532 Land North of the Viaduct, Ledbury - Site Photographs 15.11.19.

Stuart

The below email is I trust self-explanatory. The pictures are from 15 November 2019.

I am not aware my email was forwarded onwards by Officers to the Planning Committee but the point was made.

Regards

Nick

Nick Rawlings
Planning Director

Bloor Homes Western
Western House, Furrowfield Park, Tewkesbury, Gloucestershire, GL20 8UR

Tel: **01684 290485**
Email: Nick.Rawlings@bloorhomes.com



From: Nick Rawlings
Sent: 15 November 2019 10:13
To: 'Brace, Carl' <Carl.Brace@herefordshire.gov.uk>; Gibbons, Kelly <Kelly.Gibbons@herefordshire.gov.uk>; 'Bishop, Kevin' <Kevin.Bishop@herefordshire.gov.uk>
Cc: Steve Roberts (Steve.Roberts@bloorhomes.com) <Steve.Roberts@bloorhomes.com>; Duncan Mackay <Duncan.Mackay@bloorhomes.com>; Kevin Haynes (Kevin.Haynes@bloorhomes.com) <Kevin.Haynes@bloorhomes.com>; Guy Wakefield <GWakefield@ridge.co.uk>
Subject: 171532 Land North of the Viaduct, Ledbury - Site Photographs 15.11.19.

Dear Carl, Kelly and Kevin

In consideration of Councillors discussion at Wednesday's Planning Committee meeting over flooding / flood risk, I thought it would be of interest for you to see the below photographs of the actual application site taken at 8:00am this morning following 24hrs of rainfall onto already saturated land which has left much of the County under water.

I trust the photographs are self-explanatory though to aid orientation I have provided a brief commentary.

Needless to say I am happy for you to forward this email to members of the Planning Committee as you consider appropriate.

Kind regards

Nick

Nick Rawlings
Planning Director

Bloor Homes Western
Western House, Furrowfield Park, Tewkesbury, Gloucestershire, GL20 8UR

Tel: **01684 290485**
Email: Nick.Rawlings@bloorhomes.com



1. View south east from area of proposed Site Access Roundabout onto Bromyard Road towards the proposed Emergency Access & Bromyard Rd Trading Estate.



2. Looking south from area of proposed Site Access Roundabout towards Viaduct over the area of the proposed housing parcels.



3. Looking NW from under the Viaduct towards the area of proposed Linear Park and H&G Canal Corridor (River Leadon in background)



4. Looking North from under Viaduct towards interface of proposed housing parcels, Canal Corridor and POS.



5. Looking NE towards existing Bromyard Road business premises over the area of proposed housing and employment land.



6. View from south side of Viaduct towards the main body of the application site on what is the proposed foot and cycle path.



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