SITE:	Land to the north of Hedgerow Way, Holmer, Hereford, Herefordshire HR4 9RG
TYPE:	Planning Permission
DESCRIPTION:	Proposed erection of 105 dwellings alongside access, and associated infrastructure including the widening of the northern footpath to 3 metres along Hedgerow Way.
APPLICATION NO:	224270
GRID REFERENCE:	OS 350110, 242493
APPLICANT:	Bloor Homes Western
AGENT:	Mr Guy Wakefield

Our knowledge of the development proposals has been obtained from the additional sources following our initial consultation response in April 2023:

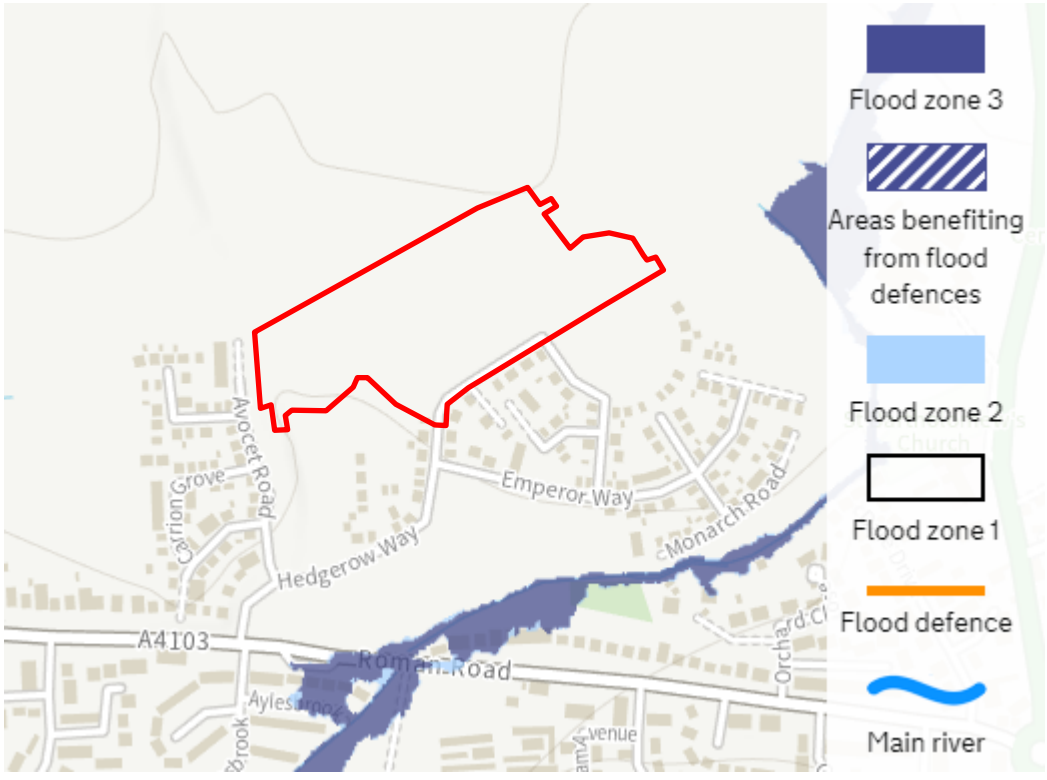
- Attenuation Basin As Built (Rev A);
- Planning Engineering (Rev D).

Overview of the Proposal

The Applicant proposes the construction of an additional 105 dwellings as part of a much large development site. The site covers an area of approx. 3.7ha is currently agricultural fields and areas of initial groundworks. Ayles Brook is an ordinary watercourse which flows down the south-eastern boundary of the Holmer West development site. The watercourse issues just north of the site within a series of small tributary channels and pass beneath Hedgerow Way–a link road constructed as part of the development. The topography of the site slopes down from northeast to southwest by approx. 9m. The topography of the site slopes towards Hedgerow Way from east to west where the site meets a tributary to Ayles Brook.

Site Location

Figure 1: Environment Agency Flood Map for Planning (Rivers and Sea), April 2023



Herefordshire Council

Balfour Beatty

Flood Risk

Fluvial Flood Risk

Review of the Environment Agency's Flood Map for Planning (Figure 1) indicates that the site is located within the low probability Flood Zone 1. However, as it is more than 1ha, in accordance with Environment Agency standing advice, the planning application has been supported by a Flood Risk Assessment (FRA) undertaken in accordance with National Planning Policy Framework (NPPF) and its supporting Planning Practice Guidance. This is summarised in Table 1:

Table 1: Scenarios requiring a FRA

	Within Flood Zone 3	**Within Flood Zone 2**	**Within Flood Zone 1**
Site area less than 1ha	FRA required	FRA required	FRA not required*
Site area greater than 1ha	FRA required	FRA required	FRA required

**except for changes of use to a more vulnerable class, or where they could be affected by other sources of flooding*

The EA Flood Map for Planning does not consider watercourses with small catchments and therefore it may happen that although the site is identified as located in Flood Zone 1 on the EA map, but there may be a risk of fluvial flooding from Ayles Brook located along the western site boundary.

The potential risk from this watercourse has been referenced by the Applicant: '*On the eastern boundary of the Holmer West development site, and opposite 'Holmer House Farm', the channels converge before being culverted beneath a series of access tracks and fields within a set of restrictive culverts. Hydraulic modelling has shown that these structures lead to shallow out of bank flooding.'*

Upon visiting the site, we are aware that the ephemeral watercourse flowing along the western site boundary is culverted at the northwest corner of the site and then flows into open channel. The size of the culvert appears to be less than 450mm. For this reason, a full blockage scenario will need to be assumed when undertaking the modelling.

We requested that a topographic survey is undertaken to understand the flooding flow routes should the watercourse reach capacity or a blockage of the culvert was to occur. Negotiations will be needed with the adjacent landowner to ensure that the survey covers the area in the vicinity of the culvert. Ground lowering could be considered to protect the dwellings proposed to the west of the site from any overflow events. Properties indicated at the northwest corner of the site may need to be repositioned.

As part of the FRA, the hydraulic modelling completed by the applicant (following our original comments) has identified that the vast majority of the site is located outside of the 1 in 100-year, 1 in 100-year + 37%CC and 1 in 1000-year events. A culvert is located to the north west of the site which is shown to overtop and flow along the left bank of the tributary watercourse and nominally encroach

the north west corner of the site. Downstream of the culvert, flood flows are shown to remain in channel.

The culvert to the north west of the site has been tested with a theoretical 100% blockage applied. As the culvert can be readily bypassed by flood water, such a blockage has been shown to not significantly affect the floodplain extent or the flood risk to the site.

A scenario was run with the 2013 topographical survey of the site included. This identified no change to the predicted flood risk to the application site. However, an increase in flood risk to dwellings to the south of the site was shown. Further assessment has identified that this is due to the topographical survey representing pre-existing conditions; since the survey was completed in 2013, ground levels in the wider area have been altered as part of earlier phases of the Holmer West construction works.

A theoretical 'construction phase' scenario has been tested to assess the impact of ground levels within the site inadvertently being raised during construction. Raising of ground levels within the site, and 2m beyond the site, is not shown to result in a significant change in flood risk.

The proposed development is to be sequentially located outside of all modelled flood extents (including the 1 in 100-year + 37%CC and 1 in 1000-year floodplain) and will be set a minimum of 4m away from the top of bank. Therefore, the fluvial flood risk is considered to be low.

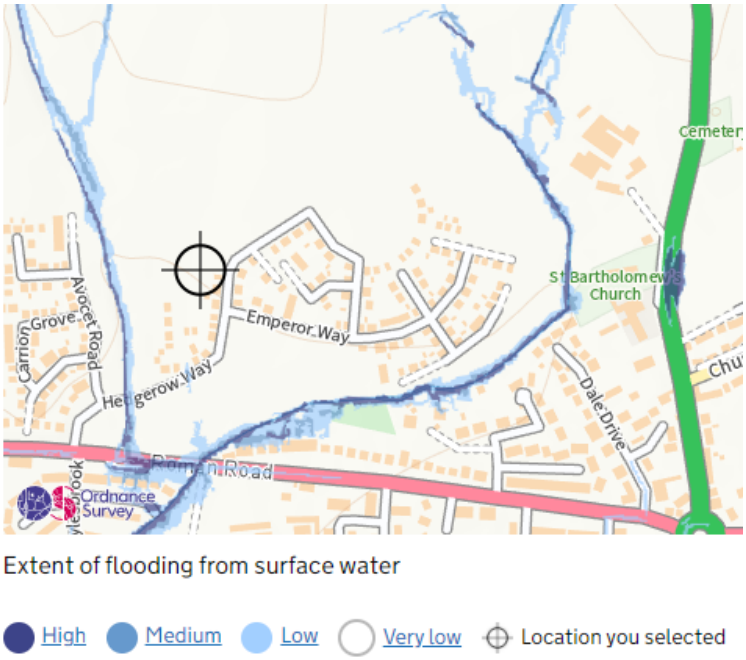
It is recommended that finished floor levels of any buildings are to be set at a minimum of 600mm above the nearest flood level for the 1 in 100-year + 37%CC event or 1 in 100-year + 37%CC event (100% blockage scenario), whichever is more conservative at a given location. It is also recommended that ground levels are profiled to encourage pluvial runoff and overland flows away from built development and towards the nearest drainage point. In accordance with these mitigation measures, the proposed development could be considered safe for its lifetime, without increasing flood risk elsewhere.

Using Cross Section 2, the slab level for Plot 485 has been confirmed to be 600mm above 71.25mAOD (1 in 100 year flood level plus 37% climate change) and will be an acceptable minimum of 71.85mAOD.

Surface Water Flood Risk

Review of the EA's Risk of Flooding from Surface Water map indicates that the site is not at risk of surface water flooding, however there is a low to high-risk surface water flow route associated with Ayles Brook, which flows along the western site boundary.

Figure 2: EA Surface Water Flood Risk Mapping, April 2023



Other Considerations and Sources of Flood Risk

Review of the EA's Groundwater map indicates that the site is not located within a designated Source Protection Zone or Principal Aquifer.

The layout of the site should ensure that a 4m buffer is provided to any development from the top of the bank of the Ephemeral Watercourse, to ensure maintenance can be facilitated.

Surface Water Drainage

We understand that infiltration testing for neighbouring sites have failed.

The Applicant has presented a Drainage Technical Note that includes MicroDrainage simulations identifying the impact of increasing the impermeable area. An assessment of using the two respective runoff methods (FEH and FSR) has also been considered.

The assessment assumes a 40% increase in rainfall due to climate change. We note that the current requirements for Herefordshire are based on an upper end increase are 45% for 2070 and beyond for a 1 in a 100 year event.

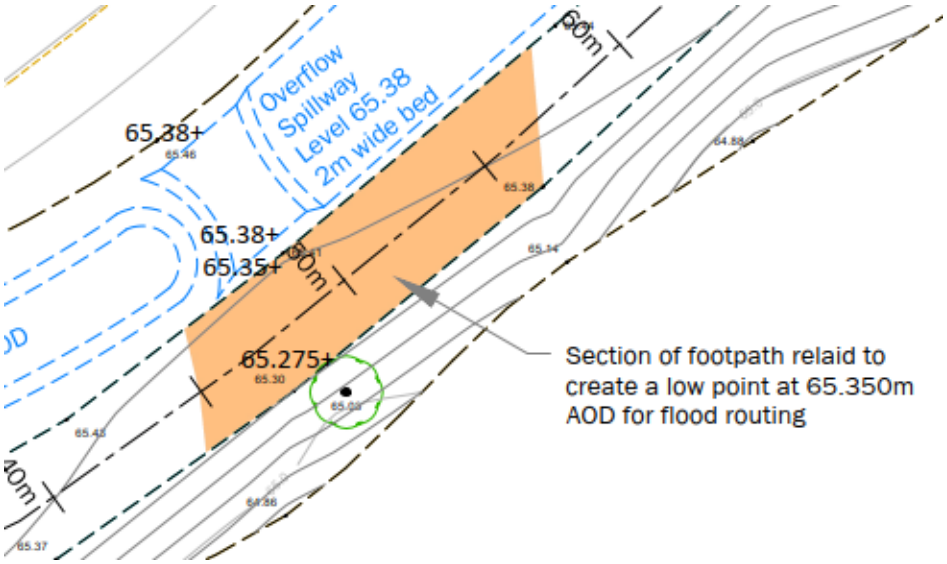
Our previous advice regarding the Holmer West application was based on the earlier projections of climate change. The Outline Planning application 150478 was approved on the basis of 30% climate change.

The simulations show water spilling over the raised weir (level 65.250m). However, the as-built level of the cycleway is 65.410m. Accordingly additional water will be attenuated in the pond and the volumetric criteria will be met.

As there is additional capacity in the pond and the simulated climate change is above 30%, we accept the proposals to raise the weir. We also note that as the Applicant has provided a detailed

topographical survey there are no requirements for freeboard (the earlier submission assumed 200mm).

We note however that the cycleway was built 60mm higher than proposed in earlier correspondence (refer to drawing 2645-A-A40). This drawing also showed the proposed bund to be installed with a minimum height of 65.70m. The as-built drawing shows that these bund levels have been achieved.



The proposed minimum weir level is confirmed as 65.250m.

We note that the Applicant has proposed a 2m wide weir, which has been simulated. The drawings show a Grass Concrete weir. Ground levels alongside the weir are lower than at the new bund The minimum level of the top of bund is 65.702 which spans West of the weir. There is no bund in place to the east of weir and the top of pond level here is circa 65.500. so in an event of the weir slowing down the water, any back up of water will breach the pond east of the weir and discharge into Ayles Brook. The weir will be constructed as per the approved plans (2m wide / grasscrete).

We have received confirmation that S92 has been constructed within the bund, so the cover level has now been raised to the top of bund level of 65.75mAOD. This detail will be checked and verified during the adoption process.

Similarly, S72 cover level can also be raised due to its positioning with the bund. The as built cover level of S72 is 65.45. This is proposed to be raised 150mm (x2 brick courses) to 65.60mAOD. This detail will be checked and verified during the adoption process.

With the new cover levels now higher than the weir level, it would be deemed that there is unlikely to be a risk that the covers would lift.

Foul Water Drainage

As there is a foul public sewer within 30m of the proposed development site, a connection onto the foul public sewer must be sought. The Applicant should contact the relevant public sewerage authority, and if a connection is not feasible, the Applicant should demonstrate that alternative proposals are compliant with the general Binding Rules and are in accordance with the Building Regulations Part H Drainage and Waste Disposal.

Overall Comment

We accept the hydraulic modelling results and note that they are based on the assumption that the ground levels will not change significantly, during construction. We concur with the recommendation the Finished Floor Levels of the dwellings will be a minimum of 600mm above the nearest flood level or 100% blockage scenario.

Based on the reviewed documents stated above, provided there are no changes made to the proposed flood risk mitigation measures, surface water and foul water drainage arrangements, at any other planning stages and will be constructed in line with the design and plans under this application, in principle, we hold no objections to the proposed development.