

Outline Planning Applications: Flood Risk and Drainage Checklist

This document provides a list of the information that, in general, must be submitted to support outline planning applications in relation to flood risk and drainage.

Application details

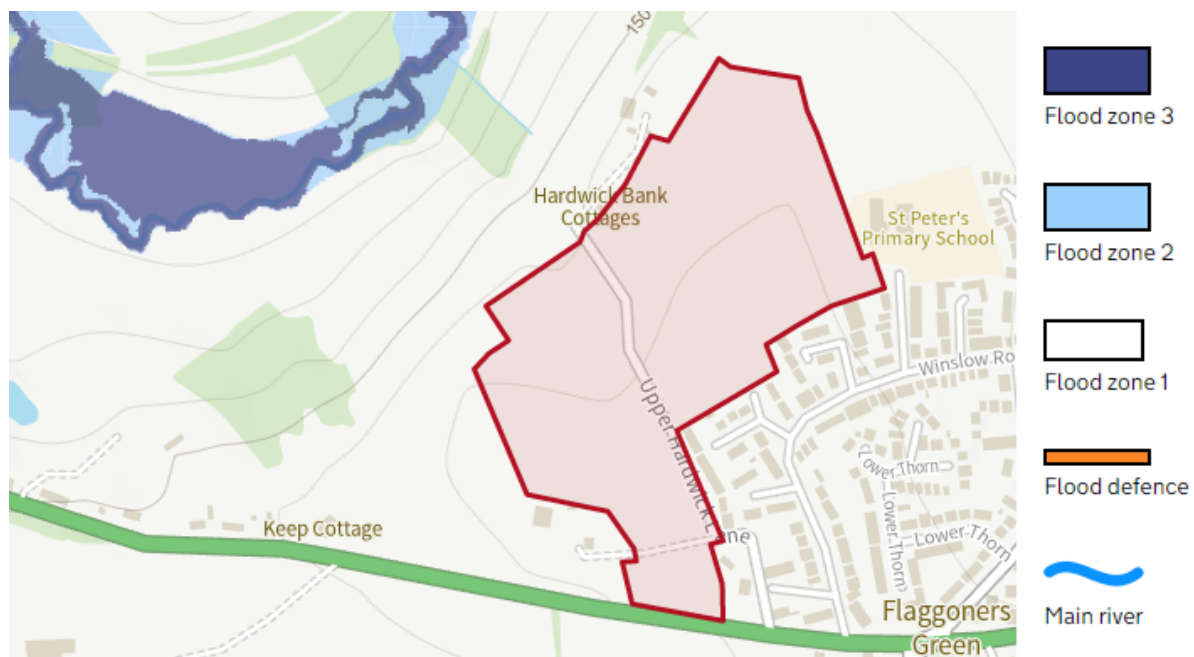
SITE:	Land at Hardwick Bank, Bromyard, Herefordshire.
DESCRIPTION:	Outline planning application for a sustainable urban extension comprising: up to 250 dwellings; open space, allotments and landscaping; school expansion land; areas of children's play; sustainable urban drainage infrastructure; internal roads; and associated infrastructure. Detailed approval is sought for principal means of access and layout with all other matters reserved.
APPLICATION NO:	163932
GRID REFERENCE:	OS 364676, 254881
APPLICANT:	Bovis Homes Limited & Mosaic Estates C/o Agent
AGENT:	Walsingham Planning
DATE OF THIS RESPONSE:	28/11/2023

This response is in regard to flood risk and land drainage aspects, with information obtained from the additional sources following our initial consultation in April 2019:

- Location Plan drawing (Ref: 0687-101)
- Flood Risk Assessment (January 2023);
- Proposed Drainage Plan Sheet 1 of 1, 2, 3 (Rev P05).Nov 2023
- Covering Letter from McLoughlin Planning 8th Sept 2023
- Long Section through South Pond 6th Sept 2023
- Stantec Technical Note 30th Oct 2023
- Overland Flow Assessment drawing
- Utility Mapping and CCTV drawing
- Micro drainage calculations (north pond, south pond)

Site location and extract of flood map(s)

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



Development description

The Applicant proposes the construction of up to 250 dwellings, open space, allotments and landscaping, school expansion land and children's play areas. The site occupies an area of c. 11ha and is currently used for agricultural purposes. The topography of the site slopes down from approximately 169m AOD in the west to approximately 130m AOD in the east. The River Frome is located approximately 250m to the north and west of the site.

Identifying the need for a Flood Risk Assessment

Information required	Reviewers comments
Confirmation of the site area in hectares or square metres	Site area confirmed as c.11.2 hectares.
Identification of all designated main rivers within 20m of the site boundary	The site is not located within 20m of any main rivers.
Identification of all designated ordinary watercourses and land drains within 20m of the site boundary	There are no ordinary watercourses within 20m of the site boundary.
Confirmation of the site's location in Flood Zone 1, Flood Zone 2 or Flood Zone 3, and taking climate change effects into account	The submitted FRA confirms the location of the site in the low risk Flood Zone 1, and is likely to remain in Flood Zone 1 with the effects of climate change.
Confirmation and supporting justification of whether the site is at significant risk of flooding from other sources, including surface water flood risk or flood risk from minor watercourses with unmapped flood extents	The submitted FRA indicates that the site is not at risk of surface water flooding or other sources.

Completing a Flood Risk Assessment


A Flood Risk Assessment (prepared in accordance with NPPF and EA Standing Advice) must support the planning application for any development:

- Located in Flood Zone 2 or Flood Zone 3¹.
- With a site area greater than 1 hectare.
- Located in an area identified to be at significant risk of flooding from other sources, including surface water flood risk or flood risk from minor watercourses with unmapped flood extents.

Complying with the above guidance, the Applicant has submitted a FRA to support this outline planning application.

¹ Note that the Council may also request an assessment of flood risk where the development is indicated to be at risk of flooding when the potential effects of climate change are taken into account.

Information required	Reviewer comments	✓ ✘
Sources of risk		
Assessment of Flood Zone 2 and 3 taking the effects of climate change into account, including predicted flood depths for the 1 in 100 and 1 in 1000 annual probability events	The proposed scheme is located entirely within Flood Zone 1. The site is not considered to be at risk of fluvial flooding when the effects of climate change are considered.	✓
Assessment of areas protected by flood defences and risk of flooding in the event of breach, taking the effects of climate change into account	The site not at risk of flooding in the event of defence breach.	n/a
Assessment of fluvial flood risk from other watercourses in close proximity (c.20m) to the site including those with no mapped flood extent, and taking the effects of climate change into account	There are no known other sources of fluvial flooding associated with minor or unmapped flood extents.	✓
Assessment of mapped surface water flood risk	Review of the EA's Risk of Flooding from Surface Water map indicates that the site is not located within an area at significant risk of surface water flooding. The Flood Risk Assessment (FRA) indicates that there is a small area at high risk of surface water flooding noting that it is a low spot in the topography of the site. Our own review indicates a very slight valley located within the centre of the site with the potential for slight concentration of overland flow between Bromyard's existing urban extent and Drythistle Farm, although this is not considered to pose risk to the site or elsewhere.	✓
Assessment of flood risk associated with potential overland flow from adjacent steeply sloping land	Review of topography indicates that the site is located at a local high point and is therefore not at risk from overland flow.	✓
Assessment of groundwater flood risk	The submitted FRA states that the site is not at risk from groundwater flooding. We concur with this statement although highlight the presence of groundwater springs within the steeper sloping land to the north-west (towards the River Frome) and south-west of the site (towards Hackley Brook that is a tributary of the River Frome), indicated to emerge between the 145-155m contour lines.	✘ (with note)

Information required	Reviewer comments	✓ ✗
<p>Assessment of flooding from surface water, foul water and highway sewers</p>	<p>The submitted FRA states that the site is not at risk of flooding from sewers. We concur with this statement</p> <p>18.7.23 The applicant should provide a Surface Water Exceedance Plan to demonstrate how surface water will flow in the event of the highway gullies being overwhelmed. From our own review we note that provision may be needed to accommodate surface water runoff at the following locations, but the designer should complete a site wide review. Some properties may need to be raised 300mm.</p> <p>Upper Hardwick Lane runs very close to the location below. A direct discharge point may be created onto the public highway as the lane is lower down than the proposed site road, this may create an ice hazard.</p>  <p>28.11.2023 The applicant has presented an Overland Flow Assessment drawing. We note that the service road alongside Upper Hardwick Lane has been deleted.</p> <p>The applicant has advised that surface water will be directed along Upper Hardwick Lane, advising that there are no receptors that would be affected.</p> <p>We note that Upper Hardwick Lane forms part of the impermeable area throughout the site. The flow assessment has demonstrated the significance of this flow route. We consider that at Reserved Matters stage, a highway grip/ditch should be added, along with a swale to divert exceedance flow from the lane into the proposed balancing pond. This would need to be located at the eastern end of the pond.</p>	<p>✓ ✗</p> <p>✓</p>

Information required	Reviewer comments	✓ ✗
Assessment of flood risk from any other manmade sources, including reservoirs, ponds, detention basins etc.	The submitted FRA states that the site is not at risk of flooding from artificial sources such as canals, lake and ponds. We concur with this statement	✓
Summary of historic flooding records and anecdotal evidence	The submitted FRA states that no records of historic flooding were identified in their assessment. We agree that the Council hold no records historic flooding events that have occurred within or immediately adjacent to the site, although highlight a number of known historic flooding events that have affected property and infrastructure downstream of the site, most notably fluvial flooding from the River Frome. This may influence discharge of runoff as discussed elsewhere.	✓ (with note)
Other works that could pose risk		
Are there any other proposed works that could lead to increase of flood risk to the site or elsewhere, for example culverting or diversion of watercourses?	There are no other known works that would pose increased flood risk to the site or elsewhere.	✓
Sequential approach		
Assessment of the acceptability of the development within the identified Flood Zone, in accordance with the Sequential Test outlined in the National Planning Policy Framework	The site is located entirely within Flood Zone 1 and therefore passes the Sequential Test.	✓
Demonstration of how a sequential approach has been taken to locate development in the lowest risk areas of the site, including the risk of flooding from other sources	The site is located entirely within Flood Zone 1 and a sequential approach is not considered necessary.	✓
Mitigation		

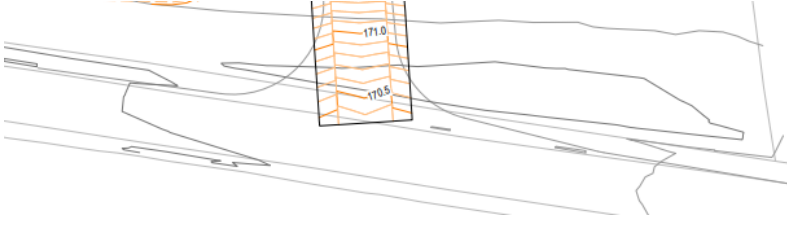
Information required	Reviewer comments	✓ ✗
<p>Summary of how the development has addressed the identified flood risks and incorporated appropriate mitigation into the layout and operation of the development</p>	<p>No mitigation beyond the appropriate management of surface water runoff is considered necessary.</p> <p>18.7.23 We note that Upper Hardwick Lane crosses through the site, which is lower than the existing farmland. It is impractical to convey the exceedance flows (arising from the scenario when the surface water drainage system is overwhelmed) from the north-east of the site to the proposed balancing pond.</p> <p>We note that Upper Hardwick Lane crosses the edge of the proposed Public Open Space and is shown running parallel to a new site road. A direct discharge of surface water onto the public highway needs to be avoided. The extent of the existing highway drainage on Upper Hardwick Lane needs to be reviewed as if a direct discharge were to occur then water may not be effectively conveyed via the highway drains</p> <p>28.11.2023 The applicant has advised that the service road alongside Upper Hardwick Lane has been deleted.</p> <p>The applicant refers to the use of gullies to prevent the discharge of water onto the highway. However, the exceedance route considers the scenario when these block or cannot cope with flows of water from large storms.</p> <p>The applicant refers to water being conveyed to the River Frome. However, there is a need to attenuate water arising from exceedance events.</p> <p>We consider that at Reserved Matters stage, a highway grip/ditch could be added as explained above</p>	<p>✗</p>
<p>Assessment of how a safe access route(s) to Flood Zone 1 (not including dry islands) would be achieved from the development, taking flood hazard and climate change into account</p>	<p>Vehicular accesses to the site is located in Flood Zone 1 and the site is not a dry island.</p>	<p>✓</p>
<p>Assessment of how the development will ensure no increased risk to people, property or infrastructure elsewhere, for example through the displacement of floodplain compensation or failure of flood defence structures, and demonstration of how mitigation will be incorporated into the design, with supporting calculations</p>	<p>The site is located entirely within Flood Zone 1 and is not assessed as being at risk from other sources of flooding. Therefore no increased risk to people, property or infrastructure is identified beyond the appropriate management of surface water runoff.</p>	<p>✓</p>
<p>Exception Test</p>		
<p>Justification for the successful application of the Exception Test, if applicable</p>	<p>The site is located entirely within Flood Zone 1 and therefore the Exception Test is not required.</p>	<p>n/a</p>

Information required	Reviewer comments	✓ ✗
Strategy		
<p>Summary of likely ground conditions including permeability and contamination risks</p>	<p>Review of information provided by applicant in the submitted FRA states that infiltration testing has been completed and concludes variable but likely unfavourable conditions for infiltration. The Applicant states the targeted soakage testing at proposed SuDS locations will be undertaken at the detailed design stage, suggesting that infiltration will be maximised if possible. We agree with this approach.</p> <p>We note that the applicant has completed only 4 soakaway tests within the red line area but TP19 and TP24 are close together. Only three areas were tested</p> <p>Ground Conditions vary across the site. Sandstone and Mudstone are recorded to alternate across the site. The beds are typically recorded to dip gently to the east, however they have been folded into a synclinal structure with its axis trending north-south through the east of the site. Strata dips may therefore be expected to be shallow and towards the west in the east of the site. At shallow depth the sandstones can be expected to weather to predominantly sand and the mudstones to clay/silt</p> <p>Around 20 of the trial pits within the red line area demonstrated the presence of sand and sandstone. However only one soakaway test (TP19) was completed in the sand - sandstone strata.</p> <p>We are unclear whether the sand layer at TP10 was underwater during the soakaway test. We assume that the soakaway test was completed within the trial pit, but we cannot be sure. It is possible that if the soakaway test pit had been filled to the surface that some soakage may have occurred. At the adjacent TP9 there is sand to a depth of 0.75m, also there is a layer of gravel. The sand bed is localised and may provide a route for dispersing water, the gravel is also likely to be permeable.</p> <p>28.11.2023 The applicant has advised that the proposed surface water strategy considers the worst-case scenario of infiltration not being viable. We consider that if some infiltration is possible then it would be in isolated areas of the site. There will be some space within the estate to accommodate soakaways. We accept that the additional infiltration testing and re-design could be completed at Reserved Matter stage.</p>	<p>✗ (with note)</p>

Information required	Reviewer comments	✓ x
<p>Summary of proposed surface water management strategy with supporting illustration, including location of proposed outfalls, attenuation structures and/or infiltration features</p>	<p>The submitted FRA states that surface water runoff will be conveyed via a mix of traditional piped systems and on-ground conveyance features to attenuation basins located throughout the site. From the attenuation basins, surface water runoff from the vast majority of the site will be discharged to the River Frome at a controlled rate.</p> <p>18.7.23 <u>Detention Basin 1</u></p> <p>The applicant has suggested that a variable flow control would be installed that would ensure that the flow rate discharged at the pond would change with different storms. There is no technical evidence that supports this proposal.</p> <p>Table 6.1 shows the discharge rate for four storms. The submission does not demonstrate how the flow control would be designed for intermediate storms (for example those between 2 years and 30 years). If a 5 year storm were to occur, would the flow rate be the flow rate associated with a 2 year storm or the flow rate associated with a 30 year storm? Conversely if a 29 year storm were to occur then if the flow control delivered the flow rate for a 30 year storm there would be a net increase in runoff for the site.</p> <p>We remind the applicant that the post development flows <u>and volumes</u> should not increase for all design storms. It is for this reason that most developers choose to design the attenuation on a discharge rate of Q Bar (2year storm) for all design storm as then the volumetric requirements are met in every design storm. As this is a large development, we would expect the applicant to consider more frequent storms such as the 15 year storm in their assessment.</p> <p>The submitted microdrainage calculations have been reviewed. The simulation did not feature the use of a variable flow control.</p> <p>The drawing shows that the pond would have a base level of 158.100m, but the simulation shows node 1.017 has a level of 157.45m. We respect that the same storage may be provided higher up, but the extra hydraulic head would lead to an increased flow through the hydrobrake. The model outputs suggest that the base was modelled at 157.70m (we note that the 30 year water level at node 1.018 is 158.564m and the predicted depth is 0.864m)</p> <p>Based on the hydrobrake flow curve, the pass forward flows are higher than the flows defined in Table 6.1 :</p> <p>30 year – 0.864m and so 28.1 litres/sec 100 year – 2.301m and so 45.7 litres/ sec</p> <p>If the hydrobrake was installed at 157.40m as suggested then these figures would be even higher :</p> <p>30 year – 1.114m and so 32 litres/sec 100 year – 2.551m and so 48 litres/ sec</p>	<p>✓ x</p>

Information required	Reviewer comments	✓ x
	<p>The submission should have demonstrated that the volumetric criteria are met. There are insufficient details to confirm that the proposed design would work adequately</p> <p>The pond does not feature an overflow, which would normally be provided in case the flow control blocks. The level of the earth bunding needs to be a minimum of 300mm higher than the top water level in accordance with the Herefordshire SuDS Handbook. This level remains to be confirmed.</p> <p>13.10.23 The Long Section through the Southern Pond shows a 2.5m tall retaining wall. There is a Childs Play Area nearby.</p> <p>The covering letter advises as follows “.....without significant retaining walls or over engineered appearance”.</p> <p>The presence of a retaining wall presents risks of falling to the general public. The designer has a duty to mitigate such risks through design, ideally removing the risk of falling by re-design. The designer needs to consider how the risk of people (particularly children) falling of the wall can be mitigated.</p> <p>28.11.2023 The applicant has advised in their technical note that the variable flow control has been removed and that the flow discharging from the site has now been designed to meet greenfield rate for all storms.</p> <p>The applicant has also presented revised micro drainage calculations simulating the 30 year and 100 year + 40% Climate Change Storms.</p>	

Information required	Reviewer comments	✓ x
	<p>Water levels in the pond is shown as 1.432m deep in a 30 year storm and 1.432m deep in a 100 year storm (node 1.018, manhole S78). This water level is consistent with the modelled cover level of manhole S78. <u>In both storms the pond is modelled as overflowing.</u></p> <p>There is no simulation for the 1 or 2 year storm (QBar). The flow control control head/discharge table shows that 30.8 litres/sec would be discharged if the water in the pond was 300mm deep.</p> <p>Section 6.6.3 of the Flood Risk Assessment identifies the discharge rates associated with Q Bar as 12.2 litres/second. Without provision of the calculations it is evident that the pass forward flows would be higher than the greenfield rates. <u>Most significantly there would be a net increase in the volume of rainwater discharged in lower storm events</u> (noting that these are the most common types of rainstorm).</p> <p>Section 4.4.4 of the Flood Risk Assessment defines the climate change figures to be used (40% for the 30 year event and 45% for the 100 year event). However, we note that the simulation uses the lower figure of 40%, which is not consistent with current guidelines.</p> <p>The proposed design does not meet the National Standards for Peak Flow and Volume Control</p> <p>The designer has advised that the risk of falls has been mitigated by reducing gradients to 1:4 and providing a flat plateau at the bottom of the wall. There are also proposals for a post and rail fence.</p> <p>There is no drawing giving precise dimensions of the length of the proposed wall. However by scaling off contoured plans the length of the wall appears to be around 90m</p> <p>Section 1.4.3 of the Flood Risk Assessment refers to responsibilities under the Construction Design and Management Regulations 2015. There are opportunities at Outline stage to alter the design so that the wall may be lower or even to remove the wall entirely.</p> <p>The SuDS Manual offers guidance on slope design, typically a 1: 3 graded slope is considered appropriate.</p> <p>We note that there is land within the masterplan to the north west of the proposed balancing pond. The pond could be re-positioned to utilise a gently graded earth slope instead.</p>	✓ x

Information required	Reviewer comments	✓ x
	<p><u>Detention Basin 2</u></p> <p>It has been proposed that a small area of proposed access road and roundabout in the south-west of the site will be discharged to existing highways drainage in the A40 at a controlled rate. However the proposed discharge rate (QBar) is only 0.4 litres/second. Herefordshire Highways have a policy of utilising flow controls with a minimum 100mm orifice, accordingly the pass forward flow would be around 5 litres/second. If this flow control were proposed, then due to the small catchment only a small amount of water would be attenuated within the pond.</p> <p>Please refer to our remarks under regarding TP09 and TP10. We consider that it may be possible to utilise a soakaway basin at this location. Further testing is requested to refine the design.</p>  <p>13.10.23 The ground adjacent to the A44 is lower than the carriageway. It is possible that the existing highway drains already discharge into this area. The applicant should complete a review of the highway gullies and establish if this is the case.</p> <p>28.11.2023 The applicant has advised that further investigations may demonstrate that infiltration is viable. A utilities survey plan has been presented showing that highway drainage discharges to the west.</p> <p>We accept that a detailed design could be progressed at Reserved matters stage.</p>	✓ x
<p>Demonstration that the SuDS hierarchy has been considered in accordance with NPPF and justification for the proposed method of surface water discharge</p>	<p>The submitted FRA demonstrates that consideration has been given to the SuDS hierarchy. Infiltration testing indicates that ground conditions may be unfavourable hence discharge to a watercourse is promoted. However the FRA recommends that further infiltration testing is undertaken to inform the detailed design at the proposed location of drainage features and we agree with this approach. The results of this testing will need to be submitted as part of the reserved matters application.</p>	<p>✓ (with note)</p>

Information required	Reviewer comments	✓ x
Demonstration that best practice SuDS have been promoted, appropriate to the size and nature of development	The outline drainage strategy and FRA indicates that good practice SuDS are proposed. In addition to further investigation of infiltration as discussed above, the FRA also states that consideration should be given to other SuDS features such as <u>permeable paving</u> and swales. Given the strategic importance of this site we expect to see further consideration of this as part of the reserved matters application.	✓ (with note)
If pumped systems are proposed, justification for the use of these systems, summary of key design principles and assessment of residual risk	No pumped systems are proposed.	n/a
Off-site discharge		

Information required	Reviewer comments	✓ x
<p>For discharge to a watercourse, sewer or local authority asset, confirmation of the relevant authority from which consent will be required</p>	<p>We are unclear exactly where the proposed headwall HW 04 would be located. Any works within 8m of the River Frome will require a Flood Risk Activities Permit.</p> <p>Email correspondence in the 2016 FRA discusses correspondence with Welsh Water regarding sewer requisition opportunities to facilitate the proposed discharge to the River Frome. The applicant will need to confirm how the proposed surface water drain will be installed on third party land.</p> <p>18.7.23 If the intent is to have the roads adopted by HC, then the surface water drainage will need to be maintained by a Statutory Authority such as Welsh Water or Albion Water or Ancala Water. Welsh Water do not adopt Balancing Ponds but the incoming surface water drainage network could be adopted by Welsh Water. Subject to discussion the pond could be adopted by HC or the Lugg Internal Drainage Board.</p> <p>13.10.23 The South Pond Elevation drawing shows a 2.5m high retaining wall. We note that the wall retains ground that is higher than the top water level of the pond, can the applicant please confirm which party will be responsible for maintenance of the wall and for the provision of any safety barriers that may run along the top of the wall. We note that there are no such barriers shown on the drawings.</p> <p>Subject to discussion, it may be possible for the surface water drain downstream of the balancing pond (and the flow control) to be adopted by HC. However, easements would be required for access. HC cannot deliver a sewer requisition to allow the drain to be built. Accordingly, the applicant may need to consider approaching Albion Water or Ancala Water.</p> <p>The proposed discharge the highways drainage network will require consent from the Council's highways authority. As explained above the existing highway drain may already drain into the field. A soakaway pond may be easier to install.</p> <p>28.11.2023 The Skanska Technical Note does not provide any commentary on proposed adoption issues.</p> <p>Progression of the housing development relies on the surface water pipeline being installed though third party land. Conversely Outline Planning considers all aspects related to compliance with policy and practice.</p>	<p>x</p>

Information required	Reviewer comments	✓ x
<p>For discharge to a watercourse, sewer or local authority asset, summary of greenfield and, if relevant, current runoff rates calculated using the methods outlined in The SuDS Manual 2015 for the 1 in 1 year, Qbar and 1 in 100 year events</p>	<p>The FRA states that existing greenfield runoff rates are as follows: 1 in 1 year event: 2.5 l/s/ha 1 in 30 year event: 3.0 l/s/ha 1 in 100 year event: 7.7 l/s/ha</p> <p>18.7.23 Section 5.7 refers to Long Term Storage and references a 2 l/s/ha flow rate, however we note that Table 5.1 shows the rates above. The SuDS Manual includes the 2 l/s/ha figure for scenarios where the greenfield runoff rate is lower than this figure. We recognise that the figures in Table 5.1 are being used at this site for the volumetric storage calculations</p>	<p>✓</p>
<p>For discharge to a watercourse, sewer or local authority asset, summary of proposed discharge rates and volumes calculated using the methods outlined in The SuDS Manual 2015 for the 1 in 1 year, Qbar and 1 in 100 year events</p>	<p>The FRA states that the Greenfield runoff rates stated above will be achieved for the corresponding 1 year, 30 year and 100 year events (allowing for climate change effects for the 100 year event). The FRA also states that additional storage will be provided to achieve required volumetric discharge restrictions. Whilst the proposals are acceptable in principle, we highlight that these are considered to be the minimum expected requirements. It is expected that a development of this size would go beyond minimum requirements and strive to achieve betterment, particularly as there are a number of historic flood records downstream of the site associated with the River Frome. We note the FRA's recommendation to maximise infiltration, permeable paving and swales which will assist in providing betterment. However as part of the reserved matters application it is expected that further restriction on proposed discharge rates in achieved, ideally restricting discharge rates and volumes to a value closer to Qbar for all events.</p>	<p>✓ (with note)</p>
<p>For discharge to a watercourse, sewer or local authority asset, summary of proposed attenuation volume to manage the rate and volume of runoff to greenfield or current rates and volumes, allowing for climate change effects and demonstrating sufficient space within the site</p>	<p>The submitted FRA states that attenuation will be provided to cater for the 1 in 100 year event plus a 40% increase in rainfall intensity to accommodate climate change effects – giving consideration to both peak discharge and volumetric discharge requirements. As discussed above this is considered acceptable in principle, although a greater volume of attenuation is expected as part of the reserved matters application.</p>	<p>✓ (with note)</p>
<p>Assessment of potential failure of any above-ground attenuation features, including assessment of residual risks to downstream receptors, and proposed mitigation and management measures</p>	<p>The Applicant proposes an attenuation basin.</p>	<p>✓</p>

Information required	Reviewer comments	✓ ✗
<p>Drawing to illustrate that attenuation structures are not located within an area at risk of fluvial flooding up to the 1 in 100 annual probability event and taking the effects of climate change into account, unless it can be demonstrated that the capacity of the drainage system will not be reduced and that any loss of fluvial flood storage can be compensated for elsewhere without increasing risk to people, property or infrastructure</p>	<p>The site is located entirely within Flood Zone 1, therefore no loss of fluvial flood storage will occur.</p>	<p>✓</p>
<p>For discharge to a watercourse, sewer or local authority asset, demonstration that a viable connection can be made and that the suitability and capacity of the downstream system has been explored in consultation with the relevant authority</p>	<p>Given the elevation of the site above the River Frome it is unlikely that a connection cannot be achieved. However we highlight that the applicant will need to give consideration to the impact of surcharged outfalls on the ability to discharge during flooding events when river levels may be high.</p> <p>18.7.23 If a connection to the highway drainage system is needed then the suitability and capacity of the system will need to be discussed with the Council's highways authority.</p> <p>13.10.23 The applicant will need to demonstrate the route of the existing highway drainage system.</p>	<p>✗</p>
General		
<p>If the development is to be delivered in phases, demonstration of proposed delivery and ability to maintain key design criteria</p>	<p>It is understood that these proposals relate to Phase 1 and a separate strategy may be used if the site is extended</p>	<p>✓</p>
Exceedance		
<p>Assessment of natural surface water flow paths through the site, noting that natural flow paths should be retained as far as practicable within a development layout, and demonstration that consideration has been given to the potential for overland flow to overwhelm the capacity of the proposed drainage system</p>	<p>The Flow Exceedance plan shows the alignment of the flow routes</p>	<p>✓</p>

Information required	Reviewer comments	✓ ✘
<p>Demonstration of how surface water that exceeds the capacity of drainage features will be managed within the site up to and including the 1 in 100 annual probability event to ensure no unacceptable flood risk to the development and no increased flood risk to people, property and infrastructure elsewhere</p>	<p>The submitted FRA discusses residual risks in terms of blockage or events that exceed the capacity of the design storm. Whilst these are valid and must be considered, we also highlight that consideration must also be given to events that exceed the inlet capacity of gullies or exceed the design capacity of below ground and above ground conveyance features.</p> <p>As part of the reserved matters application the applicant must demonstrate how temporary exceedance of inlet systems such as gullies is managed to allow water to enter the drainage system up to the 30 year event as minimum; and how exceedance of conveyance systems will be managed during events greater than the 30 year event to route overland flows towards the proposed attenuation basins – demonstrating that this water will not flow off site up to the 100 year + CC event.</p>	✘
<p>Access, adoption and maintenance</p>		
<p>Confirmation if access or works to third party land will be required and, if so, confirmation of the party with which agreement will be required</p>	<p>Access to third party land will be required to achieve connection to the River Frome. This is not discussed in detail in the submitted FRA. It is suggested that Welsh Water can assist with these connections. Confirmation of the approach and any agreements in principle with relevant land owners will be required as part of the reserved matters application.</p> <p>18.7.23 If the intent is to have the roads adopted by HC, then the surface water drainage will need to be maintained by a Statutory Authority such as Welsh Water or Albion Water or Ancala Water. Welsh Water do not adopt Balancing Ponds but the incoming surface water drainage network could be adopted by Welsh Water. Subject to discussion the pond could be adopted by HC or the Lugg Internal Drainage Board. Subject to discussion, it may be possible for the surface water drain downstream of the balancing pond (and the flow control) to be adopted by HC. However, easements would be required for access. HC cannot deliver a sewer requisition to allow the drain to be built. Accordingly, the applicant may need to consider approaching Albion Water or Ancala Water.</p>	✘
<p>Confirmation of proposed adoption and maintenance arrangements for the surface water drainage system</p>	<p>Proposed adoption of the drainage system has not been clarified. Welsh Water will not adopt above ground storage features, and would not adopt features that attenuate between the 30 year and 100 year events. If Welsh Water adoption of the below ground network is required, Herefordshire Council would be required to adopt the ponds. The applicant also references the option for third-party adoption by a management company. As the drainage strategy promotes discharge to a watercourse rather than public sewer then adoption by a management company could be acceptable if Welsh Water and Herefordshire Council cannot adopt the proposed drainage system. If adoption by Herefordshire Council is promoted, reference must be made to the Herefordshire SuDS Handbook.</p> <p>This must be clarified and agreed with the relevant authority prior to submitting the reserved matters application.</p>	✘

Information required	Reviewer comments	✓ ✘
Demonstration that appropriate access is available to maintain SuDS features (including pumping stations)	Review of the site layout indicates that access to sSuDS features should be achievable. We stress that this must be demonstrated as part of the reserved matters application – noting that vehicular access must be available. If adoption by Herefordshire Council is promoted, reference must be made to the Herefordshire SuDS Handbook that clarifies maintenance requirements. We note that the pond would be on two staggered levels	✓

Foul Water Management Strategy

A foul water management strategy should be submitted that includes the following information:

- ✓ Information provided is considered sufficient
- ✘ Information provided is not considered sufficient and further information will be required

Information required	Reviewers comments	✓ ✘
Description of the proposed foul water drainage system including proposed discharge locations	The Applicant proposes to discharge foul water to the nearby Welsh Water sewer network. The connection point is unclear.	✓
Identification of the public foul sewerage network within the vicinity of the development and assessment of the viability to connect to this network	The Applicant has been in contact with Welsh Water regarding the capacity of the network located to the south of the site. As the development is located on the periphery of Bromyard it is expected that a public sewerage connection is sought. Pumping to the Welsh Water sewerage network will be required.	✓
Discharge to sewerage network		
Demonstration that the suitability and capacity of the public sewerage system has been explored in consultation with the relevant authority, and that a viable connection can be made	Consultation has been undertaken with Welsh Water regarding the intended connection. Whilst this is acceptable in principle, Welsh Water has confirmed that there is currently insufficient capacity in the network to receive foul discharge from the development. It is understood that ongoing discussions are being held between Welsh Water and the applicant to agree the required upgrade works.	✓
General		
If the development is to be delivered in phases, demonstration of proposed delivery and ability to maintain key design criteria	It is understood that these proposals relate to Phase 1 and a separate strategy may be used if the site is extended	✓
Access, adoption and maintenance		
Confirmation if access or works to third party land will be required and, if so, confirmation of the party with which agreement will be required	It is unclear if access to third party land will be required, although it is considered likely that the connection to the public sewerage network can be achieved by the adopted road network and not via private land.	✓
Confirmation of proposed adoption and maintenance arrangements for the foul water drainage system	It is assumed that the foul drainage system will be adopted in its entirety by Welsh Water or another water company.	✓

Information required	Reviewers comments	✓ x
Demonstration that appropriate access is available to maintain drainage features (including pumping stations)	The Applicant will need to demonstrate that appropriate access is available for the foul water pumping stations. This can be demonstrated as part of the reserved matters application.	x

Overall Comment

OBJECTION

The outline submission does not demonstrate that Pond 1 has been adequately sized to accommodate rainfall arising from the respective design storm referenced above. We object to the proposed development because the surface water drainage strategy is inadequate. A revised submission will be required that may demonstrate that adequate attenuation can be provided within the extent of the site for all design storms.

The submission included Section 38 drawings related to the proposed adoption of highways. As explained in our commentary the roads could only be adopted if all of the surface water sewers were adopted by a Water Authority.

The designer should consider the risks of people falling off the proposed retaining wall and consider how this risk may be mitigated through redesign. This may involve increasing the gradient of the pond banks and moving the pond towards the north west.

On the submission of the above information, we will then be able to confirm which items of outstanding information may be required to support a reserved matters application.