# Discharge of Conditions: Flood Risk and Drainage Checklist

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

#### Application details

SITE: APPLICATION NO. & DESCRIPTION:	Land at Holmer House Farm Holmer Hereford 212662 - Application for approval of details reserved by conditions 5(partial),6 (partial), 21 39 40 & 41 attached to planning permission 184662. 220300 - Application for approval of details reserved by conditions 5 26 & 29 attached to planning permission 184662.
GRID REFERENCE:	OS 350482, 242559
APPLICANT: DATE OF THIS RESPONSE:	Mr Jon Bryan 14/3/2022

Planning permission for this development has been granted, subject to a number of conditions. Conditions relating to flood risk and drainage aspects are as follows:

#### Condition 6 (212662):

On any individual phase of the development a comprehensive flood risk management, foul and surface water drainage strategy have been submitted to and approved in writing by the Local Planning Authority, either prior to commencement of works (detailed application) or as part of any reserved matter application(s) relating to Layout. The strategy shall demonstrate how flood risk will be mitigated and the site will be effectively drained addressing the requirements set out informative note number 9 accompanying this permission and shall include any off site mitigation measures to ensure adequate capacity exists to accommodate foul flows from the entire development.

Thereafter, the approved scheme shall form part of any Reserved Matters constructed in accordance with a construction phasing programme agreed under condition 4.

Reason: To ensure adequate drainage arrangements serve the development and to mitigate and prevent adverse impact on adjoining land and use and to comply with Herefordshire Core Strategy policies S3 and S4.

#### Condition 21(212662) & 29(220300):

Development shall not begin in relation to the provision of road and drainage infrastructure until the following details are submitted to and approved in writing to the local planning authority:

- Surface finishes
- Drainage details
- Future maintenance arrangements

The development shall be carried out and thereafter maintained in accordance with the approved details

Reason: To ensure an adequate and acceptable means of access is available before the dwelling or building is occupied and to conform to the requirements of Policy MT1 of Herefordshire Local Plan – Core Strategy and the National Planning Policy Framework.

Information provided to discharge these conditions has been obtained from the following sources:

- Application for discharge of conditions
- Decision Notice 184662
- R Covering Letter
- S104 Legal Plan sheet 2 of 2
- S104 Legal Plan sheet 1 of 2

- Drainage Results HHF Storm Network 1 A Calcs
- Drainage Results HHF Storm Network 2 Calcs
- S104 Legal Plan sheet 2 of 2
- S104 Legal Plan sheet 1 of 2





- Engineering Plan sheet 1 of 2
- Engineering Plan sheet 2 of 2
- Adoptable Drainage Details
- DCWW Headwall
- Kerbing Layout
- Drainage Results HHF Foul ACalcs

- Engineering Layout sheet 1 of 2
- Proposed West Watercourse Diversion
- Adoptable Drainage Details
- Engineering Layout sheet 2 of 2
- Proposed Ditch Diversion Strategy
- Proposed East Watercourse Diversion
- Drainage Results HHF Storm Network 2
- Drainage Results Storm Network 1 A Calcs
  - DCWW Headwall
- Drainage Results HHF Foul ACalcs
- Phasing Plan

This review focusses on the principles of the drainage strategy and flood management measures to demonstrate compliance with planning policy and does not provide a detailed review of input or output data. It is assumed that the design of the drainage strategy and flood management measures has been undertaken by a competent engineer and therefore the liability for the proposed design lies with the applicant and not Herefordshire Council.

Previously agreed points have been greyed out.

## Flood Management Measures

✓ Information provided is considered sufficient

\* Information provided is not considered sufficient and further information will be required

Information required	Reviewer comments	√ x
Detailed drawings clearly demonstrating the inclusion of agreed flood mitigation, resilience and resistance measures into the development layout	The applicant has reduced the risk of flooding to the site via the reinstatement and re naturalisation of previously culverted stretches of the Ayles Brook. Removal of culverts that were restricting flow and reducing conveyance has reduced the modelled flood outlines in the northern section of the site thus meaning that no properties are proposed within the modelled FZ2.	1
Detailed calculations of floodplain compensation	No floodplain compensation is required.	~

### Surface Water Management

✓ Information provided is considered sufficient

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

Information required	Reviewer comments	<b>√</b> ×
Strategy		
Detailed drawings of the proposed surface water drainage system including location of SuDS features, manholes, external pipework, attenuation features, pumping stations (if required) and discharge locations	The applicant proposes a piped surface water sewer that will discharge surface water flows into the wider surface water drainage strategy for the whole site. This phase of the development does not include the construction of any new storage areas, as these have been constructed as part of earlier phases of the development. We note that there are proposals to install a sewer below the Ayles Brook. <u>A Land Drainage Consent is required for these works.</u>	*
Detailed drawings of proposed features such as infiltration structures, attenuation features, pumping stations and outfall structures	The applicant has provided drawings of the proposed attenuation pond. The pond shows a base area of 980m <sup>2</sup> and a base level of 69.103m. The top of water level has been modelled as 70.257m (15 minute summer storm) and an overflow level of 70.450m, leaving approximately 200mm freeboard above the modelled top of water level in the 1 in 100 year plus	×





Information required	Reviewer comments	√×
	40% climate change event. However the drawing suggests that the 100	
	year + 40% level is 70.227m	
	There is a surface water network shown serving White Gates House, can	
	the applicant clarify the impact on water levels if the layout of this	
	pipeline is altered so that it drains directly into the Ayles Brook	
	Review of the topographical survey suggests that existing Ayles Brook	
	bank levels are lower, typically 70.39m, 70.44m or 70.59m. However the	
	revised drawing now shows a consistent bank level of 70.60m of more.	
	The width of the level section alongside the brook is not shown. We	
	understand that the pond is to be presented to HC for adoption. Our	
	maintenance team have advised that we previously agreed a 3m	
	maintenance strip for the southern pond at pinch points. As the northern	
	3 5m wide section is needed to allow the use of a small tractor. This	
	assumes that the adjacent ground has been raised to the proposed level	
	of 70.8m. We note that this issue has now been addressed	
	For design purposes the attenuation pond would usually be tested	
	against a 1 in 100 year plus 20% climate change event. A freeboard is then	
	applied to this level (in this case an additional 200mm). <u>The applicant has</u>	
	advised the top of water level for that event (70.063m) but calculations	
	demonstrating this level remain to be submitted. The pond will outfall to	
	the Ayles Brook via a hydrobrake at a rate of 7.1l/s.	
	Greenfield runoff rates have now been provided.	
	We note that the pond is proposed at a similar level to the base of the	
	Ayles Brook. As a formal headwall is proposed we note that a flap valve	
	has been shown, installed to mitigate the risk of water draining back into	
	the pond. We request that this is specified as polyethylene. We note that	
	survey levels for the base of the brook have been added, which indicate	
	the brook is lower down.	
	We also note that an overflow has been shown for the proposed pond.	
	The lowered bank will need to be covered with grasscrete or similar. The	
	We note the submission of a Hudro brake menhole drawing and have the	
	following comments :	
	The concrete weir should be removed so that water cannot	
	• The <u>concrete wen should be removed</u> so that water cannot escape between manhole compartments, there is no purpose	
	for this weir as there is already a pond overflow	
	• The exit pipework is all shown as 450mm dia. This means that	
	the downstream headwall is very large and also has a security	
	dia. Sewers for Adoption criteria design have altered in the	
	meantime, security screens are now shown on 375mm dia	
	headwalls. <u>We suggest that the inlet and outlet pipes are altered</u>	
	to 375mm dia, with NO security screen	
	Ihe penstock detail should be removed, this was deleted from the hydrobrake manbole serving the larger pend	
	the hydrobrake mannule serving the larger pullu	





Information required	Reviewer comments	√ x
Information required	Reviewer commentsThe headwall is shown as an Athon pre-cast headwall. Historically all HCheadwalls have been in Engineering Brick, please amend the designaccordinglyWe note that there is a 150mm dia surface water network showndischarging into the attenuation pond. This is not shown as beingadopted by DCWW. Can the applicant please advise whether this can bepresented for adoptionThe surface water network shown serving White Gates House takeswater from the A49. A request has already been made to survey theexisting headwall and also the sonde and CCTV survey the existing drainfrom the headwall up to White Gates House. The ownership of this drainwill be dependent on it's alignment. The current drawing shows thisdischarging into the pond, there do not appear to be any volumetriccalculations supporting this proposal, accordingly the pipeline will needto be re-routed. There is a foul sewer proposed alongside the existingsurface water pipeline which may conflict with it	<b>√ x</b>
Infiltration rates at the location(s) and proposed depth(s) of any proposed infiltration or attenuation structure(s), undertaken in accordance with BRE Digest 365 methodology	Results of soil infiltration testing undertaken in accordance with BRE 365 during the planning stage indicated infiltration rates too low for conventional soakaways at this site. The lack of viability for soakage to ground was confirmed at the planning stage.	*
Trial pit/borehole logs demonstrating that the depth to groundwater below the base of any proposed infiltration or attenuation structure(s) is greater than 1m at the location(s) and proposed depth(s) of the proposed structure(s)	Borehole logs carried out during the planning stage saw no ground water across the majority of the site with the exception of the southwestern corner of the overall development. As this application is for the north/north eastern part of the development, there is no record of surface water above 2.5m depth.	*
If pumped systems are proposed, justification for the use of these systems, summary of key design principles and assessment of residual risk, with supporting calculations	No pumped systems are proposed.	✓
Calculations to demonstrate that the proposed surface water drainage system has been designed to prevent the surcharging of any below ground drainage network elements in all events up to an including the 1 in 2 annual probability storm event	The applicant has provided calculations for the piped network for this section of the site that demonstrate there is no surcharging of flows in the 1 in 2 year event. However, we note that these calculations have been carried out using the FSR data and should be repeated using the FEH2013 data as per the SUDS handbook This issue is now resolved.	✓
Calculations to demonstrate that the proposed surface water management system will prevent any flooding of the site in all	The applicant has provided calculations for the piped network for this section of the site that demonstrate there is no modelled flooding of the site up to the 1 in 30 year event.	✓





Information required	Reviewer comments	√×
events up to an including the 1 in 30 annual probability storm event	However, we note that these calculations have been carried out using the FSR data and should be repeated using the FEH2013 data as per the SUDS handbook. This issue is now resolved.	
Completed application for Ordinary Watercourse Consent for any proposed structures within an ordinary watercourse	Ordinary watercourse consent has been requested and approved for the discharges and for the opening of the Ayles Brook.	✓
Infiltration systems	No infiltration systems proposed	
Off-site discharge		
For discharge to a watercourse, sewer or local authority asset, detailed calculations 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, 1 in 30 and 1 in 100 year events	Greenfield runoff rates have not been provided and comments provided on the associated outline and reserved matters applications highlighted the requirement for greenfield runoff rates to be calculated using the FEH methodology and not the IH124 methodology. Greenfield calculations should be provided to demonstrate that the rate of discharge is acceptable. This issue is now resolved	✓
For discharge to a watercourse, sewer or local authority asset, detailed calculations of proposed discharge rates and volumes calculated using the methods outlined in The SuDS Manual 2015 for the 1 in 1 year, Qbar, 1 in 30 and 1 in 100 year events	See note above	✓
For discharge to a watercourse, sewer or local authority asset, detailed calculations of proposed attenuation volume to manage the rate and volume of runoff to greenfield or current rates and volumes, allowing for climate change effects	The applicant has provided the storage volume for the pond within the Network 1 calculations.	✓
Clarification if attenuation structures are to be provided partly or wholly above adjacent ground level (i.e. above ground storage), and assessment of potential failure of above-ground attenuation features, including assessment of residual risks to downstream receptors, and proposed mitigation and management measures	All attenuation is being provided at or below ground. No attenuation structures are being provided above ground level.	✓
Demonstration that a viable connection can be made and that the suitability and capacity of the	A viable connection to the Ayles Brook has been demonstrated and approved in earlier phases of the development.	~





Information required	Reviewer comments	√x
downstream system has been explored in consultation with the relevant authority	The piped system for this application provides a viable connection to the attenuation areas and onwards to the Ayles Brook.	
For discharge to a watercourse, consideration of the risk of water backing up the drainage system from any proposed outfall and how this risk will be managed without increasing flood risk to the site or to people, property and infrastructure elsewhere, noting that this also includes failure of flap valves	The applicant has modelled up to and including the 1 in 100 year +40% climate change event (test scenario) which demonstrates that all surface water can be stored within the pond or the piped systemfor events that may exceed the design event or for events where the levels within the Ayles Brook may be elevated. De-culverting of the Ayles Brook and the amendments proposed to the channel as part of flood alleviation works are likely to increase effective conveyance through the site and mean that the site can drain effectively. The restriction of the flows to 7.1l/s (pending supporting evidence) would also limit the outflow to the predevelopment greenfield rate, thus ensuring no increased risk of flooding downstream on the Ayles Brook.	*
Pollution		
Confirmation of the proposed methods of treating surface water runoff to ensure no risk of pollution is introduced to groundwater or watercourses both locally and downstream of the site, especially from proposed parking and vehicular areas	A vegetated attenuation pond provides a suitable level of treatment for a residential development. There are also a number of vegetated ditches feeding into the SW system which provide a suitable level of treatment for the development type.	*
General		
If the development is to be delivered in phases, demonstration of proposed delivery and ability to maintain key design criteria	This phase of the site construction will feed into the existing attenuation ponds constructed as part of earlier phases of delivery.	✓
Exceedance		
Description and drawings demonstrating the management of surface water runoff during events that may exceed the capacity of the drainage system (including temporary exceedance of gullies) up to the 1 in 100 annual probability event with climate change (including assessment of where water is likely to emerge) and noting that surface water should be retained within the site boundary and not pose risk to the development	The applicant must provide a plan showing where water flow in the event that gullies block (to identify the exceedance route). This should demonstrate that surface water flooding does not impact property. Storing water is roads/carparks is common – and can be helped by providing speed humps or multiple gullies / high capacity gullies in sloping areas to increase discharge capacity. The applicant must <u>also</u> demonstrate where water will be stored during events that exceed the capacity of the below ground network. A plan has now been provided. We request that the applicant considers the threshold levels in the vicinity of plot 8 as water could cascade to the south west	×





Information required	Reviewer comments	<b>√</b> x
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Access, adoption and maintenance		
Confirmation that an agreement has been made with the necessary landowners/consenting authorities to cross third party land and/or make a connection to the proposed watercourse/sewer	There is no requirement to cross third party land.	•
Confirmation that the adoption and maintenance of the surface water drainage system has been agreed with the relevant authority	A section 104 agreement is underway for the surface water drainage system. DCWW have been approached to adopt the surface water system however this has not yet been signed off.	•
Demonstration that appropriate access is available to maintain SuDS features (including pumping stations)	Maintenance access is available to the headwalls into the existing ditch, the outfall to the watercourse and to the attenuation ponds approved in the wider site drainage strategy.	~
Operational and maintenance manual for all proposed drainage features that are to be adopted and maintained by a third party management company1	The surface water drainage system has been put forward for adoption by DCWW and thus all maintenance will be the responsibility of the adopting authority.	✓

# Foul Water Management

✓ Information provided is considered sufficient

<sup>&</sup>lt;sup>1</sup> Note that further information will be needed if the Council are to adopt and maintain part or all of the proposed drainage system, and further consultation with the Council will be required





✗ Information provided is not considered sufficient and further information will be required





Information required	Reviewers comments	√x
Strategy		
Detailed drawings of the proposed foul water drainage system including location manholes, external pipework, package treatment plants, drainage fields, pumping stations and discharge locations	The applicant proposes the construction of a piped, gravity fed foul sewer network that will adopted by Dwr Cymru Welsh Water (DCWW). The drawings detail the foul network and all adoptable manholes and pipework	✓
Detailed drawings of proposed features such as drainage fields, pumping stations and outfall structures	The provided drawings are acceptable.	✓
If pumped systems are proposed, justification for the use of these systems, summary of key design principles and assessment of residual risk, with supporting calculations	No pumps are proposed	~
If on-site treatment is proposed, summary of proposed methods / manufacturers details	No on-site treatment systems are proposed	~
Completed application for Ordinary Watercourse Consent for any proposed structures within an ordinary watercourse	No ordinary watercourse consent required for the foul drainage network.	✓
Discharge to a sewer		
If discharge to the public sewerage system is proposed, confirmation that this has been agreed with the relevant authority	A section 104 agreement with DCWW has been provided that indicates the foul system is to be adopted.	*
Access, adoption and maintenance		
Confirmation that an agreement has been made with the necessary landowners/consenting authorities to cross third party land and/or make a connection to the proposed watercourse/sewer	No access to third party land required.	✓
Confirmation that the adoption and maintenance of the foul water drainage system has been agreed with the relevant authority	A section 104 agreement is in place for DCWW to adopt the foul sewer network.	~





Demonstration that appropriate access is available to maintain drainage features (including package treatment plants and pumping stations)	Access is available to DCWW for all adopted foul sewers and manholes.	<
Operational and maintenance manual for all proposed drainage features that are to be adopted and maintained by a third party management company2	Maintenance will be carried out by DCWW who will maintain and manage according to the appropriate manuals and schedules.	✓

### **Overall Comment**

We await further comments in relation to our comments above

<sup>&</sup>lt;sup>2</sup> Note that further information will be needed if the Council are to adopt and maintain part or all of the proposed drainage system, and further consultation with the Council will be required



