

MEMORANDUM / COFNOD

The Vale of Glamorgan Council
The Alps, Wenvoe, CF5 6AA



To / I:	Callum Parker
Dept / Adran:	
Date / Dyddiad:	02/05/2019
Your Ref / Eich Cyf:	

From / Oddi Wrth:	Vale of Glamorgan County Council SuDS Approval Body
My Ref / Cyf:	SAB/PRE/2019/006
Tel / Ffôn:	02920 673 235
Fax / Ffacs:	02920 673 114

Subject / Testyn: **Pre-Application No. SAB/PRE/2019/006 Upper Cosmeston Farm, Penarth**
Proposal: **Construction of new residential development and school.**

The Flood and Water Management Act 2010 (Schedule 3), implemented in Wales on January 7th 2019 requires all new developments to include Sustainable Drainage System features that are compliant with national standards.

Overview:

Information submitted to support this pre-application suggests that surface waters generated by the development will be disposed of via a combination of rainwater harvesting, infiltration together with a discharge to a surface watercourse (Sully Brook).

Standard S1 – Surface Water Runoff Destination

Priority Level 1: Collection for Use:

The submitted pre-application form indicates that rainwater harvesting will be utilised where possible by the inclusion of rainwater butts at individual property level. It is recognised that water is a valuable resource and we would be in favour of the collection of rainwater for non-portable use where practicable.

Priority Level 2: Discharge of surface water into ground:

The submitted pre-application form also indicates that surface water will be disposed of through the use of infiltration techniques. Infiltration test results submitted in support of this application indicate that infiltration at shallow depths to be generally poor. Falling head permeability test results have also been provided to demonstrate the sites permeability at greater depth. In line with the Environment Agency's Approach to Groundwater Protection (February 2018) adopted by NRW we would discourage the use of any infiltration system that bypasses the soil layer, limiting the ability of the ground to attenuate pollutants.

Where the use of shallow infiltration features are to be used all testing should be undertaken at the proposed site of infiltration inclusive of permeable surfaces. Where larger infiltration systems are to be used we would require additional testing to be undertaken on a 25m grid basis. Infiltration testing should be completed at an appropriate depth to that of the proposed design.

Priority Level 3: Discharge to a Surface Water Body:

It has also been suggested within the pre-application form that surface waters not collected or discharged to ground under priority levels 1 and 2 will be discharged to Sully Brook adjacent to Lavernock Road. Although we have no objection to this method of disposal in principle, on full application further information will be required with regard to the location of proposed discharge point.

The design of any off-site drainage system should demonstrate that the scheme does not adversely affect off-site flood risk elsewhere. Documented evidence of a right to discharge will also be required with the riparian owner at the proposed point of discharge.

Priority Level 4: Discharge to surface water sewer or highway:

It has been acknowledged that the submitted pre-application does not propose to discharge surface water directly into surface water sewer, highway drain or any other drainage system.

Priority Level 5: Discharge to combined sewer:

It has been acknowledged that the submitted pre-application does not propose to discharge surface waters directly to combined sewer.

Standard S2 – Surface Water Runoff Hydraulic Control

It has been indicated that the drainage scheme will provide hydraulic control up to a 1 in 100 year return period + 30% allowance for climate change. No hydraulic calculations have been provided at this stage and will be required to be submitted on full application. The surface water drainage scheme should be designed so that flooding does not occur on any part of the site for a 1 in 30 year return period plus climate change (30%) and not in any part of any building for a 1 in 100 year return period plus climate change with consideration made to any receiving flows from outside of the catchment. The submitted calculations should also include the volume of storage utilised within the drainage system.

It is accepted that the proposed drainage system would manage flows for the majority of rainfall events of less than 5mm through infiltration and interception.

The submitted drainage concept drawing identifies the location of an infiltration basin on the northern boundary of the site. NRW flood mapping has indicated that Whitcliffe Drive directly north of the proposed basin is situated in an area of high flood risk. This is also supported by our historical records which documents a known flood incident at Whitcliffe Drive during March 2013. Due to the proximity of the basin to a known flood risk area together with unsuccessful infiltration testing at the location (E-TP25) we hold concerns regarding the positioning of the infiltration basin in relation to the properties at Whitcliffe Drive. On full application we would require the potential impact on flood risk offsite towards Whitcliffe Drive to have been fully considered. This could potentially require a change in the form or location of drainage features serving this area of the development.

It is also noted within the concept drawing that the northern swales adjacent to the central attenuation basins drain to an overland flow path. Further detail is required with regard to this overland feature and it will be the intention of the Vale of Glamorgan Council to explore the potential designation of this feature in order to protect the area from any future alterations.

It is stated within the pre-application form that surface waters not collected or discharged to ground under priority levels 1 and 2 will be discharged at a restricted rate of 12.8l/s to Sully Brook. We find this discharge rate acceptable in principle and would request further hydraulic calculations demonstrating the proposed discharge to Sully Brook on full application.

Standard S3 – Water Quality

The proposed drainage scheme has the potential to allow the effective management of sediment and other pollutants, ensuring discharges from the system are of an acceptable quality and will not cause a pollution risk. Given the use of features allowing interception throughout the system together with the inclusion of shallower infiltration features we are in general agreement that the

drainage scheme proposed will adequately manage water quality. The various stages in the SuDS also increase the potential for managing pollution incidents close to source before they discharge offsite. No hydraulic calculations have been provided at this stage and will be required to be submitted on full application, demonstrating adequate residency times for flows to allow appropriate treatment within the system.

However to reiterate our previous statement above, we would discourage the use of any deeper Infiltration system that would inhibit the ability of the soil layer to attenuate pollutants and protect the receiving groundwaters.

Standard S4 – Amenity

We acknowledge that the proposed drainage scheme maximises amenity benefits through the promotion of green space whilst also providing enhanced visual character. It would be requested on full application that an appropriate risk assessment is submitted that considers the proximity of LAP / LEAP to any proposed pond / basin and that any such risk is adequately managed. We offer no objection to the amenity benefits the scheme will bring.

Standard S5 – Biodiversity

We acknowledge that the proposed drainage scheme will provide a self – sustaining ecosystem and will contribute to the delivery of local biodiversity objectives. Therefore we offer no objection to the biodiversity benefits the scheme will bring. It should be noted that the creation of permanent water bodies could provide habitats for protected species such as Great Crested Newts. As such appropriate consideration should be given to reduce or mitigate the potential risk of fatalities in features such as highway gully pots.

Standard S6 – Design

At this pre-application stage limited information has been provided with regard to the construction, operation and maintenance of the drainage system. All elements of the surface water drainage system should be designed to ensure maintenance and operation can be undertaken by the responsible body easily, safely, cost effectively and in a timely manner.

The Typical SuDS Construction Detail plan submitted with this application proposes the use of a stone / crushed rock layer at the bottom of the basins. In order to maximise amenity benefits for future residents we would request that the stone layer is removed from the basin and that the any basins takes on a more natural look where possible.

Conclusion

An appraisal of this application has been made by the SuDS Approval Body in line with Welsh Governments Statutory Standards for Sustainable Drainage Systems. From the details provided as part of this pre-application we offer no objection in principle to the proposed drainage scheme.

Gareth Thelwell-Davies
Engineer – Environment

for Operational Manager Environment and Engineering
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