

South Bucks District Council

# Development Management Guidance Note: Hydrology in Burnham Beeches

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February 2014



**South Bucks**  
District Council

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## 1. Burnham Beeches Special Area of Conservation

- 1.1 Burnham Beeches was designated a national nature reserve (NNR) in 1993 and a Special Area of Conservation (SAC) in 2005. This is a European designation also known as a Natura 2000 site. The UK is bound by the terms of the EC Habitats Directive, the aim of which is to conserve natural habitats and wild species across Europe by establishing a network of Natura 2000 sites. When preparing an application for certain plans and projects, developers should consider the potential effects on protected habitats. It is the responsibility of the Local Authority to assess potential impacts of a plan or a project upon a European site through a process known as Habitat Regulations Assessment or HRA. It is the responsibility of the developer to provide the necessary information where appropriate.
- 1.2 Burnham Beeches is 382.76 Hectares in size. Only 200 hectares are publically accessible and managed for open access by the City of London. The remainder of the SAC is privately owned by the Portman Burtley Estate although public footpaths run through the site.
- 1.3 The primary reason for the designation of the site as an SAC are the presence of Annex 1 habitat Atlantic Beech forest with Ilex (holly) and sometimes Taxus (yew) in the shrub layer. The SAC is an extensive area of former beech wood-pasture with many old pollards and associated beech and oak high forest. It is also one of the richest sites for saproxylic invertebrates in the UK, including 14 Red Data Book species. It also retains nationally important epiphytic communities.
- 1.4 As well as being designated a SAC, Burnham Beeches is also designated a SSSI, the boundary of which covers the same area. It is divided into 4 SSSI units. Units 1, 3 and 4 are assessed by Natural England as in Favourable condition and Unit 2 is assessed as being in Unfavourable Recovering condition. Unit 2 is the part in private ownership. This status is mainly due to conifer plantations and lack of consistent beech regeneration.
- 1.5 Previous studies on the Beeches have highlighted concerns. In particular, an increased rate of veteran tree loss (probably due to a gap in the management of the trees including regular pollarding) and indications that the woodland as a whole may be suffering ill health from various causes. *Liley et al* in 2012 highlighted that there are a number of potential urban development related impacts on the nature conservation interests. The current (2010/11) estimates of visitor numbers are 585,000 per annum accompanied by c. 215,000 dogs. Visitor impacts including trampling and soil compaction, tree climbing, dog fouling, introduction of alien species and litter/flytipping, are of concern.

- 1.6 The City of London has a 10 year Management Plan to address some of these issues, particularly visitor use and behaviour. So far these have included reducing on site car parking, introducing parking charges, and attracting the majority of visitors to an area of open grassland where damage can be limited and visitor facilities provided, together with restricting access around vulnerable trees by installing fencing. There are currently plans to introduce a dog control order to restrict access for dogs off leads. A recent visitor survey surveyed the number of visitors, particularly local dog walkers, who visit regularly.
- 1.7 Other concerns include reduction in water levels and supply and reduction in air quality.
- 1.8 There are a number of watercourses that flow from the urban areas and into the Beeches. Two of these watercourses are either culverted or heavily managed.
- 1.9 The Withy Stream is primarily fed by surface water run-off and is therefore dry for much of the time. However, the Withy Stream feeds the mire, an important feature of the SSSI. Previous concerns about flows have led to the identification of the Withy catchment area in *Haycock* (a report commissioned by the City of London). This subsequently led to all planning applicants within the Withy Catchment being asked to submit a hydrology report (as per current Local List requirements) to assess the impact of the development on the catchment and propose mitigation. This satisfied the concerns of Natural England.

## 2. National Planning Policy Framework

- 2.1 Para 118 states that when determining applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:
  - If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts) adequately mitigated, or as a last resort, compensated for, then planning permission should be refused;
  - Proposed development on land within, or outside, a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSI.

### 3. Core Strategy and Burnham Beeches

3.1 The Habitat Regulations Assessment for the South Bucks Core Strategy Screening Statement (March 2010) concludes that the Core Strategy will not lead to any significant effects on Burnham Beeches SAC either alone or in combination with other plans and projects.

3.2 The Spatial Vision states that high quality natural features such as Burnham Beeches SAC will be conserved and enhanced. The Core Strategy recognises the potential impacts that could result from housing development and states that new development over the Plan Period should not have an adverse effect on the integrity of Burnham Beeches SAC (p13). The Spatial Strategy recognises that particular protection should be given to Burnham Beeches.

3.3 Burnham Beeches is situated to the immediate west of the settlement of Farnham Common and it is important that the impacts of development and traffic on the SAC are minimised. (para. 2.2.26)

#### Core Policy 1 Housing provision and Delivery

3.4 The Strategic Housing Land Availability Assessment (SHLAA) 2009 showed that Farnham Common has capacity for new housing development but development will be carefully managed to avoid a cumulative adverse impact due to its proximity to Burnham Beeches. Mechanisms to achieve this will be developed in the DMLP. (para. 3.2.9 and Core Policy 1)

Past Completions 2006-2013	165 Dwellings completed (Net)
Sites with outstanding planning permission	36 Dwellings (Net)
<b>TOTAL</b>	<b>201</b>

3.5 Figure 1 shows that housing completions are running substantially higher than the 123 predicted for the plan period from 2006-2014. The predicted total for the entire plan period from 2006-2026 is 201.

#### Core Policy 9 Natural Environment

3.6 The highest priority will be given to the integrity of Burnham Beeches SAC. The conservation and enhancement of BB and its surrounding supporting biodiversity resources, will be achieved through restricting the amount of development in close proximity to the site, and ensuring that development causes no adverse effect on the integrity of the SAC.

### Core Policy 13 Environmental and Resource Management

- 3.7 The Council will seek to ensure the prudent and sustainable management of the District's environmental resources by:
- Promoting best practice in sustainable design and construction. All new development must be water efficient and incorporate Sustainable Drainage Systems (SuDs) where feasible.
  - Protecting and enhancing water quality and encouraging the remediation of land affected by contamination to bring it back to beneficial use. Particular regard should be had to maintaining the integrity of Burnham Beeches SAC.
  - Seeking improvements in air quality, especially in the Air Quality Management Area adjacent to the motorways and close to Burnham Beeches SAC.
- 3.8 [Appendix 7](#) has a Monitoring target that new development over the Plan Period has not had an adverse effect on the integrity of Burnham Beeches SAC.

As a result of these policies, South Bucks, City of London as owners of the publically accessible part of the Beeches, Natural England and the Environment Agency are working together to produce evidence based specific planning policies to be included in the Development Management Local Plan for all applications which are likely to have a significant effect on the SAC in order to comply with the Habitat Regulations.

## 4. Current Guidance and the Local List

- 4.1 All applications within 500m of the Beeches are currently referred to the City of London and Natural England for their comments. At Natural England's request all applicants for developments within 500m were requested to submit a hydrology report to assess the proposal in hydrological terms.
- 4.2 Following the identification in the Haycock Report of the Withy stream catchment area and its importance to the Mire and the pond systems all planning applications since September 2013 within the Catchment are required to include a hydrology report (see current Local List requirements) to assess the impact of the development on the catchment and the Beeches generally and propose mitigation. This course of action has the approval of Natural England and has removed the requirement for hydrology reports in the rest of the 500m consultation zone. Mitigation measures are then conditioned if the application is recommended for approval.
- 4.3 The inclusion of this requirement in the Local List has meant that applications without the accompanying hydrology report have not been registered and have been declared invalid. **The local list will**

now be amended to reflect this Guidance Note requiring proposals for SUDs to be included with applications affecting all four catchment areas.

## 5. Wallingford HydroSolutions Ltd (WHS) report

### Hydrological impacts

- 5.1 It was recognised that while we had identified the catchment of the Withy stream there were other watercourses which flowed into the Beeches and a better understanding of the hydrology of the Beeches was required together with an assessment of the effects of increasing urbanisation on the Beeches in hydrological terms. This would conform to Core Policy 13 and enable a new policy to be developed for the DM Local Plan. In a jointly commissioned study between the City of London and South Bucks, WHS has produced a report looking at these issues. The report's conclusions have also been endorsed by the Environment Agency, Natural England and Bucks County Council.
- 5.2 The report describes the potential hydrological effects of urbanisation as being the alteration of water balance and reduced water quality. These impacts are upon the draining streams which flow through the SAC. The beech trees are sensitive to changes in water balance and water quality.
- 5.3 Urban surfaces reduce catchment permeability and the presence of drainage networks may be expected to remove runoff from urbanised catchments. The incorporation of Sustainable Drainage Systems (SuDS) in developments may minimise these effects and replicate the natural drainage pattern. Water main leakage and sewer infiltration may also influence the water balance. Leakage may represent a net import of water while sewage infiltration may remove water.
- 5.4 Water quality can be reduced through sedimentation, effluent discharges and pollution as well as increases in water temperature.
- 5.5 During construction there is the potential for temporary reductions in water quality through sedimentation. These arise from the necessary ground disturbance resulting in increased sediment supply and the potential mobilisation of this sediment resulting in wash off into the stream network and subsequent increased in-stream concentrations.
- 5.6 There is also the potential for pollution from the accidental spillage of chemicals and materials such as cement, fuel, oils and lubricants during the construction period. Measures to minimise this risk of contamination should be put in place during the construction period.

## 6. Catchment Areas

- 6.1 Surface water is delivered to Burnham Beeches by four catchments, as shown in Appendix 1 and 2 of this guidance note. From south to north these are the Withy stream, the Nile, an unnamed stream and the Portman Estate stream. The Withy stream has the smallest catchment from which water flows through three ponds along the course of the stream. This surface water system primarily responds to rainfall. The Withy and Nile streams and their catchments are heavily urbanised outside the SAC and the potential export of surface water runoff from paved areas and the presence of water mains and sewers may be expected to alter the water balance. Up to 22% of the natural run off may be exported from the Withy stream and up to 13% within the Nile stream via surface water drains. If further urbanisation takes place then without a sustainable approach to drainage to ensure that surface water is retained within the catchment the natural runoff rates could be reduced further.
- 6.2 The beech forests are found in the vicinity of the Nile stream. This stream together with the unnamed stream drains water from the SAC as well as conveying water from the upstream catchments. They may also have an effect on sustaining the beech trees.

## 7 Guidance

- 7.1 The purpose of this guidance is to take on the advice of the WHS report and ensure that future development does not result in further reductions in natural runoff within the catchments draining to the SAC and that the water quality of that runoff is not reduced. The overall aim is to minimise or negate any adverse impacts to the SAC arising from alterations to the hydrology (both quantity and quality) caused by new development and help maintain the natural hydrological functioning within the Beeches.
- **All applications within the designated catchments should comply with this guidance.**
  - **Pre-application consultations with the relevant bodies are encouraged.**
  - **Applications which do not include the measures set out below will be deemed invalid as per details in the Local List (as amended).**

### **Construction Best Practice within 10m of a Watercourse**

Construction activities in or near water have the potential to cause pollution, impact upon the bed and banks of watercourses and impact upon the quality and quantity of the water. The reduction of these potential impacts should form an inherent part of the layout design of any new development. The layout constraints should include a **10m built exclusion zone** in the vicinity of any watercourse. In accordance with Environment Agency guidance on pollution prevention, additional site specific mitigation measures are also required.

Refuelling and cleaning of plant machinery and equipment should take place off site.

Any fuels, lubricants or chemicals should not be stored within 10 m of the watercourse.

Sanitary facilities are to be provided on site.

**Note:** If any works affects an ordinary watercourse then the developer should check with Bucks County Council Flood Management team if Ordinary Watercourse Land Drainage Consent is required.

### **SuDS**

Developers are required to adopt the principles of SuDS when submitting development proposals within the planning catchments identified in the catchment area map. **See attached map.** This is a versatile design approach which seeks to replicate natural drainage patterns and to reduce pollution from runoff and improve ecology.

#### **SuDS Objectives:**

Water Quality - help prevent and treat pollution in surface water runoff, protecting & enhancing the environment.

Amenity - visual and community benefits

Ecology - they provide the opportunity to create and improve habitats for wildlife, enhancing biodiversity.

#### **SuDS Key principles:**

1. Prevention - good maintenance & site design to reduce & manage runoff & pollution e.g. land-use planning, reduction of paved surfaces.

2. Source Control - runoff managed as close to the source as possible e.g. green roofs, rainwater harvesting, permeable paving, filter strips.

3. Site Control - runoff managed in a network across a site or local areas e.g. using swales, (shallow vegetated channels designed to store and/or convey runoff) detention basins, public realm SuDS components for attenuation & treatment. Also, flow should be slowed using overland conveyance routes.

4. Regional Control - downstream management of runoff for a whole site/catchment e.g. retention ponds, wetlands.

Developments should be designed to ensure that the following measures are incorporated:

Provision of permeable source controls promoting infiltration e.g. soakaways (where the water table allows), trenches, basins or rain gardens.

Provision of on-site storage in the form of ponds

Provision of on-site attenuation in the form of swales.

Developers should establish the soil conditions and hydrology on a bespoke basis to include storm water run-off, water table height and water quality. Local ground conditions, groundwater levels and hydrology will establish which SuDS measures are most appropriate. The measures should be well designed, implemented and maintained in accordance with current guidance. This will ensure that the best drainage solution for a particular site is found and incorporated into the final designs. **Details should be submitted with the planning application.**

#### Information sources

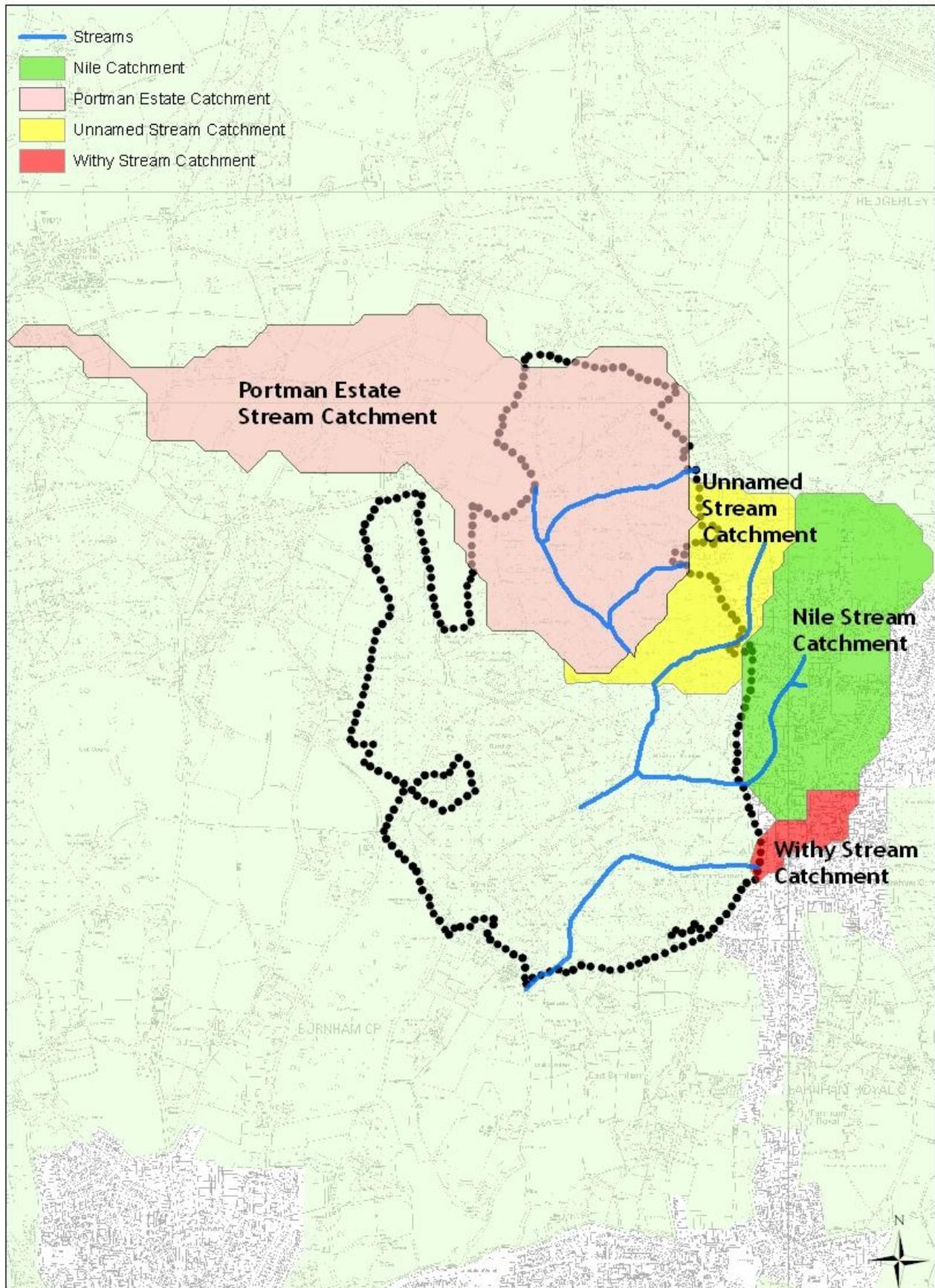
National Standards and SuDS Guidance documents to be introduced later 2014.

Local Flood Risk Management Strategy Bucks CC

See also for further information

<http://www.susdrain.org/resources/ciria-guidance.html>

# Appendix 1



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## Appendix 2

