

Lower Mill Estate



Development Name: Lower Mill Estate

Location: Cotswold Water Park

Type of Project: Mixed-use

Applicant: Habitat First Group

BwN Assessor: Phoebe Carter, Habitat First Group, Biodiversity Matters

BwN Award: Design, Full (Excellent)

Key stakeholders: Environment Agency, Natural England

Lower Mill Estate began life as a gravel quarry. Habitat First Group are now in the process of building 575 holiday homes across the development. The total development footprint comprises 40ha while a further 155ha are devoted to nature conservation and recreation. The site functions as a mixed-use development in the heart of the Cotswolds Water Park.

The project currently features completed sections, including Mill Village, Copse Mere, Clearwater Village and Howells Mere. Altogether, these sections include 310 housing units. The entire project is projected to conclude in 2023.

Lower Mill Estate is characterised by the numerous extraction pits that were flooded. The action changed the landscape by creating rivers, tributaries, and open water. The riparian vegetation along the waterways features parades of willows, woodland copses, wildflower meadows alongside waterside developments sympathetic to the natural landscape.

BwN recognises the exemplary effort given by Habitat First Group in all aspects of design, development, and long-term management of the green infrastructure of the site. The overall Masterplan achieved a BwN Design Award. The in-use completed phases have achieved a BwN Full Award (Excellent).

*A **Building with Nature Design Award** externally certifies that a design meets the BwN Standards and delivers high-quality green infrastructure. This award is used at an early stage of design i.e. an outline planning application in larger schemes.*

*A **Building with Nature Full Award** externally certifies that a scheme meets the BwN Standards and delivers high-quality green infrastructure, at both pre- and post-construction stages.*

Introducing Building with Nature

At Building with Nature our mission is to put high-quality green infrastructure at the heart of placemaking in the UK, maximising benefits for people and wildlife. By bringing people closer to nature and building great places for us to live, work and play, development can make a major contribution towards better health and wellbeing in our communities and tackling the climate and ecological emergencies.

Building with Nature is the first evidence-based benchmark for high-quality green infrastructure in the UK. The BwN Standards Framework has been created in partnership with planners, developers, and other key stakeholders, providing a shared understanding of ‘what good looks like’ throughout the whole lifecycle of green infrastructure – from the policy framework and early-stage design, through to implementation, and long-term management and maintenance. The BwN Standards are free to use and can be downloaded from the BwN website. Building with Nature also provide a voluntary accreditation process, helping developers and other stakeholders move through the planning process more effectively, and providing an independent verification of quality when it comes to green infrastructure assets.

This case study demonstrates how this scheme’s green infrastructure meets the BwN Standards, illustrated through the BwN themes of Core, Wellbeing, Water and Wildlife.

Scheme Green Infrastructure Objectives

Lower Mill Estate is divided into distinct villages. Those that were put forward for BwN assessment included Mill Village, Clearwater, Watergarden and Howells Mere. Each of these villages have a sensitive design meant to respect and contribute to the local context. Mill Village incorporates a traditional Cotswold-style design with extensive tree planting and a converted Mill. The other three villages exhibit a more modern character that prioritises a connection with the outdoors.

An overarching objective for the green infrastructure on site involved creating a connective network of green and blue corridors. To accomplish this, hedgerows and tree lines were planted to provide species habitat and transport. Numerous homes are equipped with green to enhance the site’s current biodiversity.

Waterways were made to run through the development into the wider estate. Some of these linked to water resources still in development such as Spinney Lake, Lakeshore Reserve and Minety Lake. These form part of the site’s sustainable water management and flood protection system.

Habitat First ensures that all the site’s green infrastructure objectives are continuously met through their provision of a comprehensive Landscape and Ecological Management Plan (LEMP). The plan is renewed every 5 years to effectively monitor the wildlife and maintenance outcomes of the implemented green infrastructure features.



Image 1: Multiple green infrastructure features, including green roofs have been incorporated into the design

“ Gaining Building with Nature accreditation has been a reassuring stamp of approval for everything HFG has strived to achieve in the past 25 years and peer recognition that balancing conservation and development is never as simple as it seems from the outside. ”

Will Vicary, Managing Director, Habitat First Group

CORE Standards

- Standard 1** Optimises Multifunctionality and Connectivity
- Standard 2** Positively responds to the Climate Emergency
- Standard 3** Maximises Environmental Net Gains
- Standard 4** Champions a Context Driven Approach
- Standard 5** Creates Distinctive Places
- Standard 6** Secures Effective Place-keeping

The development incorporates an expansive variety of **multifunctional green infrastructure features**. These include designated ecological sites like an SSSI, open water, wetland, roof gardens, grassland, wild meadows and more. Each of these serves to contribute to the connected green infrastructure network.

The entire design of the green infrastructure features on the development reflects and strengthens the character of the surrounding landscape. It is sensitive to the wider objectives of the **Cotswold Waterpark strategy**.



Figure 1: Plan of the site showing connectivity



Image 2: Housing is integrated into the landscape

A development-wide positive response to the climate emergency was an essential goal of the project. It was achieved through the usage of SIPs with a high thermal performance, sustainably harvested wood and a sustainable approach to the use of construction-generated spoil. The spoil was used as a protective barrier for surrounding wildlife within the development instead of being transported offsite.

Plantings across the site were done using native species to make them more resilient to climate change while still providing benefits of urban cooling and controlling noise pollution. These plantings contributed to the connectivity of the green corridors while providing **ecological corridors** for wildlife.



Image 3: Planting along pathways



Image 4: Water is viewed as an attractive asset within the design

WELLBEING Standards

Standard 7 Brings Nature Closer to People

Standard 8 Supports Equitable and Inclusive Places

Lower Mill Estate exemplifies the BwN principle of bringing nature closer to people. Throughout the development, all homes are close to water features with **sustainable transport systems** built around them to encourage walking and cycling on the convenient green ways.

The built environment offers seamless opportunities for connection with nature. This is done through green roofs with bin stores, biodiverse-rich roofs on the 'Habitat House,' and an allotment with food grown for the on-site café and restaurant.

Additionally, there are children's play parks and wildlife trails to encourage a **strong education** of the natural environment for all ages.

The development encourages people to discover and explore nature by maintaining features like a pond dipping platform, children's wildlife trail and bird hides through the site. These features and more are easily accessible by paths adapted to wheelchair and bike accessibility to support **inclusivity**.



Image 5: Provision for active travel



Image 6: Water features are situated alongside housing to bring nature closer to people.



Image 7: There is an allotment on site and the food grown is used in the on-site café and restaurant facilities

WATER Standards

Standard 9 Delivers Climate Resilient Water Management

Standard 10 Brings Water Closer to People

Water management through the development helps mitigate against **climate threats**. It incorporates a wide range of SuDS features, such as permeable paving, infiltration trenches, swales, drainage ponds and natural reedbeds. These run towards natural water resources throughout the development, such as lakes, streams and brooks. Altogether, the blue infrastructure provides uninterrupted access to the benefits of nature for a community.

Throughout the development, hard landscaping is minimised to mitigate flood risks. The **SuDS footprint** in the development features a specific flood route. This cements the water park and biodiverse lakes as centre-stage to the ecological flood-risk management.

Soft features are also essential to both flood management and visual amenity. Plantings of native trees and vegetation minimise runoff, while green roofs allow for interception of 5mm of rainfall while providing additional space for the enjoyment of nature.



Image 9: Water management on site delivers climate resilience

As shown throughout the rest of the development, **recreation in natural areas** is highly encouraged for both visitors and residents. Recreation in nature creates a feeling of safety pervasive throughout the development.



Image 8: Water features are situated alongside housing

WILDLIFE Standards

Standard 11 Delivers Wildlife Enhancement

Standard 12 Underpins Nature's Recovery

The development is designed and managed to maximise the presence of wildlife. Ongoing management and monitoring ensure the continued success of this goal. It is overseen by **the LEMP and a part-time ecologist** on site who works with the ground maintenance team helping Natural England to manage the two present SSSI's.

The recovery of endangered species such as Great Crested Newts are supported by these management initiatives. The management of receptor ponds and ditches include newt fencing for protection. Lower Mill Estate have the only known population of brown hairstreaks breeding in Gloucestershire. To support the population, blackthorn has been incorporated into every new hedgerow and is used in the mix of native species mix for planting in and around the built environment.

There are further provisions to restore and sustain the wider ecological networks. Vegetative links connect ecological corridors within and



Image 12: Habitat First Group offer a range of house types to reflect the character of the estate, and enhance biodiversity measures, such as this 'Habitat House' (above) is proving to be popular and offers a green roof or wildflower turf roof

beyond the development. These serve to enhance the populations of migratory birds from Russia, Africa and Scandinavia and thus creates a conservation conversation of a **global scale**.



Image 10 and 11: The site has over 200 bird boxes (above left), including House martin nesting boxes (above right). The site now boasts one of the largest colonies of House martins in the UK

Policy Applications

The development aligns with key regional outcomes such as sustainable water management and creating and maintaining valued healthy landscapes. A thorough better-connected ecological network helps to achieve a Nature Recovery Network.

The Core Strategy Policies of the South Gloucestershire Local Plan (2006-2027) of high-quality design and responding to climate change and managing the environment and heritage are also met because of the Policy CS2 that relates specifically to green infrastructure within planning.

“ The level of compliance at the Lower Mill Estate is such that the Award given meets the Excellent level of BwN Benchmark; and as such this development represents a national exemplar in the design, delivery and maintenance of high-quality green infrastructure for the benefit of people and wildlife, now and long into the future ”

Dr Gemma Jerome, BwN Director

Summary

The development gives a stellar example of a BwN Full (Excellent) Award. With the secure and long-term management of the LEMP, estate team and Chief Ecologist, Lower Mills Estate boasts of one of the largest house martin colonies in the UK along with a comprehensive network of ecological linkages.

Habitat First Group are committed to an innovative architectural approach coupled with meticulous landscaping details. Together, these enhance the built and natural environment to positively contribute to nature's recovery.



Image 13: Recreation on or nearby water is actively encouraged, and for some visitors this may be their first experience of feeling safe and enjoying time next to large water bodies

Useful Links

Building with Nature: www.buildingwithnature.org.uk

Applicant: www.habitatfirstgroup.com

BwN Assessor: www.biodiversitymatters.co.uk

Download the BwN Standards: www.buildingwithnature.org.uk/standards-form



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