

# building with nature - a new benchmark for green infrastructure

**Danielle Sinnett, Gemma Jerome, Sarah Burgess, Nick Smith and Roger Mortlock outline the aims, development and proposed operation of Building with Nature, a new benchmark for appraising the quality of green infrastructure**

Green infrastructure (GI) is an essential component of liveable and sustainable places. There is a substantial body of research demonstrating the multiple benefits of GI for urban populations. Many local authorities now have a GI policy or strategy in some form, and its importance is recognised in national planning policy; but there is still considerable uncertainty as to how GI can best be delivered and maintained in practice. This article presents our work on developing a new benchmark for green infrastructure, Building with Nature, which is being developed collaboratively by Gloucestershire Wildlife Trust and the University of the West of England, Bristol.<sup>1</sup>

## The challenges

There is now a considerable amount of guidance on the planning, design and delivery of GI. Despite this, what is delivered on the ground is extremely variable, and often opportunities for delivering high-quality GI are missed. During the early stages of the project we spoke to many of those in Gloucestershire and the West of England involved in GI planning, design and delivery about their experiences of the way that GI is incorporated into new development and the resulting quality. This, together with engagement with a range of stakeholders in England and Scotland, identified a number of challenges and the need for a benchmark to overcome them. Stakeholders included local authority planners and landscape architects, developers and their consultants,

ecologists, and public health professionals, as well as NGOs and government agencies responsible for GI advocacy, delivery, and management. The challenges can be summarised as follows:

- There is uncertainty in what is required in terms of GI in new development, caused by variation in policy between local authorities and a lack of resources, skills and knowledge in the sector. Although numerous pieces of guidance exist, often from professional bodies, NGOs, or local authorities, such guidance is overwhelming and difficult to navigate, especially for those without the necessary expertise to balance competing demands from GI.
- Often GI proposed in new development does not respond to the local context; there is seldom a 'one size fits all' approach suitable for either local planning authorities or developers.
- Different components of GI are considered in multiple documents (for example water management, nature conservation, open space), which misses the opportunity to provide a coherent multi-functional network.
- GI is seen as less important than other objectives, especially in areas with a high demand for housing or those trying to attract investment through development.
- The quality of GI diminishes as a planning application progresses, so that, although the quality may have been high in the outline planning application, this is not represented in the final

delivery. Coupled with this, there is often a lack of enforcement on the quality of delivery.

- There is uncertainty and concern over maintenance and management arrangements.

We also conducted a review of how GI is considered in a range of existing built environment assessment systems (for example BREEAM Communities, Building for Life). This found that, although many contained some assessment related to GI, they often focused on one aspect (for example access to green space), or, in the case of the Green Flag Award, measured one type of GI (parks). None of the existing systems include an assessment of GI as a multi-functional network, or an assessment of delivery or maintenance. It is crucial that these challenges are addressed if GI is to deliver its potential benefits for people, the economy, and the environment.

**Introducing Building with Nature**

The Building with Nature benchmark has been developed in direct response to these challenges. The aim of Building with Nature is to clarify the expectations and raise the standard of GI over time. The broad themes that the benchmark should cover and the way it should operate were identified through a literature review and through engagement with stakeholders. The themes include aspects of the planning, design and management of GI seen as being critical to its success, and three framed around the services that GI provides for nature conservation, water management, and health and wellbeing. Each theme has a suite of standards that applicants would be expected to meet to be awarded the benchmark:

- five core standards, including the creation of a multi-functional network, consideration of local priorities and character, resilience to climate change, and provision of long-term management arrangements, including the governance and funding as well as the operational aspects of maintenance (related to the specific functions);
- six water management standards, including the need to minimise surface run-off and improve water quality;
- six nature conservation standards, including providing ecological enhancement and considering

nature conservation at all stages of development; and

- six health and wellbeing standards, including ensuring the availability of accessible, high-quality spaces for all and contributing to a sense of place.

Building with Nature is flexible enough for use across different spatial scales and stages in the development process (for example at outline planning through to post-construction), and can also be used to assess GI policies. It is applicable to all components and functions of GI, including green spaces, soft landscaping, green walls and roofs, sustainable drainage systems (SuDS), and areas for nature conservation. The emphasis is on the creation or enhancement of a multi-functional network. Irrespective of when an application is made, the award would be dependent on a post-construction assessment. However, in recognition that some aspects of the planning and design of GI are set early on in the process and difficult to adjust retrospectively, applications can be awarded ‘candidate’ status at the pre-construction stages of development or for a draft policy. The full award would be granted after the scheme or, for phased developments, each phase is delivered, or the policy published.

To provide flexibility for applicants, each of the thematic areas of nature conservation, water management, and health and wellbeing are divided into two levels, with three standards in each (see Table 1). The ‘Achieved’ standards reflect the minimum requirement for high-quality GI, irrespective of scale or type of development. The ‘Excellent’ standards are representative of exemplary GI.

To be awarded Building with Nature ‘Achieved’, the applicant would need to demonstrate that they had met all five core standards and all nine of the ‘Achieved’ standards across health and wellbeing, water management, and nature conservation. To secure Building with Nature ‘Excellent’, applicants would need to fulfil these 14 standards as well as at least six out of nine of the ‘Excellent’ standards. This means that an applicant could chose to specialise in two of the thematic areas in the award by fulfilling all three ‘Excellent’ standards (for example in water management and nature

**Table 1**  
**Standards needed to be awarded Building with Nature ‘Achieved’ or ‘Excellent’**

	Achieved	Excellent
<b>Core 1-5</b>	Health and wellbeing 1-3 + Water management 1-3 Nature conservation 1- 3	+ at least six from: Health and wellbeing 4, 5, 6 Water management 4, 5, 6 Nature conservation 4, 5, 6
<b>Total</b>	<b>14 standards</b>	<b>20+ standards</b>

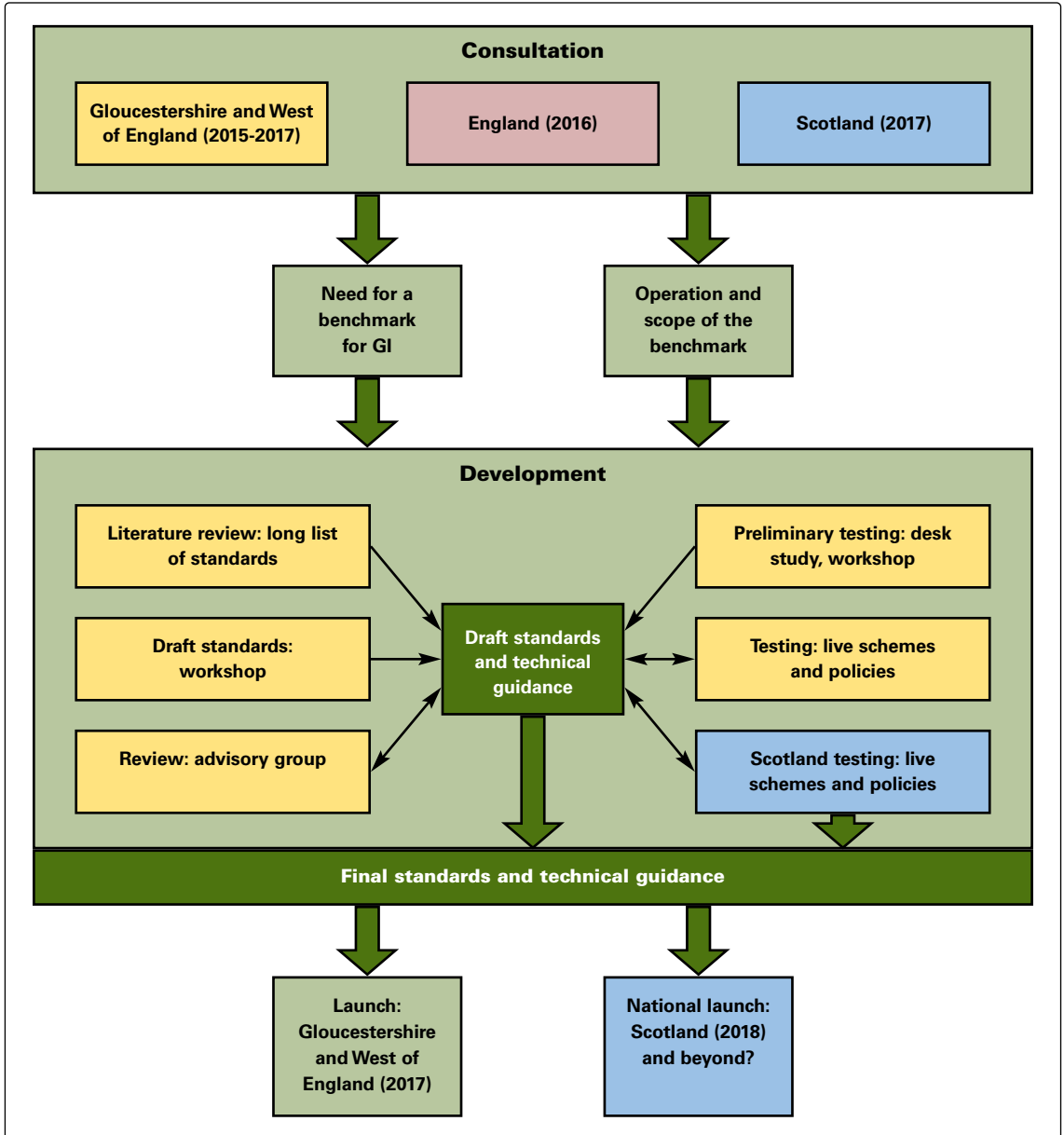


Fig. 1 Overview of the development of Building with Nature

conservation) or spread across all three themes, fulfilling two out of the three ‘Excellent’ standards. The standards have been set at a level that is not so low that the benchmark would be awarded to all developments, but not so high that they would act as a deterrent to its use. This is to ensure that Building with Nature has broad appeal, as opposed to being seen as relevant only to exemplary schemes. Similarly, the evidence that is required to demonstrate compliance is equivalent to that already provided in planning applications, so as to ensure that the benchmark is not seen as too onerous.

**Building with Nature development**

Building with Nature has been under development since 2015 and is currently undergoing final testing on several live developments (including large residential-led urban extensions and a small infill development) and policies. The process for its initial development is outlined in Fig. 1 and briefly explained here. The requirements of stakeholders were used in conjunction with a review of existing standards and good practice guidance to produce a long list of potential standards. A workshop was then held with the research team and external advisors to consolidate the long list into a suite of draft standards.

Once a draft set of standards had been developed, they were tested against the requirements of stakeholders and the aim of the benchmark on two contrasting developments ('A' and 'B') in Gloucestershire. The developments were deliberately chosen to represent a contrast in the quality of GI. Both are strategic, residential-led, mixed-use greenfield developments of around 1,000-2,500 dwellings, with a range of community facilities and commercial premises.

A range of documents submitted as part of the application for outline planning permission were reviewed against the draft standards, including the GI strategy, the GI parameter plan, the sustainability strategy, and the environmental statement. Often, the quantity, location and quality of GI is set very early in the development process, so ideally an applicant would begin working towards the benchmark as soon as possible. This, coupled with the desire to ensure that the evidence required is not too onerous, meant that these documents were felt to be a sufficient test to ensure that the standards reflect the type of information available at this stage.

Overall, development 'A' performed poorly against the draft standards, and as a result would not be awarded the benchmark based on the application for outline planning permission. This was because the individual features of GI would not form a multi-functional network, and very little information was provided on the specific features of GI that would be included or how they related to the needs and priorities of the area.

For example, the GI consisted of a series of isolated open spaces that were seldom connected, and when connectivity was provided the corridors were too small to provide any useful function in terms of nature conservation, water management, or active travel. Similarly, there was no obvious connectivity through the development or to the surrounding landscape, including from a protected habitat on site. There was no consideration of the long-term management of the GI, and the opportunity to provide multi-functional GI was missed. Where aspects such as climate change adaptation, water management or health and wellbeing were included, the documents simply contained a reiteration of national and local policies, with no articulation of how the GI would respond to them.

Development 'B' would, however, be awarded 'Candidate' status based on the documents reviewed. The proposed GI was judged to be of sufficient quality to meet the 'Core' and 'Achieved' standards across all three thematic areas and some of the 'Excellent' standards. It was clear that the GI would form a coherent multi-functional network. The rationale for the GI approach was explained, as was the relationship between the relevant policies and the proposed GI. The consideration of long-term

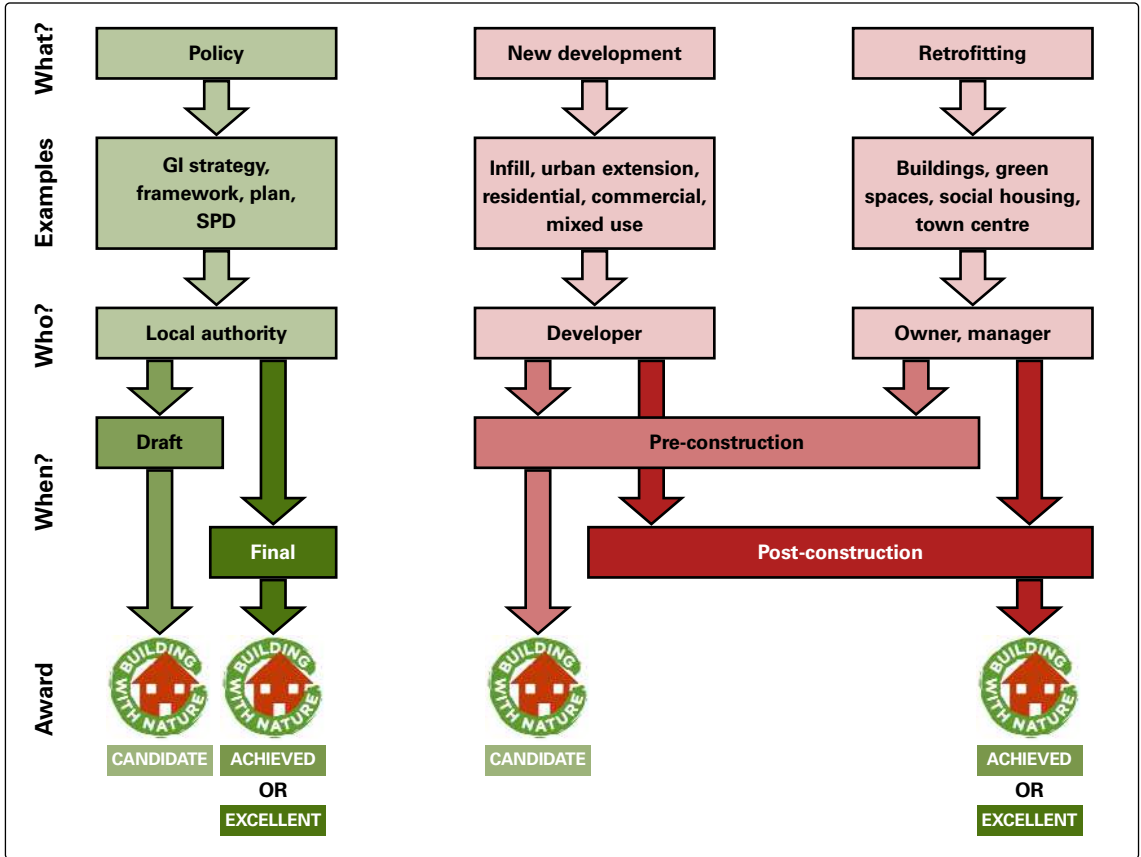
maintenance and management was particularly comprehensive, including the need for a GI management scheme. Options for including the community in the decision-making process, on-site activities, and long-term management were provided.

Substantial detail on the habitats within the development was provided, including their protection and enhancement through all stages of the construction process. However, it was not clear how these would contribute to wider ecological networks. A SuDS strategy provided an assessment of the sensitivity of receiving waters and the floodplain to development, and detail on the disposal of surface water run-off and water quality, as well as the provision of specific SuDS features and their performance. Clear links were made between local strategies for amenity use and the open spaces provided, including their accessibility.

The results of this testing were reviewed at a second workshop, where the standards and the level of the overall award were refined. Overall, the standards performed well in assessing the two developments. They appear to be set at an appropriate level so that the proposal considered to have relatively poor-quality GI would not be awarded the benchmark, whereas the application with well-thought-out GI and a high level of detail would. It was reassuring that a high-quality development that had not set out to be certified performed well, as this suggests that the standards are set at an appropriate level and are realistic. The documentation provided by development 'B' was generally sufficient to ascertain that the 'Core' and 'Achieved' standards had been met. This suggests that the application process for the benchmark would not be too onerous and that it should simply require a consolidation of existing evidence to respond to each standard.

However, it was relatively difficult to judge whether the 'Excellent' standards had been met based on the documentation reviewed. This is not a fair assessment as the developers did not set out to apply for the benchmark and so did not know that it would be necessary to provide this information. Some of this detail would not usually be provided for outline planning permission and would come later in the planning process, either in the full planning application or in reserved matters. Therefore no differentiation between 'Achieved' and 'Excellent' awards will be made in the initial pre-construction assessment, with applications only being awarded 'Candidate' status. Those aiming for 'Excellent' would work towards this as the planning application progresses (see Fig. 2).

At all stages of developing Building with Nature, the standards and associated technical guidance have been reviewed and iteratively refined with both local stakeholders and an external advisory group of experts drawn from across the built environment sector.<sup>2</sup>



**Fig. 2 Application process for Building with Nature**

Building with Nature is currently being tested in Gloucestershire and the West of England on policy documents, strategic urban extensions, and a small infill development. There is ongoing refinement of the standards through this testing and consultation with local stakeholders and the advisory group.

This work is also testing the process for awarding the benchmark; it is envisaged that a trained assessor will be embedded in the applicant team to provide guidance and compile and submit the application to a certification body. The assessor is likely to be an existing member of a development or policy project team (for example a landscape architect), working with the rest of the team to ensure that the GI is of sufficient quality to meet the standards in Building with Nature. The certification body will be an independent organisation responsible for the final assessment and awarding of the benchmark. This body will review the documentation provided by the applicant against the standards and, if appropriate, undertake a site visit. There will be a charge for undertaking this final assessment, which will be informed by the testing currently under way.

Following testing, the standards and technical guidance will be freely available in late 2017. Work has just begun to carry out further testing in

Scotland, in collaboration with the Glasgow and Clyde Valley Green Network Partnership, and with support from the Central Scotland Green Network Trust, with completion expected in 2018.

So far, the results from the preliminary testing and the stakeholders suggest that the benchmark will provide clarity to the sector and ultimately achieve its aim of raising the standard of GI.

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**Notes**

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- 2 A full account of the review of existing standards and stakeholder work in England can be found in N Smith, T Calvert, D Sinnett, S Burgess and L King: *National Benchmark for Green Infrastructure: A Feasibility Study*. University of the West of England, Aug. 2016. <http://eprints.uwe.ac.uk/29514>