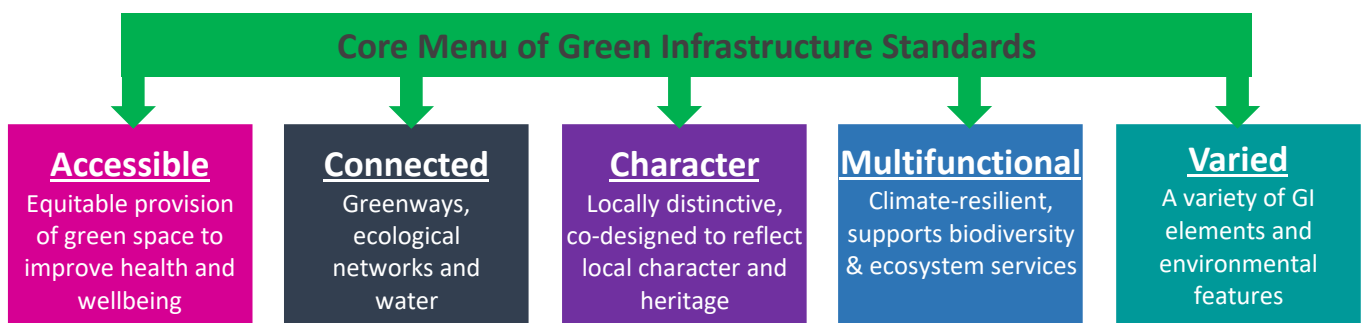


Supplementary Material

Green Infrastructure Standards for England: Core Menu

This document illustrates the proposed content of Natural England (NE)'s Core Menu of Green Infrastructure (GI) Standards. It includes brief descriptions of each standard, expected benefits, guidance on how it could be measured, underlying evidence and justification for the standard, and links for further information. Further work is required to test and refine the menu content.

The menu is structured around the five 'Descriptive' principles of what good green infrastructure (GI) looks like: Accessible, Connected, Reflecting Local Character, Multifunctional and Varied. Click on the underlined links to navigate around the standards.



Accessibility standards

Equitable provision of green space to improve health and wellbeing

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Descriptive principle

GI should create green liveable places that enable people to experience and connect with nature, and that offer everyone, wherever they live, access to good quality parks, greenspaces and recreational walking and cycling routes that are inclusive, safe, welcoming, well-managed and accessible for all.

Links to other descriptive principles: Accessibility is strongly connected to Connectivity. A connected network of greenways is important for enabling people to walk or cycle to their nearest green space, and for linking individual green spaces into longer walking or cycling routes.

Benefits

Accessibility is crucial for delivery of health and well-being benefits.

Nature rich beautiful places	No direct benefits, except that people cannot readily appreciate the beauty and nature of places that are not accessible (unless they are visible from outside the area).
Active and healthy places	There is abundant evidence that green space is correlated with physical and mental health and well-being. It is particularly important to have safe and accessible green space within walking distance.
Thriving and prosperous places	Attractive green spaces make places more attractive for businesses and visitors, and views of green space have been shown to increase house prices.
Understanding and managing the water environment	No direct links.
Resilient and climate positive places	Accessible green space can encourage more walking and cycling, helping to reduce car travel. Indirect link by improving health and thus resilience to climate stress such as heatwaves.

SDGs

Accessibility standards support the following Sustainable Development Goal targets.

3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

9.1 Develop quality, reliable, sustainable, and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

10.2 By 2030, empower and promote the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies, and action in this regard

11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated, and sustainable human settlement planning and management in all countries

11.7 By 2030, provide universal access to safe, inclusive, and accessible, green, and public spaces, for women and children, older persons, and persons with disabilities

Quality criteria from the review

- Supports mental and physical health and promotes quality of life for all
- Promotes community / social inclusion
- Provides opportunities to engage / interact with nature
- Safe, accessible, and functional for all
- Appropriate management & amenities

Links to Building for a Healthy Life

These standards will support the following criteria from Homes England's [Building for a Healthy Life](#) guidance.

- Integrated neighbourhoods: facilities and services. Places that offer social, leisure and recreational opportunities a short walk or cycle from their homes.

Menu of Accessibility standards

[Accessible Greenspace Standards \(AGS\)](#)

[Access to waterside](#)

[Access to sport and play facilities](#)

[Quality standards for access and use of green spaces](#)

[Measurement of accessibility standards](#)

Accessible Greenspace Standards (AGS)

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The Accessible Greenspace Standards (AGS) are a revision of the earlier Accessible Natural Greenspace Standards (ANGSt), an established planning tool designed to deliver sufficient access to natural greenspace for all citizens, based on available [evidence](#). Details are in Appendix 2 of Natural England's [GI Standards](#) document.

- **Doorstep:** 0.5ha green space within 200m
- **Local:** 2ha natural green space within 300m
- **Neighbourhood:** 10ha natural green space within 1km
- **Wider neighbourhood:** 20ha natural green space within 2km
- **District:** 100ha natural green space within 5km
- **Sub-Regional:** 500ha natural green space within 10km
- **Local Nature Reserve:** 1ha/1000 people, and no loss of existing sites.

Justification for Accessible Greenspace Standards

At present, 65% of people in England live within at least one of the three local AGS buffers and have access to different sizes of green space within a 15-minute walk zone. In the 200 most disadvantaged urban Lower Super Output Areas (those with the lowest levels of accessible green space combined with the highest levels of deprivation), only 3% of people have access to green space within a 15-minute walk zone. Although it can be difficult to achieve the AGS targets in dense urban areas, this shows the importance of targeting improvements in those areas with the poorest levels of access to greenspace and the highest levels of deprivation. The GI Mapping service helps to identify these areas.

Provision of Local Nature Reserves is a key part of the standard because they are located close to where people live, enabling access on a daily basis. They enable people to get close to nature, and provide places for play, exploration and outdoor learning with huge health benefits for both physical and mental health and well-being. They also offer individuals and communities opportunities for involvement at levels that suit them, whether it is watching and recording wildlife, green gym activities or events.

Access to waterside

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The National Model Design Code specifies that new developments should retain public access to waterside (Part 1, P31). Natural England has mapped Accessible Waterside on the GI Mapping Portal. This could also be presented using a metric of km accessible waterside per km².

Each local authority should set their own targets for increasing this measure if appropriate, because it is not possible to create waterside in areas with no watercourses. Higher targets will be more appropriate for areas with many watercourses. An alternative way of setting targets would be to consider the percentage of watersides that are accessible.

Accessibility of sport and play

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Standards for access to sport and play facilities can be based on those developed by Fields in Trust [Guidance for Outdoor Sport and Play](#) (Page 6).

Sport England provides further [guidance](#) on ensuring adequate provision of accessible playing pitches, not in terms of a simple walking distance but based on detailed discussions with local clubs, educational establishments, and pitch providers, including consideration of the potential to share public and privately owned facilities.

Guidance on the appropriate area of sport and play facilities to provide can be found in the [Varied GI](#) standards menu.

Quality standards for accessible green space

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Four quality standards for accessible green spaces are included.

[Green flag](#)

[Blue flag](#)

[Local Nature Reserve Visitor Service Standards](#)

[Country Park Accreditation Standards](#)

Green Flag

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The **Green Flag Award** aims to recognise and reward well managed parks and green spaces. It is managed under license from the UK Government Department for Levelling Up, Housing & Communities by Keep Britain Tidy, and there is a fee for applying for the award. The criteria for achieving the award can be found [here](#). Eligible sites must be freely accessible to the public, and include:

- Town Parks
- Country Parks
- Formal Gardens
- Nature Reserves
- Local Nature Reserves (LNR)
- Cemeteries and Crematoria
- University Campuses
- Water Parks
- Green Spaces that form part of retail and leisure destinations
- Pocket Parks
- Sites of Special Scientific Interest (SSSI)
- Hospital Grounds
- Woodlands
- Allotments
- Churchyards

A library of additional resources and guidance on managing parks can be found on the website of the **Parks Alliance**.

Blue Flag

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The **Blue Flag award** applies to beaches and marinas. It is run by Keep Britain Tidy on behalf of the Foundation for Environmental Education. Sites are assessed for safety and services, environmental management, water quality, information, and environmental education activities.

Local Nature Reserve Visitor Service Standards

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Natural England has developed a set of Visitor Service Standards for Local Nature Reserves in England, which are set out in Appendix 4 (page 28) of the **guide to LNR selection and declaration**.

The standards are divided into themes with both expected and desirable criteria. While some of the expected criteria will be difficult to deliver on small sites, they reflect the huge importance that some small sites have for communities in dense urban areas.

Country Park Accreditation standards

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Country Park Accreditation Standards are based on the following criteria:

Essential criteria:

- at least 10 hectares in size
- defined by a clear boundary – marked on a map, whether it's open or fenced in
- accessible – less than 10 miles from a residential area
- free to enter
- inclusive and accessible – show how you've met equality and disability needs and provided for varied groups
- predominantly natural or semi-natural landscape, for example woodland, grassland, wetland, heathland, or parkland, with no more than 5% of the area built upon (excluding car parks)
- signposted and easy to navigate – you should show visitors where they can go, what they can do and direct them along footpaths, bridleways, and cycle routes
- visibly staffed, for example litter collection and maintenance
- available for public or educational events
- near public toilets – either on-site or a 2-minute walk away
- informed by the local community – the public should have some influence over the management and development of your site

Desirable criteria.

- a visitor centre
- play facilities
- catering
- bike and horse trails
- art and sculpture
- permanent staff presence during the day
- detailed information available to visitors, such as leaflets
- brown and white tourist directional signs and shown on an OS map
- activities outside, such as water sports and adventure sports
- achieved, or is working towards, [Green Flag Award \(GFA\)](#) status
- a green transport policy, such as buses and cycle routes to your site
- facilities for less able visitors, such as easy trails, seats, and information available in accessible formats
- planned for the management of biodiversity, geodiversity, and preservation of historical environment
- opportunities for practical community involvement, such as volunteering
- promoted the health benefits of walking
- an outreach programme promoting your site to less represented sectors of the community
- a programme of events and guided walks, promoting healthy living and environmental awareness

Measurement of accessibility standards

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Achievement of the accessibility standards can be measured in terms of the percentage of households that achieve each standard. For the six levels of ANGSt, the [Natural England GI Mapping](#) service can be used to estimate current levels within each area. Local Authorities can then set their own targets for progressing towards the aspiration of delivering each standard. Illustrative values for a hypothetical LPA are shown below. New developments should contribute towards achievement of these targets and achieve any within their boundaries depending on size.

For Local Nature Reserves, we suggest a target of 1 ha per 1000 people. The mapping service does not yet provide information on the ha of Local Nature Reserves per 1000 people, but this information should be relatively easy to calculate.

Achievement of the quality standards could be measured as the percentage of the area of parks that achieve Green Flag, the area of beaches and waterbodies that achieve Blue Flag, etc. Local authorities could set their own targets for progressing towards their aspirational level of compliance with these standards. Illustrative figures are shown below.

Accessibility standards, showing how local authorities could set their own targets for meeting the standards		% of population covered			
		Current	5-year target	10-year target	Aspiration
Doorstep	0.5ha GS within 200m	<i>e.g., 33%</i>	<i>e.g., 50%</i>	<i>e.g., 60%</i>	100%
Local	2ha NGS within 300m	<i>etc.</i>			100%
Neighbourhood	10ha NGS within 1km				100%
Wider neighbourhood	20ha NGS within 2km				100%
District	100ha NGS within 5km				100%
Sub-Regional	500ha NGS within 10km				100%
		LNR ha / 1000 people			
Local Nature Reserve ha/ 1000 people		<i>e.g., 0.5</i>	<i>e.g., 0.7</i>	<i>e.g., 1.0</i>	1 ha
		km accessible waterside per km ²			
Access to waterside		<i>e.g., 0.6</i>	<i>e.g., 0.8</i>	<i>e.g., 1.0</i>	<i>e.g., 1.5</i>
Quality standards		% Area (ha) of parks, waterbodies, or beaches			
Green Flag		<i>e.g., 30%</i>	<i>e.g., 50%</i>	<i>e.g., 75%</i>	100%
Blue Flag		<i>etc.</i>			
Local Nature Reserve Visitor Service Standards					
Country Park Accreditation standards					

Connectivity standards

Greenways, ecological networks, and water management systems

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Descriptive principle

GI should function and connect as a living network at all scales (e.g., within sites; and across regions/ at national scale). It should enhance ecological networks and support ecosystem services, connecting GI with those who need its benefits.

Links to other descriptive principles: Connectivity has an important impact on accessibility, as greenways can connect people to their nearest greenspace and link greenspaces together to provide longer cycling and walking routes for recreation. It also supports active travel between homes, schools, workplaces, services, and amenities. It can help to deliver the [headline accessibility standard](#) of green space within a 15-minute walk and help LPAs achieve wider spatial policy ambitions such as '15-minute neighbourhoods'.

Connectivity for wildlife is essential for supporting locally characteristic species (Character) and for tackling biodiversity loss (Multi-functionality), while connectivity for water is vital for ensuring climate resilience (Multi-functionality).

Benefits

Connectivity is vital for people, wildlife, and water. GI should be connected via greenways for people to use, ecological corridors / nature recovery networks for wildlife, and treatment chains for water, linking sustainable urban drainage with natural flood management in the wider catchment. Connectivity is therefore essential for four of the benefit principles: nature, health, water management and climate resilience.

Nature rich beautiful places	Wildlife needs a network of ecological corridors linking habitat patches to enable movement for finding food, mates, and shelter, to enable dispersion to new sites as populations expand and habitats are restored, and to allow migration to more favourable climates in response to environmental change.
Active and healthy places	A connected network of attractive greenways (footpaths and cycle routes) can enable low carbon 'active travel' between destinations (home, work, school, shops, green spaces etc) or for recreation, improving personal physical and mental health while reducing the environmental impacts of car journeys.
Thriving and prosperous places	Connectivity is less obviously linked to this benefit principle, but there are indirect links via economic savings associated with improved health, cost-effective water management and climate resilience.
Understanding and managing the water environment	The fundamental principle of sustainable drainage systems is that they should be linked into a connected treatment chain, where water is collected, stored, treated, and allowed to infiltrate into the ground in a series of elements (detention basins, retention ponds, wetlands etc.) linked with channels (swales) before being released back into a watercourse when quality standards are met. Such drainage systems can also be linked into a wider system of Natural Flood Management in rural areas.
Resilient and climate positive places	As described above, connectivity is important for enabling low carbon travel options, for enabling wildlife populations to move and adapt to climate change and for sustainable management of surface water during extreme rainfall. Connected networks of green and blue space are also important for urban cooling.

SDGs

Connectivity standards support the following Sustainable Development Goal targets.

11. A Support positive economic, social, and environmental links between urban, peri-urban, and rural areas by strengthening national and regional development planning

15.1 By 2030, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains, and drylands, in line with obligations under international agreements

15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2030, protect and prevent the extinction of threatened species

15.9 By 2030, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

Quality criteria from the review

- Supports landscape connectivity and network functionality
- Supports local connections between people and the built/natural environment
- Addresses water quality, water quantity and flood mitigation.

Links to Building for a Healthy Life

These standards will support the following criteria from Homes England's [Building for a Healthy Life](#) guidance.

- Natural connections
- Green and blue infrastructure

Menu of Connectivity standards

[Quantitative standards](#)

[Best practice process checklists](#)

[Measurement of connectivity standards](#)

Quantitative standards for connectivity

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The overall aim of the connectivity standards should be to increase the size of the connected network by joining together GI patches. Patches can be joined with new green spaces or with linear features such as greenways, hedges, lines of trees or riparian vegetation. Careful design can achieve synergies with area and capacity standards, especially those for [Tree canopy cover](#) and [Natural green space](#), by adding new lines of trees, woodland strips or linear habitat corridors that link existing patches together or act as stepping stones.

Connectivity can be measured through three quantitative standards, although this will require GIS analysis.

- The **average GI patch size**, which should increase in more connected systems. A patch is a discrete area of GI that does not link physically to any other GI areas. In some cases, it could be appropriate to count patches that are within a certain buffer distance (e.g., 20 metres) as being connected, if they are, for example, only disconnected by a quiet road. However, a busy road with no crossing points is a real barrier to GI connectivity both for wildlife and people. Linking two patches together, e.g., with a new line of trees or greenway, will create a new larger patch and the average patch size will increase. However, this is not a perfect measure because adding new small patches of GI (such as Doorstep green spaces) that are not directly connected into a network will decrease the average patch size, even though GI provision is increasing overall (and the small patches could act as stepping stones).
- The **size of the largest connected patch**. This can also increase if several existing large patches are linked together with new linear GI features. Again, this is not a perfect measure because it will not detect the impact of linking together smaller patches of green space – but that would be captured by an increase in average patch size.
- The **overlap between the GI network and the Nature Recovery Network**. This can be measured either as the total area of GI network (in hectares), or the percentage, that either overlaps with or connects to the NRN.
- Natural England are working on developing a method of assessing the **number of significant breaks** in a green infrastructure network. This could be included as a standard in future.

Best practice process-based checklist for connectivity

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The three quantitative standards can be supported with a best practice process-based checklist. This is provided in three parts:

- Planning policy – setting an overarching vision for a GI network at Local Plan level.
- Enhancing the existing network – ensuring that new developments and other investments in GI contribute to enhancing the network.
- Detailed site design – best practice for new development site master planning and design.

Planning policy for connected GI

By definition a better-connected network of GI creates a whole which is more than the sum of the parts. Local Planning Authorities should ensure that spatial planning policy at all scales should aim to create an increasingly connected network of GI. Planning policy (e.g., Local Plans) should:

- Set out an aspirational connected network of GI that provides edge-to-edge (e.g., north-south and east-west) connectivity across the local plan area, linking existing green and blue spaces and linear features into corridors.
- Ensure that this network is integrated with the local Nature Recovery Network, and that it supports the Local Nature Recovery Strategy by protecting and supporting local priority species and habitats.
- Design this network to link SuDS in urban areas with Natural Flood Management and other Nature-based Solutions in the wider catchment.
- Contribute to the expansion of the existing or proposed rights of way network by linking together existing and new green spaces with new footpath and cycle routes that connect

homes, schools, businesses etc. (linking to the Active Travel Strategy), link to public transport networks and ensure that all residents have access to good quality greenspace within 15 minutes' walk from their homes (contributing to the Headline Standard on Accessibility).

Enhancing the existing network.

GI is part of the wider necessary infrastructure of towns and cities which adds value to all new development. Local planning authorities should therefore:

- Protect and enhance the existing green spaces within this network e.g., via Local Plans and Supplementary Planning Documents.
- Seek opportunities (e.g., through planning conditions, S106, CIL etc.) to invest in GI across their local plan area, deliberately linking new development to an improved wider GI network (e.g., through new greenways, street trees and green spaces that add benefits).
- Reduce the number of significant breaks in the network, to help to reduce the isolation of existing GI assets e.g., through pedestrian priority measures, and the provision of green bridges or underpasses to link the network across road and rail barriers. This would be local plan policy (alongside highways/rail design) that then informs GI design. Green bridges could be retrofitted as a consequence of new development creating additional need for access.

Detailed site design

At the site level, the design of new development should follow the best practice checklist below. This can be enforced via inclusion in a Local Plan Policy or Supplementary Planning Document.

- Lay out a connected network of GI and SuDS as the first stage of design or master planning, before the location of roads and buildings is determined, to ensure that this network is integrated with the natural hydrology, topography, and existing natural features of the site.
- Design on-site SuDS as part of a water management train that links to Natural Flood Management and other Nature-based Solutions in the wider catchment.
- Retain and enhance existing linear green and blue features, i.e., streams, hedges, lines of trees and species-rich verges, as part of the site design. These features should be provided with wide buffers (e.g., 5m of species-rich grassland either side of a hedge, watercourse, or line of trees) and should not form part of property boundaries, as that could lead to later replacement by householders (e.g., hedges being replaced with fences).
- Retain and enhance any existing rights of way with adequate green buffers (e.g., 5m) of trees, hedges and/or species-rich grassland to maintain their character as greenways.
- Ensure safe, traffic-free links from the development to the external PROW network.
- Create new accessible natural greenspaces which are no more than 600m apart (consistent with the Headline Standard of 300m to the nearest Local Natural Green Space), and which are linked into the wider GI network by greenways.
- Create and protect corridors for the movement of species, including hedgehog holes in any fences between gardens (although hedgerows would be preferable to fences), and unlit bat corridors along hedgerows, watercourses, and lines of trees.
- Provide linear GI features (lines of trees, tall hedges, or woodland strips) that act as noise and pollution barriers between homes, schools etc and busy roads. Lines of trees alongside roads can also help to reduce traffic collisions with owls.
- Protect watercourses from pollution with buffers of semi-natural grass, scrub, or trees.

Measurement of connectivity

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Connectivity standards, showing how local authorities could set their own targets	New developments	Area-wide			
		Current	5-year target	10-year target	Aspiration
Average size of GI patches (ha)	NA	<i>e.g. 20 ha</i>	<i>e.g. 25 ha</i>	<i>e.g. 35 ha</i>	<i>e.g. 50 ha</i>
Size of largest connected GI network patch (ha)	NA	<i>e.g., 120 ha</i>	<i>e.g. 200 ha</i>	<i>e.g. 250 ha</i>	<i>e.g. 300 ha</i>
Area (ha or %) of GI linked to Nature Recovery Network	100%	<i>e.g. 2000 ha</i>	<i>e.g. 3000 ha</i>	<i>e.g. 4000 ha</i>	<i>e.g. 5000 ha</i>
Number of significant breaks in network <i>(to be included in future when method is available)</i>	NA	<i>e.g. 20</i>	<i>e.g. 15</i>	<i>e.g. 10</i>	<i>e.g. 5</i>
Connectivity checklist followed on new developments?	100%	NA	NA	NA	NA
Aspirational GI network identified, and plan set up to strengthen it?	NA	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>

Justification for connectivity standards

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The Government's **25 Year Environment Plan**: "Connecting more people with the environment will promote greater well-being" (P4). "We will ensure broader landscapes are transformed by connecting habitats into larger corridors for wildlife, as recommended by Sir John Lawton in his official review" (P7).

The Government's **Nature Recovery Network** objectives are another key policy driver: 'Through our work to create the NRN, by 2042 we will recover threatened and iconic animal and plant species by providing more, diverse and better **connected** habitats'.

National Design Guide: Public rights of way are protected, enhanced and well-linked into the wider network of pedestrian and cycle routes (para 82).

National Model Design Code: Integrate sustainable drainage systems into the early stages of design (Part 1, p31). leave a sufficient buffer zone to allow for watercourses and banks to be maintained and for current and potential future flood defences.

SuDS need to be considered early in the design process to ensure ease of access for maintenance and efficient use of land by integrating them with other aspects of design such as public open space, biodiversity provision, and highways (Part 2, p23). See also the CIRIA **SuDS Manual**.

Opportunities to create walking and cycling routes along watercourses where appropriate need to be encouraged. Opening culverts, reinstating meanders, and restoring and naturalising river beds and banks can benefit wildlife and improve public access and flood attenuation (Part 2, p22).

Dwellings should have a public transport stop within walking distance, defined as being approximately 10 minutes to a railway or tram stop, or 5 minutes to a bus stop. The route should be pleasant and include green space (Part 2, p8).

Ecological network: Masterplans should create an interconnected ecological network that encompasses everything from doorstep spaces and private gardens to the surrounding countryside (Part 2, p26).

Coordinating tree planting with utilities providers and service ducts early in the lifetime of a scheme can ensure that trees do not interfere with underground services (Part 2, p27).

Regarding the need for unlit bat corridors: Lighting needs to be considered for well-used footpaths and games areas but should avoid light spillage that causes nuisance and harms wildlife. (Part 2, p21).

Good practice examples

- The Glasgow City Region's Green Network is planned to deliver both a Strategic Access Network and a Strategic Habitat Network. It identifies existing Green Network assets that should be protected and managed, where there are gaps in the networks and opportunities to address those gaps. This is illustrated with three metrics: **number of habitat patches, average patch size, and size of the largest patch**. They found that 1% more habitat could deliver a 40% larger network, by connecting patches together strategically.
- The Cambridge Nature Network aims to enlarge and link the remaining fragments of high-quality wildlife habitats with nature-friendly farmland and wildlife-rich towns and villages. The Cambridgeshire policy goal of Doubling Nature would require an additional 514 hectares to double the size of the seven nature parks within the Cambridge sub-region. However, a coherent and functioning ecological network requires 30% of land to be dedicated to nature, equivalent to 1500 ha. Opportunities for the creation of 1,552 ha of priority habitats have been mapped and identified in discussion with environmental charities, farmers, colleges, and other landowners.
- The planned GI strategy for Phase 2 of North-west Bicester Eco-town retains all the hedgerows on the site and builds them into two connected 'green loops', buffered with wide margins of species-rich grassland, with footpaths, cycle paths and/or bat corridors running alongside. Existing watercourses are integrated into a connected SuDS system.

Character standards

Locally distinctive, co-designed to reflect local character and heritage

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Descriptive principle

GI should respond to an area's character so that it contributes to the conservation, enhancement and/or restoration of landscapes; or, in degraded areas, creates new high-quality landscapes to which local people feel connected.

Links to other descriptive principles: Multifunctional GI can be designed to support local character and heritage as well as delivering other functions.

Benefits

Nature rich beautiful places	Protecting and enhancing locally distinctive habitats and species is vital for creating nature-rich and beautiful places as well as for supporting local character and natural heritage.
Active and healthy places	Green spaces that respond to local character and cultural heritage can provide more attractive and interesting spaces for recreation and leisure and can help to foster a sense of place and belonging that supports mental health.
Thriving and prosperous places	Green spaces that respond to local character and cultural heritage can support a sense of community identity and provide opportunities for education and social interaction, as well as enhancing businesses such as tourism, local food production and hospitality.
Understanding and managing the water environment	No direct links
Resilient and climate positive places	Supporting local habitats and species can help them to adapt to the impacts of climate change. In turn, these species and habitats could help to support ecosystem services for climate mitigation and adaptation.

SDGs

Character standards support the following Sustainable Development Goal targets.

8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products

11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage

12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

12. B Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products

16.7 Ensure responsive, inclusive, participatory, and representative decision-making at all levels

17.17 Encourage and promote effective public, public-private, and civil society partnerships, building on the experience and resourcing strategies of partnerships

Quality criteria from the review

- Promotes Quality of Place via distinctive locations that support a sense of place/attachment for diverse communities
- Respects cultural differences in use
- Responsive to local environmental/ urban context

Links to Building for a Healthy Life

These standards will support the following criteria from Homes England's **Building for a Healthy Life** guidance.

Making the most of what's there:

- Using existing assets as anchor features, such as mature trees and other existing features.
- Protecting and enhancing existing habitats; creating new habitats.

Menu of Character standards

Although there are no existing quantity or quality standards aimed at character, the menu provides a checklist of best practice process guidance which is particularly important for ensuring that GI delivers local character.

Co-design GI with local communities

Support local priority species & habitats

Respect Local and National Character Areas & Landscape Character

Incorporate cultural heritage

Protect existing features

Measurement of Character standards

Justification for Character standards

Co-design GI with local communities

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Back to character menu

Co-designing GI with local communities will ensure that local features that have particular value to the community can be identified, protected and enhanced. Local knowledge, culture and history can be used to help design new features and spaces that celebrate local identity, such as outdoor sculptures or murals, heritage trails and interpretative signage. Close consultation with local communities also helps to ensure that new GI meets their needs, thus optimising the benefits of GI for local health, wellbeing, and economies. Local GI should be designed through genuine collaboration rather than a shallow 'box-ticking' consultation exercise to seek approval once the GI plan has already been determined. This can align with 'place-making' approaches that many local and neighbourhood plan authorities undertake, and can be integrated into statutory Neighbourhood Development Plans to reflect local character through GI designations. The engagement process can also contribute to Local Nature Reserve designations. Working with local people will help to ensure community support and buy-in for the GI, and it is more likely that local people will help to protect and maintain it.

For guidance, see **Community engagement: guidance for local authorities**, Ministry of Housing, Communities and Local Government, 2019 (note, this guidance is currently out of date but a new version is expected soon).

Support local priority species & habitats

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Local priority species and habitats contribute to the local distinctiveness of an area, and its culture and heritage. Supporting these species and habitats can thus enhance local character as well as being vital for nature recovery. As well as helping local people to feel more connected to nature, these distinctive habitats and species can attract visitors to the area and sustain eco-tourism.

Lists of **Priority species** and **Priority habitats** for the UK are provided on the JNCC website. The **Local Environmental Record Centre** for each area will maintain a list of local priority species and

habitats. Actions to protect and enhance the most important priority species and habitats will also be identified as part of the [Local Nature Recovery Strategy](#).

Specific guidance for particular species and habitats includes:

- [Buglife habitat management](#): advice on maintaining 32 priority habitats to benefit invertebrates, which in turn will sustain birds, bats, and small mammals.
- [Woodland Wildlife Toolkit](#): factsheets on how to maintain woodlands to support selected woodland species.
- [Flora Locale Library](#): a library of resources on how to use locally appropriate species in planting schemes. In particular, see the [Code of Practice](#) for collectors, growers and suppliers of native flora, and the [Advisory note](#) on selecting and buying the most appropriate local plants and seeds.

Respect Local and National Character Areas and Landscape Character

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England has been divided into [National Character Areas](#), which define the typical landscapes of each area. The boundaries of these areas follow landscape features rather than conventional administrative areas. In addition, many Local Authorities have defined more detailed Local Character Areas, profiles for which are typically available on Local Authority websites. It is good practice to take account of these character profiles when planning GI or new developments. However, it is also important to bear in mind that these descriptions of current landscape profiles are not intended to be set in stone. Some existing landscapes may be degraded, and there may be opportunities for sensitive enhancement of landscapes in ways that enhance biodiversity and character, e.g., by planting more woodlands, urban trees or hedgerows in areas that have become denuded of trees over the years. Most of the profiles will contain lists of recommendations for suitable landscape improvements.

The Landscape Institute has recently launched a project to create the first comprehensive, accessible [landscape character database](#) for the UK and Ireland, and this could provide a useful additional resource in future.

Incorporate cultural heritage

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Local cultural and historic heritage can be incorporated in GI, e.g., through including outdoor artworks, old industrial machinery, or ruined buildings into green space, or by providing heritage trails and interpretation signs. This can greatly add to the sense of local identity. [Co-designing green spaces with local people](#) and consulting local history groups can help to provide inspiration for this type of action.

Any site that has achieved the [Green Flag Award](#) can also apply for [Green Heritage Site Accreditation](#) if it is of local or national historic interest, or contains features of historic interest.

Protect existing features

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Existing features such as mature trees, hedgerows, semi-natural grasslands, ponds, or wetlands provide local character and distinctiveness and support local species to a far greater extent than newly planted or created features. For example, ancient or veteran trees covered in ivy typically provide ample hollows, crevices and flaking bark that can provide shelter and nest sites for many small birds, bees, bats, and butterflies, as well as providing a sense of place for local people. These features contribute to its exceptional biodiversity, cultural and heritage value. It can take over a hundred years to replace a veteran tree (depending on species), so it is vital to protect these existing assets from damage or destruction.

This is recognised in the **National Model Design Code** (Part 2, p4): Landscape and ecology: Natural features and habitats such as trees, hedgerows, and other mature vegetation contributes to a sense of place and needs to be retained and enhanced. Water: Ponds, lakes and watercourses can be incorporated as natural features including to possibly open-up and naturalise watercourses. P26: Existing features: Natural assets such as trees, woodlands, hedges, wetland areas and other natural features need to be retained and enhanced where possible.

Measurement of character

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Character standards, showing how local authorities could set their own targets	New developments (% compliant)	Area-wide			
		Current	5-year target	10-year target	Aspiration
% of public green spaces involving local communities in design and/or management ¹	100%	e.g., 5%	e.g., 25%	e.g., 50%	100%
% of development sites where priority species and habitats are protected and enhanced in line with Local Nature Recovery Strategy	100%	NA			
GI strategy is integrated with Local Nature Recovery Strategy and aims to protect and enhance local priority species and habitats	NA	e.g., NO	YES	YES	YES
Respect Local and National Character Areas in planning policy, new developments, and during changes to existing green spaces or creation of new ones. ²	100%	e.g., YES	YES	YES	YES
% of new developments where a Landscape Character Assessment is carried out	100%	NA			
% of green spaces that incorporate cultural heritage in new developments and existing areas ³	e.g., 50%	e.g., 5%	e.g., 10%	e.g., 25%	e.g., 50%

% of new developments where existing features are protected and incorporated into the design	100%	NA
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Notes:

1. For new developments, although it will not be possible to consult the eventual occupants, any neighbouring communities could be consulted over the design of any green spaces that will be accessible to them. Governance of new developments can also be set up so that a resident's group can be involved in managing the green spaces. For existing areas, this target can record the percentage of green spaces (such as parks, allotments etc.) where local communities have a say in management, e.g., via a 'Friends of...' group, and/or where local communities are able to co-design any major refurbishments of existing green spaces and creation of any new green spaces.
2. For new developments, this refers to the % of new developments where Local and National Character Areas are considered during the design of the development and its green spaces. For existing areas, this refers to including a specific reference to Local and National Character Areas in the GI Strategy and ensuring that this is considered during creation of any new GI and management of existing GI.
3. It may not always be necessary or appropriate to explicitly incorporate cultural heritage into green spaces, so we do not specify an aspirational target of 100%. We suggest that LPAs can set their own aspirational target.

Justification for character standards

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National Design Guide. Start by considering context and identity. This includes landscape, nature, wildlife, and water (para 53) and using local landscape or topographical features or planting types.

National Model Design Code: Natural assets such as ancient woodlands, designated sites, mature trees, and protected species should be protected and enhanced in the design of the schemes. Priority habitats and priority species should also be considered within the design process (Part 2, p25).

Multi-functionality standards

Climate-resilient, supports biodiversity and ecosystem services

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Descriptive principle

GI should deliver a range of functions and benefits for people, nature, and places, to meet their needs. Multi-functionality (delivering multiple functions from the same area of GI) is especially important in areas where GI provision is limited.

Links to other descriptive principles: Multifunctional GI can deliver accessible green space that supports local character at the same time as delivering other functions.

Benefits

Nature rich beautiful places	Multifunctional green infrastructure can deliver benefits for biodiversity and aesthetic value as well as other services.
Active and healthy places	Multifunctional green infrastructure can provide green and blue spaces for amenity and recreation as well as for other functions.
Thriving and prosperous places	By delivering multiple services and benefits from the same land and water, multifunctional green infrastructure can save money.
Understanding and managing the water environment	Multifunctional green infrastructure includes Sustainable Drainage Systems that can provide flood protection, enhance water quality, and encourage water to infiltrate into the ground and recharge groundwater supplies.
Resilient and climate positive places	Multifunctional green infrastructure can simultaneously store and sequester carbon, provide cooling and shading and reduce flooding.

SDGs

Multi-functionality standards support the following Sustainable Development Goal targets.

1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social, and environmental shocks and disasters

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping, and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally

6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

6.6 By 2030, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes

9.1 Develop quality, reliable, sustainable, and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

11. B By 2030, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

13.2 Integrate climate change measures into national policies, strategies and planning

14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

14.2 By 2030, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

15.1 By 2030, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2030, protect and prevent the extinction of threatened species

15.8 By 2030, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species

15.9 By 2030, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

15. A Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems

Quality criteria from the review

- Supports habitat creation
- Addresses pollution, water quantity, flood mitigation, climate change adaptation and mitigation
- Decreases the costs of climate damage
- Supports prosperous economies via housing uplift

Links to Building for a Healthy Life

These standards will support the following criteria from Homes England's [Building for a Healthy Life](#) guidance.

- Homes for everyone; Healthy streets
- Landscape layers that add sensory richness to a place – visual, scent and sound.

Menu of Multi-functionality standards

Biodiversity is a key aspect of multi-functionality. This can be assessed at a basic level using the Biodiversity Metric 3.1, which is now mandatory for new developments. This can be accompanied by the Environmental Benefits from Nature (EBN) Tool, which is designed for exploring the impacts of BNG projects on 18 different ecosystem services.

Quality standards are particularly important for ensuring multi-functionality. For example, high quality SuDS and Green Roofs (using existing standards) can deliver multiple services. The menu also includes quality standards for all the main types of natural habitats: grassland, trees, hedgerows, scrub and water.

[Biodiversity Net Gain \(BNG\)](#)

[Environmental Benefits from Nature \(EBN\) Tool](#)

[Water quality standards](#)

[SuDS Technical Standards](#)

[Green Roof Organisation \(GRO\) Code Standards](#)

[Grassland and verges](#)

[Trees and woodland](#)

[Hedgerows](#)

[Scrub, shrubland, heathland and brownfield sites](#)

[Allotments, community orchards and community farms](#)

[Soils](#)

[Building with Nature](#)

[Measurement of multi-functionality standards](#)

[Justification for multi-functionality standards](#)

Biodiversity Net Gain

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The Environment Act (2021) mandates a minimum 10% Biodiversity Net Gain (BNG) from all new development covered by planning policy (Town and Country Planning Act development from November 2023 and Nationally Significant Infrastructure Projects likely from late 2025). The gain should be calculated using an approved biodiversity metric such as the one provided by Defra / Natural England (current version [Biodiversity Metric 3.1](#)) which takes a habitat based approach to determining a proxy biodiversity value for the baseline (before intervention) and the change in biodiversity value after a planned development. A [Small Sites Metric](#) is available for sites that do not meet the criteria to be considered as 'major development'.

It is vital that the [Good Practice Principles](#) are followed when designing and implementing Biodiversity Net Gain projects. In particular, the mitigation hierarchy must always be followed: loss

of biodiversity must be avoided wherever possible, then reduced (mitigated) as far as possible, and compensation ('offsetting') of losses with new habitat created elsewhere should take place only as a last resort. Irreplaceable habitats may not be compensated through BNG, but if they are lost they must have a bespoke compensatory package. Protection and integration of existing features in new developments is also a key part of the standards for ensuring GI Connectivity and Character.

There is now a **British Standard for Biodiversity Net Gain** (BS 8683:2021, Process for designing and implementing Biodiversity Net Gain), which builds on the Good Practice Principles.

The National Model Design Code (Part 1) states that "All schemes will be expected to follow national policy by achieving a minimum 10% net gain in biodiversity". Part 2 lists guidance on Biodiversity Design (p26):

- Planting: To provide nectar, nuts, seeds, native vegetation and berries along with trees and shrubs, logs and stones. Native plant and tree species are generally, but not always, better for wildlife.
- Creating habitats: Strategies need to be considered for creating natural habitats, for example, through use of trees, wildflowers and ponds as well as bat and bird boxes, bee and bird bricks and hedgehog highways.
- Enhancing Habitats: Management of native planting, foraging grounds for bats, feeding grounds and wetlands for birds and forest floor habitats.
- Ecological niches: Can create a range of ecological conditions from woodland transition zones to wetland areas and open grassland
- Existing features: Natural assets such as trees, woodlands, hedges, wetland areas and other natural features need to be retained and enhanced where possible.
- Mosaics: A range of elements and structures as small patches of bare ground, tall flower-rich vegetation, or scattered trees and scrub to support a range of species and their life-cycles.
- Trees and hedgerows: These should be incorporated into public realm and other open spaces as well as private development where appropriate.
- SuDS and rain gardens: These can be designed to provide benefits to nature by including planting and habitat niches.
- Ecological network: Masterplans should create an interconnected ecological network that encompasses everything from doorstep spaces and private gardens to the surrounding countryside.
- Green roofs & walls: Green facades provide nesting opportunities and food for bees. Habitats can also be created on roofs and are especially beneficial for birds and insects.

Natural England's evidence review **NEER015** found links between greater species richness and /or diversity in local greenspaces and more positive wellbeing and quality of life outcomes.

Environmental Benefits from Nature (EBN) Tool

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The **EBN Tool** is designed to be used alongside the Biodiversity Metric, to assess the wider benefits for people from implementing a Biodiversity Net Gain project. It is a spreadsheet tool that indicates the changes (gains or losses) in 18 Ecosystem Services following land-use change. The user enters habitat types and areas before and after the intervention, together with up to 40 indicators of habitat

condition and location (such as tree size, canopy cover, nature designations and public accessibility). The ecosystem services assessed are:

- Four provisioning services: Food, water, fish, and wood.
- Nine regulating services: flood regulation, erosion protection, water quality regulation, carbon storage, air quality regulation, cooling and shading, noise reduction, pollination, and natural pest control.
- Five cultural services: recreation, aesthetic value (natural beauty), education about nature, interaction with nature, and sense of place.

The EBN Tool is specifically designed for assessing the multi-functionality of GI. By indicating the likely direction and magnitude of change in these 18 services, it encourages users to consider synergies and trade-offs, and to optimise the design of the development to deliver better services for people.

The tool includes consideration of whether habitats are in the optimum place to deliver a service. This applies to six services: flood protection, erosion protection, water quality regulation, air quality regulation, cooling and shading, and noise reduction. For example, it asks the user to indicate whether a trees or hedgerows are in a suitable location to provide a noise or air pollution barrier between a busy road and a residential building or school, or whether trees are in a suitable location to provide shade to a building.

Water quality standards

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Water quality in England is still governed by the [Water Framework Directive](#) (WFD), which mandates the preparation of River Basin Management Plans aimed at achieving Good ecological and chemical status for all waterbodies in England. Despite this, most waterbodies do not achieve this standard, for a variety of reasons including pollution from agricultural runoff, runoff from roads and car parks, discharges of treated or untreated sewage from water treatment plants, industrial discharges, and physical modifications such as channel straightening, culverting, and barriers such as dams and weirs. The [Catchment Data Explorer](#) can be used to explore the status of local waterbodies and the reasons for not achieving Good status.

Although prevention of pollution at source is crucial, GI planning can also play an important part in improving water quality through nature-based solutions. SuDS can play a key role. By capturing and storing surface runoff, SuDS can prevent large quantities of surface runoff from overwhelming combined sewer systems during heavy rain, which can lead to discharges of untreated sewage into watercourses. In addition, SuDS can filter out pollution in raingardens or constructed wetlands, or by allowing water to infiltrate naturally into the ground. The [SuDS Manual](#) provides detailed guidance on design. See also the section on [SuDS Technical Standards](#).

Riparian buffer strips of rough grassland, shrubs or trees located alongside waterbodies can also intercept polluted runoff from roads or fields and stop it from entering the water.

SuDS technical standards

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Technical standards are particularly important to ensure that SuDS deliver multi-functional benefits. Well-designed SuDS consist of a treatment chain of detention basins, retention ponds, raingardens

and wetlands, connected with open, vegetated channels ('bioswales'), and complemented through source attenuation features such as green walls and roofs, urban parks and trees, which reduce runoff at source. These systems not only reduce flooding and treat water quality, but they can also provide attractive amenity space for use by local people, and support biodiversity. However, the current (2015) **non-statutory technical standards** only focus on the volume of water attenuated. As a result, SuDS systems provided by developers often consist mainly of a large underground pipe and storage tank, which can store runoff and prevent flooding, but which have no benefit for water quality, amenity, or biodiversity. The standards are currently being revised for Defra, and it is strongly recommended that the **proposed new standards** are followed, which call for the use of open, vegetated, multifunctional SuDS. The **SuDS Manual** provides detailed guidance on design.

Benefits for biodiversity can be maximised through choosing a diverse mix of locally appropriate native species for planting, avoiding barriers in the waterbodies, and ensuring that the banks of SuDS features have shallow slopes to allow small mammals to safely access the water.

Benefits for amenity can be maximised by ensuring that the SuDS features are shallow and that banks are gently sloping (not steep), so that the features are safe and do not have to be fenced off to prevent public access. Attractive design and the provision of benches and natural play features also contributes to the amenity value.

The National Model Design Code also provides guidance (Part 2, p23): Multi-functional SuDS need to be prioritised allowing for attenuation features which can also be used for biodiversity and recreation. SuDS should be designed to reduce the rate of rainwater run-off from new development, mitigating the risk of flooding elsewhere whilst delivering benefits for biodiversity, water quality and amenity. Ideally water needs to be captured for use on site for irrigation and non-potable uses. Where this is not possible schemes need to allow water to infiltrate into the ground in a way that mimics natural drainage. If infiltration is not desirable because the ground is contaminated, water should be attenuated for gradual release to a water body. The aim is to avoid the need to discharge water into a water sewer or highway drain, and especially to avoid release into a combined sewer, which often causes discharge of (and/or flooding of properties with) untreated sewage during heavy rain.

SuDS designed into highway provision can provide dual use benefits when integrated with street tree provision. Green roofs and walls hold and attenuate water run-off as well as providing ecological and leisure benefits. Topography can be used to create wetlands that provide attenuation capacity as well as filtering out pollutants and providing habitat for wildlife. Raingardens planted with native plants can release water gradually and filter out pollution.

Measures using green/infiltration SuDS that improve water quality and create habitats should be included where possible (Part 2, p25).

Guidance on specific SuDS features is provided below, adapted from the **Urban Greening Factor (UGF)** manual.

Wetlands and semi-natural open water

Ponds and wetland habitats that provide areas of open water for at least six months a year support attenuation and the natural treatment of surface water runoff. Design, establishment and long-term management should take account detailed guidance in the **SuDS Manual** Chapter 23 (Ciria/2015) and the recommendations to update Non-Statutory Technical Standards for SuDS, in particular Standard 6: Biodiversity (Defra/2021). Maintenance should also take account of BS 7370-Part 5:1998 Grounds Maintenance - Recommendations for the maintenance of water areas.

Rain gardens, attenuation basins and bioswales

Bio-retention features that capture and retain water and are deliberately vegetated to increase habitat and biodiversity value include rain gardens, detention basins (shallow planted depressions) and planted bioswales (shallow vegetated channels). Design, establishment, and long-term management should take account of detailed guidance in the [SuDS Manual](#) Chapter 17 - Swales, Chapter 18 - Bio-retention systems and Chapter 22 - Detention basins (Ciria/2015). Proposals should also take account of the recommendations to update Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS) and in particular Standard 6: Biodiversity (Defra/2021). In contrast, swales and basins that are not vegetated will have little value for biodiversity, amenity, and water quality, and receive a lower score in the UGF.

Permeable paving

Porous paving, footpath and road surfaces contribute to SuDS by allowing surface water runoff to infiltrate and percolate through the base and sub-base layers. Materials include reinforced grass systems, bound and unbound gravels, aggregates, recycled materials and other porous paving materials.

Green Roof Organisation (GRO) Code Standards

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Well-designed green roofs and walls have multiple benefits: they absorb rainwater, reducing surface flooding; they insulate buildings, keeping them cooler in summer and warmer in winter; they are attractive; and they can provide habitat for urban wildlife, especially invertebrates and birds. However, these benefits will only be guaranteed if they are designed and installed to meet the Green Roof Organisation (GRO) standards for Biodiverse Green Roofs or Biosolar roofs or, depending on the planting, Intensive green roofs, with a thick substrate and a mix of native plants. In contrast, many green roofs consist of thin sedum matting which is simply rolled onto a roof. These are cheap and quick to install, but they provide little benefit for insulation, water attenuation or biodiversity, and may not survive the first hot, dry summer.

Guidance on green roofs and walls is provided below, adapted from the **Urban Greening Factor (UGF)** manual.

Intensive green roof. An Intensive and high maintenance Green Roof constructed with a deep growing substrate at least 150mm and up to 1000mm in depth supporting a broad range of vegetation including lawns, shrubs, hedges, and tree planting providing recreation and amenity space. These roofs may also combine qualities of a blue roof for temporary water attenuation. Design and management should meet the GRO Green Roof Code (GRO/2021, para 2.2.4) for Intensive Green Roofs and where appropriate blue roof technical guidance (GRO/2021, para 2.2.5 and National Federation of Roofing Contractors [Technical Guidance Note for the construction and design of Blue Roofs](#) (2017).

Extensive biodiverse green roof. A relatively low maintenance green roof, or bio-solar roof (a green roof including photovoltaic panels), constructed with a growing substrate between 100mm and 150mm in depth supporting a variety of low and medium height plants (sown as seed or planted as plug plants) including sedums and meadow flowers to support pollinating insects. Additional natural features and habitats (such as dead wood, water features, rocks, and stones) should be incorporated to encourage insect populations and bird life. These roofs may provide limited public access and the design and management should meet the GRO Green Roof Code (GRO/2021, para 2.2.2 and 2.2.3) for Extensive Wild and Meadow Flower Roofs or Biodiverse Roofs.

Green walls. Green façades with climbing plants rooted in soil supported by cables, or modular living wall structures incorporating a growing substrate, planting and irrigation system. Maintenance requirements vary and living walls require regular monitoring to ensure there is adequate water and nutrient supply to support plant growth. Design and management should take account of the [National Building Specification's guide to façade greening](#) (NBS / 2015) and current fire safety regulations for green walls that place limits their height.

Grassland and verge standards

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Multi-functionality can be improved by, wherever possible, replacing intensively managed short-mown amenity grassland with species-rich grassland (wildflower meadows) and long and/or tussocky grasses. This can be done in parks, around the edges of playing fields, in institutional grounds, in business parks, on road or path verges, on roundabouts and alongside watercourses or hedges. In areas shaded by trees, woodland floor or woodland edge plants can be introduced.

Species-rich grassland will provide vital habitat for wildlife. The flowers will support bees and other pollinators, as well as butterflies and moths, while the structural diversity of tall and short herbs and grasses will provide homes for a vast range of other invertebrates, small mammals, reptiles and (if close to water) amphibians. In turn, this will support a range of bats and birds that feed on insects, as well as larger birds such as owls and birds of prey that target small mammals. A diverse mix of native flowering plants will also provide visual interest, a sense of place and a feeling of connection to nature, as well as often being cheaper to maintain (once established). In addition, these less intensively managed areas are likely to have less compacted soil and a denser sward, so that water will infiltrate more easily, helping to reduce surface runoff and recharge groundwater supplies. Not using fertilisers or herbicides will save money and reduce impacts on biodiversity and water quality.

Plantlife's [Managing Grassland Road Verges](#) is the best practice guide on improving biodiversity for flowering plants and pollinators on verges, and many of the principles are also applicable to other grassland areas. It stresses the importance of first assessing the existing flora to inform the most appropriate management approach, especially on verges as they are home to 45% of our native wildflower species. If a seed bank is present, allowing native flora to re-establish is the preferred option. If a seed mix is used it should ideally be a mix of native species local to the area. See the [Flora Locale Library](#), especially the [Code of Practice](#) for collectors, growers and suppliers of native flora, and the [Advisory note](#) on selecting and buying the most appropriate local plants and seeds. Fertile topsoils should not be imported; low-nutrient substrates or subsoils are preferred.

Correct management is vital. Species-rich grasslands and verges should be mown little and late, ideally just once in late September or October when seed has set and fallen, and possibly once in February or March. Cuttings should be removed to reduce soil fertility, which will reduce competition from grass and increase wildflower diversity. Ideally these should be left on site in habitat piles, so that any insect eggs and larvae can fall to the ground and continue their lifecycles, but alternatively these can be composted or used to produce energy or biochar (a soil improver that sequesters carbon). Some areas (10-20% of the area) should be left with long tussocky grasses over winter, to shelter small mammals, invertebrates, reptiles and amphibians. These refuge areas can be mown on rotation every few years.

Buglife also provide helpful guidance on:

- [managing urban areas for pollinators](#)

- [managing road verges for pollinators](#)
- [managing wildflower rich grasslands for insects](#)
- and managing [lowland meadows](#).

These publications all emphasise the importance of maintaining structural diversity (a mix of long and tall flowers, grasses, shrubs and dead wood) and leaving refuges that are mown every few years on rotation (i.e. not all mown at once).

It is essential that all contractors involved in management understand the required mowing regime. Cutting meadows and verges too early or too often will have a devastating impact on the wildlife that depends on them and will prevent regeneration of the flora.

In larger areas such as country parks, it might be possible to manage grasslands through low intensity grazing by cattle (and wild grazers such as deer and rabbits). This is the ideal solution for biodiversity because as well as avoiding direct mortality of invertebrates, reptiles, amphibians and small mammals during mowing, it does not remove the entire nectar and pollen resource (and invertebrate eggs and larvae) in one go. Where qualified volunteers are available (e.g. from a local wildlife group), scything is also an option for small areas of particular interest.

It is vital to engage local residents and other users of the area, to explain the purpose of the management and address any concerns, e.g. via signs, media articles and school visits. Some residents may complain that natural grassland areas look messy, especially after flowering but before mowing. It can be helpful to mow a strip about 1m wide around the edge of the area (or along the edge of a verge), and mow paths through larger areas (especially along desire lines) so that the area looks cared for.

Interaction with other standards: To maintain a varied mix of GI and support nature recovery, it is vital to deliver a range of habitats including grassland, heathland, wetland, shrubland and woodland, selecting the right habitat for the right place, and taking into account the relative scarcity of each type of habitat in the area (compared to its ecological suitability). Habitat mosaics are particularly valuable, such as margins of shrubs and long grasses around the edge of shorter flower-rich grassland or verges, or scattered trees and shrubs within species-rich meadows. In line with the UK Forestry Standard, trees should not be planted on existing species-rich grassland or wetland.

Measurement: Area and/or percentage of grassland and length of verges that is managed for nature according to Plantlife and Buglife guidance (mown twice a year in Feb-March and Sept-Oct, with 10-20% of the area left as wildlife refuges mown every 2-3 years on rotation, and 10% shrub cover).

Tree and woodland standards

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Trees and woodlands are highly multifunctional, as they can deliver carbon storage and sequestration, flood protection, biodiversity, aesthetic beauty, sense of place, and opportunities for people to interact with and learn from nature. To deliver these benefits and ensure the long-term health of the trees, it is vital to select the right trees for the right places. Professional arboricultural advice is essential. Tree planting in urban areas, especially on highways, requires forethought and, an understanding of the requirements of the tree and how its growth will impact on the surrounding built infrastructure, including paving and kerb edging. The future growth and maintenance of the tree should be factored into decisions on species and location. With sound arboricultural advice, urban trees may be planted directly into the available soil/substrate in highways and other areas. In

specialized situations where space and funding permits, trees may be planted in connected crates or raft systems using structural growing media to minimise the risk of soil compaction affecting the tree roots. The minimum soil volume should be equivalent to at least two thirds of the projected canopy area of the mature tree.

A variety of standards and guidance documents exist to help ensure that multi-functional benefits can be delivered.

The development of a **Tree and Woodland Strategy** is a key overarching standard, together with a tree survey, e.g., using iTree-Eco or iTree-Canopy.

The National Model Design Code encourages careful positioning to allow space for the mature tree without causing obstruction or interfering with property, infrastructure, street lighting or junction sightlines. This can be on median strips, verges or interspersed with parking bays but only on pavements where the mature tree will not block access (Part 2, p26). Care is needed in heavily trafficked areas to avoid the compaction of the soil around the tree. Guidance on tree planting, pits, guards, and other technical specifications are widely available and have a significant impact on the tree's survival prospects (Part 2, p27).

The **Trees and Design Action Group (TDAG)** has developed a suite of practical guides which are widely used, especially:

- **Trees, Planning and Development, A Guide for Delivery** (2021).
- **Trees in Hard Landscapes Guide** (2014)
- **Tree Species Selection for Green Infrastructure: A Guide for Specifiers** (2019)

There are also several **British Standards**:

- BS 8545:2014 - Trees: from nursery to independence in the landscape.
- BS 3998 2010 - Tree work.
- BS 5837:2012 - Trees in relation to design, demolition and construction.

The **Urban Tree Manual** (The Right Tree in the Right Place for a Resilient Future) has been developed by the Forestry Commission and Forest Research to provide advice on selecting and procuring the right tree for the right place in urban areas. It also highlights long term issues of the threats to existing trees from pests, disease, and climate change, and describes the benefits to the environment and for well-being that urban trees can provide. It emphasises the importance of choosing native species to support biodiversity.

The **Forestry Commission** has also produced **Operations Note 051 Highway Tree Management**, which contains examples of good practice tree and highway management for street trees.

Ancient tree and woodland buffers

The joint Natural England and Forestry Commission Standing Advice provides guidance on protecting ancient trees and woodlands and ancient and veteran trees from the adverse impacts of new developments (**Ancient woodland, ancient trees and veteran trees: advice for making planning decisions**). Buffer zones can protect ancient woodland and trees and provide valuable habitat for woodland wildlife, such as bats and birds.

- For ancient woodlands, there should be a buffer zone of at least 15 metres from the boundary of the woodland to avoid root damage (the root protection area), or larger if other impacts (such as air pollution) are likely to extend beyond this distance.
- For ancient or veteran trees (including those on the woodland boundary), the buffer zone should be at least 15 times larger than the diameter of the tree trunk, or 5 metres from the edge of the tree's canopy if that area is larger.

Where possible, a buffer zone should contribute to wider ecological networks and be part of the green infrastructure of the area. It should consist of semi-natural habitats such as woodland or a mix of scrub, grassland, heathland, and wetland, using local and appropriate native species. Public access can be allowed only if the buffer zone habitat is not harmed by trampling.

See also the Woodland Trust guide to [Ancient trees and development](#), which sets out good practice for protecting and incorporating ancient trees within new developments.

The [UK Forestry Standard](#) is the UK standard for sustainable forestry management, setting out the legal requirements as well as best practice requirements across a range of topics many of which are relevant to green infrastructure, particularly the 'People' and 'Climate Change' chapters.

For advice on managing woodlands for specific species, see the [Woodland Wildlife Toolkit](#), [Woodland management for bats](#) and [Woodland management for dormice](#). These guides emphasise the importance of encouraging a good understorey of native shrubs in the woodland, to provide food and shelter for wildlife such as birds, butterflies, and small mammals.

Interaction with other standards: To maintain a varied mix of GI and support nature recovery, it is vital to deliver a range of habitats including grassland, heathland, wetland, shrubland and woodland, selecting the right habitat for the right place, and taking into account the relative scarcity of each type of habitat in the area (compared to its ecological suitability). For example, floodplains and other damp areas offer an opportunity to restore a mosaic of scarce wetland habitats and floodplain meadows, including small patches of wet woodland such as alder and willow carr. Habitat mosaics are particularly valuable, such as margins of shrubs, long grasses, and shorter flower-rich grassland around the edges of woodlands, scattered large trees within species-rich meadows, or a mix of closed canopy and more open woodland with glades and rides. In line with the UK Forestry Standard, trees should not be planted on existing species-rich grassland, heathland, or wetland or on peaty soil.

Hedgerow standards

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Hedgerows can provide the same wide range of functions and benefits as trees and woodlands, including carbon storage, flood and erosion protection, landscape value, and excellent wildlife habitat. They also play a vital role as wildlife corridors linking patches of habitat together. The highest benefits will be delivered for large, old hedgerows consisting of mixed native species, especially those that include native hedgerow trees.

Local authorities should follow the good practice guidance provided by [Hedgelink](#). Hedgerows need trimming, but it is vital not to over-trim. The [Hedgelink Management Cycle](#) guidance shows that trimming can take place on a three year rotation, not every year, leaving some hedgerows undisturbed. The cutting height should be increased at each cut, e.g., by 10cm, to allow hedgerows to become taller and wider, allowing fruit and flowers to develop to support wildlife. This can continue

for up to 30 years before the hedgerow needs to be cut back to a lower level and re-laid. Hedgerows should also be allowed a 1m buffer of wildflowers and tall grasses along the base, which should also be cut every 2-3 years on rotation.

Scrub, shrubland, heath and brownfield site quality standards

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Scrub, shrubs, and brownfield sites are often viewed as wasteland, and frequently subject to 'tidying up', such as clearance of brambles and mowing of tall herbaceous vegetation. GI strategy should recognise the importance of these undervalued habitats which provide vital food and shelter for wildlife, especially invertebrates, birds, and small mammals. It is important to leave some wilder areas of shrub, scrub, and tall grasses and wildflowers in urban areas, although this may need to be accompanied by suitable community engagement or signage to explain why this is being done. The Natural England [Scrub Management Handbook](#) provides guidance.

Heathland is not a common habitat in urban areas, especially as it typically needs to be managed by grazing to prevent over-encroachment by scrub and trees. However, where present, such as in some large urban parks or on urban fringes, it supports distinctive wildlife and forms a vital contribution to habitat diversity. It is important to protect heathland from development impacts, including over-use for recreation, and maintain it according to suitable habitat management standards, such as the various guidance documents published by [Natural England](#).

Allotments, community orchards and community farms

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The People's Trust for Endangered Species has useful resources on establishing and managing community orchards, including a list of [tips for ensuring good community engagement](#).

Community farms and gardens should follow the [Social Farms & Gardens' Green Care Quality Mark](#).

Soils

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Soil quality and structure plays a key role in determining the drainage properties, carbon storage and biodiversity value of green infrastructure, yet soils in urban areas are often thin, compacted, contaminated, or highly modified.

Good practice during construction can help to maintain soils in good condition. Management of existing and imported soils should therefore follow the [Construction Code of Practice for the Sustainable Use of Soils on Construction Sites](#), (DEFRA / 2009); BS 8601:2013 Specification for subsoil; and BS3882:2015 Specification for topsoil.

Building with nature

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<https://www.buildingwithnature.org.uk/>

Measurement of multi-functionality standards

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Multi-functionality standards, showing how local authorities could set their own targets	New developments (% compliant)	Area-wide			
		Current	5-year target	10-year target	Aspiration
% of new developments delivering target Biodiversity Net Gain ¹	100%	NA			
Environmental Benefits from Nature Tool	<i>e.g., applied to all large developments²</i>	NA			
% of new developments (or retrofits of SuDS to existing areas) delivering multifunctional vegetated SuDS with biodiversity and amenity value ³	100%				100%
% of green roofs meeting GRO biodiverse green roof standard	100%	<i>e.g., 30%</i>	<i>e.g. 70%</i>	<i>e.g., 100%</i>	100%
Length (or percentage) of verges managed in accordance with Plantlife standards	100%	<i>e.g. 5%</i>	<i>e.g. 20%</i>	<i>e.g. 50%</i>	100%
Length (or percentage) of hedgerows managed in accordance with Hedgelink guidance	100%	<i>e.g. 10%</i>	<i>e.g. 60%</i>	<i>e.g. 100%</i>	100%
Etc....					

Notes:

1. Biodiversity Net Gain will become mandatory under the Environment Act (2021), but LPAs are able to set their own targets more than the mandatory 10% if desired, e.g., some already specify 20%.
2. The LPA could encourage the use of the EBN Tool for all large developments, to demonstrate that multi-functionality has been considered in design of the development.
3. For existing areas, the target could refer to any retrofit of SuDS (although these are rare), i.e., if SuDS is retrofitted it should be high quality and multifunctional in line with the proposed revised SuDS technical standards.

Justification for multi-functionality standards

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The broad range of multi-functionality standards have been selected to deliver high quality green infrastructure that can deliver multiple benefits from the same feature, such as flood protection, carbon storage, biodiversity, and visual interest. Justification is included within each individual standard.

The National Design Guide and Code also emphasise the need for well-designed places that deliver biodiversity, visual interest, and other services.

National Design Guide: Well-designed places appeal to all our senses. The way a place looks, feels, sounds, and even smells, affects its enduring distinctiveness, attractiveness, and beauty (para 55).

In response to this, the GI multi-functionality standards aim to boost biodiversity to enhance the sights, sounds and smells of nature including birdsong, flower scents, running water and wind in the trees.

National Design Code: Green spaces need to include areas that are nature rich.

Varied GI standards

A variety of GI elements and environmental features to meet local needs

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Descriptive principle

GI should comprise a variety of types and sizes of green and blue spaces, green routes, and environmental features (as part of a network) that can provide a range of different functions, benefits, and nature -based solutions to address specific issues and needs.

Links to other descriptive principles: Varied GI includes green spaces that are accessible, connected, support local character and are multifunctional.

Benefits

Varied GI provides a range of types and scales of GI that addresses both local needs and wider policy goals such as climate mitigation, food security and biodiversity recovery. While multifunctional GI focuses on delivering multiple benefits from the same spaces, varied GI ensures that there is sufficient capacity to meet specific needs such as for sport, growing food, and ensuring nature recovery.

Nature rich beautiful places	Varied GI includes a diverse mix of habitats and features with structural diversity, such as trees, meadows, water features and scrub, which support a variety of species and provides visual interest.
Active and healthy places	Varied GI includes sport and play facilities, parks, allotments, natural green space and a network of footpaths and cycle paths that encourages outdoor exercise, active travel, and recreation.
Thriving and prosperous places	A variety of well-designed GI features can make places more attractive for businesses, visitors, and residents.
Understanding and managing the water environment	Varied GI includes features such as Sustainable Drainage Systems, trees and wetlands which can provide flood protection, improve water quality, and enhance water supply.
Resilient and climate positive places	Varied GI includes features such as Sustainable Drainage Systems, trees, meadows, and wetlands which can help to provide climate mitigation and adaptation.

SDGs

Varied GI standards support the following Sustainable Development Goal targets.

2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

15.1 By 2030, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

15.2 By 2030, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2030, protect and prevent the extinction of threatened species

15.9 By 2030, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

15. A Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems

Quality criteria from the review

- Ecologically, socio-culturally, and visually diverse
- Varied elements including water, trees, parks, etc
- Provides a range of sport, play and recreation activities

Links to Building for a Healthy Life

These standards will support the following criteria from Homes England's [Building for a Healthy Life](#) guidance.

Homes for everyone; Healthy streets.

- Access to some outdoor space suitable for drying clothes for apartments and maisonettes. Consider providing apartments and maisonettes with some private outdoor amenity space such as semi-private garden spaces for ground floor homes, balconies, and terraces for homes above ground floor.
- Tree lined streets. Make sure that trees have sufficient space to grow above and below ground, with long term management arrangements in place.

Menu of standards for varied GI

Urban Greening Factors

Habitat diversity

Tree Canopy Cover

Capacity/ area of different types of green space

Urban Greening Factors

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The Urban Greening Factor is a tool that is intended to be applied to new Major Developments as defined by the Town and Country Planning legislation. It is not intended to be applied to wider existing areas.

- For predominantly residential developments the minimum recommended UGF score is 0.4
- For predominantly commercial developments the minimum recommended UGF score is 0.3

Justification: The National Model Design Code **Checklist for Nature** (Part 2, p27) states that local design codes should consider the use of greening factors to deliver quantifiable levels of greening.

Habitat diversity

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It is important to maintain a diverse mix of different locally appropriate habitat types within an area, so that all species groups are supported (woodland, grassland, wetland, heathland etc). This can be as discrete habitat blocks and/or as habitat mosaics. Natural England's Mosaic Approach provides guidance.

The Mosaic Approach: Managing Habitats for Species (B2020009), Natural England, 2013.

National Model Design Code (Part 2, p26)

Mosaics: A range of elements and structures as small patches of bare ground, tall flower-rich vegetation, or scattered trees and scrub to support a range of species and their life cycles.

Habitat diversity could be measured as the **Shannon's Diversity Index** for the six broad semi-natural habitat types. This is calculated as the sum of $p * \ln(p)$, where p is the proportion of each type of habitat. An example calculation is shown below, giving a Shannon's Diversity Index of 0.95. The maximum index possible for six habitat types would be 1.79 if the habitats all had equal areas. This index should be used with great caution as an equal mix of habitat types is not necessarily

optimal or even feasible – it will not be possible to create wetland or heathland everywhere, for example, as this depends on hydrology, topography, and soil type. The appropriate mix of habitats should be determined for each area, in line with the Local Nature Recovery Strategy, and it may be appropriate to target larger areas of certain habitats. Nevertheless, use of a diversity index can encourage consideration of a wider range of habitat restoration opportunities, including for scarcer habitats. For example, if an extra 500 ha of land became available for habitat restoration, the index would increase from 0.95 to 1.04 if this was distributed between the four scarcer habitat types, but it would decrease to 0.93 if allocated to the most common habitat type.

Habitat	Area (ha)	Proportion, p	$-p \cdot \ln(p)$
Semi-natural grassland	6000	40%	0.37
Semi-natural woodland	8000	53%	0.34
Wood pasture and parkland with scattered trees	700	5%	0.14
Heathland	100	1%	0.03
Scrub or Open mosaic habitats on previously developed land	100	1%	0.03
Wetland (bog, fen, marsh, and swamp)	100	1%	0.03
Total	15000		0.95

Tree canopy cover

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A suite of tree cover standards is proposed with the most achievable listed first.

1. **Assess tree and woodland canopy cover** to establish the baseline.
2. **Commit to no net loss of tree and woodland canopy cover.** This is to avoid the risk that an area which exceeds the suggested national target might feel justified in removing existing trees.
3. **Produce a local tree and woodland strategy** and adopt this as a Supplementary Planning Document within the Local Plan. This should include i) the baseline assessment of canopy cover, ii) a strategy for management of the existing resource and iii) opportunities for new planting of street trees or woodlands.
4. **Set targets** for tree and woodland canopy cover, taking into account the baseline, the opportunities for planting, land availability, and the need to deliver an appropriate mix of open and wooded habitats (right habitat, right place) and other types of GI. Suggested targets (see Justification):
 - a. **Existing areas:** minimum cover 20%, aspirational 30%.
 - b. **New development:** 30% cover.
 - c. **New developments: All streets are tree-lined**, as specified in the NPPF (Para 131). There is no definition of how many trees per km are needed for a street to qualify as 'tree-lined'. It has been suggested that at least three trees should be visible from every house or place of employment (as part of the 3-30-300 rule), although this could be difficult to measure and enforce.

It is important to implement these actions in line with the quality and multi-functionality standards for trees and woodland and the best practice Connectivity checklist and Character checklist, to ensure maximum benefits for nature and people, and synergies with the other standards. High

priority should be attached to larger, older trees which provide far greater benefits than newly planted trees, and native or near-native species with proven biodiversity benefits.

Benefits

Nature rich beautiful places	Tree cover is vital to support biodiversity and provide aesthetic value. A diverse mix of mainly native species is important for biodiversity, and large, old trees have greater value. Tree networks also make a vital contribution to ecological connectivity, e.g. they may improve the resilience of some bat populations to urban densification (Hale et al, 2012).
Active and healthy places	Tree cover supports health through filtering air pollution, reducing noise and providing shade and cooling, as well as giving opportunities to interact with nature for mental wellbeing (Saraev et al, 2021). Areas with greater tree canopy can have health benefits for cardiovascular conditions and psychological wellbeing (Nguyen et al, 2021).
Thriving and prosperous places	Tree cover can be a cost-effective way of tackling climate impacts and protecting the historic built environment from pollution, while also creating an attractive environment for businesses and employees and reducing crime rates. For example, urban trees were estimated to provide an average of \$500 million worth of benefits per year in each of 10 megacities due to reductions in air pollution, avoided stormwater processing by wastewater facilities, savings in heating and cooling buildings, and CO ₂ sequestration (Endreny et al, 2017).
Understanding and managing the water environment	Trees intercept rainwater, filter out pollution and aid infiltration into the ground, helping to reduce surface flooding and alleviate pressure on drainage and water treatment systems, especially as part of a wider system of SuDS (sustainable drainage) and/or natural flood management. The addition of a street tree could reduce stormwater runoff by 50 to 62 percent in a 9 square metre area, compared with asphalt alone (Armson et al. 2013).
Resilient and climate positive places	Trees store and sequester carbon, as well as helping communities to adapt to climate impacts through assisting urban cooling. Tree planting could reduce maximum surface temperature by between 0.5 degrees C and 2.3 degrees C (Hall et al, 2012).

Justification for Tree Canopy Cover standards

Capacity of different types of GI

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It is important to ensure enough (area) of different types of GI to meet local needs. Many Local Authorities already use standards based on hectares per capita to determine the areas needed, often based on the well-established Fields in Trust guidance for play areas, sports pitches, and parks, but sometimes with local modifications. The National Model Design Code also specifies requirements for play spaces. Alternative approaches are also available such as the Sports England strategy for determining sports facility provision based on the likely generation of sports teams. This menu extends those approaches to also consider natural green space, allotments, educational facilities, and private outdoor space.

[Play Areas](#)

[Sports Pitches](#)

[Parks](#)

[Allotments](#)

[Education about nature](#)

Natural green space

Private outdoor space

Play Areas

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The **National Model Design Code** specifies the following requirements for new developments (Part 1, P31):

- All housing schemes over 15 dwellings should include a Local Area of Play (LAP)
- All schemes over 200 dwellings should include a Local Equipped Area of Play (LEAP) within 400m.
- All schemes over 500 dwellings should include a Neighbourhood Equipped Area of Play (NEAP) within 1,000m.

It also references the Fields in Trust and ANGSt standards and states that new developments may be required to contribute to redressing a shortfall. (Part 2 p20).

Fields in Trust

- Equipped and designated play areas: 0.25 ha / 1000 people
- LAPs within 100m; LEAPs and NEAPs as for design code
- MUGAs and skateboard parks: 0.3 ha / 1000 people, within 700m

Sports Pitches

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Sports England [Playing Pitch Strategy Guidance](#)

Fields in Trust

- Playing fields: 1.2 ha / 1000 people, within 1.2 km
- All outdoor sports: 1.6 ha/1000 people, within 1.2km.

Parks and amenity green space

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Fields in Trust

- Parks and gardens: 0.8 ha / 1000 people, within 710m
- Amenity green space: 0.6 ha/1000 people, within 480m

Allotments

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Allotments and areas for community food growing can provide a variety of benefits for public health, social cohesion, sustainable food production, biodiversity, and ecosystem services.

Current guidance from the [National Association of Allotments and Leisure Gardeners](#) recommends that local authorities should supply 20 plots (or 0.5 hectare) per 1,000 households. Provision should take account of Local Government Association [Growing in the Community](#) good practice guidance and the supplementary 2010 document [A Place to Grow](#).

National Model Design Code: Allotments and community growing: need to consider community growing projects for food production, learning and community engagement on large developments (Part 2 p21).

Education about nature

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It is important for local authorities to support the provision of facilities that support formal education and informal learning about nature, including forest schools, outdoor education centres, interpretation boards, visitor centres and nature trails, but there are no existing standards that determine the appropriate quantity of provision. Local authorities should therefore set their own standards.

The Department of Education is developing a Standard for nature friendly school grounds

Private outdoor space

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This standard covers the percentage of dwellings that have private outdoor space, either a garden, access to a private communal garden, or a balcony or rooftop terrace. The National Design Guide and Code state that all dwellings should have access to private outdoor space. This should therefore be a minimum standard for all new developments. It may be difficult or impossible to retrofit private outdoor space to existing properties that do not have it, so local authorities should set their own targets as appropriate.

National Design Guide P39, diagram and para 126 & 130, private outdoor space should include space for planting, sitting and drying clothes

National Model Design Code (Part 2, p75). Access to external private space is important for people's wellbeing. Design guides may include minimum standards for the provision of private open space. This may include the size of back gardens related to the size or expected occupancy of the home. It may also include a requirement for a setback of the home from the street and provide guidance for how this is treated including the boundary treatment, such as a wall, hedge, or fence.

Natural green space

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- Minimum 2 ha natural green space/1000 people (this is one of the headline standards). C.f. Fields in Trust 1.8 ha within 720 m.
- See also LNR area standard, 1 ha/1000 people (in Accessibility)

Measurement of varied GI standards

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Varied GI standards, showing how local authorities could set their own targets	New developments	Area-wide			
		Current	5-year target	10-year target	Aspiration
% of new residential developments meeting UGF score of 0.4	100%	NA			
% of new commercial developments meeting UGF score of 0.3	100%	NA			
Tree canopy cover	30%	<i>e.g., 10%</i>	<i>e.g., 15%</i>	<i>e.g., 20%</i>	<i>e.g., 30%</i>
Habitat diversity index ¹	<i>e.g., 1.2</i>	<i>e.g., 0.9</i>	<i>e.g., 1.0</i>	<i>e.g., 1.2</i>	<i>e.g., 1.2</i>
Capacity of different types of GI, ha / 1000 people					
Play areas	0.25	<i>e.g., 0.1</i>	<i>e.g., 0.15</i>	<i>e.g., 0.2</i>	0.25
Multi-use games areas	0.3	<i>etc.</i>			0.3
Sports pitches ²	1.2				1.2
Parks	0.8				0.8
Amenity green spaces	0.6				0.6
Natural green space	2.0				2.0
Allotments ³	0.5				0.5
Education about nature	tbc				tbc
Private outdoor space	All properties to have access to some private outdoor space	NA (difficult or impossible to retrofit)			

Notes:

1. The Shannon's habitat diversity index should be used with caution, see [Habitat Diversity](#) section.
2. Alternatively, use Sport England guidance re team generation rates
3. Alternatively, use information on local demand (e.g., waiting lists)

Justification for varied GI standards

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National Design Guide: Provide a network of high quality, green open spaces with a variety of landscapes and activities, including play (p27). Open spaces include public, shared and private outdoor spaces with a range of sizes and locations; a variety of natural and designed landscapes for everyone, with different functions to suit a diverse range of needs; opportunities for formal and informal play, exercise and rest that are accessible to all and with no segregation (para 94, p27).

Natural England's evidence review **NEER015** found that "Different types, sizes and configurations of green infrastructure afford different benefits and mixed provision (e.g. a mix of publicly accessible greenspaces, domestic and shared gardens, green routes and street trees) is most likely to be beneficial. Both publicly accessible and private greenspace (e.g. domestic gardens, institutional spaces) have a role in promoting health and wellbeing. It also found links between greater species richness and /or diversity in local greenspaces and more positive wellbeing and quality of life outcomes. There was some evidence that outdoor learning and education is associated with increased self-esteem, self-confidence, trust and sense of belonging in children and young people, and that regular group based outdoor learning resulted in greater group cohesion, social connectedness, improved behaviour and concentration.

Justification for Tree Canopy Cover standards

National Design Guide: Incorporate street trees to soften the impact of car parking, help improve air quality and contribute to biodiversity (para 77).

National Model Design Code: All new streets should include street trees to improve streets' popularity and walkability, reduce air pollution and mitigate noise (Part 1, p31). It is the government's intention that all new streets include trees (Part 2, p26).

National Planning Policy Framework (NPPF) paragraph 131: Planning policies and decisions should ensure that new streets are tree-lined (ETAP action 1.28).

The GI Trials Areas recommended that increases in the area of tree canopy cover should be an indicator for monitoring and evaluation (see p84 of the Whole Trials Report, April 2021).

Forest Research recommends at least a 20% tree canopy cover for urban areas, or 15% in coastal areas. This is based on a 2017 **study** of nearly 300 towns and cities in Great Britain which showed that tree canopy cover ranged from 3 to 45%, with an average of 16%. While 62% had 10–20%, only 8% had over 30% cover. Coverage was typically lower within 1 km of the coast. Some UK local authorities have a canopy cover target, usually 20%, but targets are often as high as 30% in other countries. Forest Research suggest a stretch target for those with 20% cover to increase this by at least 5%. They recommend setting achievable target deadlines for 10 to 20 years (depending on local circumstances). Since the Forest Research report was written in 2017, policy makers have become more acutely aware of the climate and nature emergencies. Local authorities could therefore consider setting a minimum standard of 20% and an aspirational standard of 30% cover for delivery within strategic plan periods. Those with a very low baseline and limited space for retrofitting trees could set targets that are achievable in the local context.

These suggested targets are also in line with the UK government commitment to shift 20% of UK agricultural land to tree planting, energy crops and peatland restoration to meet **net zero** targets by

2050, including through a 'sharp, sustained increase' in afforestation with forest cover increasing from 13% to 17% of UK land by 2050. The [England Trees Action Plan 2021-2024](#) states that England will have at least 12% woodland cover by mid-century, contributing to net zero greenhouse gas emissions. Its conifer and broadleaf woodlands will be managed for biodiversity and other environmental benefits. For urban areas the Plan commits "to seeing all new streets lined with trees... Developers should work with local authorities to plan, plant, and manage these trees, and agree how they will be funded - including through developer contributions such as Biodiversity Net Gain." (p.17).

Tree cover needs to be placed in the context of the total green area for a town or city, as part of a diverse mix of biodiverse habitats including semi-natural grassland, heath, scrub, wetland and woodland, and different types of green spaces. For this reason, we do not recommend a target to increase tree cover by a fixed percentage (e.g., 10%) as this could result in lack of ambition for areas with low cover, and excessive focus on tree planting in areas that already have high cover, at the expense of other important habitats and different types of green infrastructure.

The **No Net Loss** of tree cover target is important for two reasons. First, it can counter the risk that setting an aspirational target of 30% might lead to loss of trees in areas that already exceed this target. Second, it will protect larger, older trees, which have far greater benefits than young trees. Compared to young trees, mature trees provide on average 70 times more air purification and rainfall interception ([Doick, 2022](#)). Older trees also provide better habitat for wildlife, as they include more cavities and flaking bark that provide nesting and hibernation sites for insects, bats, and birds. And they also provide greater aesthetic value and a sense of place.