



Sustainable Design & Construction
Supplementary Planning Document

Adopted 10th October 2016

Department of Place

Sustainable Design & Construction Supplementary Planning Document

Section	page
Introduction	3
What is this document?	3
What is in this document?	3
Policy Landscape	5
What is sustainable development?.....	5
Local Policy Summary	6
Design & Construction	6
Materials & Construction Waste	7
Climate Change & Renewable Energy.....	9
Mitigating Climate Change.....	13
Adapting to Climate Change	15
Other considerations	17
Sustainable Drainage	18
Biodiversity & Geodiversity	20
Appendix – Other Guidance & Regulations	23

Sustainable Design & Construction Supplementary Planning Document

1. Introduction

What is this document?

- 1.1. This document is a Supplementary Planning Document (SPD) which was approved by Bolton Council on 10th October 2016. The previous version pre-dated the adoption in 2011 of Bolton's Core Strategy and the National Planning Policy Framework in 2012. The SPD deals specifically with ensuring that the principles of Sustainable Design and Construction are implemented through development in accordance with local and national policy.
- 1.2. SPDs are capable of being a material consideration but: they are not part of the development plan; they do not overrule national or local plan frameworks; nor do they add new policy. They provide further detail to policies in development plan documents and can also be useful in determining planning applications. They can be used to support pre-application discussions, and will inform all involved in development proposals.

What is in this document?

- 1.3. This document contains an overview of policy at national and local scales before framing sustainable design and construction in the context of sustainable development.


1.4. The SPD covers:

- Policy overview;
- Sustainable design and construction in development;
- Materials and construction waste in the development process;
- How design and construction should take into account a consideration of climate change, including -
 - minimising factors of climate change;
 - and adapting to a current and changing climate by -
 - ensuring development can cope with the pressures the changing climate brings;
 - ensuring it does not cause adverse climate impacts to be passed on elsewhere
- The role of low/zero carbon developments and energy schemes;
- The role of telecommunications;
- Reference to location and transport;
- Sustainable drainage as part of the design and construction of developments;
- Biodiversity and geodiversity;
- Quotes from, and references to, key policies in the Appendix


- 1.5. Developers should familiarise themselves with all SPDs, Building Regulations, water and drainage directives and policies and monitor them for changes. Developers should also make themselves aware of emerging opportunities for sustainability in the design and construction of their developments.

Directive statements


- 1.6. This SPD contains statements that summarise points within that section, and will be shown as ‘guidance notes’ or as ‘policy statements’:

 **Guidance Notes**

Guidance notes are advisory, but are strongly recommended as good practice. Compliance is not mandatory but could make a difference where decisions rest on matters of planning judgement. They will typically contain terms such as “should”.

 **Policy Statements**

Policy statements are mandatory requirements based on development plan policies. They do not cover requirements included in other regulations (e.g. Building Regulations), and the absence of a policy in this SPD does not negate a policy in related development plans. They will typically contain terms such as “must”.

 **Guidance Notes**

Some statements may generally be guidance.

But there may be a mandatory element at the bottom.

Policy Landscape

- 1.7. The National Planning Policy Framework (NPPF), published on 27th March 2012, establishes the principle in planning policy of the presumption in favour of sustainable development.
- 1.8. Bolton's Core Strategy, adopted 2nd March 2011, pre-dates the NPPF, but is broadly compliant with the NPPF and is to be interpreted in those terms. The Core Strategy is a key part of Bolton's Local Plan, which is the primary consideration in making planning decisions.
- 1.9. The Allocations Plan shows how sites in Bolton can be used for developments up to 2026. It comes in two parts: a written policy section and a map of the borough. It was adopted as part of the Local Plan on 3rd December 2014.
- 1.10. Bolton Council has adopted two Greater Manchester plans specifically as part of its Local Plan. The Greater Manchester Waste Plan was adopted by Bolton Council (and the other 9 GM districts) on 1st April 2012. The Greater Manchester Minerals Plan was similarly adopted on 26th April 2013.

What is sustainable development?

- 1.11. The NPPF adopts UN General Assembly Resolution 42/187 to define sustainable development as:
...meeting the needs of the present without compromising the ability of future generations to meet their own needs.
- 1.12. It also refers to the five principles of the UK Sustainable Development Strategy, "*Securing the Future*":
 - Living Within Environmental Limits
 - Ensuring a Strong, Healthy and Just Society

- Achieving a Sustainable Economy
- Promoting Good Governance
- Using Sound Science Responsibly

- 1.13. The NPPF states three equal dimensions to sustainability: the economic role, the social role and the environmental role – commonly referred to as the 'triple bottom line'. Sustainable development is the confluence of these three dimensions, and there is a presumption in favour of that development, within the provisions of the Local Plan.
- 1.14. Bolton's Local Plan embeds the principles and themes above within its own themes. Proposed development that accords with the Local Plan should therefore be approved; that which conflicts with it should be refused – unless other material considerations indicated otherwise to the extent that they outweigh the Local Plan.

The Built Environment

- 1.15. Sustainable Design and Construction refers to the ability for development to meet the needs of its users, while having regard to reducing demand for/reliance on energy, water, drainage, access/transport, the creation of waste; wherever possible, making the most of passive and renewable measures to achieve those goals. It should be incorporated to the design from the outset and not considered an 'add-on'. For some developments, the process of sustainable design and construction may need to have regard for the end-of-life processes of the development: minerals and waste management policies carry more specific requirements in this aspect.

2. Local Policy Summary

The Environmental role

- 2.1. The focus of this SPD is on the environmental considerations, since the other themes (economic & social) are covered by other SPDs. The following policies are considered to be particularly relevant, though it should be noted that other policies may be taken into consideration.
- 2.2. The key section of the Core Strategy is chapter 4, paragraphs 4.33 to 4.49, and the key Core Strategy policies in that respect are:
 - CG1, CG2 & CG3
- 2.3. The key section of the Allocations Plan written statement is chapter 5, and the key Allocations Plan policy in that respect is:
 - CG8AP
- 2.4. These policies may be found in the Core Strategy and the Allocations Plan written statement; they are repeated in the appendix for convenience.
- 2.5. In addition, the Greater Manchester Minerals Plan Development Plan Document mainly addresses policy for the exploitation of minerals and protection of mineral resources and supply in Greater Manchester. In policies 1 & 2, it sets the principle in favour of sustainable minerals development. It also addresses the need to protect mineral resources.
- 2.6. The Greater Manchester Joint Waste Development Plan Document is concerned with managing the future waste management requirements, both with the provision of facilities and with objectives to reduce waste generation. In the latter case, those objectives depend on the support of producers of waste.

- 2.7. Each type of application has a planning checklist to ensure that all the information required is provided, with particular attention to relevant environmental considerations. Check lists will be used to help evaluate applications and to ensure that development is sustainable. Completion of the checklist does not guarantee approval of the proposals, but it helps to reduce errors in the application process and to improve the assessment of proposals.

3. Design & Construction

(See also the General Design Principles SPD, and sections below.)

- 3.1. Sustainable design and construction is most easily achieved if consideration is given at master-planning and design stages, so as to make the most of factors such as scheme layout and orientation to optimise outcomes such as: energy demand, supply and usage; transport and communications; sustainable drainage; and waste management. Developers should take responsibility for planning the environmental, economic and social sustainability of the development, even if the developer will not be the subsequent owner, occupier or user of the development; this should take into account the designed lifespan of the development. Developers should also refer to guidance in the Design Guidance SPD.



Guidance Note

Sustainability should be included from the outset, so as to minimise pressures at all stages throughout the construction and lifespan of the development.


4. Materials & Construction Waste

Minerals Policy

- 4.1. The NPPF states (paragraph 142, et seq.) that local authorities should plan for, and encourage, the efficient use of minerals, safeguard supplies and set criteria for environmental and human protection. In particular, it promotes the use of substitute or secondary and recycled materials and mineral waste. This is primarily mandated for the purpose of protecting mineral resources; however it also mitigates the consumption of energy and generation of waste that extraction processes generate.
- 4.2. The Core Strategy echoes these requirements in policy P4, for the purposes of safeguarding resources. The Cleaner and Greener policies (CG1-CG4) state that the council will set out to minimise energy consumption, protect biodiversity, habitats and landscapes, reduce CO₂ emissions, and take measures to minimise the drivers and impacts of climate change.
- 4.3. The GM Minerals Plan covers these issues in more detail, mainly from the perspective of the extraction of minerals. The Minerals Plan should be considered in its entirety, however for the purposes of construction and waste management, some parts are worthy of emphasis. The overarching policies 1 & 2 set the overall policy of presumption in favour of sustainable minerals development, mirroring the NPPF, and outline the aspects to be considered for adverse impacts. The aims and objectives section (Objectives 3 and 4iii - sustainable transport of minerals and facilitating the re-use of secondary and recycled aggregates) and Policy 9 (sustainable transport of minerals), encourage developers to comply with the

minerals hierarchy and to select the more sustainable transport modes.

- 4.4. It makes good economic, social and environmental sense for development schemes to maximise the use of secondary and recycled aggregates (SRA) in development; and to facilitate the reuse of development-related waste materials. These measures help: to safeguard the supply of virgin minerals (reducing demand and therefore price); to reduce the costs of construction materials and landfill charges; and to reduce the social and environmental impacts of landfill sites.


 **Guidance Note**

Construction procurement and processes should be planned to maximise the use of Secondary and Recycled Aggregates in development, and to facilitate the re-use where possible of development-related waste materials.

Materials

- 4.5. Developers are encouraged to select materials for their environmental performance, but how they are sourced also has consequences up the supply chain. Guidance can be found from the Buildings Research Establishment (BRE) and, in particular, the BES 6001 standard for Responsible Sourcing of Construction Products. This may be of particular importance where BREEAM standards are specified or likely to be specified.

- 4.6. Materials should be sourced to take into account indirect carbon emissions, such as: those involved in the extraction/cultivation, manufacture and handling processes; and subsequent, in-life emissions resulting from the use of those materials in development.
- 4.7. An example of well sourced materials is timber that is endorsed with one of the four certification schemes recognised by the UK government (FSC, CSA, PEFC, and SFI). Developers, architects and others responsible for procurement should insist on, and routinely audit, the certification paperwork to ensure authenticity.

	Guidance Note
Developers should specify sustainably sourced materials where possible, using authenticity marks and paperwork for approved schemes to audit and validate supplies.	
(This guidance may be mandatory where other policy determines BREEAM or similar compliance.)	

Waste policy

- 4.8. Apart from various legislation governing the licensing, handling and disposal of waste, the key policies (which should each be considered in its entirety) are: The European Waste Framework Directive, The Waste Management Plan for England, the GM Joint Waste Development Plan Document (GMJWDPD) and policies in the Bolton Core Strategy.

- 4.9. The GMJWDPD sets out a number of objectives, including:

Objective 2:

To promote the movement of waste up the waste hierarchy, assuming minimisation at source, increasing reuse, recycling and recovery, whilst recognising there may still be a need for additional landfill capacity for residual wastes.

Objective 4:

To ensure waste growth within the sub-region does not increase to the same degree as growth in economic activity i.e. to decouple waste growth from economic growth.

- 4.10. The plan does not include specific policies to these effects, but refers instead to the Needs Assessment, which aims to move waste ‘up the hierarchy’ – towards ‘Reduce’, ‘Reuse’, ‘Recycle’ and ‘Recover’. This complements the Core Strategy’s Strategic Objective 7:

To ensure that Bolton provides for sustainable waste management.


and Policy P3.1:

Keep to the principles of the waste hierarchy, giving priority to waste minimization, and re-use and recycling of waste materials.

- 4.11. As such, consideration will be given to how development proposals set out waste reduction, reuse, recycling and recovery, in preference to disposal. (A permit may be needed to handle waste or mining waste.)
- 4.12. Development should be concerned with the generation and disposal of waste as a consequence of the process of construction, and how the design and construction of the development might beneficially influence the waste hierarchy in the operation of the development.

- 4.13. On-site facilities for waste management during construction should be provided so that reuse and recycling are maximised efficiently. Staff and contractors should be briefed appropriately on the processes for waste management, notably reducing, reusing and recycling waste, and energy recovery. Site Waste Management Plans may be required to meet BREEAM requirements.

For more information, see the Design SPD and Building Regulations.

 **Guidance Note**

On-site waste management should be optimised to encourage and facilitate the waste hierarchy of ‘Reduce, Reuse, Recycle, Recover’; staff and contractors should be briefed appropriately on processes and good practice.

Climate Change & Renewable Energy

- 4.14. The council has a responsibility to ensure that development takes into account the need to reduce direct and indirect emissions of greenhouse gases. This is reflected in national, GM and local policy. While taking responsibility for mitigating climate change (i.e. reducing the causes of climate change) in Bolton, it should also be recognised that our climate is changing and that, at different geographical scales, climate has present and future impacts on society, the environment and our economy.
- 4.15. The design and construction of development in Bolton should reflect approaches to reduce the causes of climate change (principally CO₂/greenhouse gas emissions) and to adapt to the range of impacts that our changing climate presents at local and site-specific level:

CG3.6 (Core Strategy):

Encourage the incorporation of design measures into new developments that allow adaptation and resilience to the impacts of climate change and extreme weather events and also to reduce the threat of fuel poverty, through the careful selection of aspect, layout and massing, and by making buildings increasingly energy efficient.

- 4.16. Developments should themselves be resilient to the environmental and climatic conditions they will face locally, including site-specific considerations, without offsetting problems to other areas. As well as developments themselves being resilient to changing climate pressures, they should also provide a built environment within which people can be comfortable and safe in a changing climate, while minimising the need to make significant alterations to the development for foreseeable issues. (See also “Adapting to climate change” below.)

4.17. Although measures to mitigate and adapt to climate change may have apparent costs, it should be noted that failure to do so has longer term costs in economic, social and environmental terms, and the principal of sustainable development is such that the triple bottom line is broader than the finances of a particular scheme. This is particularly important with respect to developments which should be expected to last into or beyond target dates for carbon reductions (e.g. 2030 for 5th Carbon Budget).

Changing national and regional policy

4.18. The Bolton Core Strategy stipulates requirements which remain in place; however, subsequent changes in the national policy landscape, while not invalidating the Core Strategy, do mean that the policies should be interpreted in different terms to reach the same objectives. Policy statements and Guidance Notes appear under later headings in this section:

CG1.7 (Core Strategy):

Maximise the potential for renewable energy development and encourage proposals that contribute towards the renewable energy targets set out in the Regional Spatial Strategy.

4.19. The Regional Spatial Strategy is no longer effective. However, the UK has a binding EU target of achieving 20% of energy from renewable sources by 2020, and the UK's 5th Carbon Budget (30th June 2016) legally binds the UK to reduce CO₂ emissions by 57% by 2030.

CG2.2a (Core Strategy): [for proposals of ≥5 residential units or ≥500m² non-residential units]

Achieve Level 3 of the Code for Sustainable Homes or the “very good” BREEAM rating (or any subsequently adopted set of national sustainable construction standards).

4.20. Code for Sustainable Homes (CSH) is no longer relevant for new proposals, and the standards for conservation of heat and power are contained within Part L of the Building Regulations. BREEAM is still relevant for non-residential developments.

4.21. CG2.2b is Bolton's implementation of the “Merton Rule”. The Core Strategy was adopted in 2011, based on Part L of the 2006 Building Regulations, which have been updated.

CG2.2b (Core Strategy):

Incorporate appropriate decentralised, renewable or low carbon energy sources to reduce the CO₂ emissions of predicted regulated and unregulated energy use by at least 10%. The most appropriate technology for the site and the surrounding area should be used. For the purposes of calculating the CO₂ emissions, an energy assessment which includes a carbon budget should be provided for the proposed development.

4.22. Taking into account paragraphs 4.43 and 4.44, which stress flexibility, decentralised and renewable energy supplies, changing targets and a goal of decoupling growth from CO₂ emissions, the policy continues to relate to provision of or contribution to additional decentralised, renewable or low carbon energy sources to reduce CO₂ emissions. The 10% rule will therefore be applied to current (and emerging) Building Regulation Part L standards.

4.23. For clarity, “decentralised” is to be understood in a context of renewable/ low carbon energy. E.g., a diesel generator is not a conforming provision.


4.24. CG2.3 is to be implemented “once the City Region investment fund has been established”. In the absence of a specific city region investment fund, alternative local or GM approaches may be

implemented in lieu of the city region fund, such as connection to district heating schemes. However, off-site allowable solutions are not currently enforceable.

- 4.25. In particular, any proposal that falls within the serviceable area of an existing or emerging district energy scheme (heat, electricity or other power) should include connection to the scheme as part of the proposal plans, in line with the targets of Allocations Plan policy CG8AP (see also the following sections).

CG8AP (Allocations Plan)


- 4.26. The Allocations Plan contains three target energy profiles (see allocations Plan 5.21-5.23) which are reflected in CG8AP.
- 4.27. Target 1 relates to areas where district heating (DH) may be viable. Target 1 favours areas of high-density residential use and mixed use within the area. This profile is more suitable for DH because it creates a smoother diurnal demand profile, enabling heating systems to operate more efficiently. DH networks operate more effectively when more addressable properties within its reach are serviced by the network.
- 4.28. Developments, including change of use, within a network area will be expected to facilitate connection to the scheme if they are for 5 or more residential units, or 500m² or greater non-residential units. That facilitation will need to conform to the specifications set out for the scheme. This does not mean that other energy supplies are not available or that users are required to subscribe to the scheme, but it must be an option for them.

 **Policy Statement**

Development proposals for of 5 or more residential units, or 500m² or more non-residential units, that fall within the catchment of an existing or planning-approved district heating network, must be made ready to connect to the network to the standard of the specifications of the district heating scheme.

- 4.29. In line with policy CG2.1 of the Core Strategy: consideration of a proposal's readiness for connection to a (DH) scheme will take into account the feasibility and viability of doing so, including consideration of the benefits for lifetime energy bills of the DH scheme and the environmental cost for additional CO₂ emissions caused by not facilitating connection readiness.
- 4.30. 'Readiness for connection' or the need to 'facilitate connection' should not be an onerous obligation, and should be regarded as the duty: to liaise with the DH operator (or equivalent body); to incorporate into the development's design and construction stages provision for installation of DH infrastructure and equipment on the development; to take into account the specifications of the scheme, so as to avoid barriers to connection to the DH scheme.
- 4.31. Costs to the developer are not envisaged to include DH-specific infrastructure/equipment materials or installation; there may be shared costs in ground preparation which may need to be negotiated on a case-by-case basis according to what is reasonable.
- 4.32. Where a DH scheme is in formal planning stages, or has been specified in planning policy, any specifications for the scheme should be taken into account by development proposals in line with the above considerations.

4.33. Target 2 in CG2 relates to industrial areas where intense use of electricity is prevalent. These areas are expected to use low/zero carbon technologies to mitigate their emissions. This primarily refers to the generation of electricity through renewable sources. However, the wording – and the application of the energy hierarchy – also implies the encouragement of innovation to reduce the demand for energy within industrial processes. Where localised energy generation can support multiple users, there may be efficiencies to be made in terms of carbon reduction and cost to businesses, and such collaboration will be considered favourably.


 **Guidance Note**

Where localised, renewable or low-carbon, power generation (including proposals) can support multiple users, developers should give consideration to collaborate with such schemes, in order to use that power and/or to help facilitate the operation of the power scheme.

Developers should demonstrate this collaboration in proposals.

4.34. Target 3 relates to micro-generation solutions at the building scale. It refers to housing, but is not exclusive to housing. Given the context of advice and requirements throughout this SPD, micro-generation should not be considered at the expense of measures to limit the demand for the energy that micro-generation would provide: photovoltaic roof panels do not make an inefficient building sustainable; instead, they should augment the design-led sustainable performance of the development. 'Building scale' should not automatically preclude energy schemes that cover a number of


buildings, which may make for more efficient load-balancing of energy demand. Solutions should be considered with site-specific constraints in mind. For example, large trees, topography, landscape and neighbourhood considerations may limit the appropriateness of solar or wind energy.

 **Guidance Note**

Proposals should give due consideration to the energy hierarchy (see 'mitigating climate change' below) before specifying micro-generation solutions.

Developers should demonstrate this consideration in proposals.

4.35. Notwithstanding the Policy Statement in the Mitigating Climate Change section:


 **Guidance Note**

Proposals should give due consideration to appropriate opportunities for micro-generation on site.

Developers should demonstrate this consideration in proposals.


4.36. Although CG8AP identifies these three targets, it does not therefore exclude consideration of other solutions, nor are 'target' solutions – should they be considered appropriate – automatically inappropriate in other areas.

Mitigating Climate Change


 **Guidance Note**

Developers are strongly urged to incorporate design measures into new developments, for energy efficiency and reduction of fuel poverty, through aspect, layout, massing and building energy efficiency, and to demonstrate these measures at early master planning, design and planning stages.

Considerable weight may be given to the measures or absence of them in proposals.

 **Policy Statement**

Proposals for non-residential development greater than 500m² must reach BREEAM 'very good' standard (or equivalent, subsequently adopted, national sustainable construction standard).

 **Policy Statement**

For proposals of 5 or more residential units, or $\geq 500\text{m}^2$ of non-residential units, decentralised renewable or low carbon energy sources must be incorporated in accordance with Core Strategy policy CG2.2b.

- 4.37. In respect of the two Policy Statements above, consideration of proposal will take into account the feasibility and viability of policy requirements, in line with the consideration outlined in policy CG2.1 of the Core Strategy. This will include consideration of the benefits for lifetime energy bills and the environmental cost for additional CO₂ emissions caused by not implementing appropriate measures. A 'fabric first' approach may be a more suitable solution. Consideration of a fabric first alternative will be given on a case-by-case basis.
- 4.38. Construction should be designed and implemented to reduce the emission of greenhouse gases such as carbon dioxide, and best practice is to prioritise the energy hierarchy appropriately:
- Reduce the need for energy
 - Use energy more efficiently
 - Use renewable energy
 - Use low carbon non-renewables
 - Ensure clean and efficient use of fossil fuels where unavoidable
- 4.39. Building Regulations (Part L) set out standards for energy performance and other requirements that reduce carbon emissions. While this consolidates standards, it has the potential to allow considerable design and planning to take place with sustainable design elements brought in as afterthoughts. However, by designing sustainability into a development from the outset, more can potentially be achieved more efficiently. There is a risk that sunk costs may be lost if they do not subsequently achieve the standards set out in Building Regulations.

Reduce

4.40. To that end, Building Regulations set standards for natural lighting and for heat/energy loss. Design and architecture, including layout and orientation, should begin with approaches that minimise the need for light during daylight hours. They should balance the use of solar gain to minimise heating requirements in cooler seasons with natural ventilation and shading to avoid overheating in warmer seasons. These approaches should include site-specific and neighbourhood considerations. They may, for example, require new road layouts on larger developments to be redesigned – or, better still, the road layout should consider building orientation from the outset.

Efficiency

- 4.41. Building Regulations set out thermal performance standards. Developers and building control inspectors will need to be aware of specific issues relating to structural and insulation materials to avoid thermal bridging, condensation and other pitfalls. These should be considered at the design stages and personnel trained accordingly. The Building Regulations represent a minimum standard. Developers should consider the benefits to the environment and to clients or subsequent users of developments if developments are designed to exceed those standards. In accordance with Core Strategy policies CG1, CG2 & CG3, the council will welcome proposals that conform in design and construction to recognised standards, such as Passivhaus.
- 4.42. Early implementation of sustainable design means that more effective passive measures may make use of layout, orientation, materials and innovations to reduce the loads for lighting, power and mechanical HVAC (heating, ventilation & air conditioning).

Renewables

4.43. Renewable energy should not be a replacement for energy efficiency. Technology and policy changes relating to renewable energy mean that this SPD cannot give specific guidance without quickly becoming out of date. Allocations Plan policy CG8AP stipulates that microgeneration schemes or systems should be considered as part of areas of housing allocations; and low/zero carbon technologies should be used in 'energy intense areas' to reduce carbon emissions. Where proposed developments are in an area that is (or will be) serviceable by existing or emerging local energy schemes, such as district heating, developers should ensure that they make provision to enable connection to such supplies. Subsequent occupiers should not be bound to one source of heating, so district heating should also be accompanied by gas services, for example. As noted above, the city region investment fund is not available; however, where other opportunities are available, they may be discussed for local, off-site schemes.

Telecommunications

- 4.44. Telecommunications is increasingly a factor in reducing indirect emissions. In both commercial and residential developments, fast telecommunications can reduce transport-related emissions through the ability to share and access data, conduct video conferencing and work from home.
- 4.45. Connection solutions vary and may include copper or fibre-optic connections to addresses. There are two main infrastructure providers (BT Openreach and Virgin Media for residential and smaller commercial users). Other providers may use connections provided by those two companies, or provide direct connections for companies with more specific requirements or to multi-dwelling buildings.


4.46. Bolton Council is mindful of a number of driving factors:

- Increasing demand for high speed broadband internet access;
- EU Directive 2014/61/EU;
- The importance attributed to high speed broadband by the NPPF;
- Recent government initiatives to enhance network provision and take-up of high speed broadband internet infrastructure;
- Agreements between government, developers and network operators to support the availability of superfast broadband;
- The need for new developments to be ready to access networks

4.47. Developers are expected to ensure that developments are ready for connection to network access points. It is important to discuss the requirements with telecoms providers to ensure that ducting is appropriate: well-meaning but inappropriate ducting is counter-productive. In some instances, neighbourhood-scale infrastructure, such as street cabinets, may need to be planned into a scheme. Contact points for BT Openreach and Virgin Media are provided in the Appendix, although these are subject to change.

4.48. In-building access should be considered. Whereas wi-fi is a common solution, it may not be suitable in all locations, for a number of reasons such as local sources of radio interference, or barriers such as distance or walls between the wi-fi router and the intended user areas. Therefore, consideration should be given to how cabling solutions (e.g. Ethernet) may be installed during the build, or retrofitted as appropriate, and upgraded in future as technology advances. Regard should be given to the potential for electrical interference with other wiring systems within the development.

4.49. Developers should be aware of changes to Part R of Building Regulations that may supersede the requirements stated here.

 **Policy Statement**

Developers must show evidence of meaningful liaison with network providers to arrange provision for connection of the development to a suitable access point for broadband internet, providing superfast access where available or basic broadband otherwise.

Developers must include details of how in-building access is to be arranged within the development, appropriate to its intended use.

4.50. The definition of high speed broadband is likely to change over time. The government office currently responsible for setting the standard is BDUK (Broadband Delivery UK). Superfast broadband currently means speeds of 24Mbps or more, basic broadband means speeds of at least 2Mbps.

Adapting to Climate Change

4.51. Adapting to climate change means ensuring that developments (and their occupants/users) are designed to cope with current and future pressures, without passing them on to other areas or generations.

4.52. The predicted characteristics of climate change in Bolton have been summarised as:

- warmer drier summers;
- milder wetter winters;
- the possibility of more erratic weather (such as heavy rain, strong wind, sudden cold spells or heatwaves).

- 4.53. Bolton may from time to time publish plans to adapt to climate change, which may help in assessing climate pressures in Bolton. At the time of preparation, Bolton does not have the same extremes of threats such as heatwaves, droughts, flooding, extreme cold or rising sea levels that some areas of the country face. The planning of services, development and infrastructure in Bolton need to have regard for the indirect consequences of these pressures, however.
- 4.54. The prediction for Bolton is that the most significant direct impact of these changes will be an increased probability of localised flooding. Flooding risks are both fluvial (river) and pluvial (rainfall, run-off), depending on location. Those risks exist today and are likely to increase in frequency and intensity.
- 4.55. In accordance with Core Strategy policy CG1 and the NPPF, developers must ensure that developments take into account increasing localised threats from extreme flood events, especially if building in a flood zone. Proposals will be assessed in accordance with accordance with a sequential approach. The developments must be resilient to flood events that are reasonable to forecast given future predictions on scale and frequency of flooding. They must not cause additional threats to other areas, for example by causing run-off to 'export' the threat downstream. Information on flood risk is available from the Environment Agency (see Appendix).
- 4.56. Particular consideration will be required where development is intended for use by vulnerable people or uses, such as care facilities for older people, because those people or uses may be particularly vulnerable to threats such as over-heating.
- 4.57. This means, for example, that while emphasis is often on insulation to retain heat, consideration should also be given to effective passive ventilation and cooling design to avoid over-heating and the pressure

to retrofit air conditioning; and standardised designs and materials may need to be adapted to reflect orientation differences in respect of factors such as solar gain, prevailing winds.

- 4.58. The design of external space around buildings should reflect the changing conditions outlined above. For example, the use of well-designed green infrastructure can assist with cooling (countering 'heat island' effects) in hot conditions, and help to reduce surface water run-off in wetter weather.

Guidance Note

Developers are strongly urged to incorporate design measures into new developments and their surroundings to demonstrate that they are resilient and adaptable to the impacts of current and future climate pressures.

Considerable weight may be given to the measures or absence of them in proposals.

- 4.59. Other sections of this SPD also cover aspects of adaptation to climate threats, including Policy Statements.

Other Considerations

Local Impacts

4.60. The process of construction has indirect impacts on places and practices:

- Resources and labour are often more sustainably sourced from the local area, reducing emissions and costs from transport as well as benefitting the local economy and community.
- Developers should consider the impact and conduct of construction transport on delivery routes, noting in particular the adverse impact HGVs can have on other road users and sustainable transport options where they co-exist.
- Increasingly, HGV operators and those contracting them are using ongoing CPC (Certificate of Professional Competence) opportunities to deliver training in awareness of vulnerable road users. Developers are strongly urged to consider a requirement for drivers of heavy vehicles (employees or sub-contractors) used in a development to undergo such training. This conforms to Core Strategy policies P5 and S1 (especially P5.1 and S1.2).



Guidance Note

Developers should consider impacts on, and opportunities for, the local community during construction. Adverse impacts should be mitigated, whereas the opportunities to use local suppliers, materials and labour should be used to reduce the supply chain mileage.

Location & Transport

- 4.61. Location influences the sustainability of a proposed design in economic, social and environmental terms; location is covered in the Core Strategy and the Allocations Plan. The Core Strategy favours development in urban areas (see paragraph 4.27).
- 4.62. The Accessibility Transport & Safety SPD gives more details of Bolton's requirements based on local, GM and national policy. There is considerable guidance generally available on best practice for the provision of sustainable features such as cycle parking. Developers should approach solutions from the perspective of prospective users of facilities in order to avoid facilities that are underused through poor design.
- 4.63. Travel plans usually relate to operational matters in an organisation; however, they are influenced by site design and the local area. Sustainable design should consider how developments integrate to the local area, and how sustainable forms of transport should be supported and integrated as fundamental considerations, not just as secondary to motor vehicle use.

Building Accessibility

- 4.64. Without limiting the requirements for access in developments, for construction to be sustainable, it is reasonable to say that it should be able to adapt to changing lifetime requirements, including dealing with limitations of access. An inability of designs to adapt leads to significant redevelopment later on, which is a less sustainable alternative.
- 4.65. Attention is drawn to the Lifetime Homes Standard, which is designed to ensure that buildings (especially residential) are fit for future lifestyle use. Attention is also drawn to Approved Document M of schedule 1 of the Building Regulations, which allows for conditions to be applied as part of the planning permission process, to make requirements for access to dwellings. Different criteria may exist, for example to enable a wheelchair user to visit a building, to enabling a wheelchair occupant of a home to use the building appropriately.




Guidance Note

Developers should ensure that building designs include provision as built, or for ease of adaptation, to enable accessibility, with due regard to: its intended use, the Lifetime Homes Standard and conditions arising from Approved Document M, schedule 1 of the Building Regulations.

5. Sustainable Drainage


- 5.1. The Strategic Flood Risk Assessment indicates that there are areas that face localised risks of flooding from surface water run-off, water courses over-flowing or drainage systems surcharging.
- 5.2. The Core Strategy policy CG1.5 (see appendix) states that the council will reduce the risk of flooding in Bolton and downstream areas by minimising water run-off from new development and ensuring that a sequential approach is followed.
- 5.3. Sustainable drainage systems (SuDS) in developments must conform to DEFRA's Sustainable Drainage Technical Standards and Bolton Council's Local Guidance on SuDS (see Appendix). Surface water run-off is also limited by Core Strategy policy CG2.2c. These limit run-off on greenfield development to the equivalent rate/volume for the undeveloped land; for previously developed land, it must be as close as reasonably practicable to the greenfield runoff rate and not exceed 50% of the rate prior to the new development.
- 5.4. Consideration for flooding includes the threats that localised flooding may present to the development, with regard to projections for increased flooding risk in conjunction with climate change. Consideration should also be given to avoid increasing or displacing flood risks to downstream locations in the river basin.
- 5.5. Attention is drawn to NPPF section 10, 'Meeting the challenge of climate change, flooding and coastal change', and the requirements for local plans to apply the Sequential and Exception Tests. Since Bolton's flood risks are highly localised and scattered across the district, it is not necessary or appropriate to identify individual locations in the Core Strategy or the Allocations Plan.

- 5.6. However, consideration will be given to the Strategic Flood Risk Assessment (SFRA), Environment Agency flood risk models and surface water regulations. These will be used to assess proposals for the suitability of a location and/or the suitability of the proposed design in the context of the local flood risk.
- 5.7. Consideration will be given to the feasibility of sustainable drainage solutions for the site in question, having regard for suitable emerging/ innovative solutions as they become available for development.
- 5.8. For major development, the continued operation of SuDS must be ensured for the lifetime of the development, with minimum performance standards maintained. An agreed, insurance-backed maintenance agreement must be put in place that operates for the lifetime of the development.
- 5.9. Environmental Agency and CIRIA guidance on SuDS can be found via the links in the Appendix.
- 5.10. Carrying out a WFD assessment enables consideration of the potential impact of the proposal on the water environment. The Water Framework Directive (WFD) which came into effect in December 2000 was enacted into UK law in December 2003. It established a legal framework for the protection, improvement and sustainable use of water bodies across Europe and applies to all surface water bodies, including rivers, streams, brooks, lakes, canals and groundwater bodies.

 **Guidance Note**

Developers should refer to Bolton's SFRA and Environment Agency flood risk maps to consider the possible impacts of flooding on their proposals.

Planning consideration will be given to flood risks and how they are treated in proposals.

 **Policy Statement**

Developers must ensure that developments of 5 or more residential units, or 500m² or greater of non-residential units, do not exceed run-off limits stated in the Core Strategy: on brownfield sites, run-off must be 50% less than conditions before the development in question; on greenfield sites, the rate of run-off must be no worse than before the development.

Developers must not in any other way cause run-off or flooding to be transferred to other areas as a result of the development.

6. Biodiversity & Geodiversity

Biodiversity & Green Infrastructure (including water or 'Blue Infrastructure')

- 6.1. The Core Strategy frames the importance of biodiversity and geodiversity and their protection in the spatial portrait, the strategic objectives (SO12), and the Strategic Policies (CG1, CG3, IPC1, and their supporting text). Some policies implicitly support biodiversity protection, for example CG4.
- 6.2. The Allocations Plan proposals map shows key areas: Sites of Special Scientific Interest, Sites of Biological Importance and Local Nature Reserves (including proposed LNRs), and other locations restricted or protected from development. Considerations such as tree preservation orders are not on the proposals map, but may be viewed on the council's web site.
- 6.3. Within these areas, biodiversity may be a reason for restrictions; proposals should show consideration for biodiversity. Boundaries of existing sites may change over time and new sites may be added; the proposals map is not continuously adjusted to reflect those changes and developers should ensure that they have up-to-date information.
- 6.4. The lack of a protected location is not a guarantee that protected or important species are not present. Significant species are often to be found outside the protected areas. The local plan, NPPF and associated legislation enable the council to make judgements to protect locally identified biodiversity from inappropriate development, and each proposal should be assessed on its own merit for its potential to support or harm biodiversity, especially in areas that are adjacent to or between protected sites, so as to protect the boundaries from encroachment or harm.
- 6.5. It should be noted that biodiversity can be closely associated with green infrastructure, although token implementation of the latter does not necessarily mean good stewardship of the former. Landscaping plans that purport to support biodiversity should be able to justify how they do so.
- 6.6. A well-designed network of green infrastructure (GI) is an important component of creating better places, and development proposals should be designed and considered in the context of their part in that network.
- 6.7. GI can help to: the manage flood risk; respond and adapt to climate change; improve water quality, enhance and conserve biodiversity and habitat; and support recreation, wellbeing, quality of life and community interaction.
- 6.8. Green infrastructure is not just important in its own right, but has benefits for people, too. It has a role for social and mental wellbeing, as well as in moderating the impacts of climate on urban areas. Private and public gardens in residential and other urban areas are often regarded as playing a significant role in supporting biodiversity. Their roles include aiding cleaner air and having a cooling counter effect to 'urban heat islands'. Appropriate green infrastructure is valuable to address flooding risks locally and downstream. Links to guidance are available in the Appendix.
- 6.9. Taking these observations into account, in considering development plans for approval, the council will assess their impact on areas of biodiversity, green infrastructure; and the landscaping within a site will be assessed for its suitability. Regard will be given to the Greater Manchester Biodiversity Action Plans (BAPs).

- 6.10. The council's documents, the Core Strategy, the Infrastructure and Planning Contribution SPD, and the General Design Principles SPD, refer to Green Infrastructure (GI), open space and green space in general terms.
- 6.11. The functions of GI, in terms of sustainable design and construction, include its abilities to:-
- help developments adapt to a changing climate (such as resilience to flood, and extreme temperatures/ weather);
 - limit the impacts of developments on their surroundings in terms of landscape, habitat and biodiversity;
 - improve poor, existing examples of GI;
 - promote wellbeing and community cohesion
- 6.12. Appropriate GI will be encouraged and welcomed for all developments. As with other sustainable considerations, green infrastructure plans should be incorporated into the earliest stages of the scheme to be effective.
- 6.13. Schemes should consider the overall design, implementation and ongoing management and funding of the green infrastructure in order to be environmentally, socially and economically sustainable for the future. Various funding/management models exist, and developers may wish to consider exploring local authority partnership, various charity/trust options, management companies, cooperatives, voluntary groups or other options.
- 6.14. Development must observe regulations relating to protected species. This includes relevant surveys of sites and avoidance of disturbance and harm to species and their habitats. Developers should make themselves aware of the legal requirements and refer to Bolton's planning application checklists.
- 6.15. Developers should consider the impact of development within or between wildlife locations, in particular the inclusion of habitat and corridor features. In residential areas, for example, fencing is likely to affect movement of wildlife more than hedging. Consider installing a nest/roost box per residential unit. Gardens would benefit from including flower beds or wild sections, rather than just a grass lawn.
- 6.16. Sensitive on-site landscaping of developments assists biodiversity, local character and adaptation to climate change. For example, appropriate trees that can grow to exceed the building height can help to minimise the visual impact of a development on an area; they may also help to reduce the risk or impact of flooding; and they provide wildlife habitat.
- 6.17. In addition to the advice given in Bolton Council's General Design SPD, and in NPPF (para 125), developers should plan external illumination with regards to local wildlife, as well as for consideration of neighbouring land uses. Poorly designed illumination can impact on quality of life and can disrupt natural behaviour patterns in wildlife. Options for lighting technologies have developed in recent years, especially with improvements in LED and other energy-saving lighting. Developers should pay attention to unintended consequences, such as the behavioural rebound effect as a consequence of energy efficiency. Guidance to users, and the design of lighting and other systems, should not negate the gains made through energy efficient units, or cause disruption to neighbours and wildlife.



Guidance Note

Aside from regulatory requirements, developers should generally consider the impacts of developments on existing green infrastructure and its functions.

Green infrastructure, appropriate to the scale of the proposed development and its surroundings, should be planned to support biodiversity appropriately, and for use in adapting to effects of climate change.

Geodiversity

- 6.18. Regionally Important Geological Sites (RIGS) are protected as a material consideration. There is currently only one site in Bolton, located in Moses Gate Country Park, to the south of the River Croal.
- 6.19. As with the various classifications of sites of significant biodiversity, the proposals map is not updated with changes and should not be considered to be the definitive map of those locations.

Appendix – Other Guidance & Regulations

Core Strategy Policy CG1:

The council and its partners will:

1. Safeguard and enhance the rural areas of the borough from development that would adversely affect its biodiversity including trees, woodland and hedgerows, geodiversity, landscape character, recreational or agricultural value; or its contribution to green infrastructure, reducing flood risk and combating climate change.
2. Safeguard and enhance biodiversity in the borough by protecting sites of urban biodiversity including trees, woodland and hedgerows from adverse development, and improving the quality and interconnectivity of wildlife corridors and habitats.
3. Safeguard and enhance parks, gardens, allotments, civic spaces, cemeteries and playing fields and improve the quality and multi-functional benefits of these assets.
4. Allow some development on informal green spaces in the urban area, provided that it allows for the improvement of remaining green spaces and helps to meet the strategic objectives for housing.
5. Reduce the risk of flooding in Bolton and other areas downstream by minimising water run-off from new development and ensuring a sequential approach is followed, concentrating new development in areas of lowest flood risk.
6. Work towards minimising energy requirements, improving energy efficiency, lessening the reliance on fossil fuel-based energy and reducing carbon dioxide (CO₂) emissions.
7. Maximise the potential for renewable energy development and encourage proposals that contribute towards the renewable energy targets set out in the Regional Spatial Strategy.

Core Strategy Policy CG2:

The council and its partners will:

1. **Ensure that all development proposals contribute to the delivery of sustainable development, being located and designed so as to mitigate any adverse effects of the development and adapt to climate change by incorporating high standards of sustainable design and construction principles.**

The following two policies (CG2.2 and CG2.3) are applicable unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable. Scheme viability shall also take into account:

- The reduction in energy bills from the renewable energy technology over its life time.
 - The equivalent cost on the environment for the additional carbon dioxide generated by not installing the renewable energy technology.
2. **Ensure that all proposals for 5 or more residential units, or 500m² or greater non-residential units:**
 - a. Achieve Level 3 of the Code for Sustainable Homes or the “very good” BREEAM rating (or any subsequently adopted set of national sustainable construction standards).
 - b. Incorporate appropriate decentralised, renewable or low carbon energy sources to reduce the CO₂ emissions of predicted regulated and unregulated energy use by at least 10%. The most appropriate technology for the site and the surrounding area should be used. For the purposes of calculating the CO₂ emissions, an energy assessment which includes a carbon budget should be provided for the proposed development.
 - c. Demonstrate the sustainable management of surface water run-off from developments. On brownfield sites the rate of run-off should be 50% less than conditions before development. On greenfield sites the rate of run-off should be no worse than the original conditions before development.

The following policy clause will be implemented once the City Region investment fund has been established:

(CG2/...)

3. Ensure that all proposals for 5 or more residential units, or 500m² or greater non-residential units:

- a. Achieve the minimum targets for carbon reduction as outlined in the AGMA Decentralised Energy Study (table shown below).
- b. Connect to existing or planned/potential decentralised and/or power schemes, where appropriate.

Where these minimum standards cannot be met on site, the use of allowable solutions and contribution into the City Region investment fund will be allowed.

Core Strategy Policy CG3:

The council and its partners will:

1. Expect development proposals to display innovative, sustainable designs that contribute to good urban design.
2. Conserve and enhance local distinctiveness, ensuring development has regard to the overall built character and landscape quality of the area.
3. Require development to be compatible with the surrounding area, in terms of scale, massing, grain, form, architecture, street enclosure, local materials and landscape treatment including hard and soft landscaping and boundary treatment. Historical associations should be retained where possible.
4. Conserve and enhance the heritage significance of heritage assets and heritage areas, recognising the importance of sites, areas and buildings of archaeological, historic, cultural and architectural interest and their settings.
5. Ensure development is designed in an inclusive manner which is accessible and legible to all, regardless of age, gender, background or disability.
6. Encourage the incorporation of design measures into new developments that allow adaptation and resilience to the impacts of climate change and extreme weather events and also to reduce the threat of fuel poverty, through the careful selection of aspect, layout and massing, and by making buildings increasingly energy efficient.

7. Maintain and respect the landscape character of the surrounding countryside and its distinctiveness. Any soft landscaping and landscape enhancement schemes should enhance biodiversity and be compatible with the nearby landscape character types identified by the Landscape Character Assessment.

Allocations Plan Policy CG8AP-

Decentralised, renewable and low carbon energy development locations

The Council will support proposals for low carbon, decentralised and renewable energy which comply with national and local policies in the following sites and locations as indicated on the Proposals Map.

Target 1:

- Bolton town centre
- Horwich Loco Works
- Royal Bolton Hospital
- The Cutacre employment development area

Target 2:

Strategic business and employment areas:-

- Wingates Industrial Estate
- St Peter's Business Park
- Watermead
- Mill Hill Industrial Area
- Express Industrial Estate
- British Aerospace site
- The Cutacre employment development area

Target 3:

- Housing allocations

Additional policies, guidance, etc.

In addition to the Policy Landscape above, policies and plans that may influence environmental considerations, and which may be of use in preparing development proposals, include:

- Greater Manchester Spatial Framework
- Greater Manchester Climate Change Strategy & Implementation Plan
- Other SPDs:
 - Accessibility, Transport & Road Safety SPD
 - Infrastructure SPD
 - General Design Principles
- Planning application checklist(s) and planning guidance
- Non-statutory technical standards for sustainable drainage systems

To re-iterate: these lists do not limit the application of a policy that is not listed but which may have case relevance to the environmental sustainability purpose of this SPD. For the policies quoted here, please see the Core Strategy and Allocations Plan respectively.

The Environment Agency is keen to be involved in pre-application discussions. Developers are advised to contact the Environment Agency at the pre-application stage for free preliminary advice on any application. This can help avoid issues prior to formal submission. More detailed advice is also available on a commercial basis.

Details of environmental waste licensing are available at <https://www.gov.uk/guidance/waste-environmental-permits>.

Green infrastructure information recommended by the Environment Agency is available at

http://www.greeninfrastructurenw.co.uk/resources/GI_How_&_where_can_it_help_the_NW_mitigate_and_adapt_to_climate_change.pdf

The Town & Country Planning Association's Good Practice Guidance on Sustainable Design and Construction is available at

http://www.tcpa.org.uk/data/files/Sustainable_Design_and_Construction.pdf.

The TCPA's "By Design" guides provide information on biodiversity, sustainable energy and adapting to climate change, and are available at <http://www.tcpa.org.uk/pages/by-design-guides.html>

Further advice on SuDS can be found via:

Infrastructure and Planning Contributions SPD, available at:

<http://www.bolton.gov.uk/website/pages/Supplementaryplanningdocuments.aspx>;

https://www.gov.uk/search?q=suds&filter_organisations%5B%5D=environment-agency; and

<http://www.ciria.org/ItemDetail?iProductCode=C698&Category=BOOK>

Flood risk information is available at

<https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>.

To assess climate change as part of flood risk assessments, visit

<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.

Policy locations

The Policies referred to in this document may be found at the following locations (at the time of publication):

National Planning Policy Framework and guidance:

<https://www.gov.uk/government/publications/national-planning-policy-framework--2>

<http://planningguidance.planningportal.gov.uk/>

Bolton's Core Strategy:

<http://www.bolton.gov.uk/website/pages/Corestrategy.aspx>

Bolton's Allocations Plan:

<http://www.bolton.gov.uk/website/pages/Allocationsplan.aspx>

GM Minerals Plan:

http://www.gmineralsplan.co.uk/docs/The_Minerals_Plan_April_2013_FINAL.pdf

GM Waste Plan:

http://www.gmwastedpd.co.uk/docs/Doclib/Greater_Manchester_Waste_Plan.pdf

Non-statutory technical standards for the design, maintenance and operation of sustainable drainage systems:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/415773/sustainable-drainage-technical-standards.pdf

Bolton's planning guidance and checklists:

<http://www.bolton.gov.uk/website/pages/Planningguidance.aspx>

Bolton's Local Guidance on Sustainable Drainage Systems

<http://www.bolton.gov.uk/website/pages/Planningguidance.asp>

Telecommunications company contact points:

More information on connecting developments to the BT Openreach network is available at:

<http://www.newdevelopments-openreach.co.uk/>.

For more information on connecting developments to the Virgin Media network, email:

new.commercialdevelopments@virginmedia.co.uk

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