

Local Development Framework Supplementary Planning Document

Sustainability and Climate Change

March 2012



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Part One - Introduction

Foreword

- 1.1 The context for action on climate change has been firmly set through a number of acts and guidance at a national level. The message is clear that action is required within the planning system to start delivering fundamental changes to the environment and the buildings that occupy it.
- 1.2 Traditionally, issues surrounding sustainability and climate change have been purely environmental considerations which have been considered primarily within the international context by governments and interested parties. This is now changing and issues surrounding sustainability and climate change are at the forefront of everyday life for everyone.
- 1.3 In terms of business, a shift is taking place which places sustainability and climate change at the forefront of strategic thinking. This is demonstrated by the fact that the majority of multi-national companies have in place formal commitments to act on climate change and deliver a more sustainable business model. The insurance industry is also well aware that it needs to prepare itself for fundamental changes. At a local level, the issue of fuel (in terms of security and poverty) is now precarious and will only grow more critical with the passing of time. Therefore, the planning system must respond to ensure that the built environment can mitigate and adapt accordingly.
- 1.4 All stakeholders need to respond to the challenge of climate change by providing development that can mitigate for and adapt to future changes. Meaningful action cannot be delivered in isolation; but only through co-operation. There is no doubt that in the short-term addressing this issue will be challenging, but studies show that the cost of doing nothing now will result in greater costs in the long-term environmentally, economically and socially.
- 1.5 To deliver truly sustainable development it is vital that the sustainability of a development is considered at the early planning and design stages. Truly sustainable development considers environmental, economic and social factors in equilibrium.

Background – relationship to other plans

- 1.6 The purpose of this Supplementary Planning Document (SPD) is to provide detailed guidance in taking forward and implementing the Newcastle-under-Lyme and Stoke-on-Trent Core Spatial Strategy (October 2009). The Core Spatial Strategy is the primary statutory planning document which sets

out a broad framework for the future development of the whole of Newcastle-under-Lyme and Stoke-on-Trent. In relation to sustainable development and climate change the Core Spatial Strategy provides the overarching approach through Strategic Aim 17:-

'To minimise the adverse impacts of climate change in the move towards zero carbon growth through energy efficiency, promoting the use of renewable energy sources and green construction methods in accordance with best practice'

- 1.7 The strategic aim is underpinned by Policy CSP3 – Sustainability and Climate Change which states:-

'Development which positively addresses the impacts of climate change and delivers a sustainable approach will be encouraged.'

The highest standards of energy and natural resource efficiency will be achieved by: -

1. Requiring that all new development, as a minimum, complies with on-site or near-site renewable or low carbon energy targets set out in current or future national guidance and the Regional Spatial Strategy and takes positive measures to reduce carbon emissions to the levels set out in the Regional Spatial Strategy.

2. Ensuring the use of construction methods which minimise the use of non-renewable resources and which maximise the use of recycled and locally sourced materials.

3. Requiring all new developments to incorporate the use of Sustainable Urban Drainage Schemes (SUDS).

4. Developing habitat systems which are resilient to climate change in accordance with latest best practice.

5. Supporting local initiatives to address climate change such as the North Staffordshire Warm Zone and other initiatives that may emerge.

6. Requiring best practice standards where supported by future local or regional evidence.

7. All new development shall be located in locations at lowest possible flood risk as identified in the SFRA and all suitable flood mitigation measures shall be investigated and where possible incorporated into the development. Opportunities will be sought to open up

culverted watercourses to alleviate flood risk, create and improve habitats and develop green corridors.

Where these requirements are impractical and/or unviable, the onus will be on the developer to demonstrate that this is the case'

- 1.8 The Core Spatial Strategy has been subject to public examination by an Independent Inspector following public consultation and was formally adopted in October 2009.

Objectives – What does this guidance seek to achieve?

- 1.9 The primary objective of this SPD is to take forward the policy within the Core Spatial Strategy and deliver measurable improvements to the sustainability of the built environment. However, there are a number of additional objectives that the SPD seeks to achieve which are:-
- A quantifiable improvement over the minimum standards as set out in Building Regulations of a development's performance in relation to sustainability;
 - Ensure that all aspects of sustainable design are considered and addressed, not just mitigation;
 - Provide an efficient and consistent tool to assess the sustainability of development proposals;
 - Provide development proposals of all sizes the opportunity to consider sustainability (not just larger proposals);
 - Encourage applicants to demonstrate the sustainability of their development proposal in a method other than a formal assessment through a nationally prescribed best practice standard (such as the Code for Sustainable Homes and BREEAM assessments methods);
 - To enable a realistic picture of what sustainability measures and standards can or can not be delivered through development proposals in terms of viability;
 - To enable applicants to familiarise themselves with providing more sustainable and/or lower carbon developments prior to the formal introduction of the Government's requirement for all new homes to be 'zero carbon' by 2016.
- 1.10 It is important to note that measures which seek to improve the sustainability of development proposals can also achieve other planning objectives such as good urban design, improved biodiversity and a sustainable transport network.

Approach – How will this be done?

- 1.11 The starting point for applicants, prior to submitting an application, is to consider the overall strategy taken on sustainability. The strategy should reflect the individual characteristics of the site and the scale and nature of the proposal. This will ensure that applicants have the flexibility to demonstrate the sustainability credentials of their proposal and identify what the key driver is behind their approach. It is crucial that the strategy is considered at an early stage; this will enable it to be fully embedded into the design scheme.
- 1.12 The authority will not be prescriptive and set arbitrary targets or requirements for specific technologies. Targets can quickly become dated and do not take account of the fact that development sites are inherently different and generally require a bespoke approach. Likewise, setting a requirement for a certain technology will place a 'time limit' on the document and does not provide applicants with the flexibility to deliver a tailored approach for their development proposal. This SPD seeks to instil a 'passive' approach, whereby the general parameters of exceeding minimum standards are set and the applicants are provided with a flexible framework to deliver.
- 1.13 The approach is structured to ensure that development proposals address sustainability and climate change comprehensively. In doing this development proposals will be required to consider their relationship to both the causes and effects of climate change through **mitigation** and **adaptation**.

Mitigation

Development proposals must demonstrate how they reduce their impact on the environment in terms of:-

Carbon emissions;
Decentralised Energy (renewable and/or low carbon technology);
Water;
Materials and appliance use;
Recycling provision;
Waste; and
Sustainable Transport.

Adaptation

Development proposals must demonstrate how they will cope with future climate change.

- 1.14 There is some overlap in aspects of mitigation and adaptation. However, there is a fundamental difference in the sense that one seeks to prevent and the other seeks to react to a changing climate; thus generally requiring different solutions. Subsequently they are addressed separately within this SPD.

Assessment process

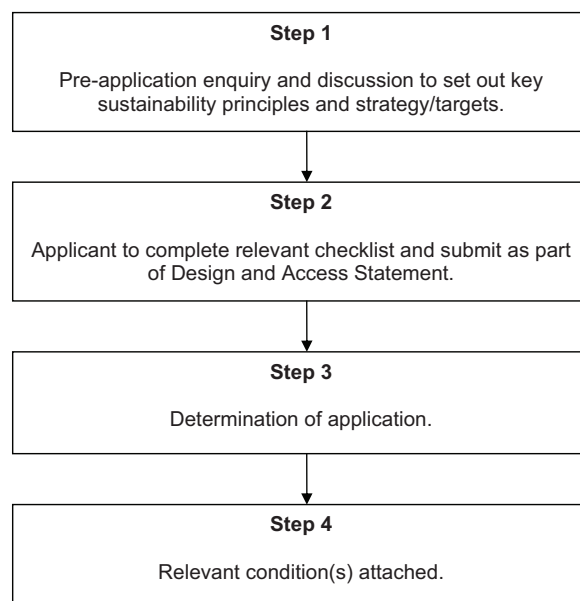
- 1.15 This SPD has been prepared in accordance with local and national planning policy and it is a material consideration to be given weight when determining development proposals. The SPD relates only to development proposals requiring planning permission. However, the principles contained within this document can be applied to proposals that do not require planning permission (e.g. household extensions which are 'permitted development').
- 1.16 The assessment process requires applicants to complete the relevant checklist from the table below. Relevant guidance to help fill in the checklist can be found in Part Two of this document:-

Planning Application Type	Checklist Reference
Major	One
Minor	One
Householder	Two
Other (e.g. Listed Building Consent)	One

- 1.17 The checklists will form part of the local validation list to be prepared for adoption by the City Council. Once adopted the absence of this information could lead to the invalidation of the planning application.
- 1.18 Outline applications and speculative development - It is appreciated that there may be circumstances where the full details on sustainability may not be available (e.g. outline planning applications or where a specific end user is not yet known). Therefore, the approach will have to be tailored accordingly:-

- Outline applications - the applicant should still identify the strategy on sustainability and provide what information they have on sustainability at that time. Sustainability issues not covered at the outline stage will need to be addressed with any subsequent Reserved Matter application when the information is available. However, conditions are likely to be required at the outline stage to secure the attainment of stated principles as we cannot condition elements in regards to design at the Reserved Matter stage;
- Speculative development – the applicant should still identify the strategy on sustainability and provide what information they have on sustainability at that time. On large and complex proposals the use of BREEAM 'shell only' assessments may be applicable.

- 1.19 In both cases, to avoid confusion and delay, it is prudent that the strategy clearly illustrates why an approach has been taken.
- 1.20 Householder – Depending upon the scope of the works involved the applicant may be requested to submit a completed checklist to demonstrate that consideration has been given to how the dwellings performance will evolve.
- 1.21 It is acknowledged that there are difficulties with incorporating sustainability measures into heritage assets, such as listed buildings and conservations areas. Therefore, it is advised that pre-application advice is sought at the earliest opportunity to identify practical solutions that will deliver climate change mitigation and adaptation but with little or no harm to the significance of the heritage asset and its setting.
- 1.22 The following assessment process will be undertaken:-



- 1.23 As stated above, it is crucial that a strategy for sustainability is considered at an early stage; this will enable the provisions to be fully embedded into the design scheme. Appendix B 'Outline Plan of Work' illustrates when nationally prescribed best practice standards on sustainability (e.g. the Code for Sustainable Homes and BREEAM assessment methods) should be used. If a nationally prescribed best practice standard is not being used, applicants should still consider Appendix B as a guide.

Viability

- 1.24 A fragile development market exists within parts of the City which has been adversely affected by current market conditions. As a result measures to mitigate and adapt to climate change (as with all planning contributions) must be sensitive to the market and not unduly constrain development. This should not translate into a complete absence of any measures to address climate change; as to simply ignore it now will prove costly in the future. A balanced approach based on smarter thinking is required with viability being a key consideration.

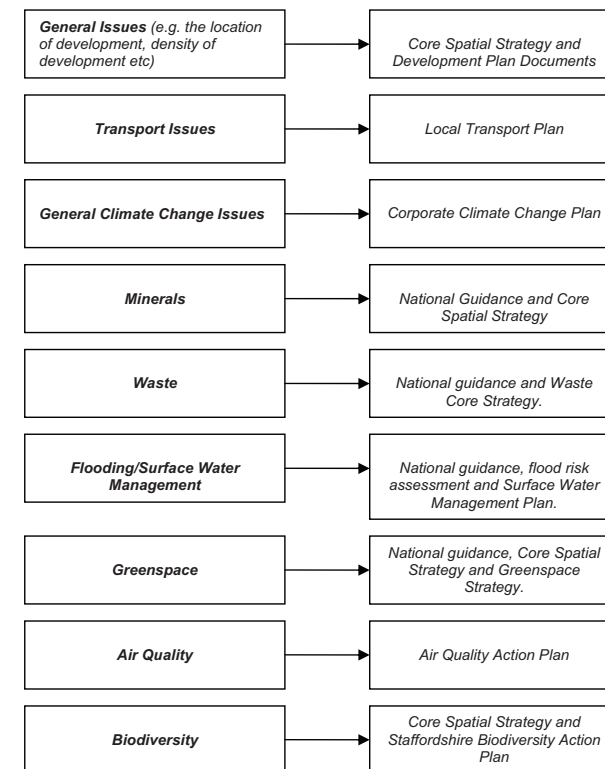
- 1.25 Where an agreement cannot be reached on the level or nature of sustainability measures due to viability, the applicant will be required to demonstrate this. Relevant financial information for the proposal will be requested by the City Council in accordance with policy CSP3 of the Core Spatial Strategy. It is crucial that issues regarding viability are dealt with at an early stage; preferable at pre-application. This will enable proposals to be considered in an efficient manner. If you have any queries in relation to viability please contact the City Council in the first instance.

Monitoring and enforcement

- 1.26 Monitoring of development proposals will be undertaken in line with the adopted Enforcement Policy 2010 of the City Council and it will be recorded within the Annual Monitoring Report (AMR).

What it does not cover?

- 1.27 The SPD is not the place to debate the extent and/or causes of climate change. There is an overwhelming scientific consensus that the climatic changes we face are linked to global greenhouse emissions that result from human activity. The SPD takes forward this context which has been firmly set through a number of acts and guidance at a national level.
- 1.28 The SPD does not provide guidance on general issues of sustainability; it focuses primarily on development which requires planning permission. The following diagram illustrates where guidance and/or policy can be found on other planning issues relating to sustainability:



- 1.29 For more information on other planning documents please visit www.stoke.gov.uk/ldf

Part Two – Assessment Criteria

Mitigation

Involves taking action to reduce the impact of human activity on the climate system, primarily through reducing greenhouse gas emissions but it also considers other aspects such as water, materials, appliances, recycling, waste and sustainable transport measures.

Introduction

- 2.1 Mitigating for climate change primarily involves a commitment to reducing greenhouse gases. Mitigation can be achieved in a variety of ways; some are straightforward and have direct impacts; some are more innovative or subtle and may have an indirect effect.
- 2.2 In terms of the planning system, mitigation has focused on reducing the level of greenhouse gases which are emitted directly from buildings. However, it can also relate to other components indirectly such as water, use of materials and appliances, recycling, waste and management. It can also relate to more general issues such as seeking to maintain existing buildings within development schemes. Conservation in this way not only preserves character and local identity within the townscape, but also reduces the drawdown of fresh construction materials.
- 2.3 Focussing on both direct and indirect components of mitigation will ensure a comprehensive approach to addressing the causes of climate change.
- 2.4 The key principle to consider when mitigating for climate change is illustrated in the 'resource hierarchy':-

SUSTAINABLE

Priority 1

Reduce demand for energy and material by changing wasteful behaviour.

Priority 2

Conserve and make better use of the energy and materials we use through better buildings, technology and behaviour change.

Priority 3

Maximise use of renewables and other sustainable resources.

Priority 4

Use energy recovery or low carbon technologies.

Priority 5

Use existing means of material disposal and energy generation.

UNSUSTAINABLE

- 2.5 The hierarchy is prioritised in order of sequential preference and should be considered when developing a strategy to mitigate climate change.
- 2.6 It is important to note, when considering a strategy on sustainability and climate change, that a number of multi-national and national companies will not occupy buildings that do not achieve a certain score in terms of carbon emissions or environmental standards (e.g. BREEAM).

Assessment Criteria

- 2.7 As stated this document offers applicants the opportunity to demonstrate the sustainability credentials of their development proposals in a method other than formal assessments (under nationally prescribed best practice standards) and in the form of a sustainability checklist. Section 1-9 of *Checklist One* allows the applicant to demonstrate how their scheme addresses mitigation. However, this section can be skipped if a formal assessment has been undertaken under a nationally

prescribed/recognised best practice standard, for example, the Code for Sustainable Homes or the relevant BREEAM scheme, as appropriate to the development type. Although full details of any such design stage assessment will need to be supplied with the application at the validation stage.

- 2.8 The mitigation elements within the checklists are explained below:-

1. Carbon Emissions

Aim	Explanation	Assessment Criteria
<p>To limit emissions of carbon dioxide (CO₂) to the atmosphere arising from the operation of the proposed development and its services.</p>	<p>TER – The minimum energy performance for new buildings and large extensions is expressed in terms of a target CO₂ emission rate (TER) measured in kg per m² per annum.</p> <p>The domestic means of calculating the TER is currently via the approved calculation tool Standard Assessment Procedure (SAP – for individual dwellings under 450 square metres total floor area) and; Simplified Building Energy Model (SBEM – for dwellings with more than 450 square metres total floor area)</p> <p>For buildings other than dwellings the building should be modeled using a method compliant with the National Calculation Method (NCM), e.g. SBEM, and an Energy Rating and certificate produced using approved software by an Accredited Energy Assessor.</p>	<p>To assess compliance with the minimum energy performance for all developments the TER must be compared with the Dwelling Emission Rate (DER) or Building Emission Rate (BER). This assessment should include developments which involve new build residential schemes and significant alterations or extensions to an existing non-domestic building (the trigger for this requirement is currently where the extension exceeds both 100 sq. metres and 25% of the existing floor area – Building Regulation Approved Document L) and applicants will be expected to fulfil these requirements by filling in the appropriate part of the <i>checklist</i>.</p> <p><u>Checklist One</u></p> <p>Within Question 1 provide the Target Emissions Rate (TER) and Building Emissions Rate (BER) for non-domestic development and the Dwelling Emission Rate (DER) for domestic development. Information is measured in kg per m² per annum.</p> <p><u>Checklist Two</u></p> <p>Within Question 1 provide details of what features of the development proposal have been provided to minimise carbon emissions through energy efficiency and/or the use of renewable technologies.</p>

2. Decentralised Energy (renewables and/or Low Carbon energy generation)

Aim	Explanation	Assessment Criteria
<p>To increase the level of decentralised energy supply.</p> <p>The inclusion of renewable and low carbon energy generation where a clear and measurable reduction in carbon emissions can be demonstrated.</p>	<p>Decentralised energy is a wide range of technologies that do not rely on the high-voltage electricity transmission network or the gas grid.</p> <p>A decentralised approach makes best use of resources by locating energy generation (heat and electricity) close to the point of use. The energy created through a decentralised approach can be distributed to surrounding land uses to form a district energy/heat network.</p>	<p>Applicants should demonstrate that they have considered the following when formulating development proposals:-</p> <ul style="list-style-type: none"> • Utilise renewable/low carbon technologies where a clear and measurable reduction in carbon emissions can be demonstrated; • If a renewable/low carbon measure is being incorporated within the development proposal can it serve other existing buildings on site or can it serve neighbouring uses/buildings. If this cannot be done what is preventing it? • Where there is an existing decentralised energy supply network in place or there are firm proposals to provide one consider connection to the system by the appropriate method:- <ol style="list-style-type: none"> 1. Direct connection to the network; or 2. Safeguard future connection in the design of development proposals. <p>Any consideration of connecting to a decentralised energy supply network will require pre-application discussions at the earliest opportunity.</p> <p><u>Checklist One</u></p> <p>Within Question 2 provide details of what has been considered in terms of decentralised energy.</p> <p><u>Checklist Two</u></p> <p>Within Question 1 provide details of what renewable and/or low carbon technologies have been incorporated within the development proposal.</p>

3. Water

Aim	Explanation	Assessment Criteria
<p>To reduce the consumption of potable water in all buildings from all sources, through the use of water efficient fittings, appliances and water recycling.</p>	<p>Climate change is likely to intensify the water cycle thus intensifying patterns of water scarcity and abundance thus increasing the risk of droughts and floods. This is exacerbated by a growing UK population, thus an increasing demand for a reducing resource. It is, therefore, important to conserve water and reduce wastage. At present there is no control over water efficiency in current Building Regulations with the exception of minimum flush standards for toilets within Water Supply Regulations.</p> <p>Minimising the use of water also reduces carbon emissions given the inherent energy cost involved in treating and supplying water. It also reduces the amount of waste water produced and the need for infrastructure to deal with it.</p> <p>It is important that the approach taken on water recycling does not increase carbon emissions.</p>	<p>Applicants are expected to ensure that measures are put in place to limit water consumption by installing measures such as water meters, water butts within private gardens, water collection features within landscaped areas, low water use fittings and appliances and guidance for occupants on water conservation methods.</p> <p><u>Checklist One</u></p> <p>Within Question 3 provide the details of water consumption for each dwelling in l/p/d (litres per person per day); using the Building Regulations Water Calculator tool for domestic proposals. For non-domestic properties, water consumption should be expressed as l/m² (litres per square metre).</p> <p><u>Checklist Two</u></p> <p>Within Question 2 provide details of what features of the proposal have been provided to minimise water consumption (e.g. low flush toilets, sprays taps etc)</p>

4. Materials and Appliances

Aim	Explanation	Assessment Criteria
<p>To encourage the use of materials and appliances with lower environmental impacts within development proposals.</p>	<p>There are considerable environmental impacts associated with materials used in construction, whether due to excavation, manufacture or transportation – let alone in terms of the actual performance of the material in situ.</p> <p>The procurement of materials has an economic benefit associated with it, and thus materials that are sourced or manufactured locally, will have an added benefit to the local economy. Determining the most sustainable material for a given application is therefore a complex task. In order to help with decision making The Green Guide to Specification has been developed by the Building Research Establishment (BRE). The Guide is free to view and can be accessed from:</p> <p>www.bre.co.uk/greenguide</p> <p>The Guide lists the materials assessed by building element. All materials are rated from 'A+' through to 'E'.</p> <p>Electricity usage has a profound impact on the environment. Electricity is sourced from power stations where the majority burn fossil fuels. One relatively simple way of reducing electricity usage and, therefore, carbon emissions is to use energy efficient appliances.</p> <p>Under European Union (EU) regulations many electrical appliances must carry an energy efficient label. The 'EU energy label' must be displayed on the majority of appliances and rates the efficiency of each from 'A' to 'G', with 'A' being the most efficient and 'G' being the least efficient.</p>	<p>Applicants are required to provide evidence of the environmental rating of the materials used in the development, as described by the Green Guide to Specification. Materials used in the following elements are to be considered:</p> <ul style="list-style-type: none"> • External walls • Windows • Roof • Internal wall • Upper Floors • Floor Finishes/Coverings (for non-domestic buildings only) <p>Applicants are required to provide evidence of the rating of appliances used in the development, as rated by the European Union energy efficiency label, for the following appliances (where relevant):-</p> <ul style="list-style-type: none"> • Washing Machines • Tumble Dryers • Dishwashers • Refrigerators • Freezers • Boilers • Electric Ovens • Digital Televisions • Lamps, Light bulbs, Light fittings. <p><u>Checklist One</u></p> <p>Within Question 4 development proposals are to demonstrate the use of nationally recognised sustainable materials and appliances.</p> <p><u>Checklist Two</u></p> <p>Within Question 3 development proposals are to demonstrate the use of nationally recognised sustainable materials and appliances.</p>

5. Recycling

Aim	Explanation	Assessment Criteria
<p>To ensure the provision of adequate internal and external storage space for non-recyclable waste and recyclable facilities in line with current City Council requirements.</p>	<p>The cost of disposing of waste is increasing, as the availability of suitable land for landfill decreases, and the consumption rates of the general population increases. Therefore opportunities to recycle need to be encouraged. Appropriate space and facilities for storage of recyclable waste must be designed into developments.</p> <p>For dwellings, space must be made specifically for the storage of recycling bins and internal storage bins for non-recyclable waste.</p> <ul style="list-style-type: none"> • all located in an adequate internal space • no individual bin smaller than 15 litres • minimum total capacity 60 litres <p>For non-domestic buildings and multi-residential blocks, space must be provided for recycling waste. Such space must be separate to non-recyclable waste storage, and should be clearly designated as such.</p> <p>For non-domestic buildings this space ought to be at least 2m² per 1000 m² of net floor area for buildings <5000 m². For buildings over 5000 m² net floor area should have at least 10 m².</p> <p>For further information on bin storage requirements please contact the City Council.</p>	<p><u>Checklist One</u></p> <p>Within Question 5 provide details regarding the internal and external storage space for non-recyclable waste and recyclable facilities in line with current City Council requirements.</p> <p><u>Checklist Two</u></p> <p>Within Question 4 provide details regarding the internal and external storage space for non-recyclable waste and recyclable facilities in line with current City Council requirements.</p>

6. Waste

Aim	Explanation	Assessment Criteria
<p>To ensure the reduction and effective management of construction related waste.</p>	<p>The cost of disposing of waste is increasing, as the availability of suitable land for landfill decreases, and the consumption rates increase.</p> <p>This waste equates to increased cost to the developer/contractor in terms of cost of materials and cost of disposal. Therefore developers/contractors must demonstrate a best practice site waste management plan, which includes provision to:</p> <ol style="list-style-type: none"> design out waste reduce waste generated on site develop and implement procedures to sort and reuse/recycle construction waste on and off site (as applicable). <p>Contractors and developers should follow guidance from:</p> <ul style="list-style-type: none"> DEFRA (Department of Environment, Food and Rural Affairs) BRE (Building Research Establishment) Envirowise WRAP (Waste & Resources Action Programme) <p>Waste materials will be sorted into separate key waste groups (according to the waste streams generated by the scope of the works) either on-site or off-site through a licensed contractor for recovery.</p> <p>Developers/contractors should seek to reuse waste materials on-site, where possible.</p> <p>Developers/contractors should seek to divert waste from landfill, by promoting recycling and seeking alternative uses in the area for waste materials (e.g. topsoil, timber, aggregates etc)</p>	<p>Regulations came into force in April 2008 making Site Waste Management Plans (SWMP) compulsory for all construction projects in England costing over £300,000 (excluding VAT). The SWMP must be prepared in accordance with the Site Waste Management Plan Regulations 2008.</p> <p><u>Checklist One</u></p> <p>Within Question 6 state whether a Site Waste Management Plan has been undertaken.</p> <p><u>Checklist Two</u></p> <p>Not applicable.</p>

7. Sustainable Transport measures

Aim	Explanation	Assessment Criteria
<p>To support the incorporation of sustainable transport measures within development proposals.</p>	<p>For a development to be truly sustainable it is important that modes of travel other than the private motor car are promoted. Schemes should encourage methods that reduce the need to travel, especially by car. Alternatives to the use of cars should be considered at the earliest possible design phase to ensure they are properly integrated into the development.</p>	<p>Development proposals are to demonstrate the incorporation of sustainable transport measures, for example, large applications with significant impacts upon the highway network may require a Travel Plan.</p> <p><u>Checklist One</u></p> <p>Within Question 7 state what sustainable transport measures have been incorporated.</p> <p><u>Checklist Two</u></p> <p>Within Question 5 state what provision has been made for cycle storage</p>

8. Other measures

Explanation

Other measures that may not have been stipulated – or there are proposals where the information cannot adequately be described within the relevant checklist. For instance:-

- Corporate Sustainability Commitment – does the applicant or occupier have a corporate commitment on sustainability or climate change?
- Environmental Management Systems (EMS) – has the applicant or end user/occupier got a recognised standard and/or accreditation (e.g. ISO 14001)?
- Fabric Energy Efficiency Standard (FEES) – is there a Fabric Energy Efficiency Standard for the proposal?
- Home/Building User Guides – there may be a requirement for information to be provided to the occupier/end user explaining various environmental features (energy, water use, etc), recycling and public transport etc.
- Sustainable Procurement – has there been any consideration to meet the needs for goods, services, works and utilities in a way that achieves value for money in terms of generating benefits not only to the organisation but also minimising damage to the environment?

Adaptation

Whatever the cause of climate change we will need to adapt our buildings and spaces so they can cope with higher temperatures, more extreme weather and changes in rainfall.

Introduction

- 2.9 Progress has been made within the development industry to deliver buildings that are more energy efficient and produce less greenhouse gas emissions; this is now an established part of the planning process. However, the development industry (including all stakeholders) has been slower to recognise that a number of changes to the climate are inevitable and need consideration from the outset of the design process. Climate change will have a significant impact upon how the environment and buildings within it perform.
- 2.10 A fundamental change in how we deliver the built environment in terms of design, construction, refurbishment and occupation is required to adapt to the challenges brought around by a changing climate. Key to this change is how we consider design; which requires a change from an approach based on past experiences to one that is based on calculated projections of future climate.
- 2.11 We must begin the process of delivering measures within the built environment to adapt to the forecast changes in climate. The business case for addressing adaptation measures has been made clear in the past few years within the economic environment and this is highlighted within the insurance industry. The health and wellbeing of the population is vulnerable to a changing climate; this has been evidenced by notable events such as the European heat wave of 2003, the UK floods of 2007 and more recently the prolonged winter of 2009/10.
- 2.12 It is acknowledged that there are issues with spending on unquantified benefits in the short-term and its subsequent impact upon scheme viability. However, long-term running costs, including insurance and maintenance, will prove to be less with the future value of the property increasing if measures to adapt to climate change are incorporated within the design stage of development proposals.

A Changing Climate

- 2.13 The Earth's climate is changing and will continue to change over this century and beyond. The Intergovernmental Panel on

Climate Change (IPCC) (4th Assessment Report) identified the main impacts of climate change as:-

- Hotter drier summers;
- Wetter warmer winters;
- More intense weather events (rain storms; high winds; extended dry periods; extended cold spells – snow and ice).

- 2.14 In addition to the IPCC report, detailed investigations on climate change have been undertaken through the UK Climate Projections programme (UKCIP). The UKCIP recognises that past and current global greenhouse emissions mean that the world is already committed to some level of future climate change, therefore the need for adaptation to address the resulting consequences is highlighted.
- 2.15 Since 1997 UKCIP has been working with the public, private and voluntary sectors to assess how a changing climate will affect:-
- Construction;
 - Working practices;
 - Demand for goods and services;
 - Biodiversity;
 - Service delivery; and
 - Health.
- 2.16 The most up-to-date projections are available in UKCP09; the fifth generation of climate change information for the UK. Its projections are based on a new methodology (designed by the Met Office), climate science and computer modelling which have advanced significantly. UKCP09 now reflects scientists' best understanding of how the climate system operates, how it might change in the future, and allows a measure of the uncertainty in future climate projections to be included.
- 2.17 The projections are presented for three different future scenarios representing High, Medium and Low greenhouse gas emissions.

The types of climate information provided are:

Observed climate data (20th and 21st century historical information about temperature, precipitation, storminess, sea surface temperatures and sea level)

Climate change projections (for temperature, precipitation, air pressure, cloud and humidity)

Marine & coastal projections (for sea level rise, storm surge, sea surface and sub-surface temperature, salinity, currents, and waves).

- 2.18 Full details can be accessed at a local level from the UK Climate Projections at <http://ukclimateprojections.defra.gov.uk>.
- 2.19 There is a tendency to be influenced only by the recent weather. This is made apparent by media coverage during extreme weather events; which will be either given as evidence for or against the warming of the Earth. However, in reality, you cannot attribute either to a changing climate due to the small spatial and temporal scale of these events. Variations in weather will always be of greater magnitude than observed changes in climate. Therefore, it is important, when considering the issue of adaptation, to distinguish the differences between climate and weather.
- 2.20 Weather is the day-to-day state of the atmosphere and its short-term variation. The weather is commonly thought of as the combination of temperature, humidity, precipitation, cloudiness, visibility, and wind. In contrast, the climate is defined as statistical weather information that describes the variation of weather at a given place for a period of time. The climate is referred to in terms of years, decades or even centuries to reflect the bigger picture of possible longer term or more permanent climate changes.

Impacts upon the built environment

- 2.21 The impacts of a changing climate will be noticeable within the built environment and will affect both the actual buildings and structures and external spaces within the development proposals (such as gardens, landscaping, car parking, and amenity space).
- 2.22 The primary effects of a changing climate, though not exhaustive, are:-

Building Design

- *behaviour of materials* – their resilience in relation to extreme conditions;
- *performance of building techniques and methods* – their future appropriateness;
- *comfort* – in terms of temperatures and shading;
- *managing water* – in terms of too much (flooding) and too little (shortages to maintain buildings and soil movement);

External Spaces

- *managing water* – in terms of too much (flooding) and too little (shortages for maintenance and soil movement) and how this will affect surfaces and external areas;
- *landscaping* – in terms of the ability for sustainable managed landscaping, the role it can play in terms of water management, shading and increasing biodiversity.
- *Urban Heat Island effect* - the tendency for urban areas to remain warmer than their surroundings. This effect is caused primarily by a lack of vegetation and soil moisture and the dominance of manmade structures such as roads and buildings which absorbed sunlight within urban areas.

- 2.23 The above list is not exhaustive and there will be effects that as yet are unknown; as we are still in relatively early stages of understanding the full effects of climate change. It is also important to note that sites are inherently different and in many cases development proposals will require a bespoke approach. However, the following measures can be included to ensure that development proposals adapt to a changing climate:-

Building Design

- *Structural stability* – designing fundamental components, such as the structural frame and foundations, for the long-term based on the anticipated life of a building;
- *Materials* – use of reflective solid materials where appropriate to reflect heat off buildings;
- *Fixings and weatherproofing* – consider, where appropriate, recessed window and door reveals, cills with drips, render finishes, extended eaves and greater laps and fixings to roof and cladding systems;
- *Surface treatment* – use of permeable surfaces such as green roofs and walls.

External Spaces

- *Surface Water Management* – using balancing ponds and basins where appropriate;
- *Surfaces* – permeable paving and increased landscaping;
- *Landscaping* – use of drought resistant and wildlife friendly planting schemes and native woodland and trees.

- 2.24 The concept of addressing climate change is in its infancy and subsequently there is not an abundance of available measures. The City Council will record successful adaptation methods and these will be made available as a resource for applicants.
- 2.25 As with mitigation, the City Council do not want to be prescriptive and constrain developments to certain measures or techniques. The City Council want to provide a framework where applicants can demonstrate how their proposals address the changing climate as identified in **paragraphs 2.10 to 2.15** in a manner that is suitable for their proposal.
- 2.26 The City Council will actively monitor planning applications and will provide stakeholders with a central source of information revealing the techniques that have been included within local development proposals.

Assessment Criteria

- 2.27 The scale and nature of the proposal will ultimately determine the level of adaptation proposals e.g. larger schemes will be expected to deliver a greater range of measures. However, as continually stated, the City Council will not be prescriptive and will allow applicants to demonstrate other techniques and measures that they see fit to address the issues. It is important to recognise that measures must take into account viability.
- 2.28 In using the enclosed checklists, found within Part Three, applicants will be required to answer the relevant questions and provide the following information:-

Have any adaptation measures been incorporated within the scheme proposal?

If answered **Yes** provide details on:-

1. What measures have been incorporated within the scheme?
2. What do they seek to address?
3. What are their details in terms of location, quantity and performance?

If answered **No** provide reason(s) why in terms of nature of proposal, cost and feasibility.

Part Three – Checklists

Checklist One

Address	<input type="text"/>
Proposal	<input type="text"/>
Applicant	<input type="text"/>
Date	<input type="text"/>

Please answer all questions in the following sections of this checklist. If you require any further information please refer to Part Two 'Assessment Criteria' of the Sustainability and Climate Change SPD.

Strategy

Please outline the overall strategy taken on sustainability and climate change:-

(See paragraphs 1.11 and 1.12 for explanation)

Mitigation

Has a national best practice standard on sustainability been formally achieved?

☐ YES ☐ NO

If answered **YES** please provide details and then proceed onto the adaptation section of this checklist:-

Code for Sustainable Homes	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="text" value="Level"/>
BREEAM	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="text" value="Level"/>

If answered **NO** please complete the following questions (1-9):-
(See paragraphs 1.15 to 1.23 for explanation)

1. Carbon Emissions

Please provide the following information:-

Dwelling Type/ Building Unit	TER*	BER/DER*

*expressed in kgCO₂/m² per annum

If **NOT** relevant please state why:-

(See page 7 for explanation)

2. Decentralised Energy (renewables/Low Carbon energy generation)

Has decentralised energy (renewable/low carbon technologies) been incorporated into the proposal?

☐ YES ☐ NO

If answered **YES** please give a description (including details of quantity and performance). If answered **NO** please provide the reasons why it is not being incorporated:-

(See page 8 for explanation)

3. Water

Please provide the following information:-

Domestic	<input type="text"/>	Litres/Person/Day
Non-domestic	<input type="text"/>	Litres per square metre

(See page 9 for explanation)

4. Materials and Appliances

Please provide the following information:-

Material	Green Guide Rating
Roof	<input type="text"/>
External Walls	<input type="text"/>
Internal Walls (including separating walls)	<input type="text"/>
Upper and Ground Floors (including separating floors)	<input type="text"/>
Windows	<input type="text"/>

Appliance	Quantity	Standard
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

(See page 10 for explanation)

5. Recycling ProvisionHas provision been made for recycling? ☐ YES ☐ NOIf answered **YES** please give a description:-

(See page 11 for explanation)

6. WasteSite Waste Management Plan: ☐ YES ☐ NO

(See page 12 for explanation)

7. Sustainable Transport

Have sustainable transport measures been included?

☐ YES ☐ NOIf answered **YES** please give a description:-

(See page 13 for explanation)

8. Other measures

Provide details:-

(See page 14 for explanation)

Adaptation

Have any adaptation measures been incorporated within the scheme proposal?

☐ YES ☐ NO

If answered **YES** provide details on:-

1. What measures have been incorporated within the scheme?

2. What do they seek to address?

3. What are their details in terms of location, quantity and performance?

If answered **NO** provide reason(s) why?

Checklist Two

Address

Proposal

Applicant

Date

Please answer all questions in both the mitigation and adaptation sections of this checklist. If you require any further information please refer to Part Two 'Assessment Criteria' of the Sustainability and Climate Change SPD.

This checklist relates to 'Householder' applications which can include:

- Householder Application for planning permission for works or extension to a dwelling
- Householder Application for planning permission for works to a dwelling and Conservation Area consent for demolition in a Conservation Area
- Householder Application for planning permission for works or extension to a dwelling and Listed Building consent

Mitigation

1. Has consideration been given to reducing the building's carbon emissions via any of the following means?

- Reduced energy consumption
- Increased energy efficiency
- Renewable energy generation

☐ YES ☐ NO

If answered **YES** please give a description of the measures employed or describe other measures employed to mitigate for climate change:-

2. Has consideration been given to reducing water consumption and techniques for conserving water?

☐ YES ☐ NO

If answered **YES** please give a description:-

3. Has consideration been given to the use of materials and appliances?

Please provide the following information:-

Material

Green Guide Rating

Roof

External Walls

Internal Walls (including separating walls)

Upper and Ground Floors (including separating floors)

Windows

Appliance

Quantity

Standard

Appliance	Quantity	Standard
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

4. Has provision been made for recycling and waste storage?

☐ YES ☐ NO

If answered **YES** please give a description:-

5. Has provision been made for cycle storage?

☐ YES

☐ NO

Quantity

Description:

Adaptation

Have any adaptation measures been incorporated within the scheme proposal?

☐ YES

☐ NO

If answered **Yes** please provide details:-

Appendix A – Glossary

The table below gives explanations to the abbreviations commonly used within this SPD.

AMR	Annual Monitoring Report: annual report which assesses the implementation of the Local Development Scheme and the extent to which policies in Local Development Documents are being successfully implemented.
BREEAM	Building Research Establishment Environmental Assessment Method: the leading and most widely used environmental assessment method for buildings. Alongside the 'Code' (which is used to assess only dwellings) it has become the most popular measure used to describe a building's environmental performance.
Building Regulations	Building Regulations are standards that apply to all buildings to make sure they are safe for people who are in or around them. The regulations cover the technical aspects of construction work and cover matters such as fire safety, disabled access, energy conservation, insulation, drainage and ventilation.
The Code	The Code for Sustainable Homes: is the national standard for the sustainable design and construction of new homes developed by the Building Research Establishment. The Code uses a rating system to communicate the overall sustainability performance of a new home. Homes are given a rating from 1 to 6, with 6 being the highest sustainability rating equivalent to a zero carbon home.
District Energy Network	An energy network including a range of technologies that do not rely on the high-voltage electricity transmission network or the gas grid.
CO₂	Carbon Dioxide
CSS	Core Spatial Strategy: sets out the long-term spatial vision for Stoke-on-Trent and Newcastle-under-Lyme, the spatial objectives and strategic policies and proposals to deliver that vision.
Design and Access Statement	Statements that explain the design thinking behind a planning application.

DPD	Development Plan Document: are spatial planning documents prepared by the City and Borough Councils. These are subject to independent examination and there is a right for those making representations to be heard at the independent examination. DPD's are the Core Spatial Strategy, Site Specific Allocations of land and Area Action Plans. They will all be shown geographically on a Proposals Map. The timetable for the production of each individual Development Plan Document is set out in the Local Development Scheme for each authority
IPCC	Intergovernmental Panel on Climate Change: the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme and the World Meteorological Organisation to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.
LDF	Local Development Framework: the name for the portfolio of Local Development Documents. It consists of Development Plan Documents, Supplementary Planning Documents, a Statement of Community Involvement, the Local Development Scheme and Annual Monitoring Reports. Taken together these documents provide the framework for delivering the spatial planning strategy for Stoke-on-Trent and Newcastle-under-Lyme.
Passive Approach	A voluntary building standard (that exceeds the present minimum standards set by Building Regulations) where sustainability measures are not simply attached or supplemented to buildings; but intrinsically embedded within the design process.
Permitted Development	Enables people to undertake minor development under a deemed grant of planning permission, therefore removing the need to submit a planning application. Permitted development is currently set out in the Town and Country Planning (General Permitted Development) Order 1995 (as amended).

SPD	Supplementary Planning Documents: will cover a wide range of issues on which the Councils wish to issue supplementary guidance in respect of the policies and proposals in Development Plan Documents. They will not form part of the development plan or be subject to independent examination.
SA	Sustainability Appraisal: An appraisal of the impacts of policies and proposals on economic, social and environmental issues
UKCP09	United Kingdom Climate Projections 2009: provides future climate projections for land and marine regions, and observed climate data in the UK. UKCP09 now reflects scientists' best understanding of how the climate system operates, how it might change in the future, and allows a measure of the uncertainty in future climate projections to be included.

Appendix B – Outline Plan of Work

Outline Plan of Work			BREEAM/Code for Sustainable Homes Certification	
Pre-agreement	PRE	Pre-agreement	BREEAM/Code Pre-Assessment Stage	
Preparation	A	Appraisal		
	B	Design Brief	BREEAM/Code Design Stage Assessment	
Design	C	Concept		
	D	Design Development		
	E	Technical Design		
Pre-construction	F	Product Information		
	G	Tender Documentation		
	H	Tender Action		
Construction	J	Mobilisation	BREEAM/Code Design Stage Interim Certification	
	K	Construction to Practical Completion		
Use	L1	After Practical Completion	BREEAM/Code Design Post Construction Stage Assessment and Certification	
	L2	Initial Occupation Period		
	L3	Post Occupation Evaluation		

For further information please contact the City Council by post at:

Planning Policy and Design Team
City Renewal Directorate
PO Box 630
Civic Centre
Glebe Street
Stoke on Trent ST4 1HH

or by email: planning.policy@stoke.gov.uk

or by telephone on: 01782 236339
minicom 01782 236919

or in person at Main Reception, Civic Centre

This leaflet is also available on tape or in large print.

If you have difficulty reading this document or require further information, please call 01782 236339

ਜੇ ਕਰ ਤੁਸੀਂ ਇਹ ਕਿਤਾਬਚਾ ਨਹੀਂ ਪੜ੍ਹ ਸਕਦੇ ਤਾਂ ਸਾਨੂੰ ਦੱਸੋ
ਅਸੀਂ ਤੁਹਾਡੀ ਮੱਦਦ ਕਰਾਂਗੇ । 01782 236339

यदि आप यह पुस्तिका नहीं पढ़ सकते तो हमें बताएं
हम आपकी सहायता करेंगे 01782 236339

اگر آپ کو اس کتابچے (پیک) کو پڑھنے میں مشکل پیش آئے، تو ہم سے رابطہ قائم کریں،
ہم اس کیلئے آپکی مدد کر سکتے ہیں، فون نمبر 01782 236339