



# NORTHSTOWE PHASE 2 PLANNING APPLICATION

Sustainability Statement

August 2014

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# Homes and Communities Agency

## Northstowe

### Sustainability Statement

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# 1 Context

This report presents the sustainability strategy for the proposed Northstowe Phase 2 development. This strategy utilises the Hyder Heartbeat model to holistically respond to the environmental, social and economic factors related to the proposed development.

This sustainability strategy is guided by 8 themes within the Hyder Heartbeat model that collectively embrace the key principles of sustainable development; and have been used to guide the formation of design principles that have been embedded into the proposals that collectively form the Northstowe Phase 2 planning submission. These sustainability themes are:

- Sustainable Community
- Energy
- Water
- Waste and Materials
- Environmental Capital
- Transport
- Community Cohesion
- Education and Employment

## 2 Introduction

Hyder Consulting Ltd have been commissioned by the HCA to prepare this Sustainability Strategy in support of the planning application for the proposed Northstowe Phase 2 development. It has been produced following a review of key policy and guidance and a series of workshops with the design team with the aim of delivering a robust strategy that addresses the sustainability principles of the proposed development.

### 2.1 Proposed development

The proposed Northstowe new town development is located 10km northwest of Cambridge east of Longstanton and north of Oakington within the South Cambridgeshire District. The proposed site is bounded to the east by a disused railway line which has been converted to a guided busway that connects Huntingdon to Cambridge.



Figure 2-1 Northstowe in context to surrounding areas

The South Cambridgeshire Core Strategy has allocated Northstowe as a site for a sustainable new town with a target of up to 10,000 dwellings and associated facilities and non-residential areas.

### 2.2 The Phase 2 Site

#### Description of development:

A planning application for development of Phase 2 of Northstowe with details of appearance, landscaping, layout, scale and access reserved (save for the matters submitted in respect of the Southern Access Road (West)) comprising:

- 1) development of the main Phase 2 development area for up to 3,500 dwellings, two primary schools, the secondary school, the town centre including employment uses, formal and informal recreational space and landscaped areas, the eastern sports hub, the remainder of the western sports hub (to complete the

provision delivered at Phase 1), the busway, a primary road to link to the southern access, construction haul route, engineering and infrastructure works; and

- 2) construction of a highway link (Southern Access Road (West)) between the proposed new town of Northstowe and the B1050, improvements to the B1050, and associated landscaping and drainage.

### Site description:

The application site extends to 216 hectares and comprises two parts: the main Phase 2 development area and the Southern Access Road (West), as shown on Plan 3 - Application Areas Plan (submitted as part of the application). Each of the parts is described below.

#### Main Phase 2 Development Area

The area of the main Phase 2 development area is approximately 165 hectares. The area is bordered to the east by the route of the Cambridgeshire Guided Busway, and to the west by Longstanton. The area includes the former Oakington Barracks, which currently comprises of three buildings, with no current use; slabs remaining from demolished buildings; remaining facilities associated with the barracks including sports amenities and green space; and a water tower which is the tallest structure on the site and visible feature in the wider landscape. The area surrounds the existing settlement of Rampton Drift, comprised of 92 properties, originally built as part of the barracks complex, although this area is not included in the application. The wider main Phase 2 Development area includes areas of hardstanding and open space associated with the former airfield (much of this currently occupied by agricultural tenants), farmland including Brookfield Farm and Larkfield Farm. The area also includes a section of Rampton Road.

To the south of the main Phase 2 development area, and through which its proposed access routes run is land that is identified for future phases of development of Northstowe.

Intervening vegetation results in the site being largely screened from surrounding villages and farmsteads. There are groups of trees throughout the former Oakington Barracks including avenues of mature trees around the barracks complex and leading to the station headquarter building. There are also groups of mature trees in the western corner of the site and around Rampton Drift. These all contribute to the setting of the site and adjacent Longstanton.

#### Southern Access Road (West)

The area for the Southern Access Road (West) runs from the B1050 to the boundary of Northstowe, as shown on the Plan 3 – Application Areas Plan (submitted as part of the application). This area currently comprises arable fields and extends to approximately 51 hectares. Wilson’s Road, a public right of way crosses the area, providing a link from Longstanton towards Bar Hill.

## 2.3 The surrounding area

The area surrounding the site is dominated by agricultural land, with a few scattered dwellings and small settlements. In addition to the settlements of Longstanton, Oakington and Rampton Drift, the site is also in proximity with Rampton

(approximately 1km to the north west) Willingham (approximately 2km to the north), Cottenham (approximately 2.5km to the east).

To the north of the Main Phase 2 development area is the proposed site of Phase 1 of Northstowe, for which an outline planning application was submitted by Gallagher Estates to South Cambridgeshire District Council in February 2012, and resolution to grant permission was made in October 2012. Outline planning permission was awarded in April 2014.

To the south of the Phase 2 development area, and through which its access routes run, is land that is identified for future phases of development of Northstowe.

The A14 runs approximately 3km to the south west of the site. The B1050 Hatton Road/Longstanton western bypass runs from the A14 to a roundabout to the north west of the site.



## 3 Approach to ensuring sustainability

### 3.1 Policy and Guidance

Fundamental to ensuring a sustainable approach is to understand how the development relates to key policy and guidance, and ensure that the appropriate standards and principles are adopted. The key policy and guidance used to frame, understand and support this approach are briefly summarised below.

### 3.2 National Planning Policy

#### UK Government Sustainable Development Strategy (March 2005)

The national strategy for delivery of Sustainable Development was published by the UK Government in March 2005, 'Securing the Future, Delivering the UK Sustainable Development Strategy'. The strategy provides a set of shared UK guiding principles that the Government will use to achieve our sustainable development purposes. The guiding principles bring together and build on the various previously existing UK sustainability principles to set out an overarching approach which will focus the basis for policy in the UK. These are identified below:

- Living within environmental limits;
- Ensuring a strong, healthy and just society;
- Achieving a sustainable economy;
- Promoting good governance; and
- Using sound science responsibly.

The strategy also provides a set of 'shared priorities for UK action' which will also help to shape the way the UK works internationally in ensuring that the UK's objectives and activities are aligned with international goals. The shared priorities are set out below:

- Sustainable consumption and production;
- Climate change and energy;
- Natural resource protection and environmental enhancement; and
- Sustainable communities.

#### National Planning Policy Framework (NPPF)

The National Planning Policy Framework was published on 27 March 2012 setting out the Government's planning policies for England and how these are expected to be applied.

Annex 1 of the NPPF confirms that due weight should be given to relevant policies in existing plans according to their degree of consistency with the NPPF (the closer the policies in the plan to the policies in the Framework, the greater the weight that

may be given). It also confirms that, from the day of publication, decision-takers may also give weight to relevant policies in emerging plans according to:

- the stage of preparation of the emerging plan (the more advanced the preparation, the greater the weight that may be given);
- the extent to which there are unresolved objections to relevant policies (the less significant the unresolved objections, the greater the weight that may be given); and
- the degree of consistency of the relevant policies in the emerging plan to the policies in the NPPF (the closer the policies in the emerging plan to the policies in the NPPF, the greater the weight that may be given).

The NPPF was designed to make the planning system more user friendly and transparent. The framework's primary objective is sustainable development, focussing on the 3 pillars of sustainability: planning for prosperity (Economic), planning for people (Social) and planning for places (Environmental). The NPPF identifies a number of principles that should be at the core of land use planning; these are:

- Building a strong, competitive economy;
- Ensuring the vitality of town centres;
- Supporting a prosperous rural economy;
- Promoting sustainable transport;
- Supporting high quality communications infrastructure;
- Delivering a wide choice of quality homes;
- Requiring good design;
- Promoting healthy communities;
- Protecting Green Belt land;
- Meeting the challenge of climate change, flooding and coastal change;
- Conserving and enhancing the natural environment;
- Conserving and enhancing the historic environment; and
- Facilitating the sustainable use of minerals.

### 3.3 Local Policy

The current Local Development Framework (LDF) comprises a number of Development Plan Documents (DPDs) that set out policies and proposals for the development and use of land in the district. The LDF includes a vision for the future of South Cambridgeshire and objectives and targets, which developments must meet to secure that vision. The LDF consists of the following documents (considered relevant to Northstowe):

- Core Strategy DPD - adopted January 2007
- Development Control Policies DPD - adopted July 2007
- Northstowe AAP - adopted July 2007
- Site Specific Policies DPD - adopted January 2010

The Proposed Submission Local Plan for South Cambridgeshire is intended to update and replace the South Cambridgeshire Local Development Framework which was adopted between January 2007 and January 2010 and covered the period up to 2016. The draft Local Plan's policies and proposals cover the period 2011 to 2031. Underpinning the whole of the Plan is the Government's commitment to sustainable development.

### 3.3.1 South Cambridgeshire District Council – Core Strategy (2006)

The Core Strategy allocates Northstowe to be developed as a new town of up to 10,000 new homes, with a town centre providing additional commercial areas. This proposal is the subject of a separate Area Action Plan (outlined below).

Objective ST/g of the Core Strategy reads as follows:

*'To ensure development addresses sustainability issues, including climate change mitigation and adaptation issues'*

### 3.3.2 South Cambridgeshire District Council - Development Control Policies DPD (2007)

The following policies are deemed relevant to this statement:

#### **POLICY DP/1 Sustainable Development**

1. *Development will only be permitted where it is demonstrated that it is consistent with the principles of sustainable development, as appropriate to its location, scale and form. It should:*
  - a. *Where practicable, minimise use of energy and resources;*
  - b. *Where practicable, maximise the use of renewable energy sources;*
2. *In criteria e, f, g, j and n it will be for any applicant or developer proposing to compromise sustainability to demonstrate the impracticability of use of sustainable methods, systems, materials and energy sources and provision of sustainable infrastructure. Additional cost will not, on its own, amount to impracticability.*

### 3.3.3 Northstowe Area Action Plan (NAAP)

This document provides site specific policy for Northstowe, which has been identified as a site for a sustainable new town with a target size of 10,000 dwellings and associated development. All of the policies within the AAP are relevant to this statement; with those below setting the overall requirement of sustainability.

## **POLICY NS/1: The Vision for Northstowe**

*Northstowe will be a sustainable and vibrant new community that is inclusive and diverse with its own distinctive local identity which is founded on best practice urban design principles, drawing on the traditions of fen-edge market towns, which encourages the high quality traditions and innovation that are characteristic of the Cambridge Sub-Region.*

## **POLICY NS/2: Development Principles**

3. *The town of Northstowe will be developed:*
  - c. *As an attractive and interesting feature in the landscape with which it is well integrated through a variety of edge treatments;*
  - d. *With a distinctive town character with well designed and landscaped urban and residential areas to create neighbourhoods with their own character and legibility;*
  - e. *As a balanced, viable and socially inclusive community where people can live in a healthy and safe environment, and where most of their learning needs are met;*
  - f. *To integrate Rampton Drift sensitively into the new town to preserve residential amenity;*
  - g. *To a flexible design which will be energy efficient, and built to be an exemplar of sustainable living with low carbon and greenhouse gas emissions and able to accommodate the impacts of climate change;*
  - h. *Making drainage water features an integral part of the design of the town and its open spaces, so that they also provide for amenity, landscape, biodiversity and recreation.*

## **POLICY D13 An Exemplar in Sustainability**

This section outlines the following sustainability objectives for Northstowe:

*D13/a To include within Northstowe, projects which are an exemplar in terms of the use of the earth's resources, including energy, water and materials.*

*D13/b To contribute to the achievement of medium and long term emissions targets that move towards the Government's ambition of zero carbon development country-wide, with proposals seeking to achieve significant improvements sought by the Code of Sustainable Homes and significantly exceeding national standards set by Building Regulations subject to wider economic, viability and social testing.*

*D13/c To use energy efficiently.*

*D13/d To make greater use of renewable energy sources*

## **POLICY NS/23: An Exemplar in Sustainability**

1. *Northstowe will include within the development exemplar projects in sustainable development, including energy efficient measures. This could be achieved by:*
  - a. *Providing an increased level of sustainability across the development as a whole above current requirements to a material extent;*

- b. Building a proportion of the development to advanced practice which fully addresses sustainability issues and minimises any environmental impact by pushing at the boundaries of the proven technology available at the time of the development.*

### 3.3.4 South Cambridgeshire District Council Proposed Submission Local Plan (July 2013)

The South Cambridgeshire District Council Proposed Submission Local Plan (July 2013) contains policies and land allocations to 2031. The draft Local Plan and its supporting documents were submitted to the Planning Inspectorate for independent examination which is scheduled to open in Autumn 2014. As such the emerging Local Plan is an important consideration in determining the proposals for Northstowe. The Sustainability Strategy is therefore considerate to the following relevant policy within the draft Local Plan.

#### **Policy S/3: Presumption in Favour of Sustainable Development**

*1. When considering development proposals the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. It will always work proactively with applicants jointly to find solutions which mean that proposals that accord with the Local Plan and Neighbourhood Plans can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area unless material considerations indicate otherwise.*

*2. Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then the Council will grant permission unless material considerations indicate otherwise – taking into account whether:*

*a. Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole;*

*or*

*b. Specific policies in that Framework indicate that development should be restricted.*

#### **Policy CC/1: Mitigation and Adaptation to Climate Change**

*Planning permission will only be granted for proposals that demonstrate and embed the principles of climate change mitigation and adaptation into the development. Applicants must submit a Sustainability Statement to demonstrate how these principles have been embedded into the development proposal.*

*4.10 To mitigate climate change, proposals should demonstrate:*

- high levels of energy efficiency (Building Regulations);*
- use and generation of renewable and low carbon energy (Policy CC/3);*
- promotion of sustainable forms of transport, such as using buses, cycling or walking, and reduction of car use (Policy HQ/1 & Transport Policies);*

- *recycling and waste reduction both during construction and occupation (Policy CC/6); and*
- *inclusion of high speed broadband to facilitate home working (Policy TI/10).*

4.11 *To adapt to the effects of climate change, proposals should:*

- *manage and conserve water resources (Policy CC/4);*
- *demonstrate that flood risk from all sources has been avoided or managed (Policy CC/9);*
- *use Sustainable Drainage Systems (SuDS) (Policy CC/8);*
- *use layout, building orientation, design, and materials to ensure properties are not susceptible to overheating and include open space and vegetation for shading and cooling, and to detain surface water run-off (Policy HQ/1); and*
- *create a better linked habitat network by conserving, creating or enlarging existing habitats (Policy NH/4).*

### 3.4 Code for Sustainable Homes (CSH)

To strengthen the sustainability requirements of new dwellings, the Government launched the Code for Sustainable Homes (CSH or ‘the Code’) in 2006 to operate in parallel to the Building Regulations for energy use for new residential development (Approved Document Part L1A).

CSH sets out the national standard for sustainable design and construction of new homes. The Code includes sections under a number of different sustainability issues which includes; energy use in a home, materials used in the construction and the effect on biodiversity. The Code also addresses issues such as water use within each dwelling, surface water and flooding, health and wellbeing and pollution issues.

The Code for Sustainable Homes (CSH) was introduced as a voluntary measure to provide a comprehensive assessment of the sustainability of a new home and replaced the Eco-Homes methodology. The Code Level relates to compliance with mandatory minimum standards for waste, material, and surface water run-off as well as energy and potable water consumption. In terms of carbon emissions CSH Level 4 equals a 25% improvement over 2010 Building Regulations (this would equate to circa 20% improvement from 2013 Building Regulations) approximately.

The original programme was for all new homes to meet ‘Zero carbon’ from 2016 in line with the proposed trajectory for Building Regulations Part L. It should be noted however that the Government recently announced in the Housing Standards Review (March 2014) their intention to wind down the Code for Sustainable Homes in a further bid to cut regulatory red tape for house builders.

Under the proposals set out in the consultation document the government indicated that it could “wind down” the Code for Sustainable Homes (CSH) in favour of using the Building Regulations as the key vehicle to provide energy requirements for buildings.

As discussed above, Part L of the Building Regulations (Conservation of fuel and power) will progressively become more stringent and will eventually require all new dwellings built from 2016 onwards to achieve “zero carbon” status.



## 3.5 BREEAM

BREEAM (Building Research Establishment's Environmental Assessment Method) is a standard assessment method established by the Building Research Establishment (BRE), used to assess the environmental impact of non-domestic buildings. Overall BREEAM is similar to the Code and covers a range of issues and credits which are awarded where a building achieves a benchmark performance. Like the Code, BREEAM is a voluntary standard although central government and some planning authorities require compliance.

The BRE periodically updates BREEAM and the latest version of BREEAM New Construction came into force in May 2014. The latest version imposes more demanding standards and energy/carbon requirements than the previous standard. As BRE have applied previous best practice carbon standards in advance of the Government decision on how to address the future carbon performance of non-domestic buildings, it is likely that the requirements will be updated in the future in order to align with Part L (2013 and 2016) requirements.

## 3.6 Zero Carbon

### Residential Buildings

It was announced in the 2011 Budget 'The Plan for Growth' document, that a 'Zero Carbon Home' requires a 100% reduction in regulated energy (heating, hot water and fixed electrical items – pumps, fans, lights) over Building Regulations 2006. Therefore, emissions from cooking or from appliances such as computers and televisions are excluded from the definition.

The Government's commitment to achieving Zero Carbon Homes is based on the following hierarchical approach to achieving zero carbon targets:

1. Mandatory Fabric Energy Efficiency (FEE) Level – To ensure energy efficiency by energy efficient building design.
2. Mandatory onsite Carbon Compliance Level – To ensure energy efficiency by energy efficient building design and to reduce carbon emissions through on-site low carbon and renewable energy technologies and near-site heat networks.
3. Mitigate the remaining carbon emissions through use of 'Allowable Solutions'.

It is envisaged that when the Northstowe site is developed, most of the buildings (if not all) will have to comply with the zero carbon requirements and so construction will have to take this into consideration.

### Non-residential Buildings

The equivalent definition of 'Zero Carbon' for non-residential buildings has not progressed to the same level as that of residential buildings. However it is expected that a similar framework (energy efficiency, on-site carbon compliance and allowable solutions) will be developed to ensure 'Zero Carbon' is achieved by 2019 (2018 for public sector buildings) for non-residential buildings.

## 3.7 Hyder Heartbeat

Crucial to developing a sustainable vision and strategy for the Northstowe Phase 2 development is the ability to understand the often complex and varied environmental, economic and social impacts and interactions. To generate a robust sustainability strategy, we have utilised our Hyder Heartbeat model (Figure 3-3) to identify specific sustainability objectives. These objectives have been generated through the review of key policy, planning / environmental documents and through a series of strategic design workshops.

The model has enabled the alignment of all key design aspects, such as building design, transport, energy, ecology and water etc.; to be set within an overall framework that identifies key objectives and targets to ensure delivery of a sustainable development. Furthermore, this enables the development's sustainable credentials to be viewed and measured throughout both its planning and development.

As the scheme develops, and more certainty around key aspects is revealed, such as the amount of carbon emissions saved, the detail within the model will be refined. The model provides the framework within which the development can progress by setting the various sustainability targets to be achieved.





Figure 3-2 Hyder Heartbeat Sustainability Model for Northstowe

### 3.7.1 Design Workshops

To drive the input, and crucially to ensure that the design ethos and outputs have fully considered key sustainability principles, a number of design workshops were undertaken early in the design process. These were used to explore and test the options to deliver the sustainability standards and to ensure that the design ethos and outputs fully considered the key sustainability principles.

The design workshops focused on translating the sustainability themes into key sustainability objectives, targets and commitments to ensure that the Northstowe Phase 2 development is able to be delivered as a truly sustainable development.

### 3.7.2 Specific Analysis and Reports

In addition, the sustainability strategy both informs and is informed by a series of specific analysis and reports that consider various key themes, such as the site specific Flood Risk Assessment, Site Waste Management Plan and Energy Strategy etc.. These are referenced within the text of the document where appropriate.

### 3.7.3 Developing the sustainability strategy

As mentioned above, the Hyder Heartbeat model and design workshops combined together to provide a unique framework that steers the sustainability strategy and enables the proposals to be continually measured against it.

In order to achieve a robust and comprehensive approach to sustainability it is important to have an overall vision, and a series of clear and defined objectives and targets. The following list outlines the approach taken:

- 1 Understanding the **Vision**
- 2 Developing the **Aims** for each sustainability theme
- 3 Identifying key **Objectives**
- 4 Setting stretching **Standards / Targets**
- 5 Developing and agreeing **Commitments** to achieve the aims, objectives and targets

### 3.7.4 Vision

In 2012 The Development Framework Document (DFD), along with a suite of documents, refreshed the master plan for Northstowe by making it relevant to today's circumstances.

The DFD confirms that the vision for Northstowe has progressed and responded to national and local policy, independent challenge and stakeholder involvement. This has resulted in the development of the two vision statements presented in Section 4.1 below. This sustainability statement sets out how the vision is to be met by the Northstowe Phase 2 development.

### 3.7.5 Sustainable Aims

A clear aim is provided for each sustainability element, which focuses how the objectives and targets are developed.

### 3.7.6 Objectives and Targets

Translating the vision and aims into a series of objectives relative to the genus loci of Northstowe is essential. To achieve this, a review of key planning documents was undertaken alongside the collaborative engagement at the design workshops to draw out key issues, and agree a series of objectives and targets that comprises the core of the

Northstowe Phase 2 Sustainability Strategy. These are presented in sections 5 to 12 of the report.

### 3.7.7 Response and Commitments

The design team, in conjunction with the client, have developed, tested and formulated a set of clear measures, initiatives and actions that will deliver the objectives and sustainability standards / targets identified. These form the sustainability commitments that will be delivered, and forms the backbone of how Northstowe Phase 2 will be measured as a sustainable development.

These commitments are discussed in sections 5 to 12 of the report.

## 4 Sustainability Strategy

The sustainability strategy for the Northstowe Phase 2 development is presented below divided into the Hyder Heartbeat themes which collectively represent the overarching strategy and seek to meet the vision.

### 4.1 The Vision

The Development Framework Document states that the vision for Northstowe is based on the core characteristics (the four C's) of the Cambridgeshire Quality Charter for Growth :

***“planned growth of sustainable and vibrant new communities in accordance with four themes: Community, Climate, Connectivity and Character”***

and that the development should move:

***“towards low carbon with a combination of energy efficient solutions, local food production, green travel, innovative technology and communications systems and waste recycling centre to demonstrate Northstowe as an exemplar in sustainable living”.***

These elements establish a vision with clear intent and have been translated into key targets within an overarching framework that promotes challenge and enables monitoring. The Hyder Heartbeat model provides a flexible, comprehensive framework for assessing the integration of sustainability considerations at Northstowe from concept design to final project implementation.

Translating the vision into a series of aims and objectives relative to the genius loci of Northstowe has been essential. To achieve this, the design team have worked collaboratively to draw out key issues, and propose a series of objectives and performance targets for Northstowe.

Furthermore, to ensure that sustainability has remained at the foundation of Northstowe; regular design challenge sessions have been undertaken to ensure that the sustainable objectives were not lost during the design evolution process; but continued to set the standard which all aim to exceed.

Of particularly importance are the early decisions with regard to place shaping and the integration of the urban form with landscape / biodiversity, transport networks and supporting infrastructure. All too often many aspects are considered as constraints only rather than the opportunities that they present; resulting in a “same as always” approach. This has not been the case with Northstowe Phase 2, which instead seeks to deliver an exemplar of sustainable living.

In addition, Northstowe provides an unrivalled opportunity within Cambridgeshire, to create a new distinctive town built on truly sustainable credentials.

## 4.2 Sustainability Aims, Objectives and Targets

The following sections identify how key information has been translated from the policy and guidance review, and design workstreams with key stakeholders into a series of aims, objectives and targets set within the key themes of Hyder Heartbeat.

In addition, the sections identify how these sustainability themes may be achieved and the evidence base that can be used to demonstrate this.

# 5 Sustainable Community

## 5.1 Aim



**A development that delivers homes and buildings that people want to live in and use; set within attractive spaces that respond to their environment and are adaptable to future use and climate change.**

## 5.2 Objectives and Targets

### Objectives

**1. Sustainable buildings & neighbourhoods:** Homes and places that people want to live in and feel safe. Homes that are integrated into their environment

**2. Adaptable buildings & spaces:** Homes and buildings that are adaptive to climate change; including flood risk, storms, and extreme temperatures. Buildings and places that are adaptable to people's needs throughout their life.

**3. Low Carbon Community:** Building that use less energy, provide carbon savings and are economic to run, with efficient public transport systems and ability to

### Targets

- Mixed use development with social and community facilities.
- Building for Life 12 (80% green lights; zero red lights)
- Adopt Secure by Design standards
- Located buildings outside areas of flood risk.
- Ensure buildings that meet 2030 UKCIP weather overheating analysis
- Integration of landscape places, including trees and water
- Ensure all building enable access for all (i.e. meet DDA requirements)
- Achieve Lifetime Homes standard
- Achieve CSH level 4 minimum
- Non-residential buildings to achieve BREEAM Excellent.
- Achieve 'Zero Carbon' standard
- Integrated walking and cycling
- Integrated public transport network
- Enable electric vehicle charging
- Utilise Green Build specifications

## 5.3 Response and Commitments

### Sustainable buildings & neighbourhoods

Designing a safe, healthy and attractive place is central to delivering a sustainable community. The Design and Access Statement (DAS) and parameter plans submitted as part of this application describe the design principles and convey the sense of the place that Northstowe Phase 2 will create.

The proposed employment, education, retail, recreation and community facilities are planned to serve Northstowe and will also be accessible to existing communities.

Northstowe Phase 2 will be defined by a strong gridded urban form integrating a multi-functional green infrastructure, as well as a finer grain open space network to ensure the creation of legible and walkable residential areas. The careful consideration of distances between dwelling units and the interlocking of secondary roads, mews, and communal gardens and private backyards, permits the block structure of Phase 2 to create a permeable residential area and establish a safe public realm closely overlooked by residents.

Although the development has not yet been designed in detail, the proposed development will be designed in accordance with Secure by Design and Design out Crime standards.

## Adaptable buildings & spaces

The majority of the Phase 2 site is located in flood zone 1, which has the lowest probability of flooding (0.1%), although a small area adjacent to the northeast boundary is more sensitive to flooding and falls within the area of floodplain protected by flood defensives. Although protected, this area will be raised to ensure that all buildings are not susceptible to flood risk.

Northstowe Phase 2 will utilise integrated Sustainable Drainage System (SuDS) to manage surface water through a series of open swales, alongside roads and within green spaces, that eventually drain to strategic attenuation ponds that are capable of retaining 1 in 200 year (plus 30% allowance for climate change) storm events prior to discharge to the Beck Brook. During these storm event discharge will be controlled via a telemetry linked pumped system which will only permit discharge to occur when the receiving watercourse is not in flood. These drainage arrangements ensure that the development both manages its own surface water as well as reducing downstream flood risk issues.

All homes will be built to high fabric energy efficiency levels, meaning that they will be well insulated and able to endure extremes of temperature, from cold winters to hot summers. At detailed design stage, further analysis and assessment will be undertaken to ensure that all homes meet future overheating requirements.

The green space, structured planting, open swales and attenuation ponds that will collectively create the green/blue landscape of Northstowe Phase 2 will also be resilient to, and mitigate the impacts of climate change. These will provide opportunities and places that provide shade and shelter, manage water and help regulate the urban temperature by incorporating measures to control the micro-climate within the developed areas, including the provision of interconnected green spaces and corridors, which help to provide evaporative cooling effects.

The development will be designed to be accessible to all members of the community and in accordance with the Disability Discrimination Act 2005. This is relevant to the provision of facilities for those with visual and hearing impairments, those with limited mobility, the elderly, those with pushchairs or small children and other vulnerable users. Examples of the areas that will be subject to these considerations are:

- Creation of legible and permeable built environment for all users through the creation of a clear hierarchy of street and spaces and careful detailing of the public realm.
- Main entrances to buildings with level thresholds or suitable provision for wheelchairs;

- Limiting the gradient of ramps to acceptable levels and providing level rest areas to enable wheelchair access;
- Dropped kerbs at all crossings;
- High quality bus facilities that allow a step-free access to vehicles;
- Provision of disabled parking spaces at the appropriate levels and dimensions, located in preferential locations close to the main entrances of residential, commercial and employment developments; and
- Equal and consistent access to be provided for all potential residents including those with visual and hearing impairments, those with limited mobility, the elderly, children and other vulnerable users.

A proportion of homes will be built to the Lifetime Homes Standard, including all affordable homes (with the aspiration to exceed the Submission Local Plan requirements of all affordable homes and 5% of market homes where possible and viable).

## Low Carbon Community

All houses will meet a minimum of Level 4 of the Code for Sustainable Homes, which includes targets relative to reduced water use and energy efficiency. In addition homes will be future proofed to meet the proposed Building Regulation 2016 Zero Carbon standard relative to fabric energy efficiency standards (FEES), carbon compliance and allowable solutions. Non-residential buildings will achieve BREEAM Excellent.

Homes will be well insulated and constructed to ensure they minimise energy use, through reduced space heating requirements, and designed so that they do not require comfort cooling or excessive ventilation. The proposed measures will ensure that the FEES for Zero Carbon Homes are achieved for each dwelling type.

Meeting these standards will ensure that all homes and buildings minimise their carbon emissions.

The mixed use development of Northstowe Phase 2, providing homes, employment and community infrastructure (including schools and doctors), is set within a permeable network of streets and spaces that promote walking and cycling, and prioritises buses (including direct links to the Cambridge Guided Busway (CGB)), means that people will be able to access services, education and jobs locally and/or via sustainable travel means; thereby minimising private car journeys and thus reducing associated carbon emissions.



## 6 Energy

### 6.1 Aim



A low carbon development which follows the energy hierarchy; making buildings energy efficient and generating heat and power through low and/or zero carbon technologies.

### 6.2 Objectives and Targets

#### Objectives

**1. Energy Efficiency:** BE LEAN - Reduce energy consumption and lower occupier energy bills

**2. Zero Carbon Energy:** BE CLEAN & BE GREEN - Utilise low and zero carbon energy solutions.

**3. Energy Security:** Move away from fossil fuels. Ensure end user can afford energy

#### Targets

- Achieve Zero Carbon Homes FEES compliance re CSH level 5 (future proofed for future building regulation changes).
- Consider building orientation and solar gains.
- Explore SMART grid technology
- Achieve Zero Carbon across development through Carbon Compliance and wherever possible reducing remaining emissions on site / near site.
- Only use Allowable Solutions as a last resort
- Develop local energy solutions that the local community can be part of.
- Focus on renewable energy for future resilience and independence from global fossil fuel supply and price
- Ensure final energy solution no more expensive than traditional market priced energy.
- Be aware of future electrical capacity issues associated with increase electric car charging

### 6.3 Response and Commitments

The strategic energy approach, proposed within the Northstowe Phase 2 Energy Statement (ref: 5021-UA006156-UE21R-01- Energy Statement), to meet the policy and regulatory requirements, as well as client aspirations, follows the energy hierarchy of **Be Lean** (use less energy), **Be Clean** (supply energy efficiently) and **Be Green** (use low zero carbon technology).

In order to establish the energy and carbon reduction requirements at Northstowe an approximate baseline energy demand (both thermal and electrical) has been developed. The Energy Statement provides an energy model based upon on the energy consumption of 'notional' domestic and non-domestic buildings which are compliant with Part L 2013 Building Regulations. Table 6.1 below provides a summary of the energy demand and carbon emission relative to the anticipated accommodation schedule of Phase 2 of Northstowe and Building Regulations 2013.

**Table 6.1 All Buildings - Baseline Energy Demand and Carbon Emission (Building Regulations 2013)**

<b>All Buildings</b>	<b>BR2013 Building Demand</b>	<b>BR2013 Building Emissions</b>
Total Regulated Electricity	10,120,690 kWh	5,252,638 kgCO <sub>2</sub>
Total Regulated Gas	34,747,204 kWh	7,505,396 kgCO <sub>2</sub>
<b>Sub Total Regulated</b>	<b>44,867,895 kWh</b>	<b>12,758,034 kgCO<sub>2</sub></b>
Total Un-regulated Electricity	19,282,330 kWh	10,007,529 kgCO <sub>2</sub>
Total Un-regulated Gas	6,531,524 kWh	1,410,809 kgCO <sub>2</sub>
<b>Sub Total Un-regulated</b>	<b>25,813,854 kWh</b>	<b>11,418,339 kgCO<sub>2</sub></b>
<b>TOTAL</b>	<b>70,681,748 kWh</b>	<b>24,176,373 kgCO<sub>2</sub></b>

## Energy Efficiency: 'BE LEAN'

The Be Lean approach seeks to minimise energy use through demand reduction and passive measures, such as maximising insulation and use of natural ventilation, which minimise the use of energy and utilise energy more effectively (e.g. energy efficient lighting). The Northstowe development will adopt future proofed building standards to ensure energy efficiency is the first priority in achieving its carbon reduction and sustainability objectives.

The proposed measures outlined within the Energy Statement surpass the Fabric Energy Efficiency Standards set by the Zero Carbon Homes Hub as expected to be implemented as part of the future 2016 Building Regulation "Zero Carbon" target. This results in reduced energy demand and carbon emissions.

The equivalent definition of 'Zero Carbon' for non-domestic buildings has not progressed to the same level as that of dwellings. However it is expected that a similar framework (energy efficiency, on-site carbon compliance and allowable solutions) will be developed to ensure 'Zero Carbon' is achieved by 2019 (2018 for public sector buildings) for non-domestic buildings.

The table below gives the breakdown of carbon emissions for the domestic and non-domestic building following the proposed enhanced fabric energy efficiency (FEE) measures.

**Table 6.2 Enhanced FEE measures: Energy Demand and Carbon Emissions**

<b>All Buildings</b>	<b>Enhanced FEE Demand</b>	<b>Enhanced FEE Emissions</b>
Total Regulated Electricity	10,120,690 kWh	5,252,638 kgCO <sub>2</sub>
Total Regulated Gas	33,022,422 kWh	7,132,843 kgCO <sub>2</sub>
<b>Sub Total Regulated</b>	<b>43,143,112 kWh</b>	<b>12,385,481 kgCO<sub>2</sub></b>
<b>B'Regs 2013 Baseline</b>	<b>44,867,895 kWh</b>	<b>12,758,034 kgCO<sub>2</sub></b>

By adopting enhanced fabric efficiency standards in all residential dwellings, the total energy demand across the site is reduced by circa 2.5% (comprising a 4% improvement in residential dwelling thermal demand). This reduces the sites carbon emission by 1.5% (again from a 4% reduction in carbon emissions arising from residential thermal demand).

The 1.5% improvement in emissions over current Building Regulations 2013 equates to an approximate reduction of 30% over previous Building Regulations 2006. The emissions reductions secured through improvements to the fabric energy efficiency are therefore substantially greater than the 10% required by Policy NE/1 of the LDF Development Control Policies DPD (2007).

### Zero Carbon Energy: 'BE CLEAN and BE GREEN'

After the initial savings through energy efficiency measures, the next step is the consideration of 'onsite' low carbon (Be Clean) and renewable energy (Be Green); also referred to as low and zero carbon (LZC) technology. Utilising energy generated locally (onsite) reduces energy lost through transmission and distribution, and can often take advantage of more advanced generating technologies that combine to provide energy more efficiently. The following technologies were appraised.

**Table 6.3 LZC Technologies appraised**

<b>Macro Solutions</b> (typically district scale or larger)	<b>Micro Solutions</b> (typically building related)
Anaerobic Digestion Combined Heat & Power (CHP)	Air source heat pumps
Biomass heat, biomass power (CHP)	Ground source heat pumps
Gas CHP	Solar Thermal (building mounted)
Large scale PV array	Solar Photovoltaic (building mounted)
Large scale wind energy	Wind energy (building mounted)

Based upon the recommendations of the strategic LZC options appraisal the Energy Statement provides recommendations as to the preferred options, following the enhanced fabric enhancements, to achieve the initial site wide Carbon Compliance Target before providing an account of various further options to meet the future 2016 Zero Carbon Standard (as currently understood). The required energy and carbon reductions are provided in table 6.4 below.

**Table 6.4 Carbon Compliance and Zero Carbon Homes Target**

<b>All Buildings</b>	<b>Carbon Compliance Target</b>	<b>Zero Carbon Homes Target</b>
Total Regulated Electricity	4,054,175 kgCO <sub>2</sub>	0 kgCO <sub>2</sub>
Total Regulated Gas	5,537,403 kgCO <sub>2</sub>	0 kgCO <sub>2</sub>
<b>Total Regulated</b>	<b>9,591,578 kgCO<sub>2</sub></b>	<b>0 kgCO<sub>2</sub></b>

In terms of land use the site is predominantly low/medium density residential with high density residential and non-residential aspects concentrated within the town centre. A district heat network for the entire site is therefore likely to be financially unviable due the extensive pipework costs. Site wide options will therefore need to incorporate some form of building scale technology. The appraisal identifies Solar as the most practical and economically viable option in this regard.

The density of the development, outside of the town centre, makes a site wide District Heat Network (DHN) and associated LZC technologies (Biomass CHP, Gas CHP) financially unviable due to the extensive pipework costs. As a general rule a density of at least 50 dwellings per hectare is required before a DHN becomes viable. It is therefore recommended that the initial step towards Zero Carbon be achieved through roof mounted PV across the entire development.

Installing Solar PV to 26% of the available roof space across the development will reduce the carbon emissions across the development as follows:

**Table 6.5 Carbon reduction through roof mounted Solar PV**

<b>All Buildings</b>	<b>Enhanced FEE Emissions</b>
Total Regulated Electricity	5,252,638 kgCO <sub>2</sub>
Total Regulated Gas	7,132,843 kgCO <sub>2</sub>
Solar PV generation	- 2,804,841 kgCO <sub>2</sub>
<b>Sub Total Regulated</b>	<b>9,580,640 kgCO<sub>2</sub></b>
B'Regs 2013 Baseline	12,758,034 kgCO <sub>2</sub>
Carbon Compliance Target	9,591,578 kgCO <sub>2</sub>

The above table demonstrates that the provision of solar PV to 26% of the available roof space (i.e. circa half of traditional south facing roof) would achieve an approximate reduction of 2,804,841 KgCO<sub>2</sub>. This reduces the regulated emissions to **9,580,640 kgCO<sub>2</sub>** which is beyond the Carbon Compliance target of 9,591,578 kgCO<sub>2</sub>. This also represents a 25% reduction on the Building Regulations 2013 baseline emissions which exceeds the 10% reduction required by the emerging policy CC/3 of the Proposed Submission Local Plan.

Following the initial reductions achieved through fabric enhancements and roof mounted Solar PV an estimated further reduction of **9,580,640 kgCO<sub>2</sub>** is required in order to reach the Zero Carbon target. The Energy Statement provides the preferred energy strategy options for the development. It is recognised, that irrespective of whichever strategic approach and energy options are recommended, the implementation strategy must be flexible and adaptive to the development, shifting economic incentives and models, and evolving technologies.

Whilst preference has been given to on-site reductions in CO<sub>2</sub> emissions and low carbon/renewable energy generation, it is recognised by the government that it is often technically and economically unviable to achieve 100% of the Zero Carbon Target through onsite solutions. The Governments Zero Carbon framework therefore makes provision for 'Allowable Solutions', enabling the remaining CO<sub>2</sub> emissions to be achieved through alternative measures outside the scope of SAP and SBEM assessment procedures.

It should be noted however that technological solutions located outside of the application boundary would need to be taken forward as a standalone scheme.

The Energy Statement provides a series of options, presented below, that will be further investigated in respect to meeting the future 2016 Building Regulation. It is envisaged that the selection of which, or combination of options, will either form separate planning applications or come forward as part of reserved matter applications. The options are not presented in order of preference.

Given the site constraints the options outlined below are considered to be the most practical, economical and low risk:

- a) Town Centre: Gas CHP plus Allowable Solutions (Type 1) financial contribution for residual emissions
- b) Allowable Solution (Type 2): Land based PV array
- c) Allowable Solution (Type 2): Medium to Large Scale Wind
- d) Allowable Solution (Type 1): Financial contribution

The density of the Town Centre would reduce installation costs of a DHN significantly. The Town Centre is also mixed use, containing a variety of residential and non-residential buildings which would enable any CHP system to work at full capacity for longer periods and therefore more efficiently. This would reduce CO<sub>2</sub> emissions significantly within the Town Centre and reduce the dependence on allowable solutions for the remainder of the site.

Installing a GAS CHP driven DHN to meet 100% hot water demands and 80% of the space heating demands (option a) would reduce the carbon emissions by approximately 5,919,435 KgCO<sub>2</sub>. The remaining site wide emissions to be met through allowable solutions, following the implementation of this option to the Town Centre, would be 3,661,205 KgCO<sub>2</sub> (3,661 tonnes).

Whilst the definition and methodology for the provision of Allowable Solutions is still in its infancy this statement provides an estimate of the land requirements for a potential Solar PV farm contribution for options a and b above. This would be 16.60ha (option a) and 43.43ha (option b) respectively. Utilising Solar PV for the Type 2 Allowable Solutions contribution would assist the development in meeting the aspirational target within policy NS/23 (An Exemplar in Sustainability) of the LDF Northstowe Area Action Plan DPD to achieve 20% of predicted energy needs from renewable technology.

Medium to large scale wind turbines (option c) would be a viable means of achieving the Zero Carbon Target however comes with significant planning risk due to the significant adverse visual and acoustic impacts on the surrounding area. Based on available data over 12 medium scale turbines or 4 large scale turbines would be the minimum

requirement. (Note: if higher wind speeds were recorded electricity generation would be significantly improved).

In option d) the remainder of the regulated carbon emissions associated with the development are dealt with through the use of Type 1 Allowable Solutions whereby each kg CO<sub>2</sub> emitted per annum must be off-set by an appropriate financial contribution to either the Carbon Infrastructure Levy (CIL) fund, Community Energy Fund (CEF) or some other energy related fund. This recognises that in some instances it may not be either technically or economically feasible to achieve the savings through application of technology alone and therefore a financial contribution may be made instead.

The payment required to off-set the above remaining emissions, based on two pricing scenarios, are provided in the table below:

**Table 6.6 Type 1 Allowable Solutions: Financial Contributions**

AS Rate	Cost (£)
@ £60/tonne for 30 yrs	£17,245,153
@ £90/tonne for 30 yrs	£25,867,729

The Energy Statement has adopted a strategic approach appropriate for an outline application. Refinement and optimisation of the options will continue to progress during the detailed design stages and subsequent Reserved Matters Applications. However, the approach is sufficient in detail to demonstrate the following:

- Fabric Energy Efficiency Standards (equivalent CSH level 5) to be surpassed through passive measures such as enhanced u values, solar gains, SMART grid technology, improved air tightness and reduced thermal bridging. This will future proof the development to the Zero Carbon Homes Standards expected by Building Regulations 2013.
- Carbon Compliance Target to be met through on site renewable technology solution.
- Remaining reductions to meet Zero Carbon Standard to be achieved through a combination of onsite LZC technology and Allowable Solutions. The percentage reductions through onsite LZC technology will be maximised to the extent that it remains both technically and financially viable. Allowable solutions to be used as a final resort.
- Provision of renewable technology to meet the Carbon Compliance Target increases the resilience and independence of the development from global fossil fuel supply and price.
- Energy to be fuelled by a combination of renewables and gas. This will ensure that the final energy solution is no more expensive than traditional market priced energy.
- Sufficient flexibility to meet future electrical demands associated with increased electric car charging.

## Energy Security

The proposed energy strategy readies the development at Northstowe Phase 2 for a future in which there are smaller domestic reserves of fossil fuels, international

competition for oil and gas intensifies, and much of our existing plant is replaced with lower carbon alternatives.

Through reducing energy consumption the energy strategy therefore improves the developments energy security. A more energy efficient development lowers exposure to international energy market price rises and volatility. There can also be specific benefits to the energy system of decreasing demand as it reduces the long-term need for investment in additional infrastructure that would have otherwise been required.

By displacing fossil fuel demand through the provision of renewable technology, through the provision of solar PV for every home and building, the proposals at Northstowe Phase 2 also increase the resilience and independence of the development from the inevitable adverse impacts of dwindling global fossil fuel supply and rising prices.

Supplementing the renewable technology with traditionally fuelled LZC technology will ensure that the final energy solution is no more expensive than traditional market priced energy at the same time as providing plenty of flexibility to meet future electrical demands associated with potential increased usage; such as electric car charging.



# 7 Water

## 7.1 Aim



**A place that has adapted to climate change, ensuring it is safe from flood risk, controls surface water flows; improves water quality and has reduced water consumption.**

## 7.2 Objectives and Targets

### Objectives

**1. Surface Water & Flood Risk:** Meet minimum flood risk requirements. Ensure design incorporates adaptation to climate change.

**2. Water Resources:** Minimise potable water use.

**3. Water Quality:** Maintain and enhance water quality

### Targets

- Ensure no properties are located in flood risk zone.
- Design drainage to meet two consecutive 1:200 yr plus Climate Change flood events; coordinated with the Environment Agency (EA) and the Internal Drainage Board (IDB) regional flood risk strategy.
- Use SuDS treatment train – source control to strategic attenuation. Integrate SuDS into landscape.
- Achieve CSH level 4 potable water efficiencies.
- Incorporate low flow and flush fixtures and fittings
- Consider rainwater harvesting and explore greywater recycling in higher density areas
- Ensure no deterioration in water quality status relative to the Water Framework Directive (WFD) and river quality standards.
- Use SuDS treatment train to capture and treat surface water to improve water quality.
- Utilise wetland features to improve ecological status of waters.

## 7.3 Response and Commitments

### Surface Water and Flood Risk

It is proposed to provide a surface water drainage system for the development incorporating SUDS (Sustainable Drainage Systems) which combined with landscaping features provide an enhanced environment without increasing the rate of surface water



run-off from the developed site. These SUDS facilities will be provided for the whole development site and locally within each development parcel.

Surface water drainage for the existing site discharges to on-site ditches and watercourses. The proposed new development will discharge surface water flows into attenuation ponds via swales.

The attenuation ponds will consist of two new large water parks, which will be constructed to the east of the site. Surface water will be stored within the ponds and will be discharged at a controlled rate via a pumping arrangement. The pumping will occur outside of flood events, and the onsite drainage will be designed to accommodate a 1 in 200 year storm event + 30% climate change without flooding.

In the event that water levels in the receiving watercourses off-site are too high, the telemetry system will halt any discharge from the lifting pumps so as not to release any more water from the storage ponds, until the water levels subside.

In addition to the rates of discharge other SUDs methods such as permeable paving, filter drains and green roofs will help to improve the water quality of the surface water run-off before it exits the site.

## Water Resources

Northstowe is located in the East Anglia region and therefore experiences low rainfall levels compared to the rest of the UK. In the future the total annual rainfall could reduce, putting strain on existing water resources. Water resourcing assesses whether there is enough water to meet the rising demand for new housing and domestic consumption in the region. The proposed development will aim to minimise the impact on local water resources and as such the development will include:

- Water demand reduction through demand minimisation and reuse
- SUDS in order to treat surface water runoff and provide wider benefits such as ecological and amenity benefits
- An aspiration to instil the need to save water into the mind of the residents of Northstowe as part of a sustainable living strategy for the site.

Existing groundwater and surface water sources in the area are under pressure, due to climate change, increased nutrient concentrations, and the requirement to maintain some flow for the benefit of downstream environmentally sensitive sites. The proposed development will include the provision of visible metering that creates an awareness of a higher level of accountability at the dwelling.

At household level, each home will achieve CSH level 4 water efficiency standards which is set at 105 litres per person per day or less. This will be achieved through incorporation of the following measures:

- Low water use appliances, such as low water use taps and showers, low flush toilets, dishwashers and washing machines.
- Rainwater harvesting facilities, such as Water Butts, and Sustainable Drainage Systems (SuDs) attenuation facilities that provide additional ecological and landscape features.

- Potential for green roofs on some residential, community buildings, commercial premises and/or schools.

Similarly, non-domestic buildings will achieve reduction in potable water use by upto 50% over typical industry baseline figures through the implementation of demand reduction measures such as low flow taps, low flush toilets and low flush / water free urinals as well as rainwater harvesting.

## Water Quality

The proposed development will comply with the requirements of the European Water Framework Directive (WFD). The WFD sets out a strategy for protecting and enhancing the quality of groundwater, rivers, lakes, estuaries and coasts. The main objectives of the WFD are to prevent any deterioration in the current ecological status, and bring all water bodies up to 'good status' by 2015, or 2027 at the latest. A requirement of the WFD is that a no deterioration policy is adopted for the WFD quality parameters, which could have potential implications for future developments.

To ensure that the quality of the water environment does not decrease a SUDS system will be formed using a broad range of components, each having a variety of attributes and strengths combined to form a treatment train.

Where the major SUDS features would be unlikely to provide the required level of water quality treatment, pre-treatment methods will be used to supplement the treatment trains. Pre-treatment are components not subject to water treatment ratings within the SUDS Manual and include systems for water treatment such as bypass separators (petrol interceptors) to remove hydrocarbons, catchpits to remove sediments and vortex separators for sediment and pollutant removal.

It is important to consider the quality of runoff to be discharged when considering the treatment required. For example, relatively clean runoff from a roof would be likely to require less rigorous treatment than runoff from a road. Therefore, where it may be acceptable to treat roof runoff with SUDS features having low to moderate water quality treatment characteristics, it would be more desirable for road runoff to be treated by a SUDS feature having medium or high treatment characteristics for the appropriate contaminants.

Runoff from parking areas and roads will require some form of pollutant removal due to the presence of to remove hydrocarbons and other similar pollutants associated with motor vehicles. Treatment would be by filtration within SUDS features as it runs through vegetation and percolates through the surface stratum and via percolation through layers of filtration material such as sand within permeable paving. Bypass separators (petrol interceptors) or vortex separators could be used for discharges where space is insufficient for a suitable SUDS feature. Catchpits will be used within any piped networks to capture sediments.

The naturally high quality and unpolluted nature of runoff from roofs and paved areas is likely to require minimal treatment. Settlement of solids and pollutants and other passive mechanisms would naturally occur within storage features and could be encouraged through careful design, further improving the water quality.

It is important to also consider the treatment trains in the context of their function. Where features perform vital SUDS functions but have comparatively low water treatment characteristics, such as detention basins providing storage, such features would be combined with complimentary features to provide suitable water treatment.



## 8 Waste and Materials

### 8.1 Aim



**A development that is committed to reducing construction and operational waste sent to landfill through reducing, reusing, recycling, and treatment; and which maximises the use of sustainable materials in construction.**

### 8.2 Objectives and Targets

#### Objectives

**1. Construction waste:** Design out waste and minimise waste to landfill

**2. Operational waste:** Maximise recycling levels and landfill avoidance.

**3. Sustainable materials:** Minimise the use of natural resources and minimise embodied carbon of materials.

#### Targets

- Specify reusable / recyclable and materials with high recycled content.
- Achieve zero construction waste to landfill – following waste hierarchy and Waste & Resources Action Plan (WRAP) best practice.
- Develop a Code of Construction Practice for managing and monitoring construction activities.
- Achieve CSH level 4 waste credits.
- Design in suitable recycling centres and home recycling collect/bin storage
- Maximise the use of sustainable materials in construction
- Use the BRE Green Guide to Specification for materials in construction.
- Utilise construction materials with low embodied carbon.

### 8.3 Response and Commitments

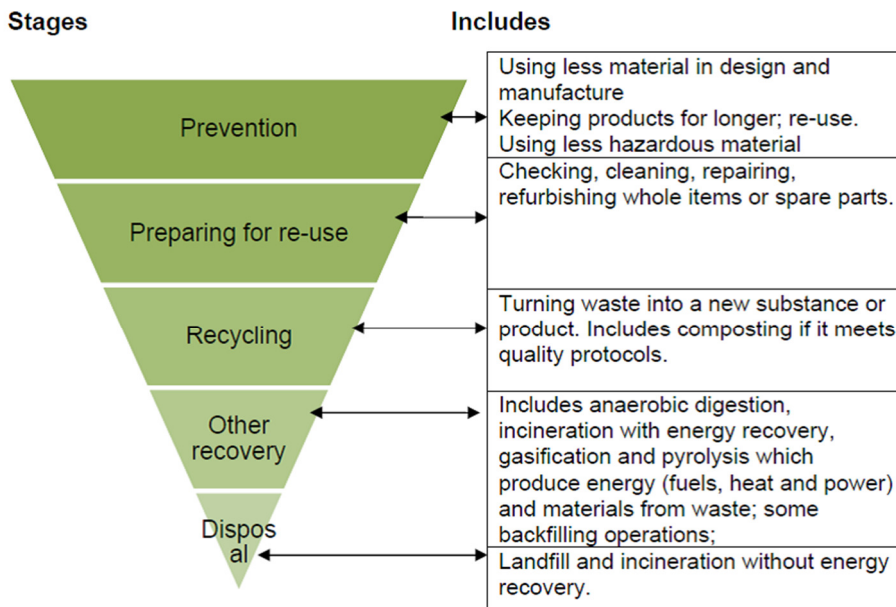
Minimising waste taken to landfill and maximise the use of sustainable materials are the fundamental driving forces behind the waste and materials related objectives and commitments. Key documents have been produced that identify a range of measures to enable these objectives and commitments to be met. These are the Site Waste Management Plan (SWMP), which is concerned with construction materials and waste, the Waste Strategy which is concerned with construction and operational waste and Construction Environmental Management Plan (CEMP) which sets out environmental protection and sustainable approach to construction phase.

## Construction Waste

The design for the proposed development has addressed, and will continue to take into consideration, measures to prevent and minimise construction, demolition and excavation waste while also delivering a development that are cost effective to build, maintain and occupy.

**Figure 8-4 Waste**

**Hierarchy**



The Waste Strategy and the SWMP submitted in support of the application set out details of measures proposed to minimise, reuse and recycle construction, demolition and excavation waste where possible, including the following:

- Ensuring that contractors are committed to participate in the waste minimisation strategy and appropriate procurement requirements for reducing waste and using resources efficiently are set.
- Actively promote the waste minimisation through the design process, materials selection, construction techniques, and operational methods. This will include promoting the use of local materials (including materials with a higher level of recycled content) in line with CSH, BREEAM and BRE's Green Guide to Specification.
- Follow best practice guidance from WRAP.
- Reduction of materials wastage through good storage and handling.
- Use of Modern Methods of Construction and off-site construction wherever possible, allowing significant reductions in waste and facilitating greater recycling which will further mitigate the quantity of construction waste and reduce the number of site visits during the construction process.
- Entering into agreements with suppliers for recovery and disposal of their products, including plasterboard and insulation off-cuts.
- Ensuring that all suppliers of materials provide returnable or practicably recyclable packaging.
- Providing waste minimisation induction courses for all site workers.

- Ensuring adequate waste storage facilities are provided for both raw materials and waste streams generated.

## Operational Waste

To deliver the sustainability credentials set out by South Cambridgeshire District Council, the proposed development will meet the Cambridgeshire and Peterborough Waste Partnership (RECAP) voluntary target of achieving 70% municipal waste recovery and has set an initial residual waste level target of 300 kg/household.

The Waste Strategy submitted in support of the application sets out details of provisions for waste and recyclables segregation and storage in the proposed residential and commercial and industrial buildings. Internal waste storage containers that are easily accessible to residents will be provided in the kitchens of the residential units. The containers will have a total capacity of 35-40 litres and may be divided to allow the separation of recycling from refuse and, where appropriate, organic waste for composting.

Each residential unit will have a suitable hard surface within the curtilage of the property of sufficient size to accommodate a minimum of three wheeled bins for refuse, recycling and compostable waste. Waste storage for flats will comprise high quality communal bin stores, with larger capacity wheeled bins for the separate collection of refuse and recycling.

A Household Waste Recycling Facility is also proposed at Northstowe to further assist in achieving high levels of recycling.

At this stage, it is expected that the commercial and industrial units will be provided with large four-wheel bins for refuse and recycling. These could be for their own or shared use and they will have easy access for end users and for collection vehicles.

## Sustainable materials

The Waste Strategy and CEMP submitted in support of the application sets out a range of measures and commitments that will be put in place to encourage the sustainable use of materials in construction, including:

- Encouraging the sustainable use of materials in construction
- Minimising the use of potable water during construction and use of rainwater from attenuation facilities for irrigation and dust suppression.
- Giving preference to the use of locally sourced materials.
- Preparation of a Materials Management Plan following the approach in CL:AIRE Development Industry Code of Practice to ensure sustainable re-use of materials; particularly relative to the use of recycled materials and aggregates, particularly in the construction of roads, footpaths, cycleways and hard landscaping.
- Sourcing timber used in construction from sustainable sources.
- Providing environmental awareness training for staff involved in construction.
- Registering and complying with the Considerate Constructors Scheme.

Credits under the Code for Sustainable Homes for specifying materials with a low environmental impact under the Green Guide to Materials Specification will be targeted. Credits are awarded where the materials used in the major building elements of the proposed development (roof, walls, floors and windows) achieve a high rating under the Green Guide, taking into account the full life cycle of the materials.

Wherever possible, therefore, the materials specification and products used for the proposed development will display the following characteristics:

- Low embodied energy that require little processing.
- High recycled content including steel, glass and certain cladding and flooring products.
- Reused materials including reclaimed materials.
- Use of durable material
- Use of materials that can be re-used, recycled, refilled, recharged or reconditioned.
- Use of lightweight materials in order to reduce the volume of materials within the building superstructure and require less fuel during transport.

The construction waste measures and commitments, set above to ensure the reduction, reuse and recycling of construction waste, will also contribute towards the achievement of this commitment.

## 9 Environmental Capital

### 9.1 Aim



A place that is dedicated to protecting and enhancing biodiversity and creating green corridors that link to the wider landscape; and which provides a place for people to enjoy and relax.

### 9.2 Objectives and Targets

#### Objectives

1. **Ecosystem Services:** Protect and enhance habitat; provide green corridors that link spaces across the site and promote healthy lifestyles.

2. **Environmental quality:** Protect, minimise and mitigate impact to the environment.

3. **Cultural Heritage:** Respect and enhance the historic environment within the design.

#### Targets

- Retain, protect and enhance existing habitats.
- Use landscape and green infrastructure as one of the key design principles to inform layout.
- Integrate green infrastructure strategy with water management to create green and blue corridors.
- A place where landscape is integral to the form and structure of the development; and which provides a place for people to enjoy and relax.
- Consider future climate change.
- Minimise environmental impact to / via air, noise, vibration, light, soil and water.
- Mitigate impact to receptors.
- Retain historic and cultural significant buildings and features where possible.
- Do not allow significant adverse impact to the setting of cultural heritage features.
- Retain historic landscape features where possible; including fen drains which define the landscape character.

### 9.3 Response and Commitments

#### Environmental capital

The Environmental Statement and Ecological Management Plan, prepared to support the application, have identified key habitats recorded at the site as improved and neutral semi-improved grassland, arable, hedgerows and broadleaved scattered trees. The



open grassland, in particular, provides foraging and nesting habitat for birds and foraging habitat for badgers. The broadleaved trees provide potential roosting habitat for bats and habitat for birds, with the buildings also supporting roosts. Long Lane provides important foraging habitat for bats. An area of dense scrub contains a main badger sett, with this clan also foraging across much of the site. The site also provides terrestrial habitat for great crested newt that breeds in nearby ponds.

The key constraint relating to the proposed development relates to habitat loss. However, the preliminary design of Phase 2 incorporates several elements that seek to mitigate this impact.

The greenways, particularly the informal greenways, provide opportunities to improve connectivity across the site and compensate for habitat loss associated with site clearance works. There is also an opportunity to create habitat off-site to mitigate for habitat loss associated with the proposed development, which will be managed to maximise biodiversity. While some species may be disturbed by the proposed development, there is also an opportunity to attract species that are associated with towns, including starling and house sparrow. There are opportunities to enhance the site for notable invertebrates recorded at the site, particularly white-spotted pinion moth and white-letter hairstreak.

Some land will be set aside off site to be converted into semi-improved rough grassland. This will be designed to benefit a range of bird species currently holding territories within the site, particularly barn owl, skylark and yellow wagtail.

A number of small ponds will be created around the periphery of the attenuation ponds, which will not be pumped directly and may occasionally dry out during hot weather. They will be designed to maximise biodiversity and provide suitable breeding habitat for great crested newt. They will be planted with bankside and aquatic vegetation, but maintaining open areas and ensuring they are not too shaded, particularly on the south side. The ponds will have suitable vegetation encouraging good populations of invertebrates and other amphibians. The ponds will be clustered, ensuring connectivity between the ponds via suitable terrestrial habitat.

The landscape design for Phase 2 will create an attractive, distinct and multi-functional green infrastructure that will integrate the development into the surrounding fen landscape. The following elements all form key parts of this integrated network:

- The fields, hedgerows and trees to the west of Long Lane, including the hedgerows and trees along both side of Long Lane, will be retained and protected.
- The trees within the informal greenways and Rampton Drift buffer will be retained and protected. The retention of Category A and B trees within the built development will be prioritised over Category C and U trees, as well as those that have a potential to support roosting bats.
- The hedgerows within the informal greenways will be retained and enhanced through planting sections where gaps exist with whips.
- Standards of native tree and shrub species that are characteristic to this part of Cambridgeshire will be planted within the proposed and existing hedgerows and informal greenways.

- Naturalistic swales will be created, planted with riparian vegetation, particularly within the informal greenways
- Planted buffers will be created between the built development and informal greenways, comprising lines of trees and planted beds, which will lead into open grassland interspersed with scattered trees. These will supplement existing trees, which will be retained where possible. Swathes of open, rough grassland will be interwoven with meadows, sporadic tree clusters, shrubs and pedestrian and cycle ways.
- A series of formal greenways will be managed open spaces defined by distinct linear tree, shrub and hedgerow features, including areas of paving, lawns, wildflower meadows, footpaths and cycle ways.
- The built development will be set back 20m from Rampton Drift, with a green buffer proposed in between. Many of the existing trees will be retained, which will be supplemented with additional woodland trees, orchards and hedgerows

This network of green spaces and links effectively form the ‘green lungs’ of the development and giving people and wildlife the space to breathe and move; providing green access to and through the development to the wider countryside.

To increase the resilience of biodiversity to climate change and ensure it can adapt in the long term, a range of open spaces will be created that allow for a diversity of habitats and ecological niches. Green spaces will ensure that retained habitats and newly created habitats form linear corridors which provide for the migration of species across the site and into the wider countryside, as they change their range in response to changes in climate.

Using native species adapted to the current climate which can cope with the stressed environments that may be created by climate change, where appropriate, within the landscaping, providing habitats that are beneficial to biodiversity and resilient to climate change.

## Environmental Quality

Although any new development inevitably causes some degree of impact to the environment, this can be reduced and mitigated through careful design and implementation. Northstowe Phase 2 has been design in accordance with the Development Framework Document to minimise impact to the environment.

The Construction Environmental Management Plan submitted in support of this application, along with the Environmental Statement and Low Emission Strategy, set out measures to reduce impact to the environment, including:

- measures to reduce air, noise and vibration impacts on residential properties particularly those at Longstanton, Oakington and Rampton Drift;
- measures to minimise dust and sediment impact on surrounding properties and surface waters; and
- measures to containing debris and mud within the site boundary for the benefit of the surrounding highways.

These measures include:

- Liaison with the neighbouring communities of Longstanton, Oakington and Rampton Drift.
- Contractors will be required to sign up to the Considerate Constructors Scheme (CCS) and utilise best practice in all activities undertaken.
- Controlling working hours and construction activities undertaken, such as earthworks, demolition and general construction operations including noise and dust control / suppression, lighting management and use of plant and equipment.
- Materials and waste management, including producing detailed Site Waste Management Plan that will specify waste reduction targets and duty of care.
- Management of site compounds and access arrangements; including fencing and screening of compounds and activities, specifying construction vehicle and haul routes, delivery times and
- Control of potential pollution through appropriate working practices; including vehicle washdown and wheel wash, positioning and bunding of fuel stored on-site, dewatering operations and having emergency procedures in place.

## Cultural Heritage

The masterplan design will reflect the Heritage Strategy to be submitted with the planning statement and will express the character and history of the area by retaining prominent features of the site including buildings and landscape where a suitable and viable use can be found. A Historic Environment Management Plan will be created in order to guide this process.

A number of existing building and structures are proposed to be retained; including:

- Officers' Mess – a Georgian style building surrounded by dense planting with main access from an avenue of mature lime trees;
- The Guard's House;
- Pill boxes;

In addition, part of the former barracks' road layout will be retained, which includes the tree-lined avenue running from Rampton Road to the former administrative building of the barracks site.

# 10 Transport

## 10.1 Aim



A development that is committed to reducing the need or desire to travel through integrated design and provides sustainable travel choices that promote reduced reliance on private cars, seeks to relieve congestion and reduce carbon emissions.

## 10.2 Objectives and Targets

### Objectives

- 1. Travel need:** Reduce the need to travel by private car.
- 2. Travel Choice:** Provide attractive, economic and safe alternative forms of transport.
- 3. Travel impact:** Mitigate impact to surrounding highway network.

### Targets

- Achieve a significant mode shift from private car by promoting walking, cycling and bus use.
- Provide local services, education and employment accessible by walking, cycling and public transport.
- Promote walking and cycling – through the creation of a network of safe and convenient routes and ensure all key social infrastructure buildings (schools etc) are within easy walking distances.
- Provide for public transport; including appropriate bus routes and frequencies.
- Explore opportunities for electric vehicles and integrate electric charging into the design (and be aware of future electrical capacity issues).
- Restrict number of vehicular access points.
- Provide more convenient pedestrian/cycle links.
- Design junctions to improve capacity (or at least mitigate impact).

## 10.3 Response and Commitments

A Transport Assessment has been prepared to provide a detailed evaluation of current movement conditions and to consider potential transport implications of the development of the site and to identify measures to mitigate adverse impacts identified in accordance with national and local guidance.

## Travel need

The mixed use development of Northstowe Phase 2 will provide homes, employment and community infrastructure (including schools and doctors), set within a permeable network of streets and spaces that promote walking and cycling, and with a dedicated busway. This integrated design means that people will be able to access local services, education and jobs locally without the need to travel by private car.

An inclusive and legible movement network has been proposed that should manifest itself in a well-defined hierarchy of streets, and safe pedestrian and cycle routes relative to areas of housing, employment and social infrastructure. The general aims of the access and movement strategy are to:

- Use existing access and integrate existing cycle and pedestrian routes;
- Create an interconnected network of streets and public spaces;
- Arrange and align routes first and foremost for ease of walking and cycling;
- Create a visual hierarchy of streets with legible characters.

The road network for Phase 2 will encourage sustainable travel based on a street hierarchy that includes the busway, primary roads, secondary roads, and mews. The street hierarchy for Phase 2 will provide safe pedestrian and cycling connectivity.

Northstowe Phase 2 will be linked to the Cambridgeshire Guided Busway (CGB) by enabling the operation of a dedicated busway through the primary development site from its early stages. This key move is intended to provide sustainable travel within the settlement and towards Cambridge and Huntingdon for both residents and workers.

A Framework Travel Plan, to be submitted as part of the planning application, with overarching measures, and specific measures for workplaces, residential areas and schools to achieve a target of a reduction in car use of 58% of all forecast trips by car drivers.

## Travel Choice

Walking and cycling will be encouraged as the main transport mode within Northstowe Phase 2. The street design of the primary development site prioritises the inclusion of safe and dedicated pedestrian routes and cycle paths. In determining which improvements might be included for Phase 2, priority has been given to:

- Enable residents trips to be made on foot or cycle to and from Northstowe;
- Enable trips to the town centre from existing communities (Rampton Drift, Cottenham, Oakington, Longstanton, Willingham, Over, Swavesey, Bar Hill) to be made via sustainable forms of transport;
- Provide opportunities for leisure walking, cycling and horse riding to be made from Northstowe into the wider communities and countryside.

New cycleways and footpaths are planned to link to the existing bridleway network in order to connect the primary development area with surrounding settlements, as well as with the Phase 1 development.

Improvements to the Public Rights Of Way are anticipated to be provided as part of the development (details are provided in the Planning Statement and Transport Assessment). The cycling network within Northstowe Phase 2 will be linked to the existing commuter bicycle network around the site; including linking to the cycle path that runs along the eastern side of the CGB. Cycle parking facilities will be provided throughout the development of Phase 2. The cycle routes proposed are in three categories:

- Commuter Routes – on segregated cycleways alongside highways. These should be safe and attractive for use at all times of the day and evening;
- Leisure Routes – off-road cycleways through greenways and into the countryside. In addition to providing pleasant routes for leisure trips, these may provide the most direct connections, suitable for work or school trips, but are not likely to be subject to natural surveillance nor lit. These will often be shared by walkers and equestrians;
- Quiet Roads – routes or sections of routes which use quieter roads and cyclists and potentially equestrians share the carriageway.

There will be a number of key routes for cyclists, pedestrians and equestrians within the development, which are:

- North west to south east following the dedicated busway through the centre of the development;
- Following the dedicated busway on the eastern and northern side to connect to the CGB walking, cycling and bridle way route via a proposed new crossing;
- To Rampton Drift from Longstanton Village Centre;
- Alongside the water park on the eastern side;
- Crossing west to east through the development in a number of locations, connecting homes to the town centre, schools and sports facilities;
- Alongside the east and west Primary Roads;
- Connecting to Woodside in the west.

A wide range of measures have been considered to encourage sustainable travel around Northstowe Phase 2, and improve levels of public transport accessibility. Key to this is the dedicated busway route which passes through the centre of Northstowe, connecting the new settlement with the CGB service running between Cambridge and Huntingdon. This will provide residents of Northstowe with high levels of public transport accessibility. The busway will join the primary access road from the south for a short section and for Phase 2 this will be a shared route to the southern end of the town centre where primary routes on the east and west will diverge taking general traffic to the other parts of the Phase 2 development and connect to the Phase 1 Primary Roads.

The CGB is a strategic investment into public transport, giving buses significant priority over general traffic into the heart of Northstowe. A 20 minute frequency bus service is proposed through Northstowe town centre to Cambridge. In addition, an extension of the local bus service (Citi 5) will be provided to connect Northstowe to surrounding villages.

The busway is to be equipped with bus stops located at intervals of no more than 800 metres to enable residents to access public transport in less than 5 minutes' walk. The majority of residents should be within 400 metres of a bus stop. There will be new CGB services provided linking Longstanton Park and Ride, Northstowe town centre and Cambridge. In addition, existing bus services are planned to be extended into the development along primary roads and the busway to ensure that the new community of Northstowe is well connected by public transport services..

In addition, a wide range of promotional and travel awareness initiatives will be established, as well as a car club and electric vehicle promotion.

### Travel Impact

Primary roads will provide an efficient movement through the site accessing to the main elements of social infrastructure, whilst secondary and tertiary roads will be designed to provide safe domestic access and street environment. Dedicated pedestrian and cycle routes will permeate all areas of Phase 2, linking to an existing network of cycle paths, bridle ways and byways in order to provide safe and direct access to large open spaces and established communities surrounding the site. In addition, off-site walking and cycling improvements will be undertaken to further improve connectivity.

The Highways Agency's proposed improvements to the A14 from Cambridge to Huntingdon will upgrade the A14 in the vicinity of Northstowe to four lanes (in each direction) and provide a parallel single carriageway local access route connecting the Trinity Foot, Bar Hill and Dry Drayton junctions as well as south into Cambridge. This will significantly improve the capacity of the A14 and offer significantly enhanced highway accessibility to Northstowe.

There have been discussions with the Highways Agency to ensure that the Bar Hill junction is designed in the A14 Cambridge to Huntingdon Improvements to accommodate the forecast flows from Northstowe Phases 1 and 2. Moreover, the implications of the full 10,000 homes have also been considered. From the Bar Hill junction to the junction with the Southern Access Road (West), the B1050 will be upgraded to a dual carriageway to accommodate Northstowe development traffic as well as wider traffic growth on the B1050 corridor in the period to 2031..

Vehicular access and parking is strategically planned throughout the site, supported by public parking facilities in the town centre and communal parking in residential areas so as to encourage the minimum use of the car.

The design of Phase 2 offers opportunities to create movement and connectivity synergies based on sustainable and diverse modes of transportation. Internally within the development there will be vehicle access via two Primary Roads. Each Primary Road will be connected to the Phase 1 Primary Roads in the north and the Southern Access Road (West) and dedicated busway arriving at Northstowe from the south. The two routes will comprise the:

- Eastern Primary Road: serving the eastern side of the town centre, secondary school, eastern primary school, sports facilities and residential areas to the east of the bus way;
- Western Primary Road: serving Rampton Drift existing residential areas, housing to the west of the dedicated busway, the western side of the town centre and the western primary school.



The Primary Roads will be designed as 30mph roads with changes in alignment to discourage traffic speeding and provide access without making journeys by car significantly advantageous over other modes.

These roads will typically provide on-street parking on one side of the carriageway and dedicated bicycle lanes adjacent to engineered swales. Generous pedestrian pavements are to be delineated by a single row of trees on one or both sides of the streets depending on space availability and visibility requirements.

To mitigate impact to the wider highway network; the following key strategic investment and initiatives are planned:

- Provision of the Southern Access Road (West) which will take the majority of traffic to the strategic network without impacting on the local communities.
- Mitigation through speed reduction measures and walking and cycling improvements of road links subject to a significant increase in traffic.
- Improvements to key existing local junctions, which following traffic modelling, show an increase in capacity issues with the inclusion of the Phase 2 development compared to the Reference Case in 2031.



# 11 Community Cohesion

## 11.1 Aim



**A healthy and vibrant community that is empowered, self-resilient and takes responsibility for its interaction with the environment and successfully integrates with its neighbouring villages**

## 11.2 Objectives and Targets

### Objectives

**1. Health & Wellbeing:** Provide space that promotes social interaction and fitness.

**2. Inclusivity:** Provide for a mixed and balanced community. Seeks to integrate with neighbouring villages.

**3. Social infrastructure:** Ensure appropriate social infrastructure provided.

### Targets

- Provide space for formal and informal recreation, sports and play.
- Provide allotments, community and private gardens that enable local food production.
- Provide space and a mechanism to enable farmers markets, festival and celebrations to be held.
- Provide appropriate proportion of private, mixed tenure, rented and affordable homes.
- Ensure no differentiation between differing housing types and integrate across the site.
- Provides services and facilities that can be accessed by surrounding villages.
- Provide appropriate schools, nursery, pre-schools, health care, GP surgery, pharmacy, recreation, community facilities and essential shops.
- Conveniently locate community and social infrastructure facilities along safe walking and cycling routes and served by buses.

## 11.3 Responses and Commitments

### Health and Wellbeing

The Health Impact Assessment submitted in support of this application considers those factors that contribute to people health and wellbeing, and proposes mitigation measures.

An interconnected network of green spaces and links will be provided as part of the landscape strategy that will enable people to explore their community and the wider area. This will connect areas of formal and informal play and enable leisurely walks by the water parks, along the green corridors and to sport and play area.

Community allotments will be provided and enable residents to grow their own food, the town square will provide the space for farmers markets. The town square will also provide space for festivals, events and celebrations which will aid community cohesion.

Northstowe Phase 2 will promote active and healthy lifestyles, by providing a sports hub which will enable both new and existing communities to access a range of sporting activities.

## Social Infrastructure

The town centre within Phase 2 will provide space for many key social and community services, as part of a vibrant, dynamic and diverse centre, supporting the local and wider community. Northstowe Phase 2 will provide shops, services, cultural, leisure and community facilities expected from a small to medium sized market town, including:

- Two primary schools and one secondary school;
- Comparison and convenience retail;
- Restaurants / cafes / bars / pubs;
- Health (including GP surgery), community and leisure facilities;
- Space for nursery and youth club;
- Place of worship; and
- Outdoor events space.

## Inclusivity

Northstowe Phase 2 will promote a variety of residential building typologies in order to ensure the creation of a diverse place for an inclusive and vibrant community. The layout will focus around the town centre with appropriate social infrastructure to cater for all Northstowe residents and those of the surrounding communities.

Phase 2 will provide a mix of market properties broadly aligned with the requirements of the NAAP and will provide (approximately):

- 33% one or two bedrooms;
- 41% three bedrooms; and
- 26% four or more bedrooms.

In addition, Phase 2 will provide a percentage of affordable housing, which will be pepper-potted throughout the housing areas. The proportion of affordable housing will be determined as part of a process of negotiation with the local planning authority regarding planning obligations. Whilst it is not appropriate to set out full details of the types of housing to be delivered in Phase 2, it is likely that Northstowe will include starter homes, live-work units, and opportunities for self-build.

The presence of leisure, community facilities and social infrastructure, such as cafes, sports centres, nursery's, GP surgery's etc. will enable people to interact, establish relationships and support structures as well as participate in community activities.

## 12 Education and Employment

### 12.1 Aim



**A place that fosters education and employment opportunities for all, and provides space for people to grow to their full potential.**

### 12.2 Objectives and Targets

#### Objectives

**1. Education:** Provision of schools and access to onward education and training.

**2. Employment:** Provide designated space for employment

**3. Information Technology:** Provide provision for next generation IT infrastructure and technology platforms to help business and residents prosper.

#### Targets

- Appropriate number of schools (primary and secondary) and entry forms with excellent buildings and facilities to promote active learning built to high levels of sustainability.
- Schools within easy walking distances; along safe walking and cycling routes and served by buses.
- Create local apprentice schemes relative to predicted build out.
- Provide appropriately zoned land used for a range of employment types
- Provide town centre uses
- High speed broadband
- Develop SMART cities technology to inform residents.
- SMART metering.

### 12.3 Response and Commitments

#### Education

The first sub-phase of Northstowe Phase 2 will deliver a secondary school for the wider community, which is planned to open in time for the September 2018 intake. Two primary schools will be provided in subsequent sub-phases of Phase 2; the first one being provided adjacent to secondary school providing an unique opportunity to create a through-school and/or education hub. The second primary school is planned to come forward in future phases of the development possibly as an alternative use for the existing Officers' Mess building; providing an opportunity to maintain a strong link to the cultural history of the site's former use. All education facilities will have access to sports and cultural facilities.

The location of the schools has been determined to ensure that all residents are with suitable walking / cycling distances.

Agreement will be reached regarding the provision of suitable apprentice schemes linked to the construction of Northstowe Phase 2.

## Employment

The Retail Impact Assessment submitted in support of this application has identified that Northstowe Phase 2 will provide a range of employment opportunities and will unlock capacity for 57,500m<sup>2</sup> GIA of town centre uses and an additional 21,200m<sup>2</sup> GIA of employment space within and adjacent to the town centre. Employment within the town centre is likely to consist of a mix of offices, research and development and light industrial uses. The town centre will also deliver employment opportunities associated with its mix of retail, food and drink, health and community uses.

Phase 2 is estimated to bring forward employment space provision with capacity to accommodate 3,800 gross jobs, of which around 2,100 jobs would be net additional (new jobs generated) to Greater Cambridge.

Northstowe is also likely to provide indirect, induced and supply chain jobs; it is estimated that, in the wider area, around 3,750 net additional FTE jobs within the wider area. It is anticipated that employment gains through commercial development in Northstowe will bring £802.7million in GVA to 2031 across Greater Cambridge.

The Town Centre Strategy, to be submitted as part of the Phase 2 application, will not only provide a vibrant, dynamic and diverse centrality for local residents but also the heart of the wider community at Northstowe. It will provide shops, services, cultural, leisure and community facilities expected from a small to medium sized market town, likely to include:

- Comparison and convenience retail;
- Restaurants / cafes / bars / pubs;
- Residential;
- Workshops;
- Gym;
- Cinema;
- Leisure facilities;
- Health, community and fitness centre;
- Youth club;
- Place of worship;
- Outdoor events space;
- Nursery.

The town centre will also serve residents of nearby communities. Its location is planned to make the town centre a convenient destination, maximising its use and accessibility for everyone especially by walking, cycling, and public transport. The layout of the town centre will offer the possibility of evolving as the population of Northstowe grows over

time. The town centre will be one of the most important spatial devices to support the creation of Northstowe's identity since the early stages of the development.

In addition to the town centre uses, Northstowe Phase 2 will also provide two primary schools, one secondary school and a sports hub. These uses will also generate positive economic activity.

The Economic Development Strategy for Northstowe will deliver a stronger local economy with higher levels of sustainable growth and employment for the benefit of the areas existing and future residents. The proposals will generate substantial economic and employment growth and sustainable business and community development by:

- Savings—cutting costs for businesses, families, communities, and governments by efficiently using renewable resources and by reducing and reusing waste.
- Opportunities—growing jobs and incomes through business development and expanding markets.

Green Talent—investing in fundamental assets such as education, research, technological innovation, and modern entrepreneurial and workforce skills, because people are now the world's most vital economic resource.

Green Places—establishing sustainable transportation and infrastructure, and protecting and enhancing the natural and built environment, to create more attractive, livable, healthy, vibrant, prosperous, productive, and resource-efficient areas and communities.

## Information technology

Information technology is crucial to support existing and future generations, and the following initiatives are proposed:

- High speed broadband to homes and free WiFi in all public places and spaces and providing sufficient IT conduits to future proof the development.
- Develop SMART cities technology to provide information to residents and businesses; including real time passenger information.
- SMART metering providing real time information on how homes and business are using energy and water.

# 13 Summary

This report presents the key aspects that collectively demonstrate that Northstowe Phase 2, as part of the wider Northstowe development, will be a sustainable development.

A summary of the key sustainability commitments are presented in the figure below.



Figure 13-5 Northstowe Phase 2 Sustainability Commitments

In meeting these commitments this statement demonstrates that the principles of sustainable development are integral to the Northstowe Phase 2 design process. The proposals include environmental elements, such as the identification of mitigation and adaptation measures to the impacts of climate change, significant carbon reduction measures to achieve zero carbon homes, the efficient use of resources through waste minimisation and the selection of sustainable building materials, increased water efficiency and the promotion of sustainable and effective means of transport.

Social elements include the promotion of health and equality, the provision of efficient low energy buildings for reduced energy bills, the delivery of adequate affordable housing, the protection of the environment and cultural heritage and the provision of

first class leisure and cultural facilities to create a more attractive, healthy, vibrant and prosperous community.

Economic elements include the provision of a vibrant town centre that is easily accessible and investment in fundamental assets such as education, research, technological innovation, and modern entrepreneurial and workforce skills in order to provide the platform for sustained economic growth.

These aspects of the development are essential to the overarching vision for Northstowe to be a sustainable and vibrant new community future proofed within the context of Policy and Environmental, Social and Economic change.



# Appendices

## Appendix A

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### Code for Sustainable Homes Pre Assessment





Homes &  
Communities  
Agency



Homes and Communities Agency

Northstowe Phase 2

Code for Sustainable Homes Pre-assessment

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# Homes and Communities Agency

## Northstowe Phase 2

### Code for Sustainable Homes Pre-assessment

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This report has been prepared for Homes and Communities Agency in accordance with the terms and conditions of appointment for Code for Sustainable Homes Pre-assessment. Hyder Consulting (UK) Limited (2212959) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.



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# 1 INTRODUCTION

- 1.1.1.1 Hyder Consulting (UK) Ltd has been commissioned by the Homes and Communities Agency (HCA) to prepare a Code for Sustainable Homes (CSH) pre-assessment report in support of the outline planning application for the proposed development at Northstowe, Cambridgeshire.
- 1.1.1.2 The pre-assessment allows an evaluation of potential rating achievable under a formal assessment for a single dwelling type. It is not meant to replace the Design Stage Assessment, which is a more formal and detailed approach, but it can provide an early indication of the expected CSH level and the issues and areas to improve. The pre-assessment has been conducted for single dwelling type. However, under the formal assessment, where there will be differences in credit scores, an assessment for each single dwelling type must be carried out.
- 1.1.1.3 This report will summarise the indicative performance of an individual dwelling when assessed against the 2010 version of the CSH and the 2014 Code Addendum. The CSH ratings for other dwellings (single houses or apartments) are likely to differ due to dwelling specific credits.

## 1.2 Proposed development description

- 1.2.1.1 The area of the main Phase 2 development area is approximately 165 hectares. The area is bordered to the east by the route of the Cambridgeshire Guided Busway, and to the west by Longstanton. The area includes the former Oakington Barracks, which currently comprises of three buildings, with no current use; slabs remaining from demolished buildings; remaining facilities associated with the barracks including sports amenities and green space; and a water tower which is the tallest structure on the site and visible feature in the wider landscape. The area surrounds the existing settlement of Rampton Drift, comprised of 92 properties, originally built as part of the barracks complex, although this area is not included in the application. The wider main Phase 2 Development area includes areas of hardstanding and open space associated with the former airfield (much of this currently occupied by agricultural tenants), farmland including Brookfield Farm and Larksfield Farm. The area also includes a section of Rampton Road.
- 1.2.1.2 To the south of the main Phase 2 development area, and through which its proposed access routes run is land that is identified for future phases of development of Northstowe.
- 1.2.1.3 Intervening vegetation results in the site being largely screened from surrounding villages and farmsteads. There are groups of trees throughout the former Oakington Barracks including avenues of mature trees around the barracks complex and leading to the station headquarter building. There are also groups of mature trees in the western corner of the site and around Rampton Drift. These all contribute to the setting of the site and adjacent Longstanton.

## 1.3 Objectives

1.3.1.1 The purpose of this pre-assessment is to:

- Demonstrate how the proposed development will meet the aspirations set out in the Northstowe Development Framework Document (DFD) Exemplar Addendum;
- Provide a document to accompany the Environmental Statement Report that has been prepared by Hyder (Report Reference: xxxx);
- Provide a detailed account of which Code credits are likely to be attained by the proposed development, communicated by way of a pre-assessment estimator to accompany the planning application and
- Provide a document that can be issued to future parties to enable commitments to be made to the credits which are likely to be achieved at detailed design stage.

## 1.4 Relation to other documents

1.4.1.1 Other documents which relate to the planning application and which provide relevant information used to inform the CSH Pre-assessment report include:

- Energy Statement;
- Design & Access Statement;
- Waste Management Strategy

## 1.5 Report structure

1.5.1.1 This introductory section is followed by a comprehensive review of national, regional and local policy on sustainability. Section 3.0 details the background to the CSH assessment, followed by an overview of the category weightings, mandatory credit requirements and credit percentages in Section 1.7 introduces the CSH pre-assessment estimator found in Section 2 and the summary of credits found in Section 3.

1.5.1.2 This CSH pre-assessment concludes with a summary of the recommended strategy for the scheme to achieve CSH Level 4.

## 1.6 Background to the Code for Sustainable Homes

1.6.1.1 As set out in the Northstowe Development Framework Document (DFD) Exemplar Addendum all new developments in Northstowe to achieve a minimum of CSH level 4. The CSH process, background and basis for the pre-assessment procedure are explained in detail below, along with specific development proposals relating to each assessment section and the anticipated credits required to achieve the level described.

1.6.1.2 The CSH is a nationally recognised standard for the design and construction of new dwellings. The CSH provides a flexible framework and benchmark for the construction of high performance dwellings based on an objective criteria and verification method. It is graded on a 'Star Rating' which reflects the dwelling's environmental performance ranging from one star homes to six stars, which represents a zero carbon home.

1.6.1.3 The CSH assesses and awards credits against nine categories of sustainable design, rating the individual dwelling as a complete package. The design categories are:

- Energy and CO2 Emissions;
- Water;
- Materials;
- Surface Water Run-off;
- Waste;
- Pollution;
- Health and Well-being;
- Management; and
- Ecology.

1.6.1.4 The CSH assessment is carried out in two stages. The first part of the assessment is carried out at the design stage, referred to as the design stage assessment based on the design specification for individual dwellings, to determine the interim rating from which an interim CSH certificate is awarded. Following the construction of the different CSH dwelling types a post-construction stage assessment is carried out to confirm that the dwellings have been built to the design stage specification.

1.6.1.5 Each dwelling will be awarded a final CSH certificate indicating the level achieved. The CSH level thresholds are as follows:

**Table 1: CSH minimum thresholds**

<b>Total percentage points score (equal to or greater than)</b>	<b>CSH rating</b>
36 points	Level 1 (★)
48 points	Level 2 (★★)
57 points	Level 3 (★★★)
68 points	Level 4 (★★★★)
84 points	Level 5 (★★★★★)
90 points	Level 6 (★★★★★★)

## 1.7 Category weightings and credit percentages

1.7.1.1 The CSH categories are weighted according to their level of importance, as indicated in Table 2 below. Each category is allocated a different number of credits and therefore individual credits carry specific weightings, as a percentage of the total points score.

**Table 2: Category weightings and credit percentages**

Categories of environmental impact	Available credits	Weighting factor (% points contribution)	Approximate weighted value of each credit
Energy and CO2 emissions	31	36.4%	1.17
Water	6	9.0%	1.50
Materials	24	7.2%	0.30
Surface water run-off	4	2.2%	0.55
Waste	8	6.4%	0.80
Pollution	4	2.8%	0.70
Health and well-being	12	14.0%	1.17
Management	9	10.0%	1.11
Ecology	9	12.0%	1.33

1.7.1.2 The CSH includes mandatory minimum performance standards in the following areas, which must be met irrespective of the CSH level sought. Credits are not awarded for achieving the minimum performance standards. Confirmation that the performance requirements are met for all four issues is a minimum entry requirement for achieving a Code level 1 rating. The four no-credited issues are within:

- Mat 1: Environmental impact of materials;
- Sur 1: Management of surface water runoff from developments;
- Was 1: Storage of non-recyclable waste and recyclable household waste; and
- Was 2: Construction site waste management.

1.7.1.3 If the mandatory minimum performance standards are met for the four no-credited issues, two further mandatory issues need to be considered. Credits are awarded for every level of achievement recognised within the CSH, and minimum mandatory standards increase with increasing ratings levels. The two issues with increasing mandatory minimum standards are:

- Dwelling emission rate; and
- Indoor water use.

1.7.1.4 Table 2 below summarises the mandatory minimum performance standards required to achieve CSH Level 4.

**Table 2: Mandatory minimum requirements to achieve CSH level 4**

<b>Performance Standards</b>	<b>Minimum requirements to achieve CSH level 4</b>
Energy and CO2 emissions over part L 2010	25%
Water (litres per person per day)	105
MAT1	At least 3 key elements to achieve the BRE Green Guide 2008 rating of at least D
SUR1	To be no greater than previous conditions of the site
WAS1	Adequate accessible storage of household waste

1.7.1.5 The CSH level can only be achieved if the above mandatory issues achieve the minimum standards as set out within the CSH Technical Guidance. All other credits are tradable (i.e. they are voluntary and a developer/designer can make choices on the most appropriate standards/credits for a given site). It is these tradable credits that provide the flexibility within the CSH. Once all mandatory credits are achieved the developer is then free to make up the credits required for the target rating from the tradable credits, to give an overall score.

## 2 CSH Pre-assessment

- 2.1.1.1 A CSH pre-assessment has been prepared to communicate the proposed scoring strategy and to demonstrate a path that may be used in the future by different parties to achieve a CSH Level 4 rating for the dwellings at Northstowe.
- 2.1.1.2 If the requirements of the credits detailed within the CSH pre-assessment are met, in accordance with the CSH November 2010 Technical Guidance, it is anticipated that a score of 69.93% or 73 credits would be achieved for the assessment, which exceeds the minimum credit score required to achieve Code Level 4.
- 2.1.1.3 The dwellings will be assessed on an individual basis as part of the detailed design stage assessment; however, for the purpose of providing early indicative design advice the pre-assessment outlines the proposed strategy for achieving CSH level 4 based on a house worst case scenario.
- 2.1.1.4 Please be advised the CSH strategy could change at the detailed design stage according to unforeseen constraints. The units have been assessed with this in mind, and a sufficient number of credits have been included above the required rating to compensate if changes were to occur at the detailed design stage to ensure a CSH level 4 rating is maintained.

## 2.2 ENERGY AND CARBON DIOXIDE EMISSIONS

Table 3: Energy and carbon dioxide emissions pre-assessment

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation																																	
Ene 1	Dwelling emission rate <b>This credit has minimum mandatory standards</b>	<p>Credits are awarded based on the percentage improvement rate of the DER over Building Regulations Approved Document L1A. Minimum standards for each CSH level apply.</p> <table border="1"> <thead> <tr> <th>% Improvement</th> <th>Credits</th> <th>Mandatory Levels</th> </tr> </thead> <tbody> <tr> <td>≥ 8%</td> <td>1</td> <td></td> </tr> <tr> <td>≥ 16%</td> <td>2</td> <td></td> </tr> <tr> <td>≥ 25%</td> <td>3</td> <td>Level 4</td> </tr> <tr> <td>≥ 36%</td> <td>4</td> <td></td> </tr> <tr> <td>≥ 47%</td> <td>5</td> <td></td> </tr> <tr> <td>≥ 59%</td> <td>6</td> <td></td> </tr> <tr> <td>≥ 72%</td> <td>7</td> <td></td> </tr> <tr> <td>≥ 85%</td> <td>8</td> <td></td> </tr> <tr> <td>≥ 100%</td> <td>9</td> <td>Level 5</td> </tr> <tr> <td>'True Zero Carbon'</td> <td>10</td> <td>Level 6</td> </tr> </tbody> </table>	% Improvement	Credits	Mandatory Levels	≥ 8%	1		≥ 16%	2		≥ 25%	3	Level 4	≥ 36%	4		≥ 47%	5		≥ 59%	6		≥ 72%	7		≥ 85%	8		≥ 100%	9	Level 5	'True Zero Carbon'	10	Level 6	3 of 10	<p>Credits are awarded based on the percentage improvement of the DER over the TER. The Energy Statement Report and the SAP worksheets for the proposed development provide details on the energy performance of the residential units.</p> <p>To achieve CSH level 4 there is a minimum mandatory requirement of 25% improvement over the 2010 Building Regulations.</p> <p>The Energy Strategy for the development targets CO<sub>2</sub> emissions reductions well in excess of 25% over the 2010 Building Regulations and therefore secures a 'minimum' of 3 credits for each dwelling</p>
% Improvement	Credits	Mandatory Levels																																			
≥ 8%	1																																				
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Ene 2	Fabric energy efficiency	<p>Credits are awarded based on the FEE value, as taken from the SAP worksheets.</p> <table border="1"> <thead> <tr> <th>Dwelling type</th> <th>Credits</th> <th>Mandatory levels</th> </tr> </thead> <tbody> <tr> <td>Apartment blocks, mid-terrace</td> <td>End terrace, semi-detached and detached</td> <td></td> </tr> <tr> <td>Fabric energy efficiency kWh/m<sup>2</sup>/year</td> <td></td> <td></td> </tr> <tr> <td>&lt; 48</td> <td>&lt; 60</td> <td>3</td> </tr> <tr> <td>&lt; 45</td> <td>&lt; 55</td> <td>4</td> </tr> </tbody> </table>	Dwelling type	Credits	Mandatory levels	Apartment blocks, mid-terrace	End terrace, semi-detached and detached		Fabric energy efficiency kWh/m <sup>2</sup> /year			< 48	< 60	3	< 45	< 55	4	7 of 9	<p>The energy strategy for the development has, at its core, a reduction in energy use through adopting a high standard of building fabric performance, which significantly exceeds the minimum requirements of Part L1A for fabric efficiency standards. Due to the houses' configuration and bigger areas of exposed elements each of the houses can be assessed against the relevant FEE standard. The proposed FEE values of the different unit types are:</p>																		
Dwelling type	Credits	Mandatory levels																																			
Apartment blocks, mid-terrace	End terrace, semi-detached and detached																																				
Fabric energy efficiency kWh/m <sup>2</sup> /year																																					
< 48	< 60	3																																			
< 45	< 55	4																																			

Ref	Title	Code for Sustainable Homes				Credit targeted	Credits validation					
		Dwelling type	End terrace, semi-detached and detached	Credits	Mandatory levels		Property Type	FEE (kWh/m <sup>2</sup> /Year)	Credits			
		Apartment blocks, mid-terrace										
		Fabric energy efficiency kWh/m <sup>2</sup> /year										
		< 43	< 52	5								7
		< 41	< 49	6								7
		< 39	< 46	7	5 and 6							8
		< 35	< 42	8								7
		< 32	< 38	9								7
Ene 3	Energy display device	<p>One credit: Where current electricity OR primary heating fuel consumption data are displayed to occupants by a correctly specified energy display device.</p> <p>Two credits: Where current electricity AND primary heating fuel consumption data are displayed to occupants by a correctly specified energy display device.</p>				2 of 2	<p>It has been assumed that energy display devices will be provided to each unit to allow occupants to monitor both electricity and primary heating fuel consumption data.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>					
Ene 4	Drying space	<p>Credits are awarded where internal or external drying space is provided as follows:</p> <ul style="list-style-type: none"> <li>• 1 - 2 bed units = 4m+ drying line</li> <li>• 3+ bed units = 6m+ drying line</li> </ul> <p>If internal, the heated space must have adequate ventilation with a minimum extract rate of 30 l/s and be controlled according to the requirements for intermittent extract ventilation defined in AD F.</p> <p>Any fittings / fixings must be a permanent feature of the room or space.</p>				1 of 1	<p>It has been assumed that the houses will be provided with external drying lines and flats will be provided with internal drying spaces.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>					
Ene 5	Energy labelled white goods	<p>Credits are awarded where all white goods are provided and meet the following ratings:</p> <ul style="list-style-type: none"> <li>• Fridges, freezers &amp; fridge/freezers = A+</li> <li>• Washing machines &amp; dishwashers = A</li> </ul>				1 of 2	<p>A decision has not yet been made as to whether to provide white goods.</p> <p>A Home User Guide will be produced to provide occupants with information relating to the efficient operation of their home and the surrounding area.</p>					



Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
		<ul style="list-style-type: none"> <li>Washer Dryers &amp; tumble Dryers = B</li> </ul> <p>Where no white goods are fitted, 1 credit is awarded where information on EU Energy Efficiency Labelling Scheme is provided.</p>		This guide will also include information on the EU Energy Efficiency Labelling Scheme in order to encourage the purchase of energy-efficient appliances. Therefore, one credit has been awarded based on information being provided to all residents regarding the EU Energy Efficiency Labelling Scheme.
Ene 6	External lighting	<p>Credits are awarded based on the provision of space lighting with dedicated energy efficient fittings and security lighting fittings with appropriate control gear OR provision and dual lamp luminaries with both space and security lamps compliant with the above energy efficiency requirements.</p> <p>Space lighting: external space lighting, including lighting in common areas is provided with dedicated energy efficient fittings (statutory safety lighting is not covered).</p> <p>Security lighting: security lighting designed for energy efficiency and adequately controlled. Burglar lights, 150W max.</p> <p>Incorporating movement detectors and daylight cut-off or timers.</p> <p>All other security lighting: security lighting provided by energy efficient light bulbs / lamps and is fitted with daylight cut-off sensors or a time switch.</p>	2 of 2	<p>It has been assumed that the space lighting will comprise energy efficient fittings, controlled by either PIR, daylight sensors or time switches, serving the external door, front porch, steps/pathways, patio and garden.</p> <p>Any security lighting will be controlled by both photocell and PIR motion sensors and have a circuit wattage no greater than 150W. Where security lighting is not specified the second credit covering security lighting can be awarded by default.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
Ene 7	Low and zero carbon technologies	<p>Credits are awarded where either there is a 10% or 15% reduction in total carbon emissions that result from using low or zero carbon technologies.</p>	2 of 2	<p>It has been assumed that low or zero carbon technology will be designed and installed in a manner endorsed by the Energy Strategy prepared by Hyder.</p> <p>It has therefore been assumed that the development will achieve reductions in excess of 15% through a combination of renewable and low carbon technologies.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
Ene 8	Cycle storage	<p>Credits are awarded where adequate, safe, secure and weather proof cycle storage is provided according to the Code requirements.</p> <p>1 Credit</p>	1 of 2	<p>It has been assumed that the flats will be provided with a dedicated ground communal cycle store for the storage of 1 cycle, in accordance with the minimum storage area required to store the cycles on the floor. The stores will be located to provide</p>

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
		<ul style="list-style-type: none"> <li>• Studio or 1 bedroom – storage for every two dwellings</li> <li>• 2 and 3 bedroom – storage for 1 cycle per dwelling</li> <li>• bedroom and above – storage for 2 cycles per dwellings</li> </ul> <p>2 Credit</p> <ul style="list-style-type: none"> <li>• Studio or 1 bedroom – storage for 1 cycle per dwelling</li> <li>• 2 and 3 bedroom – storage for 2 cycles per dwelling</li> <li>• bedroom and above – storage for 4 cycles per dwelling</li> </ul> <p>Storage as follows:</p> <ul style="list-style-type: none"> <li>• 1 cycle: 2m x 0.75m</li> <li>• 2 cycles: 2m x 1.5m</li> <li>• 4 cycles: 2m x 2.5m</li> </ul> <p>Where a proprietary storage or hanging systems is provided, the space requirements are flexible but the system will allow for each cycle to be removed independently. Other requirements relating to convenient access, looking in line with BS 3621:2004 and allowing for secure fixing along with being weather proof will be met.</p>		<p>direct access to the public right of way. The stores will also include a permanent deadlock or mortice sash lock that conforms to BS 3621:2007.</p> <p>It is also assumed that houses will incorporate appropriate levels of cycle storage to enable 1 credit score to be achieved</p>
Ene 9	Home office	<p>A credit is awarded for the provision of space for a home office. The location, space and service provided must meet the Code requirements defined as:</p> <ul style="list-style-type: none"> <li>• Two double power sockets</li> <li>• Two telephone points, or broadband service</li> <li>• Window (the room chosen must have a daylight factor of 1.5%)</li> <li>• Adequate ventilation</li> <li>• Space (1.8m wall length)</li> </ul>	1 of 1	<p>It has been assumed that an area for the home office will be provided to each dwelling. Daylight calculations will be undertaken at the detailed design stage to confirm a daylight factor of 1.5% is achieved.</p> <p>It has been assumed that the room will be provided with two double power sockets, two telephone points / double telephone point / one telephone point &amp; broadband. Adequate ventilation can be provided via an openable window, where required. A 1.8m wall space will be allocated for a desk and filing cabinet.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
<b>Total energy and carbon dioxide emissions score</b>			<b>20 of 31</b>	

## 2.3 WATER

Table 4: Water pre-assessment

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation																		
Wat 1	Indoor water use <b>This credit has minimum mandatory standards</b>	<p>Credits are awarded based on the predicted average household water consumption, calculated using the Code Water Calculator Tool. Minimum standards for each code level apply.</p> <table border="1"> <thead> <tr> <th>Water consumption (litres/person/day)</th> <th>Credits</th> <th>Mandatory Levels</th> </tr> </thead> <tbody> <tr> <td>≤ 120 l/p/day</td> <td>1</td> <td>Levels 1 and 2</td> </tr> <tr> <td>≤ 110 l/p/day</td> <td>2</td> <td></td> </tr> <tr> <td>≤ 105 l/p/day</td> <td><b>3</b></td> <td><b>Levels 3 and 4</b></td> </tr> <tr> <td>≤ 90 l/p/day</td> <td>4</td> <td></td> </tr> <tr> <td>≤ 80 l/p/day</td> <td>5</td> <td>Levels 5 and 6</td> </tr> </tbody> </table>	Water consumption (litres/person/day)	Credits	Mandatory Levels	≤ 120 l/p/day	1	Levels 1 and 2	≤ 110 l/p/day	2		≤ 105 l/p/day	<b>3</b>	<b>Levels 3 and 4</b>	≤ 90 l/p/day	4		≤ 80 l/p/day	5	Levels 5 and 6	3 of 5	<p>It has been assumed that a water consumption value of 105 litres/person/day will be achieved within the units, by following the calculation method used by the CLG Water Efficiency Calculator. The following sanitary fittings will be provided at the design stage.</p> <ul style="list-style-type: none"> <li>• WC = full flush 4 litre, Part flush 2.6 litre</li> <li>• Basin Taps = 4 litres/min</li> <li>• Bath = 118 litres to overflow</li> <li>• Shower = 6 litres/min</li> <li>• Kitchen Taps = 5 litres/min</li> <li>• Dishwasher (default value) 1.25 litres per place setting</li> <li>• Washing Machine (default value) 8.17 litres per kilogram of dry load.</li> </ul> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
Water consumption (litres/person/day)	Credits	Mandatory Levels																				
≤ 120 l/p/day	1	Levels 1 and 2																				
≤ 110 l/p/day	2																					
≤ 105 l/p/day	<b>3</b>	<b>Levels 3 and 4</b>																				
≤ 90 l/p/day	4																					
≤ 80 l/p/day	5	Levels 5 and 6																				
Wat 2	External water use	<p>A credit is awarded where a compliant system is specified for collecting rainwater for external irrigation purposes.</p> <table border="1"> <thead> <tr> <th>House type</th> <th>Storage volume requirements (minimum litres)</th> </tr> </thead> <tbody> <tr> <td>Terraces and patios</td> <td>100</td> </tr> <tr> <td>1 – 2 bedroom home with private garden</td> <td>150</td> </tr> <tr> <td>3+ bedroom home with private garden</td> <td>200</td> </tr> </tbody> </table> <p>For communal gardens 1 litre/m<sup>2</sup> of land allocated to the dwelling with a minimum of 200 litres per communal garden. Where the</p>	House type	Storage volume requirements (minimum litres)	Terraces and patios	100	1 – 2 bedroom home with private garden	150	3+ bedroom home with private garden	200	1 of 1	<p>It has been assumed that water butts will be provided for the houses.</p>										
House type	Storage volume requirements (minimum litres)																					
Terraces and patios	100																					
1 – 2 bedroom home with private garden	150																					
3+ bedroom home with private garden	200																					

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
		communal garden is allocated to more than 6 dwellings, a maximum of 30 litres per dwelling can be applied. Where no outdoor space is provided the credit can be awarded by default.		
<b>Total water score</b>			<b>4 of 6</b>	

## 2.4 MATERIALS

Table 5: Materials pre-assessment

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
Mat 1	Environmental impact of materials <b>This credit has minimum mandatory standards</b>	<p><b>At least three of the following five key building elements must achieve a Green Guide 2008 Rating of A+ to D:</b></p> <ul style="list-style-type: none"> <li>• Roof;</li> <li>• External walls;</li> <li>• Internal walls (including separating walls);</li> <li>• Upper and ground floors (including separating floors); and</li> <li>• Windows.</li> </ul> <p>Points are awarded on a scale based on the Green Rating of Specifications.</p>	10 of 15	<p>It has been assumed that the building materials will be assessed against the BRE Green Guide to Specification and that the building will achieve 10 out of the available 15 credits. This exceeds the mandatory requirements of the materials category of the CSH and will provide some of the additional tradable credits necessary to achieve CSH level 4.</p> <p>It has been assumed that the roof, internal and external walls and windows are most likely building elements to achieve lower environmental impact over their lifecycle.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
Mat 2	Responsible sourcing of materials – basic building elements	<p>Credits are awarded where 80% of the assessed materials in the following Building Elements are responsibly sourced: frame, ground floor, upper floors (including separating floors), roof, external walls, internal walls (including separating walls), foundation/substructure (excluding sub-base materials) and staircase.</p> <p>Additionally, 100% of any timber in these elements must be legally sourced.</p>	2 of 6	<p>It has been assumed that a minimum of 2 credits could be achieved. There is no existing evidence but it is likely that credits can be picked up for responsible sourcing on some of the 'A' rated materials identified in Mat 1.</p> <p>An assumption has also been made that 10% of the building's mass will be built from salvaged, recycled and other reused materials.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
Mat 3	Responsible sourcing of materials – finishing elements	<p>Credits are awarded where materials used in the finishing elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score.</p>	1 of 3	<p>An assumption has been made that 1 credit could be achieved. Under the CSH system, materials will comply where they are certified under the EMS scheme (i.e. ISO 14001 certificate or similar).</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
<b>Total materials score</b>			<b>13 of 24</b>	

## 2.5 SURFACE WATER RUN-OFF

Table 6: Surface water run-off pre-assessment

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
Sur 1	Management of surface water run-off from developments This credit has minimum mandatory standards	Where SUDS are used to improve water quality of the rainwater discharged or for protecting the quality of receiving waters, the SUDS Management Train should be used as a guide to achieve the following: <ul style="list-style-type: none"> <li>Where there is an increase in impermeable area, ensure that the peak rate of run-off over the development lifetime, allowing for climate change, will be no greater for the developed site than it was for the pre-development site; and</li> <li>Ensure that the post development volume of run-off, allowing for climate change over the development lifetime, is no greater than it would have been before the development.</li> </ul> <p>A credit is awarded when there is no discharge from the developed site for rainfall depths up to 5mm.</p> <p>An additional credit is awarded by ensuring the run-off from all hard surfaces is treated in accordance with the SUDS Manual to minimise the risk of flooding.</p>	2 of 2	Whilst there will be an increase in the man-made impermeable area as a result of the new development, the peak run-off rate (including allowance for climate change) will be controlled to agreed greenfield run-off rates. Implementation of the recommendations identified within Flood Assessment and Drainage Strategy and Chapter 10 'Flood Risk and Drainage' in Environmental Statement Volume 1 will enable both credits to be achieved. Further details of exact specification requirements need to be obtained at detailed design stage.
Sur 2	Flood risk	Credits are awarded based on the flood risk level of the site. A full Flood Risk Assessment covering the risk of flooding from all sources must be carried out by a suitably qualified consultant. <ul style="list-style-type: none"> <li>2 credits are awarded where the site is in a low risk area; and</li> <li>1 credit is awarded where the development is in Zone 2 or 3, the finished floor levels of all habitable rooms and access routes must be at least 600mm above the design flood level, and flood resistant and resilient measures are in place.</li> </ul> <p>Where no outdoor space is provided the credit can be awarded by default.</p>	1 of 2	A review of the Flood Risk at the site from all sources indicates that the development is located mainly within Flood Zone 1; an area where the chance of both river and sea flooding each year is <0.1% (1 in 1000) or less. A small area of the site is identified as being at risk of flooding but is protected; and development within this area will be raised to be at least 600mm above the potential flood level. Further details of exact specification requirements need to be obtained at detailed design stage.
<b>Total surface water run-off score</b>			<b>3 of 4</b>	



## 2.6 WASTE

Table 7: Waste pre-assessment

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
Was 1	Storage of Non-recyclable Waste and Recyclable Household Waste <b>This credit has minimum mandatory standards</b>	<b>The space provided for waste storage should be sized to hold the larger of either all external containers provided by the Local Authority or the minimum capacity calculated from BS 5906.</b> Credits are awarded for adequate internal and/or external recycling facilities.	4 of 4	It has been assumed that the building materials will be assessed against the BRE Green Guide to Specification and that the building will achieve 10 out of the available 15 credits. This exceeds the mandatory requirements of the materials category of the CSH and will provide some of the additional tradable credits necessary to achieve CSH level 4. It has been assumed that the roof, internal and external walls and windows are most likely building elements to achieve lower environmental impact over their lifecycle. Further details of exact specification requirements need to be obtained at detailed design stage.
Was 2	Construction Site Waste Management	The Site Waste Management Plan (SWMP) should include procedures and commitments for minimising waste and/or commitments to sort, reuse and set waste targets in m <sup>3</sup> per 100m <sup>2</sup> of building floor area. A second credit is available where >50% of construction waste is diverted from landfill and a third credit is available where >85% of construction waste is diverted from landfill.	3 of 3	A preliminary SWMP has been produced in accordance with CSH Checklists Was 2A, B and C, which summarise the relevant guidance set by the SWMP Regulations and best practice guidance from DEFRA, BRE and WRAP, to ensure that: <ul style="list-style-type: none"> <li>• The resource efficiency benchmark is set in accordance with best practice;</li> <li>• At least 85% non-hazardous construction waste is diverted from landfill; and</li> <li>• Waste must be minimised from the design stage, segregated into the identified waste</li> </ul>

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
Was 3	Composting	<p>A credit is awarded where:</p> <ul style="list-style-type: none"> <li>• individual home composting facilities are provided; OR</li> <li>• a community/municipal composting service, either run by Local Authority or overseen by a management plan is in operation; OR</li> <li>• green/kitchen waste collection system is run by the Local Authority.</li> </ul> <p>All facilities must also be in a dedicated position, provide inclusive access and usability and have a supporting information leaflet provided to each dwelling.</p>	1 of 1	<p>groups; monitored, measured and reported on. Further details of exact specification requirements need to be obtained at detailed design stage.</p> <p>The Local Authority runs a green/kitchen waste collection system</p>
<b>Total Waste score</b>			<b>8 of 8</b>	



## 2.7 POLLUTION

Table 8: Pollution pre-assessment

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation												
Pol 1	Global warming potential (GWP) Of insulants	A credit is awarded where all insulating materials used (roof, walls, floors, external doors, hot water cylinder and pipe) only use substances (in manufacture AND installation) that have a GWP of less than 5.	1 of 1	It has been assumed that the proposed development will specify insulation materials that have a GWP of less than 5 to achieve maximum credits.												
Pol 2		<p>Credits are awarded on the basis of NO<sub>x</sub> emissions arising from the operation of the space and water heating system within the dwelling</p> <table border="1"> <thead> <tr> <th>Dry NO<sub>x</sub> level (mg/kWh)</th> <th>Boiler Class (BS EN 297: 1994)</th> <th>Credits</th> </tr> </thead> <tbody> <tr> <td>≤ 100</td> <td>5</td> <td>1</td> </tr> <tr> <td>≤ 70</td> <td>5</td> <td>2</td> </tr> <tr> <td>≤ 40</td> <td>-</td> <td>3</td> </tr> </tbody> </table>	Dry NO <sub>x</sub> level (mg/kWh)	Boiler Class (BS EN 297: 1994)	Credits	≤ 100	5	1	≤ 70	5	2	≤ 40	-	3	2 of 3	It has been assumed that space heating and hot water requirements will be met through an efficient individual gas condensing boiler with inherently low NO <sub>x</sub> emissions. Further details of exact specification requirements need to be obtained at detailed design stage.
Dry NO <sub>x</sub> level (mg/kWh)	Boiler Class (BS EN 297: 1994)	Credits														
≤ 100	5	1														
≤ 70	5	2														
≤ 40	-	3														
<b>Total pollution score</b>			<b>3 of 4</b>													

## 2.8 HEALTH AND WELL-BEING

Table 9: Health and well-being pre-assessment

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation								
Hea 1	Daylighting	<p>Credits are awarded for ensuring key rooms in the dwelling have high day lighting factors (DF) and a view of the sky.</p> <p>One credit is awarded if kitchens achieve a minimum average DF of at least 2%.</p> <p>An additional credit is awarded if all living rooms, dining rooms and studies (including any room designated as a home office under Ene 9 – Home Office) achieve a minimum average DF of at least 1.5%.</p> <p>An additional credit is awarded if 80% of the working plane in each kitchen, living room, dining room and study (including any room designated as a home office under Ene 9 – Home Office) receive direct light from the sky.</p>	1 of 3	<p>It has been assumed that the dwellings have been designed to maximise the amount of daylight received, where possible.</p> <p>It is anticipated that the designated room for the home office and living/dining room within each of the houses will achieve a daylight factor of at least 1.5%. It is also anticipated that some of the kitchens may also achieve a DF of 2%.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>								
Hea 2	Sound Insulation	<p>Credits are awarded where performance standards exceed those required in Building Regulations Part E. This can be demonstrated by carrying out pre-completion testing or through the use of robust details.</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Credits</th> </tr> </thead> <tbody> <tr> <td>Airborne sound insulation values <math>\geq</math> 3dB Impact sound insulation values are <math>\leq</math> 3dB</td> <td>1</td> </tr> <tr> <td>Airborne sound insulation values <math>\geq</math> 5dB Impact sound insulation values are <math>\leq</math> 5dB</td> <td>3</td> </tr> <tr> <td>Airborne sound insulation values <math>\geq</math> 8dB Impact sound insulation values are <math>\leq</math> 8dB</td> <td>4</td> </tr> </tbody> </table> <p>than the performance standards set out in the Building Regulations approved for England and Wales, Approved Document E (2003 Edition, with amendments 2004).</p> <p>This can be demonstrated through either a commitment to undertake pre-completion testing to show construction in line with above, or through use of robust details to show compliance with the above.</p>	Criteria	Credits	Airborne sound insulation values $\geq$ 3dB Impact sound insulation values are $\leq$ 3dB	1	Airborne sound insulation values $\geq$ 5dB Impact sound insulation values are $\leq$ 5dB	3	Airborne sound insulation values $\geq$ 8dB Impact sound insulation values are $\leq$ 8dB	4	3 of 4	<p>It has been assumed that the houses will be constructed to achieve airborne sound insulation values that are at least 5dB higher, and impact sound insulation values that are at least 5dB lower than the performance standards required by Building Regulations Approved Document E.</p> <p>The floors and separating walls between the houses should be carefully designed in accordance with the acoustician's recommendations.</p> <p>Compliance will be determined through either Robust Details or a programme of pre-completion testing based on the Normal programme of testing.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
Criteria	Credits											
Airborne sound insulation values $\geq$ 3dB Impact sound insulation values are $\leq$ 3dB	1											
Airborne sound insulation values $\geq$ 5dB Impact sound insulation values are $\leq$ 5dB	3											
Airborne sound insulation values $\geq$ 8dB Impact sound insulation values are $\leq$ 8dB	4											

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
Hea 3	Private Space	A credit is awarded for the provision of an outdoor space that is at least partially private. The space must allow easy access to all occupants and be: <ul style="list-style-type: none"> <li>• For private space 1.5m<sup>2</sup>/bedroom</li> <li>• For shared space minimum 1m<sup>2</sup>/bedroom</li> </ul>	1 of 1	It has been assumed that the houses will have private gardens that meet the requirements. Further details of exact specification requirements need to be obtained at detailed design stage.
Hea 4	Lifetime Homes	Lifetime Homes is mandatory when dwelling is to achieve CSH level 6. Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme.	0 of 4	It has been assumed that all affordable homes will be Lifetime Homes compliant, ensuring they are easily adaptable for future use. However, only a proportion of market homes will be delivered to lifetime homes in line with SDCDC emerging local plan. Further details of exact specification requirements need to be obtained at detailed design stage.
<b>Total health and well-being score</b>			<b>5 of 12</b>	

## 2.9 MANAGEMENT

Table 10: Management pre-assessment

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation						
Man 1	Home User Guide	<p>Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the CSH requirements. For full compliance the guide will need to cover:</p> <ul style="list-style-type: none"> <li>Operational issues;</li> <li>Site and surroundings; and</li> <li>Be available in alternative formats.</li> </ul>	3 of 3	<p>It has been assumed that a Home User Guide will be provided to each dwelling enabling occupants to understand and operate their home as efficiently as possible. The Home User Guide will include operational instructions as well as information on the surrounding area to achieve maximum credits.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>						
Man 2	Considerate Constructors Scheme	<p>Credits are awarded where there is a commitment to comply with best practice site management principles using with the Considerate Constructors Scheme (CCS) or an alternative locally/nationally recognised scheme.</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Credits</th> </tr> </thead> <tbody> <tr> <td>Achieving a score of at least 3 in every section, and a total score between 24 and 31.5, of the CCS's Code of Considerate Practice.</td> <td>1</td> </tr> <tr> <td>Achieving a score of at least 4 in every section, and a total score of between 32 and 40 of the CCS's Code of Considerate Practice.</td> <td>2</td> </tr> </tbody> </table>	Criteria	Credits	Achieving a score of at least 3 in every section, and a total score between 24 and 31.5, of the CCS's Code of Considerate Practice.	1	Achieving a score of at least 4 in every section, and a total score of between 32 and 40 of the CCS's Code of Considerate Practice.	2	2 of 2	<p>The construction phase of the proposed development will be registered with the CCS, to target a score of at least 35 overall, with a score of 7 in each section against the CCS's Code of Considerate Practice, to demonstrate the proposed development is being managed in accordance 'Beyond Best Practice'. Compliance will be determined through either robust details or a programme of pre-completion testing based on the Normal programme of testing.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
Criteria	Credits									
Achieving a score of at least 3 in every section, and a total score between 24 and 31.5, of the CCS's Code of Considerate Practice.	1									
Achieving a score of at least 4 in every section, and a total score of between 32 and 40 of the CCS's Code of Considerate Practice.	2									
Man 3	Construction Site Impacts	<p>One credit is awarded where there is a commitment and a strategy to operate site managements procedures to cover two or more of the following items:</p> <ul style="list-style-type: none"> <li>Monitor, report and set targets for CO2 production or energy use arising from site activities;</li> <li>Monitor and report CO2 or energy use arising from commercial transport to and from site;</li> <li>Monitor, report and set targets for water consumption from site activities;</li> </ul>	2 of 2	<p>It has been assumed that the contractor will be required to monitor, report and set targets for;</p> <ul style="list-style-type: none"> <li>CO<sub>2</sub> emissions arising from site activities;</li> <li>Water consumption from site activities; and</li> <li>Energy use from commercial transport to and from the site.</li> </ul> <p>In addition, it has been assumed that the contractor will be required to adopt best practice</p>						

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
Man 4	Security	<ul style="list-style-type: none"> <li>• Adopt best practice policies in respect of air (dust) pollution arising from site activities;</li> <li>• Adopt best practice policies in respect of water (ground and surface) pollution occurring on the site; and</li> <li>• 80% of site timber is reclaimed, re-used or responsibly sourced.</li> </ul> <p>Two credits are awarded where there are procedures that cover four or more of the items listed above.</p> <p>Credits are awarded for complying with Section 2 – Physical Security from Secured by Design – New Homes. An Architectural Liaison Officer (ALO) or alternative needs to be appointed early in the design process and their recommendations incorporated.</p>	2 of 2	<p>policies for air (dust) and water (ground &amp; surface) pollution occurring on-site.</p> <p>It has also been assumed that 80% of site timber will be reclaimed, re-used or responsibly sourced (including formwork, site hoardings and other temporary site timber used for the purpose of facilitating construction).</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p> <p>It has been assumed that an Architectural Liaison Officer or Crime Prevention Design Advisor from the local police force will be consulted at the design stage and their recommendations incorporated into the design of the apartments.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
<b>Total management score</b>			<b>9 of 9</b>	

## 2.10 ECOLOGY

Table 11: Ecology pre-assessment

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation						
Eco 1	Ecological Value of Site	<p>One credit is awarded for developing on land of inherently low ecological value.</p> <p>Low ecological value is determined either a) by using Checklist Eco 1 across the whole development site; or b) where a suitably qualified ecologist is appointed and can confirm the site as low ecological value or c) produces an independent ecological report of the site, that the construction zone is of low/insignificant value; AND the rest of the development site will remain undisturbed by the works.</p>	1 of 1	<p>The ecological value of the site is defined as 'Low Ecological Value' based on the definition provided within the Checklist Eco 1 – Land of Low Ecological Value.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>						
Eco 2	Ecological Enhancement	<p>Credits are awarded where there is a commitment to comply with best practice site management principles using with the Considerate Constructors Scheme (CCS) or an alternative locally/nationally recognised scheme.</p> <table border="1"> <thead> <tr> <th>Criteria</th> <th>Credits</th> </tr> </thead> <tbody> <tr> <td>Achieving a score of at least 3 in every section, and a total score between 24 and 31.5, of the CCS's Code of Considerate Practice.</td> <td>1</td> </tr> <tr> <td>Achieving a score of at least 4 in every section, and a total score of between 32 and 40 of the CCS's Code of Considerate Practice.</td> <td>2</td> </tr> </tbody> </table>	Criteria	Credits	Achieving a score of at least 3 in every section, and a total score between 24 and 31.5, of the CCS's Code of Considerate Practice.	1	Achieving a score of at least 4 in every section, and a total score of between 32 and 40 of the CCS's Code of Considerate Practice.	2	1 of 1	<p>An ecological survey has been undertaken, from which a series of recommendations have been provided. The design incorporates all key recommendations, plus 30% of the additional recommendations made by the ecologist.</p> <p>Further details of exact specification requirements need to be obtained at detailed design stage.</p>
Criteria	Credits									
Achieving a score of at least 3 in every section, and a total score between 24 and 31.5, of the CCS's Code of Considerate Practice.	1									
Achieving a score of at least 4 in every section, and a total score of between 32 and 40 of the CCS's Code of Considerate Practice.	2									
Eco 3	Protection of Ecological Features	<p>One credit is awarded where there is a commitment and a strategy to operate site managements procedures to cover two or more of the following items:</p> <ul style="list-style-type: none"> <li>Monitor, report and set targets for CO2 production or energy use arising from site activities;</li> <li>Monitor and report CO2 or energy use arising from commercial transport to and from site;</li> <li>Monitor, report and set targets for water consumption from site activities;</li> </ul>	1 of 1	<p>The credit has been awarded by default for utilising land of low ecological value. All features outside of the construction zone, but within the development zone, will be adequately protected.</p>						

Ref	Title	Code for Sustainable Homes	Credit targeted	Credits validation
		<ul style="list-style-type: none"> <li>• Adopt best practice policies in respect of air (dust) pollution arising from site activities;</li> <li>• Adopt best practice policies in respect of water (ground and surface) pollution occurring on the site; and</li> <li>• 80% of site timber is reclaimed, re-used or responsibly sourced.</li> </ul> <p>Two credits are awarded where there are procedures that cover four or more of the items listed above.</p>		
Eco 4	Change in Ecological Value of Site	Credits are awarded for complying with Section 2 – Physical Security from Secured by Design – New Homes. An Architectural Liaison Officer (ALO) or alternative needs to be appointed early in the design process and their recommendations incorporated.	4 of 4	It is anticipated that there will be a 'major enhancement' in the ecological value of the site as part of the development proposals. Further details of exact specification requirements need to be obtained at detailed design stage.
Eco 5	Building Footprint	One credit is awarded where the net internal floor area: net internal ground floor area ratio is greater than or equal to 2.5:1 for houses or 3:1 for blocks of flats. Two credits are awarded where the net internal floor area: net internal ground floor area ratio is greater than or equal to 3:1 for houses or 4:1 for blocks of flats.	1 of 2	It is anticipated that the net internal floor area: net internal ground floor area ratio is greater than 2.5:1.
<b>Total ecology score</b>			<b>8 of 9</b>	



### 3 SUMMARY OF CREDITS

3.1.1.1 The table below summarise the CSH credits, detailing the maximum credits available under the scheme, and the credits achieved to secure a CSH Level 4 rating.

3.1.1.2 If the requirements of the credits detailed within the CSH pre-assessment are met, in accordance with the CSH November 2010 Technical Guidance, it is anticipated that a score of 69.93% would be achieved for the assessment, which exceeds the minimum credit score 68 required to achieve Code Level 4.

Credit issue	Credits targeted	Credits available	Points Score for each credit (%)	Points targeted (%)
--------------	------------------	-------------------	----------------------------------	---------------------

Energy and CO2 emissions					
Ene 1	Dwelling Emission Rate	3	10	1.17%	23.4%
Ene 2	Fabric Energy Efficiency	7	9		
Ene 3	Energy Display Devices	2	2		
Ene 4	Drying Space	1	1		
Ene 5	Energy Labelled White Goods	1	2		
Ene 6	External Lighting	2	2		
Ene 7	Low and Zero Carbon (LZC) Technologies	2	2		
Ene 8	Cycle Storage	1	2		
Ene 9	Home Office	1	1		
<b>Total indicative energy score</b>		<b>20</b>	<b>31</b>		

Water					
Wat 1	Indoor Water Use	3	5	1.50%	6.0%
Wat 2	External Water Use	1	1		
<b>Total indicative water score</b>		<b>4</b>	<b>6</b>		

Materials					
Mat 1	Environmental Impact of Materials	10	15	0.30%	3.9%
Mat 2	Responsible Sourcing of Materials - Basic Building Elements	2	6		
Mat 3	Responsible Sourcing of Materials - Finishing Elements	1	3		
<b>Total indicative materials score</b>		<b>13</b>	<b>24</b>		

Surface water run-off					
Sur 1	Management of Surface Water Run-off from Developments	2	2	0.55%	1.65%
Sur 2	Flood risk	1	2		



Credit issue	Credits targeted	Credits available	Points Score for each credit (%)	Points targeted (%)
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<b>Total indicative surface water run-off score</b>	<b>3</b>	<b>4</b>		
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<b>Waste</b>					
Was 1	Storage of Non-Recyclable Waste + Recyclable Household Waste	4	4	0.80%	6.4%
Was 2	Construction Site Waste Management	3	3		
Was3	Composting	1	1		
<b>Total indicative waste score</b>		<b>8</b>	<b>8</b>		

<b>Pollution</b>					
Pol 1	Global Warming Potential (GWP) of Insulants	1	1	0.70%	2.1%
Pol 2	NO <sub>x</sub> Emissions	2	3		
<b>Total indicative pollution score</b>		<b>3</b>	<b>4</b>		

<b>Health and wellbeing</b>					
Hea 1	Daylighting	1	3	1.17%	5.85%
Hea 2	Sound Insulation	3	4		
Hea 3	Private Space	1	1		
Hea 4	Lifetime Homes	0	4		
<b>Total indicative health and wellbeing score</b>		<b>5</b>	<b>12</b>		

<b>Management</b>					
Man1	Home User Guide	3	3	1.11%	9.99%
Man 2	Considerate Constructors Scheme	2	2		
Man 3	Construction Site Impacts	2	2		
Man 4	Security	2	2		
<b>Total indicative management score</b>		<b>9</b>	<b>9</b>		

<b>Ecology</b>					
Eco 1	Ecological Value of Site	1	1	1.33%	10.64
Eco 2	Ecological Enhancement	1	1		
Eco 3	Protection of Ecological Features	1	1		
Eco 4	Change in Ecological Value of Site	4	4		
Eco 5	Building Footprint	1	2		

<b>Credit issue</b>	<b>Credits targeted</b>	<b>Credits available</b>	<b>Points Score for each credit (%)</b>	<b>Points targeted (%)</b>
<b>Total indicative ecology score</b>	<b>8</b>	<b>9</b>		
<b>Total</b>	<b>73</b>	<b>107</b>		<b>69.93%</b>
	<b>Code level targeted</b>			<b>Level 4</b>

## 4 CONCLUSIONS AND SUMMARY

4.1.1.1 This CSH pre-assessment report has been developed to detail the sustainability features of the Northstowe Phase 2 development. This statement responds to the requirement to achieve Code for Sustainable Homes (CSH) Level 4.

4.1.1.2 A CSH pre-assessment estimator has been prepared to communicate the credits to be achieved and the standards to which the proposed development will be designed. The CSH process, background and basis for the assessment procedure are explained and specific development proposals relating to each assessment section and the anticipated credits to achieve the required level described.

4.1.1.3 The pre-assessment estimator shows that CSH Level 4 is robustly targeted with a targeted score of 69.93%, against a minimum required score of 68 %. The pre-assessment estimator will inform the issue of an 'Action List' to the design team, setting out in detail the responsibility of each member of the design team to supply the relevant documentation to ensure the target of Code Level 4 is maintained at the detailed design stage.

4.1.1.4 A formal CSH assessment will take place once the tender documentation is produced and will require submission of a full evidence bundle from the client and the design team to show compliance with the credits. The CSH assessor has been and will continue to form an integral part of the design team and a consistent point for reference, review and questions. This approach is proven through experience to offer the surest route to successful CSH certification and holistic sustainable design.

4.1.1.5 The main sustainability features of the development include:

4.1.1.6 Energy:

- An optimised energy efficient design will minimise the energy demand of the development;
- Fabric Energy Efficiency rating of less than 39 kWh/m<sup>2</sup>/year for the flats and less than 46 kWh/m<sup>2</sup>/year for houses;
- Over 25% Improvement over Part L1A:2010 will be achieved (and the development will comply with Part L1A:2013 and be future proofed to anticipated 2016 Building Regulations);
- Energy display devices displaying current electricity and primary heating fuel consumption;
- Provision of a home office;
- Secured and covered cycle storage; and
- Energy labelled white goods.

4.1.1.7 Water:

- The provision of water efficient fittings will reduce consumption to less than 105 litres/person/day.

4.1.1.8 Materials:

- The majority of the main building elements will receive an 'A' or 'A+' rating against the Green Guide to Specification.

4.1.1.9 Surface water runoff:

- The site is located within a low flood risk area, as confirmed by the Flood Risk Assessment; and

- Run-off rates will be limited to agreed greenfield rates.

#### 4.1.1.10 Waste

- Strategies for all types of construction and operational waste will be provided; and
- The housed will benefit from the Councils kitchen waste collection service.

#### 4.1.1.11 Pollution:

- Use of low GWP Insulants; and
- Heating provided through the use of low NOx boilers.

#### 4.1.1.12 Health and Well-Being:

- Private space will be provided for all the dwellings in the form of patio's and balconies;
- The building designs have been optimised to ensure good daylight for all dwellings; and
- Robust Details/pre-completion acoustic testing will ensure acoustic performance of 5dB better than Building Regulations.

#### 4.1.1.13 Management:

- Compliance to best practice Considerate Constructors Scheme standards;
- Respect of good environmental practice on site;
- Provision of user guides to inform future practice;
- Compliance with all the principles of Lifetime Homes; and
- Design complies with Section 2 – Physical Security from Secured by Design – New Homes.

#### 4.1.1.14 Ecology:

- An ecologist will be employed and their recommendations followed to ensure a major positive impact on biodiversity;
- Where practical the ecological features present on the site are protected; and
- The building benefits from a high net internal floor area: internal ground floor area.

4.1.1.15 The CSH pre-assessment and the Energy Strategy for the proposed development demonstrates that the design will holistically incorporate sustainable principles into the full range of sustainability aspects covered by the CSH: Energy, Water, Materials, Surface Water Run-Off, Waste, Pollution, Health & Wellbeing, Management and Ecology.

## 5 DISCLAIMER

- 5.1.1.1 This report details information gathered from consultation with the design team and architectural drawings. All information provided has been accepted in good faith as being accurate and representative of the proposed development at the time of review. The credits and credit requirements are based on the November 2010 version of the CSH.
- 5.1.1.2 Hyder Consulting (UK) Limited cannot accept any responsibility for ensuring that the proposed development achieves a CSH Level 4 rating, unless appointed under a separate contract.
- 5.1.1.3 Hyder Consulting (UK) Limited accepts no responsibility whatsoever to other parties to whom this report, or any part thereof, is made known. Any such other parties rely upon the report at their own risk.



# Appendix B

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## Low Emission Strategy







Homes &  
Communities  
Agency



# Homes and Communities Agency

## Northstowe Phase 2

### Low Emissions Strategy

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# Homes and Communities Agency

## Northstowe Phase 2

### Low Emissions Strategy

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**Report No** 5040-UA006156-UE31-R01

**Date** 07 August 2014

This report has been prepared for Homes and Communities Agency in accordance with the terms and conditions of appointment. Hyder Consulting (UK) Limited (2212959) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.



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# 1 INTRODUCTION

- 1.1.1 This Low Emissions Strategy (LES) has been prepared to support the Homes and Communities Agency's (HCA) planning application for Phase 2 of Northstowe. The application is for:
1. development of the main Phase 2 development area for approximately 3,500 dwellings, two primary schools, the secondary school, the town centre including employment uses, formal and informal recreational space and landscaped areas, the eastern sports hub, the remainder of the western sports hub (to complete the provision delivered at Phase 1), the busway, a primary road to link to the southern access, construction haul route, engineering and infrastructure works; and
  2. construction of a highway link (Southern Access Road (West)) between the proposed new town of Northstowe and the B1050, improvements to the B1050, and associated landscaping and drainage.
- 1.1.2 For the purpose of the LES all elements are referred together as 'the proposed development' of Northstowe Phase 2.
- 1.1.3 This LES provides a package of measures to help mitigate the transport impacts of development on local air quality and on climate change during both the construction and operational phases of the development.
- 1.1.4 This document builds on the guidance provided by Defra (Department for the Environment, Farming and Rural Affairs) and South Cambridgeshire District Council (SCDC) on the development of LES, including:
- Low Emission Strategies: Good Practice Guidance (Defra, 2010)
  - Low Emission Strategies: Supplementary Planning Document Guidance (Defra, 2011)
  - District Design Guide Supplementary Planning Document (SCDC, 2010)
  - Air Quality in Cambridge: Developers Guide (Cambridge City Council, 2008)
- 1.1.5 This LES is intended to complement proposals set out in the accompanying Transport Assessment and Framework Travel Plan (FTP) for the application.
- 1.1.6 The FTP sets out a range of measures for sustainable travel, in addition to the infrastructure and service enhancements set out in the Transport Assessment. These include marketing, promotional and awareness initiatives as well as proposals to put in place a car club and support electric vehicle use. Initiatives are set out as overarching measures together with workplace, schools and residential initiatives and a management framework is identified and action plan put forward.
- 1.1.7 Therefore, this strategy should be read in conjunction with these documents.

## 2 POLICY AND GUIDANCE

### 2.1 Overview

- 2.1.1 The LES guidance was first issued by Defra in January 2010, and developed in collaboration with the Low Emission Strategies Partnership. The guidance identifies ways in which the planning system may be used to reduce transport related emissions at a new development, to improve local air quality, protect health and support protected species.
- 2.1.2 Supplementary Planning Document (SPD) guidance was released in January 2010, providing an update on that previously published with regards to methodology and mitigation measures. This LES for the proposed development considers both these guidance documents, in addition to other policy guidance detailed below.

### 2.2 National Planning Policy

#### National Planning Policy Framework

- 2.2.1 The National Planning Policy Framework (NPPF) defines pollution as:

*'Anything that affects the quality of land, air, water or soils, which might lead to an adverse impact on human health, the natural environment or general amenity. Pollution can arise from a range of emissions, including smoke, fumes, gases, dust, steam, odour, noise and light.'*

- 2.2.2 The NPPF outlines a set of core land-use planning principles that should underpin both plan making and decision-taking. The principle relating to air quality states the following:

*'The planning system should contribute to and enhance the natural and local environment by...preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.'*

*'To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account...'*

- 2.2.3 Finally, the NPPF states that:

*'...planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.'*

- 2.2.4 The Government has revised and updated national planning practice guidance to support the NPPF in order to make it more accessible. The guidance is available as an online resource and includes advice relating to how impacts on air quality can be mitigated.

*'Mitigation options where necessary will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact. It is important therefore that local planning authorities work with applicants to consider appropriate mitigation so as to ensure the new development is appropriate for its location and*

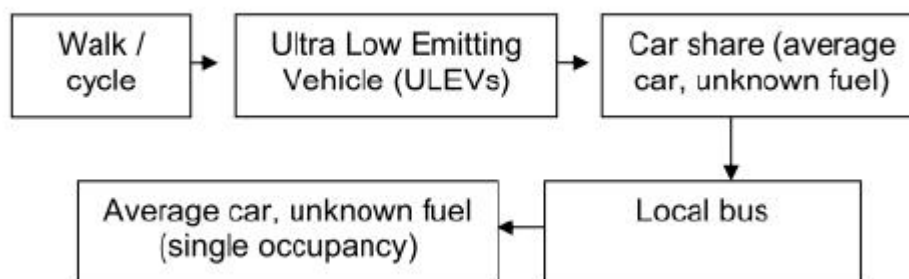
*unacceptable risks are prevented. Planning conditions and obligations can be used to secure mitigation where the relevant tests are met.*

*Examples of mitigation include:*

- *the design and layout of development to increase separation distances from sources of air pollution;*
- *using green infrastructure, in particular trees, to absorb dust and other pollutants;*
- *means of ventilation;*
- *promoting infrastructure to promote modes of transport with low impact on air quality;*
- *controlling dust and emissions from construction, operation and demolition; and*
- *contributing funding to measures, including those identified in air quality action plans and low emission strategies, designed to offset the impact on air quality arising from new development.'*

## Alternatives to Travel: Next Steps

2.2.5 This guidance issued by the Department of Transport in November 2011 looks at how alternatives to travel can help reduce carbon. Whilst it is not policy, and primarily focuses on business related travel, the document does provide some useful information on greenhouse gas emissions, by mode of travel. Whilst there are some assumptions contained within this guidance, it provides an indicator of a hierarchy of mode preference in relation to relative emissions. Figure 2-1 is extracted from Appendix B1 of this document.



**Figure 2-1 Short journeys (<10 miles) – typical average hierarchy showing suitable modes of transport from lowest to highest per passenger emitters**

## 2.3 Local Planning Policy

### South Cambridgeshire Local Development Framework

2.3.1 The Local Development Framework (LDF) is a suite of documents which together guides development within South Cambridgeshire. The LDF replaces the South Cambridgeshire Local Plan which was adopted in February 2004. The LDF includes a vision for the future of South Cambridgeshire and objectives and targets, which planning applications and other decisions will be made in accordance with it.

2.3.2 The Development Plan Document (DPD) policies govern development in the areas of major change, covered by separate Area Action Plan (AAP) documents (such as the Northstowe

AAP), except where those documents include a policy or policies which vary the requirements. Policy NE/16 'Emissions' within the DPD aims to improve air quality in the district. Policy NE/16 states:

*'1. Development proposals will need to have regard to any emissions arising from the proposed use and seek to minimise those emissions to control any risks arising and prevent any detriment to the local amenity by locating such development appropriately.*

*2. Where significant increases in emissions covered by nationally prescribed air quality objectives are proposed, the applicant will need to assess the impact on local air quality by undertaking an appropriate modelling exercise to show that the national objectives will still be achieved. Development will not be permitted where it would adversely affect air quality in an Air Quality Management Area.'*

## South Cambridgeshire District Council Design Guide

- 2.3.3 Embedded within SCDC's District Design Guide (High Quality and Sustainable Development in South Cambridgeshire) is the requirement for an LES to be submitted for major developments. The LES should comprise a series of transport related emissions reductions mechanisms and encourage discussions around agreeable planning obligations that can be used to enhance and improve the local air quality. The applicant is advised to consider constructing an LES document but individual mitigation measures can be considered and implemented without it.
- 2.3.4 The LES will include all proposals to mitigate the impact of emissions including transport emissions arising from the development. This could be travel to work plans, residential travel plans, priority parking for low emission vehicles or the infrastructure for recharging electric vehicles.

## District Design Guide Supplementary Planning Document

- 2.3.5 In March 2010, SCDC adopted its District Design Guide SPD as part of the LDF.
- 2.3.6 The guidance draws upon a number of technical areas that are integral to the quality of a development and provides specific advice on design principles that should be considered. One of these technical areas is air quality. Chapter 10 of the SPD highlights the importance that should be afforded to air quality and the link between road transport and poor air quality. It also provides advice on when an air quality assessment will be required. However, Appendix 4 of the guidance provides specific advice on the options that should be considered to mitigate impacts (particularly of road traffic) on local air quality and design measures that will help to minimise the exposure of residential receptors to poor air quality within a development site.

## Northstowe Area Action Plan

- 2.3.7 The AAP for Northstowe establishes an overall vision for the new town including its relationship with surrounding villages and its countryside setting. It also sets out the policies and proposals to guide all the phases of the 10,000 dwelling development and associated off-site infrastructure needed to deliver and serve the town.
- 2.3.8 Policy D6/g sets out the requirement to link Northstowe to the main road network, whilst minimising the impact of traffic generation on surrounding communities.
- 2.3.9 Policy NS/24 requires the preparation of a comprehensive construction strategy, including measures to minimise dust from haul roads, storage compounds and construction activity to prevent adverse impacts on residents, businesses and public rights of way.



## Northstowe Development Framework Document

- 2.3.10 The Northstowe Development Framework document (2012) provides an updated master plan for the whole Northstowe development area which was endorsed by the Northstowe Joint Development Committee in October 2012, taking account of changes in economic circumstances. The document defines the rationale and structure for Northstowe's planning and delivery as a comprehensive development whilst providing place making principles and guidance for individual phases of development.
- 2.3.11 As part of the documents key guiding principles - 'Connectivity' sets out the documents vision for Northstowe to implement a dedicated public busway which will provide a direct link to Huntingdon and Cambridge that runs through the town. Pedestrians, cyclists and buses should be given priority within the development, supported by an effective walking and cycling network which connects Northstowe with adjoining settlements. The document also plans for southern access roads to provide vehicular access to the A14 at Bar Hill and Dry Drayton, as well as from the B1050 at the northern end of the site.

## South Cambridgeshire District Council Review and Assessment of Local Air Quality

- 2.3.12 The review and assessment work undertaken by SCDC confirms that the primary concern with regards to air quality within the district is road traffic, and more specifically, the high volume of traffic travelling along the A14. As part of its work the council has identified that there is the potential for exceeding the annual mean objective for NO<sub>2</sub> and the daily mean objective for PM<sub>10</sub> to occur in some areas adjacent to the A14. Consequently, SCDC has declared an Air Quality Management Area (AQMA) along the A14 between Bar Hill and Milton. In 2012, SCDC's local monitoring data further indicated that the objective for annual mean NO<sub>2</sub> was met at each monitoring site apart from Hackers Fruit Farm; this particular site was located within 10m of the A14. Additionally, exceedance of both the daily mean and annual mean objectives for PM<sub>10</sub> was recorded at the Impington continuous monitor south of the A14 between Girton and Orchard Park, although it is noted that this particular monitor was taken offline for maintenance in 2013 as a result of questionable data. The monitor was redeployed during April 2014 and PM<sub>10</sub> concentrations appeared to be markedly lower than those recorded during 2011-2012.
- 2.3.13 The proposed development is located approximately 3km north of the AQMA. SCDC will continue to monitor air quality within this area, however, there are currently no plans to revise the AQMA declaration. SCDC's review and assessment work also concludes that the objectives for all other pollutants are likely to be met.
- 2.3.14 Following the declaration of the AQMA, SCDC, in partnership with Cambridge City Council and Huntingdon District Council, prepared a joint Air Quality Action Plan (AQAP) for the Cambridgeshire Growth Areas (2009) that summarised the key causes of air quality problems across the county and outlines the key solutions and actions for improving local air quality. As the common thread for air quality problems within each administrative area is road transport, many of the actions are transport related.
- 2.3.15 In June 2008, SCDC also developed an additional document entitled the Local Air Quality Strategy 2008-2013, which looked at air quality specifically within South Cambridgeshire and aims to raise awareness of air quality problems within the district, to emphasise the role that SCDC has in tackling air quality problems, and provide a platform upon which to make air quality improvements.

## Emerging Local Plan - South Cambridgeshire Local Plan – Proposed Submission (July 2013 and updated March 2014)

2.3.16

The proposed South Cambridgeshire Local Plan will update and replace the South Cambridgeshire LDF. The proposed Local Plan covers a period extending from 2011 to 2031. Details in relation to Transport are provided from page 220. In relation to transport it is stated that:

*Development must be located and designed to reduce the need to travel, particularly by car, and promote sustainable travel appropriate to its location.*

*Planning permission will only be granted for development likely to give rise to increased travel demands, where the sites has (or will attain) sufficient integration and accessibility by walking, cycling or public and community transport, including:*

*Provision of safe, direct routes within permeable layouts that facilitate and encourage short distance trips by walking and cycling between home and nearby centres of attraction, and to bus stops or railway stations, to provide real travel choice for some or all of the journey, in accordance with Policy HQ/1;*

*Provision of new cycle and walking routes that connect to existing networks, including the wider Rights of Way network, to strengthen connections between villages, Northstowe, Cambridge, market towns, and the wider countryside;*

*Protection and improvement of existing cycle and walking routes, including the Rights of Way network, to ensure the effectiveness and amenity of these routes is maintained, including through maintenance, crossings, signposting and way marking, and, where appropriate, widening and lighting;*

*Provision of secure, accessible and convenient cycle parking in accordance with Policy TI/3;*

*Securing appropriate improvements to public and community transport (including infrastructure requirements) in accordance with the aims of the Cambridgeshire Local Transport Plan and South Cambridgeshire Community Transport Strategy.*

*Developers will be required to demonstrate they will make adequate provision to mitigate the likely impacts (including cumulative impacts) of their proposal. This will be achieved through direct improvements and Section 106 contributions and/or the Community Infrastructure Levy (CIL), to address transport infrastructure in the wider area including across the district boundary.*

*Developers of 'larger developments' will be required to demonstrate they have maximised opportunities for sustainable travel and will make adequate provision to mitigate the likely impacts through provision of a Transport Assessment and Travel Plan.*

*Travel Plans must have measurable outputs, be related to the aims and objectives in the Local Transport Plan and provide monitoring and enforcement arrangements. Planning obligations may be an appropriate means of securing the provision of some or all of a Travel Plan, including the requirement for an annual monitoring and progress report. Submission of area-wide Travel Plans will be considered in appropriate situations. Outline planning applications are required to submit a framework for the preparation of a Travel Plan.*

## 3 DEVELOPMENT PROPOSALS

### 3.1 Site Location

- 3.1.1 The application site extends to 216 hectares and comprises two parts: the main Phase 2 development area and the Southern Access Road (West), as shown on Plan 3 - Application Areas Plan. Each of the parts is described below.

#### Main Phase 2 Development Area

- 3.1.2 The area of the main Phase 2 development area is approximately 165 hectares. The area is bordered to the east by the route of the Cambridgeshire Guided Busway, and to the west by Longstanton. The area includes the former Oakington Barracks, which currently comprises of three buildings, with no current use; slabs remaining from demolished buildings; remaining facilities associated with the barracks including sports amenities and green space; and a water tower which is the tallest structure on the site and visible feature in the wider landscape. The area surrounds the existing settlement of Rampton Drift, comprised of 92 properties, originally built as part of the barracks complex, although this area is not included in the application. The wider main Phase 2 Development area includes areas of hardstanding and open space associated with the former airfield (much of this currently occupied by agricultural tenants), farmland including Brookfield Farm and Larkfield Farm. The area also includes a section of Rampton Road.
- 3.1.3 To the south of the main Phase 2 development area, and through which its proposed access routes run is land that is identified for future phases of development of Northstowe.
- 3.1.4 Intervening vegetation results in the site being largely screened from surrounding villages and farmsteads. There are groups of trees throughout the former Oakington Barracks including avenues of mature trees around the barracks complex and leading to the station headquarter building. There are also groups of mature trees in the western corner of the site and around Rampton Drift. These all contribute to the setting of the site and adjacent Longstanton.

#### Southern Access Road (West)

- 3.1.5 The area for the Southern Access Road (West) runs from the B1050 to the boundary of Northstowe, as shown on the Plan 3 – Application Areas Plan. This area currently comprises arable fields and extends to approximately 51 hectares. Wilson's Road, a public right of way crosses the area, providing a link from Longstanton towards Bar Hill.

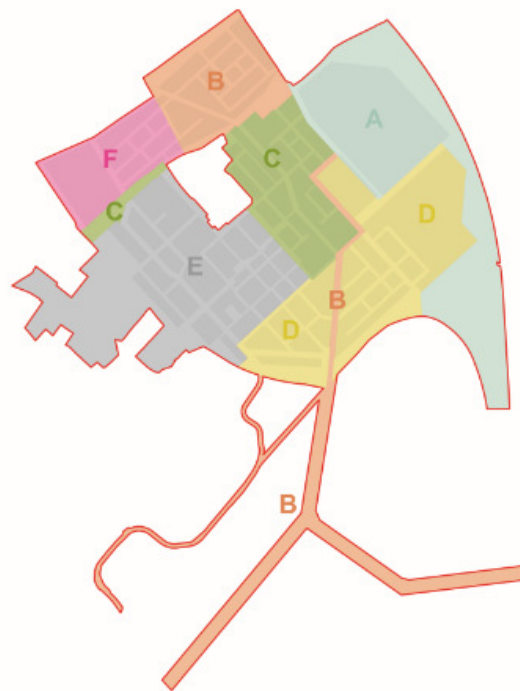
### 3.2 Construction Phase

- 3.2.1 There are six key residential phases initially proposed for the build out of Phase 2 (shown in Figure 3-1). A final phasing plan will be agreed in advance of commencement with SCDC and CCC. These timescales may vary depending on changes to housing market conditions.
- Sub Phase A (2016 - 2018): To include secondary school, completion of water park and enhancement of green separation (west);
  - Sub Phase B (2017 - 2019): To include initial residential units adjoining Phase 1, commencement of access road to south (through future Phase 3 area to connect to Southern Access Road (West));

- Sub Phase C (2019 - 2021): Town centre commences, including initial retail facilities, primary school, completion of Southern Access Road (West);
- Sub Phase D (2021 - 2023): Residential area to south and construction of town square and sports hub (east);
- Sub Phase E (2023 - 2026): Residential area established in former barracks area, continuation of town centre, primary school;
- Sub Phase F (2026 - 2029); Last residential area and completion of town centre and northern sports hub.

### 3.2.2 Other key land use phasing dates:

- Town centre construction to commence in Phase C and is expected continue to develop up to 2031 dependent on demand for retail and employment uses.
- The Southern Access Road (West) will be constructed between 2017 - 2020.



**Figure 3.1 Location of proposed construction sub-phases of Northstowe Phase 2**

3.2.3 It has been estimated that 45,132 tonnes (83,973 m<sup>3</sup>) of waste will arise from the construction phase (2019 – 2031). This would result in a total of 5,506 vehicle movements (one way) based on collections of 20 yards (15.25 m<sup>3</sup>) skips. This is equivalent to less than two movements per day throughout the construction phase.

3.2.4 It has been estimated that 1,405,229 tonnes (1,124,183 m<sup>3</sup>) of waste arising from the excavation phase will be re-used on-site. This would result in 74,945 vehicle movements being avoided, based on collections of 15 m<sup>3</sup> vehicles. This is equivalent to a reduction of 22 movements per day over the entire construction phase.

3.2.5 It has been estimated that 47,526 vehicle movements onto site (one way) will be needed during construction, based on the 2011 UK Industry Performance Report Key Performance Indicators (KPI). This is equivalent to nine movements per day throughout the construction phase.

**Table 4.1: Vehicle movements for construction materials by sub-phase**

	Sub-Phases					
	A	B	C	D	E	F
<b>Vehicle Movements</b>	717	7,203	8,366	11,473	14,848	4,919
<b>Waste Movements</b>	87	809	1,240	1,243	1,566	561
<b>Total Movements per Day (average)</b>	2	11	14	18	15	8

3.2.6 A separate construction traffic route will be provided from the Southern Access Road (West) so that vehicles do not go through local communities or impact on access into the completed development.

3.2.7 A supporting outline site-wide Construction Environmental Management Plan (CEMP) has been submitted for the proposed development which sets out a framework to manage and mitigation potential impacts of the construction process of sensitive receptors surrounding the site, including air quality.

## 3.3 Operational Phase

3.3.1 As noted in the supporting Transport Assessment, and using the Cambridge Sub Regional Model (CSRM), the development is forecast to generate the number of trips shown in Table 3-1.

**Table 3-1 Forecast number of during operational phase**

Mode	AM (7am – 10am)	IP (10am – 4pm)	PM (4pm – 7pm)	Total (7am – 7pm)
<b>Car</b>	9,647	27,205	12,318	49,170
<b>Rail</b>	58	56	53	167
<b>Bus</b>	212	113	84	409
<b>CGB</b>	808	837	653	2,298
<b>Walk</b>	4,819	8,713	3,538	17,070
<b>Cycle</b>	455	827	424	1,706
<b>Total</b>	<b>15,998</b>	<b>37,751</b>	<b>17,070</b>	<b>70,820</b>

3.3.2 The Transport Assessment identifies the following:

- The highway links and junctions being provided for Northstowe Phase 2 provide appropriate capacity to meet the forecast traffic from Phase 2 and the means of accommodating the full development is identified;

- The emerging A14 improvement scheme is taking account of the Phase 1 and 2 traffic forecasts in the design of the Bar Hill junction, the Local Access Road and the section of the B1050 north of Bar Hill;
- With regards to the Huntingdon Road/ Girton Road junction, whilst there is some increase in traffic from Northstowe Phase 2, it is considered that the development would not have a material impact at this junction and no further measures at this junction have been considered.
- The signalised junction in Willingham operates significantly over its maximum capacity in the Do Minimum scenario<sup>1</sup> and the development increases the queue lengths and capacity issues during both peak periods. As such, measures to mitigate the impact of the development traffic at this location have been suggested.
- Although the Do Something scenario<sup>2</sup> demonstrates that the development would not have a detrimental impact at the Oakington Road / Rampton Road mini roundabout as compared to the Do Minimum, it is recognised that the junction is significantly over capacity in 2031. Modelling work demonstrates that a signalised junction could operate within capacity, which provides an option for future improvements.
- There are junctions and links on the B1050 which may experience capacity issues with the Do Minimum level of growth, but the provision of the road links with Phase 2 changes travel patterns and provides some relief of these issues. Whether there is a need for further improvements to junctions and links on the B1050 is therefore a matter for the County Council to consider and take forward.
- It is proposed that measures to discourage traffic from using Ramper Road, in particular as access for the A14, are put in place as well as improve conditions for walkers and cyclists.
- It is also proposed that measures to reduce speeding on Rampton Road are put in place to ensure safety issues are not exacerbated by the development.

3.3.3 Any measures will be subject to further discussion and development in terms of design and feasibility with Cambridgeshire County Council (CCC). The agreed measures could be provided as part of the Phase 2 development off-site improvements or an equivalent sum placed with CCC to implement other solutions to address the issues in this area of the network.

3.3.4 The Phase 2 development will have good quality connections by sustainable modes of travel. A dedicated busway will serve the heart of the development with new Cambridgeshire Guided Busway (CGB) services every 20 minutes linking Longstanton Park and Ride, Northstowe and Cambridge. The Citi 5 bus service will be extended into the development.

3.3.5 There will be a network of walking and cycling routes within the development and a series of improvements to existing public rights of way to connect Northstowe to the wider area. A new cycleway will follow the busway to the south to connect to the route next to the CGB as well as

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<sup>1</sup> Do Minimum 2031 – A14 scheme improvement with Phase 1 Northstowe only

<sup>2</sup> Do Something 1 2026 – Phase 2 development + A14 scheme + Southern Access Road (West)

follow the Southern Access Road and the B1050 to join proposed walking and cycling improvements at the A14, giving a connection to Bar Hill.

- 3.3.6 The Airfield Road/ Longstanton Road will be fully closed to traffic on the section north-west of properties in Oakington and south-east of properties in Longstanton, except for emergency vehicles providing a bridleway, footpath and cycleway and potentially for buses if required in the longer term.



# 4 STRATEGY MEASURES

## 4.1 Overview

- 4.1.1 The measures identified in this chapter complement those provided in other supporting strategies for the proposed development, for example those set out in the supporting FTP and the CEMP. The measures listed below therefore, pull together the proposals set out within these supporting documents focussing on air quality issues.
- 4.1.2 The aim of the measures is to reduce emissions in both the construction and operational phases of the proposed development.

## 4.2 Construction Phase

- 4.2.1 This section sets out the measures proposed for the construction phase. The main emissions from the construction phase will be from vehicles entering and exiting the site and the Non-Road Mobile Machinery (NRMM) in operation on the site itself.
- 4.2.2 An outline site-wide CEMP has been produced for the proposed development which will ensure that contractors adhere to best practice construction measures. A series of sub-phase CEMPs will be developed and agreed in consultation with SCDC for each sub-phase of the site as and when principal contractors are appointed. The sub-phase CEMPs will work within the framework set out in the site-wide CEMP and other management plans submitted in support of the planning application.
- 4.2.3 The outline site-wide CEMP considers the impact of the construction phase on air quality and emissions. It notes that the main sources of emissions during construction activities include:
  - vehicle and plant emissions;
  - preparing and maintaining the site;
  - waste management;
  - demolition;
  - earthworks;
  - construction; and
  - trackout.
- 4.2.4 The control measures relating to the above listed activities as set out in the outline site-wide CEMP have been reproduced in Table 4-1. These measures will be implemented by the principal contractor for each sub-phase alongside measures detailed in the relevant phase-specific CEMP as reasonably practical.

**Table 4-1 Construction phase air quality and emissions control measures**

<b>Vehicle and plant emissions</b>	engines of all vehicles, mobile and fixed plant on site are not left running / idling unnecessarily.
	using low emission vehicles and plant fitted with catalyasts, diesel particulate filters or similar devices
	using ultra low sulphur fuels in plant and vehicles



	<p>plant will be well maintained, with routine servicing of plant and vehicles to be completed in accordance with the manufacturer's recommendations and records maintained for the work undertaken.</p> <p>all vehicles, including off-road vehicles, will hold current MOT certificates, where required due to the age of the vehicle, (or to be tested to an equivalent standard) and that they will comply with exhaust emission regulations for their class</p> <p>siting haul routes and operating plant away from potential receptors such as houses, schools and hospitals</p> <p>avoiding the use of diesel or petrol powered generators and using mains electricity or battery powered equipment</p> <p>maximising energy efficiency (this may include using alternative modes of transport, maximising vehicle utilisation by ensuring full loading and efficient routing).</p> <p>all commercial road vehicles used in construction must meet the European Emission Standards pursuant to the EC Directive 98/69/EC (commonly known as Euro standards) of Euro 3 during any works</p> <p>impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required, these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where appropriate)</p> <p>produce a Construction Traffic Management Plan (CTMP) to manage the sustainable delivery of goods and materials; and</p> <p>implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).</p>
<b>Preparing and maintaining the site</b>	<p>plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.</p> <p>erect solid screens or barriers around dusty activities or the site boundary so that are at least as high as any stockpiles on site.</p> <p>fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.</p> <p>avoid site runoff of water or mud.</p> <p>keep site fencing, barriers and scaffolding clean using wet methods.</p> <p>remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site, cover as described below.</p> <p>cover, seed or fence stockpiles to prevent wind whipping.</p>
<b>Operations</b>	<p>only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.</p> <p>ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.</p> <p>use enclosed chutes and conveyors and covered skips.</p> <p>minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.</p> <p>ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.</p>
<b>Waste management</b>	<p>avoid bonfires and burning of waste materials</p>
<b>Demolition</b>	<p>soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).</p>

	ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
	avoid explosive blasting, using appropriate manual or mechanical alternatives.
	bag and remove any biological debris or damp down such material before demolition.
<b>Earthworks</b>	re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
	only remove the cover in small areas during work and not all at once.
<b>Construction</b>	avoid scabbling (roughening of concrete surfaces) if possible.
	ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
	ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
	for smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
<b>Trackout</b>	necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
	avoid dry sweeping of large areas.
	ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
	record all inspections of haul routes and any subsequent action in a site log book.
	install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
	ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
	access gates to be located at least 10m from receptors where possible.

4.2.5 A detailed Dust Management Plan (DMP) will be developed and implemented alongside the CEMPs. Dust control procedures listed in Table 4-1 will be implemented to avoid as far as is reasonably practicable the emission of dust and other particulates that would adversely affect the air quality to ensure there is no significant deterioration of the current air quality as a result of the works.

4.2.6 An Ecology Management Plan (EMP) will be implemented to minimise the impact of dust and debris on nearby habitats.

## 4.3 Operational Phase

4.3.1 Table 4-2 sets out the measures proposed for the operational phase of the proposed development across all land use types identified for the Phase 2 development.

**Table 4-2 Operational phase air quality and emissions control measures**

<b>Principal measures</b>	supporting local authority air quality initiatives that will have a benefit on future residents, visitors and employees within the development
	provision of supporting infrastructure for future electric charging bays and low emission fuelling points
	reasonable endeavours to establish a car club on the site for residents and visitors will be undertaken. This is likely to include the provision of marked and branded parking bays and the marketing and promotion of the car club to home buyers and businesses
	personal travel planning (promoting low carbon travel to all site users)
	employers will also be encouraged to participate in the Cycle to Work tax incentive scheme for cycle purchase.
	the developer will provide all new houses with high speed broadband compatible telephone connection points, which will enable residents to subscribe to commercial internet/broadband services. This will help to facilitate home-working and internet shopping. The availability of local shopping outlets that offer home delivery services will be provided within the welcome pack.
<b>Car Parking</b>	residential parking spaces set aside for car club use and / or low emission vehicles
	the overall provision of parking for residential units will average 1.5 spaces per dwelling, in line with the adopted SCDC standards for the district average
	a parking management strategy will be developed as a reserved matter.
<b>Travel Behaviour</b>	promotion of low emission travel behaviour including car sharing scheme
	low emissions incentives and mechanisms in liaison and possible partnership with proposed retail outlets
	promotion and incentives to encourage use of electric vehicles. Initiatives as part of the development may include: <ul style="list-style-type: none"> <li>- Electric car charging points installed for residents;</li> <li>- An area in the town centre public car parks set aside for charging vehicles; and</li> <li>- Special deals to purchase electric cars and scooters</li> </ul>
	Residents could be provided with assistance to purchase bikes (or indeed gifted one) as part of their package of personalised travel planning incentives
<b>Public Transport</b>	incentives for public transport use
	bus services proposed to serve the development including an extension of the Citi 5 into the town centre and new services on the CGB from Longstanton Park and Ride through Northstowe to Cambridge city centre.
	a busway is proposed through the heart of Northstowe town centre which will link from the CGB route in the south-east (where there is a junction provided west of Oakington) through Phase 1 to the Longstanton Park and Ride in the north-west
<b>Infrastructure</b>	improvements to existing and provision of new off-site cycling and walking connections
	comprehensive, permeable network of walking routes throughout the development and segregated cycleways will follow the corridor of primary and secondary roads.
	the development is to provide a higher level of cycle parking and storage provision than the standards to promote cycling as a main mode of travel for residents, shoppers, students and employees at Northstowe
	as far as possible within the design of the site showers, lockers, changing and drying facilities will be provided within individual workplaces to encourage walking / running to work
	suitable cycle parking will be provided within each workplace and residential dwelling, in addition to cycle parking being provided throughout the town centre. Shower facilities and lockers will be provided within the main non-residential uses such as the schools, community centre and workplaces

4.3.2 The measures proposed aim to encourage, educate and advise future occupiers of the proposed development with regards to low emission standards from private motor vehicles and encourage behaviour change towards low emission choices in travel methods.

4.3.3 Whilst some of the measures are principal measures to be applied across all land uses, others can be tailored and made more specific to particular land uses.

## Residential

4.3.4 The residential land use comprises up to 3,500 new dwellings within the application area. The area of residential development land is approximately 44 hectares (49 hectares including town centre residential), the location of which is shown on the Land Use Parameter Plan. The development will comprise a variety of house types and sizes and will be provided broadly in accordance with the mix of 15% apartments and 85% houses.

4.3.5 Affordable housing will be provided as part of the development. The proportion of affordable housing to be provided will be determined as a part of a process of negotiation with the local planning authority on planning obligations.

4.3.6 After an initial period from the beginning of the Phase 2 site occupation (for example three months), the site wide Travel Plan Coordinator (TPC) would instigate a TP Forum to which all the residents of the site would be invited via the newsletter, noticeboards, email and the internet site (email details would be obtained via a survey provided within the welcome pack). The aim of the TP Forum would be to allow the residents to inform the direction of the TP and raise any issues, concerns or opportunities in relation to travel to and from the site. The aim of the TP Forum will be to create a residents steering group which will include the TPC in an advisory capacity but could be chaired by one of the residents. The residents steering group would be invited to the Travel Plan Group (TPG) to obtain feedback from the residents on travel and allow the TPC to provide any updates to measures which can be provided / will affect residents. The set-up of a steering group will take into account wider governance arrangements for the new town.

4.3.7 The relatively high density of the site with good accessibility to public transport together with constrained parking availability for residents (with an average of 1.5 spaces per dwelling) could counteract and discourage the need for second car ownership and therefore car travel.

4.3.8 To encourage residents to make use of onsite facilities, help create a local patronage for businesses and assist in encouraging sustainable local journeys (as suggested within the Phase 1 Travel Plan) a Northstowe resident's loyalty card will be made available to residents. These would be distributed through the resident welcome packs.

4.3.9 The card will aim to provide discount at facilities throughout Northstowe, with such discounts being negotiated by the TPC once occupiers of the facilities and services are known. These

cards would be used to gain discounts at local cycling and outdoor clothing shops (which may be located outside of Northstowe).

- 4.3.10 Information on local facilities will be included within the resident welcome packs.
- 4.3.11 Residents will be encouraged to car share with their neighbours on an informal basis as part of the welcome pack, and also provided with instructions on how they can gain access to and register for the Camshare service.
- 4.3.12 Car club spaces will be provided on the site and reasonable endeavours will be made to establish a scheme of which residents will be able to obtain membership. Details of how to use the scheme will be provided within the resident Welcome Pack.
- 4.3.13 Provision of a network of new footpaths will feed into the existing network and make the development more accessible by foot. This will include a network of leisure and commuting routes and ensure that walking is promoted as a suitable mode of travel for all purposes.
- 4.3.14 Residents will be provided with details of discounts obtained at outdoor clothing shops to obtain suitable walking attire to encourage walking by this mode. Such details will be included within the Welcome pack and any further promotion undertaken by the site wide TPC.
- 4.3.15 To ensure that cycling is encouraged within the Northstowe Phase 2 development, a network of segregated cycleways will be provided on the site and to off-site destinations. The promotion of cycling as an alternative mode will be made to all residents.
- 4.3.16 The publicity, marketing, and promotion of the public transport services will inform residents as to the benefits of travelling by bus. The TPC will ensure that residents are aware of bus routes and train timetables for public transport services operating in the vicinity of the site, with timetables included within the welcome pack.

## Employment

- 4.3.17 Employment will be provided within the town centre, the location of which is shown on the Land Use Parameter Plan. Employment floor space will comprise a total of approximately 21,200 m<sup>2</sup> of GIA. Employment uses in Phase 2 will comprise those uses included in Use Class B1 Business (i.e. offices, research and development, and light industry).
- 4.3.18 Each of the new occupiers of workplaces within Northstowe would be required to sign up to the site wide travel plan and the responsibility for encouraging sustainable travel in accordance with the site wide targets would be assigned through appropriate agreements. Each workplace (for example over a limit such as more than 10 employees) within the development would be responsible for appointing a Workplace Travel Plan Champion (WTPC). The WTPC's would be

responsible for promoting and encouraging travel within their workplace and communicating with the overall site wide TPC as well as representing each specific workplace at the TPG.

- 4.3.19 To encourage car sharing, if dedicated parking is provided with a workplace, each occupier will dedicate a proportion of car parking spaces to car sharers. These spaces will be conveniently located in close proximity to the building entrance.
- 4.3.20 Each workplace would be encouraged to be flexible with work patterns, where feasible, to encourage travel via public transport and car sharing as start and finish times may need to be adjusted accordingly on different days.
- 4.3.21 Workplaces will be encouraged to provide support for home working initiatives, where these are feasible and appropriate, to reduce the number of journeys undertaken to and from work by staff.
- 4.3.22 Workplaces will be encouraged to set up video conferencing/ on line communicator facilities to reduce the need to travel for business meetings during the day.
- 4.3.23 There are likely to be a range of visitor types to each of the workplace units such as contractors, maintenance personnel, clients for on-site meetings and customers.
- 4.3.24 Visitors to each workplace will be informed of sustainable travel opportunities, such as public transport services before arrival via the Northstowe website and through the use of the travel information pack set up by the TPC (which can be emailed or posted).
- 4.3.25 Where possible visitors would be encouraged to travel via sustainable transport and meetings could be arranged so that travel occurs outside of the network peak periods.
- 4.3.26 Workplaces will be encouraged to employ measures to improve the efficiency of both drivers and fleet and reduce the environmental impact of the workplace operation, where practical, whilst maintaining economic viability. They will also be encouraged to provide guidance where possible to suppliers.
- 4.3.27 Promotional events will be organised, in relation to specific aspects of the Travel Plan by the site wide TPC and promoted to each workplace by WTPC's. This will allow travel awareness to be maintained amongst employees and be used to raise recognition levels for initiatives that may have become less popular with time.

## Education

- 4.3.28 Provision has been made for two primary schools and one secondary school in the Phase 2 application. The transport modelling is based on two 2FE (form entry) entry primary schools although this has now changed to one 3FE and one 2FE (this will have limited impact on the robustness of the assessment as the CSRSM forecasts pupil numbers rather than uses school class numbers). The schools will be designed, built and operated by third parties.
- 4.3.29 Effective travel plans for the schools are crucial to achieving the target mode share by sustainable travel modes given the number of trips generated by pupils and staff. There is a significant opportunity for journeys to be by sustainable modes as the schools will serve the Northstowe new town and thus will be primarily locally based trips. Moreover, there will be a comprehensive network of internal walking and cycling linkages, as well as the busway and

local bus services serving secondary school pupils in particular who are more likely to travel in from outside of the Phase 2 development.

- 4.3.30 The ultimate responsibility for the success of the school travel plans will lie with the head teachers and governing bodies. It is suggested that initially measures are developed by the school governing body together with the Phase 2 development TPC then each school appoints a School Travel Plan Champion from within the staff to lead the co-ordination of the travel plan.

# 5 MANAGEMENT AND IMPLEMENTATION

## 5.1 Overview

5.1.1 This section considers the management and implementation of the LES measures identified in section 4. It is recognised that a culture of low emission travel choices should be established from the outset and that from the start of construction, a commitment to making low emission choices should be made that will follow through to the travel choices made by those who will eventually occupy the site. This section considers the parameters and approach that should be adopted in implementing the strategy, and considers how the success or otherwise could be managed and monitored.

## 5.2 Management

5.2.1 There are a number of parameters that could set the framework for a low emission site at the proposed development, from construction through to occupation, these are outlined below.

### Construction

<b>Communications</b>	develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
	display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager; and
	display the head or regional office contact information.
<b>Site Management</b>	record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
	make the complaints log available to the Local Authority when asked;
	record any exceptional incidents that cause dust and/or air emissions, either on or off site, and the action taken to resolve the situation in the log book; and
	hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes.
<b>Monitoring</b>	undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
	carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.



	increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
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## Operational

- 5.2.2 In order to be successful in achieving the targets set by the FTP for the development, a management structure is required to develop, implement and communicate the measures set out in the plan.
- 5.2.3 The Travel Plan for the Phase 1 Site is being managed by the promoters of Northstowe, Travel Plan Representatives for each employer occupier and representatives from CCC, SCDC and the Highways Agency. In addition a site wide TPC will be appointed prior to the employment / residential sales commencing on the site.
- 5.2.4 It would be appropriate for the Phase 2 FTP to be managed in the same manner as the Phase 1 site to give consistency to the Northstowe development. It would also be advantageous for there to be a shared TPC and TPG for the whole new town, with representatives from each of the separate developments comprising Northstowe.
- 5.2.5 The TPC would assist in working-up a full implementation programme and monitoring strategy. They would also be responsible for building the necessary partnerships and delivery of site-wide initiatives. Administration of the Travel Plan will involve the maintenance of the necessary systems, including paperwork, consultation, promotion, and regular updates of the Plan itself.
- 5.2.6 A marketing strategy for sustainable travel will be required and this may form part of wider site marketing initiatives. The elements that the strategy may include are set out below:
- Residents, pupils, employees and visitors would be made aware of all travel choices and be provided with accurate and up-to-date information to encourage a culture of sustainable travel.
  - New residents would be presented with a Welcome Pack by the TPC or Site Sales Staff. The development of the Welcome Pack is a crucial stage in the Travel Plan process. It is essential that it contains the necessary travel information to suitably inform recipients.
  - To ensure that the benefits of receiving the Welcome Pack go beyond the first occupants of each residential unit, provision could be made to supply this information for future occupants with information updated as necessary. This would be organised by the TPC as and when required.
  - Employees would receive a similar Travel Information Pack on commencement of employment, with sustainable travel information forming part of the induction process. The Travel Information Packs will include the development logos and slogans.
  - Travel Plan notice boards would also be provided in communal areas of the development. These would contain walking, cycling and public transport information for the area and will be updated by the TPC as necessary.
  - A newsletter would be produced and distributed to each household every six months detailing the progress of the Travel Plan and the results of the monitoring. This

newsletter could also act as a promotional tool for the Travel Plan by publicising any new measures, sustainable travel campaigns and improvements to sustainable travel facilities in the local area.

- An internet site may be set up to be accessed by potential and occupying residents / workplaces which will contain site specific travel information, contact details for the TPC and information relating to incentive schemes/discounts. This could be a new website of link into the existing Northstowe site. This would also contain surveys to establish the demand for proposed sustainable transport measures to be implemented at the site. This would be established at the site construction stage.

## Low Emission Strategy Monitoring

- 5.2.7 It is proposed that for the purpose of monitoring and review, annual LES reports will be provided in line with the construction and initial occupation years, currently envisaged to be 2019 to 2026.
- 5.2.8 Thereafter monitoring and reviews will be at intervals agreed with SCDC subject to any significant changes in emissions attributable to the proposed development.

# ABBREVIATIONS

AAP	Area Action Plan
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
CCC	Cambridgeshire County Council
CEMP	Construction Environmental Management Plan
CGB	Cambridgeshire Guided Busway
CIL	Community Infrastructure Levy
CSRM	Cambridge Sub Regional Model
CTMP	Construction Traffic Management Plan
Defra	Department for the Environment, Farming and Rural Affairs
DMP	Dust Management Plan
DPD	Development Plan Document
EMP	Ecology Management Plan
FE	Form Entry
FTP	Framework Travel Plan
HCA	Homes and Communities Agency
KPI	Key Performance Indicator
LDF	Local Development Framework
LES	Low Emission Strategy
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
SCDC	South Cambridgeshire District Council
SPD	Supplementary Planning Document
TPC	Travel Plan Coordinator
TPG	Travel Plan Group
ULEV	Ultra Low Emitting Vehicle
WTPC	Workplace Travel Plan Champion