A guide to developing Kirkley waterfront and a new sustainable urban neighbourhood in Lowestoft

Sustainable Urban Neighbourhood and Kirkley Waterfront Development Brief - First Draft
Draft Supplementary Planning Document (SPD): February 2012
Consultation period 10th February to 23rd March 2012
The Sustainable Urban Neighbourhood and Kirkley Waterfront is proposed to be a large mixed-use development on the south-side of Lake Lothing in Lowestoft. This document provides practical information and development guidelines to help implement this site.
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Introduction

Aerial view from Oulton Broad to Brooke Peninsula
1. Introduction

1.1 The Sustainable Urban Neighbourhood and Kirkley Waterfront (SUN) will be a large mixed-use development on the south-side of Lake Lothing in Lowestoft. The 59.8 hectare site covers the majority of the southern shore of Lake Lothing stretching back from the shore to Victoria Road and Waveney Drive. Figure 1.1 shows the location and area of the site. The site comprises predominantly underutilised or unoccupied brownfield land and offers an unrivalled waterfront opportunity to regenerate the south-side of Lake Lothing as a new employment area and residential community and to open up access to the waterfront for the public.

1.1 Purpose of this consultation

1.1.1 The Sustainable Urban Neighbourhood and Kirkley Waterfront is allocated for a mixed-use development under Policy SSP3 of the Lake Lothing and Outer Harbour Area Action Plan. Policy IMP4 of the Area Action Plan requires the preparation of a Development Brief prior to the determination of planning applications.

1.1.2 The purpose of this Development Brief is to set out a site-specific vision and objectives for the delivery of the Sustainable Urban Neighbourhood and Kirkley Waterfront site. This Development Brief builds upon the detail set out in the Area Action Plan and seeks to ensure that a comprehensive approach to development is achieved. In summary, the brief sets out:

- the distribution of land uses across the site,
- high level street network and transport proposals,
- open space and landscape principles
- design principles
- flood risk mitigation requirements
- implementation strategy
1.2 POLICY CONTEXT

1.2.1 There are a number of national Planning Policy Statements/Guidance Notes and Circulars that are relevant to this Development Brief. These include:

- Planning Policy Statement 1 – Delivering Sustainable Development
- Planning Policy Statement 3 – Housing
- Planning Policy Statement 4 – Planning for Sustainable Economic Growth
- Planning Policy Statement 9 – Biodiversity and Geological Conservation
- Planning Policy Guidance 13 – Transport
- Planning Policy Guidance 17 – Planning for Open Space, Sport and Recreation and the Companion Guide
- Planning Policy Statement 23 – Planning and Pollution Control
- Planning Policy Statement 25 – Development and Flood Risk and Supplements and Practice Guides
- Circular 05/05 – Planning Obligations

1.2.2 It is not the intention of this Development Brief to repeat the content of the national policy identified above, however, these documents have helped to inform the content of this brief. All of the documents referred to above can be read on the Department of Communities and Local Government’s website, www.communities.gov.uk

1.2.3 Planning Policy Statements / Guidance Notes are being replaced by the National Planning Policy Framework (NPPF). The draft NPPF has been considered in the preparation of this Development Brief.

1.2.4 At a Regional level, Policy GYL1 of the East of England Plan identifies the potential of waterfront regeneration in Lowestoft and requires Local Development Documents to identify and encourage the development of key brownfield sites to deliver an urban renaissance. The Regional Spatial Strategy is to be revoked shortly following the enactment of the Localism Act.

1.2.5 Policy CS05 of the Adopted Waveney Core Strategy identifies Lake Lothing as an area for employment led regeneration and the provision of 1,500 new homes. Policy CS05 states that an Area Action Plan for the Lake Lothing area will be developed to provide further guidance.

1.2.6 The Lake Lothing and Outer Harbour Area Action Plan (AAP) sets out the detailed policy framework for the Lake Lothing area which includes the Sustainable Urban Neighbourhood and Kirkley Waterfront site (SUN). The document contains a number of area-wide policies which have been reflected in this document as well as a site-specific policy for the site. Policy SSP3 of the AAP sets out detailed proposals for the development of the SUN including:

- Approximately 1,380 dwellings and a potential continuing care retirement community.
- Open space (3 hectares, dependant on actual density) and re-provision of the Jeld-Wen Playing Fields.
- 12 hectares of employment land to be shared with Kirkley Waterfront (majority to be on the waterfront).
- Primary School.
- Retail, restaurants, bars, cafes as active ground floor uses.
- Marina facilities and moorings for historic vessels.
- Hotel.

1.2.7 Policy SSP3 also contains a number of detailed requirements for the development of the site. These requirements are reflected in detail in this document. There are a number of other generic Area Action Plan area-wide policies which are applicable to this site and these are referred to where necessary in this document.
Physical Context

Aerial view of the north eastern part of the site
2. Physical Context

2.1 Before it is possible to plan for the future of a site it is necessary to understand the historical and present context of the site and its surroundings. Figure 2.1 analyses the existing context of the Sustainable Urban Neighbourhood and Kirkley Waterfront site and its surroundings. A detailed analysis of existing uses, constraints and opportunities and local character is found in Appendix 1 of this brief. Figure 2.2 Highlights the constituent parts of the site that are referenced throughout the brief.
3. Development Objectives and Concept

3.1 Vision and Objectives

**Vision**

Development in the Sustainable Urban Neighbourhood and Kirkley Waterfront will transform an underutilised and unattractive area into a vibrant, inclusive community that is integrated with adjacent areas and provides access to employment, services and facilities in a high quality environment.

Development will maximise the opportunities presented by the waterfront, the central location and linkages to the town centre. It will be a place that will grow and develop in the future, where people take pride in where they live and they feel part of the community.

**Objectives**

**Objective 1: Housing**

Approximately 1380 new homes consisting of a mix of market and affordable housing will be provided to meet local housing need. These will be of different housing types, sizes and tenures to meet the needs of people of different ages, incomes and family sizes. New dwellings will be of high quality and maximise the attributes of the local area including the waterfront, public open space, access to goods and services and connections with existing residential areas.

**Objective 2: Employment**

New land available for employment uses along the waterfront will enable businesses to maximise the opportunities presented by the growing onshore and offshore renewable energy sector, new port related activities and the existing skilled work force. In conjunction with the PowerPark and supporting business start-up units, the SUN development will assist with the creation of 5000 new jobs in the area.

**Objective 3: Infrastructure**

New infrastructure will support new residents and businesses in the area. This will include a new primary school, a pedestrian/cycle bridge over Lake Lothing at Brooke Peninsula, a new road to access the site and measures to reduce the risk of flooding. New infrastructure will provide the foundation on which the key principles of the SUN will be based and these will be delivered in a comprehensive and integrated fashion.

**Objective 4: Retail**

Small-scale retail facilities in the heart of the SUN will provide goods and services for the local community. These will reduce the need to travel, assist with the creation of a focal point in the neighbourhood and complement the existing shopping areas of Kirkley, Oulton Broad and central Lowestoft.

**Objective 5: Leisure and Tourism**

New residents and visitors to the SUN will support a flourishing marina area and boating community that will encourage maritime related business and recreation. Supported by leisure and recreation facilities such as bars and restaurants this will create a focal point on the waterfront. To create an area that can be used during the day and evening by different people, a landscaped or hard surfaced area to complement the recreational facilities should be large enough to support small public events. A quality pedestrian and cycle route along the waterfront will improve connections between Lowestoft’s South Beach and Oulton Broad, support local tourism and encourage people to use the SUN.

**Objective 6: Social Inclusion**

The Sustainable Urban Neighbourhood and Kirkley Waterfront will be a comprehensive development that will provide housing to meet the needs of people in the community, access to facilities needed by people of different ages and incomes and spaces where people can interact and socialise. Together these will contribute to a place that has a local identity.
Objective 7: High Quality Design
High quality design will be instrumental to achieving the aspirations of the SUN. Site layout, new buildings, public spaces and movement routes will be designed to the highest calibre, highlighting the setting of the SUN between the Broads and the North Sea. Together these different aspects of development will create a high quality place to live.

Objective 8: Open Space and Environment
A network of open spaces consisting of playing fields, small parks, play areas for children, greenways and improved access to the County Wildlife Site will be designed to create a sense of openness and legibility within the neighbourhood. An attractive and interesting public realm that contains a variety of useful facilities and spaces will encourage residents to become more physically active, enjoy a healthier lifestyle and provide greater opportunities for social interaction. A well connected network of open spaces will support biodiversity and provide opportunities to improve connections with the existing community.

Objective 9: The Waterfront
The waterfront is one of Lowestoft’s greatest assets. A new path along the water for pedestrians and cyclists will increase access to the waterfront and significantly improve connections with other areas such as Lowestoft town Centre, South Beach and Oulton Broad. These connections will be supported with views and landmarks orientated towards Lake Lothing at Brooke Peninsula from various vantage points. Public access to and along the waterfront will build upon the historical links between the people of Lowestoft and the sea.

Objective 10: Sustainable Transport
A network of legible, attractive walkways and cycleways will enable convenient access to local facilities and services. Supplemented by bus routes, a water taxi and a transport hub located at Peto Square they will provide people with a choice of transport modes to get to their destination. This will reduce the need to travel by private vehicle. A new pedestrian/cycle bridge across Lake Lothing at Brooke Peninsula will improve access to local facilities and benefit people living in both north and south Lowestoft.

Objective 11: Flood Risk
People and property in the SUN will be protected from the risk of flooding. This may be achieved through new flood defences or measures to mitigate flooding such as building design and land raising. A comprehensive surface water drainage system will be built as part of the development to reduce the risk of surface water flooding. Additional flood protection may also benefit existing properties providing a more secure and safe environment for local residents and businesses.

Objective 12: Sustainable Buildings
New buildings will be designed and built to be energy and water efficient. As an exemplar development, new buildings will show how best practice can be achieved.

Outline Masterplan
The outline masterplan sets out a spatial interpretation of the vision and objectives for the Sustainable Urban Neighbourhood and Kirkley Waterfront. It sets out the broad distribution of land uses across the site together with the key connections and locations of strategic infrastructure. It should act as the starting point for more detailed masterplans that form part of a planning application.
Figure 3.1 – Outline Masterplan

Key:
- New Housing
- New / Existing Employment
- Marina
- Primary School
- Leisure Focus
- Local Centre
- Replacement Open Space
- County Wildlife Site
- Existing Education
- Existing Residential
- Proposed Access Road
- Indicative Other Roads
- Existing Access Roads
- Waterfront Pedestrian / Cycle Route
- Existing Right of Way
- Existing Cycle Route

Legend:
- Sustainable Urban Neighbourhood and Kirkley Waterfront | Development Brief: First Draft | February 2012 | 8
3.2 Land Use Concept

3.2.1 The expectation for the Sustainable Urban Neighbourhood and Kirkley Waterfront (SUN) is that it will be a thriving and diverse mixed-use development. Mixed-use developments help provide convenient access to services and facilities which should reduce the need to travel as well as creating a sense of place that has life, feels safe and provides a greater opportunity for social interaction.

3.2.2 The mix of uses should blend and integrate well together. Clearly some of the uses will be more compatible than others, such as retail, offices and housing as opposed to heavy industry and housing. In the latter case uses such as light industrial and offices could act as a buffer between the areas.

3.2.3 The types and quantum of each use is outlined in Policy SSP3 of the Area Action Plan. The broad distribution of uses across the site is set out in the Outline Masterplan (Fig. 3.1). The distribution of land uses shown in the Outline Masterplan reflect the key development objectives and principles outlined in Section 3.1. This distribution creates a central focus to the development and ensures the key community needs such as the primary school and local centre are accessible to the majority of people in the SUN. The distribution of uses has taken into account the sequential approach to flooding with housing focused in areas of no flood risk or less hazardous flood risk. For example, the relocation of the playing fields (a water compatible use as defined in PPS25), on Waveney Drive to the centre of the site where the most hazardous area of flood risk is, also helps meet the sequential approach, especially as the relocation opens up land which is not at risk from flooding for housing development. Less vulnerable uses such as employment development have been located in areas at a greater risk of flooding where possible.

3.2.4 Policy SSP3 of the AAP states that approximately 1,380 new residential units will be accommodated within the SUN. The Outline Masterplan shows the distribution of housing across the site. The majority of this housing is proposed to be located in the western part of the site in close proximity to the key community facilities proposed in the area.

3.2.5 The waterfront location of the site is close to the geographic centre of Lowestoft. This, in conjunction with the character of the surrounding residential area means that the site naturally lends itself to higher densities of residential development. Policy SSP3 requires densities of broadly between 50 and 90 dwellings per hectare across the site. The policy provides scope for lower and higher densities where they are appropriate, considering site constraints and surrounding land uses. The land available on the site for residential development is approximately 28 hectares which indicates an average gross density of 50 dwellings per hectare across the site is to be expected.

3.2.6 Figure 3.2 indicates how density should vary across the site considering the character uses or surrounding areas and opportunities provided by the waterfront.
3.2.7 The waterfront areas of the site are more appropriate for multi-storey apartments to provide a landmark focus of the development. Additionally, densities should be higher nearer the local centre, where apartments can be provided above shops and commercial units.

3.2.8 Properties along Victoria Road to the immediate south of the SUN have an average density of approximately 40 dwellings per hectare despite having relatively long back gardens. The average densities of the area surrounding the western section vary between 30-60 dwellings per hectare. Therefore, to reflect the characteristics of the adjacent areas, the residential development on the southern parts of the western section of the Sustainable Urban Neighbourhood should reflect these densities. There will be scope within these areas for densities as low as 40 dwellings per hectare for some blocks. There may also be potential for a limited number of detached and semi-detached style dwellings in this location.

3.2.9 The density of properties facing Waveney Drive is approximately 34 dwellings per hectare. The eastern section of the SUN should create a high quality, residential frontage along Waveney Drive of a similar density consisting mainly of semi-detached dwellings. As the development moves closer to the waterfront the density should increase to over 50 dwellings per hectare consisting of mostly terrace and townhouse typologies.

3.2.10 Across the rest of the site, densities should average 50 dwellings per hectare consisting of mostly terraced townhouse style dwellings in perimeter blocks, with the potential for small amounts of flats provided on the corners of blocks.

3.2.11 At present, the SUN is in multiple ownerships and there is a chance that development proposals may come forward through a number of planning applications. The table to the right gives an indication of the quantum of housing development for each area of the SUN considering the below guidelines on development density.

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### Table: Indicative Residential Densities

<table>
<thead>
<tr>
<th>Area</th>
<th>Approximate Number of Dwellings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brooke Business Park</td>
<td>Between 550 and 600</td>
</tr>
<tr>
<td>Former Sanyo Factory Site</td>
<td>Between 250 and 300</td>
</tr>
<tr>
<td>Jeld Wen Playing Fields</td>
<td>Between 100 and 150</td>
</tr>
<tr>
<td>Former Jeld Wen Factory Site</td>
<td>Between 250 and 300</td>
</tr>
<tr>
<td>SCA Recycling Site</td>
<td>Between 80 and 100</td>
</tr>
<tr>
<td>Witham Paints Site</td>
<td>Between 10 and 30</td>
</tr>
</tbody>
</table>

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1 See Section 3.5 on Design

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Mix of Housing

3.2.12 Central to the achievement of a sustainable community will be housing with a mix of sizes, types and tenures of housing. Approximately 40% of the residential units delivered on the site should be smaller sized dwellings, typically 1-2 bed properties, with the preference for 2 bed dwellings. It is likely that a large proportion of these smaller units will be provided on the waterfront in the form of apartments, however, there will need to be provision elsewhere in the development in the form of smaller terraces and apartments in corner blocks. 60% of the residential properties should have 3 bedrooms or more, the size to be determined by the market. This mix of dwellings should help meet district accommodation needs as evidenced in the latest Strategic Housing Market Assessment.

3.2.13 In the early phases of development, up to 2015, planning applications for development should include at least 20% affordable housing as defined in Planning Policy Statement 3. This percentage requirement is expected to rise to 35% post 2015 when the achievement of this target should be more viable. For planning applications in the SUN area that propose development that will take place over a period of about 15 years. It is likely that the market will change considerably over this time. As such, where a reduced affordable housing contribution is negotiated, a clause will need to be added to any Section 106 agreement to ensure viability is reassessed at regular intervals throughout the construction period. If and when viability improves, a greater proportion of affordable units will be required up to the level originally required.

3.2.14 An indicative split of affordable housing tenure is given in Policy HC1 of the Area Action Plan as 90% social rented and 10% intermediate. The precise mix of tenure will need to reflect the most up to date Strategic Housing Market Assessment and have regard to the viability of development. Advice from the Council’s Housing Officer will also be important in establishing the tenure split.

3.2.15 Viability is a key issue with respect to the development of the SUN, especially given the likely costs of site preparation and infrastructure. Where viability becomes a concern, the approach to affordable housing delivery will need to be flexible. The policy requirements acknowledge that some sites may require a reduced percentage of affordable housing if the site is to remain viable. In these circumstances the starting point for negotiations on changes to affordable housing contributions should be to vary the type, size and tenure rather than the quantity of affordable housing. The development of the SUN will take place over a period of about 15 years. It is likely that the market will change considerably over this time. As such, where a reduced affordable housing contribution is negotiated, a clause will need to be added to any Section 106 agreement to ensure viability is reassessed at regular intervals throughout the construction period. If and when viability improves, a greater proportion of affordable units will be required up to the level originally required.

3.2.16 The affordable housing provided on the site should be integrated with the market housing to avoid high concentrations of single tenures in any one location. Small clusters of affordable housing of between 5 and 10 units should be provided as part of larger perimeter blocks which also contain market housing. This approach encourages community integration but also makes management easier. Figure 3.3 shows how this can be achieved within a perimeter block.
3.2.17 Most affordable housing on the site should be provided in the form of houses such as terraces or townhouses rather than flats. Where affordable flats are provided these should be in corner blocks of terraces. Whilst there may be small differences in the size of dwelling, ideally there should be no discernible differences in the appearance of market and affordable units on the site. This will generally require consistency of design, materials and detailing. This approach should also help integration and at the same time reduce any impact on values of market housing.

3.2.18 The Affordable Housing Supplementary Planning Document (SPD) contains more detail on affordable housing provision and the principles of that SPD should be applied in preparing detailed proposals for the SUN.

Employment

3.2.19 At least 12 hectares of new industrial land should be provided as part of the development of the Sustainable Urban Neighbourhood and Kirkley Waterfront (SUN) and should be broadly distributed in accordance with the Outline Masterplan (Fig 3.1). The industrial land is proposed in the eastern part of the site where there is already a cluster of operational employment uses and good access to the quay for port related activities.

3.2.20 The Great Yarmouth and Lowestoft Enterprise Zone includes a 4.5 hectare portion of the SUN at Riverside Road. The focus of the Enterprise Zone is to encourage employment development in the offshore energy sector. New and expanding businesses setting up in the Enterprise Zone will benefit from a business rate discount together with a simplified planning regime. In achieving a simplified planning regime the Council is introducing a Local Development Order (LDO) which will grant conditional planning permission for operational business development in the ports and the energy sector. The LDO in the SUN area will cover a larger area of land than the Enterprise Zone covering most of the employment area indicated on the Outline Masterplan. The LDO requires development permitted to be in accordance with a Design Code. The Design Code for the LDO in the SUN area has been prepared to ensure consistency with this Development Brief.

3.2.21 In the short-term (up to 2020) it is envisaged that the part of the Jeld-Wen Factory site identified for housing on the Outline Masterplan (Fig 3.1) will be used temporarily for employment in connection with the energy industry. The LDO will not cover this area. However, temporary planning permissions (for the period up to 2020) for temporary operations will be considered favourably in this area where the amenity of existing residents living along Waveney Drive is not disturbed.

3.2.22 Figure 3.4 above shows the location of the LDO and the area of land where temporary employment uses will be considered.

3.2.23 In the longer-term (post 2020), careful consideration will need to be given to the interface between housing and employment on the eastern part of the SUN. Uses such as offices and light industrial/research and development will sit better with residential uses and this should be reflected in proposals. Live-work units would also be suitable in this location. A blend of uses in this location will help produce a more sustainable form of development that allows people to live close to where they work whilst respecting the amenity of residential properties. The Design Code for the LDO requires landscaping and more strict design controls in this area to minimise the impact on the planned adjacent residential community.
3.2.24 The LDO will not permit all forms of development within the area it covers. For example, development that requires an Environmental Impact Assessment will not be permitted. Where planning applications are required for employment development in the areas covered by the LDO they will need to be broadly in accordance with the Riverside Road LDO Design Code and the principles outlined in this brief.

3.2.25 There may also be scope for additional employment development as part of the mixed-use development proposed in the Brooke Peninsula, Sanyo and SCA Recycling parts of the site in the form of small scale premises and live-work units. In these locations, where the majority of housing is proposed, care will be needed to ensure the amenity of new residents is not disturbed.

3.2.26 There are a number of existing operational employment uses within the SUN. These include existing operational businesses at Riverside Road and business units on Lowestoft Enterprise Park including Silcutters House and Quayside Business Centre. The Outline Masterplan (Fig 3.1) identifies these areas for employment and therefore these sites will continue to remain in their existing uses. However, there are other areas of the SUN where current employment activities are identified for housing such as Witham Oil and Paints, SCA Recycling and Servitec-SD. Where businesses need or choose to relocate they will be assisted by the Council. In anticipation of this, a relocation strategy\(^2\) covering parts of the SUN area has been prepared which identifies potential opportunities for relocation.

3.2.27 People have a tendency to travel further on foot for education and recreational purposes than for items such as food. A study undertaken by Sustrans (2006) entitled ‘Shoppers and How They Travel’\(^3\) showed that a significant number of people will travel by foot to their local shops if they are within 800m. Beyond this distance the car becomes the more likely mode of travel to their local shops. A five minute walk (approximately 400m) is commonly referenced as a recommended distance for people to have access to their local facilities. The Sustrans study also found that people who used local shops were more likely to visit several retailers in a single visit.

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\(^2\) 1st East Relocation Strategy For Brooke Peninsula - Roche Chartered Surveyors (June 2010)

\(^3\) http://www.sustrans.org.uk/assets/files/liveable%20neighourhoods/Shoppers%20info%20sheet%20-%20LN02.pdf
3.2.28 A well located local retail centre in the SUN will provide access to local goods, facilities and services that will benefit people living in the local community. The Retail Capacity Update4 (2010) states that new provision should be of a scale appropriate to the role and function of the centre. The study found that local centres similar to that envisaged for the SUN will fare relatively strongly during the economic downturn. This is because the nature of the facilities provided cater for the community and are not in competition with the larger shopping areas of Kirkley, Oulton Broad, central Lowestoft and other non-centre facilities such as ASDA. The findings of the study suggest that the neighbourhood centre would likely benefit from a small anchor store that could provide convenience goods supported by a couple of small shops to provide other goods and services.

3.2.29 The local retail centre, located north of the playing fields in the heart of the development in the masterplan, will be an integrated part of the retail hierarchy with a small number of shops with a possible small ‘anchor’ convenience store providing goods and services for those living and working in the area. Traders will benefit from being on the main through routes that make up the north-south and east-west axes of the site. The neighbourhood centre is well situated with respect to other facilities in the vicinity with residential areas to the north and south, the school to the east and the leisure area focused around the marina to the northwest. The congregation of facilities in this area will encourage people to make multiple stops on a single journey rather than making single journeys every time they need something. The neighbourhood centre will provide opportunities to facilitate informal interaction between individuals and create a focal point and identifiable location within the development. When considering the layout of this area, the potential to link the development with other nearby areas such as the adjacent playing fields and play facilities, school, marina, waterfront and the access road should be carefully undertaken. Creating an environment that is attractive and visually linked with surrounding areas will contribute towards the long-term success of the neighbourhood.

3.2.30 The nature of the facilities located in the local centre will not be in competition with those offered in Lowestoft town centre, Oulton Broad or Kirkley shopping areas and will be complementary to the few independent convenience retailers located in the residential area south of the SUN. These existing shops will likely benefit from an increase in trade associated with the new residents.

Marina and Leisure

3.2.31 The existing Haven Marina provides an important role in the function and amenity of the area and will be retained as part of the development of the SUN. However, it is currently ‘hidden’ from the general public in an otherwise industrial area. The development of the SUN provides an opportunity to open this area up and become a focal point of the development.

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mixed-use development in the flood plain, Worcester

Haven Marina
3.2.32 As part of the development, new marina facilities including a public slipway could be provided around the Brooke Peninsula to enhance the tourism offer and exploit the waterfront location between the North Sea and the Broads. New moorings should be provided for private craft and the potential for moorings for historic vessels should be investigated to enhance the cultural appeal of the area. Additionally, waterfront space should be reserved for a potential water taxi service. It will be necessary to ensure that existing navigation of Lake Lothing is not inhibited by new marina development on the SUN. It should be noted that new moorings and marina facilities that extend on to Lake Lothing will likely require a license from the Marine Management Organisation.

3.2.33 The Outline Masterplan (Fig. 3.1) shows a leisure focus around the northern part of the existing Haven Marina. This includes the existing marina and extends over proposed housing areas on the existing Brooke Business Park site. New restaurants, bars and cafes should be developed in this area to complement the existing offer associated with the Marina. This development should be reasonably small-scale of no more than five ground floor units below residential properties so not to compete with Peto Square in the town centre where the main leisure focus of the AAP is being channelled. These uses should be orientated towards the west to maximise the views towards Oulton Broad and make the best out of the afternoon/evening sun. Public ‘spill out’ space should be provided in front of these uses, fronting on to the waterfront. Such a space should be large enough to be used for a variety of formal and informal activities and include a small play area for young children.

3.2.34 The main community uses to be provided on the site are a primary school and a network of open spaces. The network of open spaces is described in more detail in Section 3.4.

3.2.35 The primary school should be located in the area shown on the Outline Masterplan. This central location, on the main access road, helps form a focal point to development in the SUN and should minimise car journeys to the school and consequently encourage healthier lifestyles.

3.2.36 The use of school buildings for community use should be explored. School buildings can act as meeting places for various groups outside of school hours and help make the facility the heart of the community. The integration of the school with the community will make good use of local resources, while ‘round the clock’ use will reduce the likelihood of anti-social behaviour.

3.2.37 In terms of other facilities, the SUN is in close proximity to many services Lowestoft and Oulton Broad have to offer. New pedestrian links such as the proposed pedestrian/cycle bridge over Lake Lothing at Brooke Peninsula will provide good access to secondary and further education and health and other community facilities in the area.
3.3 Streets and Transport Concept

3.3.1 Transport modelling undertaken to support the AAP found that the full development of all sites allocated in the AAP would have a significant impact on traffic flows in the town. Reducing car use will be key to mitigating the negative impacts traffic has on the town and ensuring new development is truly ‘sustainable’.

3.3.2 Critical to ensuring the number of additional car journeys associated with the development is minimised, will be the prioritisation of cycle and pedestrian friendly streets and a comprehensive network of cycle and pedestrian routes. These routes should be well defined, legible and enhance the permeability of the development as well as providing links with the existing community.

Within Lowestoft there is an existing cycle network and cycle routes which the SUN should link into. The development of cycle and pedestrian networks should be considered at the same time as the development of road networks throughout the site. Figure 3.5 below shows how cycle and pedestrian routes should be accommodated in the SUN.
3.3.3 All streets, in addition to those shown on Figure 3.5, within the SUN should be cycle and pedestrian friendly. This can be achieved through innovative shared surface designs such as ‘Home Zones’.

3.3.4 Delivery of quality pedestrian and cycle routes in a high quality public realm will facilitate greater use by residents and visitors. Routes should be constructed with high quality materials using the palette established in the Lowestoft Design Guide (2004) and in consultation with Suffolk County Council’s Cycling Officer and Rights of Way Team.

3.3.5 The development of the SUN should facilitate the creation of a continual east-west pedestrian and cycle path along the waterfront as shown in Figure 3.5 of the southern shore of Lake Lothing. This will help provide a much needed traffic-free link on the south shore of Lake Lothing from the seafront to Oulton Broad. The path should have appropriate wayfinding measures and points of interests along the route, including public art. If it can be demonstrated to the satisfaction of the Local Planning Authority that the provision of the waterfront path through the employment areas on the east of the site would undermine safe and secure business operations the path may need to be set back from the waterside along some parts of the Kirkley Waterfront. Where the path is away from the waterfront, the path should be physically separated from any roads used by vehicles to ensure a traffic-free route for the entire length of the SUN. The path should also be set back from the natural part of the shore which is designated as a County Wildlife Site (CWS). A key feature of the CWS is the linkage between the intertidal areas and scrubland. The path in this location may need to be more informal in nature to be of consistent character with the surroundings and to avoid any unnecessary impact on the protected area.

3.3.6 Where the waterfront path is adjacent to the waters edge a width of 5m is appropriate. There are some locations along the waterfront that will provide interesting views or support public activities such as the western side of Brooke Peninsula (including the marina area). In these locations a the path should be widened to link into or incorporate a public space. This will maximise the site setting and improve connections and legibility within the development.

3.3.7 A new pedestrian/cycle bridge over Lake Lothing at Brooke Peninsula will be required to provide quick and easy access to Normanston Park, Oulton Broad North Station, employment areas and further education facilities in the north of the town. It will improve north-south connections within the town which will benefit the entire town and should further reduce the need to travel by car and therefore is essential to minimise the traffic impacts of the development on the locality and the wider town.

3.3.8 Secure cycle parking should be provided in central locations throughout the site. Ideally cycle parking will be sheltered and well overlooked to promote a greater sense of security. ‘Sheffield stands’ which provide 2 cycle parking spaces are preferred as they allow both the frame and wheel of a bicycle to be chained. See Figure 3.6 below.

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5 See Department for Transport Circular 02/2006
3.3.9 Suffolk County Council have set minimum standards for cycle parking stands in the Suffolk Advisory Parking Standards (2002). These standards are set out in the table below and should be adhered to in the development of the SUN. In the table below ‘stands’ mean ‘sheffield’ style stands that allow 2 cycle parking spaces. In addition to the standards below all areas of open space provided should include an appropriate number of cycle stands based on the likely use of the area. There are defined standards for sports pitches in the table below.

3.3.10 In residential properties, provision for the storage of cycles is required as part of Code for Sustainable Homes compliance. This is particularly important for apartments where there isn’t the option of a garage or private garden. In apartments, communal space should be set aside for indoor cycle storage. Alternatively sheltered outdoor cycle parking should be provided.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Minimum Cycle Parking Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail (Use Class A1)</td>
<td>1 stand per 200m² gross floor area</td>
</tr>
<tr>
<td>Financial and Professional Services (Use Class A2)</td>
<td>1 stand per 300m² gross floor area</td>
</tr>
<tr>
<td>Restaurants, Drinking Establishments and Take Aways</td>
<td>1 stand per 40m² public floor area</td>
</tr>
<tr>
<td>Offices, Light Industry and Research (Use Class B1)</td>
<td>1 stand per 300m² gross floor area or 1 stand per 400m² gross floor area for developments greater than 2500m²</td>
</tr>
<tr>
<td>General Industry (Use Class B2)</td>
<td>1 stand per 300m² gross floor area</td>
</tr>
<tr>
<td>Storage and Distribution (Use Class B8)</td>
<td>1 stand per 400m² gross floor area</td>
</tr>
<tr>
<td>Hotel (Use Class C1)</td>
<td>1 stand per 20 bedrooms</td>
</tr>
<tr>
<td>Nursing Home (Use Class C2)</td>
<td>1 stand per 10 bedrooms</td>
</tr>
<tr>
<td>Housing (Use Class C3)</td>
<td>1 space per dwelling including flats</td>
</tr>
<tr>
<td>Primary School (Use Class D1)</td>
<td>1 stand per 8 pupils and 1 stand per 10 staff</td>
</tr>
<tr>
<td>Open Spaces</td>
<td>3 stands per sports pitch</td>
</tr>
</tbody>
</table>

Figure 3.6 - ‘Sheffield’ style cycle stand (Source: Suffolk Advisory Parking Standards (2002))
Public Transport

3.3.11 Provision should be made for a bus route to service the site. The route should make use of the new access road in the western part of the SUN and ensure that all new dwellings in the SUN are within 400m of a bus service. Figure 3.7 below shows an indicative bus route together with suggested bus stops. Provision of frequent and accessible bus services improve access to facilities and will help reduce car use within the development.

3.3.12 A central transport node situated close to the primary school and central retail uses should be included in the development. This should provide sheltered bus waiting facilities with real-time travel information. Adequate, secure, cycle parking provision should be provided at the node.

3.3.13 The provision of water taxis on Lake Lothing should be facilitated by the development through the provision of mooring space on the waterfront in the Brooke Peninsula area.

Figure 3.7 – Suggested bus route through the site
Vehicular Network

3.3.14 All roads within the SUN should be designed as ‘streets’ that prioritise pedestrian and cycle movements, following the principles set out in Manual for Streets⁶ (DfT, 2007). A hierarchy of streets within the SUN should be developed that integrate well with existing streets and create an environment that is permeable and legible, particularly for cyclists and pedestrians. Streets should be arranged around a perimeter block format allowing for a legible layout that allows people using all forms of transport to easily find their way around.

3.3.15 Figure 3.8 sets out an indicative street layout and hierarchy for the SUN which aims to achieve the above objectives.

3.3.16 Figure 3.8 identifies three different types of street in the SUN. These being:

- Avenue: This should be a wide single carriage way street with deciduous tree planting alongside. There should wide pavements of at least 4m either side of the road which accommodate a segregated cycle lane. Including the road surface, pavements and cycle paths the road will need to be at least 16m wide. Development should front on to these roads. Traffic speeds will need to be limited to 30mph and appropriate speed controls will need to be implemented, particularly on the main access road through the Jeld-Wen playing fields site. More information on the specifications of the access road is found in Section 4.2.

- Secondary Street: These will be narrower through routes connecting different parcels of the development together. Traffic speeds will need to be lower on these roads with appropriate traffic calming measures.

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⁶ http://www.dft.gov.uk/publications/manual-for-streets
• Small Streets: These will provide access to small blocks of residential properties and will exhibit ‘home zone’ principles and will generally have a shared surface design.

3.3.17 Figure 3.8 identifies a number of indicative points where through traffic (with the exception of buses) should be restricted. This is to ensure the majority of private vehicles access the western part of the SUN by the main access road. In the short-term before the access road is complete some development could be supported by the existing access points into the site such as School Road and Heath Road. Once the access road and other through routes are constructed the existing access points could then be blocked off to reduce the risk of ‘rat runs’ through the site.

3.3.18 The development of the SUN should consider the long-term aspiration of the Council to secure a third vehicular crossing over Lake Lothing. As such, avenues through the eastern part of the site should be built within a corridor that can accommodate upgrading to a specification to accommodate any future proposal for a third road crossing over Lake Lothing. It will be important that development of the SUN does not restrict future opportunities to deliver a third river crossing.

3.3.19 For the areas of the site designated for industrial/employment use, the Suffolk “Industrial Estate Roads: Notes for Guidance of Developers” should be referred to.

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**Figure 3.9 Overall Movement Framework**

- New streets
- Existing streets
- Pedestrian and cycle route
Car Parking

3.3.20 Suffolk County Council have set maximum standards for car parking provision in the Suffolk Advisory Parking Standards (2002). These are set out below and should be adhered to in the development of the SUN.

3.3.21 The manner in which car parking is arranged across the site is of fundamental importance to the overall quality of development. Parked cars should not dominate the public realm of the development and should not inconvenience pedestrians and cyclists by blocking desire lines or restricting lines of sight.

3.3.22 For both industrial/commercial and residential development in the SUN the best place for off-street parking should be within secure rear courtyards within perimeter blocks that are well overlooked. For residential areas this can be achieved by designing space within the rear curtilage of a dwelling and in spaces designated in communal parking courts.

3.3.23 Parking within the front curtilage should generally be avoided as it breaks up the street frontage and restricts informal surveillance. It also gives the appearance of a car dominated environment. Where parking is provided within the curtilage of a dwelling and has direct access on to the street, this should be to the side and in between dwellings, behind the building line. Integral garages could also be used in dwelling types such as mews and townhouses. However, they should be used sparingly along a single frontage in order to avoid ‘dead’ frontages.

3.3.24 Some on-street parking should also be provided on smaller streets. Where on-street parking is included it should ideally be incorporated as short runs of parking bays (up to a maximum of 5 bays). It should also be integrated into the street scene by interspersing them with features in the street such as trees and spaces. On street parking should help support traffic calming but not create a barrier to pedestrian or cycle movement. As with all parking provision, on-street parking should be well overlooked.

### Land Use and Maximum Car Parking Provision

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Maximum Car Parking Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Retail (Use Class A1)</td>
<td>1 space per 16m² gross floor area</td>
</tr>
<tr>
<td>Non-Food Retail (Use Class A1)</td>
<td>1 space per 20m² gross floor area</td>
</tr>
<tr>
<td>Financial and Professional Services (Use Class A2)</td>
<td>1 space per 20m² gross floor area</td>
</tr>
<tr>
<td>Restaurants, Drinking Establishments and Take Aways (Uses Classes A3, A4 and A5)</td>
<td>1 space per 4m² public floor area</td>
</tr>
<tr>
<td>Offices, Light Industry and Research (Use Class B1)</td>
<td>1 space per 30m² gross floor area</td>
</tr>
<tr>
<td>General Industry (Use Class B2)</td>
<td>1 space per 30m² gross floor area</td>
</tr>
<tr>
<td>Storage and Distribution (Use Class B8)</td>
<td>1 space per 150m² gross floor area</td>
</tr>
<tr>
<td>Hotel (Use Class C1)</td>
<td>1 space per bedroom</td>
</tr>
<tr>
<td>Nursing Home (Use Class C2)</td>
<td>1 space per each member of residential staff, 1 space per every 2 day staff and 1 space per 3 beds</td>
</tr>
<tr>
<td>Housing (Use Class C3)</td>
<td>1 space per dwelling</td>
</tr>
<tr>
<td>Primary School (Use Class D1)</td>
<td>1 space per teaching staff 1 space per 2 ancillary/non teaching staff 6 visitor spaces or 1 visitor space per 25 pupils whichever is the greater subject to a maximum of 20 spaces.</td>
</tr>
</tbody>
</table>
3.4 Open Space and Biodiversity Concept

3.4.1 The creation of a quality public realm is an important part of a successful place. Essential to a quality public realm are open spaces with facilities that relate well to the surrounding built environment. These can include green spaces and hard surfaced areas. Green areas of open space within the site including private gardens and green roofs can also help promote biodiversity and create and enhance ecological networks.

3.4.2 Public open spaces are an important part of creating a neighbourhood that can meet the aspirations of its residents. A hierarchy and network of open spaces with different functions will contribute to a development that is comprehensive and well integrated. This will provide long-term benefits for both the built and semi-natural aspects of the area. The public realm should be designed in a fashion that provides physical and visual continuity between different parts of the new development and with existing built areas. The use of quality landscaping will provide opportunities for the creation of a stimulating outside environment, improving local amenity and community well-being and enhancing the biodiversity of the area.

3.4.3 New spaces will be expected to reflect the character of the street and the surrounding land uses. Provision will include spaces that are ‘green’ and others that are of a hard surfaced character that can facilitate a variety of opportunities for recreational use. These will be a combination of formal and informal spaces, areas that are for public, semi-public and private use for residents, workers and visitors to fulfil a range of different roles in the neighbourhood.

3.4.4 The types of open spaces to be provided will need to take account of the nature and character of the area they will serve, ranging from small community blocks to larger neighbourhood areas. Open space typologies include:

- semi-natural (County Wildlife Site)
- playing pitches (replacement playing fields)
- play spaces (LAPs, LEAPs and NEAPs)\(^7\) and parks
- paved areas for community use
- green corridors
- pedestrian walkways and cycleways
- private spaces and courtyards
- landscaped areas in employment areas
- hard surfaced areas along the waterfront

3.4.5 Open spaces should be designed with a clearly defined role in the community and maximise opportunities presented by existing features such as the waterfront, marina, slipways, the County Wildlife Site and the proximity of the Broads and North Sea. Open spaces are to be designed so they can be accessible to everyone and are well overlooked to create a greater sense of security for people using these areas. Landscaping along new access routes will also play an important role to ensure the development is an attractive place to live and work.

\(^7\) Play space standards that need to be met are set out in Section 7 of the Open Space SPD
3.4.6 Policy DM25 of the Development Management Policies Development Plan Document (2011) and the Open Space Supplementary Planning Document (SPD) (2012) requires developers to provide an appropriate amount of public open space on site. For each new dwelling the amount of public open space required by planning policy is between 27m² and 53m² depending on the density of the development. It should be noted that private open spaces, such as back gardens, do not count towards meeting these standards. Assuming the total development of 1380 dwellings is built out with an average density of 50dph, this will require approximately 4.4ha of new public open space to be provided to serve the development. Given the density and proposed urban form of the development this amount of new open space will not be possible to achieve on the site itself. Figure 3.10 shows the existing public open spaces that surround the site. There is a lack of accessible recreational space in this area of South Lowestoft in close proximity to the site. The largest green space in proximity to the SUN south of Lake Lothing is Kirkley Fen. Tom Crisp Way, located to the east of the SUN, is a busy arterial route and poses a significant barrier to those wishing to access this park. A full range of facilities such as sporting facilities is not available in Kirkley Fen or in other green spaces south of Lake Lothing.

Figure 3.10 – Open Space in the Surrounding Area
Normanston Park lies just over Lake Lothing to the north of the site where a whole range of recreational facilities are provided including tennis courts, playing pitches, equipped play areas, a skate park and some semi-natural habitat. The park is also adjacent to the Local Nature Reserve of Leathes Ham. The proposed pedestrian/cycle bridge over Lake Lothing at Brooke Peninsula will increase access to Normanston Park which will assist with meeting the additional need created by the development and mitigate the shortfall in provision on site. Enhancing access to the County Wildlife Site and improving the existing playing fields once they are relocated to the centre of the site will further reduce the need for new on-site open space. However, in addition to these measures, there will still be a need for some new open space to be provided on the site. This will be principally in the form of small children’s play areas which need to be much closer to people’s homes than parks such as Normanston Park. The table to the right sets out the level of on-site provision required and Figure 3.11 shows how these children’s play areas could be distributed across the site. The locations proposed are based on the quantitative and accessibility requirements set out in Appendix E of the Open Space SPD. More information on children’s play provision is provided in the paragraphs that follow.
3.4.8 In addition to new open space provision, the existing playing fields on Waveney Drive will be relocated to the central part of the site. This will need to be approximately 2 hectares in size. The replacement playing fields will not be considered part of the developer’s responsibility to provide new open space to serve the development as this space is already located on the site.

3.4.9 New open spaces are expected to have appropriate facilities provided on site that meet the quality standards set out in the Council’s Open Space SPD. Facilities may include play equipment, low level fencing, seating, rubbish and dog waste bins, lighting, sheltered areas, sport facilities (field or court related), landscape features, planting and gardens. Appropriate provision will vary between spaces and will be dependant on the function of the open space within the neighbourhood.

3.4.10 The following paragraphs provide more detail about the open spaces on the site.

### Playing Fields

3.4.11 The existing playing fields located in the south of the site, which include a football pitch, have been zoned for housing. In accordance with Policy SSP3, like for like replacement playing fields are required (in terms of size and quality) elsewhere in the SUN. This re-provision will not count towards open space provided by the new development. As shown in Figure 3.11, the replacement playing fields will be located in a central part of the site which will assist in creating a focal point for the community as shown in the masterplan. Being the largest freely accessible open space in the SUN, the playing fields will complement other open spaces and facilities in the vicinity including play areas, the retail area, the school and the County Wildlife Site. It is also likely to have a pivotal role in any Sustainable Urban Drainage System (SuDS) scheme developed on site. The replacement playing fields will need to include a football pitch measuring approximately 90m by 60m and also encompass a new Neighbourhood Area for Play. The Neighbourhood Area for Play should be located on the eastern edge of the replacement playing fields close to the local centre and the new primary school.

### Play Spaces

3.4.12 Play spaces are an integral part of any residential development and the requirement for such facilities is set out in Policy SSP3. These spaces should be created in localities where there is natural surveillance to increase the sense of security and should be incorporated as part of the wider open space network. Indicative locations for play spaces are shown on Figure 3.11.

3.4.13 Design and accessibility standards should be in accordance with those set out in the Open Space SPD and the Council’s Open Space Strategy (2007) for:

- Local Areas for Play\(^8\) (LAPs);
- Local Equipped Areas for Play\(^9\) (LEAPs); and
- Neighbourhood Equipped Areas for Play\(^10\) (NEAPs).

3.4.14 The largest and best equipped play space (NEAP) is to be provided on the replacement playing fields. This site can expect to be used heavily throughout the day by a variety of users such as children from the adjacent school. Parents who drop their children off to school are also likely to take younger children who are not of school age to the park to play as well as other people in the neighbourhood. The site, in its central location, will complement the local retail centre and nearby activity areas such as the marina and waterfront as people pass through the SUN from one destination to another.

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\(^8\) Area designed for children under the age of 6, approximately 100m\(^2\) in size and located within a 1 minute walk of home (100m walking distance).

\(^9\) Area designed for play and equipped for children aged 4 – 8, at least 400m\(^2\) in size and located within 5 minutes walk from home (400m walking distance).

\(^10\) Area designed and equipped for older children aged 8 – 14, at least 1000m\(^2\) and located within 15 minutes walk from home (1000m walking distance).
3.4.15 A medium sized equipped play area (LEAP) is to be provided in the residential area in the eastern part of the SUN. Ideally, this should be located on a corner where it is well overlooked and encourage use by people in the eastern part of the SUN.

3.4.16 When designing play areas, consideration should be given to the appropriateness of landscaping/natural play features and equipment that reflect the role of the open space in the community. When play spaces are being designed, discussions with the Council’s Facilities Officers is recommended. An equipped local area for play (LAP) is to be provided in the vicinity of the marina where parents can use the recreational facilities whilst in the company of young children. Equipment for young children should also be provided as part of the NEAP and LEAP previously discussed. Every household should have easy access to a LAP and these can be incorporated as part of any pocket park designed into the development.

3.4.17 Areas for public use should also include paved areas that can support recreational activities. Where hard surfaced spaces are provided it is essential to consider how they relate to the adjacent areas and uses. Areas of the site that lend themselves to hard surfaces that can be used by the public include the waterfront, the area adjacent to the local retail centre and the area adjacent to the northern part of the marina. Hard surfaced areas should be designed in a fashion that will create visual links between different parts of the site to encourage pedestrian movement within the area.

3.4.18 Outdoor activities will be more frequent in summer while the weather is good but the site should be able to support activities throughout the year. A feature that could provide a focus for activities such as ‘performing arts’ that can also facilitate other formal and informal uses should be considered in the part of the site just north of the marina. This will act to reinforce the notion of community identity and provide a recognisable landmark for people who live within the SUN and those who live outside the neighbourhood.

3.4.19 The two-form primary school will have playing fields associated with it. Given the location of the school there is an opportunity to incorporate part of the adjacent County Wildlife Site into the school site. This could provide a more varied outdoor environment and contribute towards outdoor education for young children. In conjunction with nearby spaces such as the County Wildlife Site and the playing fields, the area will create a green corridor that crosses the Brooke Peninsula that will contribute towards a wider area with benefits for recreational amenity and biodiversity. Dual use of the school grounds between the primary school itself and the public may be considered. This would provide a greater range of facilities available to the public but with the primary school retaining priority of use. Such an arrangement would need to be made with the school authority after the development is completed.
Employment Areas

3.4.20 New employment areas will be expected to contribute positively to the public realm. Within the SUN there will be a significant amount of land developed for employment purposes, particularly along the Kirkley Waterfront as discussed in Section 3.2 of this development brief. Non-residential development is not required to provide new open space, however, it is encouraged to do so in order to create a higher quality environment and improve the well-being of employees. Improving the amenity of employment areas will act as a ‘good neighbour’ to residential areas and reduce the likelihood of anti-social behaviour in the area.

3.4.21 Employment uses along the Kirkley Waterfront should provide a public realm that links well with the adjacent residential areas. This will encourage pedestrian and cycle movement and better connectivity with surrounding areas. This will also reduce the potential for employment areas to become socially isolated which over time can contribute poorly to the image of the area. Provision is to be made for tree planting along the east-west movement corridor that runs through the employment area linking Waveney Drive and the Brooke Peninsula.

Retail Areas

3.4.22 Adjacent to the local retail centre a small hard surfaced open space should be provided that can be used to enhance public amenity and make the area more attractive for potential customers.

Biodiversity and Ecological Networks

3.4.23 The development of a network of green open spaces through the site can have the additional benefit of enhancing ecological networks and therefore improving biodiversity. The Suffolk Wildlife Trust Lowestoft Wildlife Audit (2007)\textsuperscript{11} identified an ecological network of green spaces and links across Lowestoft. This network is shown in Figure A1.5 in Appendix 1. The distribution of open spaces and greenways through the site will help enhance this network locally as shown in Figure 3.12 below.

3.4.24 The most significant area for biodiversity on the site in this network, as shown in Figure 3.12, is the County Wildlife Site (CWS). The CWS is 6.8 hectares in size and provides habitat for species identified in the Biodiversity Action Plan (BAP) such as birds and reptiles including the common lizard. The shoreline along the CWS is the only remaining natural shoreline along the southern edge of Lake Lothing and is to be protected. Protecting and enhancing the CWS from development whilst encouraging greater public access is a key objective identified in the Area Action Plan and this Development Brief. Proposals that include greater access to the CWS should be discussed and agreed with the County Council ecologist, Suffolk Wildlife Trust and the District Council. This green space should be accessible to all members of the community and useable in all weather conditions. The design of pathways should pay particular attention to the ongoing conservation of wildlife on the site; paved pathways should avoid the natural shoreline and path widths should enable wildlife such as reptiles to cross from one side to the other without being placed at risk or creating segregated habitats.

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\textsuperscript{11}http://www.waveney.gov.uk/site/scripts/download_info.php?downloadID=110
3.4.25 In addition to the CWS the other areas of green open space provided on the site will be of benefit to the ecological network. The centre of the western part of the SUN includes a large area of green space encompassing the primary school playing fields and the relocated Jeld-Wen playing fields. These will have direct connections to the County Wildlife Site and should include appropriate flora such as deciduous trees and shrubs. Smaller areas of green space such as children’s play areas will also provide some benefit for biodiversity.

3.4.26 The greenways identified on Figure 3.11 are also beneficial to the ecological network by providing links between areas that will support movement between sites. Greenways should include deciduous street trees that can provide habitat for birds, provide shelter and visual corridors for pedestrians and cyclists, as well as enhancing the appearance of the street scene and minimizing the visual impact of vehicular activity. Deciduous trees have the added benefit of providing shelter in the summer whilst maximising solar gain in the winter.

3.4.27 New strategic planting will be designed to reinforce the framework of existing vegetation, and to mitigate the loss of any mature trees and hedgerows, for example in high density development areas. Strategic planting will comprise tree and shrub species indigenous to the area to provide continuity between existing and proposed vegetation character. Species will be selected to optimise habitat creation and ecological diversity but will also need to be salt resistant. Existing mature trees should be retained where possible as these already provide some biodiversity benefits and will help contribute to the amenity of the area in the future.

3.4.28 Buildings also provide an opportunity to bring wildlife into the site. This can be achieved through green/brown roofs, balconies and private gardens. Buildings can also be designed to allow roosting opportunities for birds and bats. This would contribute towards the ecology credits required to achieve CfSH and BREEAM compliance (further information is provided in the CfSH and BREEAM technical guidance). It will not be appropriate to encourage all local species to live or roost in the built environment so care will need to be exercised to successfully support ‘desired’ species.
3.5 DESIGN CONCEPT

3.5.1 The Sustainable Urban Neighbourhood and Kirkley Waterfront (SUN) should be an example of excellent urban design and architecture. Principles of urban design run throughout this Development Brief but this section focuses on more generic design principles that should be applied across the site and identifies character/themed areas of the site as well as views and vistas which should be created and maintained.

Site-wide Design Principles

3.5.2 The SUN should be structured round a grid layout consisting of perimeter blocks which create a legible form and allows for ease of movement. Blocks should ideally be between 0.75 and 1 hectare in size although in some locations blocks may be smaller to keep in with the form of existing development and where there are constraints to layout. The advantages of this block structure include:

- very efficient in terms of land utilisation allowing higher densities with fewer storeys
- allow accessibility and legibility and create a more permeable form of development
- are safer, providing a strong definition between public and private space with opportunities for surveillance and safe enclosure of private gardens.
- flexible allowing a range of densities, tenures and uses

3.5.3 In residential areas perimeter blocks are capable of accommodating all dwelling types including, apartments, terraces, townhouses and detached properties as well as other uses such a small shops and workshops. The internal areas of perimeter blocks should be utilised as private garden space for dwellings, communal garden space for apartments and secure rear parking courts.

3.5.4 In commercial and industrial areas blocks may be larger to accommodate large buildings or premises. Where a large building is needed smaller units can be wrapped around the unit to provide a more active frontage. The enclosed areas of commercial blocks should provide space for parking so that large areas of surface parking on the street scene is avoided. These internal areas can also be used for outside storage and for ‘break out’ areas for staff.

3.5.5 There can be many benefits in locating new industrial and commercial buildings close to front boundaries and giving them a ‘public face’:
• buildings can be used as a barrier to enclose secure areas and can minimise the need for lengths of fencing along frontages. This will not only improve the quality of the public realm, but also improve security for the plots. Well-designed building elevations can be both more secure and more attractive than chain-link fencing. This approach is compatible with many of the principles of ‘Secured by Design’ for commercial developments.

• general security can be further enhanced where industrial buildings provide windows (to offices, canteens, or other active rooms) that overlook the public street and provide surveillance.

• buildings can screen noise and other disturbances to a stronger degree than fences, and thus reduce potential conflicts between neighbouring businesses and activities.

3.5.6 Throughout the SUN active frontages with regularly spaced windows and doors in both residential and commercial areas will be encouraged. Active frontages help animate the street and provide natural surveillance. The frequency of entrances from buildings onto the street is of particular importance.

3.5.7 At most crossroads, junctions and corners of blocks, buildings should be more distinctive through their height, massing and design. This helps enhance legibility and provides focal points. The grid pattern of development within the SUN will create a number of crossroads, junctions and corners although not all should be given the same significance. Key junctions and cross roads provide an opportunity for landmark buildings that help define the character of the area. Figure 3.15 identifies potential locations for key landmark buildings. On all corners, junctions and crossroads, care should be taken to ensure all walls of corner buildings that front onto the street have active facades to ensure the building line turns the corner effectively.

3.5.8 An important consideration of development in all parts of the SUN will be to ensure an acceptable standard of amenity for residents. In the detailed design of buildings and the layout and alignment of streets and blocks, care will be needed to ensure overlooking is minimised and privacy is maintained. On waterfront areas, and areas close to existing and proposed employment uses, the design of buildings and spaces will need to consider the impacts of noise. Noise issues can be mitigated through landscaping and vegetation planting, glazing and positioning of bedrooms within dwellings. A noise assessment will be required to support all planning applications to ensure noise is not an issue for residents and other users of the site.

3.5.9 The design of streets, buildings and spaces should also consider the need to promote public safety and deter crime. Ensuring active frontages and good surveillance of spaces as detailed above will be key to deterring crime.

Street Frontages and Movement Corridors

3.5.10 The streets and open spaces in the SUN are often the focus for community activity and social interaction. Streets and junctions should be designed to encourage use of the public realm rather than simply being functional routes for vehicular traffic. To deliver a public realm befitting the objectives of the SUN new spaces and related facilities will be of high quality and be designed to be interesting. Consideration will need to be given to how the facades of buildings complement their surroundings such as adjacent footpaths and open spaces. Where it is necessary to provide signage, consideration should be given to the setting. For example, on a street it may be appropriate to use metal signs, however, in a park or green space it will be more appropriate to use signage made of softer materials such as wood.

3.5.11 Many of the street frontages will consist of residential dwellings. Where opportunities arise, the space between the building and the footway will provide a buffer that may be grassed or separated into a small private space but these should be consistent along the street.
3.5.12 The road traversing the southern boundary of the proposed playing fields provides an important east-west axis through the site linking the key infrastructure in the area; industry, CWS, open space, neighbourhood retail and recreational facilities in the marina area. This corridor should provide visual stimulus to bring people into and through the SUN and encourage the link between Oulton Broad and Lowestoft town centre and seafront.

3.5.13 The public realm should be easily legible so users can navigate between different parts of the SUN and use corridors that provide links to surrounding areas such as Oulton Broad, Kirkley and Lowestoft town centre. Figure 3.1 shows how the access road connects directly with the neighbourhood retail centre which connects to the school, play fields and ancillary play space, marina and Lake Lothing waterfront as well as connecting adjoining residential areas. There is potential to use outdoor furnishings such as plantings, paving or public art to visually and psychologically connect the key features of the site that will assist with fostering a sense of neighbourhood identity. Street furniture should use materials that are salt resistant. This is particularly important for the access road which will be the main entry point to the SUN and therefore, aesthetically it will set the tone for the surrounding area. Streets overall will be designed to create visual interest and amenity and encourage social interaction. To bring people into the SUN from Waveney Drive, the design of the access road should provide a visual link with the area at the northern end of the Brooke Peninsula.

3.5.14 Street calming measures and soft boundaries that separate areas intended for pedestrian and vehicle use are to be implemented in residential areas. These should avoid creating a sense of clutter when considering, for example, street furniture such as bollards (instead of fencing), seating, rubbish bins and planting.

3.5.15 Careful consideration should be given to the positioning of features such as seats and rubbish bins. These should take into account the likely pedestrian routes to be used by the community to access local facilities such as shops, public transport nodes and recreational spaces. The provision of road crossings should follow logical desire lines along pedestrian routes to maximise convenience for the potential user. In line with Policy EHC1 of the Area Action Plan, the Public Realm Strategy in the Lowestoft Design Guide should inform the design of public spaces.

### Light corridors

3.5.16 Spaces that receive high quality light are more likely to be used by the public for recreational purposes. Light corridors need to be considered to ensure the building design and the layout of open spaces and movement corridors do not result in areas that are shaded for significant parts of the day.

3.5.17 Similar consideration needs to be given to the avoidance of creating wind tunnel effects. The Brooke Peninsula is in an exposed location when considering the regular east—west winds that blow, particularly during the winter months.
3.5.18 The general site layout lends itself to the formation of several character areas based on the attributes and opportunities associated with different parts of the site. The areas are shown on Figure 3.14 below. Development will need to ensure that the different areas relate to one another to achieve the overall aspirations of the SUN. New development should respect and complement the natural and built character of the area without the constraint of mirroring existing buildings.

3.5.19 The following paragraphs identify specific design issues for each character area identified in Figure 3.14. Detailed design codes that cover matters such as materials, massing, façade treatment and building heights should be worked up for each character area to support detailed planning applications.

**Kirkley Extension Character Area**

3.5.20 This area is a northward extension of the residential area (in the Kirkley and Whitton wards) south of Waveney Drive and Victoria Road and should connect into the built form of the existing community. Development should respect local vernacular but should not be a pastiche of historic architectural styles.

3.5.21 Development in the areas around Victoria Road should reflect the existing fine grain urban form of this area. Residential densities should be similar to those found on School Road, Stanley Road and Victoria Road.

3.5.22 The main entrance to the development (which is to be located on the existing Jeld-Wen playing fields on Waveney Drive) should exhibit two landmark buildings either side of the access road that welcome people into the site. These buildings should be designed to a high architectural quality and could be up 4 storeys in height.

3.5.23 A high quality residential frontage should be provided along Waveney Drive that reflects the existing residential properties on the south side of Waveney Drive. Buildings should be set back from the road to provide space for small front gardens. There should be a clear demarcation between public and private space, however, this should not be done in a way that will create significant visual barriers to people using the public realm.

3.5.24 The area of the site fronting onto the replacement playing fields in the central part of the SUN should exhibit innovative architecture and provide a strong frontage that overlooks the public space. Building heights could be up to four storeys in this location. The potential for unique self-build plots in this location should be explored.
3.5.25 Between Stanley Road and Heath Road an unmetalled alleyway runs behind properties that front on to Victoria Road. Parts of the Sanyo site and the SCA Recycling site back on to this alleyway. The best design response in this area would be for new dwellings to back on to this alleyway with garages to the rear. Garages could cover the entire rear frontage on to the alleyway to help improve security. Extra lighting and an improvement to the surface could also improve security.

**Waterfront Character Area**

3.5.26 This area should exhibit strong maritime characteristics that reflect its waterfront location. Buildings and spaces should connect to the water and maximise views of the wider Lake Lothing area. Key views into and out of area will link the built up area and the waterfront which will act to reinforce the connections within the wider SUN area. This area should showcase good architecture and sustainable design.

3.5.27 Less regard to local vernacular is needed in this location and the design of buildings and spaces should be innovative and contemporary. The Brooke Peninsula provides an opportunity for taller landmark buildings (up to 6 storeys) The existing slipways on the peninsula should be maintained where possible and should be used innovatively. The slipways could provide private access to the water for some dwellings.

3.5.28 Careful consideration should be given to higher density areas so that buildings do not inadvertently create an unwelcoming environment for residents and visitors.

3.5.29 This part of the SUN will provide the strongest visual connection between the new development and other areas around Lake Lothing because of its prominent waterfront location and the higher building heights. Visually stimulating design should be considered in the context of viewing areas of the SUN such as from Oulton Broad, Normanston Park and area east along the waterfront. The development and use of slipways will need to relate well to boats moored in the vicinity of Brooke Peninsula.

3.5.30 The visual focal point created by this area will also need to consider how it relates to people that are using the access road, the waterfront path and the pedestrian/cycle bridge. From a distance, the buildings in this area should be designed and configured in such a way to encourage people to use these crossroads.

**Employment Character Area**

3.5.31 Most of this area will be covered by a Local Development Order (LDO) from 2012 through to at least 2017 as described in Section 3.2. The LDO has a Design Code attached to it which identifies specific character areas within it, with strict design criteria that development should adhere to. Proposals in this area that do not meet the criteria set out in the LDO, will still require planning permission. In these circumstances the principles of the Design Code should apply in determining these planning applications.

**Neighbourhood Centre Character Area**

3.5.32 This area provides the community facilities that make up the focal point of the development. It encompass the two largest areas of public open space on site, the primary school and the local retail centre. The openness of the area will provide views across the site but this will need to be complemented by a sense of enclosure in some locations. This enclosure should be achieved by high quality, taller (up to four storeys) buildings north and south of the central open space.

3.5.33 Care will need to taken to ensure that the main strategic pedestrian and cycle links through the County Wildlife Site are open and overlooked as best as possible. The paths should be at least 5m wide and be well lit.

*Pedestrian / cycle footbridge, Hammerby Sjosted, Sweden*
Key Views and Vistas and Landmarks

Views

3.5.34 Strategic views into and out of the development will support the identity of the area by people who live in the SUN and those who use the surrounding areas north and south of Lake Lothing. The waterfront path will encourage people to use local pedestrian and cycle networks and move through the site. Vistas looking out over Lake Lothing should be considered, particularly if they are at strategic points that could be enhanced as a public space for wider public use. Consideration should also be given to the views into the SUN from the waterfront. A sense of isolation is likely to discourage use through a sense of insecurity and lack of positivity.

3.5.35 Important vantage points along the waterfront include:

- the marina towards Oulton Broad
- northern end of Brooke Peninsula across Lake Lothing
- open space along Kirkley waterfront looking over Lake Lothing and towards the east
- vantage points through the slips ways looking east and west
- line of sight from the access road intersection with Waveney Drive into the site
- line of site of secondary access along Waveney Drive into the site link to the waterfront.

3.5.36 Figure 3.15 identifies potential key views and vistas through the site that should be designed into the development.
Landmarks and Public Art

3.5.37 Proposals should include landmarks such as well designed buildings, open spaces and public art. Landmark buildings and public art located at key locations can reinforce the character of the area and provide strategic points that can be identifiable by local people. Potential sites for public art and landmark buildings include key nodes, sites which receive significant public use and sites which provide an important vantage point of the surrounding area that will assist with the creation of a distinctive development. Public art that is to be provided or funded should involve discussions with the Council. Selective use of interesting features on buildings that reflect the history of the area and its future aspirations could act as key landmarks and provide focal points within the SUN.

Sustainable Design

3.5.38 The SUN provides an opportunity for a development that will reflect the objectives of the Greenest County and the aspirations of the community. Proposals should ensure that they are consistent with the principles of sustainable development which includes minimising the demand for resources during the building stage and afterwards once the building is occupied.

Energy Efficiency

3.5.39 In 2009, the District Council undertook a study investigating the potential for energy efficiency and renewable energy generation across the District. This study emphasised that the area south of Lake Lothing, because of the proposed building density, was a location where new development could be designed and constructed to minimise energy demand and carbon emissions. This study, however, did not provide enough detail to set out a detailed preferred strategy. It was recommended that further options be explored once the general details of development were finalised.

3.5.40 The energy standards to be met within the SUN are set out below. These requirements are higher than the district-wide standards and how these can be achieved will need to be considered alongside other components related to the Code for Sustainable Homes and BREEAM standards set out in the Development Management policies. The energy requirements to be achieved in the SUN are:

<table>
<thead>
<tr>
<th>Development completed prior to 2013:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Residential units</strong>: Code for Sustainable Homes Level 5 for energy (or equivalent replacement standard) and overall new dwellings are required to meet full CfSH level 3 compliance.</td>
</tr>
<tr>
<td><strong>Office and Schools</strong>: BREEAM Excellent for energy and water requirements (or equivalent replacement standard).</td>
</tr>
<tr>
<td><strong>Other non-residential developments</strong>: Building Regulations compliance and demonstrate how an additional 15% reduction of the residual carbon emissions can be achieved.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Development completed once amendments to Part L of the Building Regulations come into effect (25% reduction on 2010 requirements anticipated for 2013):</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Residential units</strong>: Code for Sustainable Homes Level 5 for energy (or equivalent replacement standard) and overall new dwellings will be required to meet full CfSH Level 4 compliance.</td>
</tr>
<tr>
<td><strong>Office and Schools</strong>: BREEAM Excellent for energy requirements (or equivalent replacement standard).</td>
</tr>
<tr>
<td><strong>Other non-residential developments</strong>: Building Regulations Compliance and demonstrate how an additional 15% reduction of the residual carbon emissions can be achieved.</td>
</tr>
</tbody>
</table>
Development completed once amendments to Part L of the Building Regulations come into effect (zero carbon for residential development anticipated for 2016):

- **Residential units**: Full code compliance with Code for Sustainable Homes Level 6.
- **Office and Schools**: BREEAM Excellent for energy requirements (or equivalent replacement standard). Anticipated to be ‘zero carbon’ from 2018.
- **Other non-residential developments**: Comply with Building Regulations and demonstrate how an additional 15% reduction of the residual carbon emissions can be achieved. (Anticipated to be ‘zero carbon’ from 2019).

3.5.41 The reason for imposing the higher CfSH\(^{12}\) and BREEAM standards is to secure commitments to CO2 reduction and water saving that have been identified as significant sustainability issues for Waveney. The reason for full code compliance is to ensure that developments relate well to their surroundings and address the broader themes of flood risk, air quality, waste management and biodiversity.

3.5.42 Meanwhile, Building for Life\(^{13}\), developed by CABE, is a benchmark for well-designed housing and neighbourhoods, and can be used as a tool by designers and planners for recognising and influencing good design. Buildings for Life is a tool the Council encourages developers to consider as part of their development proposals.

3.5.43 Development in the SUN will occur in phases, however, the energy and water requirements are already above Building Regulations. In areas where it is demonstrated that viability issues will put proposed developments at risk these will still need to comply with the incremental changes anticipated for the Building Regulations in 2013 and 2016. It is therefore important that development proposals consider the energy requirements that need to be achieved and measures are taken to address this at the design stage so that potential cost overruns associated with post-completion retro-fitting can be reduced. The increasing energy standards towards zero carbon in 2016 will pose significant challenges for developers therefore strategies will need to be considered early in the design process. It is likely that to meet carbon reduction standards designs will need to incorporate off-site allowable solutions alongside on-site energy efficiency and energy generation technologies.

3.5.44 There are two scenarios that need to be considered to achieve the energy requirements. The first is an approach based on individual building solutions and the second is a community heating scheme such as a district heating network and combined heat and power (CHP).

3.5.45 The independent building approach will require limited investment or infrastructure planning and will enable developers to adopt different approaches at different phases of the development. This will assist them to maximise the specific characteristics of their site and use the technologies available. The downside to this approach is that as the site is developed the benefits of scale are reduced. Initially this will not be a significant issue, however, as 2016 approaches there will be considerable challenges placed on new development.

3.5.46 Where the individual building approach is taken, careful consideration will need to be given to the layout and design of the buildings to maximise the available space for PV and solar thermal panels. The main orientation of the site is east-west which will enable maximum solar gains on building frontages and support passive energy efficiency but this may also reduce the potential for energy generation using roof mounted technologies in some areas. To meet the energy requirements set out in Policy WEW1 of the Area Action Plan DPD on site several options are available to the developer including the use of passive design measures and electricity / heat generation technologies. Further information is set out in Appendix 2.

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\(^{13}\) http://webarchive.nationalarchives.gov.uk/20110107165544/http://www.buildingforlife.org/
**Community Energy Approach**

3.5.47 The second approach is in the form of a community energy network either in the form of district heating together with combined heat and power (CHP). The site has two distinctive character areas; residential areas to the west (which will have some mixed-uses) and industrial development to the east. The variety of uses across the SUN may be able to support a form of communal energy provision through a “decentralised energy network”. Such a network is an efficient form of local heat and/or electricity generation that can reduce CO2 emissions by over 30% compared to conventional generation. This, however, will need further investigation to clarify its feasibility and viability on site. Further information on how the use of technologies can be used to meet the energy requirements set out in Part L of the Building Regulations is provided in the Waveney Renewable Energy and Sustainable Construction Study (2009).

3.5.48 A decentralised energy network will enable energy to be generated at a single source within the SUN and distributed to new dwellings and buildings through a network of low temperature water and electricity. In the future, existing dwellings may be retrofitted to accommodate this technology if the network is expanded. To maximise efficiency a central energy plant would need to be located in an area close to the greatest energy demand. In the Lake Lothing area this would be at a location centrally located in the SUN. A central power plant would enable the SUN’s entire hot water and space heating demands to be met on site thereby providing a strategy to meet the zero carbon targets set for 2016 (if a network was delivered there would be no need to consider the provision of solar thermal panels to supply hot water for households as this would only be duplication).

3.5.49 Energy plants for district heating and CHP are commonly fuelled by biomass, biofuel or waste oil which is consistent with the shift towards renewable fuel sources. If these fuels are to be used, provision should be made for the delivery and storage of the fuel. Should any biomass facility be considered in the area it is essential that visual amenity and air pollution impacts are mitigated. At present, there are air pollution concerns particularly related to nitrates in the vicinity of Victoria Road to the south of the SUN.

3.5.50 Feed-in Tariffs (FITs) and the Renewable Heat Incentive (RHI) encourage the uptake of renewable energies by paying the owner of the technologies a set amount for each unit of energy generated. After a capital outlay for the technology the benefits are three-fold; the homeowner’s energy bills are less, the Government pays the owner a set amount for each unit of energy generated and finally the owner will receive a sum for each unit of energy sold to back to the energy supplier.

- Technologies that qualify for the Feed-in Tariff include; photovoltaics, wind energy, anaerobic digestion, small-scale CHP and hydro-electric power.

- Technologies that qualify for the RHI include; solar thermal, ground and water source heat pumps, biomass boilers and combustion, biomass from waste and district heating will qualify if it uses one of the aforementioned fuel sources.
Water Efficiency

3.5.51 Water supply has been identified as a significant issue for Waveney in the years to come. The area has some of the lowest rainfall in the country and available resources are expected to be in deficit from 2021\textsuperscript{14}. To reduce the impact of new development on local water resources water efficiency standards are higher in the SUN than for the rest of the District. This is because the most significant amount of development is anticipated in the location and there are opportunities to maximise the benefits offered by developments of scale.

3.5.52 The water requirements to be achieved within the SUN are higher than the district-wide standards and are set out below:

- Residential units: Code for Sustainable Homes Level 5 (or equivalent replacement standard);
- Office and Schools: BREEAM Excellent water requirements (or equivalent replacement standard);
- Other non-residential developments: Building Regulations compliance.

3.5.53 Internal water conservation is a mandatory issue within current versions of the Code for Sustainable Homes (2010) and BREEAM (2011):

- CFSH – in order to achieve CFSH Level 5 new residential developments are required to use the “Wat1 Calculator” to demonstrate that the development will achieve a maximum water potable consumption of 80 litres/person/day.
- BREEAM – non-residential developments are required to achieve a 12.5% reduction in water consumption against a notional baseline (as calculated using the “Wat1 Calculator”) to achieve the “Excellent” rating.

3.5.54 To achieve CFSH level 5, it may be necessary to employ rainwater harvesting or grey water recycling technologies alongside measures that can be incorporated into individual buildings. These include\textsuperscript{15}:

- low flush WCs (e.g. 4/2.6 litre)
- low flow washbasin taps (e.g. 2 litre/min)
- low flow kitchen sink taps (e.g. 4 litre/min)
- low flow shower (e.g. 6 litre/min)
- low capacity bath (e.g. 150 litres) or no bath.
- water efficient white goods (if specified)
- water butts for external water use\textsuperscript{16}

Surface Water Run-off Management

3.5.55 Surface water run-off refers to precipitation that flows off a surface, either because the surface is impermeable or because it has reached saturation point. This will usually end up in watercourses or public sewers and excessive run-off can lead both to increased pollution and increased flood risk.

3.5.56 Much of the land upon which the SUN lies is man-made and the area is subject to flood risk as detailed in Appendix 1. Additional development could potentially channel surface water run-off into areas that may exacerbate flood risk related to rainfall events in some areas. It is therefore particularly important for developments to integrate systems and techniques for managing surface water. A comprehensive water strategy that addresses both water conservation and surface water run-off should be prepared to mitigate these water issues. This should reflect the phased nature of the site-wide development.

3.5.57 Surface water run-off is a mandatory issue within current versions of the Code for Sustainable Homes; in order to achieve a CFSH rating, new residential developments are required to use the “SuDS Management Train” to ensure that the peak rate of run-off and volume of run-off is no greater (taking into account the likely increase due to climate change) than it was before the development\textsuperscript{17}.

\textsuperscript{14} Waveney and Great Yarmouth Joint Water Cycle Scoping Report, (2009)


\textsuperscript{17} If this cannot be satisfied and full justification is provided then the post development peak rate of run-off must be reduced to the limiting discharge which is the pre-development flow rate equivalent to the 1-year peak flow rate, mean annual flood flow rate (Qbar) or 2 l/s/ha, whichever is the highest flow rate.
3.5.58 The SuDS (Sustainable Drainage System) Management Train is a hierarchical approach to sustainable drainage design to manage surface water run-off from a site, both in terms of reducing its volume but also reducing its rate. There are opportunities for integrating these principles into the SUN site. Further information on the top two levels of the hierarchy is provided in Appendix 3.

3.5.59 Suffolk County Council will be adopting SuDS schemes in the future. It is therefore essential that the County Council is involved in discussions to deliver the most appropriate water drainage system for the area. Development will not be allowed to commence until a SuDS scheme is agreed with the County Council. The same applies for foul water drainage where a strategy will need to be agreed with Anglian Water.

3.5.60 A source of further information about SuDS can be found at http://sudsnet.abertay.ac.uk/sudsphotos.htm

### Waste Management

3.5.61 New developments generate considerable amounts of waste material, both during the construction phase and throughout the lifetime of the buildings. Waste is generated from the packaging of many construction products and the craft based industries of brickwork, plastering, carpentry and decorating generate waste as a result of breakages and the cutting and mixing of materials on site.

3.5.62 If parts of the development are to be cleared, levelled or excavated consideration should be given to reusing the ‘waste’ elsewhere on site. There may be opportunities, assuming any excavated land is not contaminated, for reuse to assist with the mitigation of flood risk.

3.5.63 Developers of the site will be required to submit a Site Waste Management Plan if the estimate cost exceeds £300,000 to comply with the Site Waste Management Regulations (2008). If a development is less than the aforementioned threshold, the developer is encouraged to submit a waste management plan to show how they can reduce waste associated with their development. Waste facilities/storage for individual dwellings will also need to be provided to comply with DM04 of the Development Management Policies Development Plan Document which requires full Code for Sustainable Homes compliance.

3.5.64 Developers are encouraged to register with the Considerate Construction Scheme. This is a non-profit organisation set up by the construction industry to improve its public image. Registration is voluntary.

3.5.65 New buildings should be designed to accommodate rubbish bins externally where possible; 100L for a single bedroom dwelling and a further 70L for each additional bedroom. Where limited space is available externally, space should be provided internally for recyclable material of at least 30L.

### Delivery

3.5.66 The difficulty of achieving the energy, water, and drainage requirements justify the need for developers to work together to find a solution. It is unreasonable to expect a developer to disproportionately invest in a community scheme that others may benefit from without contributing their fair share. Therefore a strategy should be prepared and agreed between developers to deliver new development that will comply at all phases of development.

3.5.67 Any planning application is expected to state how energy and water efficiency and energy generation will be achieved both on individual sites and on a community level as appropriate. Consideration should be given to the timeframe of delivery and the increasing Building Regulations requirements.
3.6 Flood Risk Management Concept

3.6.1 Within the lifetime of the development the majority of the Sustainable Urban Neighbourhood and Kirkley Waterfront (SUN) will be at risk from flooding. Some of the areas of the site are at risk from high hazard flooding involving dangerous depths of water. The distribution of land uses as shown on the Outline Masterplan (Figure 3.1) has considered a sequential approach to the development of the site, with the areas with lower flood risk considered first for ‘more vulnerable’ development such as new homes. Less vulnerable uses such as employment are proposed in areas of higher flood risk on the site. Water compatible uses such as the replacement open space is proposed in one of the highest flood risk areas on the SUN.

3.6.2 To accommodate the proposed levels of development it is necessary that some development classified as ‘more vulnerable’ development will have to be located in flood risk zones. The challenge will be ensuring this development is safe from flooding by designing flood resistant buildings, developing new flood defences such as land raising and ensuring there are safe means of access and egress from the areas at risk. For information the table above shows the PPS25 flood risk classifications for the types of development that are likely to occur in the SUN.

### PPS25 Vulnerability Classification

<table>
<thead>
<tr>
<th>Land Uses that may occur in SUN</th>
<th>Essential Infrastructure</th>
<th>Water Compatible</th>
<th>Less Vulnerable</th>
<th>More Vulnerable</th>
<th>Highly Vulnerable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk</td>
<td>Flood controls</td>
<td>Shops and services</td>
<td>Care homes</td>
<td>Basement dwellings</td>
</tr>
<tr>
<td></td>
<td>Essential utility infrastructure which has to be located in a flood risk area for operational reasons</td>
<td>Marinas, docks and wharves</td>
<td>Restaurants</td>
<td>Housing</td>
<td>Caravans, mobile homes and park homes intended for permanent residential use</td>
</tr>
<tr>
<td></td>
<td>Water based recreation</td>
<td>Offices and Industry</td>
<td>Drinking establishments</td>
<td>Offices and Industry</td>
<td>Installations requiring hazardous substances consent</td>
</tr>
<tr>
<td></td>
<td>Open Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.6.3 Site-specific Flood Risk Assessments (FRA) will need to be prepared to build on the detail of the Strategic Flood Risk Assessment and the Cumulative Land Raising Study18 (2008) to ascertain the exact risk, depth and hazard of flooding throughout the area. The site survey should collect and utilise detailed topographical ground level data. The flood risk assessment should identify the necessary defences and mitigation measures needed to reduce risk to an acceptable level in line with Planning Policy Statement 25. Additionally, the FRA should include a flood warning and evacuation plan that details access and egress arrangements and warning arrangements to ensure people are safe by unaided movement to a dry refuge. This plan will need to be to the satisfaction of the Council’s emergency planners.

3.6.4 Allowances for climate change should be built into modelling and these should be applied until 2111 or a 100 years from the date of modelling if later than 2011. For industrial development and other development on the SUN, climate change allowances should be applied for 75 years (2086 if modelled in 2011).

3.6.5 It should be noted that the Environment Agency are currently working on a new flood model for the Lake Lothing area which should be ready by April 2012. To ensure FRAs use the most up to date available data, it would be best to wait until this model has been published by the Environment Agency before commencing work. The PPS25 Companion Guide provides detailed information on how to carry out FRAs.

Flood Risk Mitigation Requirements

3.6.6 It is important that all buildings on the site remain safe from flood risk for the people within them. For ‘more vulnerable’ development, including residential and hotel uses, ground floor levels of multi storey buildings should ideally be 300mm above the 1 in 200 year tidal flood level (including climate change). First floor levels should provide dry refuge 300mm above the 1 in 1000 year annual probability flood event including climate change. For single storey dwellings the ground floor levels should ideally be 300mm above the 1 in 1000 year tidal flood level (including climate change).

3.6.7 For less vulnerable development such as commercial development, the floor levels should ideally be 300mm above the 1 in 20 year tidal flood level (including climate change).

3.6.8 For all flood events up to the 1 in 1000 year annual probability flood event including climate change, people should be safe by unaided movement to a dry floor or refuge, or by other arrangements, such as a flood warning and evacuation. A flood warning and evacuation plan should be submitted that is acceptable to the Local Authority’s emergency planner.

3.6.9 It will also be important that buildings are connected to roads or other pathways that are also above the 1 in 200 year tidal flood level to allow for access and egress in times of flood and to enable emergency vehicles to get into the site.

3.6.10 The development should also incorporate flood resilient construction up to the 1 in 1000 year tidal flood level (including climate change), as required in PPS25 Practice Guide paragraph 6.31 for development with raised floor levels. This is to ensure that if the building floods the damage will be minimised and so will allow faster re-occupancy of the building. The flood resilient measures should be implemented in accordance with the Communities and Local Government document ‘Improving the Flood Performance of New Buildings: Flood Resilient Construction’.

3.6.11 These above requirements do not mean that all areas at risk from flooding need to raised out of the flood zone. Back gardens and rear parking courts could be at a lower level. Waterfront and other pedestrian and cycle paths can also be at a lower level if not needed for emergency access and egress. Public open space and playing fields associated with the primary school are ‘water-compatible’ and therefore do not need to be raised or defended from flood risk. Figure 3.16 shows an indicative approach to flood risk mitigation.


20 http://www.communities.gov.uk/publications/planningandbuilding/improvingflood
Implementation

Aerial view of the north western part of the site
4. Implementation

4.1 Phasing

This section is still being worked on and not subject to this round of consultation. A detailed transport assessment study is required to inform this section. This section will be complete for the next round of consultation. If you have any thoughts on how the phasing of development could work on this site please include these in your comments.

4.2 Infrastructure Requirements

4.2.1 The development of the Sustainable Urban Neighbourhood and Kirkley Waterfront (SUN) is dependant on a number of items of infrastructure. In the absence of confirmed public sector funding streams, infrastructure delivery to support development within the SUN will need to be funded almost entirely by development. The Council will be exploring sources of public funding to help deliver infrastructure in the Area Action Plan area and to facilitate the delivery of increased levels of affordable housing. However, these sources of funding cannot be guaranteed at present.

4.2.2 The Council is planning to introduce a Community Infrastructure Levy (CIL) which will be a standard charge applied across the District. It will be possible to use some of the funds raised through the levy from wider developments to help deliver infrastructure within the SUN. However, the majority of funding will still need to come from the developments within the site as this is the largest development in the District and accounts for over half of the planned housing development to 2025.

4.2.3 Ideally the site will be delivered by a single developer or a consortium of developers working in collaboration through a single planning application. In this scenario all infrastructure items could be more easily secured through a single planning obligation or a planning obligation and a CIL contribution, depending whether a CIL has been introduced or not. However, it is more likely that the site will come forward through multiple planning applications relating to existing land ownership. In this scenario the cost of providing shared infrastructure which is needed to support the development on all parts of the SUN will need to be fairly apportioned by the means of a tariff approach which reflects the amount and type of development on each part of the site.

Shared Infrastructure
4.2.4 If the delivery of the SUN is brought forward in separate planning applications by separate landowners there will need to be a mechanism to ensure landowners who provide infrastructure on-site will not be penalised for doing so in terms of land value. One mechanism for achieving this as promoted by the AAP is to ensure that where a piece of infrastructure is provided on a particular landowners land, that landowner will pay commensurately less contributions towards infrastructure requirements based on the land value lost to providing that infrastructure. The CIL Regulations provide a formal mechanism for this through the ‘payment in kind’ provisions. However, a similar approach can be secured through planning obligations. The value of land lost to infrastructure provision will need to be determined by an independent valuer. The value of land determined by the independent valuer will need to be added to the total infrastructure bill to ensure there is not a shortfall towards the physical costs of providing infrastructure. This results in landowners who do not provide the infrastructure on their land paying a higher per dwelling tariff (or sqm metre charge under CIL) than landowners who do provide infrastructure on-site.

4.2.5 It may be that the site cannot viably contribute to the full costs of the infrastructure required to support development. If this scenario arises the Council will need to prioritise infrastructure delivery across the site and look for other sources of funding. The Council will be able to draw on CIL receipts from a wider area to help deliver some of the infrastructure identified. It will be important that the development delivers the more critical items of infrastructure those being the primary school, open space, access road and pedestrian/cycle bridge. The Council will not be able to grant planning permission for any development if there is a significant risk that these more critical items will not be delivered.

4.2.6 The level of development proposed will create the need for a new primary school to serve the area as the surrounding primary schools have no capacity to accommodate the increased number of children in the area resulting from the development. For this scale of development a primary school is essential in creating a sustainable form of development that encourages walking and cycling. The primary school should be located in a central part of the site on the main access road into the site. The primary school should be two-forms of entry school with pre-school provision. The use of school buildings for community use should also be explored. The primary school will require a 2 hectare site. The primary school will need to be defended from the risk of flooding and as such the finished floor levels will need to be 300mm above 4.7m AOD. The cost of building a two-form entry primary school, including pre-school provision in a flood zone is estimated to be £9.5 million.

4.2.7 In the early phases of development on the SUN, primary school pupils arising would have to be accommodated in off-site schools, possibly in temporary accommodation, prior to the opening of the new on-site school as it is not practical to provide a new school from day one.
4.2.8 It is likely that the new school would be constructed in two phases: a 210 place (1 forms of entry) school by the completion of 400/500 dwellings but on the basis of being able to add additional classrooms up to 420 places maximum as development proceeds in later years as phase 2. So, the 210 place school would have the core accommodation for a 420 place school, thus enabling additional classrooms to be added later when and if required.

4.2.9 The two-form entry school is required by the development of 1500 new homes. As there will only be 1380 homes within the SUN, developers will not be expected to contribute to the full cost of a two-form entry school as discussed above, but rather a pro-rata amount based on the number of dwellings provided.

**Pedestrian/Cycle Bridge over Lake Lothing**

4.2.10 The pedestrian/cycle bridge over Lake Lothing on the Brooke Peninsula is essential to minimise traffic impacts associated with the new development and to provide access to Normanston Park for new residents, which addresses the difficulty of providing adequate amounts of open space on the site. This will provide wider community benefits by improving north-south connections within the town, enabling better access to new facilities provided as part of the SUN and better access to further education facilities for existing and new residents in South Lowestoft.

4.2.11 The bridge will need to be in place prior to the completion of all residential units on the SUN. The bridge will need to be funded partly by developers. There will be potential for funds raised through the Community Infrastructure Levy from wider developments in Lowestoft to help pay for the bridge. The Council will also explore other public funding streams as and when they become available such as through Local Transport Plan funding. However, the majority of contributions will need to be sourced from developers within the SUN in order to secure delivery.

4.2.12 A draft feasibility study into the pedestrian/cycle bridge across Lake Lothing at the Brooke Peninsula identified and costed three potential options for a bridge. Options 1 and 2 have a higher soffit level of 12m above ordnance datum to allow more craft to pass under the bridge without the need for opening. Options 1 and 2 would also involve the creation of a new bridge across the railway as described above. Option 3 has a lower soffit level of 3.5m above ordnance datum and does not necessarily require the railway bridge, although this will still be desirable. The height of this bridge would be consistent with the Bascule vehicular bridge across Lake Lothing on the A12.

- **Option 1: Swing Bridge = £6,668,704**
- **Option 2: Bascule Bridge = £7,105,052**
- **Option 3: Bascule Bridge = £4,810,382**

4.2.13 The railway crossing would cost an additional £931,480. Therefore the likely cost of the pedestrian/cycle bridge across Lake Lothing at the Brooke Peninsula is between £4,810,382 and £8,036,532.

**Open Space**

4.2.14 It is appreciated that due to the high density nature and the constraints of the development it will not be possible to provide an additional 4.4 hectares of open space as required by Policy DM25 and the Open Space SPD on-site. Considering this, the pedestrian/cycle bridge over Lake Lothing at Brooke Peninsula will be essential to ensuring that the new population has access to appropriate amounts of public open space.

4.2.15 As per the strategy in Section 3.4, a strategic area of open space in the form of a playing field will need to be provided in the central part of the development to compensate for the loss of the existing Jeld-Wen playing fields. This open space will need to accommodate a football pitch and be of approximately 2 hectares in size. The cost is estimated to be approximately £265,800. This figure is calculated on the basis of £100,000 of remediation costs\(^{21}\) and a lay-out cost of £165,800\(^{22}\). There may be additional costs for demolition of existing buildings as well. This area of open space should also include a Neighbourhood Area for Play as detailed in Section 3.4 of this Brief.

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\(^{21}\) Based on assumptions in Best Practice Note 27 – Contamination and Dereliction Remediation Costs, English Partnerships (2008)

\(^{22}\) Based on the cost of local examples (Waveney Norse, 2011)
Access Road

4.2.16 Fundamental to the deliverability of most of the western half of the SUN is an access road that diverts traffic from the western part of the new development away from Victoria Road. This road will be essential for western sections of the site to be developed fully without creating an unacceptable impact on Victoria Road. The route will traverse through areas identified for development and therefore should form part of the scheme and have buildings fronting onto it.

4.2.17 The road will need to have a segregated cycle path running along its length. The Waveney Drive junction will need to be a signalised junction with the detail specification to be determined through Transport Assessments in discussion with the Highways department at Suffolk County Council.

4.2.18 The cost of the junction is likely to be in the region of £500,000 and the length of road to the Sanyo and Brooke Peninsula sites is likely to cost £1 million. If the SUN is brought forward through multiple planning applications, the road will need to be paid for by those landowners/developers who benefit from it.

4.2.19 It may not be best to deliver this road through developer contributions to the Council through Section 106 or CIL as the road will essentially be part of the Jeld-Wen development which will form a first phase of development. It may be best for the cost of the road to be apportioned outside of the planning system by an agreement between landowners. If the site is delivered through one planning application covering at least the Brooke Peninsula, Sanyo and Jeld-Wen land holdings, this will completely remove the need for a planning obligation for the road.

4.2.20 The delivery of the access road will need to form part of the first phase of development in order to unlock the full development potential of the majority of the sites to the west of the County Wildlife Site.

Off-Site Infrastructure

4.2.21 New development in the SUN will place additional pressures on libraries. There are plans to address this need in the AAP area by building a new, enhanced library in Oulton Broad on part of the Oswald’s Boatyard site (allocated under Policy SSP7 of the AAP). The 1,380 units planned for the SUN will create an additional need for 91 sqm of library space. Therefore the contribution to the new library from the SUN will be £273,000. The proposed pedestrian/cycle bridge over Lake Lothing at Brooke Peninsula will help provide quick access to the library.

23 Based on Suffolk County Council standards
4.2.22 Using the Healthy Urban Development Unit (HUDU) model, the AECOM Social Infrastructure Assessment (2010), identifies a need for 299sqm of additional primary health care floorspace and approximately 65sqm of dental surgery floorspace to accommodate one dentist to support development in the area. This requirement will be delivered off-site as part of an expansion of the new South Lowestoft Health Centre on Kirkley Rise. As this need figure is theoretical and does not take into account local circumstances further engagement with the Primary Care Trust is needed to refine the likely need arising from development. The AAP estimates that the provision of the need of 299sqm of additional primary health care floorspace and 65sqm of dental surgery floorspace will cost £700,000.

Site Specific Infrastructure

4.2.23 In addition to the shared infrastructure above there will be a need for some site-specific infrastructure on each separate land holding.

4.2.24 As stated in Section 3.6 flood defences or land raising will be required across the site. This could either be delivered on a site-specific basis or on a strategic basis across the whole site. Sustainable drainage systems will also be required. As will upgrades to the local sewerage network. It would be beneficial for landowners to jointly commission a site-wide strategic study to identify the most cost effective ways of delivering this type of infrastructure. In a similar situation to the access road, it may be that some of the infrastructure becomes shared infrastructure but due to its nature it may best delivered by developers rather than by contribution to the Council.

4.2.25 Consultation with other utility providers will be needed to ascertain whether any upgrades to other utility infrastructure will be required.
4.3 PLANNING APPLICATION REQUIREMENTS

4.3.1 In order to ensure a comprehensive approach to development, Policy IMP4 of the Area Action Plan requires a number of documents to be prepared and approved prior to the consideration of a planning application. These include:

1. Development Brief and design codes/detailed design principles
2. Phasing and delivery strategy
3. Street hierarchy plan and detailed design of key highways infrastructure
4. Public transport strategy
5. Landscape strategy
6. Flood defence strategy
7. Energy strategy
8. Community facilities strategy

4.3.2 It is considered that this Development Brief meets the requirements of bullets 1, 2, 3 and 8. The other documents can be incorporated into typical studies that will be needed as part of a Environmental Impact Assessment and to comply with national and local planning policies. Therefore the studies required to support a planning application for development within the SUN are as follows:

- Detailed masterplan which demonstrates how the principles of this Development Brief have been incorporated into the application
- Flood Risk Assessment incorporating a defence and risk management/evacuation strategy
- Detailed site-specific Transport Assessment which includes public transport strategy
- Contaminated Land Survey
- Noise Assessment
- Archaeological Survey
- Design Statement/Code
- Energy and Water Efficiency Strategy which demonstrates how energy and water efficiency will be achieved up to Code Level 5 (could incorporate surface water management)
- Waste Management Strategy

4.3.3 The studies above for individual planning applications should consider the development of the entire SUN and other developments allocated in the AAP area.

4.3.4 Health issues are increasingly becoming an important material consideration in planning. Given the size and importance of the development a Health Impact Assessment should be prepared in consultation with the Primary Care Trust or superseding body. This assessment will assess the likely impacts on health and wellbeing from the development and help refine the health infrastructure needed to support the development.
Appendices
Appendix 1. Site Analysis

1. **EXISTING USES**

1.1 The land upon which the Sustainable Urban Neighbourhood and Kirkley Waterfront will be built was previously used for industry. However, a small proportion of the site is still occupied by a number of businesses and a small area of the site is home to a number of new industrial units. Most of the site is occupied by underutilised or unoccupied industrial units. The site consists of:

- Brooke Business Park which used to be a boat building factory
- The former Sanyo electronics factory
- The former Jeld-Wen factory
- SCA Recycling
- Servitec-SD premises
- Witham Oil and Paints
- Playing fields associated with Jeld-Wen factory
- County Wildlife Site
- Haven Marina
- Businesses on Riverside Road

![Figure A1.1 – Existing Uses](image-url)
1.2 There are a number of residential properties within the site area shown in Figure 2.1. These properties will be retained as part of any redevelopment.

1.3 Figure A1.1 shows the existing uses on the site.

1.4 In terms of the surrounding land uses, to the immediate south of the site is a line of residential properties along Victoria Road and Waveney Drive. To the west of the site are residential properties fronting Stanley Road and Lake View Road. To the east of the site is an inlet, beyond which is an ASDA Supermarket. Across the river to the north of the site are industrial units along Harbour Road and port facilities off Commercial Road.

1.5 The existing residential areas surrounding the site range from low density to medium density with a mix of terraces and semi-detached homes along Victoria Road, School Road, Stanley Road and Heath Road.

2. CONSTRAINTS AND OPPORTUNITIES

2.1 Access

The Sustainable Urban Neighbourhood and Kirkley Waterfront (SUN) site is near the geographic centre of Lowestoft, close to the town centre and PowerPark and about 1.5km from the shopping area at Oulton Broad. As part of the wider regeneration of the Lake Lothing area, the site will be close to new leisure and retail development at Peto Square.

Despite the central location of the site, physical access to parts of the site is problematic. The Brooke Peninsula and Sanyo parts of the site are currently accessed by School Road and Heath Road and the more western part of the site can be accessed from Nelson’s Wharf. Congestion is already a problem on Victoria Road and further development could exacerbate the issue. Therefore the parts of the SUN west of the Jeld-Wen Factory will require a new access on to Waveney Drive.

2.3 Transport modelling undertaken to support the Area Action Plan found the full development of all sites within the Lake Lothing Area would have a significant impact on traffic flows in the town. Even when taking the existing Travel Smart initiative into consideration alongside strong travel planning and sustainable transport initiatives only 80% of the growth proposed in the Lake Lothing area can be accommodated without having significant implications on the existing road network. Therefore, town-wide traffic reduction measures will need to be explored. Failure to address additional traffic pressures arising from the development could potentially have significant effects not only on the environment of the immediate areas but also on businesses and residents elsewhere in the town.

2.4 A key consideration in the development of this area will be to ensure future options for a third road crossing of Lake Lothing are not jeopardised.

2.5 The development of the SUN presents an opportunity to deliver a new pedestrian/cycle bridge across Lake Lothing at Brooke Peninsula, linking the development to Normanston Park, Harbour Road and the wider area. However, Lake Lothing in this location is navigated by a number of different vessels including dredgers and sail boats. It is important that the construction and use of a bridge does not restrict navigation along this stretch of Lake Lothing.
Flood Risk

2.6 In the context of the wider Lake Lothing and Outer Harbour Area Action Plan area the SUN is, in flood risk terms, sequentially preferable for ‘more vulnerable’ development such as housing, than other strategic sites. However, flooding does remain a major constraint to development on the site. The Strategic Flood Risk Assessment (SFRA) shows that when considering climate change, most of the site lies within Flood Zone 3. Figure A1.2 shows the extent of the Flood Zones across the site. The difference between the SUN and other areas of Lake Lothing such as Peto Square and the Outer Harbour PowerPark area is that the depth and hazard of flood risk is significantly less. Figures A1.3 and A1.4 show the depth and hazard modelling from the Strategic Flood Risk Assessment for the 1 in 200 year event (Flood Zone 3a, taking into account climate change).

2.7 The Cumulative Land Raising Study (2008) illustrated that the northern part of the site, the Brooke Business Park, could be raised from approximately 3.3m AOD to 4.7m AOD, taking the site out of risk from flooding without increasing risk elsewhere. The study also concluded that the area of the site at Riverside Road where the Waveney Campus was once proposed could also be raised without increasing risk elsewhere. However, the Cumulative Land Raising Study did not look at other parts of the SUN at risk from flooding which include the main Sanyo buildings, the Jeld-Wen site and the northern tip of the SCA paper recycling plant. It is likely that these areas can be raised as well without causing increased flood risk although this will need to be further tested as part of site-specific Flood Risk Assessments. However, there is concern that the northern part of the Sanyo site, which the SFRA shows as being subject to high hazard flooding, could act as a conveyance route in times of flood and therefore if this area was to be raised or defended from flood risk it could increase flood risk elsewhere.


26 For an explanation of Flood Risk Zones see Planning Policy Statement 25 (http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/)
A key consideration in the development of the site will be to ensure future residents and users of the area are safe from flooding. As such, a sequential approach will need to be undertaken when considering the development of the site with the areas with least flood risk considered first for more vulnerable uses. However, it is highly likely that some development will have to be located in flood risk zones to accommodate the levels of development proposed. The challenge will be ensuring new development is safe from flooding.

The development of this site does present some opportunities to reduce flood risk in the area. The Cumulative Land Raising Study25 showed that raising land on Brooke Peninsula and Riverside Road did not have a negative effect on flood levels or the speed at which flooding would occur. Additionally, new defences incorporated as part of the development may help protect existing properties from flooding.

Ecology and County Wildlife Site

Approximately 7 hectares of the SUN area is taken up by the Brooke Yachts and Jeld-Wen Mosaic County Wildlife Site (CWS). The CWS is a semi-natural environment consisting of an open mosaic of habitats on previously developed land and a small area of intertidal mudflat which links to scrubland to the south.

The site is of high wildlife value and provides a habitat for reptiles such as the common lizard, birds including the song thrush and linnet and small mammals. The structural diversity of the site is very good with a mix of grassland, thick scrub and woodland.

The CWS is considered to be a valuable piece of nature in an urban setting and will need a level of protection from development. However, the location of the County Wildlife Site in the centre of the site could potentially restrict the connectivity between the western and eastern parts of the site. The CWS is also a constraint to delivering a new access road to service the western part of the site. Any loss of County Wildlife Site to improve accessibility will need to be mitigated with appropriately compensatory measures taken.

The SUN development provides some opportunities for the enhancement of the CWS through extension of existing habitats and the creation of new ecological network linkages across the site and improving access to local nature and ecology for community enjoyment.

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2.14 Lowestoft has more designated areas associated with it than any other town in Suffolk, many of which support Biodiversity Action Plan habitats and species. The Suffolk Wildlife Trust Lowestoft Wildlife Audit (2007)\textsuperscript{27} identified an ecological network of green spaces and links across Lowestoft. This network is shown in Figure A1.5. There is an opportunity for this network to be enhanced by the provision of new open spaces and linkages within the SUN.

**Ground Conditions and Physical Structures**

2.15 Given the past industrial use of the site it is likely there could be issues with ground contamination. Further investigation work will be required to ascertain the level and nature of any possible contamination on the site. Contamination studies will also need to identify required remediation solutions. Parts of the site, particularly around the Brooke Peninsula consist of ‘made’ ground associated with the construction of the boat building business in the mid 20th Century.

2.16 Parts of the site have derelict or vacant buildings (some of which may contain asbestos) which will need to be removed prior to commencement of development.

2.17 The shores of Lake Lothing are still home to a number of industrial activities including the port operations on the opposite side of the river to the SUN. Noise travels well over open water therefore noise generated by port operations and other industries across Lake Lothing could be detrimental to the amenity of new residents. Across the site it is likely that conflicting land uses may be adjacent or in close proximity to each other therefore careful consideration of potential impacts on amenity will need to be made. This is particularly important where residential and outdoor public use areas in the vicinity of employment areas are proposed. Noise assessments will need to be prepared as part of planning applications. The SUN will be a mixed-use community and therefore regard will need to be had to compatibility of adjacent future uses.

2.18 Whilst air quality is not a particular issue within the SUN itself, traffic emanating from the proposed development could have an impact on air quality elsewhere in the town, particularly around the Bascule Bridge. The potential impacts of this should be considered when preparing planning applications and supporting studies such as transport assessments.

\textsuperscript{27} http://www.waveney.gov.uk/site/scripts/download_info.php?downloadID=110
2.19 The development of the site represents an opportunity to improve the visual amenity of the area through the removal of derelict buildings, attractive design and planting.

3. LOCAL CHARACTER APPRAISAL

3.1 The purpose of this section is to briefly highlight the character of the built environment both on the site, immediately around it and in Lowestoft in general. It is important to consider key features of local character that relate to the SUN area during the planning and design stages of the development.

3.2 The existing character of the SUN is predominantly 20th Century industrial. Most of the site is covered by operational and vacant/derelict industrial buildings. Prior to the industrial development of the site the area was predominantly undeveloped consisting of open fields and marshland around Lake Lothing.

3.3 Few of the buildings on the site have any architectural or historical interest. The exception being Silkcutters House which is one of a few remaining old silk cutter buildings in East Anglia and is now used for business start-ups.

Figure A1.6 – Lowestoft Character Areas.
3.4 The ABP Haven Marina is located within the site and contributes to the wider maritime character of the area. This is complimented by a strong maritime character on the northern shore of Lake Lothing at the western end of the site.

3.5 To the south of the site is a predominantly 20th Century residential area with some older houses along Victoria Road. The area is characterised by straight roads and crescents in a distorted grid format creating a relatively legible and permeable street pattern. The majority of the houses on Victoria Road are 19th Century terraced houses. Behind Victoria Road there is a mixture of semi-detached houses and bungalows which is mixed with some local authority semi-detached and terraced housing. The area around Waveney Drive consists of predominantly mid 20th Century semi-detached houses.

3.6 Figure A1.6 is an extract from the Lowestoft Design Guide (2004) and identifies 17 wider character areas in Lowestoft. A key feature of South Lowestoft is the resort town built by Sir Samuel Morton Peto in the mid-19th Century. Centred around London Road South and Wellington Esplanade, these two long straight roads which are lined with large Victorian townhouse terraces are a defining feature of the area.

3.7 North Lowestoft is home to the historic core of Lowestoft which is focused around the High Street. The High Street consists of buildings dating from the 15th to 19th centuries. A key feature of this character area are the narrow alleyways that link the High Street to the North Denes area of Lowestoft which used to be home to the town’s fishing industry. These alleyways, known locally as ‘scores’, provide vantage points of the sea from the historic core of the town.
## Appendix 2. Energy Efficiency and Renewable Energy Options

<table>
<thead>
<tr>
<th>Energy Efficiency Measures</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation and layout</td>
<td>Maximise the lighting and heating benefit that the building will receive from the sun while employing appropriate shading measures (such as louvers or balconies) are installed to mitigate summer overheating risk.</td>
</tr>
<tr>
<td></td>
<td>Garages located below the living areas or to the north of the property where practical.</td>
</tr>
<tr>
<td></td>
<td>Tallest buildings located to the north of the site to reduce shadowing.</td>
</tr>
<tr>
<td></td>
<td>Internal layout ensuring that most commonly used living spaces are located on the side with the greatest solar receipts.</td>
</tr>
<tr>
<td>Materials/ Building Fabric</td>
<td>Energy efficient materials combined with reduced air permeability and thermal bridging to ensure heat loss in each building is minimised.</td>
</tr>
<tr>
<td>Insulation</td>
<td>Insulated walls, floors and roofs.</td>
</tr>
<tr>
<td></td>
<td>Glazed windows.</td>
</tr>
<tr>
<td></td>
<td>Living roofs.</td>
</tr>
<tr>
<td>Ventilation</td>
<td>Passive stack ventilation (PSV) to maximise natural air currents.</td>
</tr>
<tr>
<td></td>
<td>Supportive mechanical ventilation.</td>
</tr>
<tr>
<td>Non-regulated carbon emissions</td>
<td>Installation or specification of efficient appliances and equipment.</td>
</tr>
</tbody>
</table>
## Renewable Energy

<table>
<thead>
<tr>
<th>Renewable Energy</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar photovoltaics (PV)</td>
<td>Can be installed on areas of roof facing east through west or mounted on flat roofs and are not necessarily incompatible with other roof uses such as green roofs and rainwater harvesting. Opportunities exist to design roofs in order to maximise potential for PV on site. Potential for large flat roofs on commercial buildings to support PV.</td>
</tr>
<tr>
<td>Solar thermal</td>
<td>The same siting principles apply as for photovoltaics, but this technology is best suited to residential developments due to their significant year round hot water demand.</td>
</tr>
<tr>
<td>Heat pumps</td>
<td>Ground source or air source heat pumps can be used to meet residential or commercial space heating demand. The potential for ground source heat pumps may be limited in areas of higher building density but commercial areas may benefit from open areas used for car parking. If trying to reduce carbon emissions consideration should be given to the extra electricity required to power the heat pumps. Heat pumps can therefore combine well with solar PV which will not only mitigate additional electrical emissions but also provide revenue in the form of the fed-in tariff.</td>
</tr>
<tr>
<td>Biomass</td>
<td>Woodfuel heating, considered low carbon as the CO2 released in burning will have only recently been absorbed by trees rather than having been locked in the earth for millions of years, can be an effective way of meeting around two thirds of a site's heat demands through a communal heating system. However, there are numerous issues that would need to be addressed if a biomass solution is proposed, including fuel sources, fuel storage and air quality.</td>
</tr>
<tr>
<td>Wind turbines</td>
<td>The potential for wind turbines in the SUN is limited given the density of development and indirect airflow.</td>
</tr>
</tbody>
</table>
Appendix 3. SUDS Options

**Source control:** reducing the run-off from its source (e.g. roofs, hard surfaces) through measures such as:

- **Soakaways** - underground structures designed to permit infiltration into permeable/slightly permeable ground. They can be grouped together to drain large areas including highways and should be considered for the proposed new roads.

- **Porous / pervious paving** – this should be considered as a matter of course in any car parking spaces, drive-ways and other hard surfaces (e.g. school playground).

- **Rainwater re-use / harvesting** – this is an excellent way of simultaneously reducing run-off volumes from roofs while reducing mains water consumption and should therefore be considered in all buildings, especially residential properties (where water demand is particularly high).

- **Living roofs** – apart from their ecological benefits and insulatory properties, living roofs provide a porous surface that will significantly attenuate surface water run-off rates. Living roofs can be implemented on sloped roofs, however, large flat roofs provide the best opportunity for increasing biodiversity and creating “green corridors”.

**Site / local control:** providing additional outlets for excess run-off such as open spaces, ponds and basins. In the SUN the following measures could be considered:

- **Ponds** - will also provide biodiversity benefits and can contribute to a sense of place.

- **Open space** – excess water can be stored and released gradually in to the water ways. Note: the County Wildlife Site is a relatively dry habitat and therefore should not be considered as a site for potential water attenuation.

- **Detention / Infiltration basins** – storage facilities which are generally non-permanent and with a gravel base to ensure good drain down to a downstream water body (detention) or directly to groundwater (infiltration). Due to their scale, they tend to be suited to larger residential (over 100 units) and mixed-use developments.
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Ak potrebujete kópiu alebo zhrnutie tohoto dokumentu v inom jazyku, alebo v inom formáte požiadajte prosím anglicky hovoriaceho priateľa/priateľku, aby nás kontaktovali na adrese uvedenej vyššie.

TURKISH
Bu dokümanın bir kopyası ya da özetini alternatif bir dilde veya formatta istseniriz, lütfen İngilizce konuşan bir arkadaşımdan yukarıdaki adresinde bizimle iletişime geçmesini isteyiniz.

PORTUGUESE
Se pretender uma cópia ou um sumário deste documento num idioma ou formato alternativo, peça por favor a um(a) amigo(a) que fale inglês para nos contactar na morada acima indicada.

KURDISH SORANI
بە لە ئینگلیزی گەورەکە وەکو چەندەیەگە بگەورەییەیە بۆ زمینەیەکی بەرەنیزەکەیە بۆ دەرەکەیەیە لە کرێکەکەیە. بۆ ئینگلیزیکی بۆ زمینەیەکی بەرەنیزەکەیە بۆ دەرەکەیەیە لە سەردەکەیەکەیە لە ژیکی مەکەیەکەیە بۆ دەرەکەیەیە.

LITHUANIAN
Jei jums reikia šio dokumento kopijos ar santraukos kita kalba ar kitu formatu, paprašykite angliskai kalbancio draugo/draugės, kad ji/jis susisiekė su mumis aukščiau pateiktu adresu.

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