Designing for Climate Change

David Hand – Head of Planning Policy, Economic Strategy, and Environment

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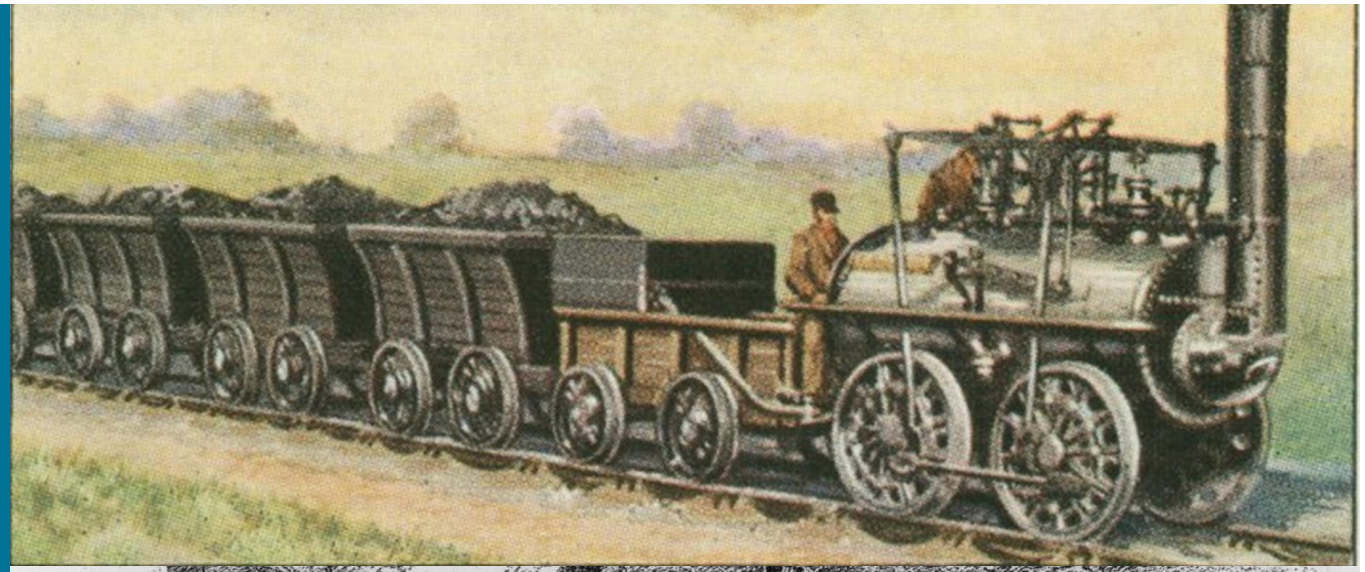
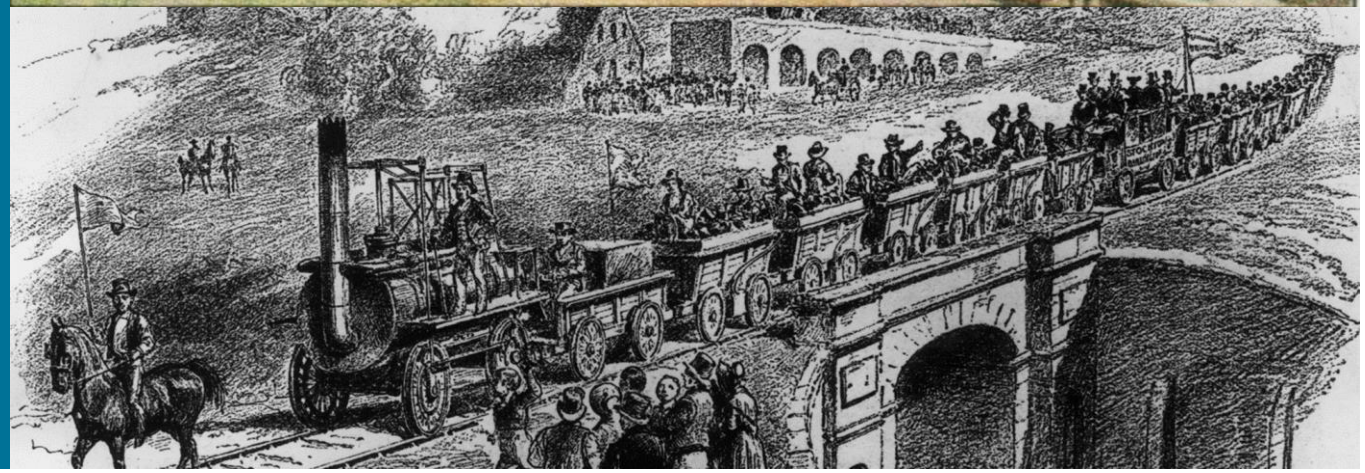
Borough Council


Opticians & Audiologists
Specsavers
Specsavers
What we're doing to keep you safe in store
Thoroughly cleaning frames after they've been touched
Disinfecting test rooms after each person we see
Following social distancing and PPE guidelines
We're back
on in – we're open as usual
Our most advanced eye exam has landed
Good to see you again


Stephen Hornsey

Stockton and Darlington Railway





Teesside Oil Terminal

Hartlepool Nuclear Power Station

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Hydroelectricity

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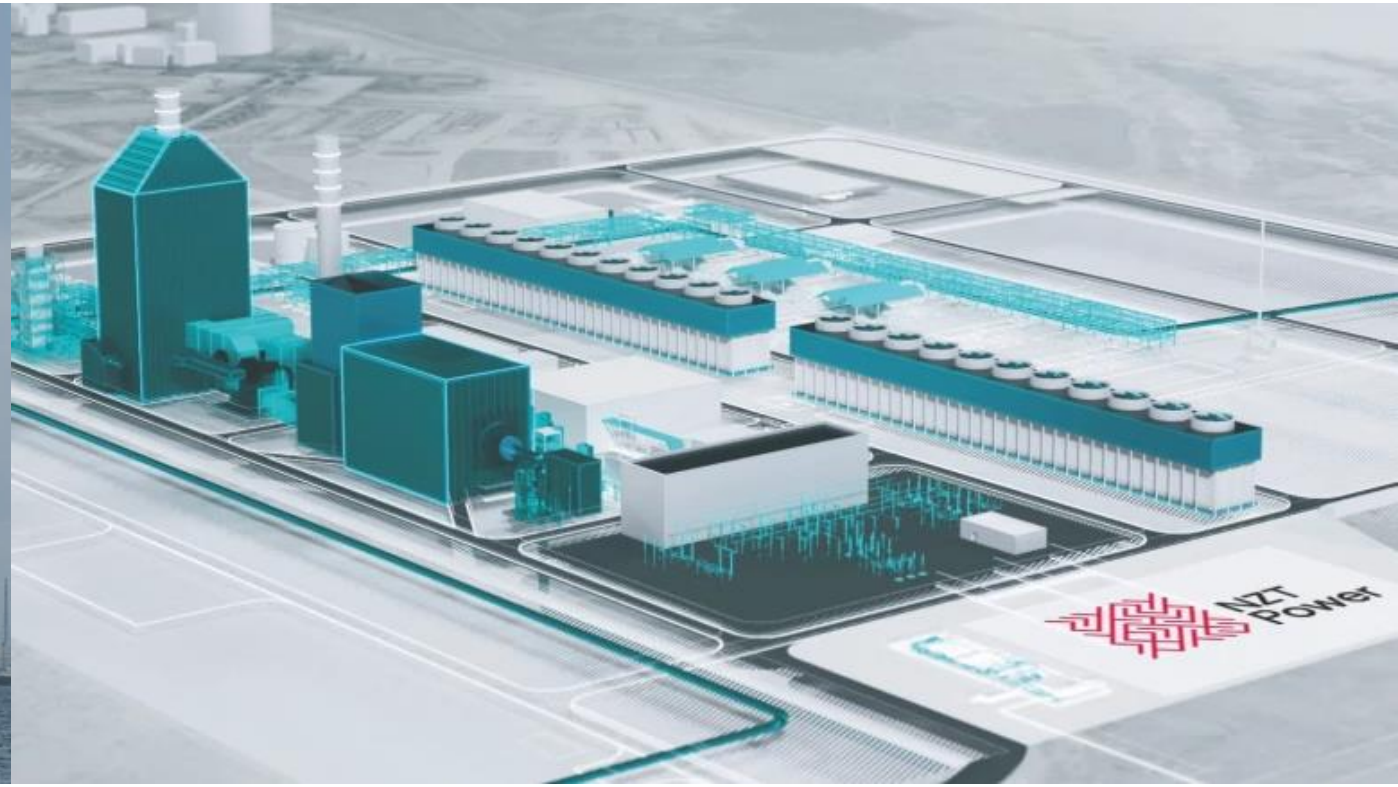
Wind Power

Net Zero Teesside



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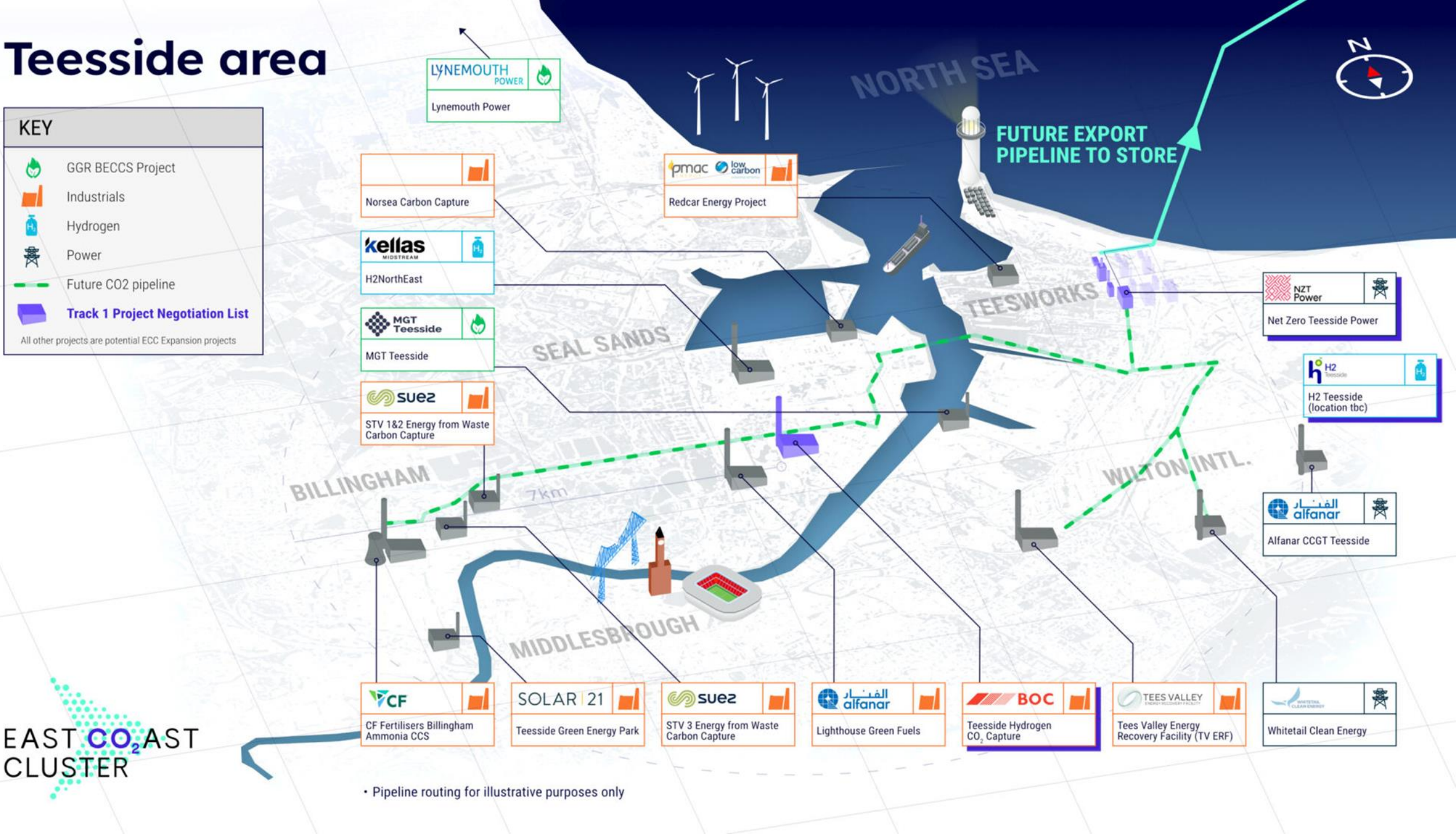
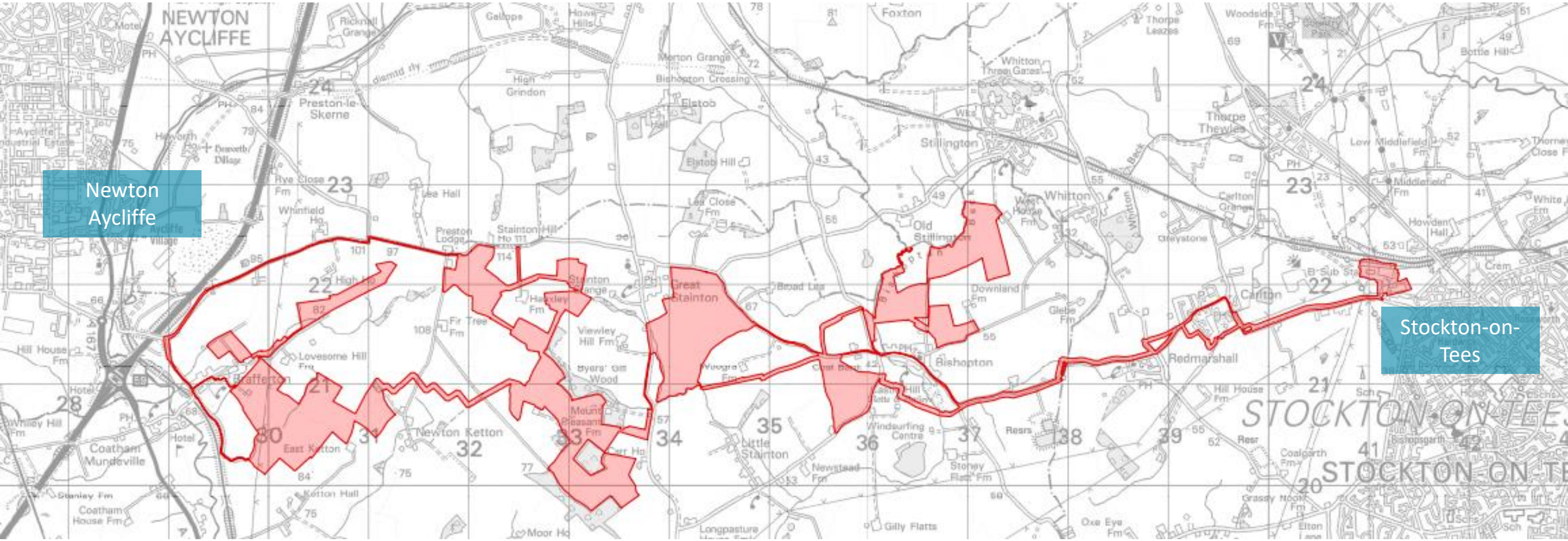
Teesside area



Sustainable Aviation Fuel

Solar Power



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Small Modular Nuclear Reactors

Local Energy Efficiency Standards Update

Ministerial Statement made on 13 December 2023

- ‘the Government does not expect plan-makers to set local energy efficiency standards for buildings that go beyond current or planned buildings regulations…’.

- Any planning policies that propose local energy efficiency standards for buildings that go beyond current or planned buildings regulation should be rejected at examination if they do not have a well-reasoned and robustly costed rationale…’.

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Skerningham Design Code

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Design Codes

- A design code is a set of simple, concise, illustrated design requirements, that are visual and numerical wherever possible.
- They are based on the National Model Design Code and are a method that aids LPAs in creating high-quality places.

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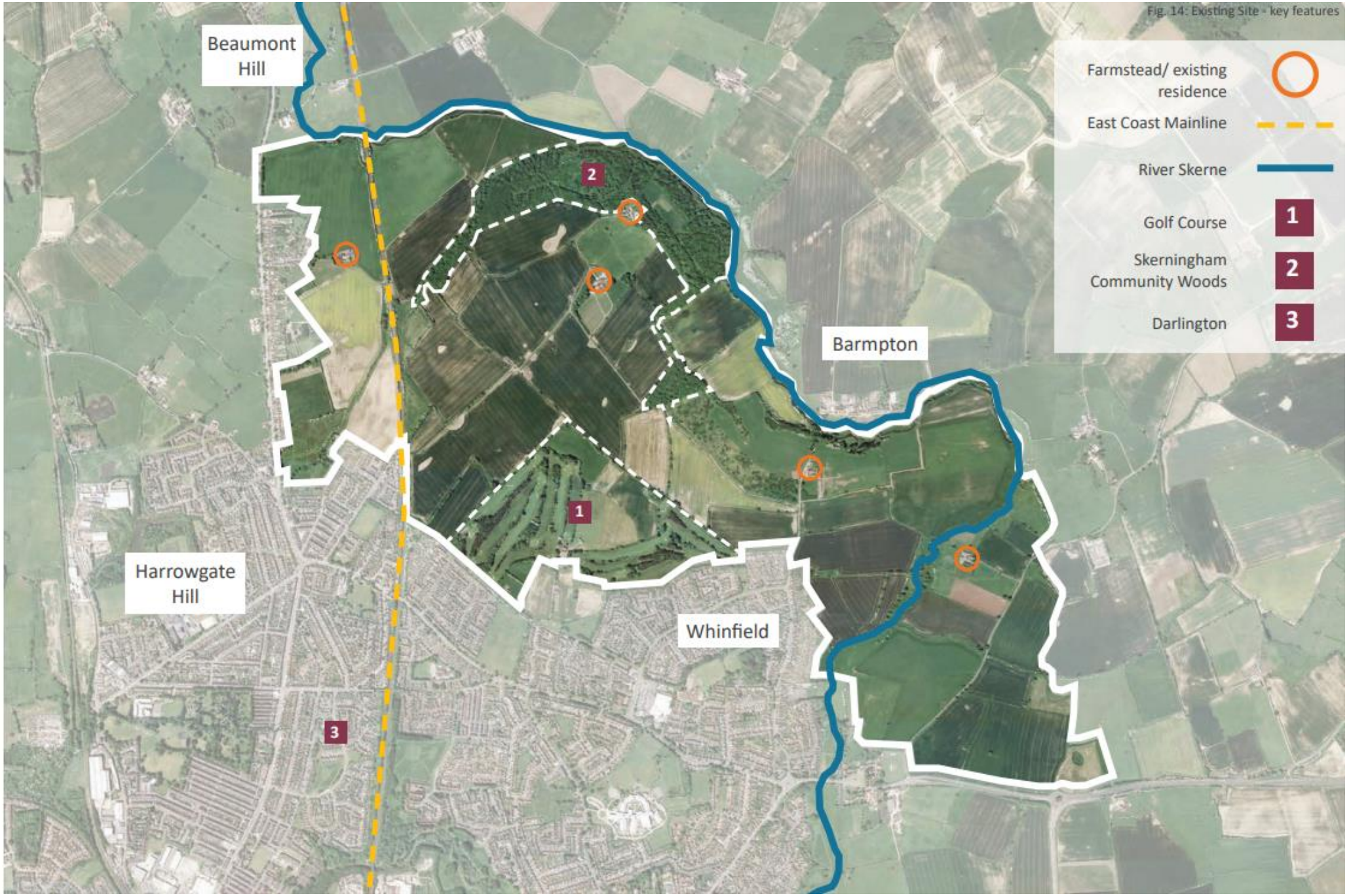
Context



Garden Communities

- Skerningham is part of Homes England's Garden Communities Programme.
- The Skerningham Design Code had to reflect the ambition and principles of a Garden Community.

Future Proofed:

"Designed to be resilient places that allow for changing demographics, future growth, and the impacts of climate change, with durable landscape and building design planned for generations to come".

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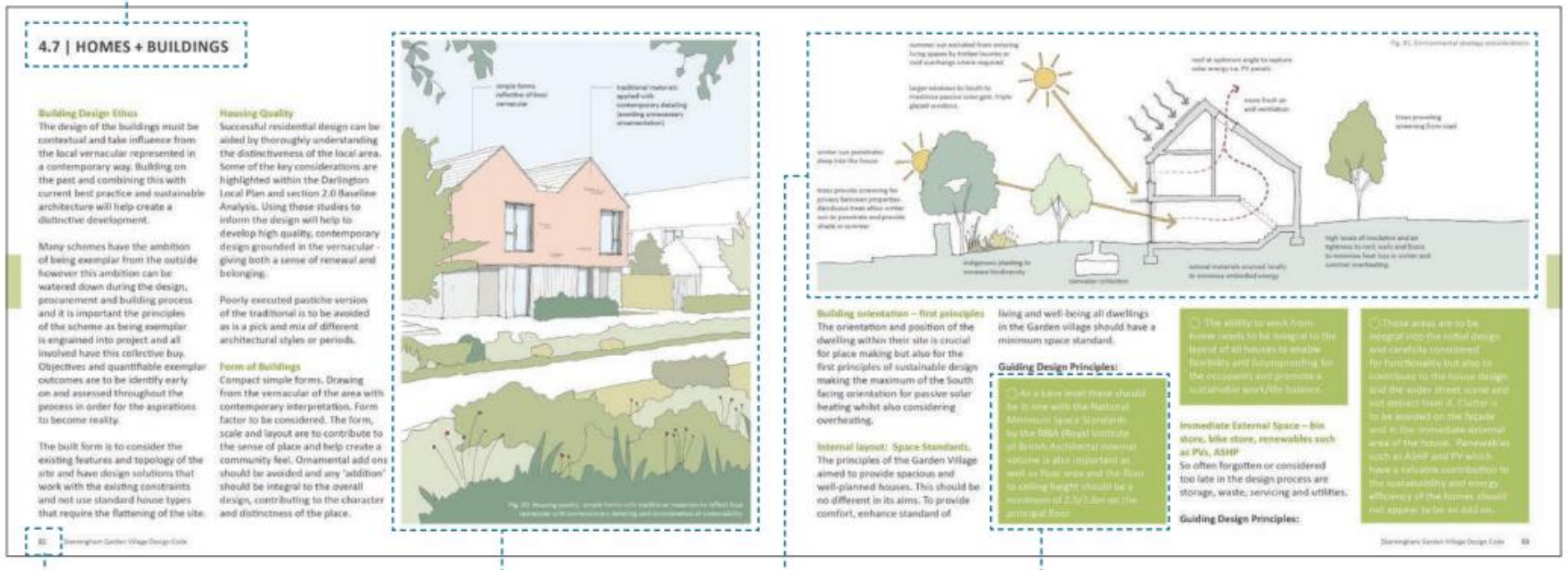
Structure

The structure of this document follows the National Model Design Code guidance modelled on the ten characteristics of well designed places set out in the National Design Guide. Under each section heading, the body text is broken down into shorter paragraphs with subheadings to allow easy navigation.

Mandatory coding elements are highlighted in green which set out clear design principles to be considered during the design process. The assessment tools set out under section 7.0 provide a simple method of testing whether a proposed design meets the intended targets set out in the Design Code.

Section titles in accordance with the National Model Design Code guidance.



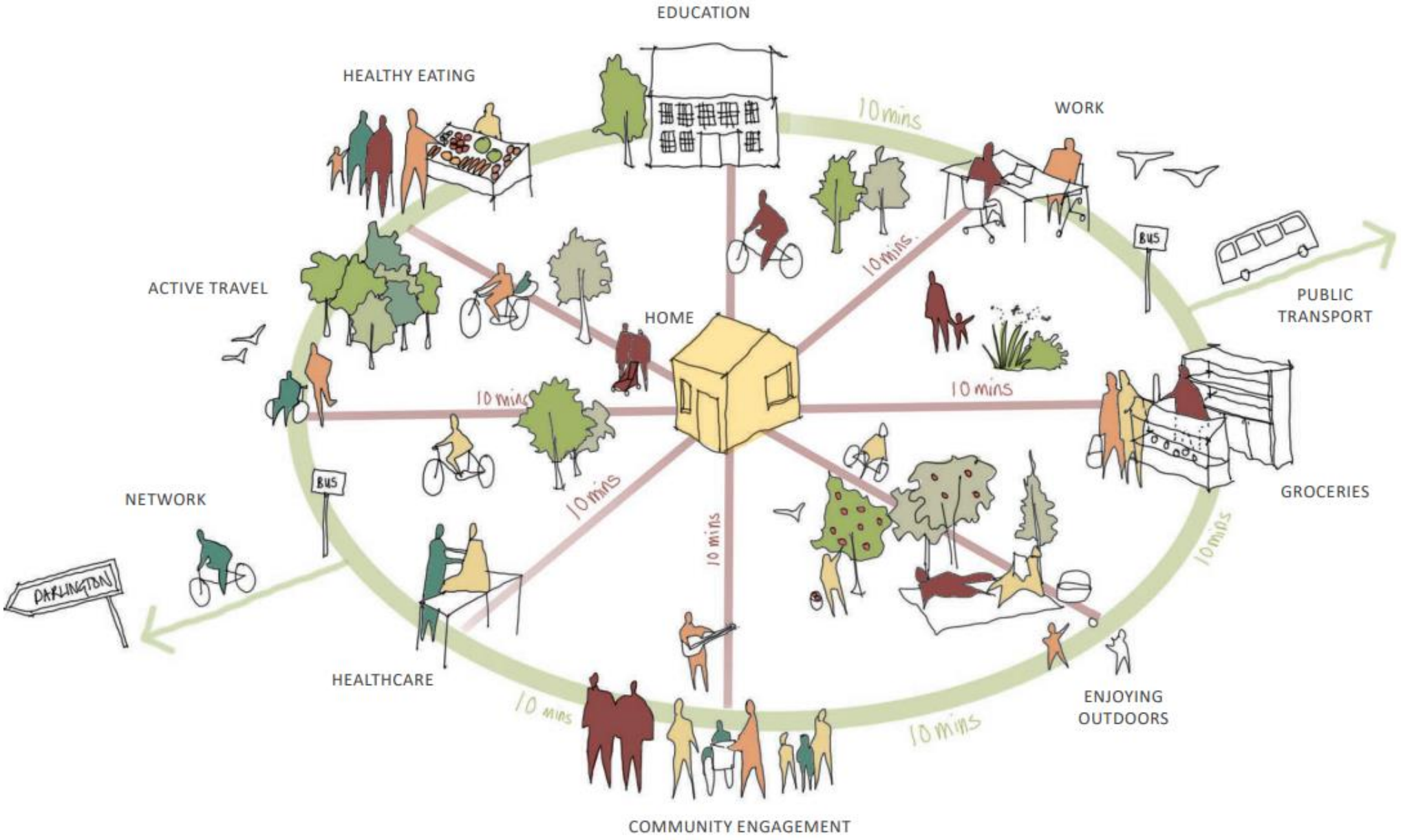
Page numbers as referenced in contents page.

Precedent images and/ or annotated diagrams are provided to illustrate principles within the code. They are not intended to inform or infer architectural style.

Mandatory coding principles for designers are highlighted in green within each section.

Fig. 04: Visual guide to using the document

Design Vision



Key Threads

01.
HEALTHY LIVING

The Skerningham Garden Village will have a strong health and well-being focus, secured by nature led design, and a compact 20 minute (10 mins there and 10 mins back) walkable neighbourhood design philosophy in order to encourage walking and cycling for all local trips by all ages.

The Skerningham Garden Village will embed the 10 principles outlined in 'Putting Health into Place' (PHiP) collated from the Healthy New Towns Pilot across the UK.

02.
INNOVATION

There will be a vibrant mix of energy efficient, climate-change ready housing types and styles in streets that put people and place first thereby creating highly liveable and sustainable communities. All new homes will be gas free, powered by low carbon energy and incorporate innovative technology to manage energy demand.

High-speed broadband is expected to be incorporated across the site. The Garden Village must achieve a bio-diversity net gain from the development of the site.

03.
SENSE OF PLACE

The Garden Village will have a strong sense of place and local focus building on the priority that local people place on the benefits of local nature and wildlife to health and wellbeing.

New primary and secondary schools, together with other essential community facilities will, along with all homes, enjoy close access to the benefits of existing or meaningful proposed green and blue infrastructure.

Historic routes and landscape will be preserved and enhanced with the aid of the design code to provide green corridors linking the existing and future communities to the high quality open spaces, as well as to the proposed Skerne Valley Country Park in the northern part of the site.

20-Minute Neighbourhood

- To prioritise the movement and safety of pedestrians and cyclists of all ages and abilities through to provision of Coherent, Direct, Safe, Comfortable and Attractive routes.

- Residential development and essential community services and schools will be located to ensure that the 20-minute walkable (10 minutes there and 10 minutes back) neighbourhood is achieved.

- 80% or more households will be within 400 metres walking distance of a bus stop served by a regular day time service (at least every 30 minutes).

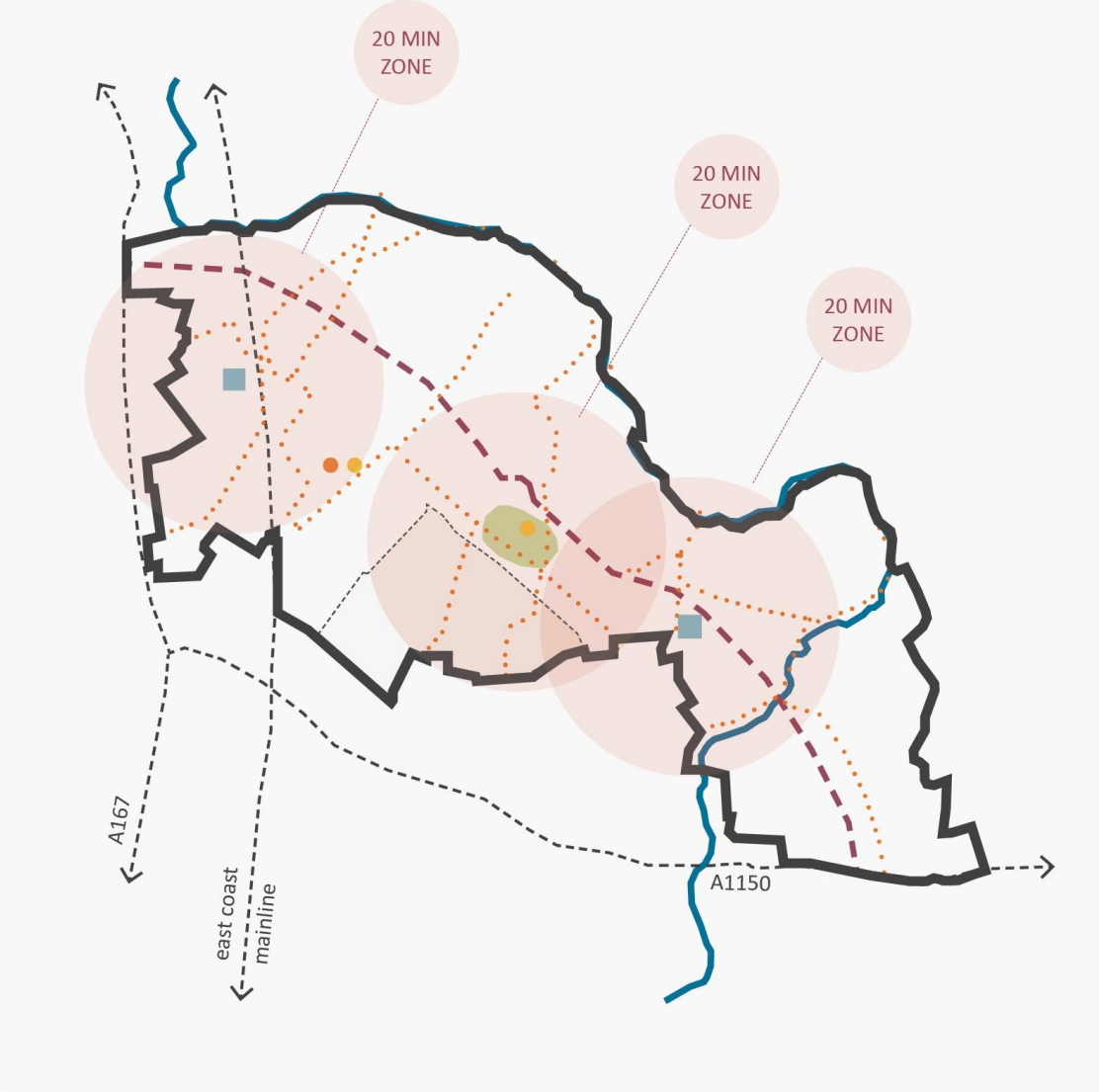


Fig. 36: Indicative 20 min walkable zones based on Skerningham Masterplan Framework

- Potential neighbourhood centre
- Primary school
- Secondary school
- Potential location of community facilities
- Safe, attractive and accessible network of public foot and cycle paths
- Proposed Local Distributor Road to avoid the Skerne River Valley

Active Travel

Illustration of shared surfaces in the neighbourhood centre.

Climate Change

Design Principles:

- Landscape strategies must promote sequestration of atmospheric Carbon. For instance, the loss of ancient or veteran trees must only be permitted where there are wholly exceptional reasons.
- Management and maintenance operations must be reviewed in terms of minimising the use of energy and chemicals.
- The shading and cooling benefits of vegetation must be exploited on both a micro level to reduce unwanted solar gain and on a macro level to reduce any potential heat island effects.
- Sustainable Urban Drainage is mandatory and must be designed to incorporate stepped swales as part of an approach that maximises biodiversity.
- Areas prone to flooding must be embraced with landform and wetland habitats created that hold water and help sequester Carbon such as wetlands.

Specific Green Box requirements related to Climate Change.

Environmental Strategy

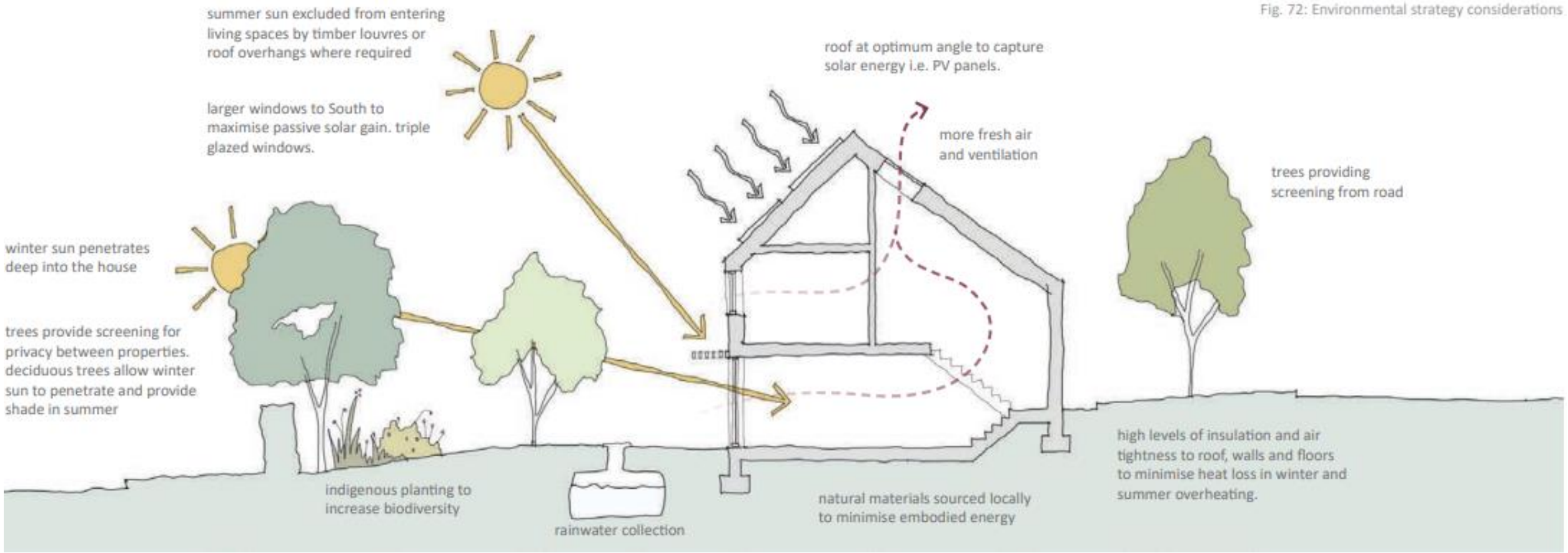


Fig. 72: Environmental strategy considerations

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Embodied Carbon

Materials and Detailing

Materials must be carefully considered to work with the building form and the local area. These can be traditional or modern materials but must be a simple high-quality palette of materials that is well crafted. Simple detailing is to be utilised with high quality materials.

Embodied carbon is to be taken into consideration for material choice as well as it's durability, appearance, and maintenance strategy overtime.

The junctions between materials are to be carefully considered and there must be a simple hierarchy. Simple forms will aid in this rather than a complex shape.

More sustainable window materials than UPVC are encouraged. Timber cladding can be a great addition to a housing development however detailing, weathering and ventilation need to be carefully considered.

Fig. 74: Gable fronted homes using varying shades of same material.

- The Design Code encourages consideration of embodied carbon when choosing materials, and a preference for sustainable window materials rather than UPVC.

Climate Resilience

Daylight + Windows

To promote good daylighting and thereby improve quality of life and reduce the need for energy to light the home the following must be a minimum. The daylight factor is a comparison of the natural light levels within a room and the natural light levels in an unshaded location outside and the working plane is a nominal surface positioned 0.85m above the floor.

Skerningham Garden Village would aim for an average daylight factor of at least 2% for kitchens, average daylight factor of at least 1.5% in living rooms, dining rooms and study. At least 80% of the working plane in these rooms receives natural light.

Further information on natural lighting can be found in BS 8206-2:2008 Lighting for Buildings – Part 2: Code of practice for daylighting.

Designing for Climate Resilience

All dwellings must be substantially higher in standard than building regulations.

To only aim for building regulations means that the dwellings are only just legally acceptable. this is not good enough for this aspirational development.

As a minimum the development must adhere to the RIBA Climate Challenge 2030 and must hit the targets corresponding to the years 2020 and 2025. To be truly exemplar as a Garden Village development it must strive to showcase the very best in design and construction.

Modern Methods of Construction (MMC) is to be used to aid in quality assurance and consistent performance of the dwellings.

A percentage of the dwellings will be showcasing Certified Passivhaus standards the exemplar in low energy standards with a larger percentage utilising the Low Energy PH standard which is easier to attain and a substantial step up from the building regulations.

Fig. 80: Courtyard housing
Image: Patel Taylor

Resources and Lifespan

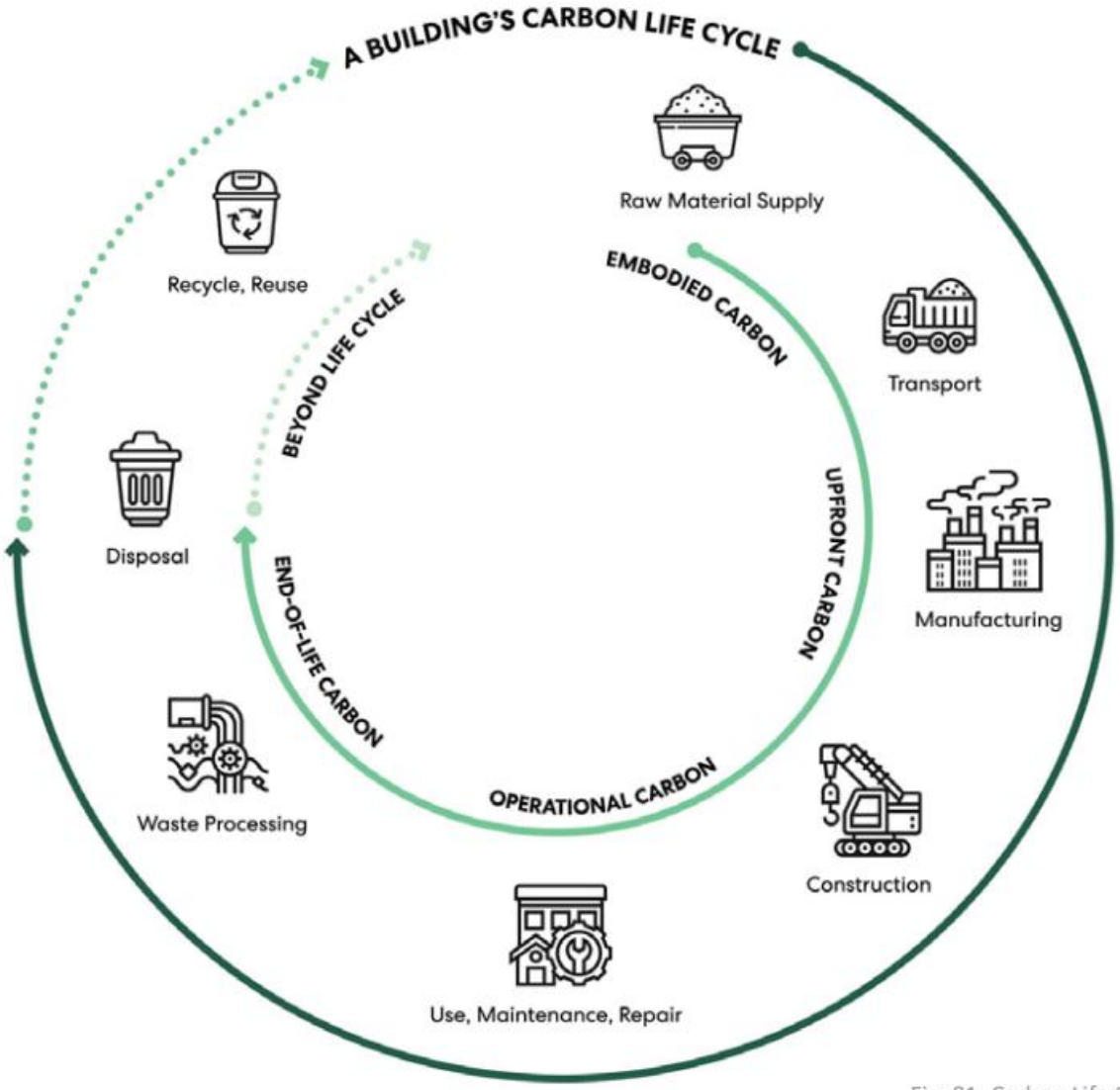

Fig. 81: Carbon Life Cycle

- Aim to encourage developers to do more with less:
  - Use fewer materials
  - Optimise use of materials
  - Prevent waste
  - Use reclaimed/recycled materials
  - Reduce water usage
- Consider reducing embodied and operational carbon.

Checklist

Does the proposed development comply with the following design guidelines?	Yes ✓	No ✗
Are refuse stores, meter boxes, pipes, flues and vents well integrated into the overall scheme and where relevant are PVs and ASHPs fully integrated into the designs?		
Is there High speed (Ultrafast giga byte) broadband connectivity to all homes and businesses?		
Have electric vehicle charging points been provided in accordance with requirements set out on p.53?		
4.2 Nature		
Are existing ecological resources identified and are buffer zones created around these for assisted natural regeneration as advised by a qualified ecologist?		
Has meaningful innovative nature-supporting infrastructure been incorporated as appropriate such as green roofs, architectural bird colonies, insect hotels, or reinforced grass vehicle surfaces throughout?		
Has planting of predominately native and locally sourced species been incorporated wherever possible?		
Have several ecological niches been created in line with local Biodiversity Action Plan ambitions?		
Better Connected to Nature:		
Does the design interconnect existing ecological resources such as woodlands, watercourses, hedgerows, fence lines and wet areas so as to create a green network which allows easy wildlife movement throughout the site?		
Have two or more primary 'ecological superhighways' been created that connect the existing urban centre to the open countryside?		
Do the connecting corridors work with the topography, landscape character views and crossing of the distributor road?		
Climate Resilience:		
Are the development proposals supported by landscape strategies which demonstrably promote sequestration of atmospheric carbon?		
Do the development management and maintenance operations demonstrate how they minimise the use of energy and chemicals?		

- Checklist provides method to assess proposals against the Design Code, and to say whether a scheme has passed or failed.

Any Questions?