

Designing for Climate Change

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DARLINGTON
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

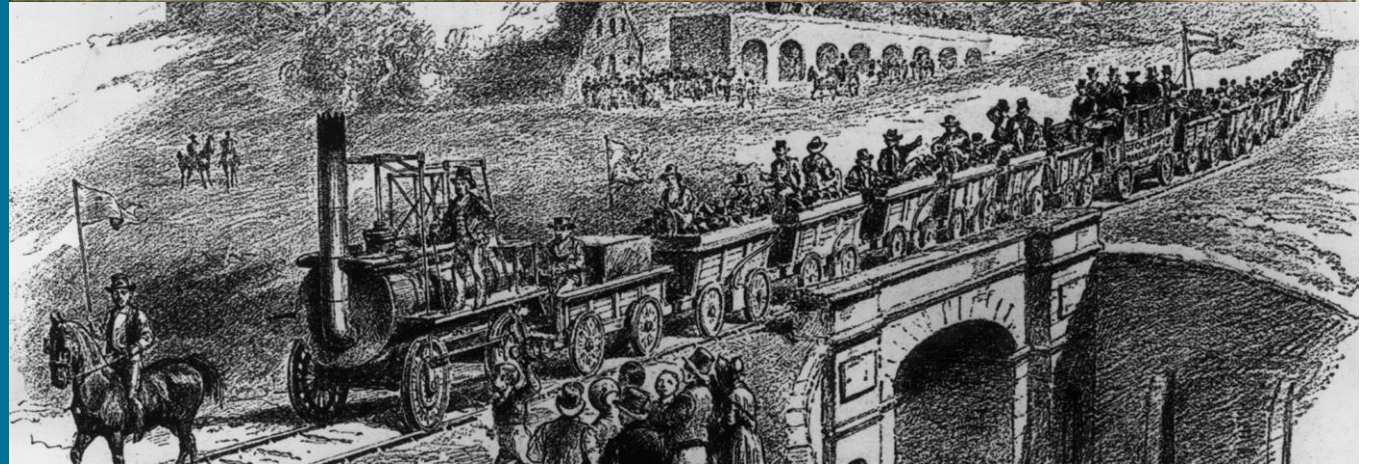
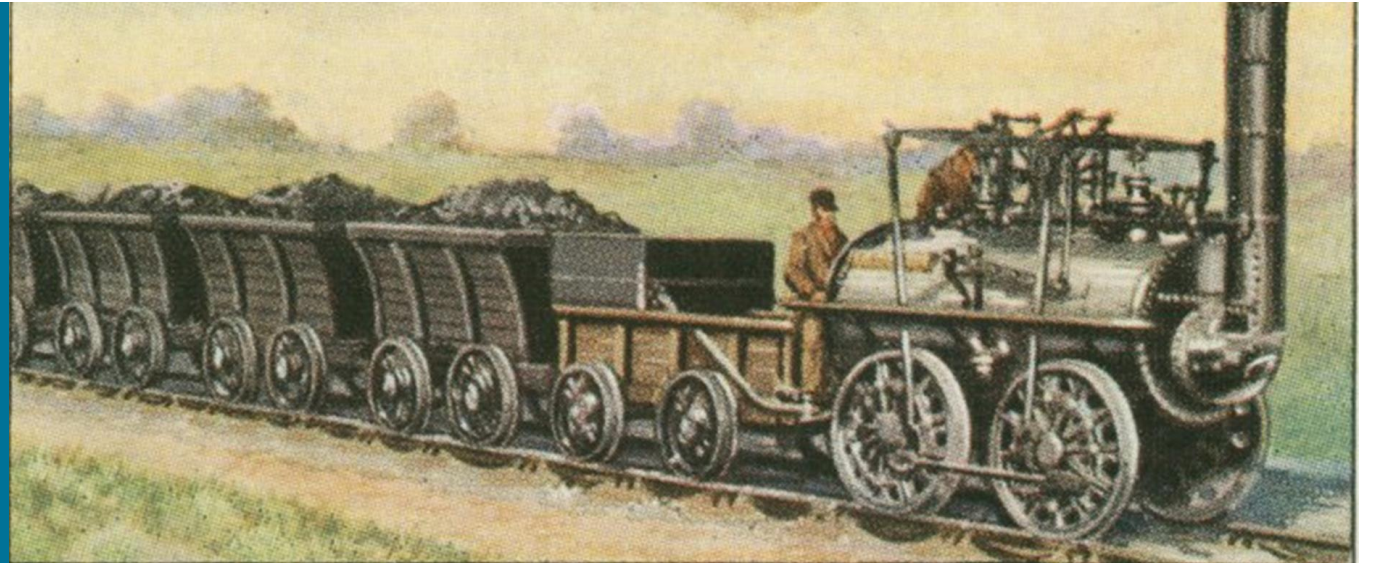
Our most advanced eye exam has landed

Good to see you again



Stephen Hornsey

Stockton and Darlington Railway



Teesside Oil Terminal



Hartlepool Nuclear Power Station



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Hydroelectricity



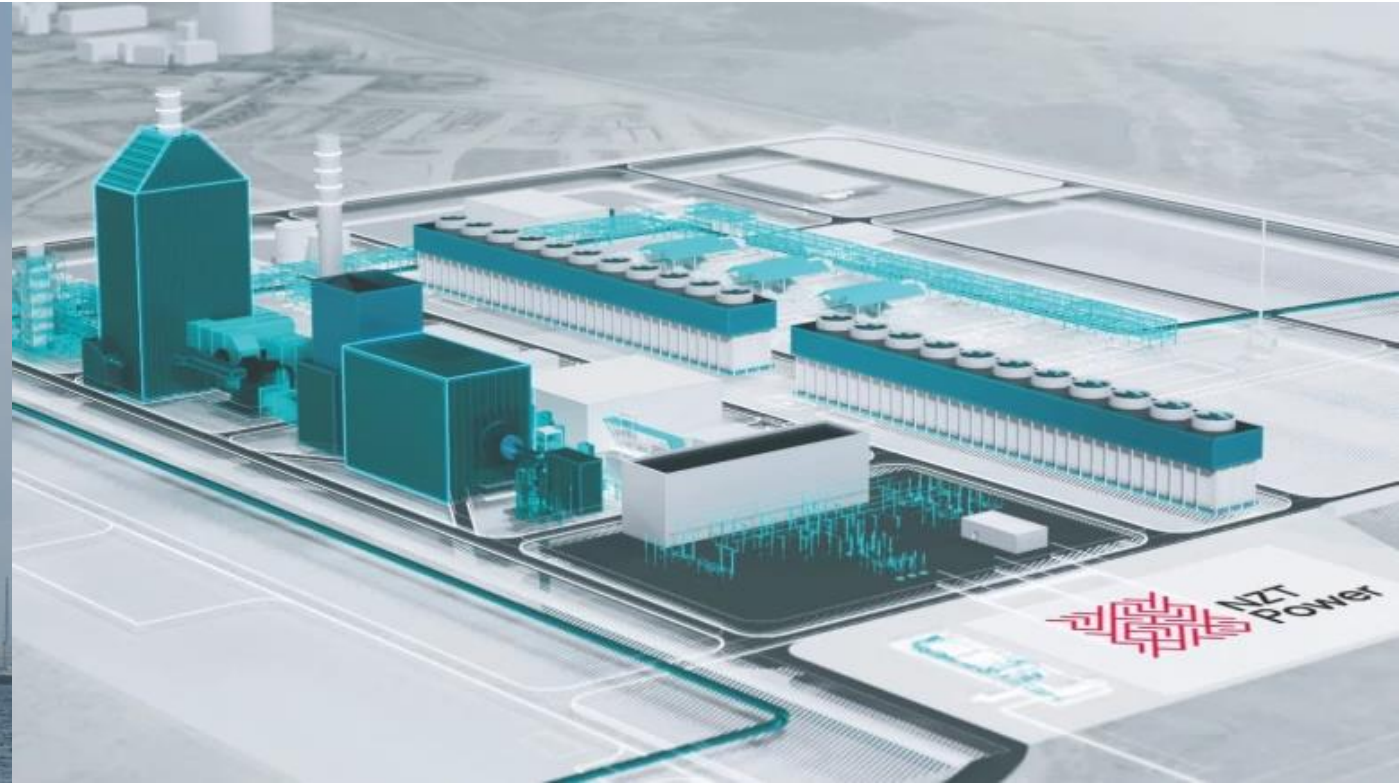
Wind Power



Net Zero Teesside

Delivering a Net Zero Teesside

Net Zero Teesside is a collection of industrial, power and hydrogen businesses which aim to decarbonize their operations through the deployment of carbon capture utilization and storage (CCUS).



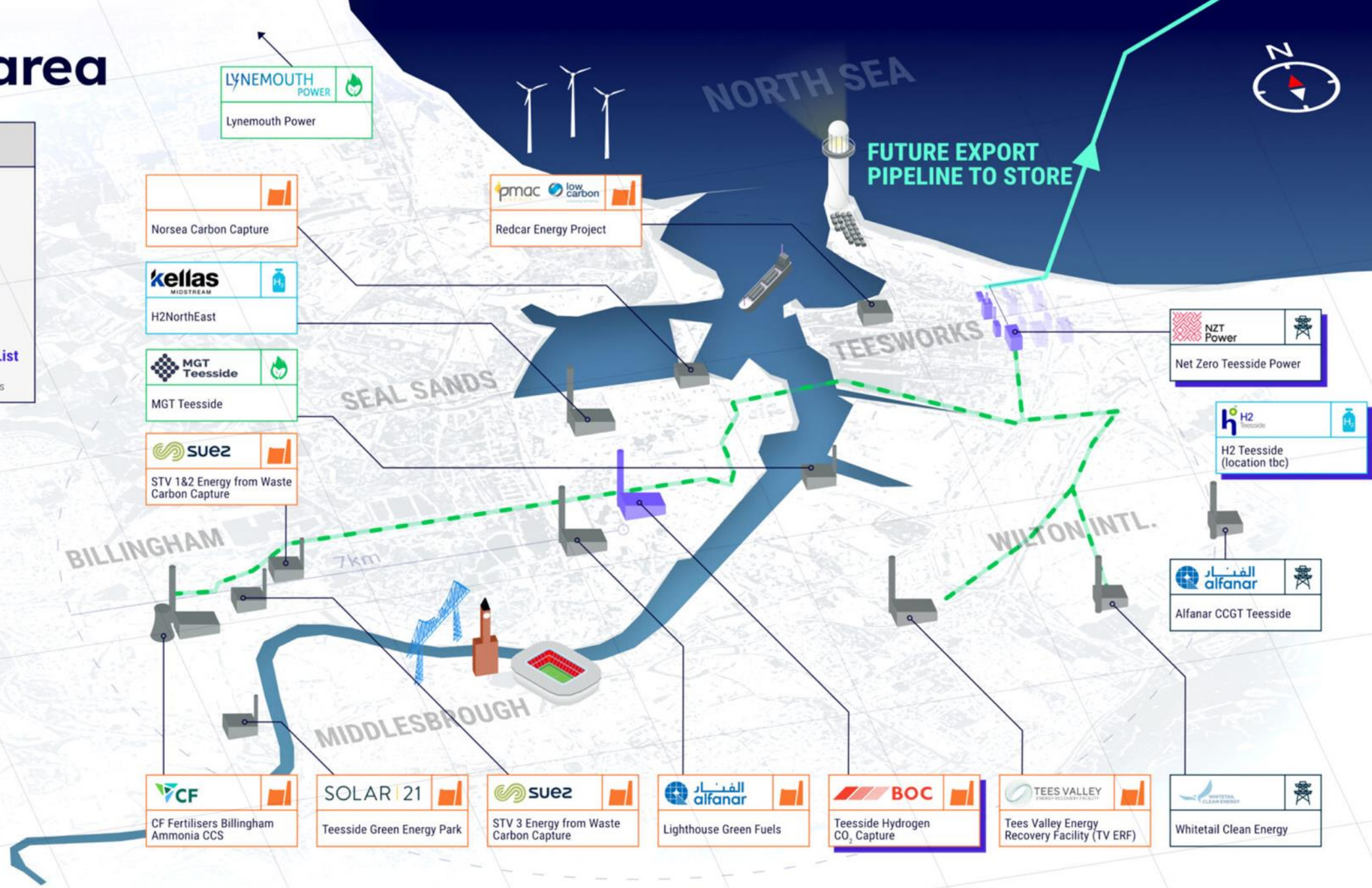
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Teesside area

KEY

-  GGR BECCS Project
 -  Industrials
 -  Hydrogen
 -  Power
 -  Future CO2 pipeline
 -  Track 1 Project Negotiation List
- All other projects are potential ECC Expansion projects

EAST CO₂ AST CLUSTER



• Pipeline routing for illustrative purposes only

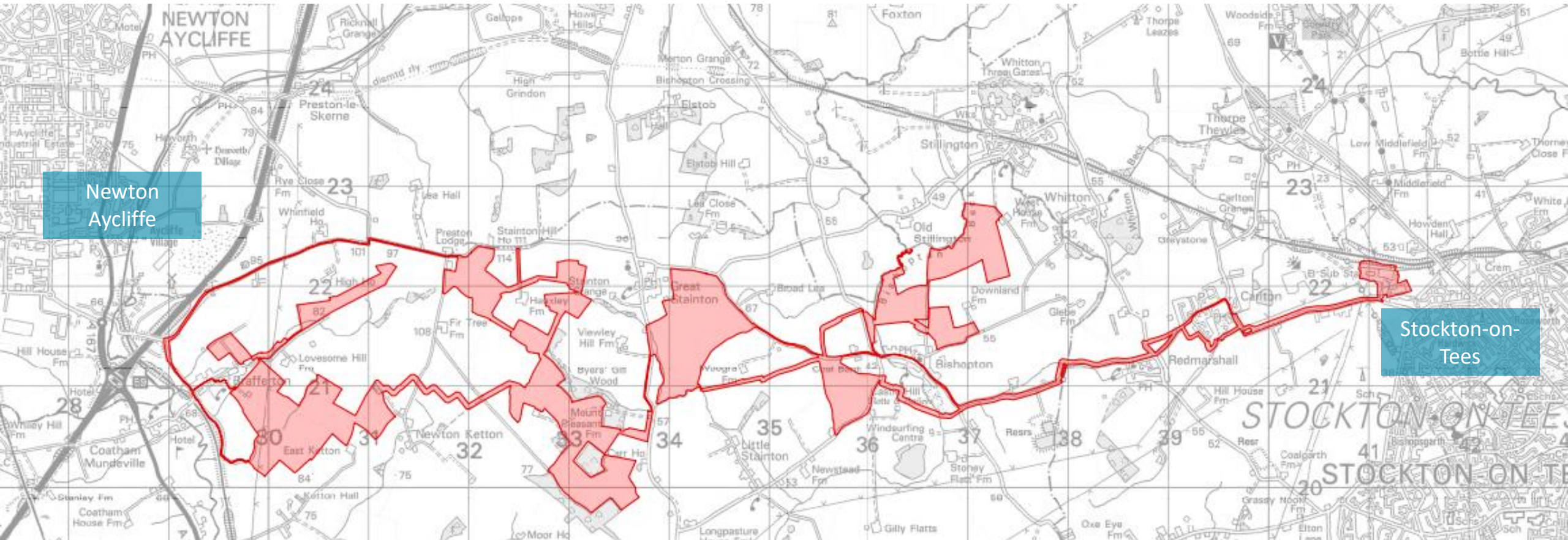
Sustainable Aviation Fuel



**alfanar's £1 billion investment
in Teesside moving forward.**

New **sustainable aviation fuel** facility will bring **240 full-time operational roles** and **700 construction roles**

Solar Power



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...’.



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.



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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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.

Structure

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

4.7 | HOMES + BUILDINGS

Building Design Ethics
The design of the buildings must be contextual and take influence from the local vernacular represented in a contemporary way. Building on the past and combining this with current best practice and sustainable architecture will help create a distinctive development.

Many schemes have the ambition of being exemplar from the outside however this ambition can be watered down during the design, procurement and building process and it is important the principles of the scheme as being exemplar is engrained into project and all involved have this collective buy. Objectives and quantifiable exemplar outcomes are to be identify early on and assessed throughout the process in order for the aspirations to become reality.

The built form is to consider the existing features and topology of the site and have design solutions that work with the existing constraints and not use standard house types that require the flattening of the site.

Housing Quality
Successful residential design can be aided by thoroughly understanding the distinctiveness of the local area. Some of the key considerations are highlighted within the Darlington Local Plan and section 2.0 Baseline Analysis. Using these studies to inform the design will help to develop high quality, contemporary design grounded in the vernacular giving both a sense of renewal and belonging.

Poorly executed pastiche version of the traditional is to be avoided as is a pick and mix of different architectural styles or periods.

Form of Buildings
Compact simple forms. Drawing from the vernacular of the area with contemporary interpretation. Form factor to be considered. The form, scale and layout are to contribute to the sense of place and help create a community feel. Ornamental add ons should be avoided and any 'addition' should be integral to the overall design, contributing to the character and distinctness of the place.

Building orientation – first principles
The orientation and position of the dwelling within their site is crucial for place making but also for the first principles of sustainable design making the maximum of the South facing orientation for passive solar heating whilst also considering overheating.

Internal layout: Space Standards.
The principles of the Garden Village aimed to provide spacious and well-planned houses. This should be no different in its aims. To provide comfort, enhance standard of living and well-being all dwellings in the Garden village should have a minimum space standard.

Guiding Design Principles:

As a rule these should be in line with the National Minimum Space Standards by the RIBA (Royal Institute of British Architects) internal volume is also important as well as floor area and the floor to ceiling height should be a minimum of 2.5/2.8m on the principal floor.

The ability to work from home needs to be integral to the layout of all houses to enable flexibility and adaptability for the occupants and promote a sustainable work/life balance.

Immediate External Space – bin store, bike store, renewables such as PV, ASHP. So often forgotten or considered too late in the design process are storage, waste, servicing and utilities.

Guiding Design Principles:

These areas are to be integral into the initial design and carefully considered for functionality but also to contribute to the house design and wider street scene and not detract from it. Clutter is to be avoided on the facade and in the immediate external area of the house. Renewables such as AHP and PV will have a valuable contribution to the sustainability and energy efficiency of the homes should not appear to be an add on.

Page numbers as referenced in contents page.

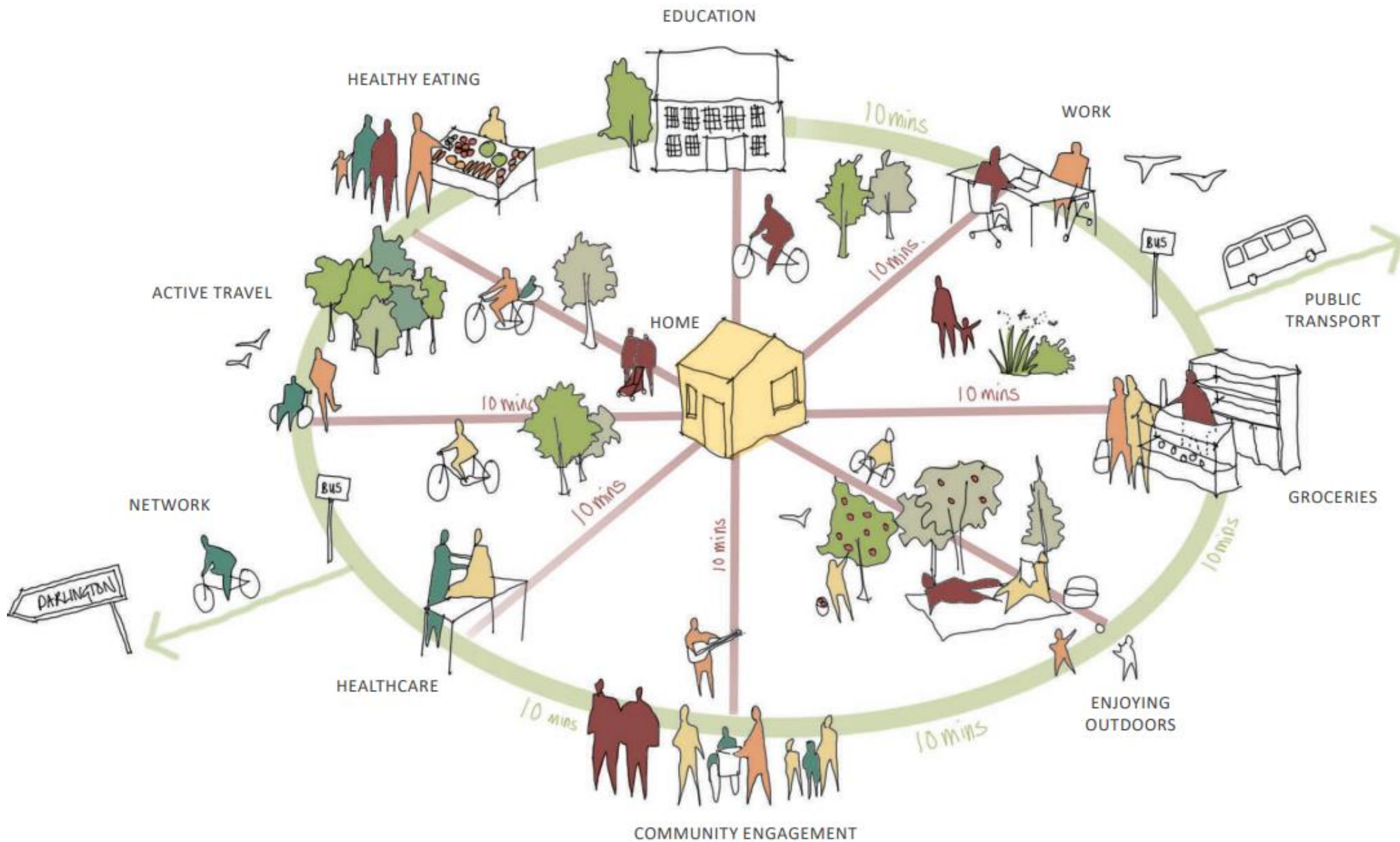
Precedent images and/ or annotated diagrams are provided to illustrate principles within the code. They are not intended to inform or infer architectural style.

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

Fig. 04: Visual guide to using the document

Skerningham Garden Village Design Code 11

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).

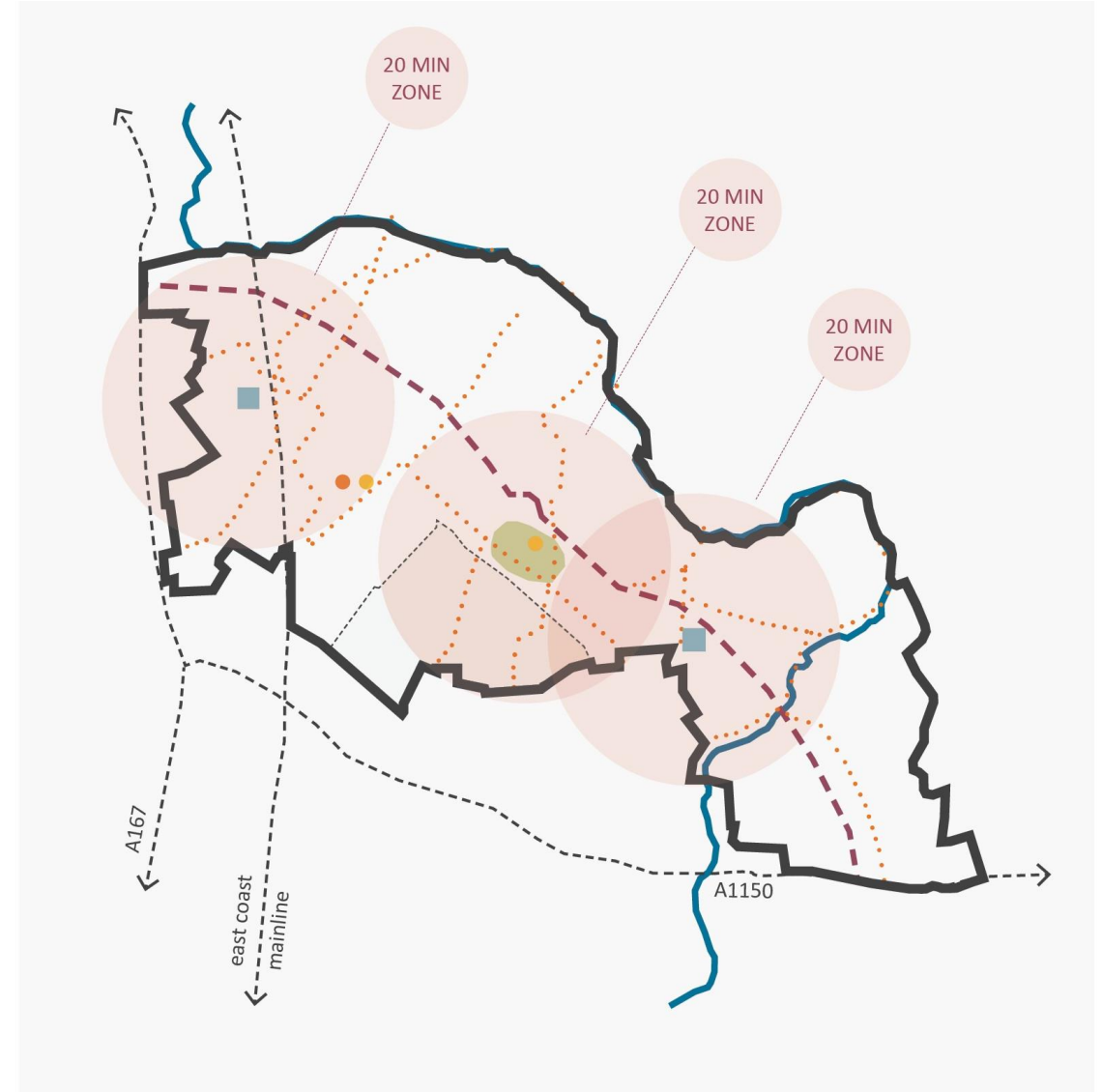
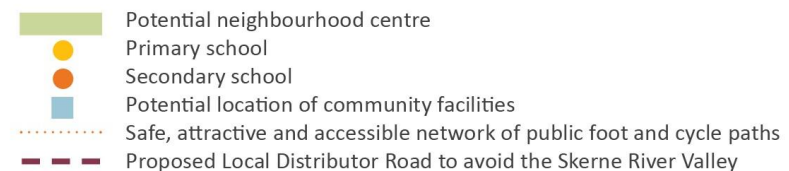


Fig. 36: Indicative 20 min walkable zones based on Skerningham Masterplan Framework



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.

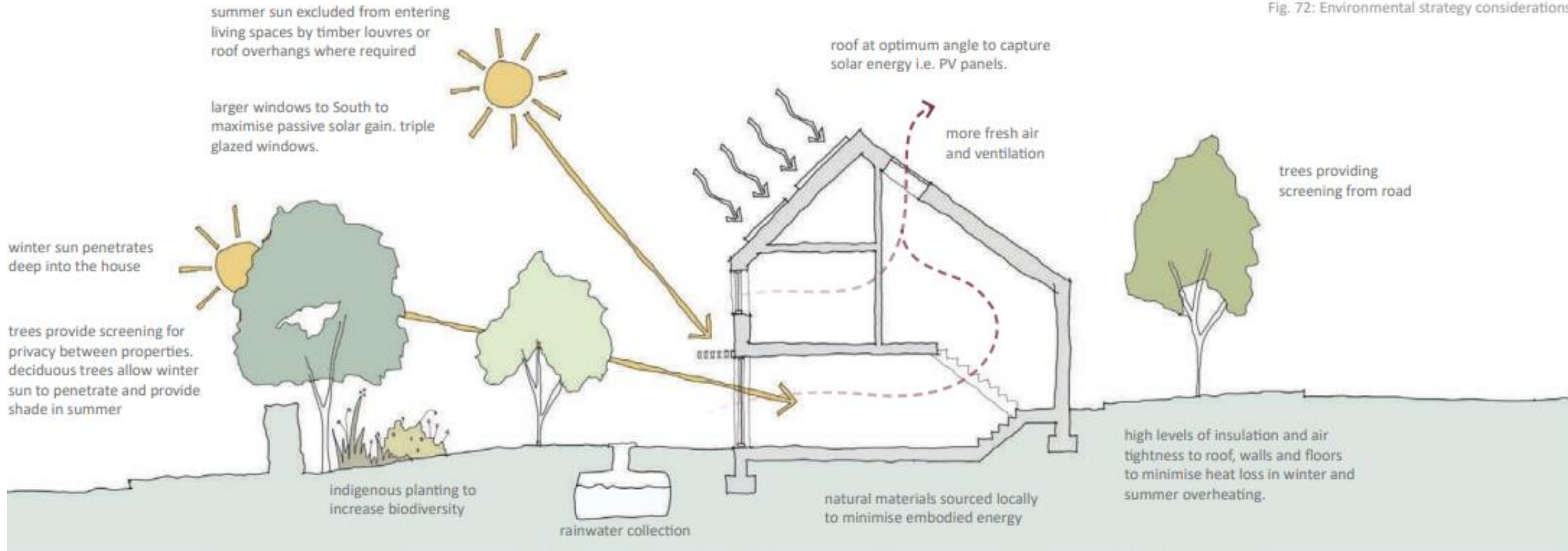
○ Sustainable Urban Drainage is mandatory and must be designed to incorporate stepped swales as part of an approach that maximises biodiversity.

○ 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



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.

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



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

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.



Resources and Lifespan

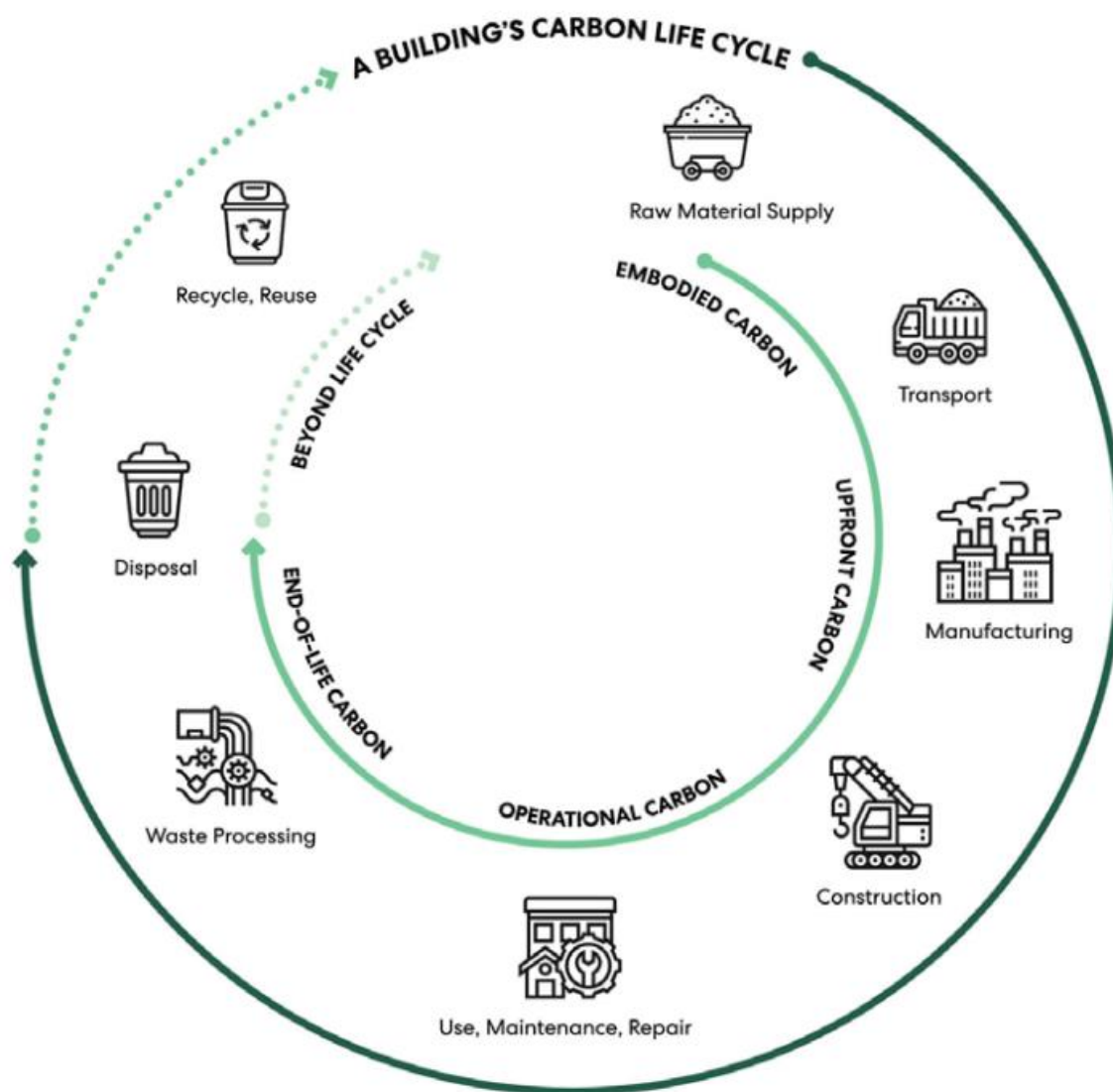


Fig. 81: Carbon Life Cycle

- 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?

