

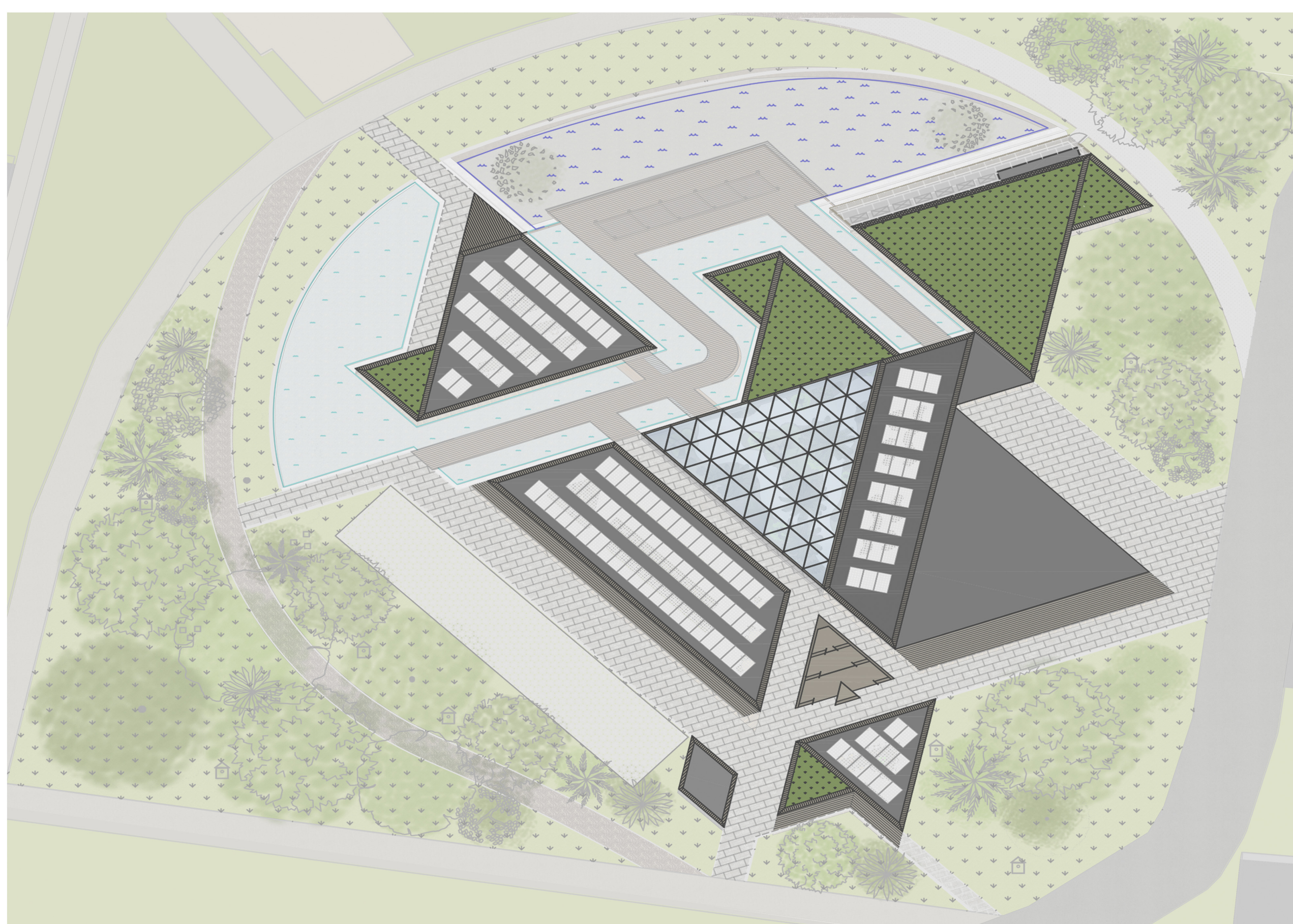
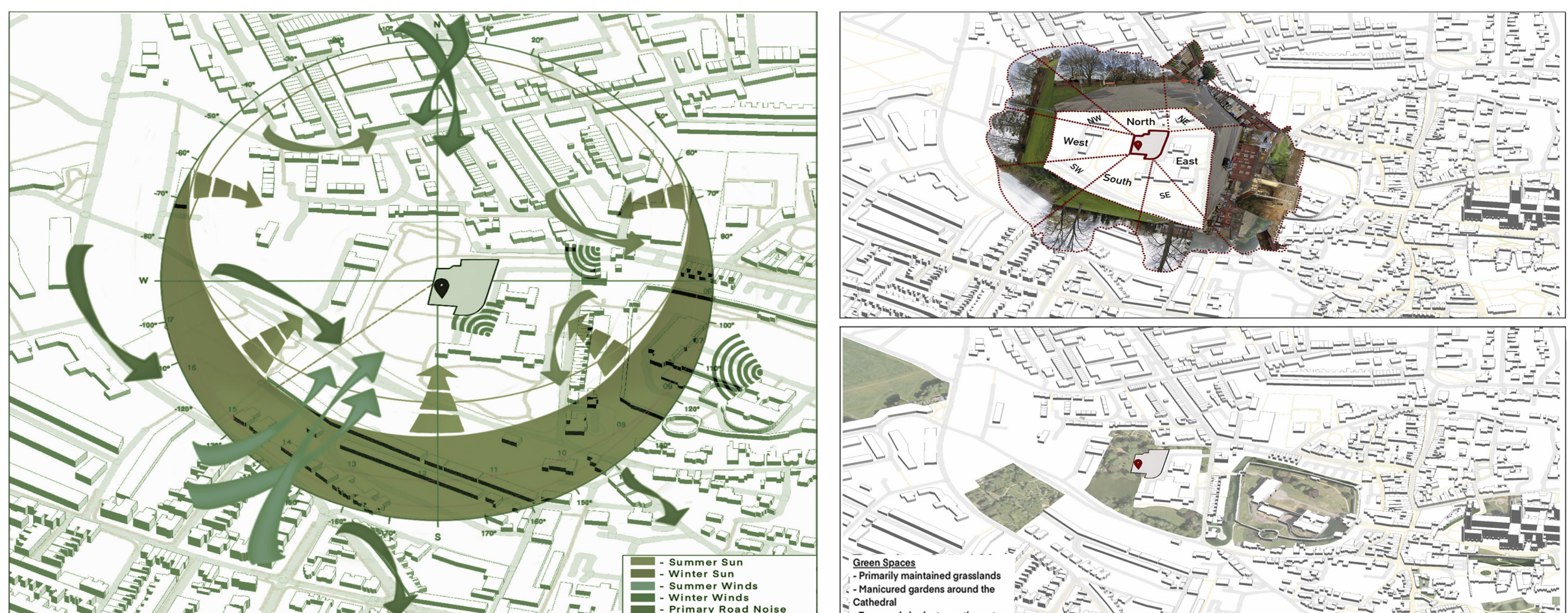
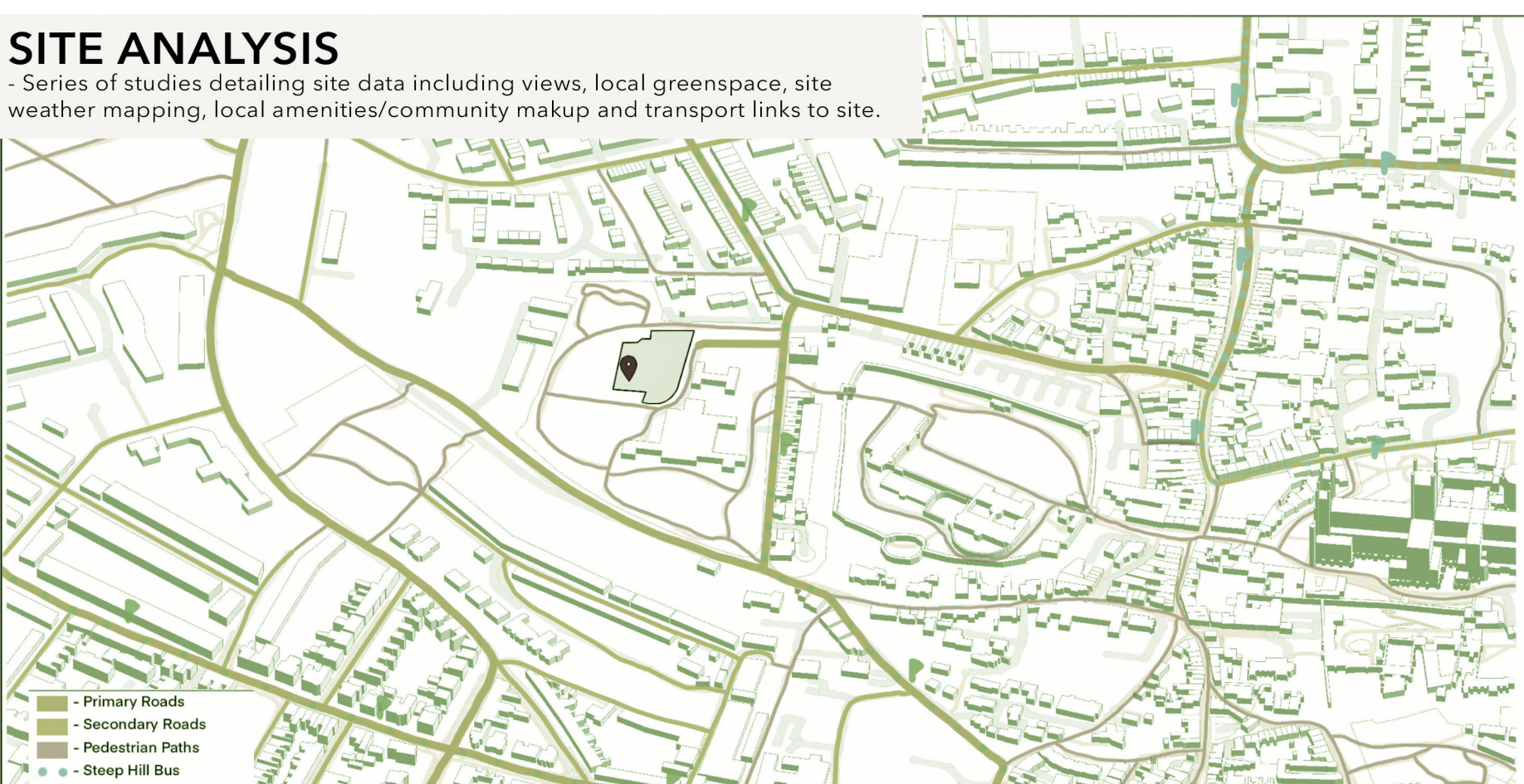
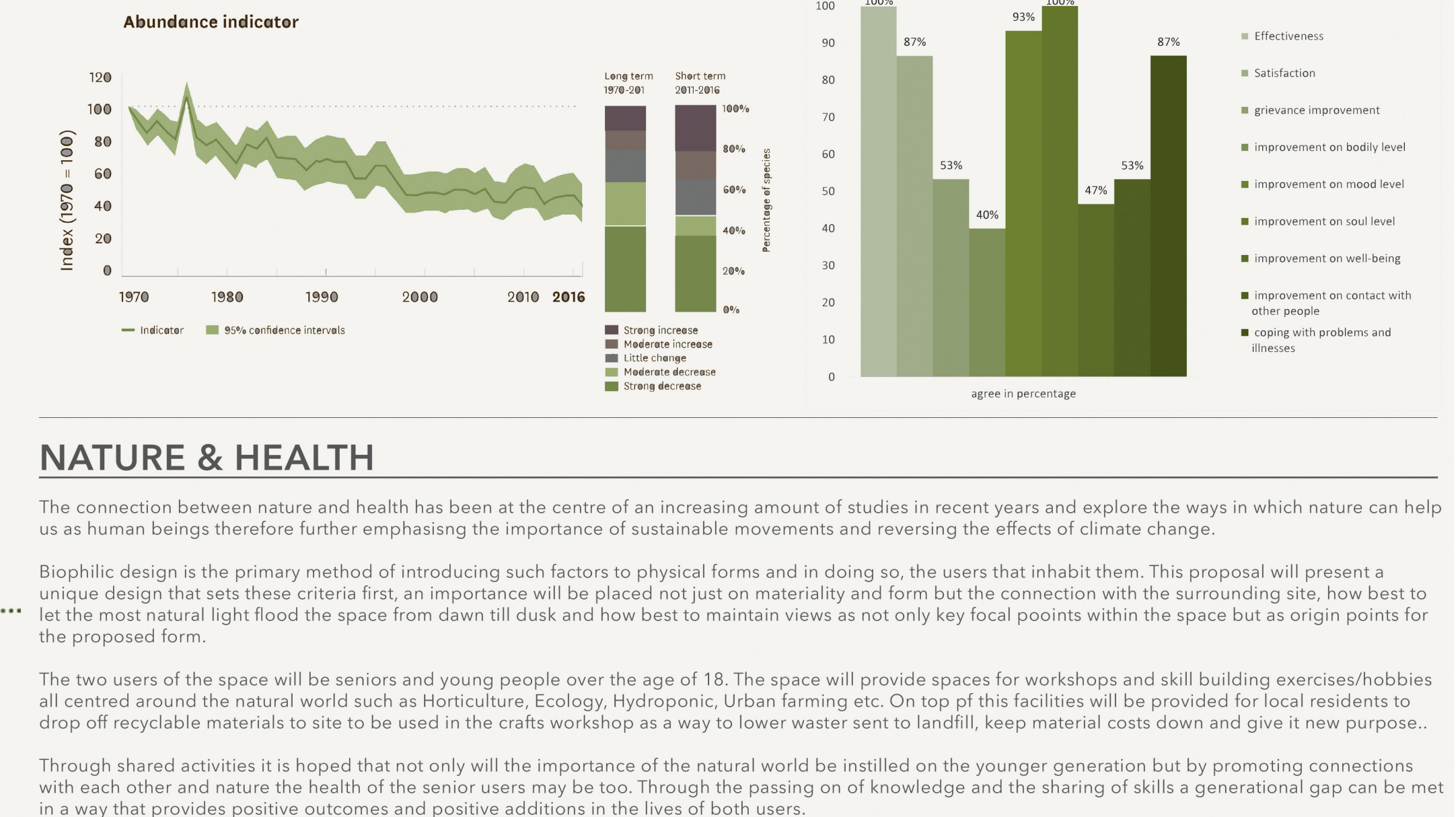
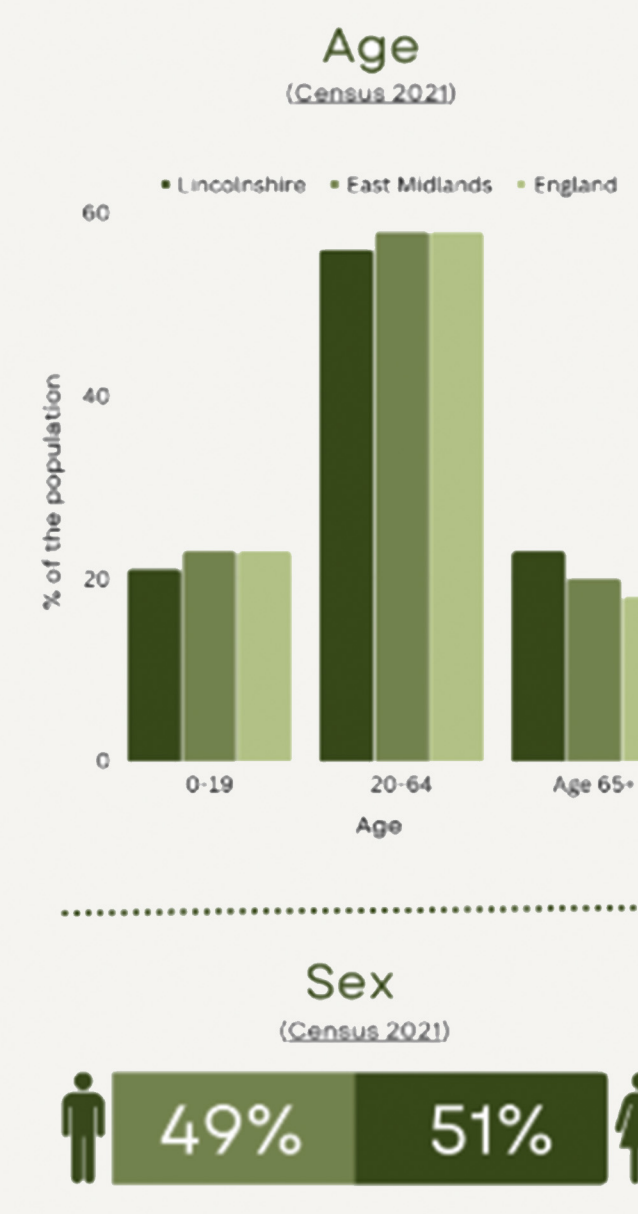
INTER-GENERATIONAL COMMUNITY CENTRE

JASON NEAL - 29483198, BARCH 3003

This project provides a design based around forming and strengthening our connection to nature through practical skills and activities as a method of bridging the gap between the old and young generation through the transference of life skills and wisdom that will enrich the lives of young people while also aiming to provide the opportunity for further purpose in the life of seniors.

Where possible it is important to put sustainability at the forefront of not just user habit but architecture and construction, that is why this project will make use of green methods and materials to achieve high thermal efficiency while maintaining a negative carbon footprint. This will be achieved not just through the type of material chosen but how they're sourced such as recycled and reused options. It is also important to not just keep the biodiversity score of a site as it was pre construction but to improve it, there for local fauna and animal housings will be used to aid the score.

This project provides a biophilic design based around the connection to the outdoors and the improvements this can have on someone's health. The scheme is orientated around the existing views on site and uses natural light to create a connective internal space, the 4 on site workshops will provide the opportunity for old and young alike to intrmingle and learn hands on nature centred skills and information including horticulture, ecology, urban agriculture/hydroponics and a mixed use crafts room for repurposing recycled material. When combined with the landscaped external environment this scheme creates a strong connection between the outdoors and the users of the space with sustainability at the forefront.



LINCOLNSHIRE NATIVE PLANTING SCHEDULE

ALL PLANTS ARE NATIVE TO LINCOLNSHIRE, UK

Plant Name	Ecologist Value	Wildlife Bonnet Icons
1. EUROPEAN ASH (<i>Fraxinus excelsior</i>)	9 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm
2. ENGLISH OAK (<i>Quercus robur</i>)	10 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm
3. GUelder ROSE (<i>Viburnum opulus</i>)	8 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm
4. DOG ROSE (<i>Rosa canina</i>)	8 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm
5. HAWTHORN (<i>Crataegus monogyna</i>)	10 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm
6. BLACKTHORN (<i>Prunus spinosa</i>)	9 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm
7. WILLOW TREE (<i>Salix</i> spp.)	10 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm
8. LOCAL GRASSLAND (Native Wild Grasses & Wildflowers)	9 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm
9. REEDS (<i>Phragmites australis</i>)	8 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm
10. ALDER (<i>Alnus glutinosa</i>)	9 / 10	Butterfly, Dragonfly, Ground Squirrel, Great Crested Newt, Great Oystercatcher, Great Woodpecker, Grey Heron, Kingfisher, Magpie, Red Admiral, Robin, Shrew, Skunk, Spotted Woodpecker, Swallow, Tree Toad, Worm, Worm, Worm

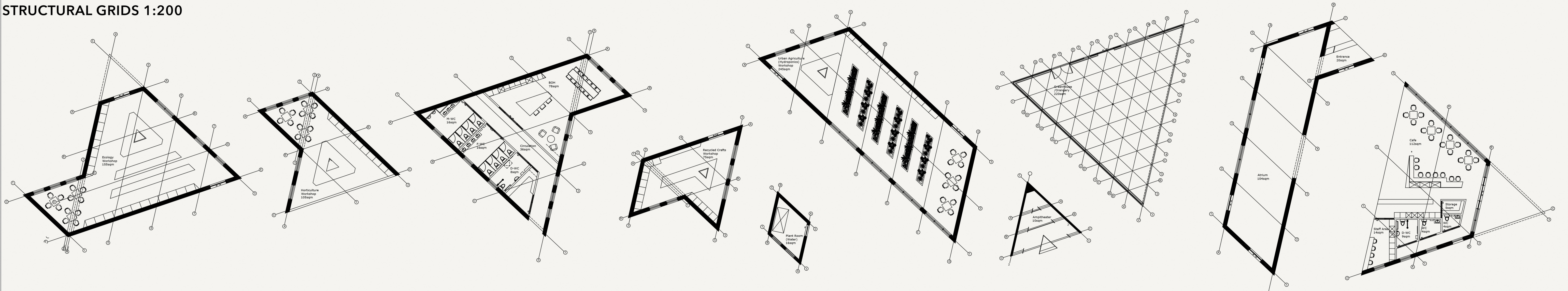
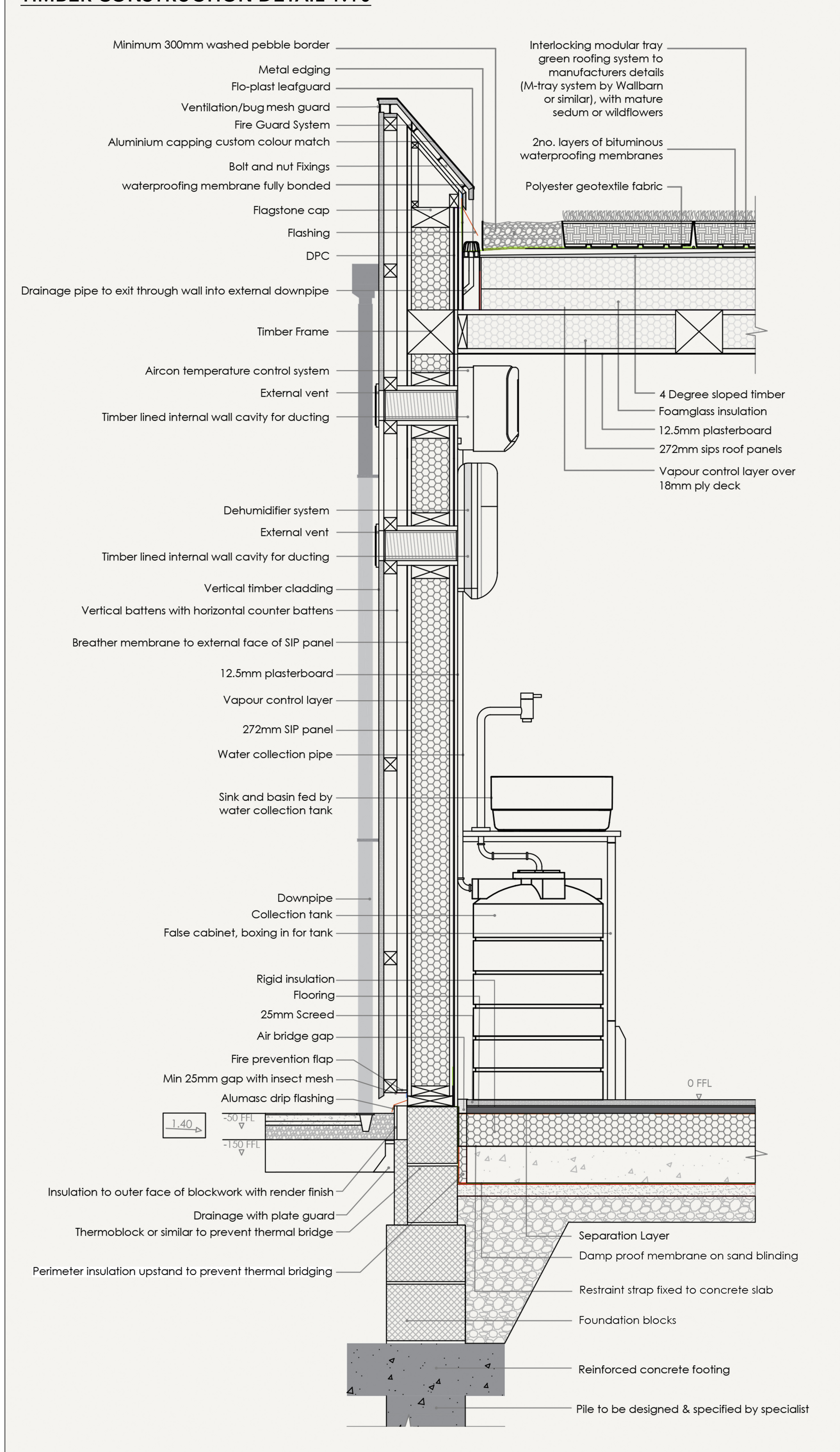
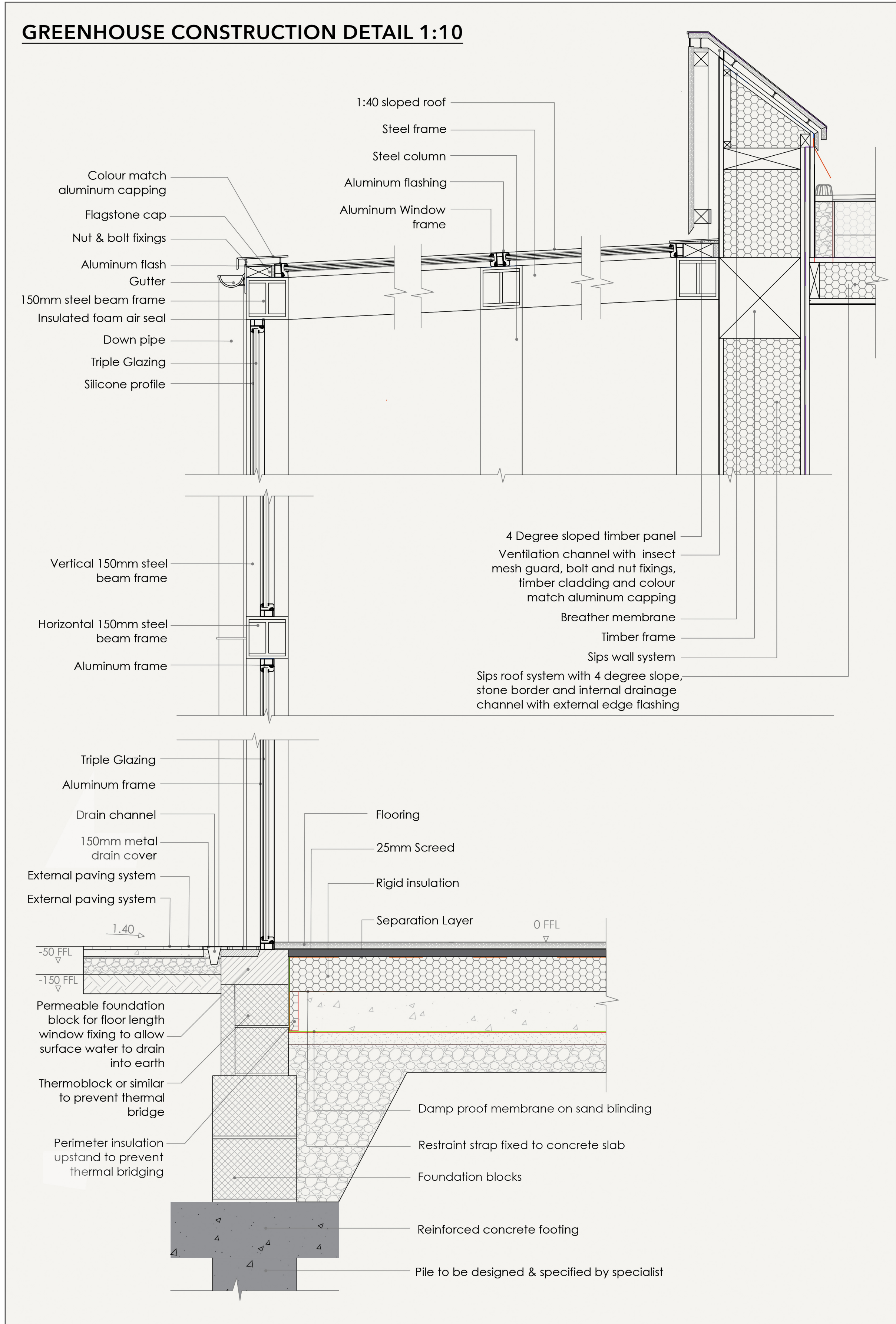
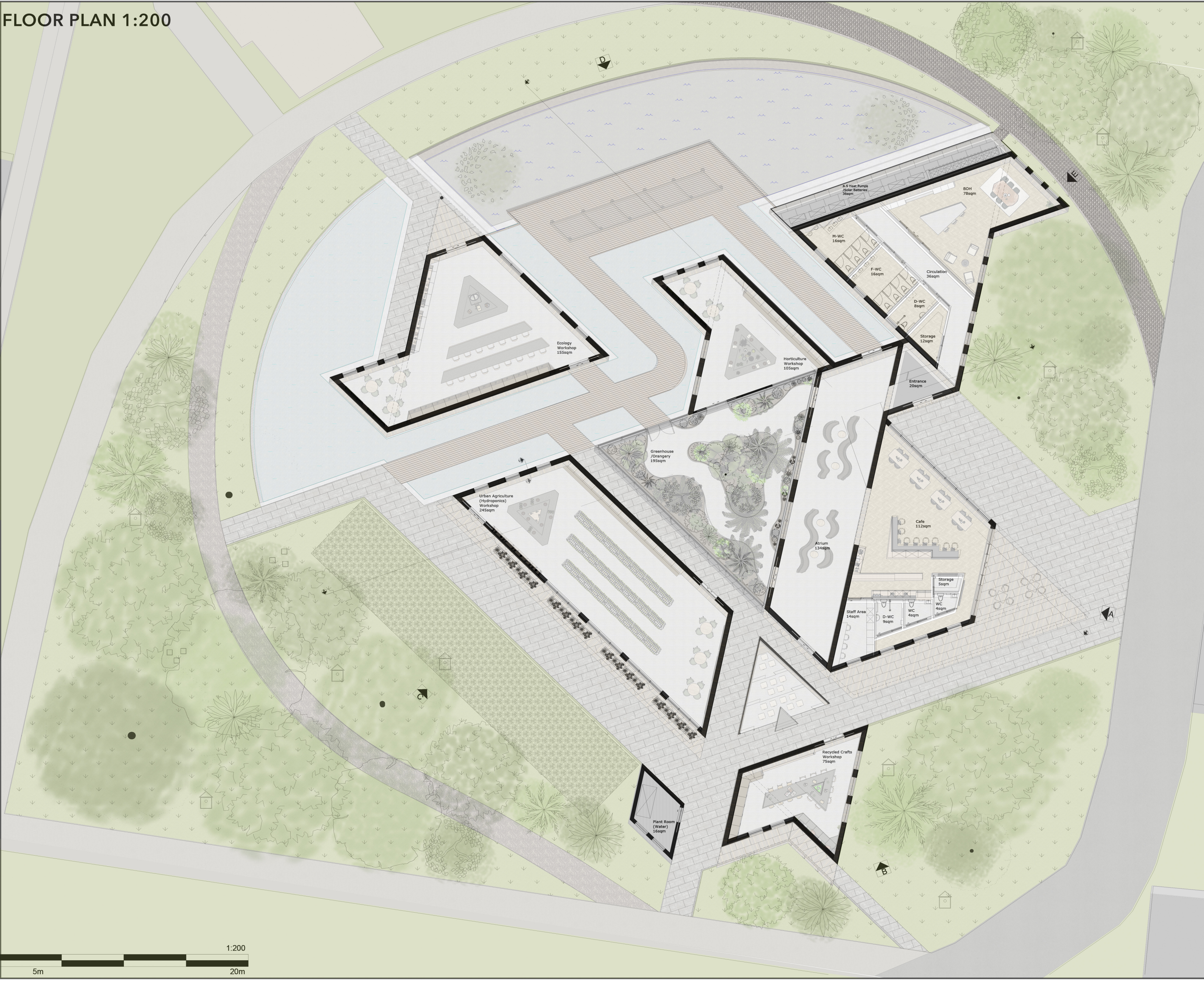
ADDITIONAL FEATURES (AS PER LANDSCAPING PLAN)

- BIRD HOUSES
- BEEHIVE
- PLANTER
- PAVING
- DECKING
- WATER FEATURE
- POND
- GEODELIC TANK
- BARK CHIP POND
- SOLAR PANEL
- BATTERY STORAGE

TOTAL PLANT BIODIVERSITY SCORE (Average of 10 plants)

9.0/10

This planting scheme uses native species suited to Lincolnshire's climate and soils. Enhances biodiversity, provides habitat, supports pollinators & strengthens ecosystem resilience. Supports Biodiversity Net Gain (BNG) objectives.



PERFORMANCE & SUSTAINABILITY

MATERIAL STUDY

HIGH PERFORMANCE SIPs PANELS

Structural Insulated Panels (SIPs) are high performance building panels that combine structural strength, superior insulation, and airtight construction in one integrated system.

- HIGH THERMAL PERFORMANCE**
Continuous insulation reduces heating and cooling loads
- AIRTIGHT CONSTRUCTION**
Minimizes air leakage for better comfort and efficiency
- SOUND INSULATION**
Dense core provides excellent acoustic performance
- SUSTAINABLE & EFFICIENT**
Prefabricated for less waste, faster build times, and long term durability



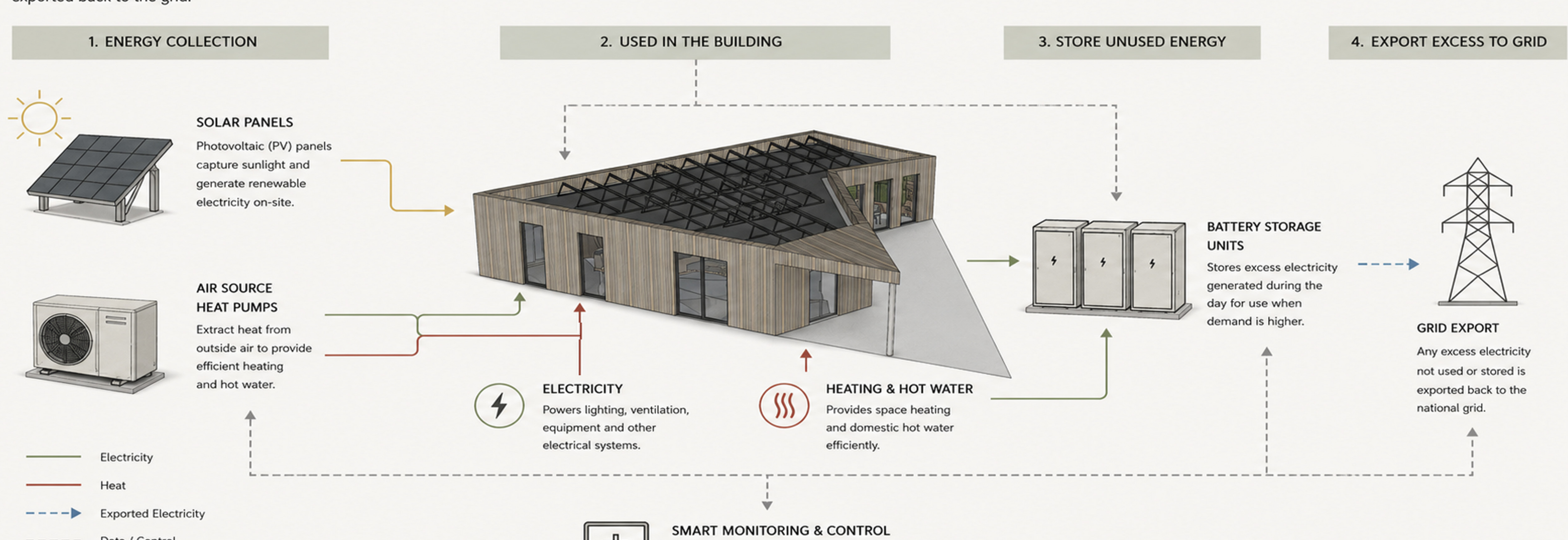
- 1 VERTICAL TIMBER**
Natural timber finish providing durability and aesthetic appeal.
- 2 TIMBER BATTENS**
Horizontal and vertical battens create a service cavity for ventilation.
- 3 BREATHER MEMBRANE**
Breathable layer that allows moisture vapour to escape while preventing wind and water ingress.
- 4 ORIENTED STRAND BOARD (OSB)**
Structural sheathing providing racking strength and a robust substrate.
- 5 RECYCLED PET FOAM CORE**
High-performance core offering excellent thermal insulation and sustainability.
- 6 INTERNAL STRUCTURAL SKIN (OSB)**
Provides structural integrity and supports internal finishes.
- 7 VAPOUR CONTROL MEMBRANE**
Controls moisture transfer, protecting the panel assembly from internal humidity.
- 8 SECONDARY INSULATION LAYER**
Enhances thermal performance and reduces thermal bridging.
- 9 GYPSUM BOARD**
Interior lining providing a smooth finish and fire protection.

TYPICAL PERFORMANCE

- R-VALUE**
R-32 to R-40+ (varies with core thickness and added insulation)
- AIR LEAKAGE**
< 0.05 CFM / SF @ 75 Pa
- FIRE RESISTANCE**
Class 1 when protected with gypsum board
- SOUND PERFORMANCE**
STC 45+ (varies with assembly)

ENERGY EFFICIENCY

Renewable energy is collected on-site, used to power and heat the building, stored for later use, with any excess exported back to the grid.



EMBODIED CARBON (Estimated Total)

~370-400 TONNES CO₂e (A1-A5)

COMPARISON (indicative)

Timber / SIPs Building ~370-400 tCO₂e vs Conventional Concrete Building (of similar size) ~600-1,000 tCO₂e

ENERGY BALANCE (ESTIMATED)

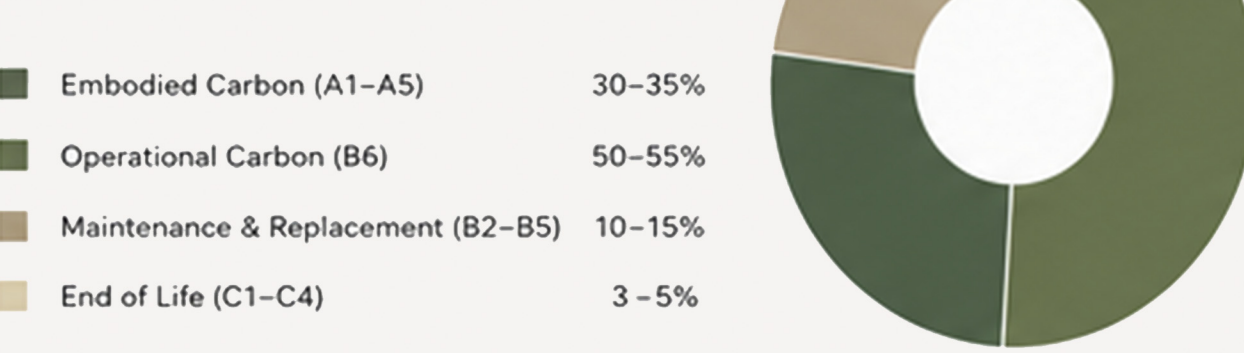
BUILDING ANNUAL ENERGY DEMAND ~55,000 kWh/year
SOLAR GENERATION (POTENTIAL) ~40,000-47,000 kWh/year
SUPPLIES 70-85% OF ANNUAL DEMAND

OPERATIONAL EMISSIONS

~1-4 TONNES CO₂e / YEAR (approaching net operational zero)

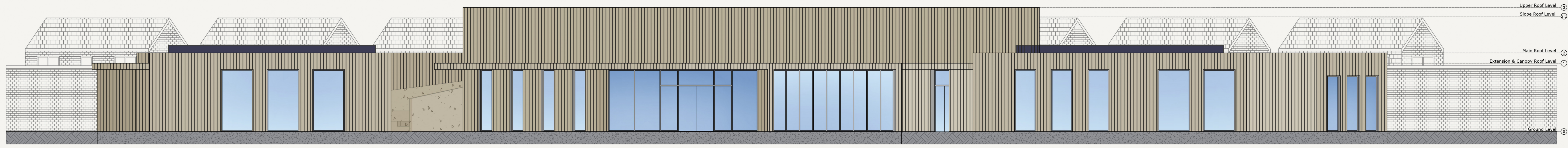
WHOLE LIFE-CYCLE CARBON SUMMARY

TOTAL WHOLE LIFE-CYCLE CARBON (Estimated) ~1,000 - 1,300 TONNES CO₂e (Over 60 Year Study Period)

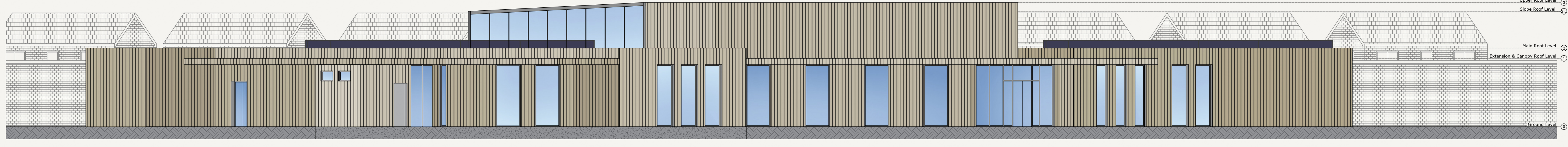


Key low-carbon strategies:

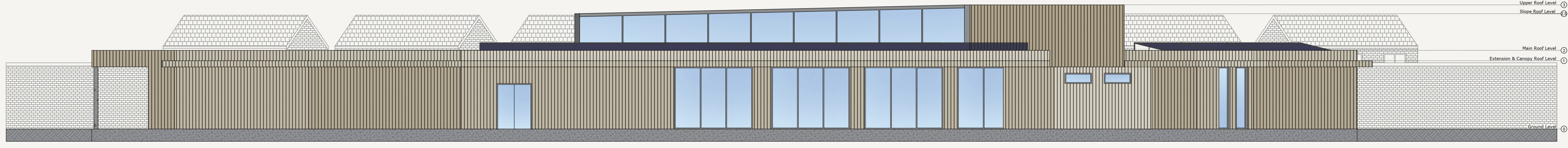
- Timber frame (stores carbon)
- SIPs panels (high thermal performance)
- Green roofs (biodiversity & insulation)
- Prefabrication (minimises waste)



ELEVATION A 1:200



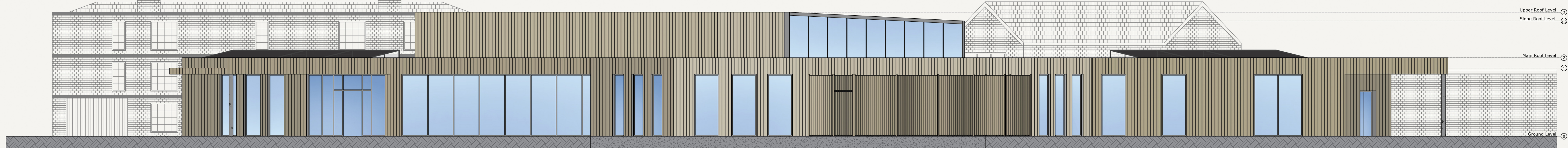
ELEVATION B 1:200



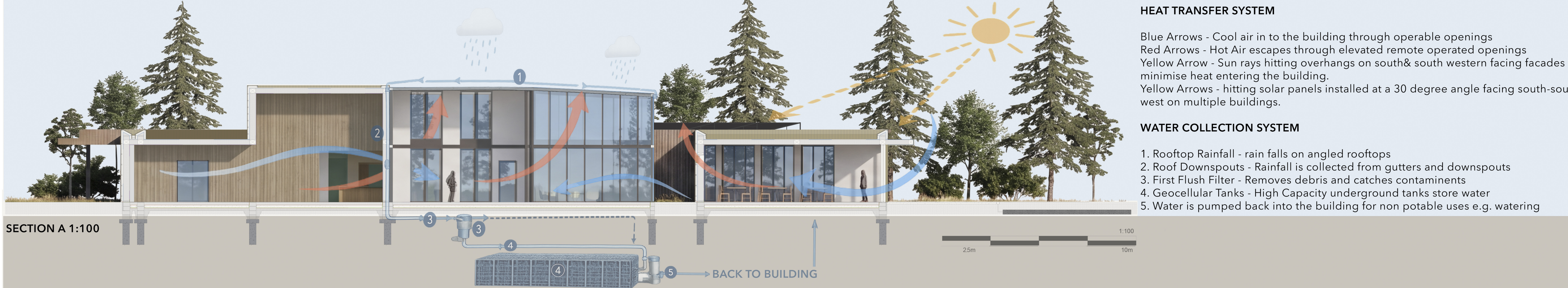
ELEVATION C 1:200



ELEVATION D 1:200



ELEVATION E 1:200



SECTION B 1:100

RENDERS

Depictions of the biophilic design, centred on connecting internal users with external environment and open flow with emphasis on transparency.

