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5.1 Vision

The overarching Vision for the Beehive Redevelopment focus on 3 key strategies:

A landscape-led vision for the whole site supported by a *People First* approach where a cultural strategy is set up through community and youth engagement to design and enjoy a better place for all. Additionally, the design focuses on contributing to ecology, health, and well-being by introducing alternative modes of transport, and sustainable drainage solutions.

In terms of Hierarchy of spaces, the *Beehive Greenway* is the main green corridor across the site, connected east-west via *active streets* with a series of localised open green areas and day/night activities supported by green boulevards to the south.

In term of key objectives, the redevelopment of the Beehive Centre achieves 100% Biodiversity Net Gain.

A network of public spaces must provide the overall open space as outlined in the "Landscape and Open Space" Parameters Plan. Public open streets must be in line with the minimum separation width between buildings as set-out in the Parameters Plans.

The public open space include informal and formal public open space, such as plazas, boulevards, amenity spill-out areas, play on-the-way, buffer planting to neighbouring buildings, and structural landscape.

The design of the public realm is guided by a series of principles which will be detailed in the next section and underpins the conceptual landscape design.

## **BEEHIVE**



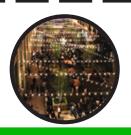
**VERA'S GARDENS** 



**GARDEN SQUARE** 







ACTIVE E STR



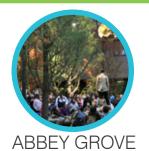
CONNECTI BOULE



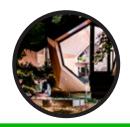
## **GREENWAY**



CREATIVE EXCHANGE



**AST-WEST** EETS



NG GREEN **VARDS** 





## 5.2 Design Principles

These are the core principles which guide the Public Realm design:

#### Welcoming to All



An underpinning ambition of the client and design team is to ensure that the overall character of the site is welcoming and inclusive to local residents and the wider public. Great attention is to be given to the every-dayvisitor experience and how they might engage with the site.

## Good Neighbours



Welcoming neighbours is a key strategic pillar, to ensure the site feels like part of the neighbourhood from day one and in turn the neighbours feel positively towards the development. For example, the design provides Community Gardens, play-on-the-way and flexible spaces that can host community events.

#### **Pedestrian Priority**



This large site will be used by a variety of people across different age groups, ethnic backgrounds and abilities. The focus is People First, from the entrances and primary circulation routes, through the varied internal spaces, active frontages and facilities, and diverse range of activities provided for, across the course of a day and week.

#### Cycle Friendly



As part of Cambridge's wider cycling aspirations, the site proposes a segregated 4m cycle lane to better connect local residents and commuters to the green transport network.

#### Health & Wellbeing



In addition to encouraging walking and cycling across the site, the public realm has an important role to support the health and wellbeing of communities through the provision of formal and informal activities, such as green gym equipment, a running track, group exercise class spaces, open space and access to nature.

#### **Hydrological Cycle**



As part of Beehive Redevelopment's mission to be exemplary, a positive relationship with - and sustainable use of - water throughout the site, at all levels (roofs, above and below ground) is a crucial layer of blue infrastructure.













### **Ecology**



The transformation of a large car park presents a blank canvas opportunity to transform the area for the local community. In line with specialist advise, the scheme will seek to retain, enhance and safeguard habitats of comparatively greater ecological value, and introduce substantial areas of new landscape planting and open space areas, with an overall ambition to exceed Biodiversity Net Gain policy targets.

## 5.2 Design Principles

An initial analysis of the existing site and the immediate context revealed various opportunities that have been incorporated into the landscape proposals.

Working with the site's conditions, we have developed a proposal that successfully contributes to its surroundings, and reads as a holistic part of the wider urban tapestry.

#### **Edges & boundaries**

The site is framed by 4 distinct boundaries:

- Coldham's Lane to the north
- The railway line to the east
- A private road with level changes to the south at York street.
- Neighbours at Silverwood Close screened by substantial existing planting to the west.

#### Levels & drainage

The existing site gently slopes down towards the north east, with a notable level change to the southern edge along the private road at Sleaford St. The site is extensively hard surfaced, drained by gullies and pipe networks to local public surface water sewers, with minimal source control. Opportunities exist to provide source control,improve water quality, and reduce flood risk elsewhere. Our proposal works with the existing levels and contribute to sustainable drainage.

Existing surface water drainage regime runoff from extensive areas of on-site hard standing is drained via linear channel drains and gullies to an extensive underground pipe network;

- No Sustainable Drainage (SuDS) features have been noted from site walkover surveys
- Some underground box culvert attenuation storage beneath the southern car park
- Flows are released northwards to the Anglian Water public surface water sewer network beneath Coldham's Lane.

#### **Existing vegetation**

Two thirds of the site boundaries benefit from healthy trees and established shrub planting.

Further information will be available in the Ecological Assessment that Ecology Solutions Limited have produced. It is proposed to retain and extend these green assets as much as possible in order to contribute to the aesthetic (and acoustic) enjoyment by both members of the public and existing neighbours and maintain the ecological and biodiversity benefits provided by the existing habitat.

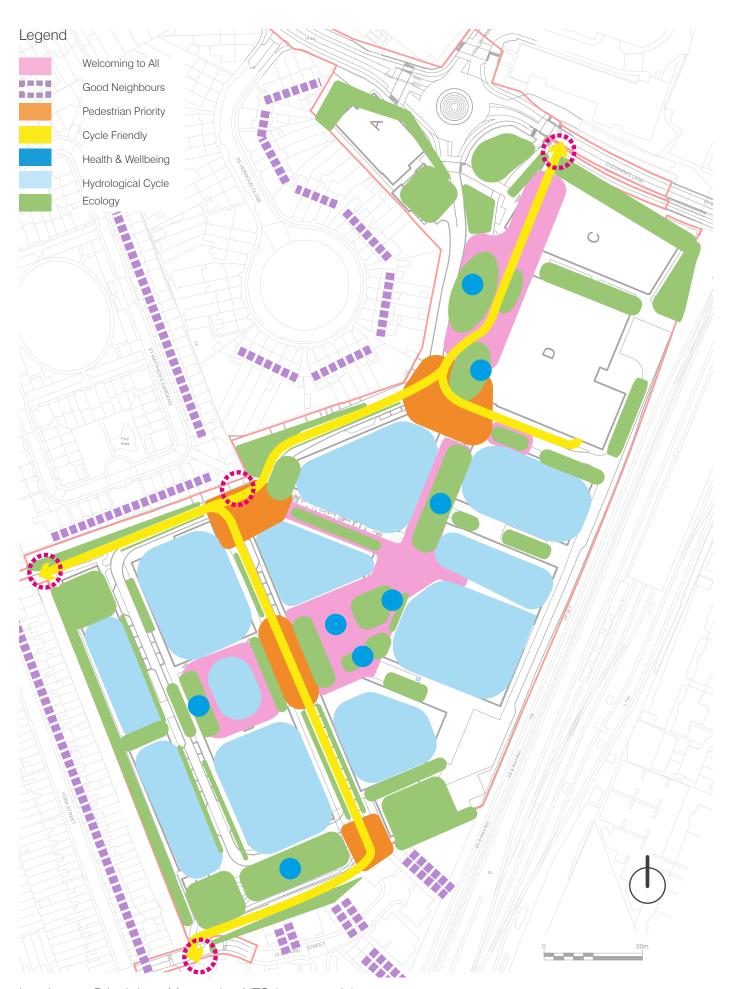
#### Sun and daylight

This south facing site benefits from long periods of sun throughout the year. The landscape and public realm has been designed to capitalise on the south facing aspect of the site and the most significant public spaces receive great sunlight throughout the day.

Relevant Policies and Guidance:

- Cambridge Local Plan 2018 Policy 31: Integrated Water Management
- Cambridge Local Plan 2018 Policy 32 : Flood Risk
- Sustainable Development, Climate Change, Water and Flooding
- Sustainable Drainage : Cambridge Design and Adoption Guide
- Cambridgeshire Flood and Water SPD
- Sustainable Design & Construction SPD
- Cambridge and South Cambridgeshire Level 1 SERA
- Greater Cambridge Biodiversity SPD





Landscape Principles - Masterplan NTS (not to scale)

# 5.0 Landscape5.3 Local & Neighbourhood Open Space

Within a 400m radius of the site there is a deficiency of public open space, green space or nature. This is illustrated in the diagram below, in relation to the site location. This demonstrates the significant contribution to accessible open space that the redevelopment of the Beehive Centre will make to the area. Additionally, the masterplan will introduce a variety of types of landscape, from open lawn areas to community gardens and meadows.



Romsey Recreation Ground



St. Matthew's Piece



Mill Rd. Cemetery - Bird sculptures by Gordon Young



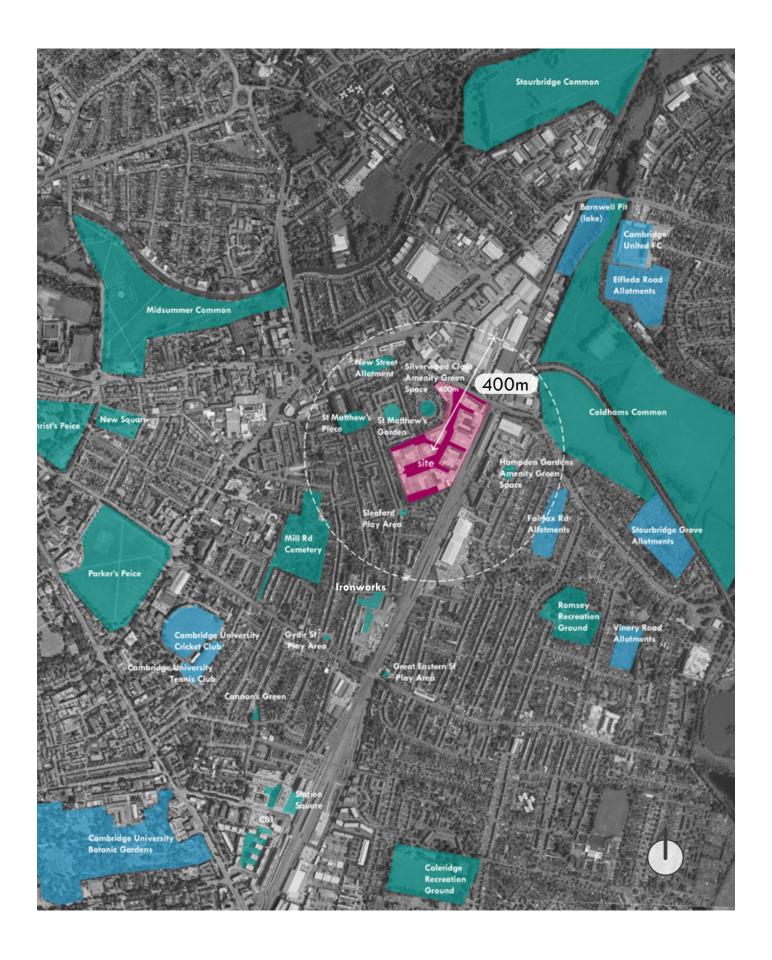
Site boundary and informal open space



Public open spaces



Amenity landscapes



### 5.4 Access

#### Access:

The site provides all inclusive access routes from the adjacent boundary and provides step free access throughout the site. Hierarchy in circulation must be in line with the Access and Circulation Parameters Plan. The site is accessible for pedestrians and cycles from the south, north and west and vehicles from the north off of Coldham's Lane only.

#### **Pedestrian Route Hierarchy:**

The Beehive Greenway is the central public realm corridor and the main pedestrian route across the site.

This area is step free with gradients of 1:60 or greater for maximum accessibility, movement, circulation and flexibility of use.

The Garden Square character area, is the largest open space within the *Beehive Greenway*; it creates a focal point to the development that is approximately equidistant between the three entrances from the neighbouring residential areas.

Five principles of inclusive design have guided the design of the public realm:

- Place people at the heart of the design process
- Acknowledge diversity and difference.
- Offer choice where a single design solution cannot accommodate all users.
- Provide for flexibility in use.
- Provide buildings and environments that are convenient and enjoyable for everyone to use.

#### Relevant Guidance:

- Approved Document M Volume 2
- BS 8300-1:2018



Illustrative Access Strategy Plan NTS (not to scale)

## 5.5. Site Topography

#### **Existing Surface Water Drainage Regime**

Runoff from extensive areas of on-site hardstanding is drained via linear channel drains and gullies to an extensive underground pipe network.

No Sustainable Drainage (SuDS) features have been noted from site visits or surveys. Some underground box culvert attenuation storage beneath the southern car park. Flows are released northwards to the Anglian Water public surface water sewer network beneath Coldhams Lane and the Railway.

Compliant graded routes are provided to southern entrances (York Street, Sleaford Street, St. Matthew's Gardens).

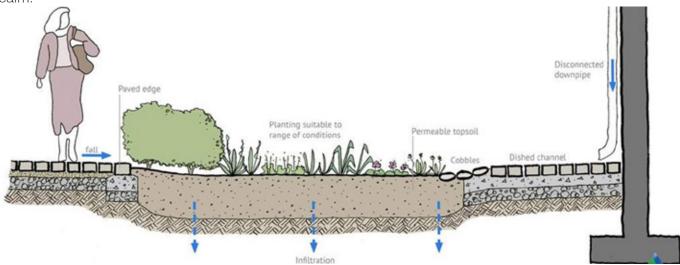
### **Opportunities & Approach:**

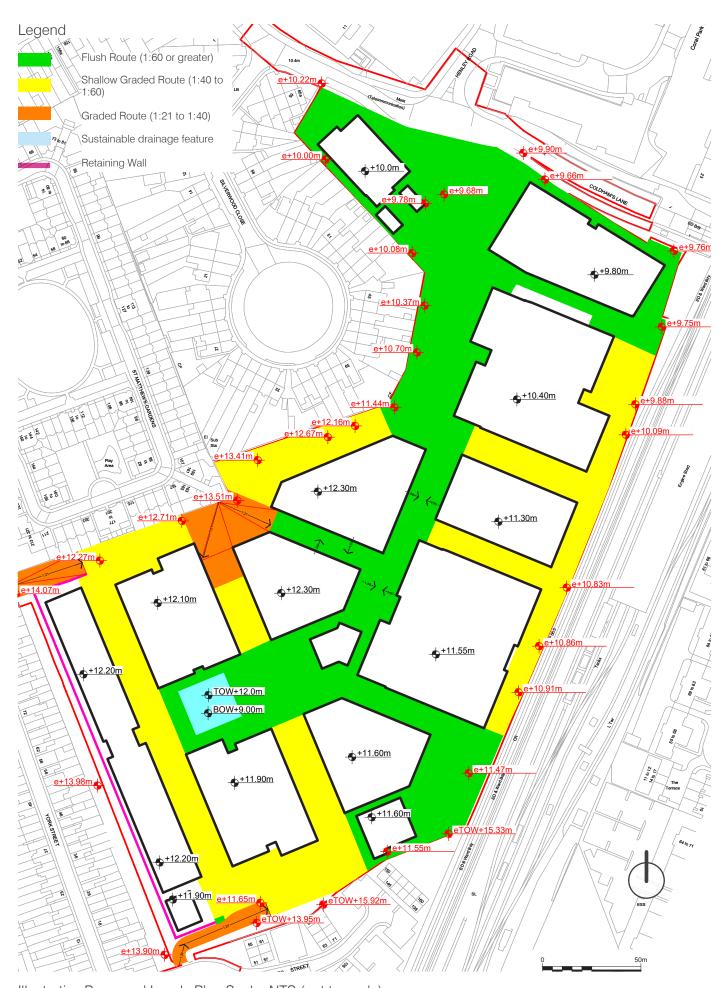
The redevelopment of the Beehive Centre scheme offers the opportunity to transform a largely impermeable surface into an exemplar in sustainable urban drainage. The design intent is to tie into existing levels around the site boundary and work with the gentle slope of the existing site, which falls down towards the north-east entrance.

Direction and falls should be in line with the existing site which will contribute to sustainable drainage.

The Beehive Greenway will maintain a flush surface with gradients of 1:60 or greater. Rain gardens are provided along this area to support runoff water drainage. Graded routes to the east and west are typically between 1:40 to 1:60 to assist drainage whilst creating an accessible and usable public realm.







Illustrative Proposed Levels Plan Scale: NTS (not to scale)

## 5.6 Drainage Stratey

## **Green Roof / Blue Roof Areas & Attenuation Storage**

Provision has been made for the integration of extensive areas of blue roof attenuation storage on selected buildings, in tandem with green roof coverage where practical considerations allow. Green roof areas will also be provided on selected roof canopies and cycle storage sheds where only lightweight loadings are permissible. Green and blue roof coverage across the site will be maximised whilst taking into account the competing demands for roof space from solar photovoltaics and critical roof top Mechanical & Electrical plant that form key components to the energy strategy. Below ground attenuation storage is proposed beneath external hardstanding areas and service yards towards the northern portion of the proposed development to control and utilise runoff from the lower (northern) drainage catchment, working in tandem with green and blue roof attenuation and upper catchment SuDS features.

### Rainwater Harvesting & External Re-Use

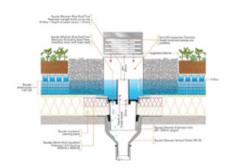
Rainwater will be captured from selected appropriate building roof areas for filtration and re-use for irrigation of soft landscaping within the public realm during particular dry summers after the planting establisment time, and service yard vehicle washdown. Opportunities for rainwater harvesting elsewhere are limited by internal building re-use.

The diagram on the opposite page illustrates the surface water attenuation strategy and the SuDS integration scheme. Proposed blue roofs are shown in the preferred location and roof surfaces that are available for green roof are shown assuming 50% of the available space is delivered as green space



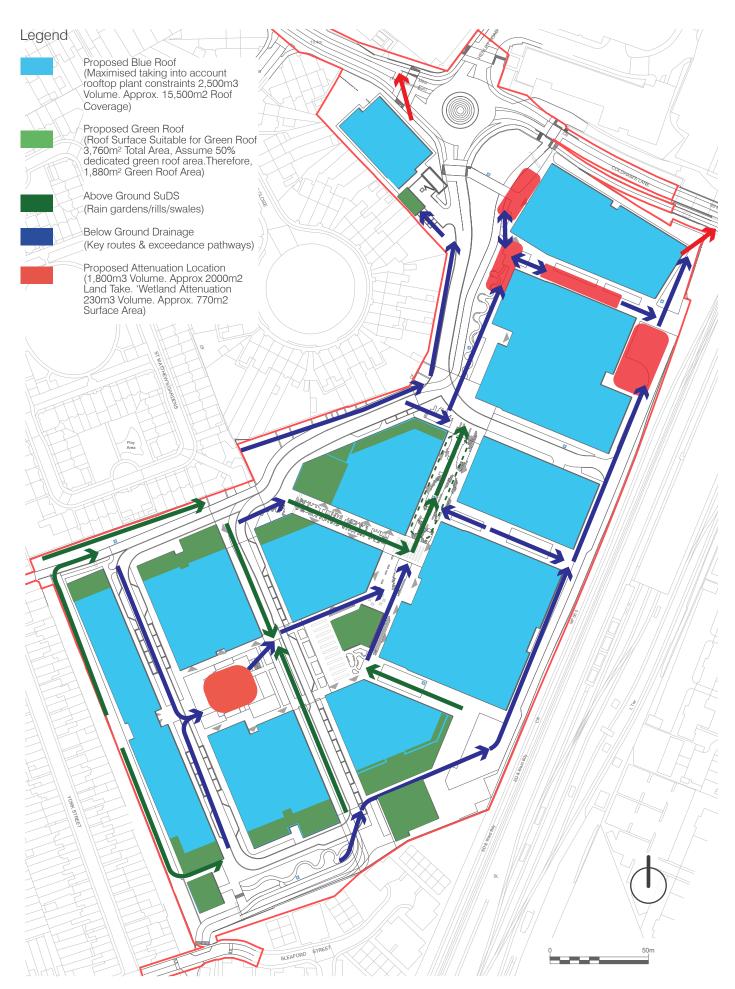
Green Roof Section

- 1 Wildflower Blanket
- 2 Biodiverse Substrate
- 3 Filter Fleece
- 4 Drainage Layer (Storage Troughs)
- 5 Fibre Protection Layer
- 6 Underlying Waterproofing System



Blue Roof Section through Blue Roof & Outlet Control





Illustrative Drainage Strategy Scale: NTS (not to scale)

## 5.7 Existing Trees on Site

10 TPOs to north of site Two Cat B London Plane 113 individual trees and 6 groups of trees were surveyed by Waterman arboriculturist consultant. Please refer to the ASR, Arboricultural Survey Report, for further information regarding tree retention, tree protection areas and the tree survey. Across the site, there are: 10 TPOs to north of site 3 Cat A London Plane Individual trees: 3 Cat A 20 Cat B 96 Cat C Good amenity screen of Cat B/C 0 Cat U One Cat B London Plane Groups of trees: 0 Cat A Cat C group of Ash, Hawthorn, Buddleja, Goat 0 Cat B Willow 6 Cat C 0 Cat U Mix of Cat B and Cat C trees in car park; none in poor condition despite location Cat C group of Blackthorn, Silver birch, Maple, **Climate** Sycamore **Character** The existing trees The boundary trees to the perimeter are a in particular provide major asset to the site in important amenity value to terms of ecology and the site, as well as other biodiversity and should individual mature tree be retained, where specimens. possible. Row of Cat C Silver birch (lower level)

Group of scrubby young trees

(upper level)



Existing Trees on Site Scale NTS (not to scale)

## 5.8 Tree Removal/Retention and Proposed

#### **Existing trees:**

- 113 individual trees surveyed on site
- Retain
- 45
- Remove
- 68

#### Existing groups:

- groups of trees recorded on site
- Trees with TPO (9) to be retained, subject to further review with Tree Officer
- Individual trees to the boundaries to be retained and enhanced where appropriate
- Groups of trees to boundaries to be retained and enhanced where appropriate
- Row of Silver Birch to edge parallel with Sleaford Street to be retained and enhanced where appropriate.
- Many trees in the car park have limited visibility from outside of the site, are relatively small and therefore their replacement has less impact on the local character.

#### **Proposed trees:**

- Planting of approximately 212 new trees;
- Native species to be considered for all locations, as preferable for biodiversity.
- Strategic tree planting is proposed in the Abbey Grove Character Area to create a distinct character to this key gateway into the site. It is also an area where trees with broader canopies can be planted to create a parkland character. Please refer to the tree planting strategy section in this document for more detail.





Illustrative Tree Removal, Retention and Tree Planting Plan Scale: NTS (not to scale)

## 5.9 Ecology

#### **Existing baseline**

The existing baseline of the application site holds very limited ecological value. There is significant scope to deliver a range of species-rich habitats which are currently absent from the application site; 20% minimum Biodiversity Net Gain (BNG) to be delivered: in line with adopted policy and aligned with emerging policy;100% aspirational BNG.

#### **Positives**

- Features of value mostly limited to boundary vegetation.
- Individual trees hold some ecological value.

#### Negatives

- Large areas of hardstanding/buildings and amenity planting.
- Positive features tend to be sparse.
- Grassland managed for amenity purposes.
- Habitat types are considered to be of little intrinsic ecological value.
- Opportunities for faunal species are sparse, with large amounts of hardstanding and non-native planting excluding many faunal groups except for those that are highly adapted to an urban environment.



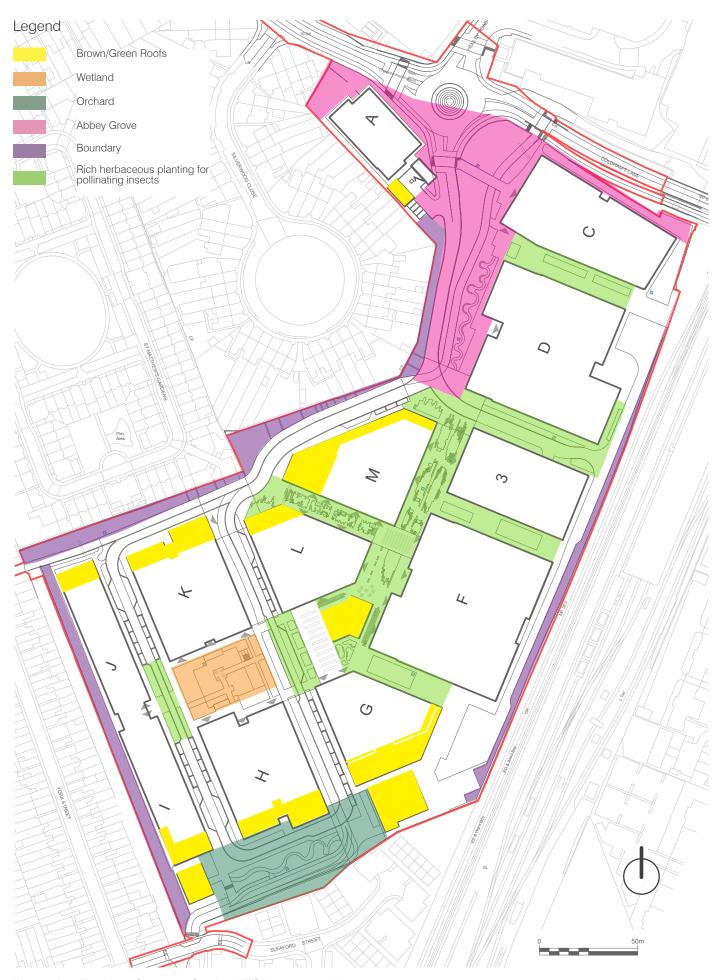


#### **Emerging proposals**

- Retain and enhance existing features of value
- Improvements on the Beehive Centre boundary condition have been undertaken to preserve and protect the existing green areas.
- Where losses to habitats are required, it is considered that these will be more than off-set for through the emerging landscape designs.
- This will be achieved through the provision of new areas of species-rich grassland, tree and scrub planting.
- Also new areas of wetland habitat.
- Significant areas of green and blue roof space.
- Non-native amenity species will be kept to a minimum.
- Native berry or nut bearing species favoured.
- This will ensure new and improved opportunities for faunal species and significantly improve the ecological value of the site over the exiting situation.

#### **Faunal enhancements**

- To be delivered across the site.
- Will include new opportunities for nesting birds (incl. local priority species) and roosting bats, which will be integrated into the new buildings.
- Equally, the proposal is to install bat and bird boxes on the retained, mature trees along the site boundaries where there is minimal exposure to artificial lighting and adequate shelter.
- Invertebrate features (such as invertebrate hotels and bee posts) will also be delivered across the site.
- Long-term management objectives, such as areas of relaxed management, will also ensure that the proposals will deliver dynamic environments which will be of benefit to a range of faunal groups.
- Specific measures such as reptile basking areas and hibernacula will also cater for local priority species such as common lizard and common toad.



Illustrative Ecology Strategy Scale: NTS (not to scale)

# **5.0 Landscape**5.9 Ecology

#### **Brown/ Green Roofs**



- Vulnerable species are protected from animal or human interference on the ground.
- The type of vegetation and features of the roof can also be tailored specifically to the area or selected floral or faunal species. This is particularly important in inner-city areas where habitats are lost.
- Removal of air pollution, increased roof water -proofing longevity, urban cooling and reduction of roof storm-water runoff.



#### **Boundary enhancements**

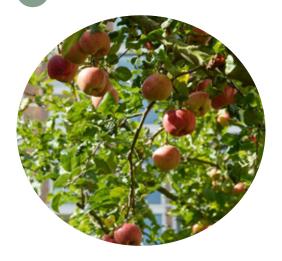


#### Wetland



- Amenity-led wetland features with positive ecological benefits.
- To sustain aquatic life and to keep water temperatures relatively constant, deeper areas of permanent water could be provided to the middle, with planting and grading to edges for safety.
- Native aquatic planting.
- Edges can support a range of tall emergent species that will quickly form tall stands of dense vegetation; occasional sloped banks would be ecologically beneficial.
- Dense patches of waterweed and emergent plants will become established in areas of shallow water.
- Examples species, including Hawthorn, Blackthorn, Dogwood, Guelder rose and Hazel are all fairly easy to establish and of value to a range of species.
- Provision of invertebrate 'hotels', bee posts or bee bricks; bat and bird boxes.

### Community Garden/ Orchard



- Traditional orchards in Cambridgeshire have included Cox's Orange Pippin, Bramley's Seedling, Conference pears and Victoria plums;
- Native species (wildflowers, mixed native scrub, fruit bearing trees) will be of value to range of faunal groups, including foraging and nesting birds, foraging bats and invertebrates.
- Emorsgate EM3 (or similar) beneficial for pollinating insects.
- Provision of invertebrate 'hotels', bee posts or bee bricks; bat and bird boxes.

### Abbey Grove



- Reduces both noise and air pollution.
- Opportunity to explore the inclusion of more traditional woodland environment.
- Bolster and strengthen existing boundary vegetation with native tree and shrub species.
- Native species (wildflowers, mixed native scrub, fruit bearing trees) will be of value to range of faunal groups, including foraging and nesting birds, foraging bats and invertebrates.
- Emorsgate EM3 (or similar) beneficial for pollinating insects.
- Provision of invertebrate 'hotels', bee posts or bee bricks; bat and bird boxes.

### **Climate**

The site wide ecology strategy has been reviewed holistically alongside the landscape to ensure true integration.







Examples of Bat and bird boxes, please refer to the Ecological Assessment for specification and details

## 5.0 Landscape5.10 Sustainability

#### **Strategic Tree Planting**

58 new trees are part of the strategic planting: only in Abbey Grove character area the selection of trees will allow for a carbon storage of 265 tonnes at tree maturity.

This approach reduces both noise and air pollution and improves air quality and wellbeing.

The planting strategy will bolster and strengthen existing boundary vegetation with native tree and shrub species; Native species, including wildflowers, mixed native scrub and fruit bearing trees will be of value to a range of faunal groups, including foraging and nesting birds, foraging bats, and invertebrates.

#### **Sustainable Surface Water Management**

In line with local and national policies and guidance, the SuDS hierarchy has been followed in the evolution of a conceptual surface water management scheme for the proposed development.

Rainwater will be harvested at roof level, filtered, and re-used. It is not proposed to install automated irrigation for the planting. Instead, it is proposed to install water points which will water the plants during the 2 years planting establishment period with an expectation of no further need of irrigation after that period. If irrigation is required in case of a particularly dry / hot summer, priority should be given to irrigate certain areas as Abbey Grove and Vera's Garden over the other areas on site.

Blue and green roof areas will be provided on selected building roofs, with sedum green roofs on selected canopies and cycle stores.

'Soft' SuDS will be provided in the form of a Wetland feature, rain gardens, filter drains and natural swales.

Whilst principally for amenity, landscape, and biodiversity benefit the Wetlands will be designed to provide a material quantum of surface water attenuation.

Wholesale disposal of surface water runoff to ground, via infiltration, is not considered to be viable due to the shallow groundwater table underlying the site, although lined and under-drained permeable surfaces will be provided across active space and public realm, integrated within hard and soft landscape areas where practical, accessible, and inclusive considerations allow.

Water quality benefits will be gained via integration of multiple treatment trains, including filter media, grassed filter strips and proprietary pollution control units.

Below ground attenuation and flow control arrangements will be provided beneath active space to control design storm events considering future climate change allowances.

Post-development surface water runoff rates and volumes will be no greater than for the undeveloped site in line with LP Policy 32. BREEAM sustainability aspirations, provision of attenuation storage, and integration of a suite of on-site SuDS measures within the landscape will seek to control flows much closer to pre-development 'greenfield' runoff rates. Flood risk to off-site areas will be reduced post-development benefitting the Coldham's Common 'wetspot' and downstream areas.

#### **Water Quality & Biodiversity Benefits**

Inclusion of 'living' green roof areas and associated substrate material on selected proposed roof areas, ideally in conjunction with underlying blue roof geocellular storage crates, will allow runoff and pollutants to be controlled and captured at source, before releasing cleaner runoff to the positive drainage systems (pipes) at attenuated rates. This approach provides source control of both the quantum and quality of surface water runoff post-development and can also provide significant Biodiversity Net Gain.

The integration of the wetland aspire to achieve a designed system in which most of the storage and treatment is performed by the upstream source control elements of the SUDS.

This is achieved by ensuring that water flows slowly through the pond over an extended period of time. The time water takes to travel through is known as the residence time. The greater this is the slower the water flow, which helps silt drop to the bottom of the pond and allows the vegetation and other organisms to remove pollution.

#### **Resilient Planting Palette**

The planting palette has been carefully selected to withstand climate change therefore to minimise the need for irrigation after the 2 years of planting establishment and to prevent plant failure.

The planting mix in the wetland responds to both dry and wet conditions and is intended to be low maintenance and self-seeded aspiring to natural colonisation by the end of the system establishment. Native species of local provenance will be favoured but non-native species may be considered.

Relevant Policies and Guidance: Cambridge SUDS Design & Adoption Guide

# 5.0 Landscape5.11 Character Areas - Overview





## 5.11 Character Areas - Overview





Carden Saure



**Abbey Grove** 

Creative Exchange

Garden Square
North and South

Vera's Garden

The redevelopment of the Beehive Centre is divided in 6 distinct landscape character areas which will be further described in the following pages.

A community focus has been given to the main access points to boost and welcome residents and locals to interact with and enjoy the new activities on site.

These two welcoming focal points are Abbey Grove to the north, with a cultural/artistic focus, popevents, temporary installations, and community theatre, and Vera's Garden to the south with a more environmentally friendly activities and educational ecological awareness approach.

The Creative Exchange, is a space for smaller regular events, food trucks, stalls, outdoor dining and or outdoor working and it is the link between the Abbey Grove character area and the Garden Square character area.

The Garden Square is the main green open space and provides a variety of opportunities for visitors to engage with the landscapes as well as signficantly enhancing the biodiversity and ecological value.

Hive Lane is the new local high street that connects York Street to the centre of the masterplan and Creative Exchange character area. It is the Beehive Greenway supporting character area.

Finally, the Linear Walks are the streetscape spaces which connect into the aforementioned character areas. These spaces will include planting and trees, whilst also acknowledging circulation and groundfloor uses.





Hive Lane

Linear Walks

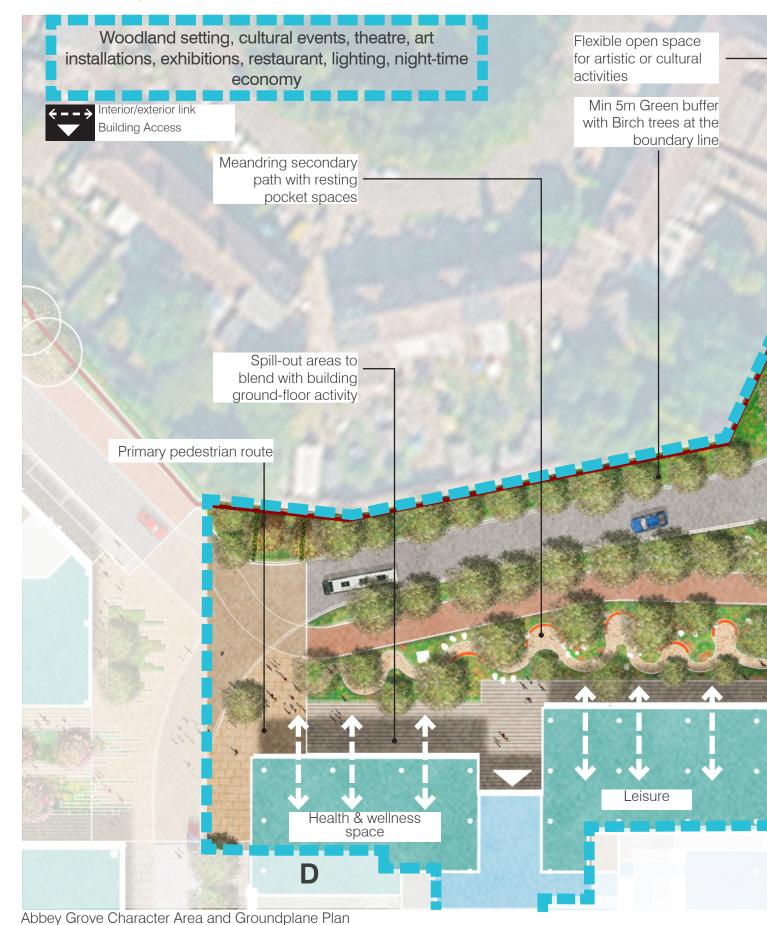


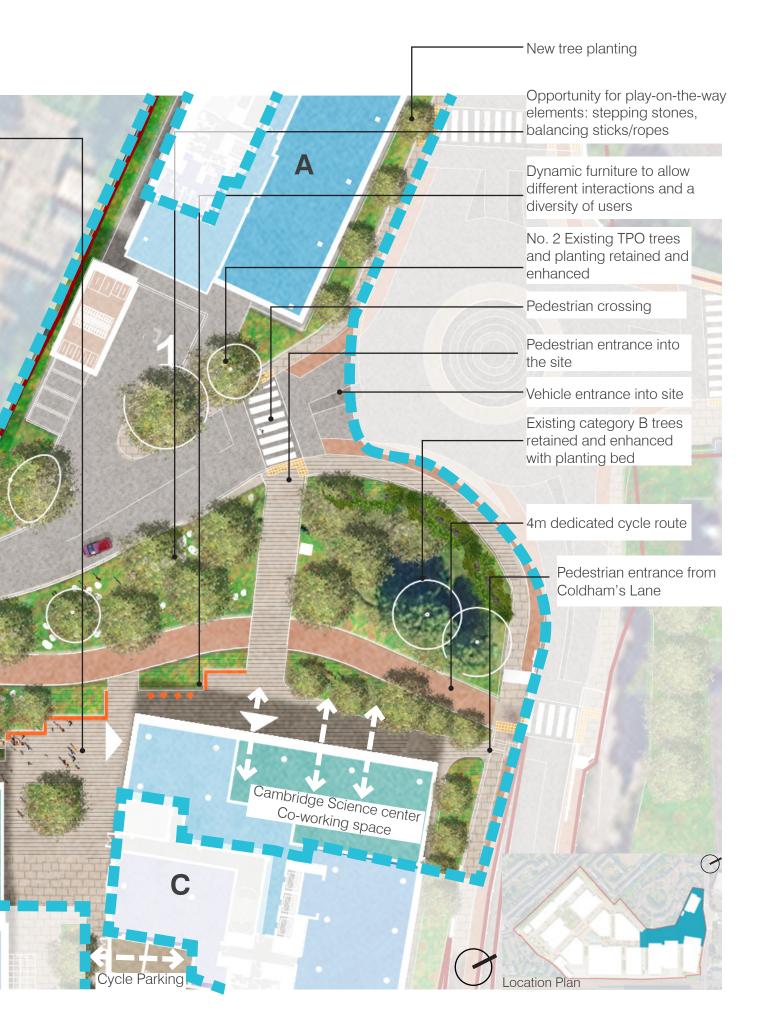
Character Area Plan



Illustrative Masterplan Scale: NTS (not to scale)

# **5.0 Landscape** 5.12 Abbey Grove





## **5.0 Landscape**5.12 Abbey Grove

The key characteristics of Abbey Grove Character Area:

- 136m X 32m at widest point arriving from the north
- 46% of space is soft landscape: 7795m2 total area from which 3564m2 is soft planting.
- 58 proposed new trees as part of the strategic Tree planting strategy to secure high quality green open space.
- South facing open glades amongst the tree planting will provide pockets for outdoor activities, seating and recreation.
- Planting beneath the canopies will be used to further break-up and soften the hard surfaces.
- Main entrance from Coldham's Lane

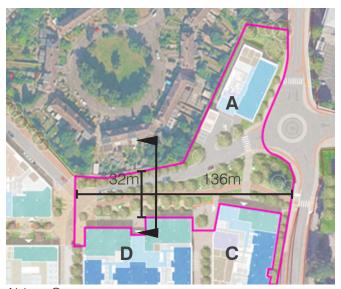
Abbey Grove is the welcoming place from the north of the site, as part of the *People First* approach, Abbey Grove provides a flexible and diverse set of scenarios and intimate spaces that could be used for cultural, artistic and community events. Through programming and youth involvement, community and neighbouring organisations are welcome to use and enliven the space.



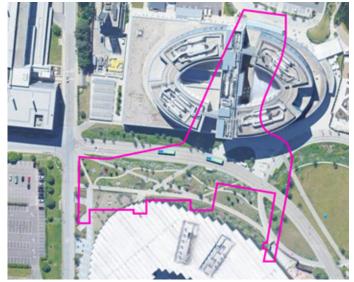
Woodland-style planting with south facing open glades



Intimate spaces & meandering paths



Abbey Grove

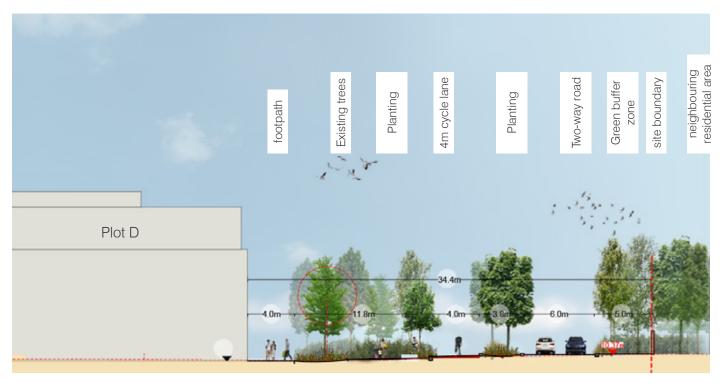


The green and the gardens - Cambridge Biomedical





The green and the gardens - Cambridge Biomedical Campus



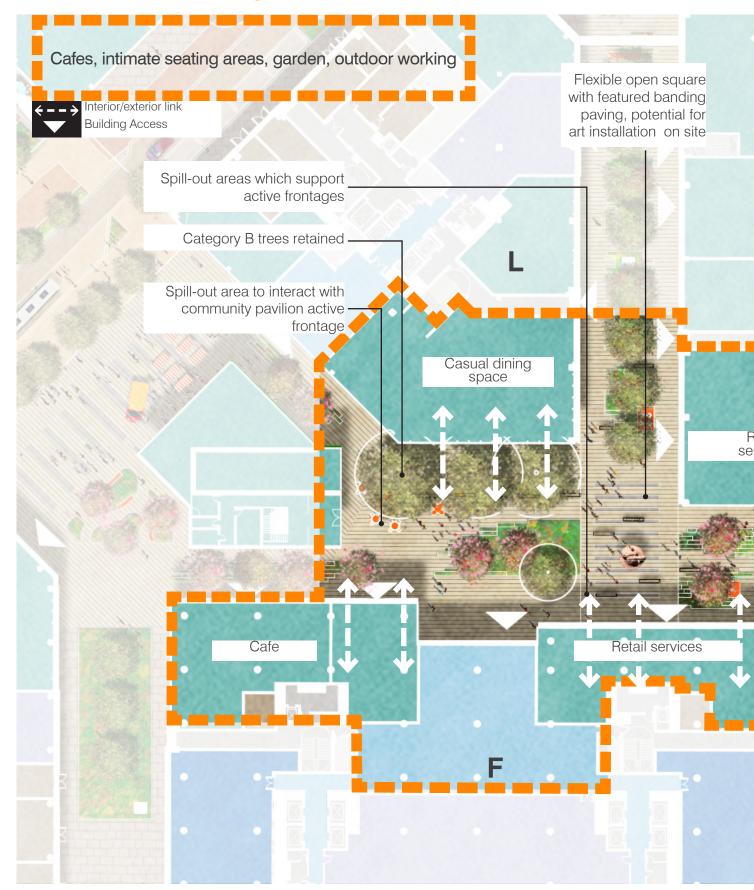
Abbey Grove Illustrative Section Scale 1:200 at A3

# 5.0 Landscape5.12 Abbey Grove





## **5.0 Landscape**5.13 Creative Exchange



The Exchange Character Area and Groundplane Plan



## **5.0 Landscape**5.13 Creative Exchange

The key characteristics of Creative Exchange Character Area:

- 57m X 18m and 13.5m as a minimum width
- 22% of space is soft landscape: 2460m² total area from which 530m² is soft planting.
- 18 proposed trees alongside retention of 3 existing category B trees.
- This is a car free space, scents and sounds of this multi-sensory experience have the power to be uplifting and contribute positively to people's sense of well-being.
- Informal east-west paths respond to the building entrances.
- Group and individual seating, and incidental fitness areas are woven throughout the planting beds.

Creative Exchange is the link between Abbey Grove and Garden Square; the central open space within the *Beehive Greenway*.

Wide open streets provide sufficient width for deep planting beds which soften the space by introducing a broken edge to the hard surface and allow planting and paving to imbricate.



Soft green edges, blend vegetation with activity spaces



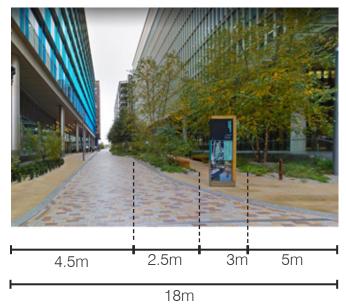
Kingdom Street, London



Creative Exchange

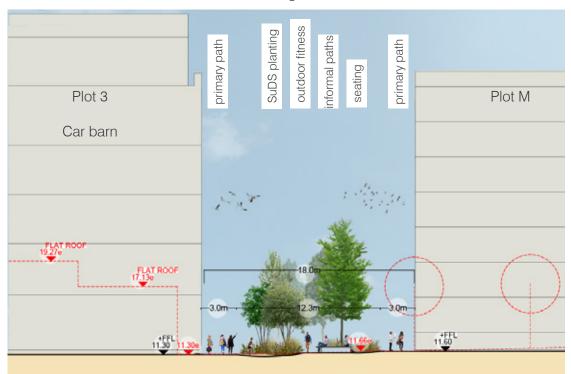


Kingdom Street, London





Kingdom Street, London



Creative Exchange illustrative Section Scale 1:200 at A3

## **5.0 Landscape**5.13 Creative Exchange

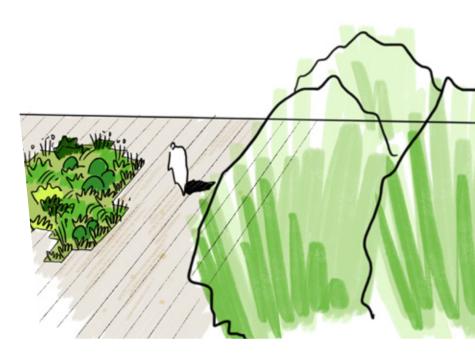
Circulation adjacent to building façades and informally within public realm



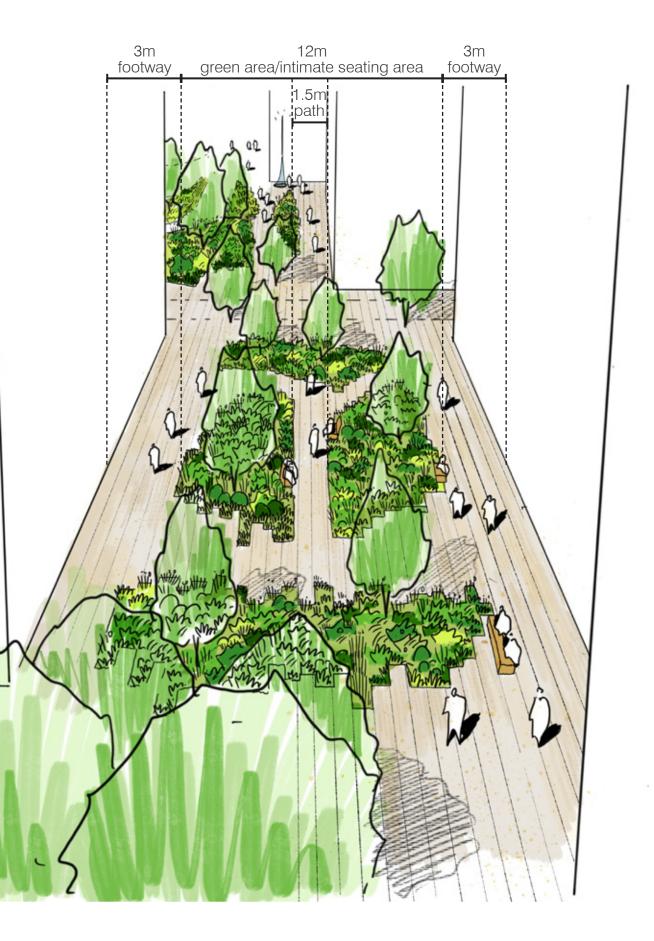
Dynamic space into the evening

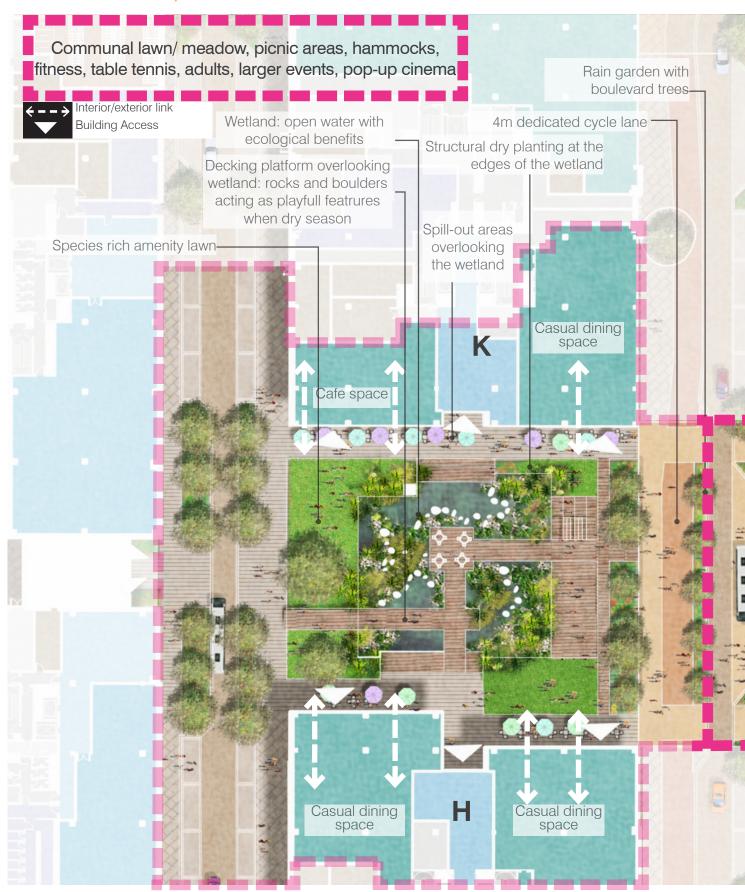


Staggered planting beds soften the hard landscape

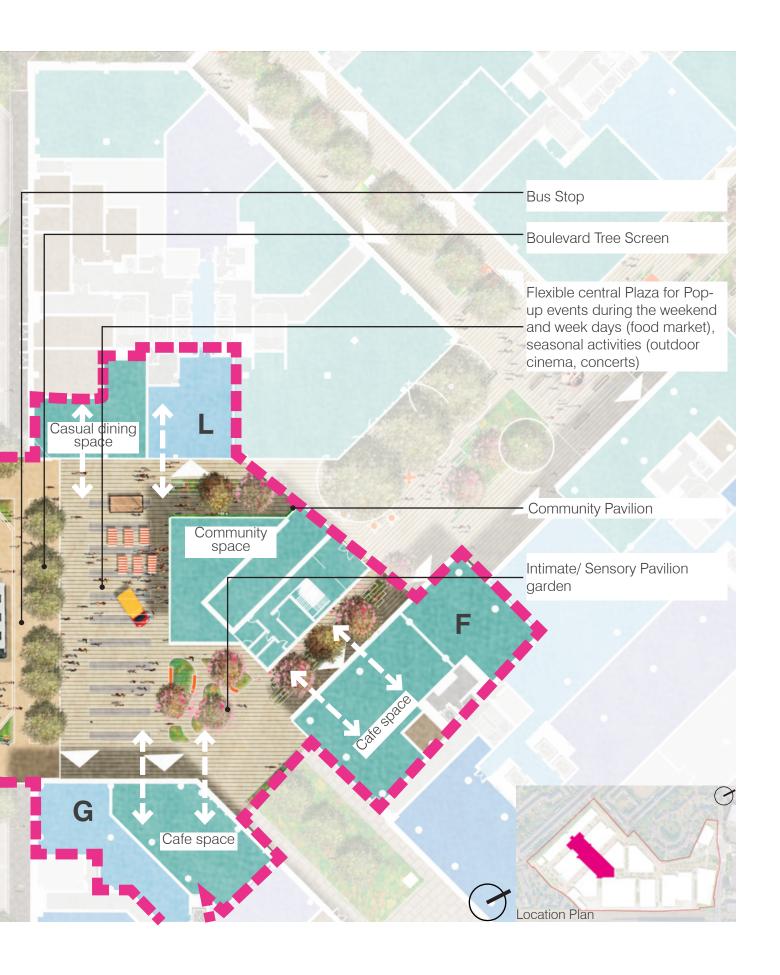


Early concept sketch of Creative Exchange towards Abbey Grove





The Common Character Area and Groundplane Plan



The key characteristics of Garden Square North:

- 41m long X 14m wide flexible plaza
- 19 proposed trees
- Balance between an active flexible Plaza and an intimate garden space; ecologically rich soft landscape

Garden Square North is a flexible Plaza generous in size and facing the Pavilion with the potential to support and enlarge the pavilion's activities and capacity. This area benefits from the greatest sunlight exposure in the site, therefore, is suitable for slightly large events while allowing users to come in contact with nature.

To strengthen the connection between the Garden Square North and South and reduce the separation created by the road, three rows of trees line the road, which has a change in surface to match the adjacent paving of the public realm spaces.



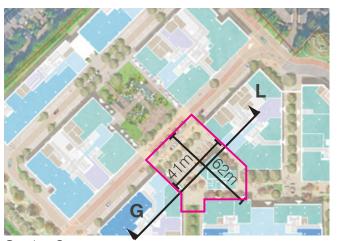
A space for weekend events: food market



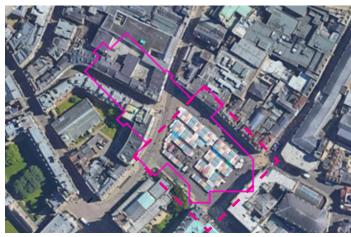
Larger events: pop-up cinema, art exhibitions



A flexible open space for different occasional events



Garden Square



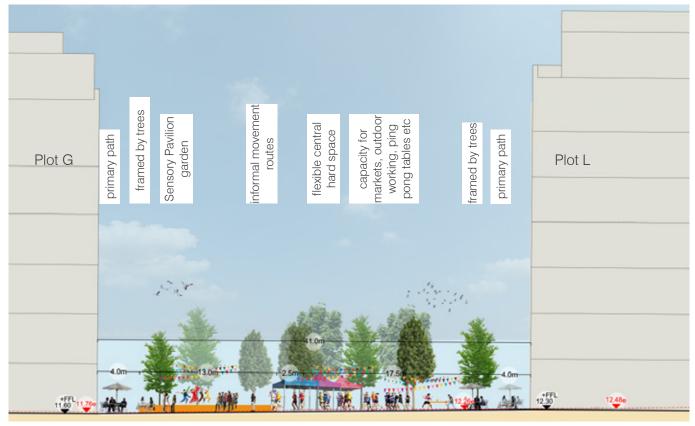
Market Square, Cambridge



Market Square, Cambridge



Market Square, Cambridge

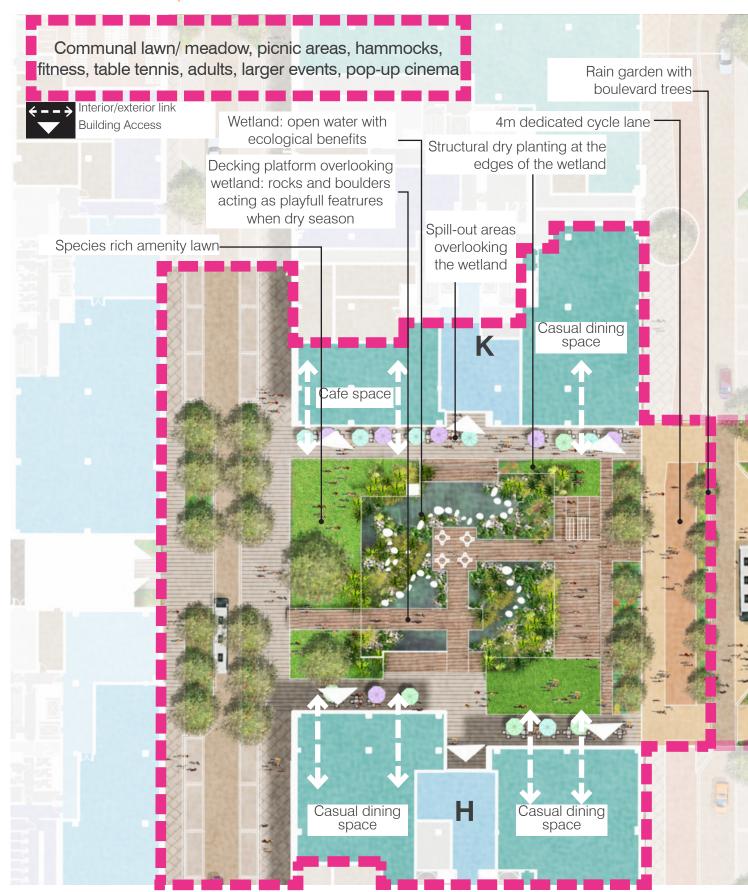


Garden Square - North illustrative section Scale 1:200 at A3



Garden Square North - Eye level perspective looking southwest





The Common Character Area and Groundplane Plan



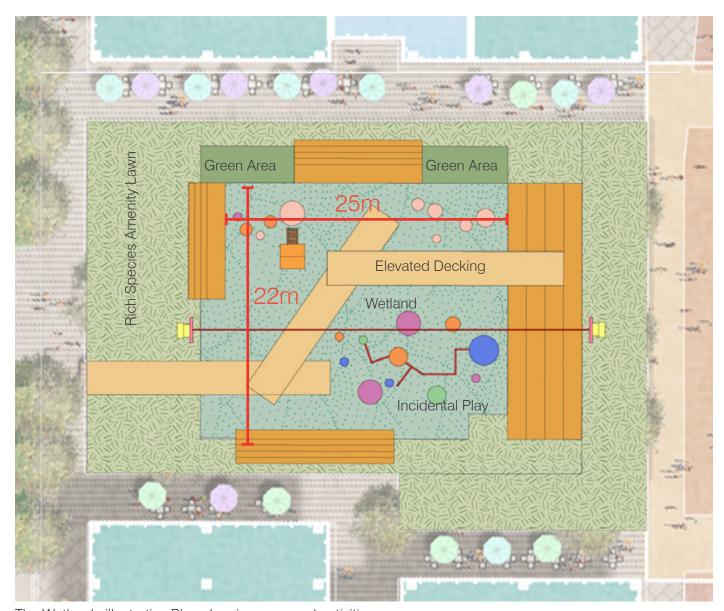
The key characteristics of Garden Square South -Wetland:

- 25m long X 22m wide Wetland.
- 230m³ of flood capacity at upstream level
- 20 proposed trees.
- Covered by vegetation and with shallow side slopes and varying depths which should include deep (0.9m) over-wintering areas as refuges for wildlife during severe winters. Flat bottoms depending on topogrphy means that for most of the time the water flows in a thin layer through the vegetation.
- The wetland must be designed to be visually attractive, to enhance the space it occupies.

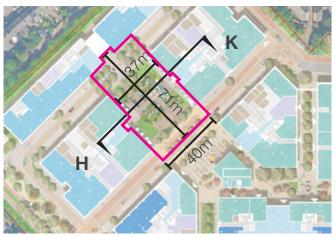
Small interpretation boards will be provided and should include information relating to the function of the pond and the local fauna and flora the system supports.

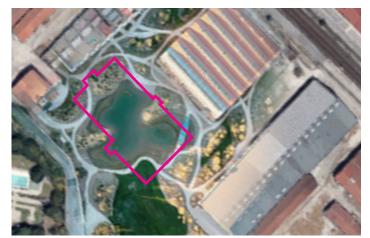
Garden Square South is characterized by the integration of a wetland. Spill-out areas will overlook this ecologically rich feature, creating a experience. An elevated boardwalk path is proposed to allow for visual connectivity with nature while providing safe habitats for wildlife.

Please refer to the wetland planting strategy for further details.



The Wetlands illustrative Plan showing seasonal activities



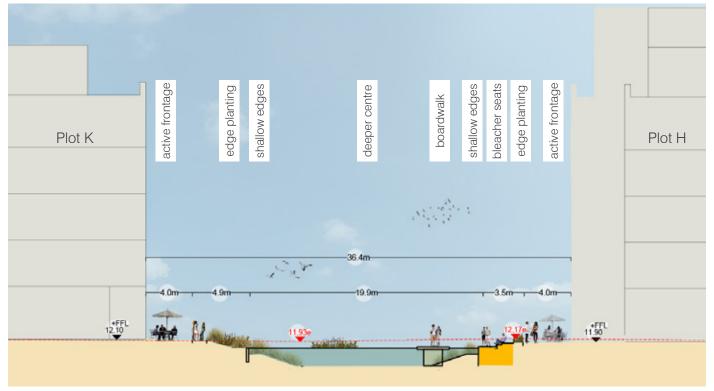


Garden Square

LUMA Parc des Ateliers, Arles, France



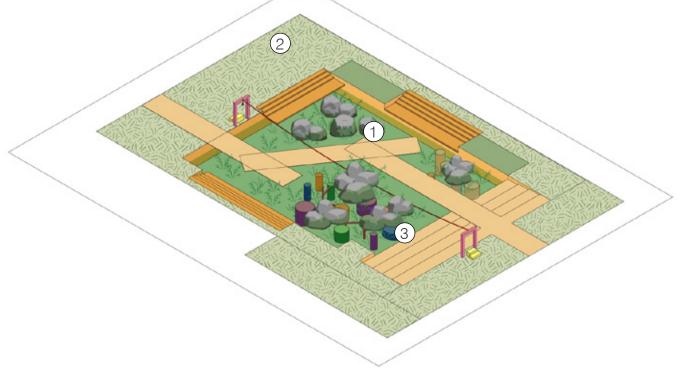
LUMA Parc des Ateliers, Arles, France

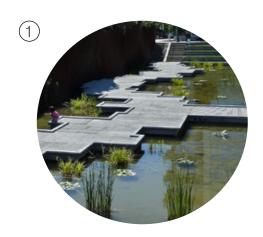


The Wetlands illustrative section Scale 1:200 at A3

# 5.0 Landscape5.14 Garden Square South - during wet condition







**Elevated Decking** 



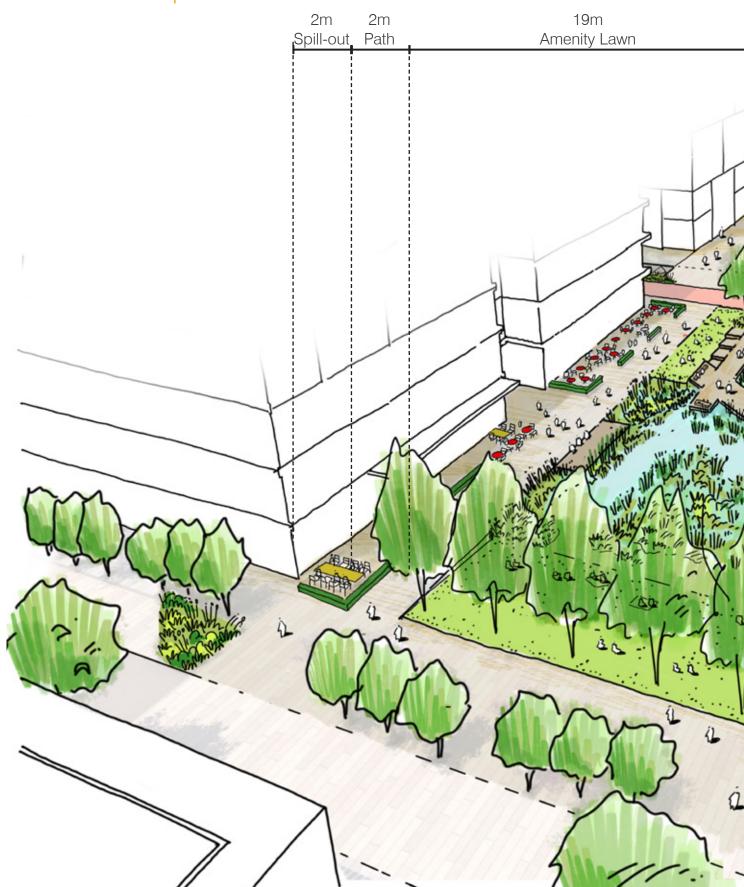
Amenity Lawn by the Wetland



**Bleacher Seats** 

# 5.0 Landscape5.14 Garden Square South- during dry condition





Early concept sketch - Garden Square - South







## 5.0 Landscape5.15 Vera's Garden



Vera's Garden Character Area and Groundplane Plan



### 5.0 Landscape5.15 Vera's Garden

The key characteristics of Vera's Garden area:

- 69m long X 30m wide
- 42.5% of space is soft landscape: 4064m<sup>2</sup> total area from which 1728m<sup>2</sup> is soft planting excluding green roofs
- 28 proposed new trees

In Vera's Garden the proposal is to create a space for the community with an educational approach for sustainability, food resilience and climate change.

Vera's Way itself is named in memory of a local resident who used the route to buy supermarket food for elderly neighbours.

This is the welcoming space to the south of the site, intended to involve and inspire the local community. Its sunny characteristic would facilitate small community events, a fruit orchard, vegetable growing, and other educational activities.

Existing trees are to be retained to maintain a green boundary with neighbours. The existing wall could be enhanced with a community mural or climbing plants. The cycle lane is split into two lanes to retain the existing Birch trees and enhance the existing vegetation, with careful consideration to movement and connectivity. The tree strategy prioritises berry trees, fruit trees/ orchard, to support pollinators habitat and biodiversity.



Educational days/activities



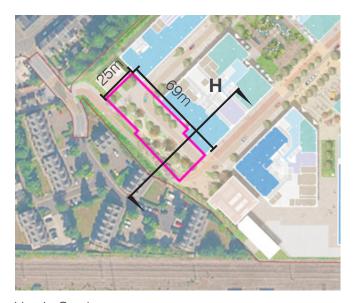
Community grow-food events/ gathering groups



Community orchard with mix of edible fruit



Sunny area for vegetable growing - Marmalade Lane



Vera's Gardens



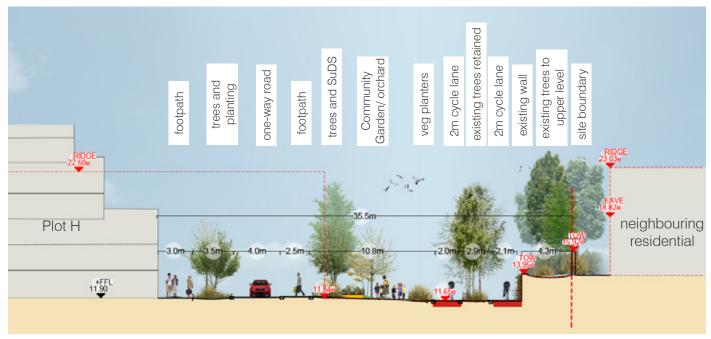
Physic Garden, Basel



Physic Garden, Basel



Physic Garden, Basel



Community Gardens illustrative section Scale 1:200 at A3

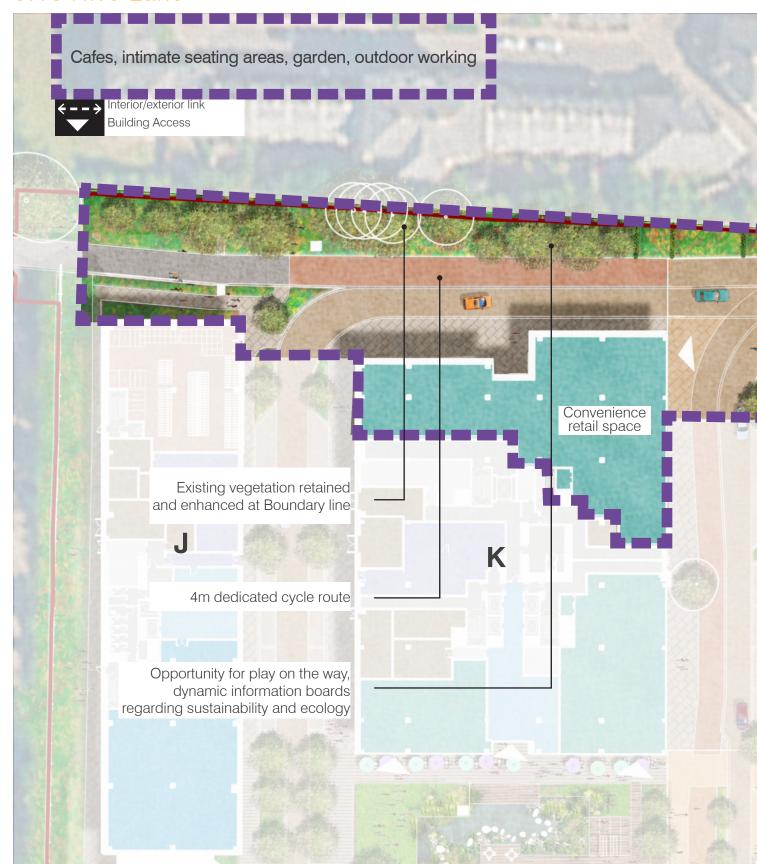
## 5.0 Landscape5.15 Vera's Garden



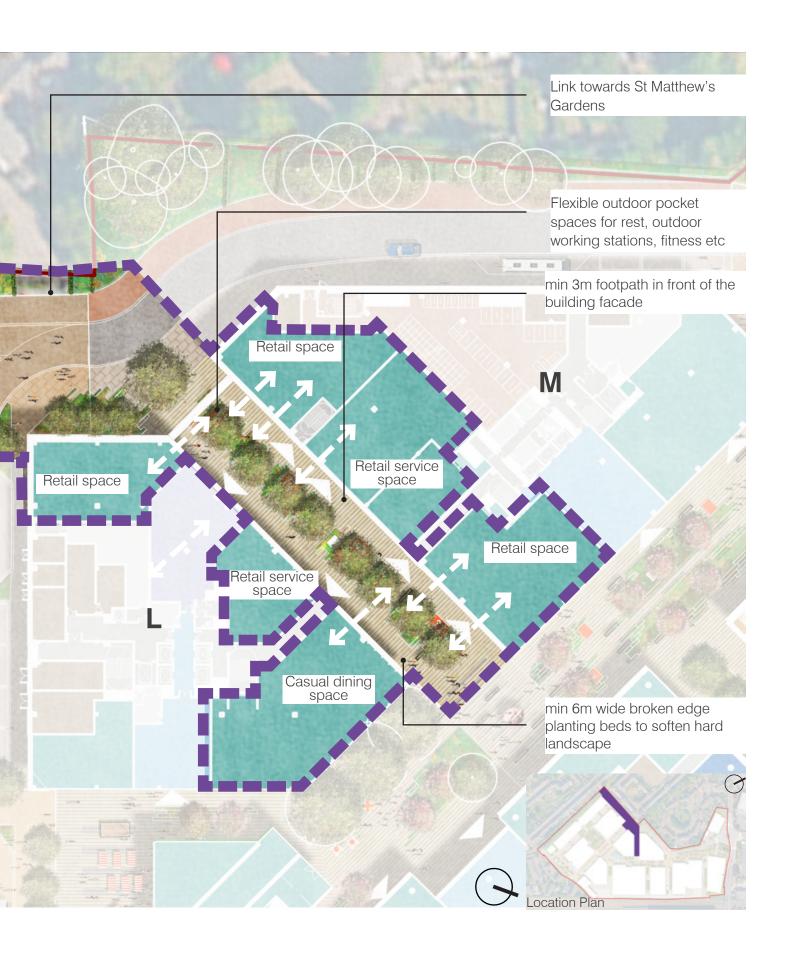
Vera's Garden - Illustrative View



## **5.0 Landscape** 5.16 Hive Lane



Hive Lane Character Area and Groundplane Plan



### **5.0 Landscape** 5.16 Hive Lane

Hive Lane is the new local High Street connecting York Street to the Creative Exchange character area. It is designed to decelerate journeys and is the pedestrian link to St Matthew's Piece further west, a well-regarded green space within the neighbourhood.

The various boundary conditions for the Beehive Masterplan are carefully considered. It is important to ensure there is a good relationship with the neighbouring communities. This is particularly important along the boundary with St. Matthew's Gardens, where the proposed cycle route will pass.

The proposal retains the existing vegetation along this edge and enhances the undestory with species rich meadows.

This will help to establish the key cycle and pedestrian route from York Street through the site with a 4m wide cyle route while allowing space for wild life.



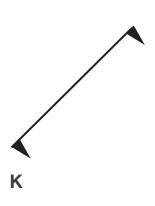
Wide cycle lanes along SuDS planting



Intimate seating pocket



Regent's Place, London



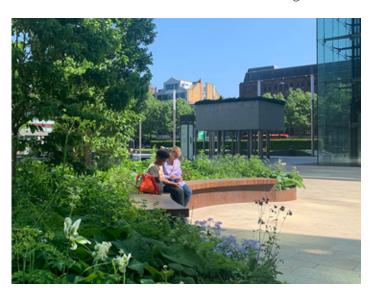
Hive Lane interface with boundary



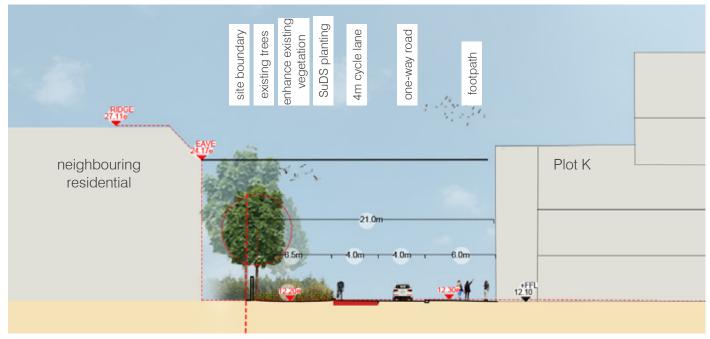
Hive Lane interface with Creative Exchange



Regent's Place, London



Regent's Place, London

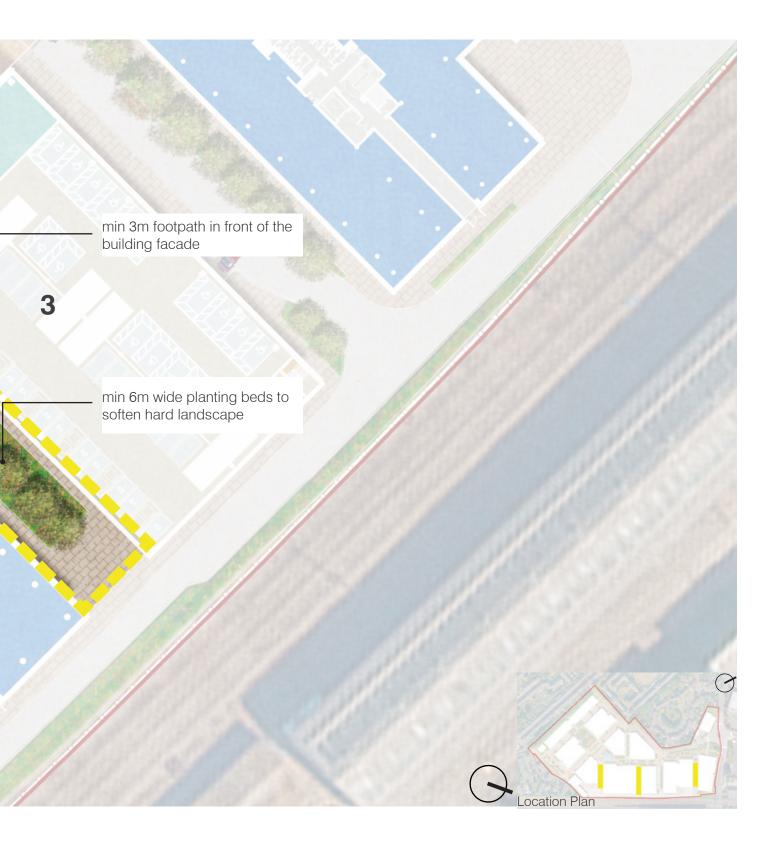


Beehive Lane illustrative section Scale 1:200 at A3

## **5.0 Landscape** 5.17 Linear Walks



Linear Walks Character Area and Groundplane Plan NTS



### **5.0 Landscape** 5.17 Linear Walks

The key characteristics of the Linear Walks Area:

- street width varies please refer to Parameters
   Plans, minimum street width at linear walk is 12m
- 30% of space is soft landscape: 7680m<sup>2</sup> total area from which 2318m<sup>2</sup> is soft planting excluding green roofs
- 50 proposed new trees across the linear walks

The Linear Walks are the east-west active streets linking to the character areas. A minimum 3m wide footway is provided adjacent to the building with a 6m central area of planting.

Alternatively, it is a space to dwell off the main route and have lunch or coffee with colleagues.



2m Walkway x 6m Garden/Green/Seating Space x 2m Walkway



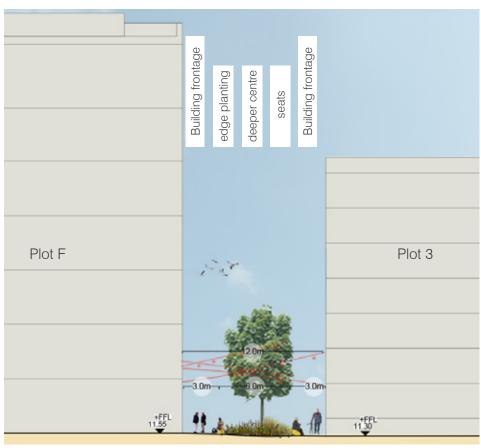
Southbank Place, Waterloo, London







Southbank Place, Waterloo, London



Linear walk illustrative section Scale 1:200 at A3

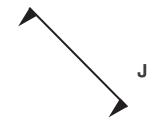
### **5.0 Landscape** 5.18 Boundaries

The boundary conditions for the redevelopment of the Beehive Centre are carefully considered.

Existing vegetation including trees are retained and enhanced.

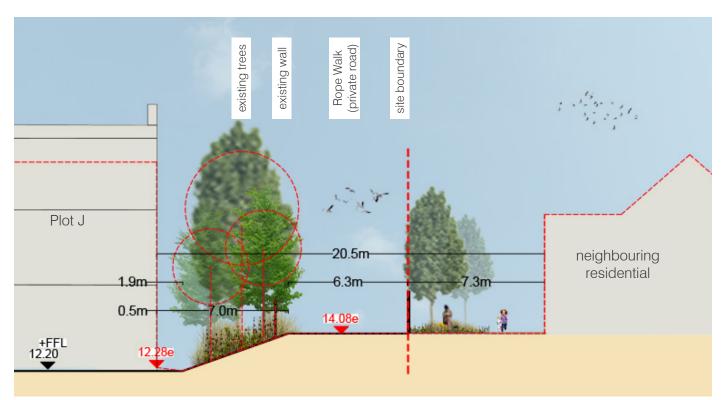
A minimum of 5 meters green buffer area was allowed whenever possible. In very particular locations where various constraints don't allow for it, a minimum of 4 meters is achieved.

Additionally, the consideration for the distance and building height adjacent to the neighbours to the south is important. The sloping groundplane and existing vegetation creates a separation and additional trees and planting will bolster this relationship. The 20m width from frontage to frontage will create an attractive green corridor that will be beneficial wildlife and pleasing to the eye for residents and people working on the site.



K

Rope Walk



Rope Walk illustrative section Scale 1:200 at A3



Illustrative Boundary Strategy Plan NTS (not to scale)

# 5.0 Landscape5.19 Existing Hard Landscaping Overview

The existing material palette on site includes concrete pavers, asphalt, and some brick pavers. Across the site the surface is primarily impermeable with some planting beds scattered in the parking lot. Most of the trees are planted in a hard surface. Most of the green areas are gathered against the site boundary.



Paving at existing primary pedestrian routes concrete block - grey



Paving at access through parking lot concrete block - red



St Matthew's Gardens entrance - concrete block



Existing cycle lane on site - asphalt



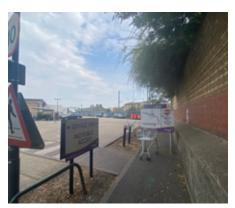
Existing Bus stop on site



Existing cycle lane on site - asphalt



Coldham's Lane access - asphalt



Sleaford St. boundary wall

The following page illustrates materials in the adjacent context.



Rope walk - corner community garden



Coldham's Lane bridge



Sleaford St.



St Matthew's Gardens access to site



York St. and Sleaford St. junction



Pocket corner garden with bug hotels at Ainsworth St.



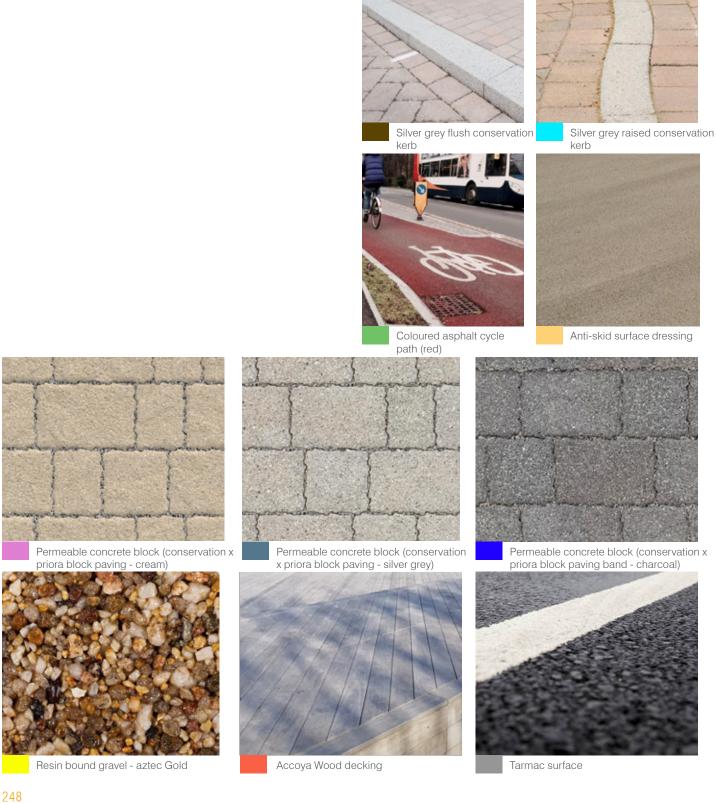
David Parr House - Gwydir St.

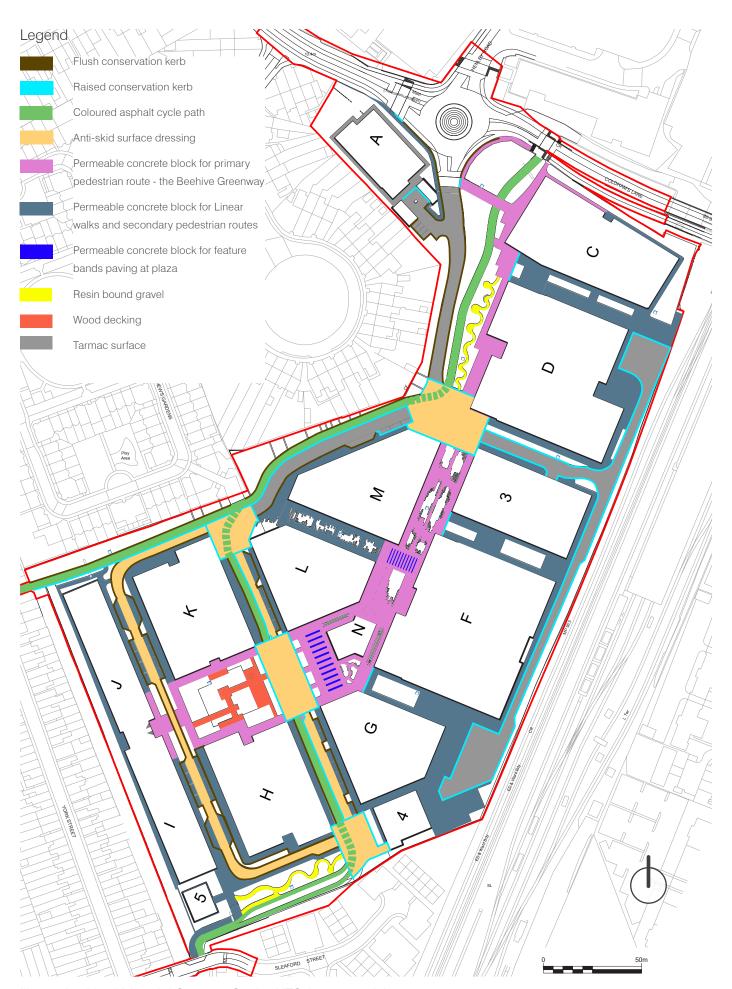


Sleaford Play area

# **5.0 Landscape**5.20 Hard Landscaping Strategy

Paving materials have been selected that are durable and contribute to the drainage strategy by creating permeable surfaces.





Illustrative Hard Material Strategy Scale: NTS (not to scale)

## **5.0 Landscape**5.21 Furniture Strategy

The furniture palette is shown indicatively; furniture within the public realm must ensure durability and functionality through the use of robust, damage resistant materials.

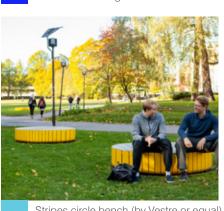
An appropriate level of seating must have seats with backrests and arm rests.

A variety of seating should be provided within the identified public open spaces to provide social opportunities and inclusion.

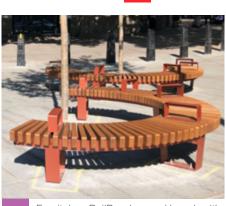








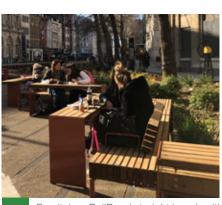
Stripes circle bench (by Vestre or equal)



Furnitubes RailRoad curved bench with armrest and backrest



Kong sun bench (by Vestre or equal)



Furnitubes RailRoad straight bench with armrest, backrest and workstation table



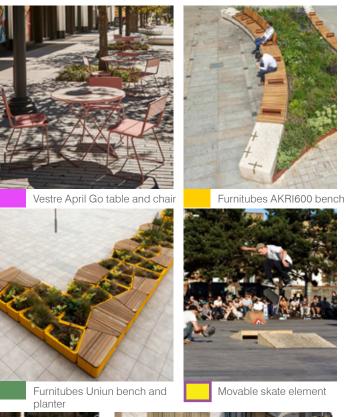
Hvilan picnic table (by Vestre or equal)



Illustrative Furniture Strategy Scale: NTS (not to scale)

## **5.0 Landscape**5.21 Furniture Strategy

The furniture palette is shown indicatively; a variety of play-on-the-way and movable furniture elements are shown on the following pages to illustrate the potential uses within the open space.





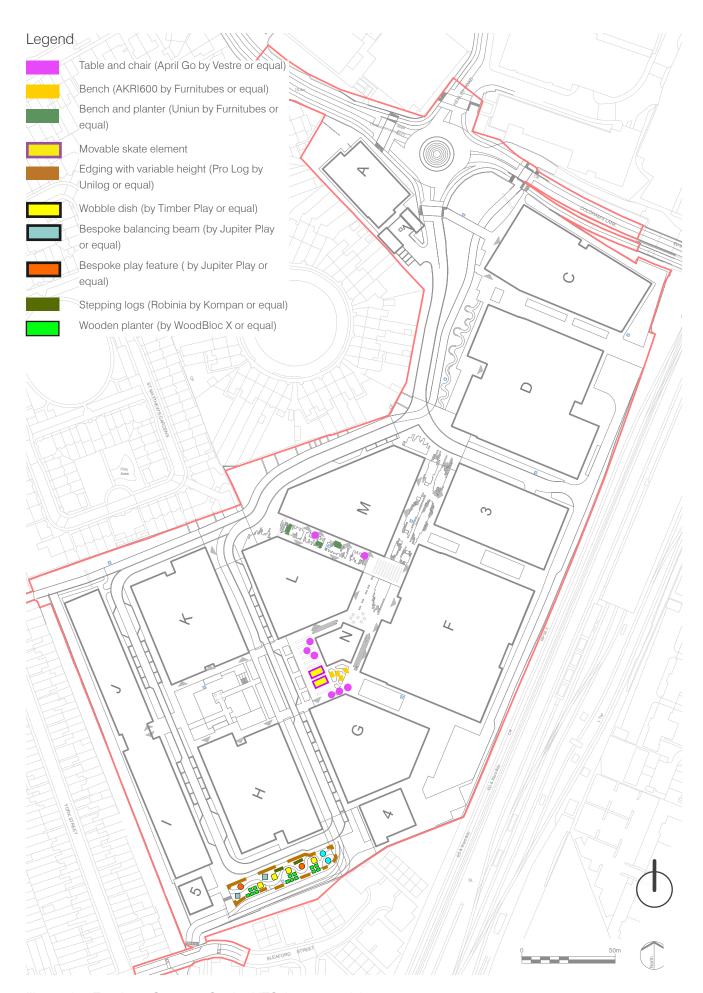












Illustrative Furniture Strategy Scale: NTS (not to scale)

## **5.0 Landsacpe**5.22 Planting Strategy

Planting palettes showcase plants which have seasonal variation, especially around their colour profile. Planting has been chosen to ensure year round interest aesthetically but also to create a habitat for pollinators, insects and eventually invertebrates.

The site benefits from a south facing position which allows for numerous planting typologies to be provided to maximise solar positioning, microclimate and the climate reliance needed in our inner cities.



Woodland understory planting





Species rich lawn



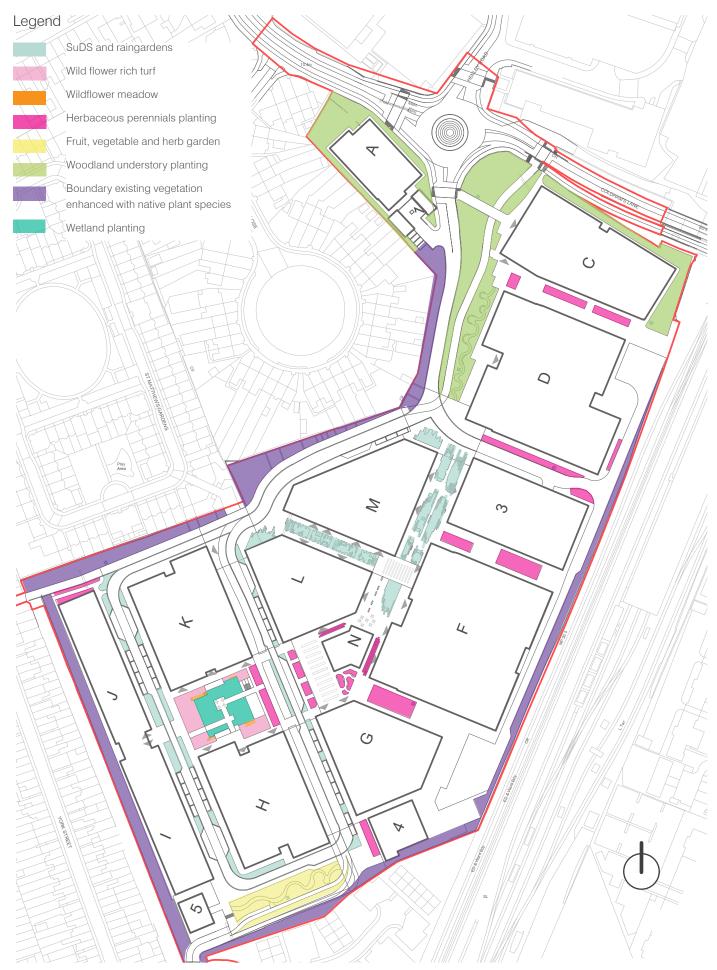




SuDS/ Rain gardens



**Grow Gardens** 



Illustrative Planting Plan Scale: NTS (not to scale)

# **5.0 Landscape**5.22 Planting Strategy





Sambucus nigra



Origanum vulgare



Daucus carota



Poterium sanguisorba ssp



Lathyrus pratensis



Galium album

### Woodland understory planting













Silene dioica

Silene flos-cuculi

Achillea millefolium

Centaurea Montana

Echium vulgare

Origanum vulgare

### Boundary typology - native plant species













Crataegus monogyna Rosa canina

Cornus sanguinea

Euonymus europaeus Prunus spinosa

Mahonia aquifolium

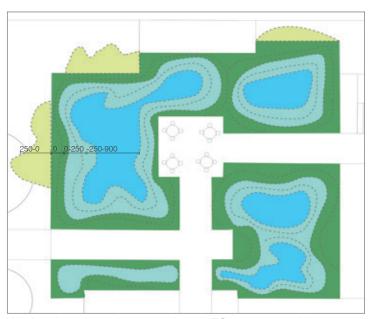
## 5.0 Landscape5.22 Planting Strategy - Wetland

The following pages and diagrams show in more detail the intent for the wetland.

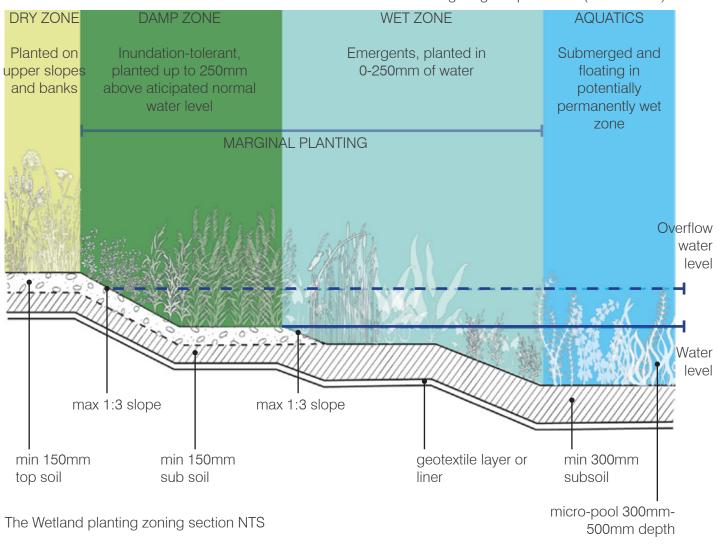
An outlet structure and flow control must be provided following the Cambridge SUDS Design and adoption guide to prevent erosion.

An important mechanism is biodegradation of oils by natural organisms in the pond. The organisms need a good supply of oxygen which means the permanent water must be shallow so oxygen can reach the bottom of the pond.

Design based on the Cambridge SUDS Design & Adoption Guide.



Wetland zoning diagram plan: NTS (not to scale)



### Aquatics Myriophyllum Alisma plantago-Potamogeton Glyceria fluitans Stratiotes aloides Hottonia palustris natans aquatica spicatum Wet zone Iris pseudacorus Glyceria maxima Carex acutiformis Alopecurus Typha angustifolia Agrostis capillaris pratensis Cardamine pratensis Lythrum salicaria Stachys palustris Mentha aquatica Caltha palustris Myosotis scorpiodes Dry zone Anthoxanthum odoratum Rumex acetosa Lathyrus pratensis Carex hirta Centaurea nigra Deschampsia cespitosa

Filipendula ulmaria Rhinanthus minor

Plantago lanceolata

Briza media

Prunella vulgaris Lotus corniculatus

### 5.0 Landscape

### 5.23 Larger Species - Tree Planting Strategy

**Strategic planting** is proposed in Abbey Grove Character Area to future proof the open space and encourage the maintenance and protection of this green buffer area via a long-term growing tree species selection. This strategy supports the retention of the existing trees, increasing their ecological value by introducing high quality specimen trees in their surroundings.

Tree species with a slow/ long term growing characteristics were prioritized. Specimen trees such as Oaks and Maples with an ultimate height of 12 meters and an ultimate spread wider than 8 meters were selected. On average these trees need 20 to 50 years to reach their maturity.





Illustrative Tree Planting Plan Scale: NTS (not to scale)

# 5.0 Landscape5.23 Medium/Small Species - Tree Planting Strategy

Medium to small tree species were carefully selected to enhance street-scapes and to respond to street's requirements.

Trees will vary in size, colour and texture characteristics to suit the surrounding space and uses of the area where located.





Illustrative Tree Planting Plan Scale: NTS (not to scale)

## **5.0 Landscape**5.23 Tree planting Strategy



10–20 years carbon stored: 2.57 tonnes at maturity Acer campestre



20–50 years carbon stored: 0.62 tonnes at maturity Acer griseum



20–50 years carbon stored: 7.25 tonnes at maturity Acer Platanoides



Acer campestre -Red Shine



(2m clear stem) carbon stored: 3.2 tonnes at maturity Betula pendula

















50 + yearscarbon stored: 6.7 tonnes at maturity Carpinus betulus



20-50 years carbon stored: 7.5 tonnes at maturity Quercus Robur



50 + years carbon stored: 6.58 tonnes at maturity Quercus Palustris



20-50 years carbon stored: 7.28 tonnes at maturity Quercus x turneri



20-50 years carbon stored: 2.11 tonnes at maturity Cedrus deodara

















20-50 years carbon stored: 7.4 tonnes at maturity Platanus x hispanica



Corylus avellana



20-50 years carbon stored: 4.11 tonnes at maturity Liriodendron tulipifera









Salix Sepulcralis



Liquidambar













264











Amelankier Lemarkii Betula nigra









Prunus avium



Prunus Subhirtella













Prunus serrulata



Prunus avium 'Stella'



Prunus spinosa



Sorbus Incana



Sorbus Intermedia





Malus Toringo





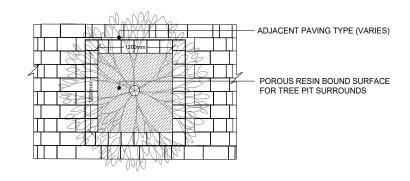


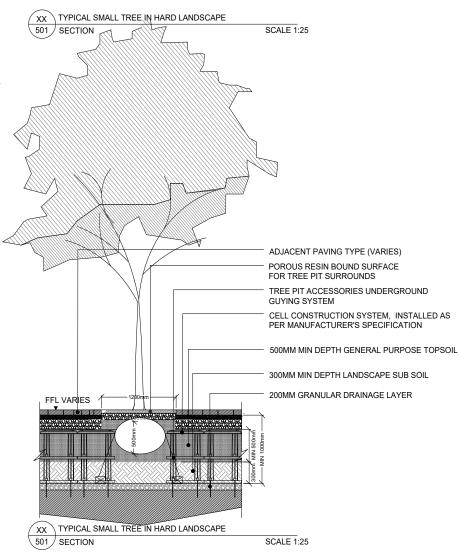


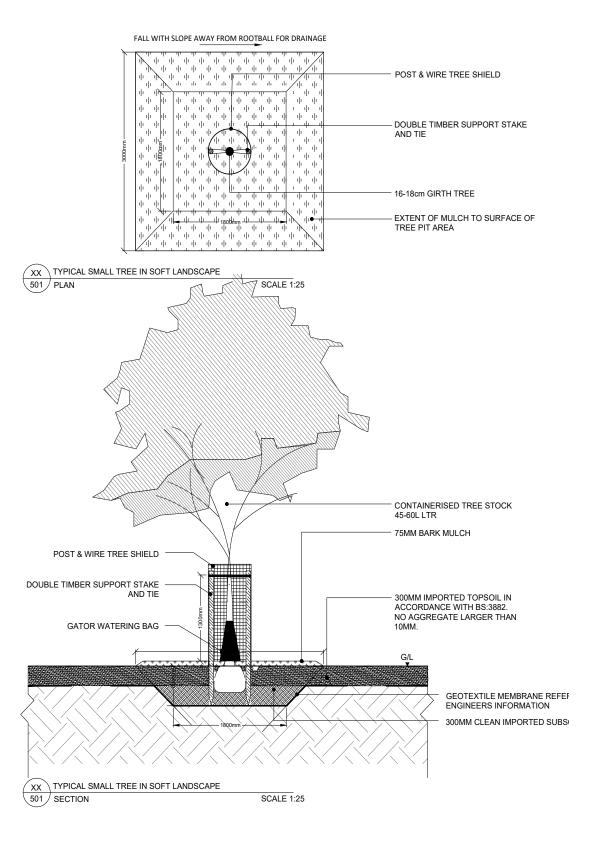
## **5.0 Landscape**5.23 Tree planting Strategy

### Tree pits in hard landscape:

- Tree pits should be of a depth that can accommodate the rootball, plus anchorage and ballast.
- Must provide a flat firm surface for any cells and base of the rootball.
- Base of the tree pit should be in direct contact with the underlying sub-soil or made up ground.
- Too deep a tree pit may result in poorly oxygenated conditions and failure of establishment.
- Typically allow a depth of 1m for tree pits.
- Maximum 500mm topsoil, plus 500mm subsoil. Some trees may require more depending on size and species
- Cubic soil volume will depend on tree species and projected canopy spread - specialists such as Green Blue Urban provide reference guides to assist with early planning.







### **5.0 Landscape**5.24 Maintenance Strategy

The aim of this section is to set out the intention for management and maintenance strategies of The Beehive Redevelopment.

A formal maintenance strategy consisting of schedules and responsibilities will be established in the next design phases (RIBA 3 &4) in conjunction with Railpen Estate/Property Manager.

### **Long Term Design Objectives**

The Estate will be managed and maintained by Railpen, via their Estate/Property Manager; This will encompass:

- security;
- cleaning;
- maintenance;
- lighting;
- landscape management;
- Retail/F&B/community use, will be a clearly defined leasehold;

If there is a specific use e.g. Community Garden, it is envisaged this would also be a license/leasehold; usage will be clearly defined.

The intention for the public realm is to create a strong sense of place through varied and vibrant landscapes. Each landscape character area is distinguished based on intended use and its relationship with the groundfloor building use, the planting and material palettes respond to this. Refer to earlier pages in DAS for more detailed descriptions.

The Public Realm comprises 6 Character areas:

- Abbey Grove
- Creative Exchange
- Garden Square North and South
- Vera's Garden
- Hive Lane
- Linear Walks

### **Management Objectives**

The following highlights the overall objectives for the management and maintenance strategy, which will form the basis of the document to be produced in subsequent design stages. The management of the Beehive Public Realm should set to ensure the following objectives are met.

- To ensure that the overall character of the site is welcoming and inclusive to local residents and the wider public.
- To create new habitats and enhance already established vegetation.
- To focus on a *People First* approach, from the Gateway entrances and primary circulation routes, through the varied internal spaces, active frontages, and facilities.
- To provide a robust landscape setting to the buildings, defining entrances, routes and promote ease of access and movement.
- To support the health and wellbeing of communities through the provision of formal and informal activities
- To provide rain gardens along the Beehive Greenway to support water run-off drainage.
   The management of SuDs systems should be suitable and sustainable.
- To integrate the popular Chisholm Trail within the site to better connect local residents and commuters to the green transport network.

### **Management Responsibilities**

The Estate/Property Manager should ensure that all hard and soft elements are maintained in line with the future schedule.

Implementation and maintenance works is the responsibility of the Main Contractor in accordance with the design, management and maintenance goals. The Main Contractor is responsible for the maintenance of all hard and soft landscape components for the duration of the 2 year Defects Liability Period (DLP), and provides a 2 year guarantee for all trees in accordance with the specification and drawings. For phased completions and/or handovers, the date commences from handover, with the Client accepting Practical Completion and that all necessary insurances are in place.

The Main Contractor will be responsible for ensuring the site is in a good condition and complete with no outstanding defects up to and at Practical Completion and will remain responsible for implementation, establishment and maintenance for all areas duration of the 2 years Defects Liability Period (DLP).

Following the 2 year Defect Liability Period, the landscape management and maintenance will be the responsibility of the Estate/Property Manager. They will not be responsible for incomplete or non-established works, or be responsible for defects.

### **Outline Maintenance Strategy**

### **Hard Landscaping**

Key objectives for the hard landscaping will be to ensure it is kept to a high standard, for the enjoyment and safety of residents and the wider community of Cambridge. Hard surfaced areas should be clear of litter, twigs, leaves, glass, debris and similar on a regular basis. If possible, a vacuum sweeper should be used. Any graffiti shall be removed immediately. Drainage systems and adjacent hard surfaces should be inspected and cleaned from silt, dirt, debris, leaves and litter to prevent blockages.

Cutting of undergrowth, overgrowth, overhanging plants/trees and shrubs should be regularly undertaken to ensure unobstructed routes for pedestrians, cyclists and vehicles as appropriate.

The hard landscape maintenance strategy will cover specific maintenance requirements for the following items;

- Paving & hardworks
- Gates, bollards & barriers
- Street furniture; benches, bins etc.
- Drainage
- Lighting

Each element of the hard landscape will have a schedule of maintenance associated with it in the following categories;

- Inspection requirements
- Repairs
- Clearing of debris
- · Cleaning, sanitising
- Graffiti removal/ stain removal
- Litter Picking
- Staining, Powder Coating, Painting

### **Soft Landscaping**

At all times planted areas shall be kept clear of all litter and debris and the Contractor shall ensure that all paths are swept clean of arisings. Soil and arisings are to be removed from hard surfaces and grassed areas and removed from site. Leave the works in a clean, tidy condition and after any maintenance operations.

The soft landscaping maintenance strategy will cover the schedule of maintenance for Trees, Shrubs, Climbers, Hedging, Herbaceous Planting, Rain Gardens, Roof Gardens, Lawns. Detailed maintenance requirements will be set out under the following categories;

- Watering requirement/ No irrigation
- Pruning
- Pest & Disease Control
- Mulching
- Fertiliser application
- Deadheading
- Young tree pruning
- Staking
- Leaf clearing
- Weeding
- Mulching
- Replacement planting
- Trim edges to planting beds and around trees
- Aeration
- Scarification/ Thatching
- Firming of Grass Areas
- Top Dressing Application
- Autumn leaf removal
- Specialist maintenance of wildflower planting
- Specialist maintenance of rain garden species
- Specialist maintenance of wetland species

Schedules will be provided with annual requirements for routine maintenance, as well as including an allowance for responsive maintenance (as needed).

### Wetland

Maintenance of ponds is relatively straight forward for landscape contractors.

More intensive maintenance work such as silt and/or vegetation removal is only required intermittently, but it should be planned to be sympathetic to the requirements of wildlife in a pond. The best time to carry out more intensive work is between September and November when the impact on wildlife will be minimised. Intensive silt and vegetation removal should only be carried out to limited areas at any one time (25% to 30% of the pond area on one occasion each year).