## WELBORNE WAY: PLANTING

## Effect / Character

## Arrangement

## Tree type

## Verge Types

- Formal avenue tree planting with native grassland rich in local wildflora
- Continous, consistent character through three Landscape Character Areas
- Trees located centre to the verge strip at regular intervals
- Specimen trees placed at junctions or in strategic locations shall enhance and frame views
- Native species-rich grassland beneath
- Street light columns distance to be min. 5 m from tree stem. Refer to lighting column guidance
- Tree planting to provide a continuous canopy effect and enhance both pedestrain and cyclist experience
- Trees to have neat, conical crown canopy shape
- Large tree species over 10 m
- Tree species compatible with SuDS system where located within swales
- Semi-mature single clear-stem species (min 2.1 m ) to avoid visibility issues and clashes with vehicles
- Seasonal interest trees as landmak trees are supported in association with footway junctions and resting places
- Species-rich grassland with diverse native wildflora to provide functional biodiversity gain and aesthetic benefit for street character and quality. The diverse grassland overlies a permeable tree planting zone as a continuous trench that will support healthy establishment and long-term growth. Careful placement of root directing barrier will protect belowground utilities. Surface water will attenuate via the root zone by the sensitively integrated drainage design, enabling vegetation to support silt and nutrient level reduction. from surface water run-off. The cutting regime will maintain a high-quality appearance, for higher infiltration rates and to encourage species diversity
I. Tree planting

2. Verge grassland
3. Private hedgerows


| INDICATIVE <br> STREET TREES | Pl |  | I. Quercus palustris <br> 2. Platanus $\times$ hispanica <br> 3. Fagus sylvatica |
| :--- | :--- | :--- | :--- | :--- |

INDICATIVE
VERGE
GRASSLAND

## SPECIES MAY INCLUDE

A carefully selected combination of finer,
low-growing grass species as an open matrix
for wildflora:
Birds-foot-trefoil, Buttercup
Clover
Cowslip
Eyebright
Knapweed
Lawn Chamomile
Ragged Robin
Selfheal

[^0]KNOWLE ROAD


Note:This is an existing shared
cycle/pedestrian route
All measurements in metres

Knowle Road is a one-off secondary street. It is based on the alignment of the existing road, with some realignment. The existing 50 mph speed limit will be lowered. It retains existing planting where possible and introduces additional tree planting. Planting should celebrate the Woodland Landscape Character Area.

Verge planting includes existing grassland planting where retention is possible on the southern verge with lawn and meadow planting on the northern verge.




STREET TYPE: KNOWLE ROAD

| Character | Woodland and Downland Landscape Character Areas |
| :--- | :--- |
| Design speed | Exiting 50 mph to be lowered |

## DESIGN ELEMENTS

| Desired Radii | 6.0 m |
| :--- | :--- |
| Trees | In verge |
| Planting character | Bespoke character incorporating existing planting. Planting responds to Landscape <br> Character Area |
| Lighting | $\checkmark$ |
| Bus route | N/A |
| On-street car parking | Parallel |
| Traffic calming | Junction spacing, squares, positioning of buildings and trees, activity |
| Utilities | Existing and proposed under footway and cycle route |
| Drainage channels | At edge |

## MATERIALS

## KNOWLE ROAD

## PHASING AND DELIVERY



Phase I - Construction works to Knowle Road from the western site boundary to Welborne Park Roundabout. This section of Knowle Road to remain 6.7 m in width.


Phase 2 - Construction works to Knowle Road from Welborne Park to Welborne Way. Road width reduced to 5.5 m . 2 a delivered with adjacent residential units $2 b$ delivered with Village Centre.


Phase 3 - Construction works to Knowle Road from Welborne Way to A32. Road width reduced to 5.5 m .

## SPPED CONTROL CAPACITY

To reduce the travelling speed along Knowle Road it shall be narrowed to 5.5 m .

The provision of the raised junctions will slow traffic.

Where Knowle Road crosses Welborne Way, the junctions will be staggered to reduce conflict at the crossing. The cycleway and footpath shall remain on the current and most direct alignment.

Complete construction of Dashwood
Avenue and open the route to traffic

Partial closure of Knowle Road to traffic


Narrow the existing Knowle Road carriageway


Reopen Knowle Road to traffic

## ।

Commission speed surveys to check traffic calming measures have been effective


Apply for a Traffic Regulation Order to implement a 30 mph limit

KNOWLE ROAD: PLANTING

I. Northern verge: Formal tree spacings, Medium street trees with landmark trees at junctions or ends of parking bays. Use of smaller ornamental multistem trees and hedge species within understory verge
2. Southern verge: Informal spacings, individual trees, clusters and groups, retaining existing trees and shrub planting where possible, inclusion of rich understory of hedge/shrub species and flowering and ornamental multistems
3. Existing planting retained where possible
4. Additional tree planting within retained grassland area
5. Proposed verge and planting to respond to Woodland Landscape Character Area
6. Hedgerows species to respond to Woodland Landscape Character Area

## INDICATIVE

 TREES| SPECIES MAY INCLUDE | GIRTH (cm) | SOILVOLUME ( $\mathrm{m}^{3} \mathrm{~min}$ ) |
| :---: | :---: | :---: |
| Northern verge: Street trees |  |  |
| Acer campestre (Field Maple, Medium) <br> Alnus cordata (Italian Alder, Medium) <br> Ulmus 'New Horizon' (resistant Elm, Medium) | $30-40$ $30-40$ $30-40$ | $26 \mathrm{~m}^{3}$ of Stockholm System, which is equivalent to $20 \mathrm{~m}^{3}$ ofTopsoil |
| Northern verge: Landmark and ornamental street trees |  |  |
| Juglans regia (Walnut, Large) <br> Quercus robur (Pedunculate Oak, Large) <br> Tilia cordata (Lime, small-leaved, Large) | $30-40$ $30-40$ $30-40$ | $36 \mathrm{~m}^{3}$ of Stockholm System, which is equivalent to $28 \mathrm{~m}^{3}$ ofTopsoil |
| Southern verge: Street trees |  |  |
| Existing retained trees and shrubs |  |  |
| Prunus Avium (Wild Cherry) |  |  |
| Corylus avellana (Hazel) |  |  |
| Quercus robur (Oak) |  |  |

## PRIMARY STREETS



All measurements in metres


Primary streets provide the main green infrastructure within the masterplan. They are the widest streets, with footways and tree verges on either side and taller buildings than on other routes.

These streets are planted with large single tree species selected for their resilience and provision of important habitat. Large canopies will soften and integrate the development within the landscape.

Primary streets will include one way cycle lanes on separate sides of the street.



## STREET TYPE: PRIMARY STREETS

Character

Design speed

More formal design, constant cross section, larger trees, important routes

20 mph

## DESIGN ELEMENTS

| Desired Radii | 6.0 m (vehicle tracking to be used) |
| :--- | :--- |
| Trees | In verge |
| Lighting | $\checkmark$ |
| Bus route | $\mathrm{N} / \mathrm{A}$ |
| On-street car parking | Parallel or chevron (unmarked) |
| Traffic calming | Junction spacing, squares, bends, positioning of buildings and trees, activity |
| Utilities | Under footway |
| Drainage channels | At edge |

## MATERIALS

## PRIMARY STREETS




## SECONDARY STREETS



Secondary streets are the arteries that link the busier primary street network to the heart of each neighbourhood, providing key routes for the tertiary streets and edge lanes to connect into.

Planting will reflect and celebrate the Landscape Character Areas within which the secondary street is located and the existing soil conditions. Verge planting will be predominantly lawn with the option of meadow planting and highlight planting that may be used to enhance spaces such as key junctions, public buildings and school entrances.


All measurements in metres. *6.I only for bus routes



## STREET TYPE: SECONDARY STREETS

Character

Design speed

## DESIGN ELEMENTS

Desired Radii
2.0 m (vehicle tracking to be used)

| Trees | In verge |
| :--- | :--- |
| Planting character | Responds to 4no. Landscape Character Areas. |
| Lighting | $\checkmark$ |
| Bus route | N/A |
| On-street car parking | Parallel (unmarked) |
| Traffic calming | Junction spacing, squares, bends, positioning of buildings and trees, activity |
| Utilities | Under footway |
| Drainage channels | At edge |

MATERIALS

Materials palette
Typical treatment

## INDICATIVE STREET TREES ALONGSIDE FOOTWAYS


I. Acer campestre
2. Alnus cordata
3. Ulmus 'New Horizon'

| SPECIES MAY INCLUDE | GIRTH (cm) | SOIL VOLUME (m $\left.{ }^{3} \mathrm{~min}\right)$ |
| :--- | :--- | :--- |
| Acer campestre (Field Maple, Medium) | $30-40$ | $26 \mathrm{~m}^{3}$ of Stockholm System, |
| Alnus cordata (Italian Alder, Medium) | $30-40$ | which is equivalent to $20 \mathrm{~m}^{3}$ |
| Ulmus 'New Horizon' (Resistance Elm, Medium | $30-40$ | ofTopsoil |


| INDICATIVE STREET TREES ALONGSIDE CYCLEWAYS |  | 3 | I. Carpinus betulus <br> 2. Fagus sylvatica <br> 3. Tilia cordata |
| :---: | :---: | :---: | :---: |
|  | SPECIES MAY INCLUDE | GIRTH (cm) | SOIL VOLUME ( $\mathrm{m}^{3} \mathrm{~min}$ ) |
|  | Carpinus betulus (Hornbeam, Large) <br> Fagus sylvatica (Beech, Large) <br> Tilia cordata (Small Leaf Lime, Large) | $\begin{aligned} & 35-45 \\ & 35-45 \\ & 35-45 \end{aligned}$ | $36 \mathrm{~m}^{3}$ of Stockholm System, which is equivalent to $28 \mathrm{~m}^{3}$ ofTopsoil |

TERTIARY STREETS 1


All measurements in metres

Tertiary streets are the most common street type at Welborne and will primarily be lowtrafficked residential streets. The carriage way width can vary, depending on the status of the street and intended character.

Access to and from houses plays an important role in the design of tertiary streets. The design needs to both establish a sense of privacy and sense of community.Their ability to contribute to placemaking will be crucial to the development's success.

Tertiary streets will use similar planting types as secondary streets to maintain visual consistency and enhance Landscape Character Areas.They will use a wider variety of smaller tree species, particularly flowering, fruiting and nut-bearing varieties of benefit to wildlife. Planted verges provide an opportunity to maintain the distinctiveness of each Landscape Character Area via wild flower and grass mixtures. Variation in planting treatment for private front gardens shall also reflect Landscape Character Areas. Species will complement fence systems or retaining walls. Where used as private boundary treatments, hedgerows will respond to visibility and safety requirements when associated with access and egress to private dwellings.



## STREET TYPE: TERTIARY STREETS

Character

Design speed

Human scale, tree lined, low traffic volume and speed residential areas

20 mph

## DESIGN ELEMENTS

Desired Radii
Trees
Planting character
Lighting
Bus route

On-street car parking
Traffic calming
Utilities

Drainage channels
2.0 m (vehicle tracking to be used)

In verge

Responds to 4no. Landscape Character Areas
$\checkmark$

N/A

Parallel, intermittent within verge (unmarked)
Junction spacing, squares, bends, positioning of buildings and trees, activity

Under footway

At edge

## MATERIALS



NDICATIVE LANDMARK trees


TERTIARY STREETS 2


Tertiary streets 2 are a variant of the tertiary street type that has a grassed verge to only one side of the street, with a single line of tree planting. It shall be used for lower-status streets across Welborne.

All measurements in metres



Example of tertiary street 2 type

EDGE LANES 1


Edge lanes are found on the edges of the Garden Village. They are the interface between the development and open spaces, such as along the northwestern edges facing the Welborne Mile or Dashwood. For these types of road, there is likely to be:

- A carriageway capable of accommodating a single lane of traffic in either direction with a footway on one side
- Homes and private front gardens fronting on to the carriageway on both sides, or on just one side with open space on the other side



## STREET TYPE: EDGE LANES

Character

Design speed

Shared routes for all modes on green edges of Welborne. Low speed, variable width, level surface, informal parking.

10 mph

## DESIGN ELEMENTS

| Desired Radii | N/A |
| :--- | :--- |
| Trees | At edges |
| Planting character | Responds to 4no. Landscape Character Areas |
| Lighting | To be agreed based on location and Landscape Character Area |
| Bus route | N/A |
| On-street car parking | Parallel, informal (unmarked) |
| Traffic calming | Narrowing to 3.7m, car parking |
| Utilities | At edge |
| Drainage channels green space |  |
| MATERIALS |  |
| Materials palette | Typical treatment |

## INDICATIVE STREET TREES ALONGSIDE FOOTWAYS


I. Acer campestre
2. Corylus avellana
3. Sorbus torminalis

| SPECIES MAY INCLUDE | GIRTH (cm) | SOIL VOLUME (m $\left.{ }^{3} \mathrm{~min}\right)$ |
| :--- | :--- | :--- |
| Acer campestre (Field Maple, Medium) | $30-40$ | $26 \mathrm{~m}^{3}$ of Stockholm System, |
| Corylus avellana (Hazel Coppice, Medium) | $30-40$ | which is equivalent to $20 \mathrm{~m}^{3}$ |
| Sorbus torminalis (Wild Service Tree, Medium) | $30-40$ | ofTopsoil |


| INDICATIVE <br> STREET TREES |
| :--- | :--- | :--- | :--- | :--- |
| ALONGSIDE <br> CYCLEWAYS |

EDGE LANES 2


All measurements in metres

The planting character of edge lanes should respond to the Landscape Character Area it is located within and the open space it is fronting.

Tree verges may be combined with parking spaces. Trees within verges may vary between single to multi-stem, and will use smaller species corresponding to the Landscape Character Area.

Trees may be planted at irregular intervals to offer an informal, looser character. (For trees within open space refer to the Strategic Design Code.)

Boundary treatments vary between Landscape Character Areas. These may be hedgerows, fencing or earth mounding. They should be appropriate for the anticipated use of the adjacent open space.


EDGELANES 3


| $(1.5-5)$ | 2 | $(3.7-7.5)$ |
| :---: | :---: | :---: |
|  |  | $\max .12$ |

All measurements in metres



## COURTYARD LANES



All measurements in metres

Courtyard lanes provide a secondary network of movement routes. They are shared surface streets providing vehicular and parking access to the rear of properties. The design should prioritise pedestrian movement.

Courtyard lanes shall be used by refuse vehicles for collections and so the lanes need to be designed and vehicle tracked to accommodate this.

It shall be important that sufficient space is allowed for the inclusion of trees and planting areas. This shall be used to break up runs of parking and rear boundaries and to make the lanes enjoyable routes for pedestrians and cyclists.



## STREET TYPE: COURTYARD LANES

| Character | Informal combining residential parking and pedestrian and cycle movement routes. |
| :---: | :---: |
| Design speed | 20 mph |
| DESIGN ELEMENTS |  |
| Desired Radii | 6.0 m (vehicle tracking to be used) |
| Trees | Between parking spaces, adjacent to boundary walls |
| Planting character | Responds to 4no. Landscape Character Areas |
| Lighting | $\checkmark$ |
| Bus route | N/A |
| On-street car parking | Allocated private parking with some visitor parking |
| Traffic calming | Bends, narrowings, positioning of buildings, trees, activity |
| Utilities | In designated service margin |
| Drainage channels | At edge or centrally |
| MATERIALS |  |
| Materials palette | Typical treatment |



All measurements in metres

Greenways provide multifunctional, continous green routes through the development. They are a key part of the green infrastructure that:

- Provide site-wide strategic eastwest non-vehicle infrastructure for pedestrians, cyclists and horse riders
- Incorporate existing, diverted or upgraded Public Right of Ways
- Contain medium-large tree planting to break up the visual mass of the development when viewed from the south
- Generally have development either side
- Incorporate neighbourhood play and fitness trails, as per the Play Strategy
- Provide a range of natural habitats and continous corridors for wildlife


- Vary in width to accomodate uses and facilities (min. I 2m)
- Prioritise safety, through lighting (where approporiate) and natural surveillance from neighbouring uses
- Be easily accessed at regular intervals without barriers
- Provide resting points

The planting character should respond to the Landscape Character Area it is located within, with a focus on native and natural planting. To achive this, planting may include species identified in the Strategic Design Code planting appendix.

## STREET TYPE: GREENWAYS

Character

Design speed

Shared green pedestrian and cycle movement routes

N/A

## DESIGN ELEMENTS

Desired Radii
N/A

Trees

Planting character
Responds to 4no. Landscape Character Areas
Lighting

Bus route
N/A

On-street car parking
N/A

Traffic calming
N/A

Utilities

Drainage channels
N/A

## MATERIALS

## GREEN LINKS



All measurements in metres

Green links provide designated pedestrian and/or cycle movement routes across Welborne. They typically connect open green spaces to the tertiary street network. The width of the green links shall vary but will provide a 3 m wide pedestrian and cycle link. They will provide safe spaces, with lighting where appropriate and natural surveillance from neighbouring uses. The landscape design provides opportunities for tree planting, a range of natural habitats to increase biodiversity, places to meet and rest and, in some instances, larger areas that could accommodate local food growing or neighbourhood play spaces. The planting character will respond to the Landscape Character Area within which it is located.

## OPEN SPACE ROUTES



All measurements in metres


Precedent example of an open space route

Open space routes run through the green spaces surrounding the development parcels and provide semi-natural and safe movement routes. They are divided hierarchically:

- Multi-user paths: footway/cycleway/ bridleway catering for pedestrians, cyclists and horse riders; some are also combined with upgraded or diverted PRoWs.
- Footways and cycleways: Generally 3m-wide shared paths for pedestrians and cyclists.
- Footways: Formal paths up to 2.5 m wide that provide desire lines through the development linking residential areas with the wider footpath network, open spaces and facilities.
- Tertiary footpath: Informal pathways up to $2 m$ wide that provide a more rustic character to residential areas and/or a more convoluted, scenic route through open spaces.

Their design will ensure that:

- Surface finishes for each footway, footpath, cycleway and bridleway are appropriate for its location, purpose and frequency of use. Surfacing to be continuous such as self-binding aggregate or buff-coloured asphalt.
- Routes are of an accessible gradient, appropriately shaded and include regular resting stops.
- Lighting is provided in appropriate locations based on levels of usage; lighting design to consult with ecologists where necessary.
- Routes do not allow access to vehicles except for maintenance and access to infrastructure.
- Planting character responds to the Landscape Character Area it is located within.

Numerous cycle and/or pedestrian only accesses into the development will be provided or enhanced. Open space routes will incorporate signalised and informal crossing points, with the crossing design appropriate to its location and users.

## $7 b$. <br> KEY JUNCTIONS <br> \& SPECIAL PLACES

The following junctions and special places have been identified as locations that will require a non-standard street and junction design solution.

The detailed coding regarding the design of these spaces shall be provided in the relevant Neighbourhood Design Codes.
(1)


## Village Centre

Linking to Welborne Way, the Village Centre shall be a focal square with commercial buildings, parking and specimen tree planting. The junction between the primary road network and Welborne Way will be incorporated as part of the public space design.

2


## District Centre

This shall be the principal civic space within the settlement. Welborne Way will pass through the space. The design shall give priority to pedestrian movement by reducing vehicle speeds but with maintained traffic flow.

3


## Welborne Park South

A key junction where a primary street and secondary street meet adjacent to Welborne Park. It will be designed to prioritise pedestrian east-to-west movement across the park.

## Primary Road Network South

A proposed roundabout junction that connects the primary road network with the M27 link. It will be designed as a special roundabout feature with non-standard geometry.

6


## Primary Road Network South West

Two junctions of secondary streets adjoining the primary road network that shall require non-standard solutions.


## Knowle Road West

The junction where the primary road network meets Knowle Road adjacent to the northern end of Welborne Park.

KEY JUNCTIONS PLAN


## 7c. TYPICAL JUNCTIONS

Junctions have been designed to prioritise pedestrians and cyclists by the creation of crossovers. These occur on Welborne Way, primary
streets and secondary streets. The following
diagrams show the typical street-type junctions.



## 7d. RAISED CROSSROADS \& JUNCTIONS

The following diagrams show the typical raised crossroad and raised junction details.


## Raised Junction Detail

Pedestrian and cycle priority with level surface crossing and change of surface material

Resin bonded gravel to be used on primary and secondary streets for change of surface material. Setts maybe used on tertiary streets and edge lanes

## Raised Crossroad Detail

Pedestrian and cycle priority with level surface crossing and change of surface material

Resin bonded gravel to be used on primary and secondary streets for change of surface material. Setts
maybe used on tertiary streets and edge lanes


## $7 e$. TYPICAL CROSSING DETAILS

The following diagrams show typical instances where a important pedestrian route such as a green link crosses a street.

## Primary/ Secondary

## Street Crossing

These will be identified with a change of surface (Resin bonded gravel)


## Tertiary Street/ Edge Lane Crossing

These may include a raised surface with a narrowing and/ or a change of surface (Resin bonded gravel or Setts)


## $7 f$. TYPICAL DRIVEWAY DETAILS

The following diagrams show the typical driveway crossover details. Visibility splays are shown in accordance with the coding detailed in Section 5g.

## Shared Double Driveway with Fence Division

On-plot side-parking example Fence boundary between properties Garage as option


## Shared Double Driveway with Hedge Division

On-plot side-parking example Hedge boundary between properties Garage as option


## Detached Plot with Fence

## Boundaries

On-plot side-parking example
Fence boundary between properties


## Detached Plot with Hedge

Boundaries



[^0]:    Yarrow

