

Boherboy Residential Development,
Saggart ,Co Dublin

Ronan Mac Diarmada & Associates
Landscape Architects & Consultants

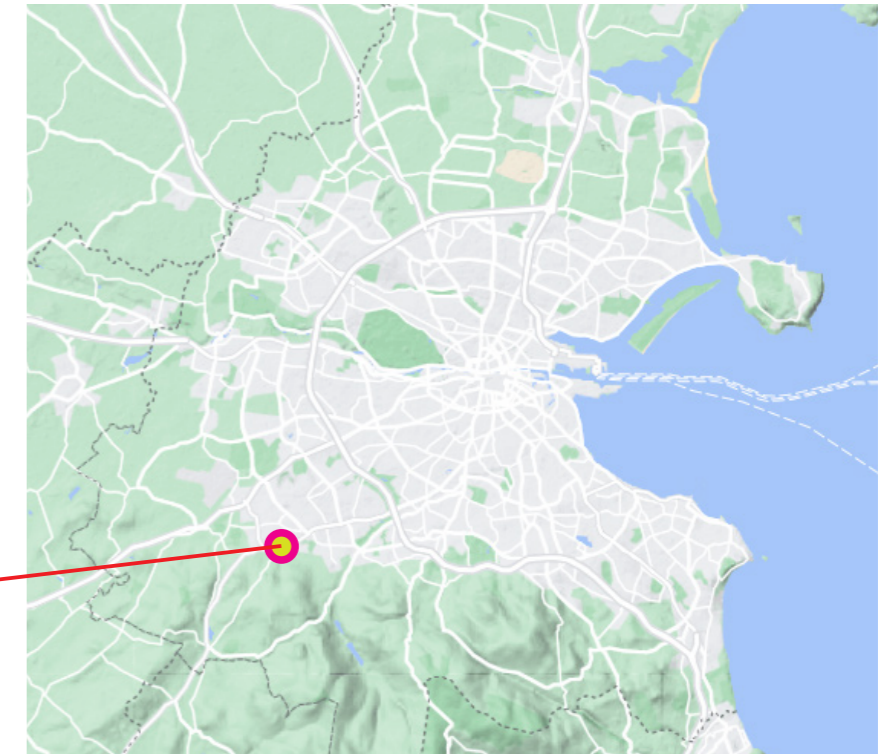


LANDSCAPE RATIONALE - SHD SUBMISSION

Kelland Homes Ltd & Durkan Estates Ireland Ltd

March 2022





Subject Lands

The Proposed residential development is located beside Saggart , Co Dublin.



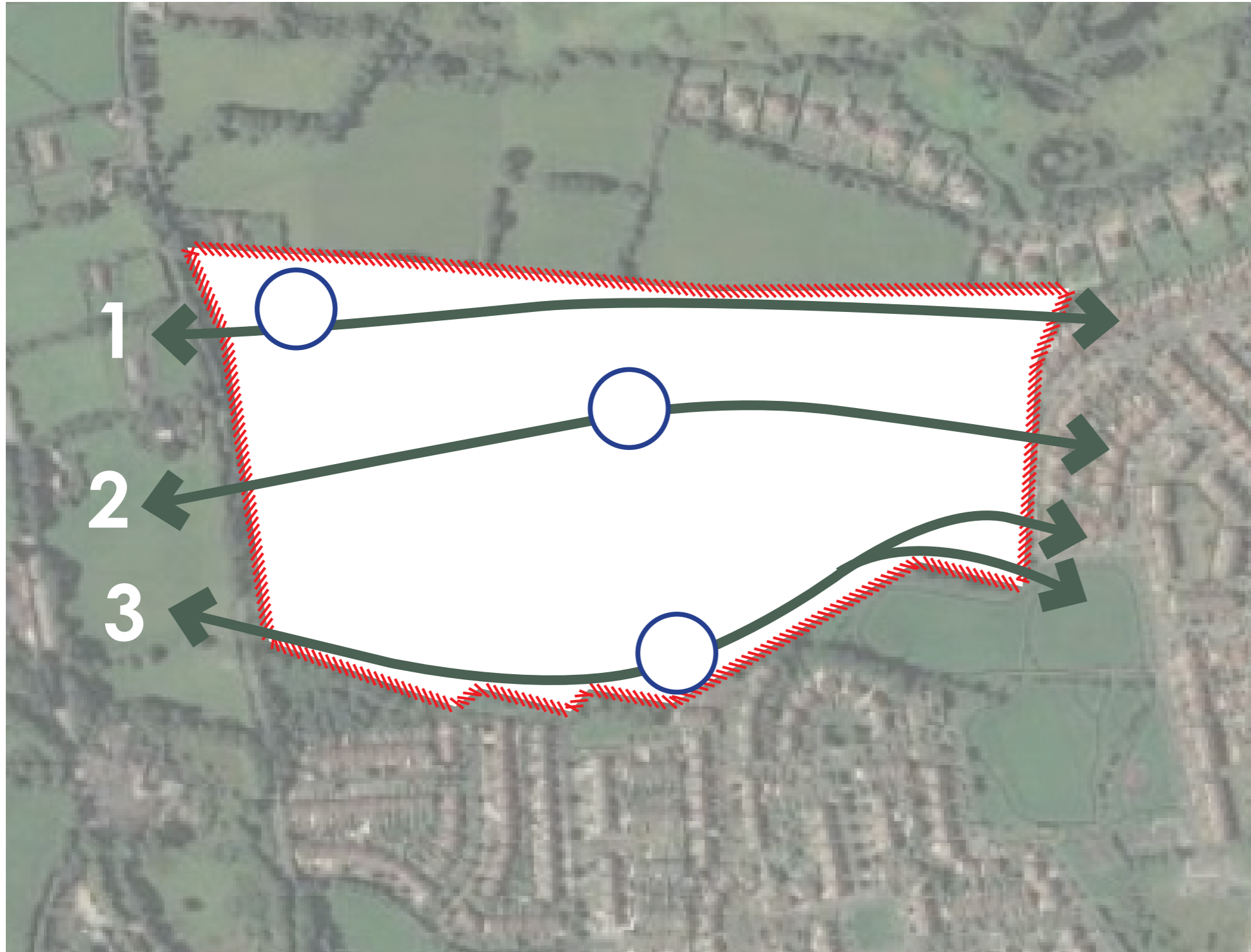





A pair of megalithic standing stones in Boherboy.

Saggart and its surrounding landscape are home to a large number of sites of archaeological interest. To the left of the Boherboy Road, as you approach the village, two standing stones, known as 'Adam and Eve', are visible in a field. The stones most probably date to the Bronze Age; their exact date and original function, however, remains unknown. They could be burial markers, memorials to the dead or the remains of another type of prehistoric burial monument such as a portal tomb. These stones, along with a large boulder with a groove cut into it, were noted by E.R.M.C. Dix on a visit to the village in 1899.



Proposed Site Plan - Conceptual layout



-  Subject Lands
-  Open & Amenity Spaces
-  Green Route
Path system along existing trees/hedgerow

1. Renewed Habitat

Augment Existing Hedgerow.

2. Central Spine.

Maintain Hedgerow & Trees, Augment Existing & Plant Mature Trees.

3. Linear Park

Maintain Existing Habitat, Hedgerows & Trees. Plant New Trees. Path – Access To Other Parks.



Extract from Fortunestown LAP
(Fig. 6.18) Boherboy Green Infrastructure Strategy

In landscape terms the proposed development will have the following objectives:

1. To provide a new landscape feature in the form of a housing development that will significantly enhance and retain the character of the area.
2. To create an integrated network of biodiversity strips by way of linking, preserving and incorporating existing hedgerows, wildlife & green corridors, and the existing stream, with a necklace of parks that form wider connections with surrounding areas and the Dublin Mountains (Fortunestown LAP Objective G11);
3. Achieve an integrated network of safe pedestrian and cycle routes by utilising links through and along parks, open spaces and green corridors (Fortunestown LAP Objective AM8);
4. To create new landscape features that will complement and enhance the landscape;
5. To renew and augment existing vegetation with planting suitable to the local and new proposed environment.





The Boherboy Neighbourhood will function as the green lung of the Plan Lands and will act as an important link between the Fortunestown Centre and the amenities of the Dublin Mountains. In order to incorporate the valuable heritage features that occupy Boherboy and respond to the rural character of the surrounding area, development of the Boherboy Neighbourhood will largely take the form of low-density housing set amongst green corridors and parkland.

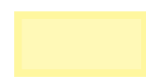

Connection to Carrigmore

The extensive planting of additional trees and shrubs throughout the site and on the site boundaries in keeping with the wider landscape character, will over time, reduce the visual mass of the buildings, soften the development over time from various viewpoints and assist in integrating the development into the landscape.



Trees & Hedgerow Removal



-  Wayleave
-  Watermains

Wayleaves Constraint

Incorporating 2no. protected strips in respect to the full length of the watermain infrastructure.

The design of the tree planting and species selection has been restricted in the Wayleaves. Trees and large shrubs are not planted within these areas. Shrub planting has been limited to shallow rooting species in the immediate vicinity of the Water Main, and otherwise located with ample separation distances to avoid root intrusion.

Extensive wild meadow planting is proposed across the site, and will provide the basis of the planting character to the Wayleave areas in particular.





CGI - Proposed Development

The landscape proposal strives to implement the policies and objectives described in the 2016-2022 South Dublin County Development Plan.

HCL7 Objective 1:

To protect and enhance the landscape character of the County by ensuring that development retains, protects and, where necessary, enhances the appearance and character of the landscape, taking full cognisance of the Landscape Character Assessment of South Dublin County (2015).

HCL7 Objective 2:

To ensure that development is assessed against Landscape Character, Landscape Values and Landscape Sensitivity as identified in the Landscape Character Assessment for South Dublin County (2015) in accordance with Government guidance on Landscape Character Assessment and the National Landscape Strategy.

The site is located in the Athgoe and Saggart Hills Landscape Character Area, which has a number of areas proposed for natural heritage designation. The landscape proposal is cognisant of the high landscape value and landscape sensitivity, and has been developed following an overall strategy to preserve and enhance the existing landscape characteristics. The distinctive form of the development reflects the existing landscape pattern. Proposed open spaces and circulation routes are designed to highlight existing landscape features.

Extensive planting of additional trees and shrubs are proposed throughout the site, and on the site boundaries. Selected species are in keeping with the wider landscape character, and are proposed to enhance existing field boundaries and vegetation, reduce the visual mass of the buildings, and over time soften the development from various viewpoints and assist in integrating the development into the landscape.

Retained Trees & Hedgerows



Existing Hedgerow to be retained, augment where necessary with native species

76.6% of hedgerows retained (1892/2467 linear metre)



Existing Tree to be retained on site

52.3% of existing trees retained (77/147)



Existing Hedgerow - Aerial View

The landscape design proposal aims to reflect the former agricultural vernacular by retaining the existing landscape structure of field boundaries, where possible, as well as boundary trees and an area of wet woodland to the north-west corner.

Retention of these trees and hedgerows will allow continued function as wildlife corridors for the area, in accordance with Article 10 of the EU Habitats Directive. (SDCC CDP Objective GIO27)

A large, cohesive area of open space has been provided consistent with that set out in the Fortunestown LAP.

Trees & Hedgerow Removal



Existing Hedgerow to be removed

23.4% of hedegrows removed
(575/2467 linear metre)



Existing Tree to be removed on site

47.7% of existing trees removed
(70/147)



Existing Hedgerow - Aerial View

47.7% of the 147No. individually tagged trees included within this assessment area along with 1No. full hedge (c.300m) plus c.275 linear meters of 13No. other hedge sections of varying sizes will need to be removed to facilitate the proposed development works on this site area or as part of management.





Category U - Those trees in such a condition that any existing value would be lost within 10 years.

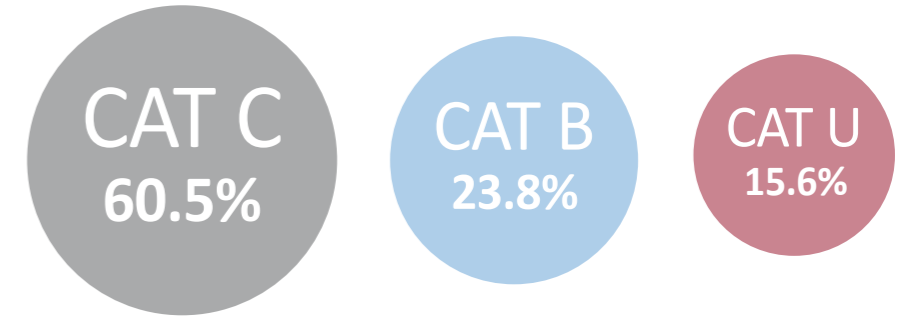
Category B - Trees of moderate quality/value with a minimum of 20 years life expectancy.

Category C - Trees of low quality/value with a minimum of 10 years life expectancy.

EXISTING TREES

147no.

A total of 147 trees were identified and assessed.

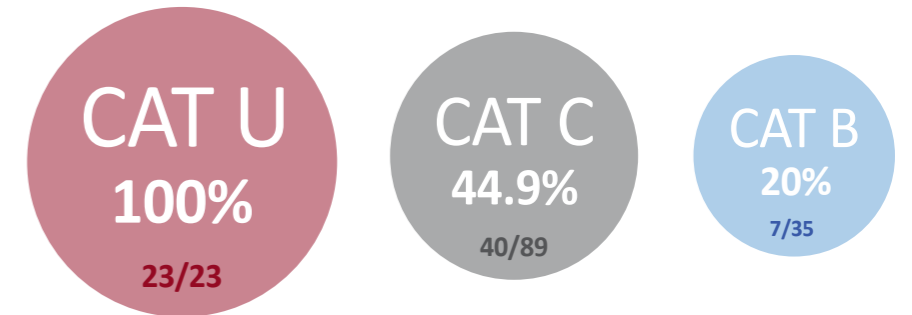


% of the total number of the existing trees

REMOVAL TREES

70no.

A total of 70 trees will be removed at the site, due to poor condition or deemed necessary to facilitate the proposed development.

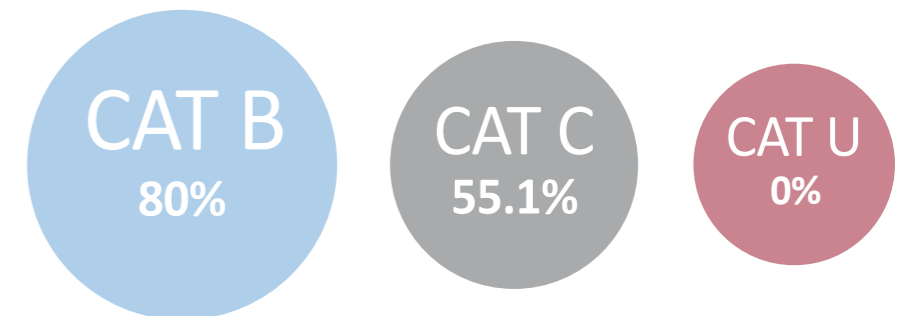


% of the total in category

RETAINED TREES

77no.

A total of 77 trees will be retained at the site.



% of the total in category

Tree protection and enhancement are a key tenet of the proposed design.

Proposed Tree Planting

PROPOSED TREES

693no.

Total of 77 trees will be retained at the site.
Total trees proposed and retained: 770



Open Space 14-16cm / 20-25cm

Betula pendula
Salix alba
Alnus glutinosa

Betula pubescens
Fagus sylvatica 'Dawyck'
Carpinus betulus 'Frans fontaine'

Corylus colurna
Corylus avellana
Salix alba 'Tristis'



Front Garden 12-14cm
Amelanchier lamarckii



Multistemmed Trees 12-14cm
Prunus avium 'Plena'
Acer griseum 'Multi-stem'
Betula utilis var. jaquemontii



Street Trees / Garden 14-16cm
Tilia tomentosa 'Brabant'
Carpinus betulus 'Fastigiata'
Tilia cordata 'Greenspire'^
Pyrus calleryana 'Chanticleer'



Rhus typhina
Acer campestre 'Elsrijk'
Prunus avium 'Plena'
Sorbus acuparia^





Hierarchy of Open Spaces






Several connected public open spaces have been designed as part of an overall design strategy that focuses on creating a distinctive 'sense of place' and individual character for the development area. The design of public open space that forms part of a network of spaces that includes areas for passive and active recreation, social / community interaction and play facilities catering for all ages. This area of open space corresponds to that as indicated in the Fortunestown LAP and the SDCC CDP (Objective GIO32)


Location of Natural Playground

-  Existing Hedge / Buffer

 Buffer/Parkland - Native Trees, Wildflower Meadow Mix, Habitat Renewal, Walking Route & Seating

 Central Open Space – Playspace, Seating, Shrub & Tree Planting.
-  Pocket Park – Native Trees, Wildflower Meadow Mix. Pollinator Plants, Seating, Walking Paths.

 Linear Park - Habitat, Tree Planting, Wildflower Meadow Mix, Walking Route.

 Attenuation Area - Meadow Grass, Tree Planting, Paths, Habitat Renewal



Open Spaces Categories



A number of pocket parks shall be developed throughout the development to add to the amenity for the residents and provide additional opportunities for biodiversity. The pocket parks shall be natural and organic in form, using plants from the All Ireland Pollinator plan for the new and emerging communities.



Public Open Space: Parks - 21,456m²



Semi-Private / Communal Areas - 6,391.6m²



Public Open Space: Pocket Parks - 3,163m²



Central Hedgerow to be retained - 5540m²

Total POS - 24,619m² (four primary areas)
14% of the area of the site.

Total POS - 31,076m²
17.5% of the area of the site.



Road Network



Street Hierarchy

The street network for the proposed development aims to provide a permeable street layout that emphasises pedestrian priority and clearly defined street typologies.

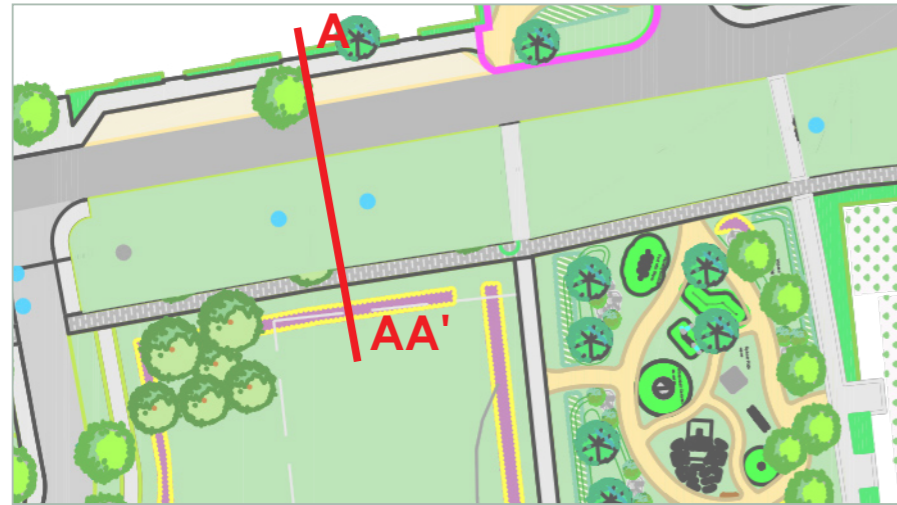
Street trees and horizontal deflection will limit traffic speeds and increase pedestrian comfort, while defensive planting define individual residential units.

- Primary - Link Street
- Secondary - Local Street
- Tertiary - Pedestrian Priority

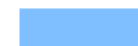


Road Treatments

Main Link Street

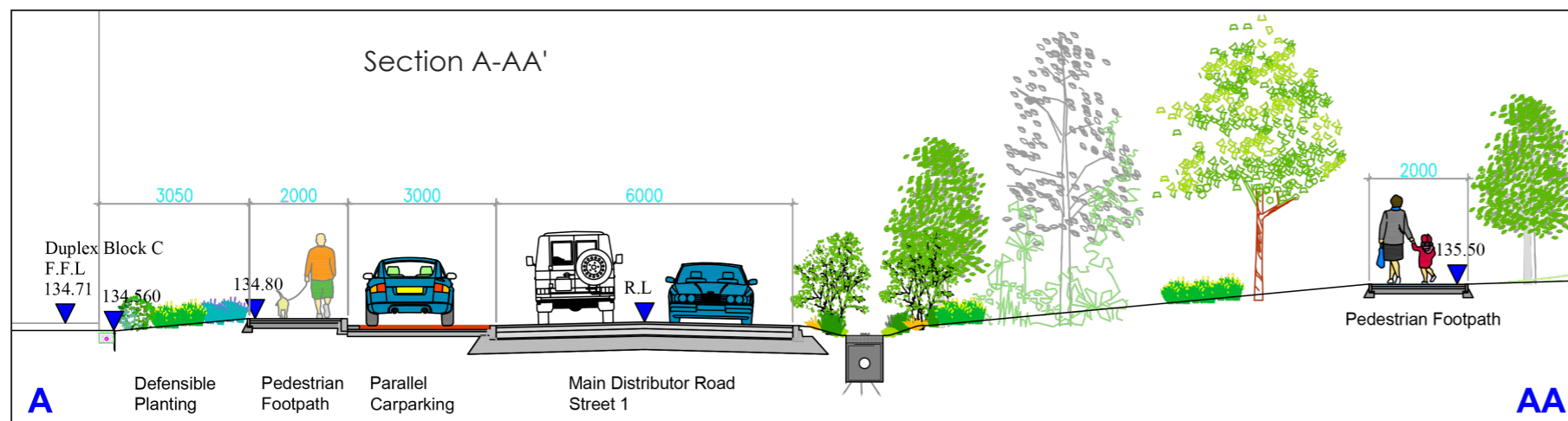


CGI – Proposed Main Entrance from Boherboy Road

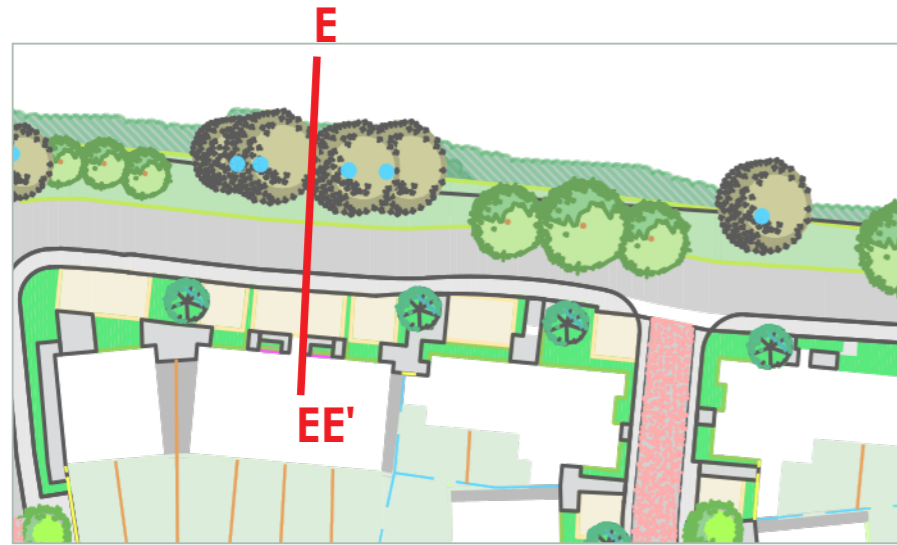


Primary - Link Street

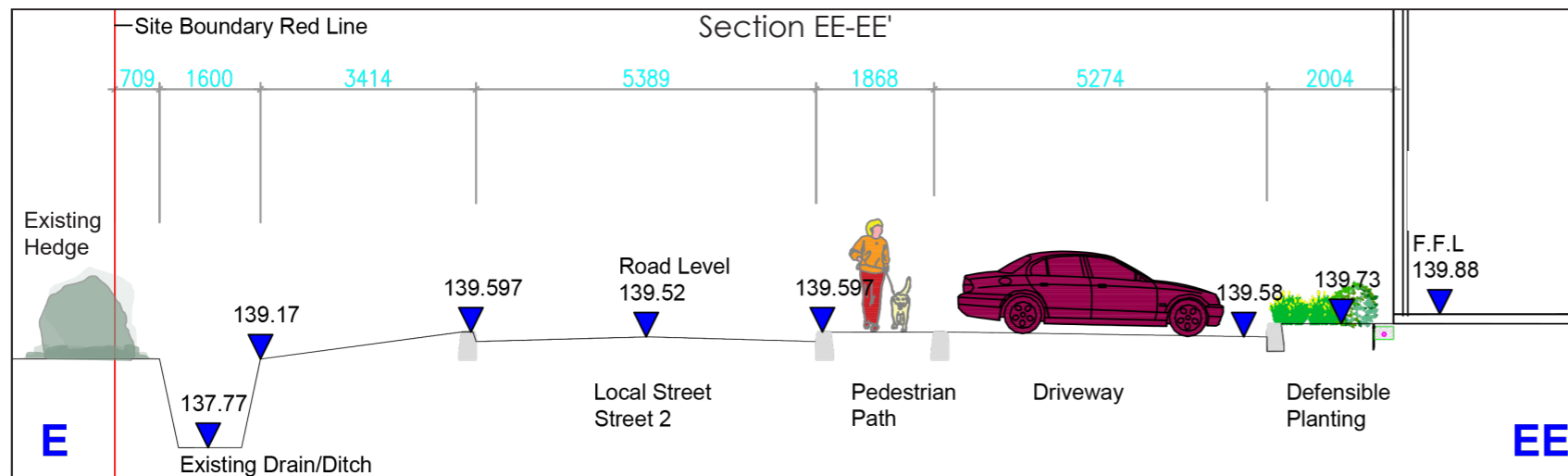
- Public path On Both Sides
- Cycle paths provided on-street on both sides and separated from pedestrian routes (Fortunestown LAP Objective AM3)
- Public Trees
- Trees (house side) in Public Domain



Local Street

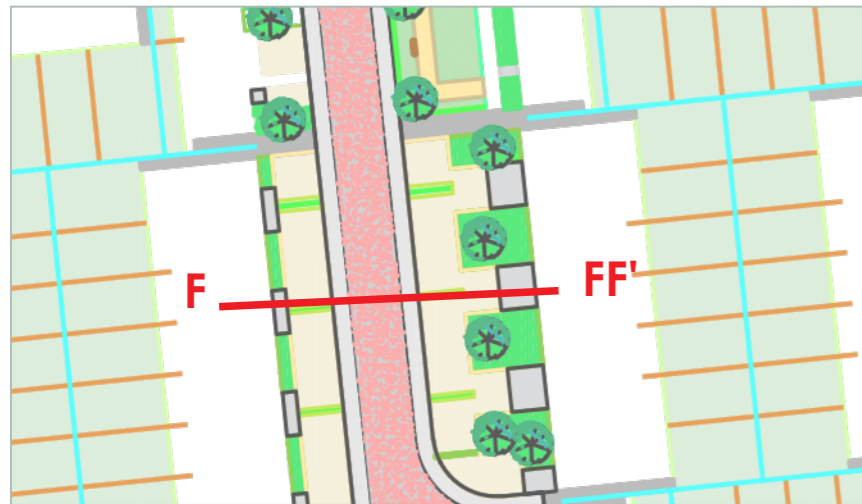


- Local Street
- Public path
- Public Tree (on one side)



Road Treatments

Pedestrian Priority



Tarmac with coloured chip

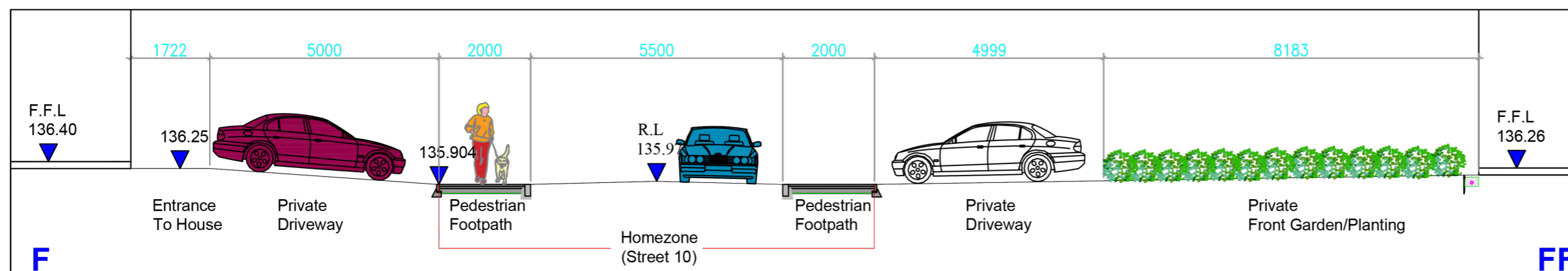


■ Pedestrian Priority

Quieter streets with homogeneous shared surface providing pedestrian priority (6m width) with kerb delineation. Shared street provision: pedestrians and cyclist share carriageway with vehicles in low traffic speed and low traffic volume environment.

Proposed Planting to include front garden tree, public realm tree, boundary hedge, defensive shrub planting.

Section F-FF'



Pedestrian Links & Green Infrastructure



The Green Infrastructure routes throughout the site, as set out in the Fortunestown LAP, shall be maintained and paths provided allow strong, safe access links for residents and users.



A network of safe usable green spaces permeates the Plan Lands in a manner that links adjoining lands, provides meaningful recreational facilities, ensures the conservation and enhancement of biodiversity, incorporates environmental resources including existing elements of significant heritage and wildlife value, and provides for sustainable water management.

(SDCC CDP Green Infrastructure Objectives AM3)



Carrigmore Park Links

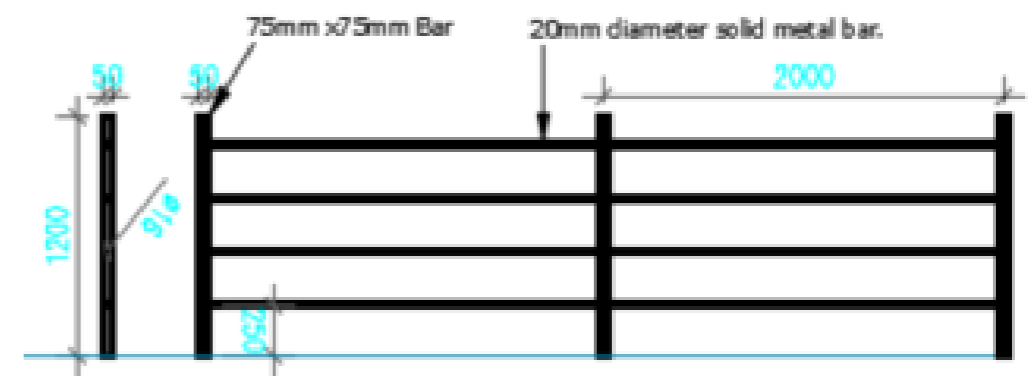


-  Proposed Location for pedestrian bridge
-  Retained Hedgerow
-  Retained Trees

Links to the adjacent Carrigmore Park propose retention of the existing hedgerow and a new pedestrian bridge. This environmentally sensitive approach aims to protect and improve the natural character of the watercourse, promote greater site connectivity (SDCC CDP Objective GIO18) and accessibility to interact with and be educated by nature. (SDCC CDP Objective GIO18)

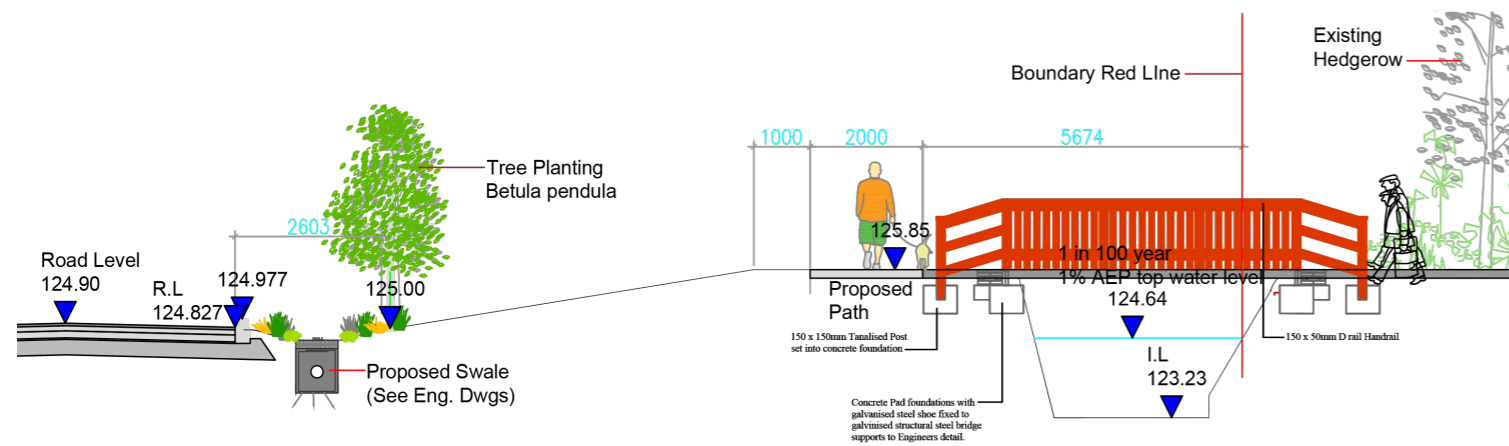


Location Plan



Parkland Railing Boundary Detail

Aerial Image overlay w/ Retained Hedgerow



Proposed Pedestrian Link To Carrigmore Park



Indicative Bridge Treatment

Boundary Treatment

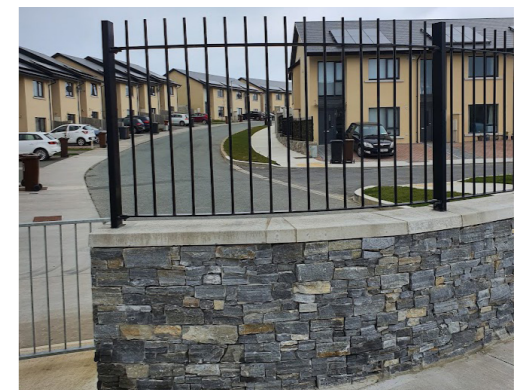
Plan



Block Wall with dashed finish and brick piers 2m high - Durkan Site



Brick Feature Wall 2m high - Kelland Site



.6m Stone Butt Wall & 1.2m Railing



Fair-faced Concrete Wall



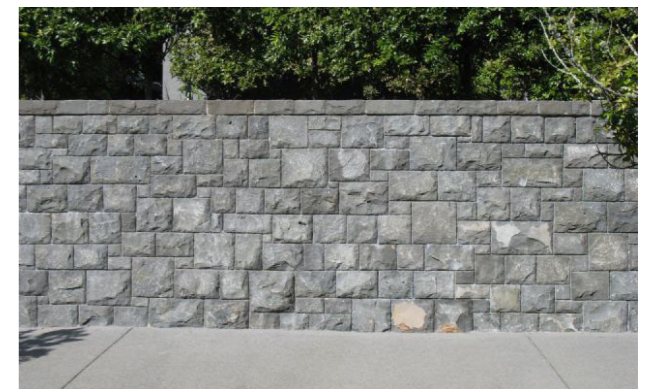
Concrete Post & Panel Fence



Structural Hedge Planting



c. Post and timber panel w/ gravel board



2m Stone Wall

Boundary Treatment

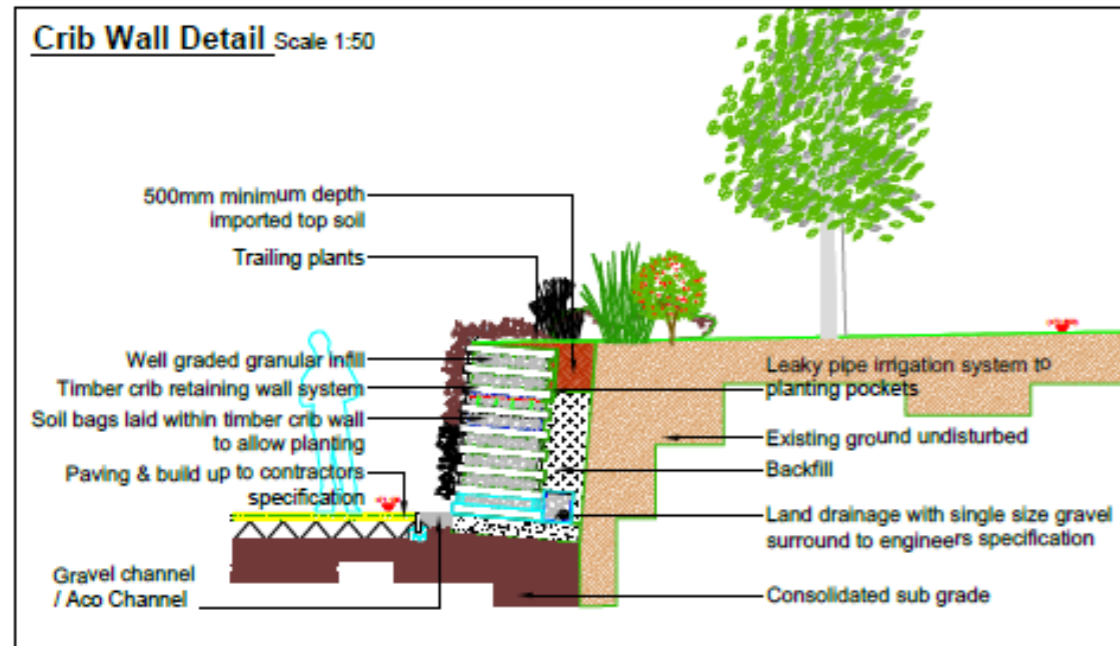
Rear Garden Level Difference of 2m or greater



- Higher Level Garden
- Lower Level Garden
- Split Level House Types F



Boundary Treatment Sections To Rear Gardens



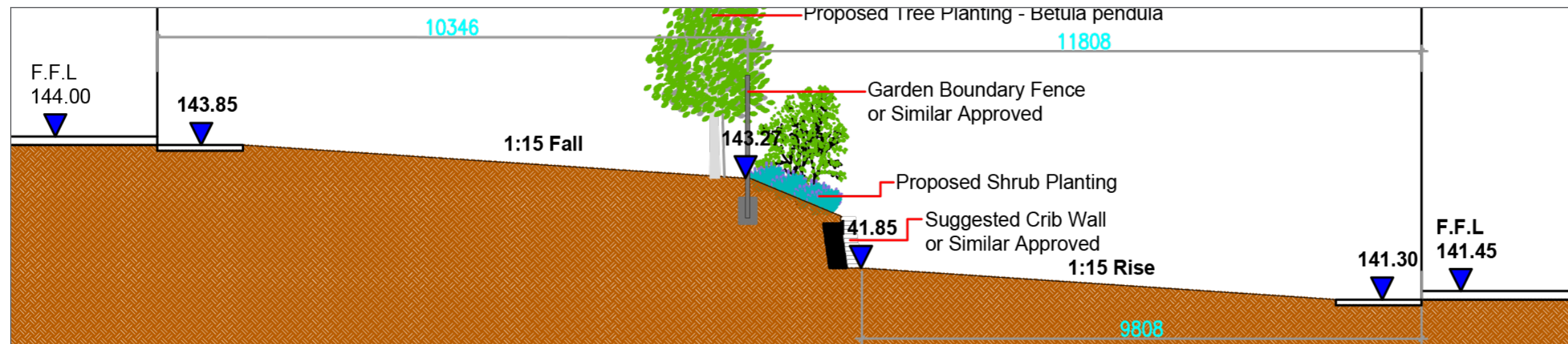
Suggested Treatment



Reference Image - Crib Wall



Section A-AA'



Boundary Treatment Sections To Rear Gardens

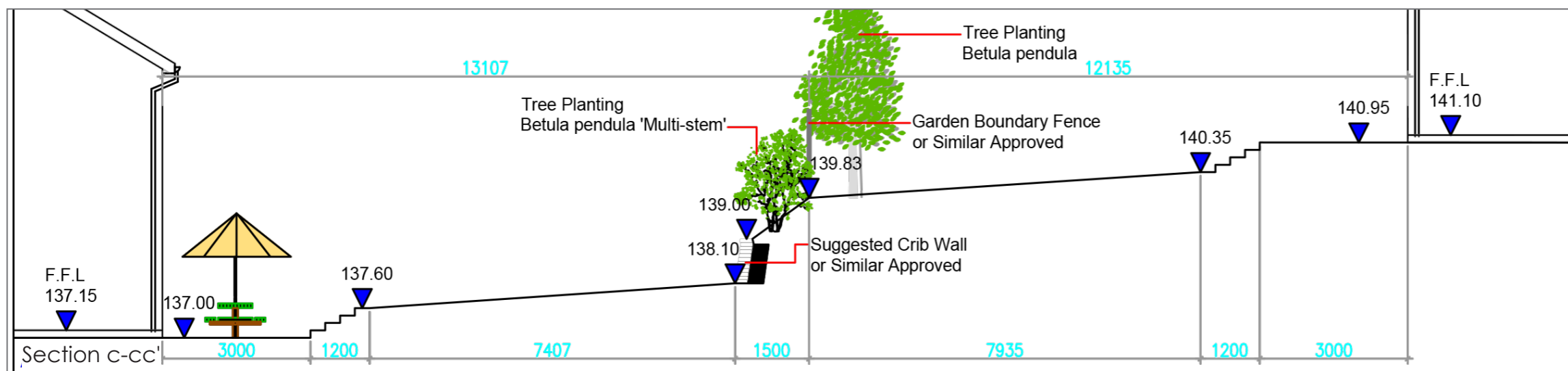
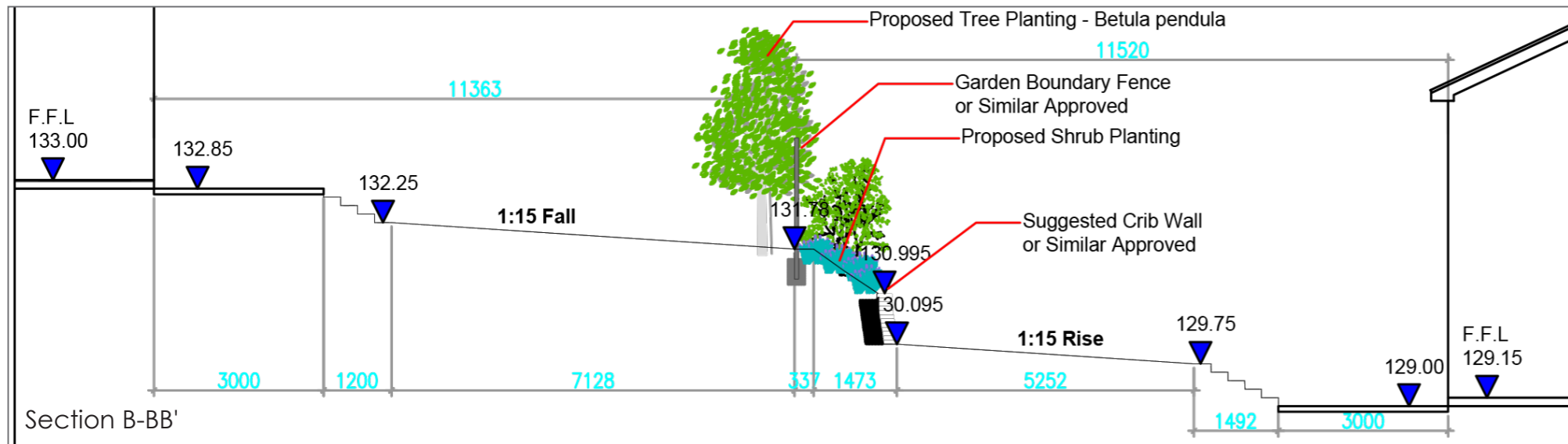


Section C-CC

The Suggested Image shows 6 Steps allowing for a drop of 900mm



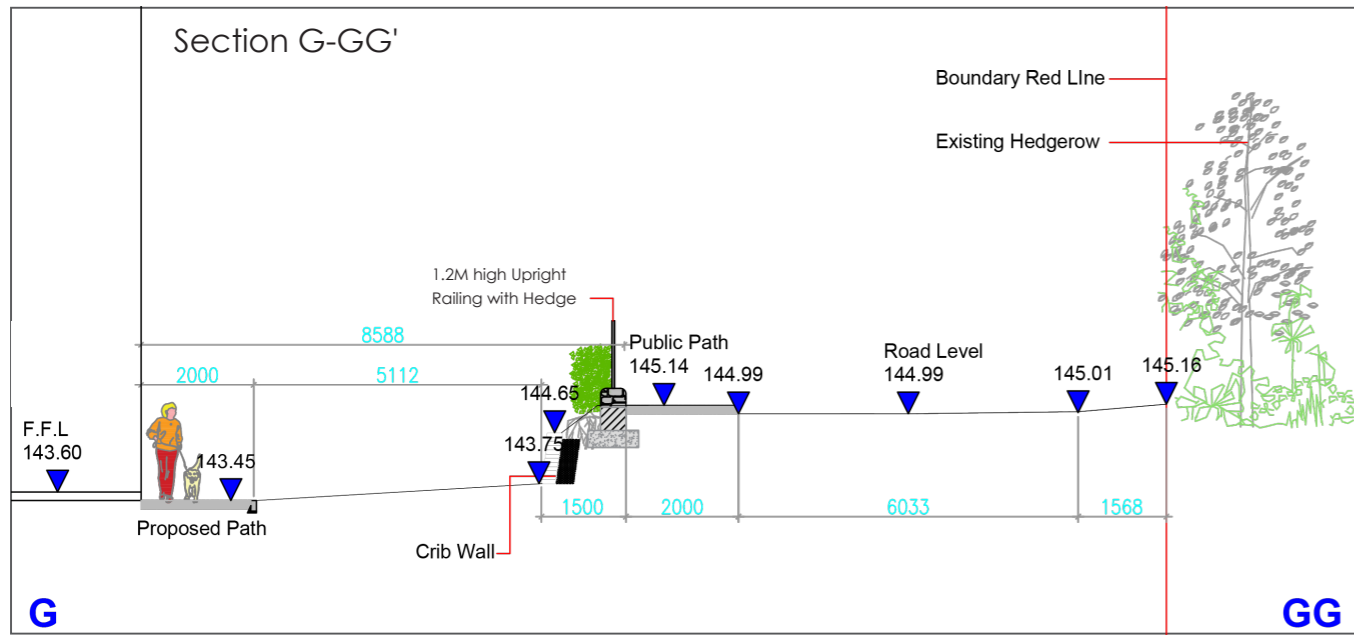
The Suggested Retaining Image shows Treated Railway sleepers Slotted into RSJs



Section C-CC'



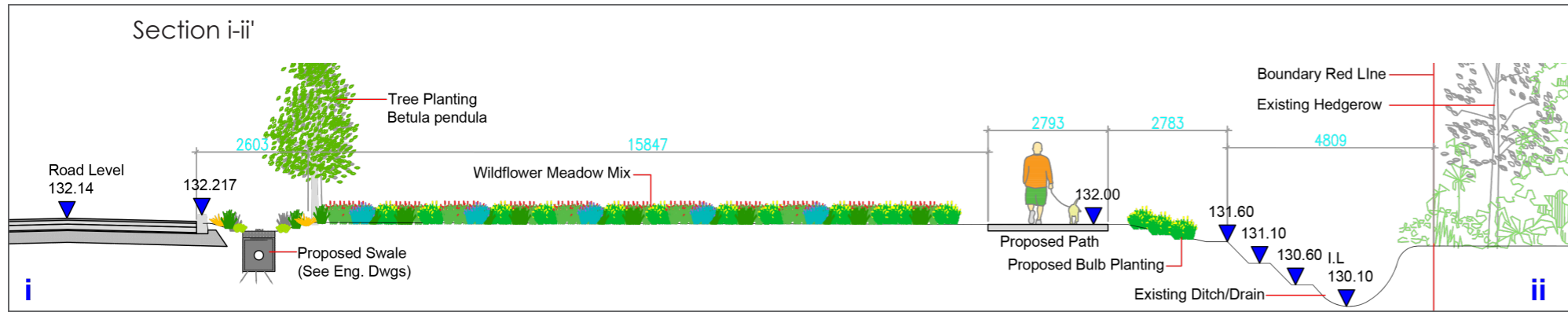
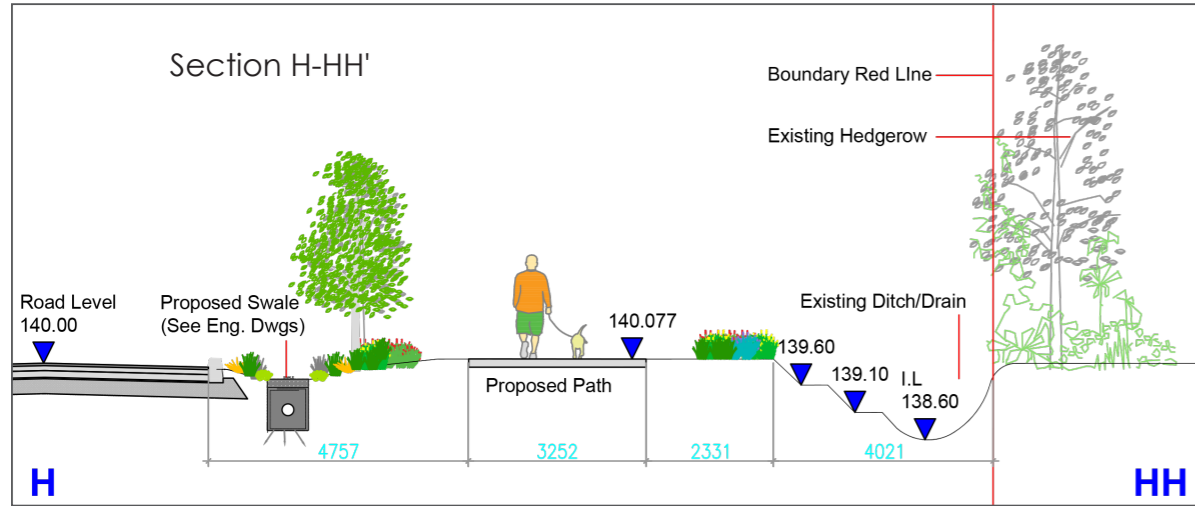
Site Boundary Sections



Public facing streetscape proposed with high quality boundary finishes and buffer planting



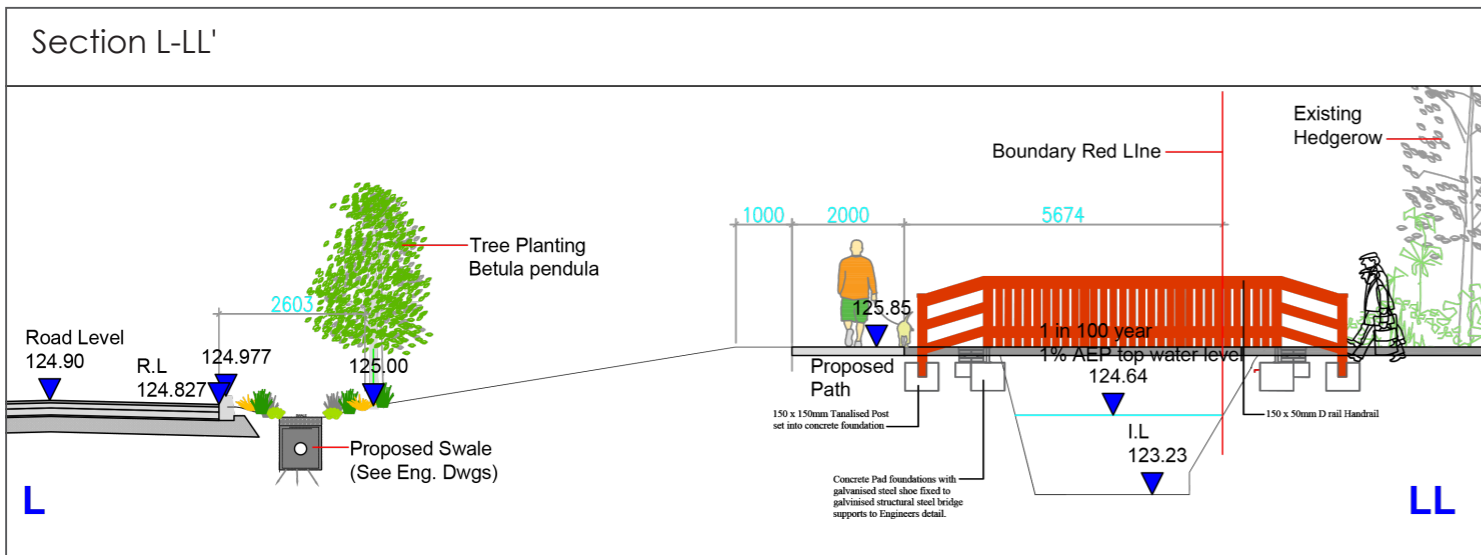
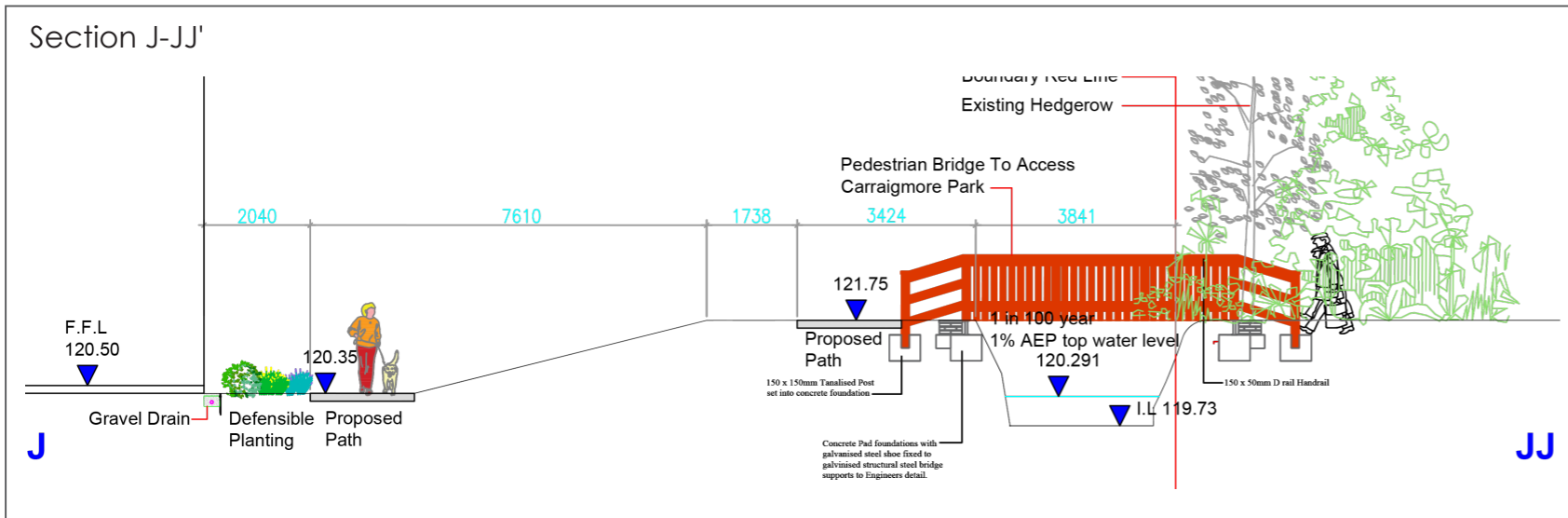
Site Boundary Sections



CGI – Riparian Zone - Wildflower meadows and shared greenway set along the existing stream



Site Boundary Sections



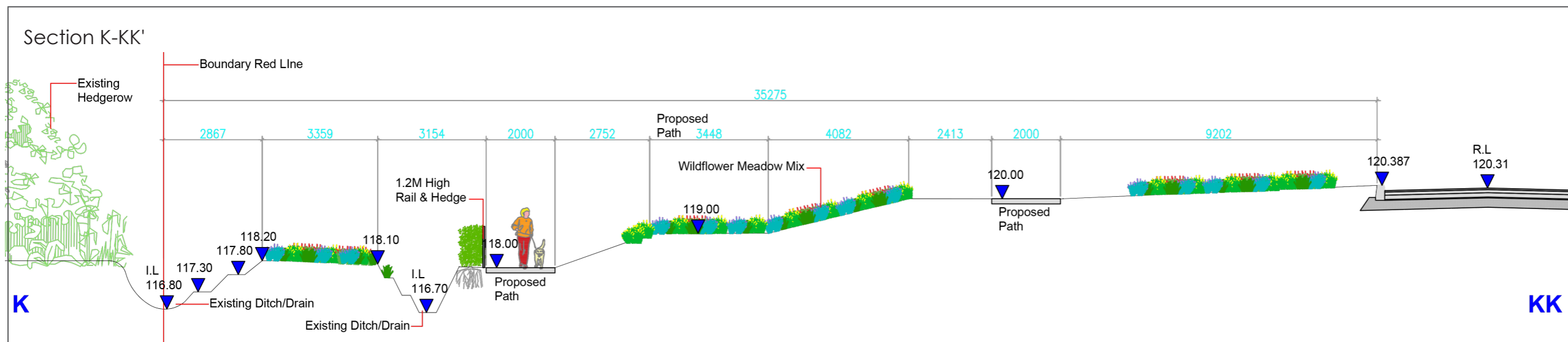
Site Boundary Sections



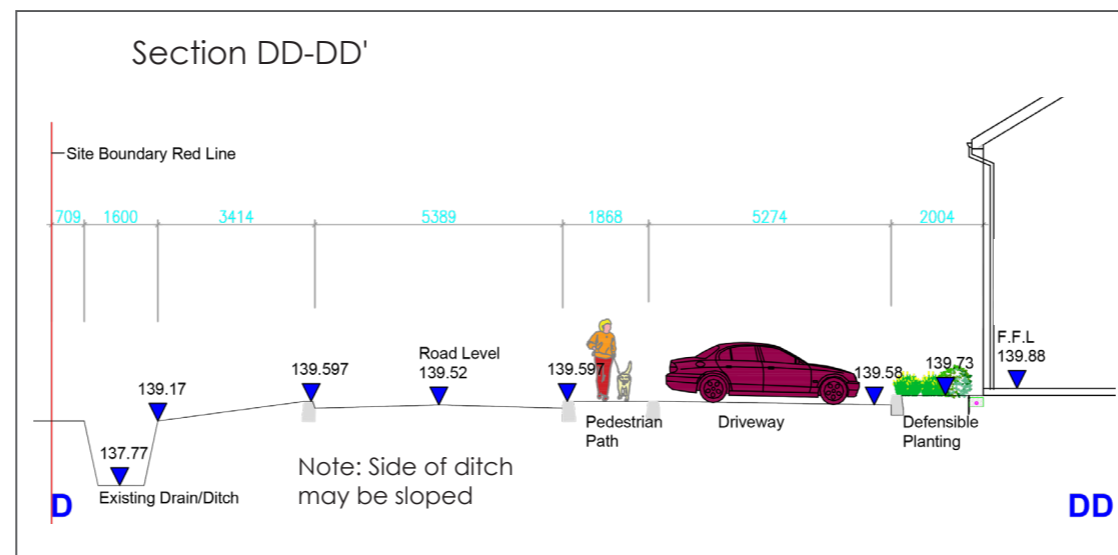
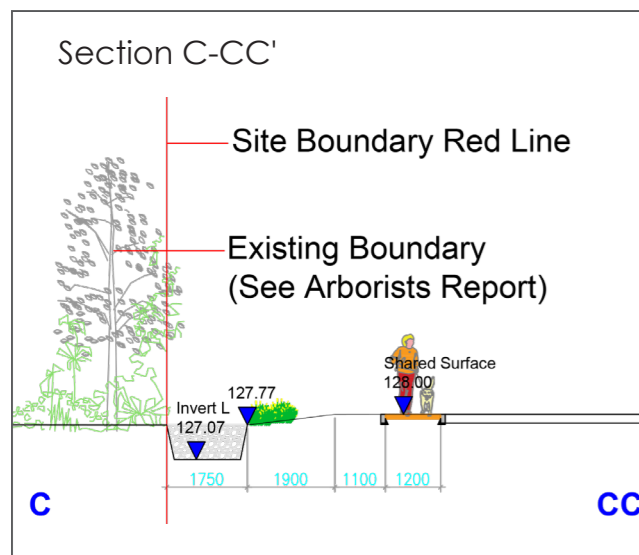
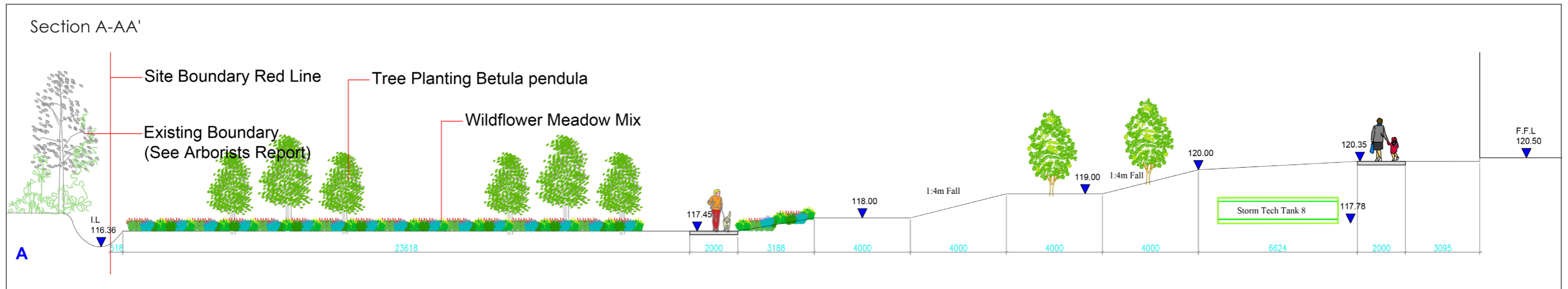
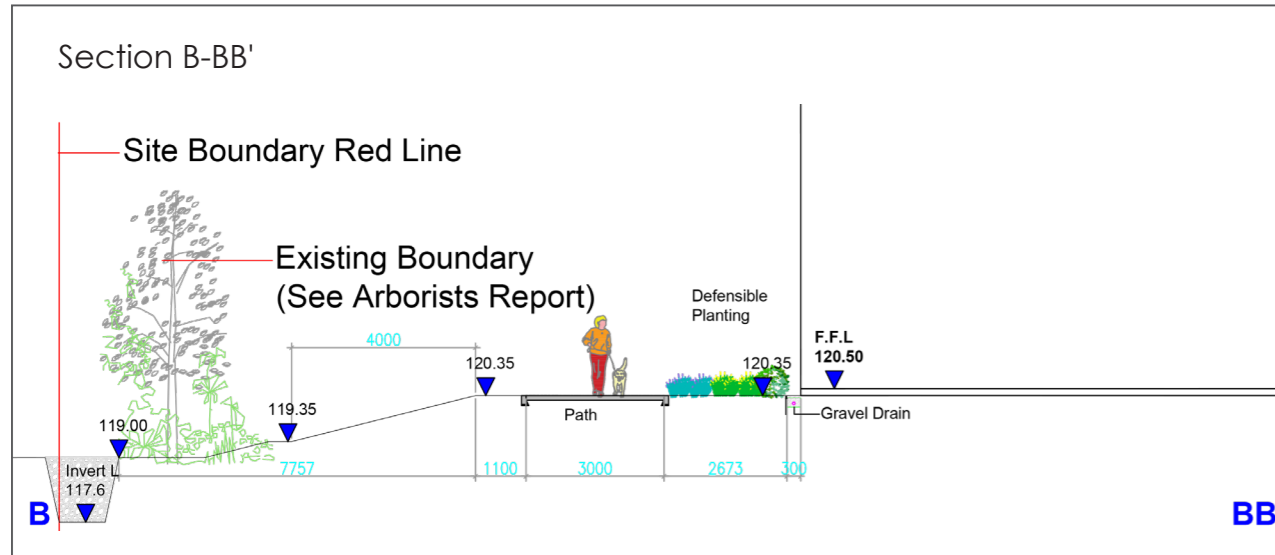
CGI - Parkland with walking routes, buffer planting, and wildflower meadows



Buffer/Parkland - Native Trees, Wildflower Meadow Mix, Habitat Renewal, Walking Route & Seating



Site Boundary Sections



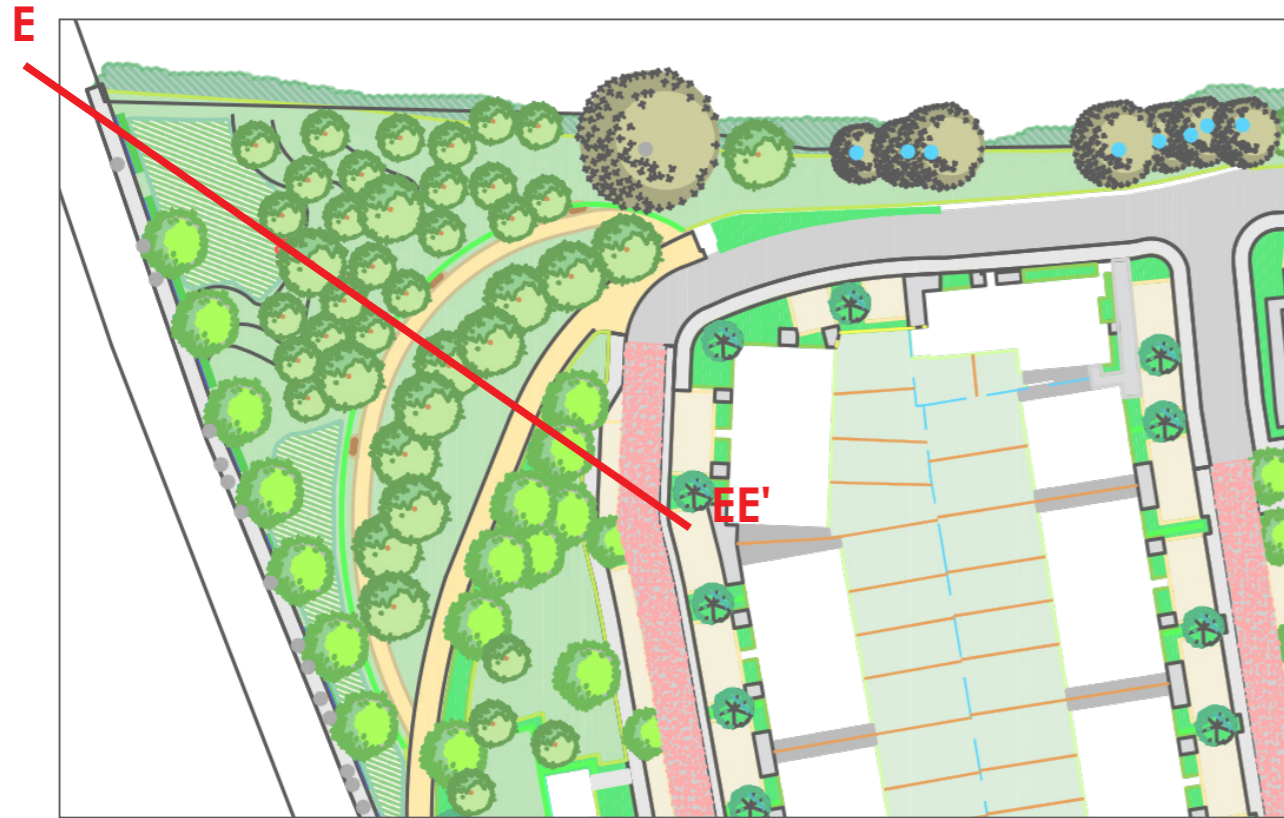
Landscape Treatments

Moodboard



Landscape Detail Areas

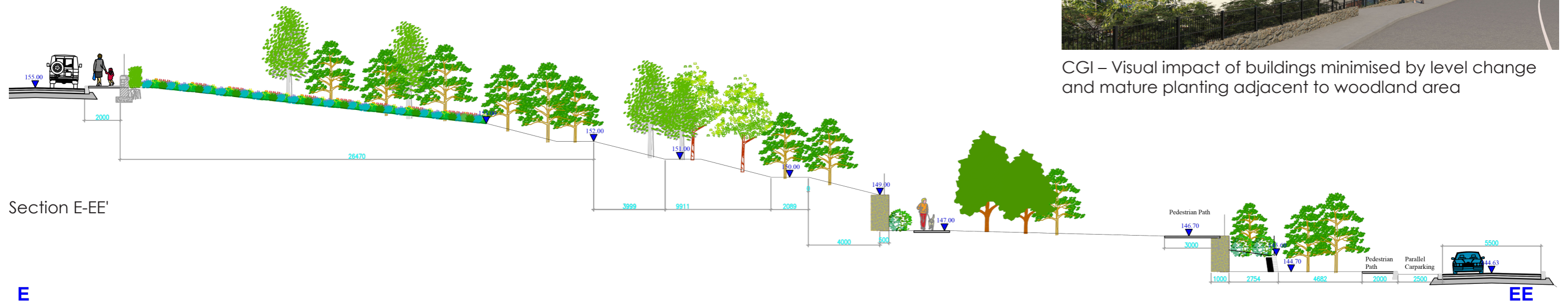
Open Space - Woodland



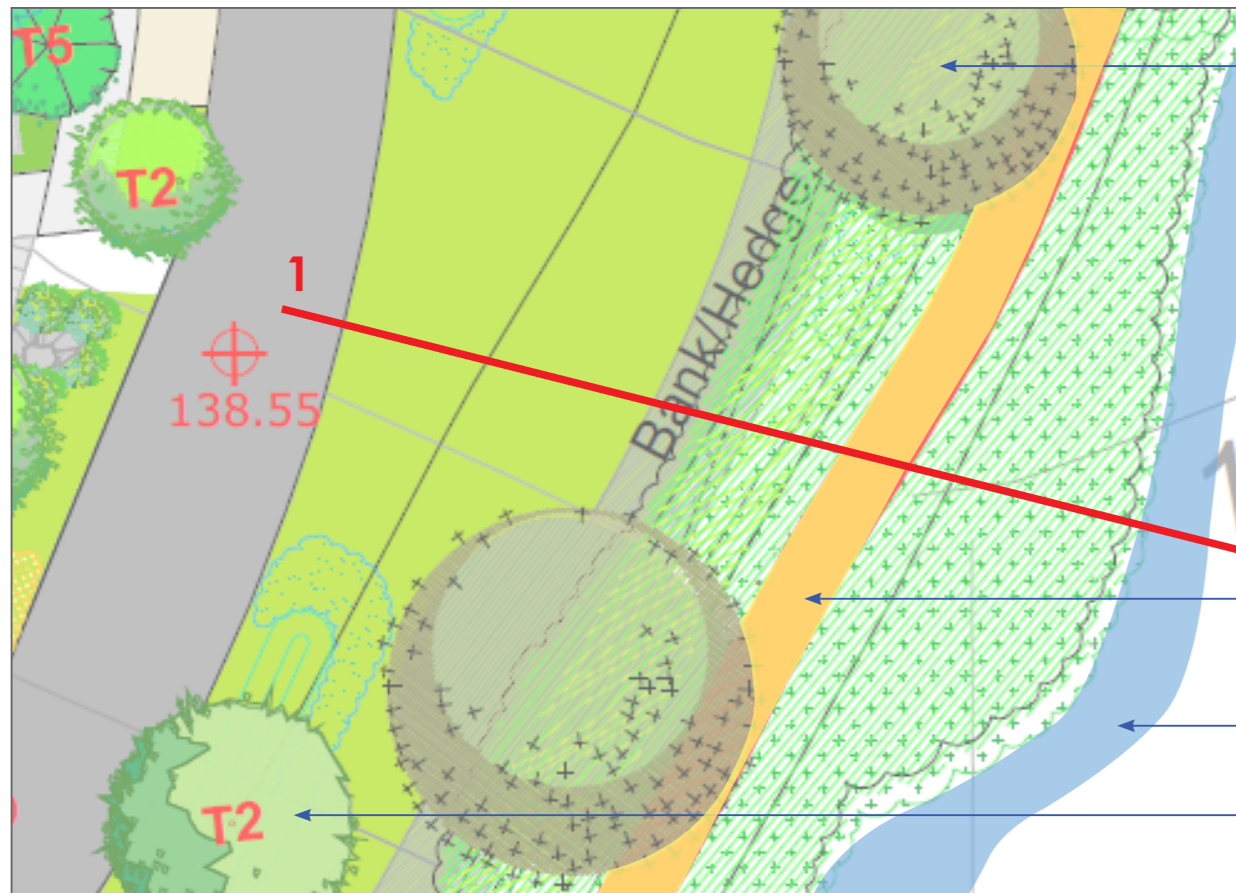
Location Plan



CGI – Visual impact of buildings minimised by level change and mature planting adjacent to woodland area



Open Space - Stream / Riparian Zone



Existing Tree



Pedestrian/Cycle Shared Greenway

Stream

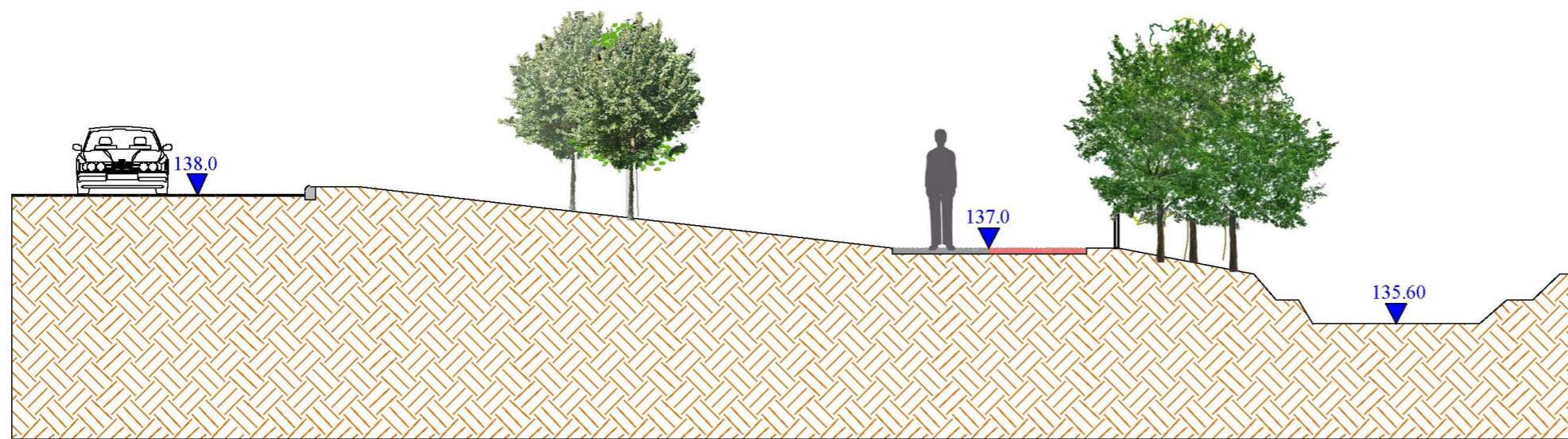
Proposed Tree



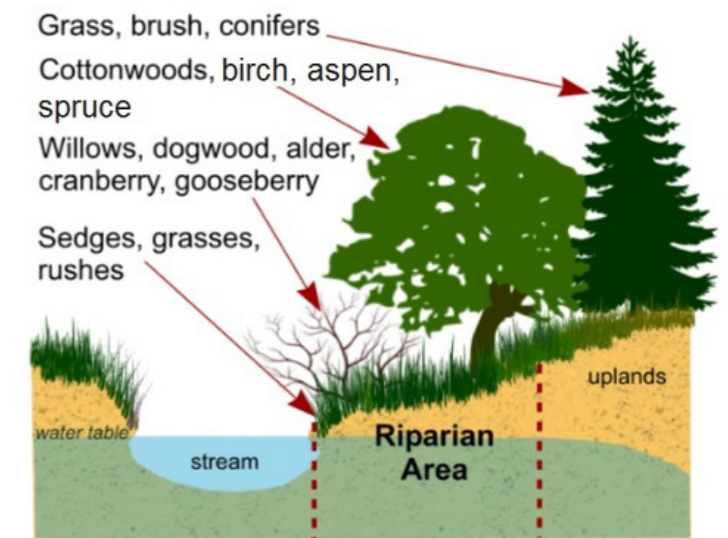
Location Plan



Suggested Pedestrian Bridge to adjoining lands



Section 1-11'

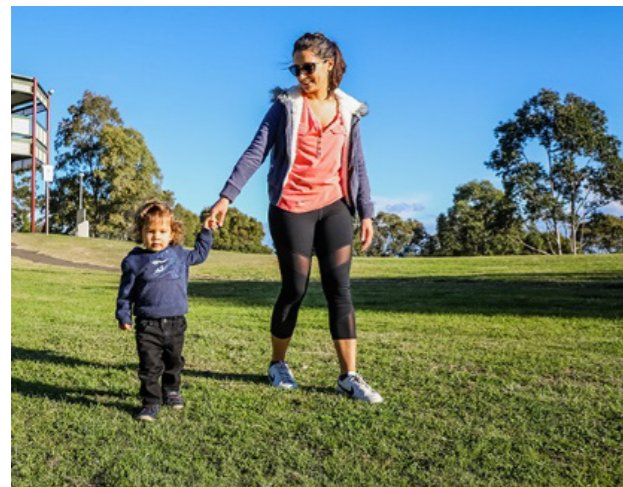


Typical Treatment – Riparian strip

Open Space - Playground



Natural Seating



Betula pendula



Playground Seating



Wood Fiber Playground Mulch
The fibres knit together to form a stable, Long-lasting, slip resistant surface, excellent impact absorption



Prunus 'Otto luyken'



Lavandula angustifolia



Playground Bin

Movement

Tree planting and gentle grass mounding are ideal places to hide. These changes in levels are suitable for jumping and running down gentle hills. Some Wooden seating areas could be suitable for climbing. Proposed playground located in the open space will accommodate climbing.

Stimulation of the five sense

Natural elements throughout open space and on podiums provide quiet places, dark and bright areas that appeals to a child senses. Sensory and textured plants planted throughout the spaces will appeals to the senses.

Experiencing change in the natural and built environment.

Experiencing the seasons. The contrast between open space and paving provide opportunities to learn and play. Natural element in open space such as trees will allow Children to experience changes in seasons.

Social interactions

Meeting points and a number of seating areas will encourage social interaction. Kick about spaces also encourage interaction

Playing with identity

Role play, Places to hide in the natural elements of open space.

Experiencing a range of emotions

This bespoke designed open space will appeal and evoke children's emotions.

Capabilities of play such as tumble ,chase game.

Extensive grass areas throughout the open space are ideal for kickabout and chasing games.

Varied and interesting physical environment.

A bespoke designed space that has gentle grass mounding thus providing a change in levels. This provides a varied and interesting physical play environment.



Open Space - Neighbourhood Park Playground



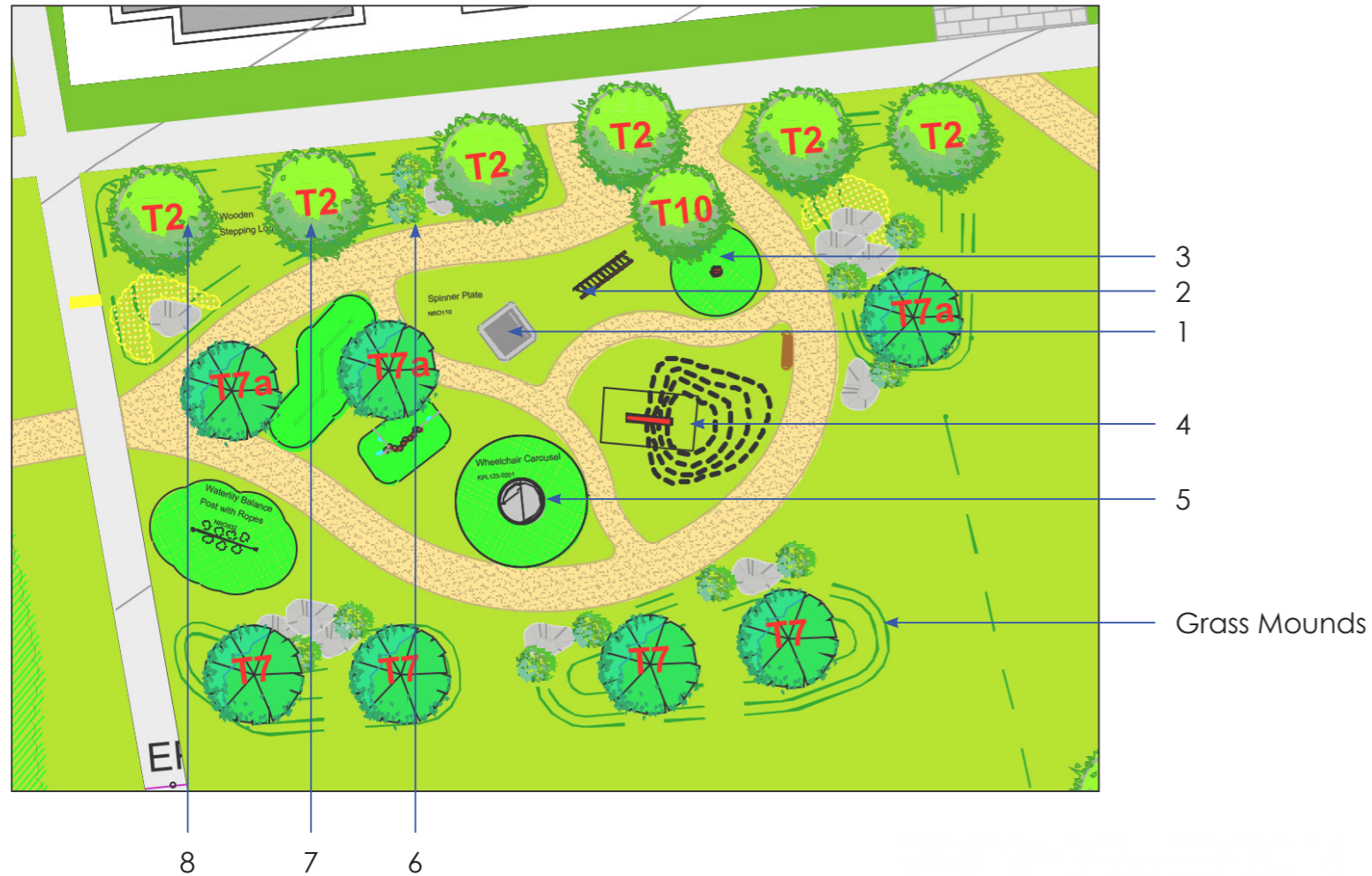
CGI – Proposed central open space with natural play ground and kickabout area



Location Plan



Open Space - Neighbourhood Park Playground



Location Plan

Play Item Specification

Natural Play items taken from the HAGS Range or similar Approved. All Products are manufactured from Robinia wood. Robinia is a type of Hardwood Timber with unique properties of strength and durability. Robinia wood does not rot or give the user splinters and is also vandal resistant. It is perfect for a natural play scheme. Each Play Item has a fall zone protected with Safagrass Matting or TigerMulch. Safagrass is an environmentally friendly, non-slip, impact absorbing safety surface. Matting products are available in various sizes and critical fall heights (CFH). Matting is secured with Pegs and Ties. Safagrass Matting must meet with standards EI1177. All Play equipment manufactured and installed to meet EN 1176 Regulations.

1 Jumper Inclusive



2 Swings



3 Spinner Plate



6. Wooden Stepping Logs



4 Embankment Slide



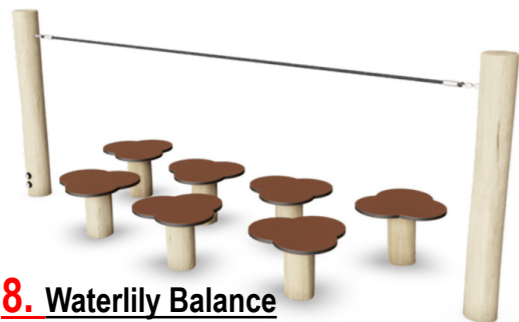
7. Balancing Beam



5. Wheelchair Carousel

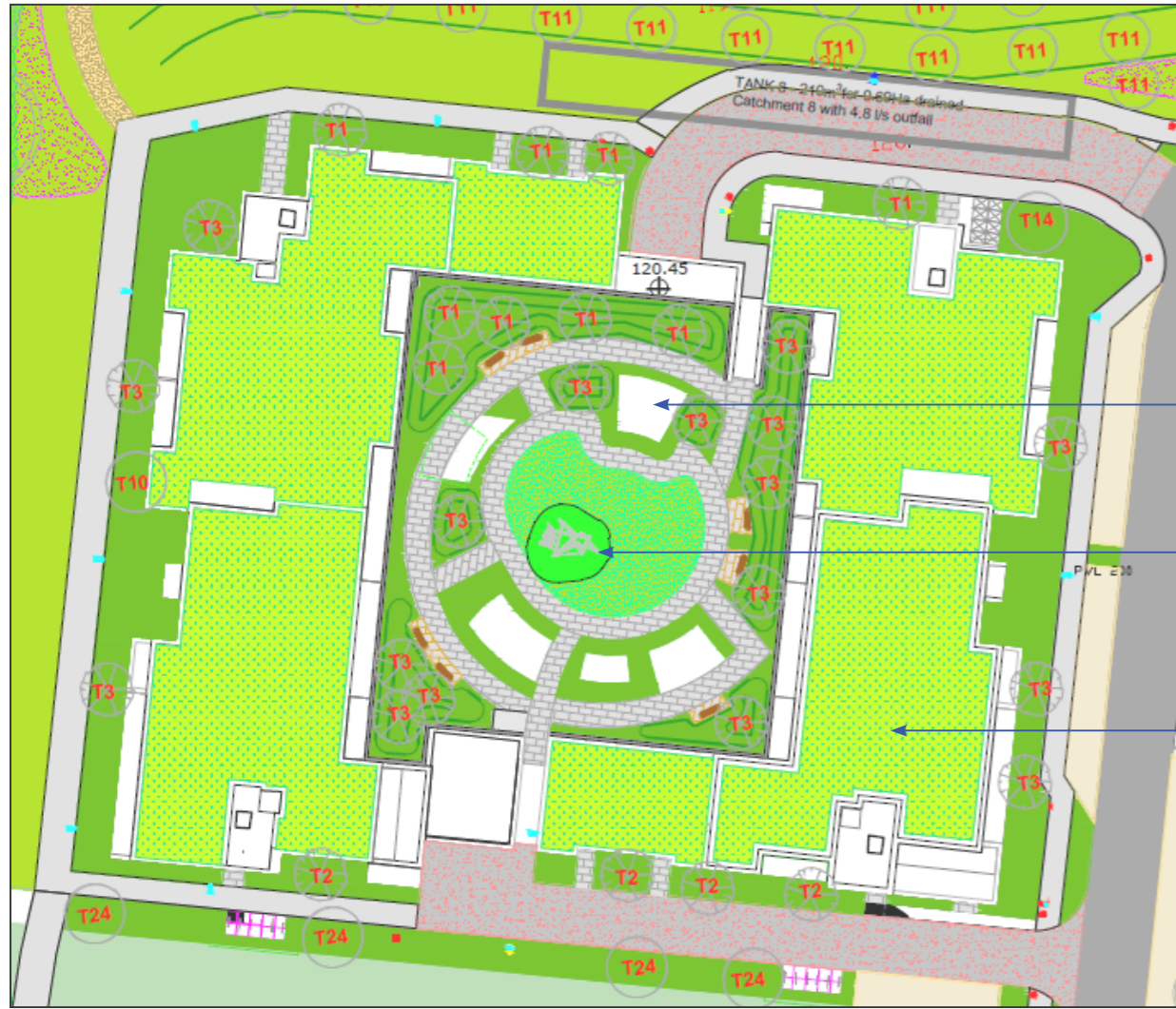


8. Waterlily Balance Post with Ropes



Landscape Detail Areas

Communal Open Space - Apartments



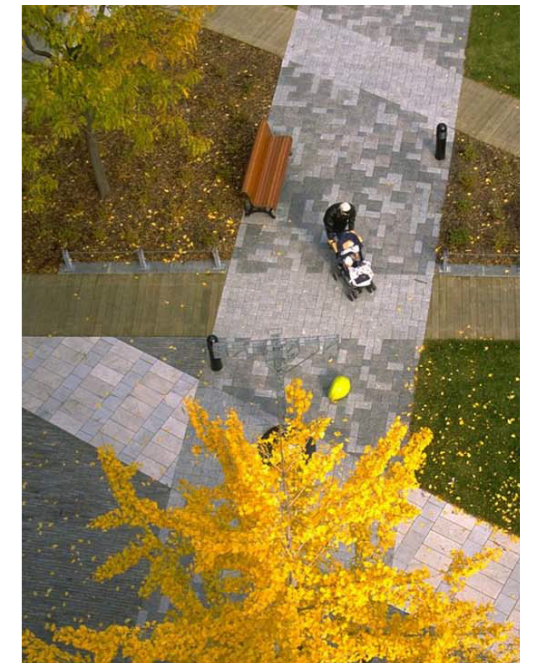
Vent Location
(5 Vents)

Multi-use Climbing
Frame

Green Roof



Location Plan



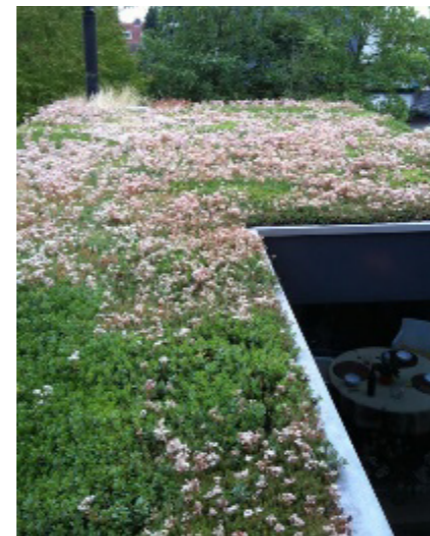
Indicative Images



Upright trees to frame buildings



Bicycle Storage

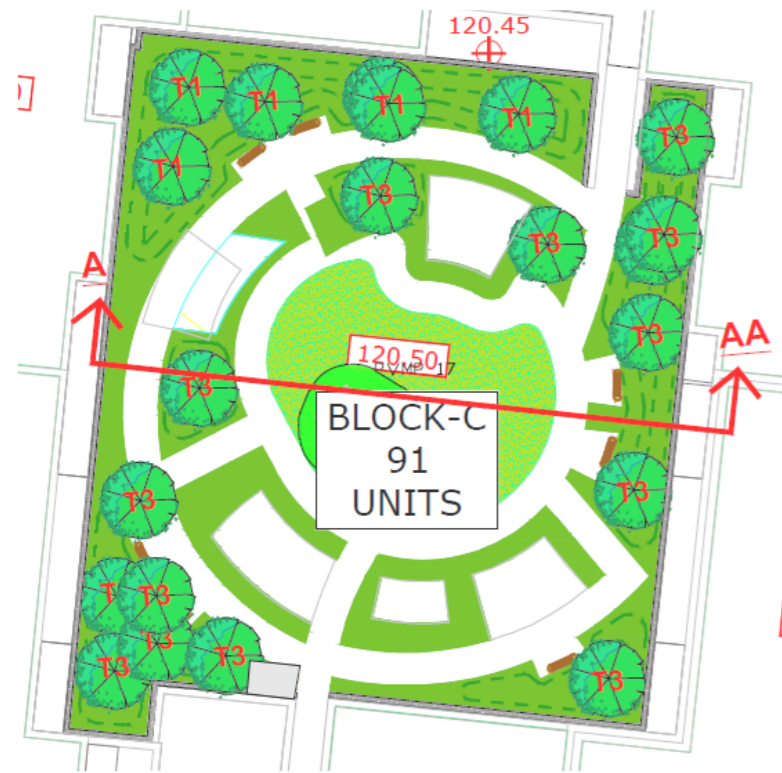


Green Roof

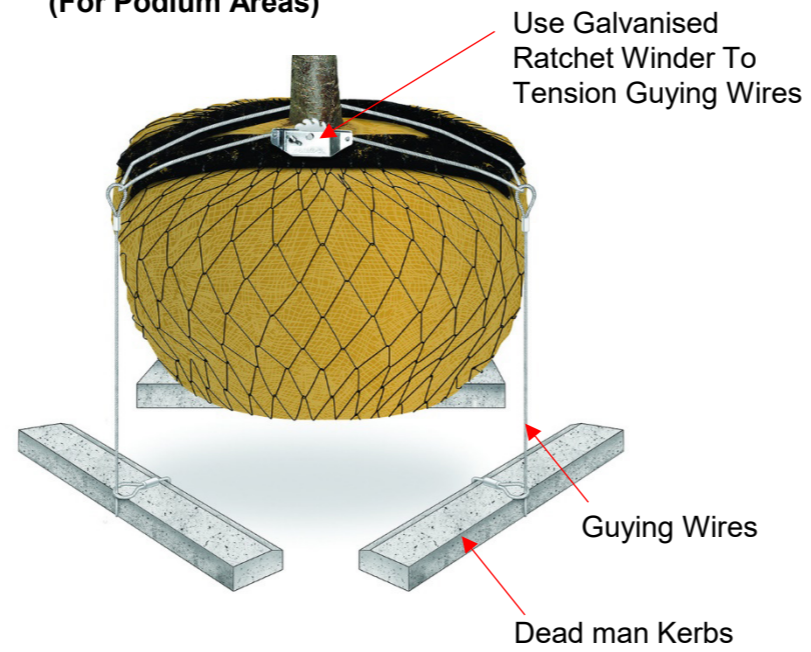


Landscape Detail Areas

Open Space - Podium Treatment

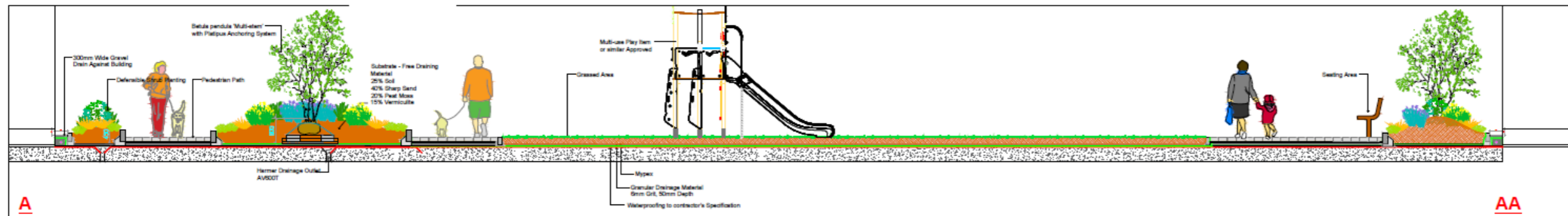


Plati-Mat Rootball Tree Anchoring Detail (For Podium Areas)

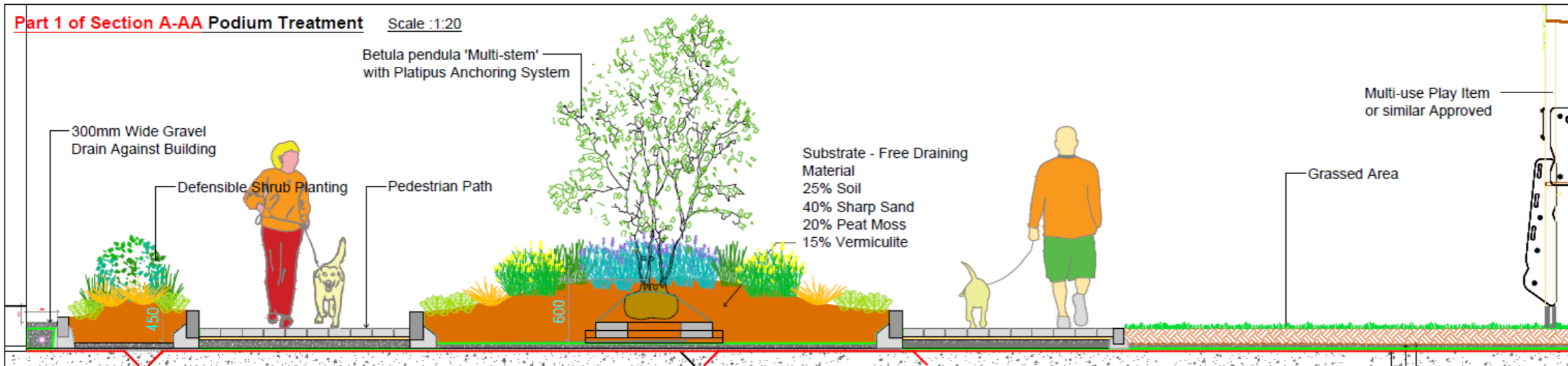


Location Plan

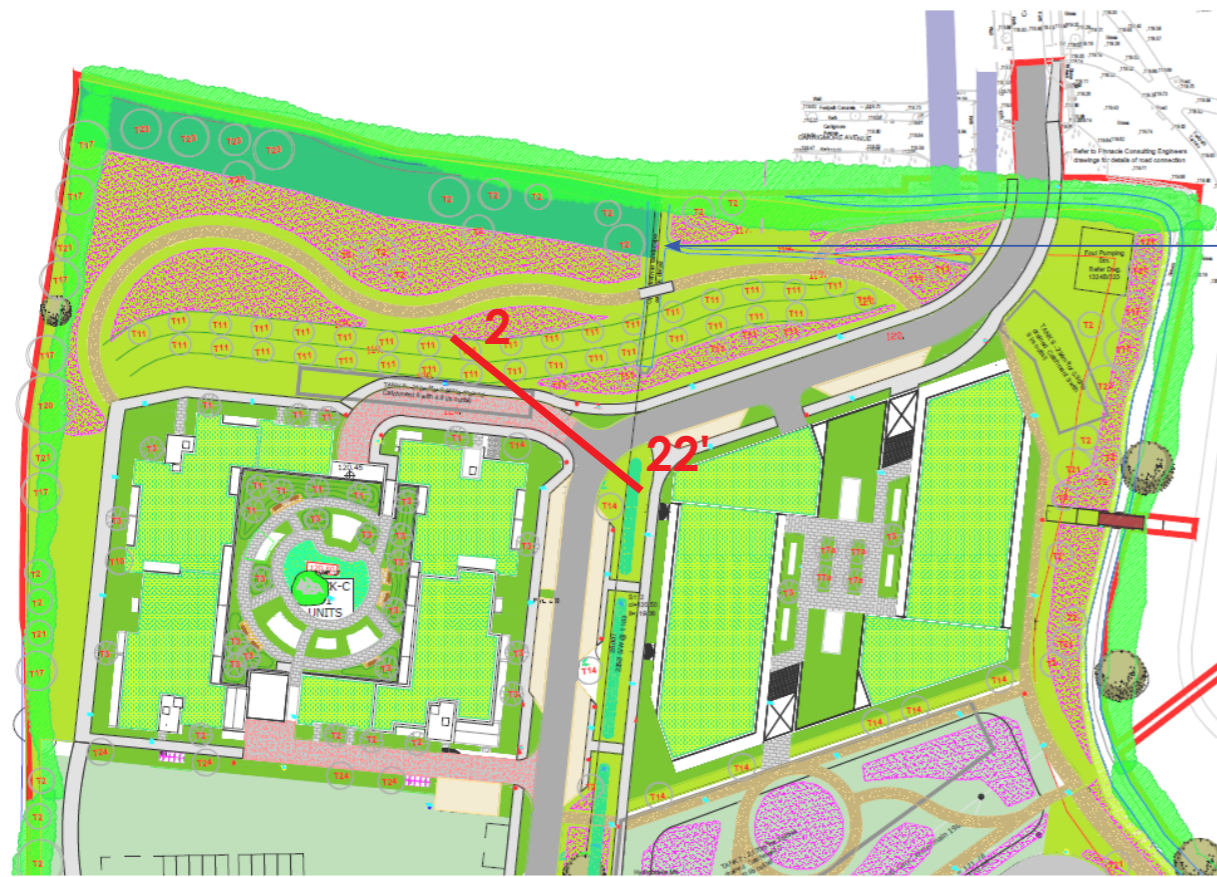
Section A-AA Podium Treatment



Part 1 of Section A-AA Podium Treatment Scale :1:20



Open Space



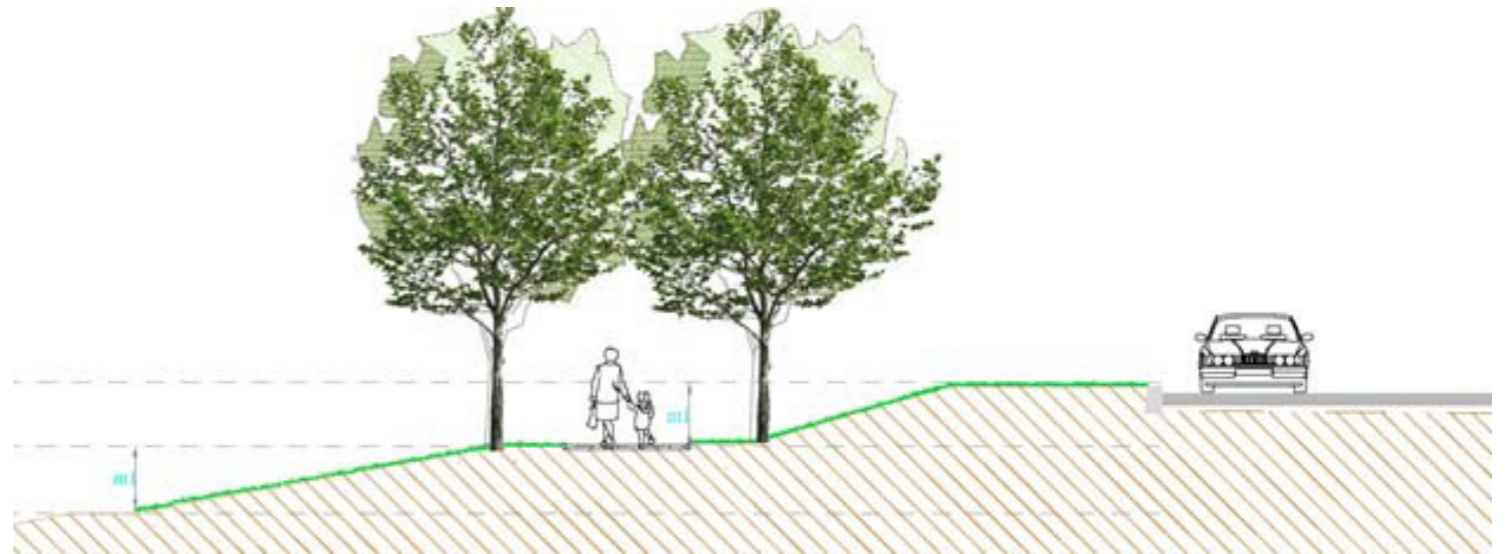
Riparian strip along stream



Location Plan



Indicative Image



Section 2-22'



Moodboard



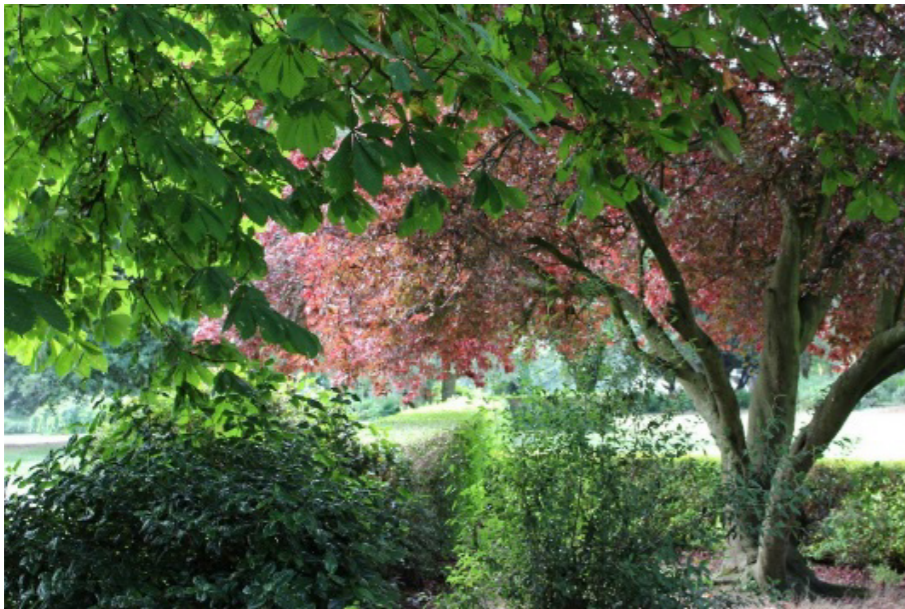
Tree & Shrub Planting



Shallow Root Tree Planting



Pollinator Friendly Planting



Place for Reflection



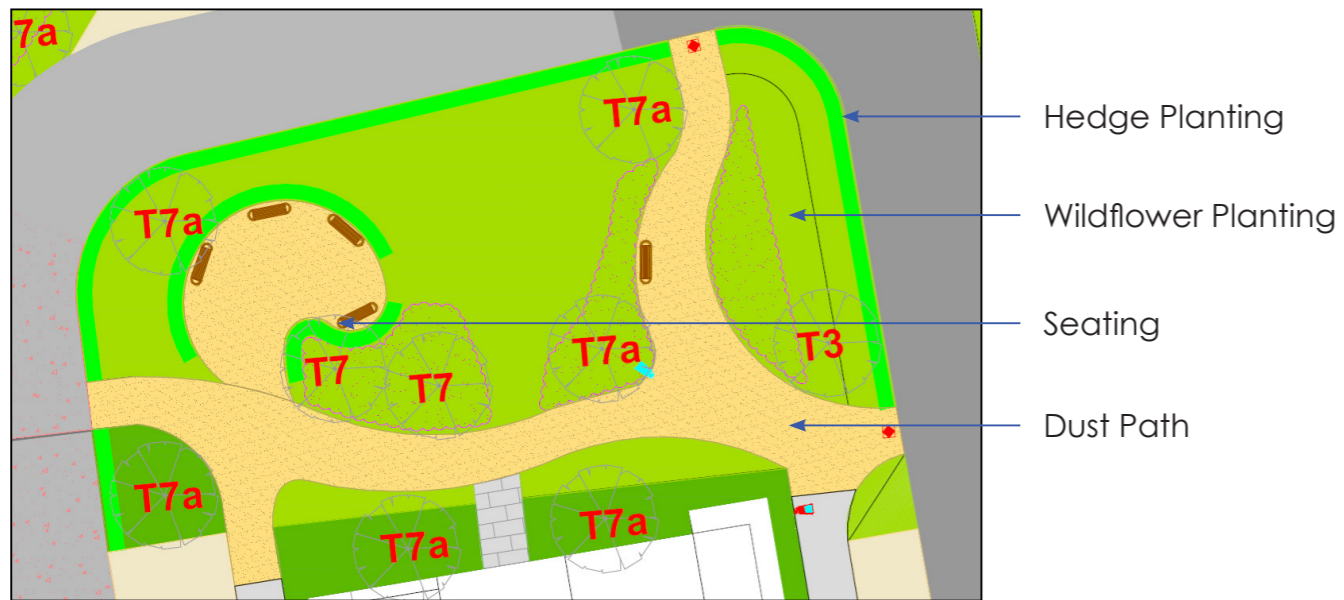
Wildflower Meadow Mix



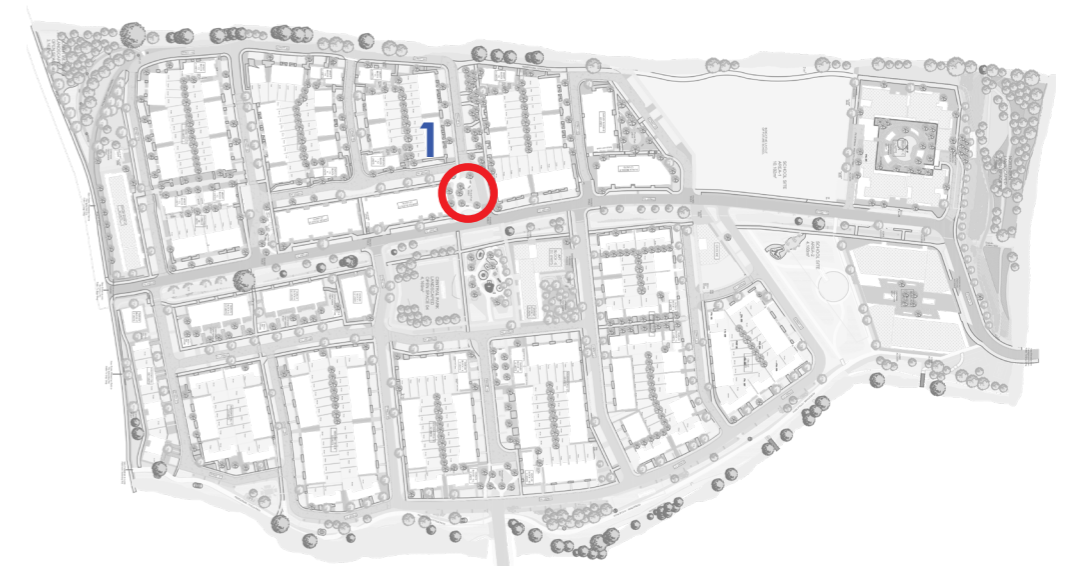
Mown Grass Path Through Meadow Mix



Durkan Site Locations



1 Duplex Block C



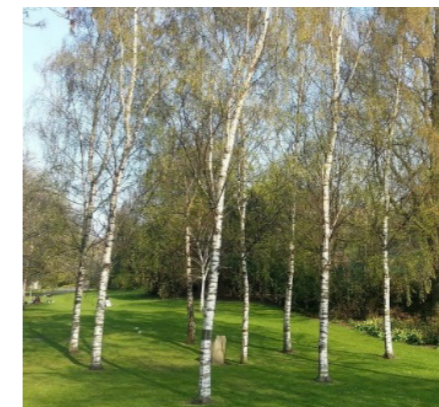
Location Plan



CGI – Proposed planting scheme to create greater levels of biodiversity across the site



Ballylusk Dust Path



Proposed Tree Planting



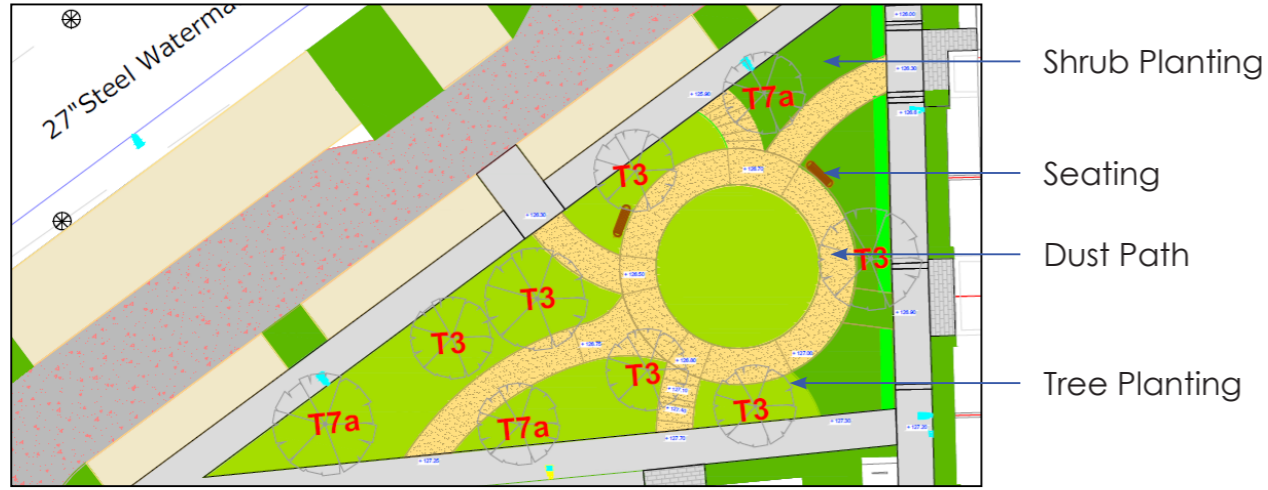
Wildflower Meadow Mix



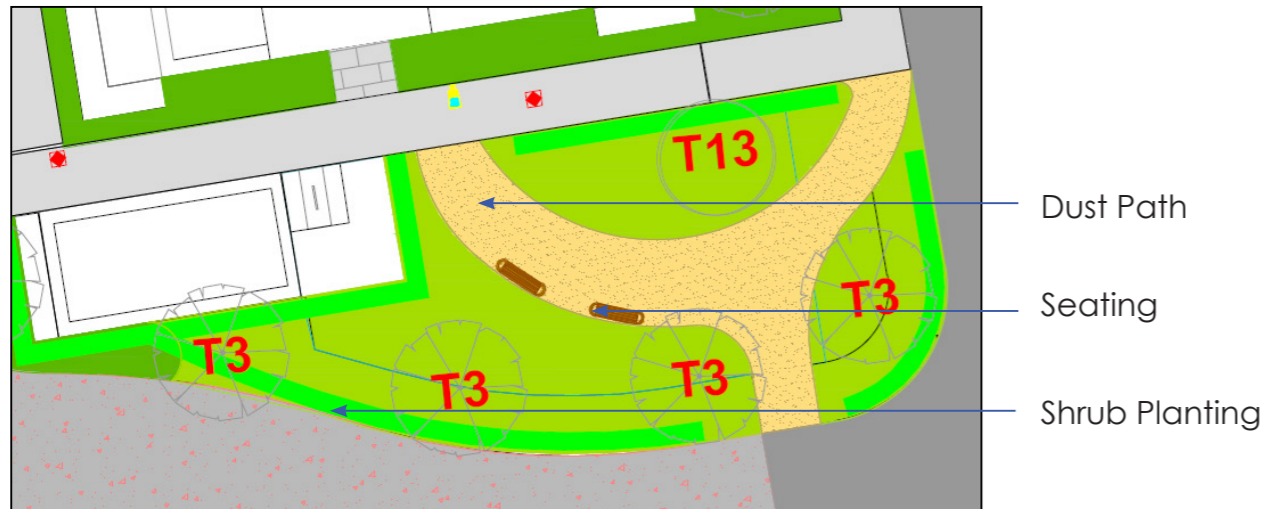
Public Seating



Durkan Site Locations



2 Duplex Block D



3 Duplex Block B



Location Plan



Ballylusk Dust Path



Proposed Tree Planting



Prunus lusitanica Hedge



Wildflower Meadow Mix



Public Seating



Landscape Areas - Pocket Park

Kelland Site Locations



Ballylusk Dust Path



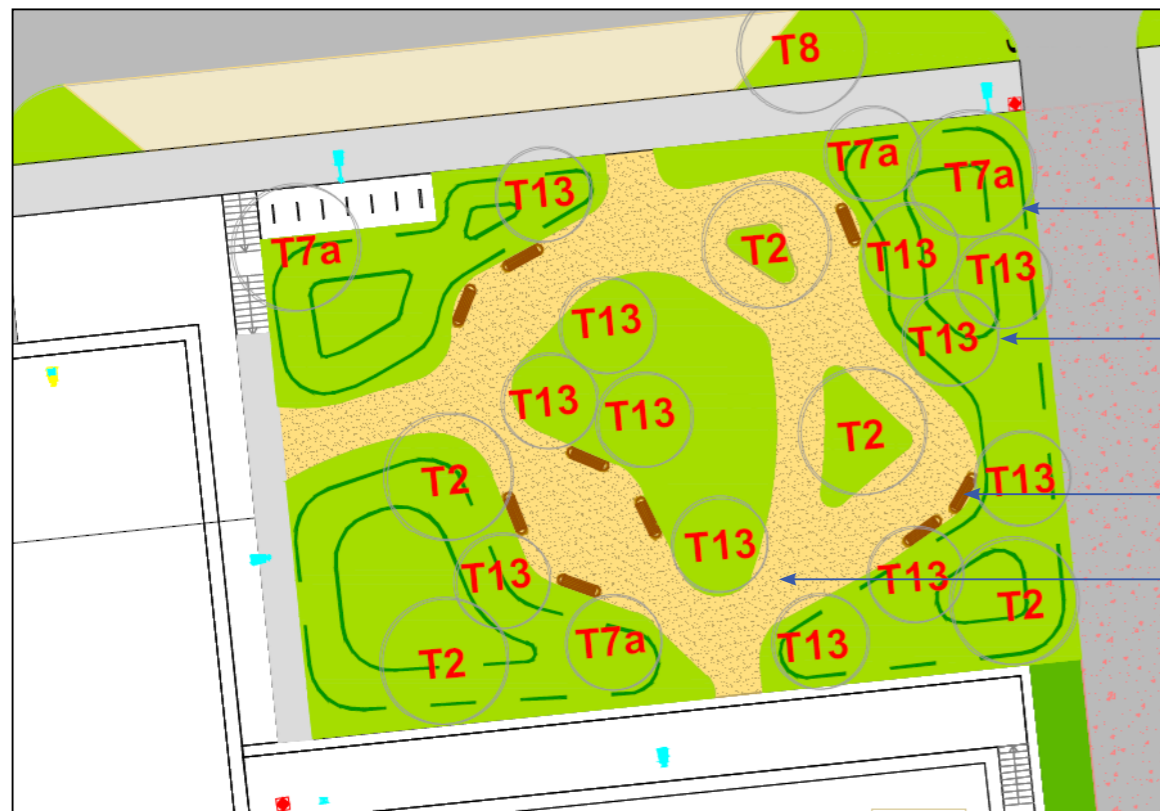
Grass Mounds



Public Seating



Location Plan



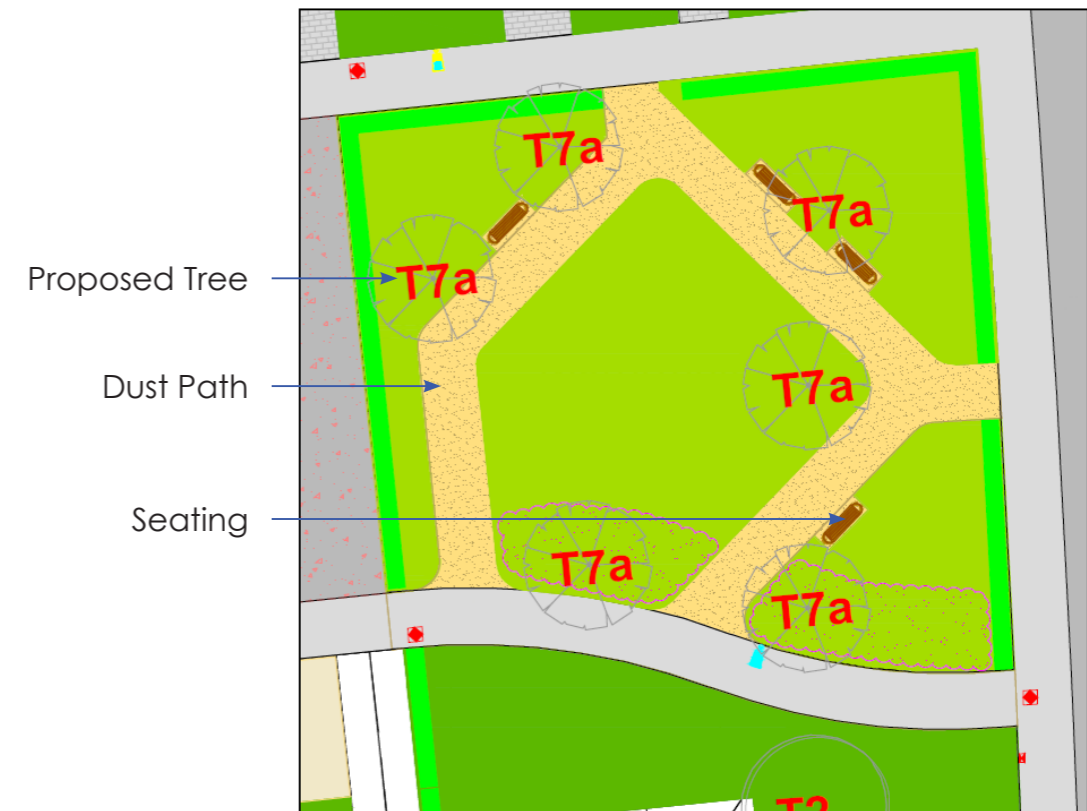
4 Apartment Block B

Grass Mounding

Proposed Tree

Seating

Dust Path



5 Housing Tank 10

Proposed Tree

Dust Path

Seating

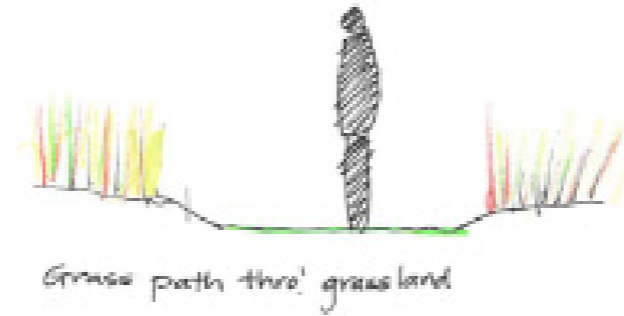
Proposed Planting & Landscape Features



Miscanthus sinensis



Stipa tenuissima 'Pony Tails'



Carpet Rose with Lavender



Viburnum Opulus



Libertia grandiflora



Stipa gigantea



Hypericum hidcote



Mahonia Charity



Agapanthus orientalis

Native and pollinator species (as per The All Ireland Pollinator Plan 2015 – 2020) planting for biodiversity has been incorporated into the scheme and this includes a native tree belt / woodland wetland area, wildflower meadows and semi natural grassland. a



Hard Landscape Palette

Finishes

ELEMENTS PALETTE

Wooden seating element



Omos Seating s96w Seat
Or similar Approved

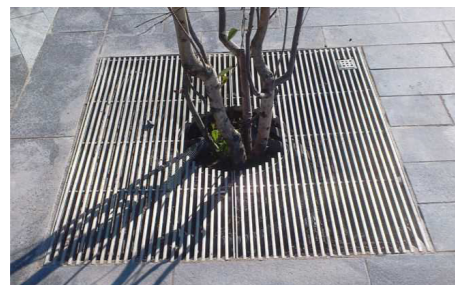


Flush Slipform
Concrete Kerb



Sheffield Cycle Stands
- 1000mm x 1000mm

TREE PIT GRILLES



SURFACE PALETTE

Resin-bound surfacing for high impact areas across the development



Ballylusk Dust Path
(pedestrian path)

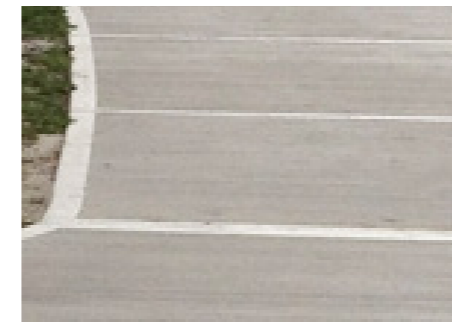


Coloured tarmac
(cycle path)



Wood Fiber Playground
Mulch

IN-SITU SURFACES



Brushed Concrete with
trowel edge finish (streets)



Tarmac - Roadway



Tarmac with coloured chip
Pedestrian Priority streets

DRIVEWAYS & PARKING



Natural Grey Paving 200 x
100 x 80mm

SUDS



Swale SUDS



Swale provides temporary storage for storm water & reduces peak flows.



Typical swale in dry weather

We propose a new habitat to create a varied & interesting landscape. It shall take into account the current conditions & shall be implemented with native flora, ie. trees & plants & wildflower meadow.



Typical swale in wet weather

Suggested Wild-Flower Mix

Common knapweed *Centaurea nigra*
 Ribwort plantain *Plantago lanceolata*
 Red clover *Trifolium pratense*
 Bird's-foot trefoil *Lotus corniculatus*
 Bulbous buttercup *Ranunculus bulbosus*
 Meadow buttercup *Ranunculus acris*
 Lady's-bedstraw *Galium verum*
 Cowslip *Primula veris*
 Oxeye daisy *Leucanthemum vulgare*
 Yellow rattle *Rhinanthus minor*
 Common sorrel *Rumex acetosa*
 Burnet saxifrage *Pimpinella saxifraga*
 Autumn hawkbit *Leontodon autumnalis*
 Rough hawkbit *Leontodon hispidus*

Suggested Lowland Meadow Grasses

Crested dog-tail *Cynosurus cristatus*
 Common bent *Agrostis capillaris*
 Sweet vernal-grass *Anthoxanthum odoratum*
 Red fescue *Festuca rubra*
 Smooth meadow-grass *Poa pratensis*

Suggested Wetland/Marsh Mix

Marsh bedstraw *Galium palustre*
 Greater bird's-foot trefoil *Lotus pedunculatus*
 Sneezewort *Achillea ptarmica*
 Valerian *Valeriana officinalis* (tall)
 Purple loosestrife *Lythrum salicaria* (tall)
 Hemp-agrimony *Eupatorium cannabinum* (tall)
 Marsh violet *Viola palustris*
 Angelica *Angelica sylvestris* (tall)
 Water mint *Mentha aquatica*
 Marsh marigold *Caltha palustris*
 Ragged robin *Silene (Lychnis) flos-cuculi*
 Gypsywort *Lycopus europaeus*
 Meadowsweet *Filipendula ulmaria* (tall)

PROPOSED MARGINAL PLANTING

The following marginal plants are to be certified native origin, to be collected as either seed or rootstock from the wild & introduced into the wetland area Stream Area.

Yellow flag iris (*Iris pseudacorus*),
 Marsh marigold (*Caltha palustris*),
 Water plantain (*Alisma plantago-aquatica*),
 Water forget-me-not (*Myosotis scorpioides*),
 Brooklime (*Veronica beccabunga*),
 Bogbean (*Menyanthes trifoliata*),
 Ragged robin (*Lychnis flos-cuculi*).



Green/Sedum Roof

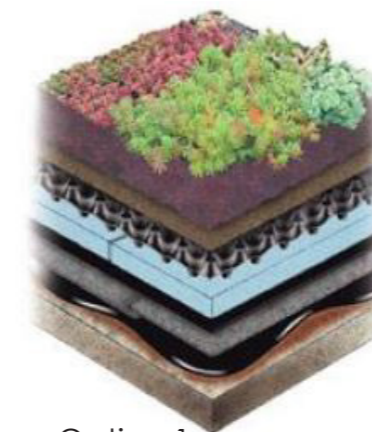
- The root system: Sedum has very shallow roots, a key requirement for an extensive green roof, considering the modest depth of the substrate layer.
- Sedum is also drought-resistant
- Sedum needs relatively little nutrients and maintenance compared to other types of plant
- Sedum is very resilient to diseases and insects
- Sedum is also very adaptable: due to its capacity to adapt its metabolic system in periods of drought, it can survive in extremely dry conditions where other types of plants would die. And furthermore, Sedum recovers remarkably quickly as soon as water becomes available again.



Green Roof/Sedum Roof

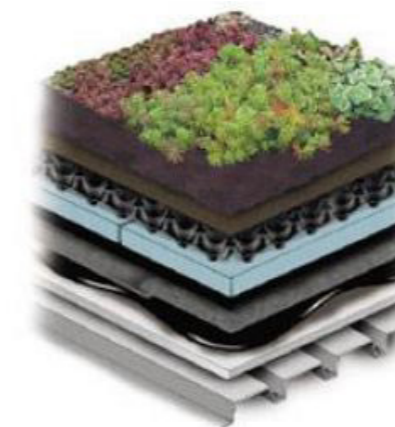


Proposed Green Roof Location



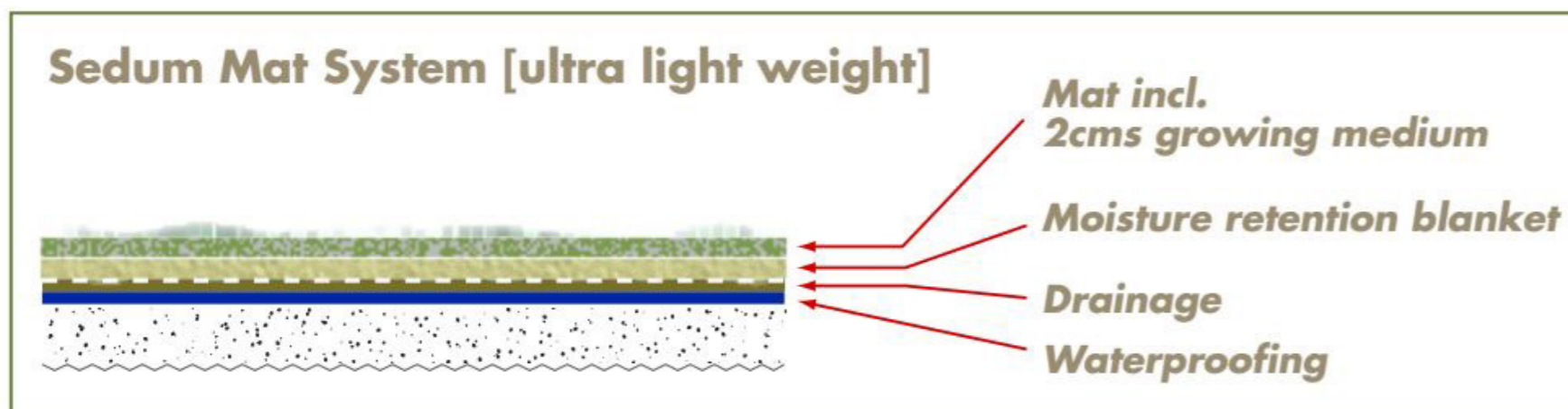
- Extensive Vegetation (Sedums, etc.)
- Growing Media
- Filter Fabric
- Moisture Retention / Drainage Panel
- Insulation
- Root Barrier
- Protection Course and Capillary Break
- Waterproofing Membrane (hot rubberized asphalt depicted)
- Substrate (concrete deck depicted)

Option 1.



- Extensive Vegetation (Sedums, etc.)
- Growing Media
- Filter Fabric
- Moisture Retention / Drainage Panel
- Insulation
- Root Barrier
- Protection Course and Capillary Break
- Waterproofing Membrane (hot rubberized asphalt depicted)
- Substrate (metal deck with gypsum board depicted)

Option 2.



Tree Protection & Detail

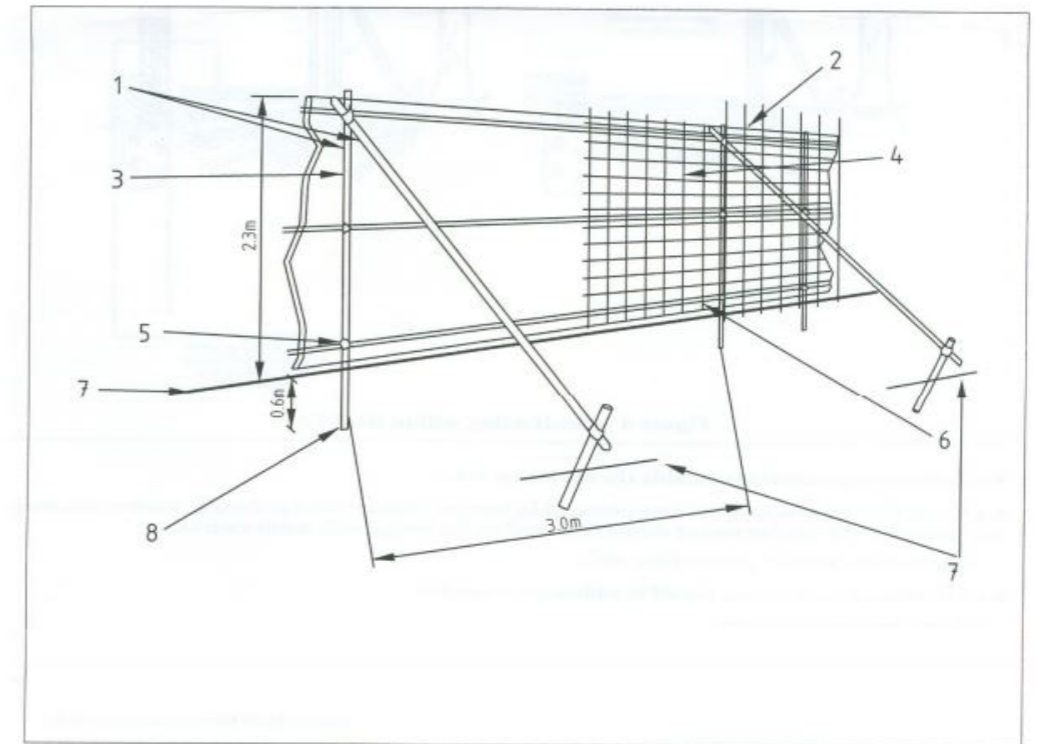


Location of Tree Protection



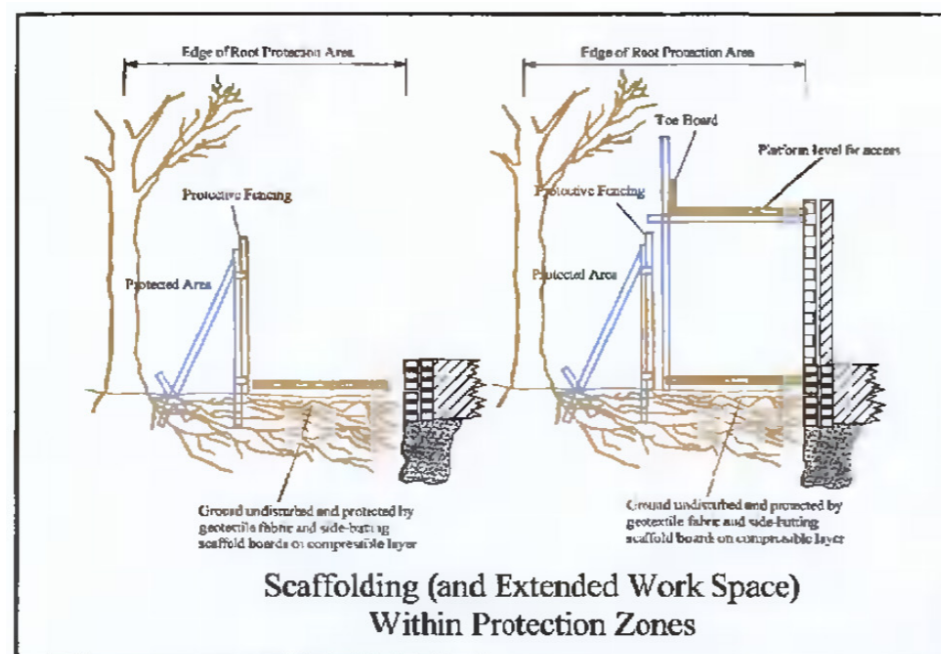
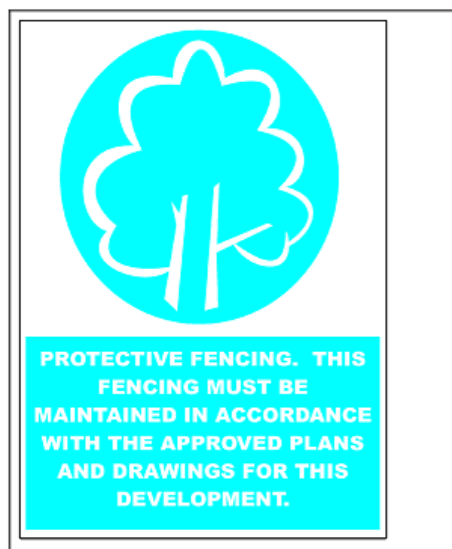
Existing Tree to be retained on site

Appendix 1 - Protective Barrier



The above displays an example of a suitable protective barrier as recommended by BS. 5837 2012 *Trees in Relation to Construction*

Detail of signage



1. Standard scaffold poles
2. Uprights to be driven into the ground
3. Panels secured to uprights with wire ties and where necessary standard scaffold poles
4. Weld mesh wired to the uprights and horizontals
5. Standard clamps
6. Wire twisted and secured on the inside of fencing to avoid easy dismantling
7. Ground level
8. Approx. 0.6m driven into the ground



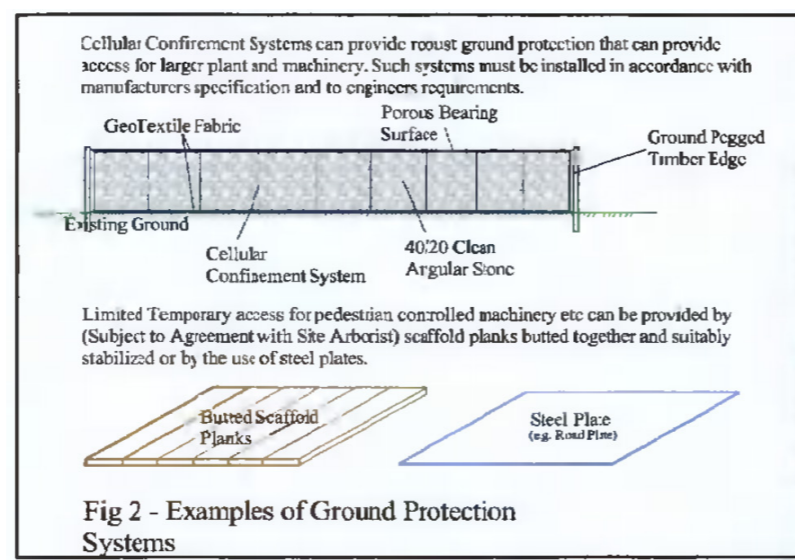
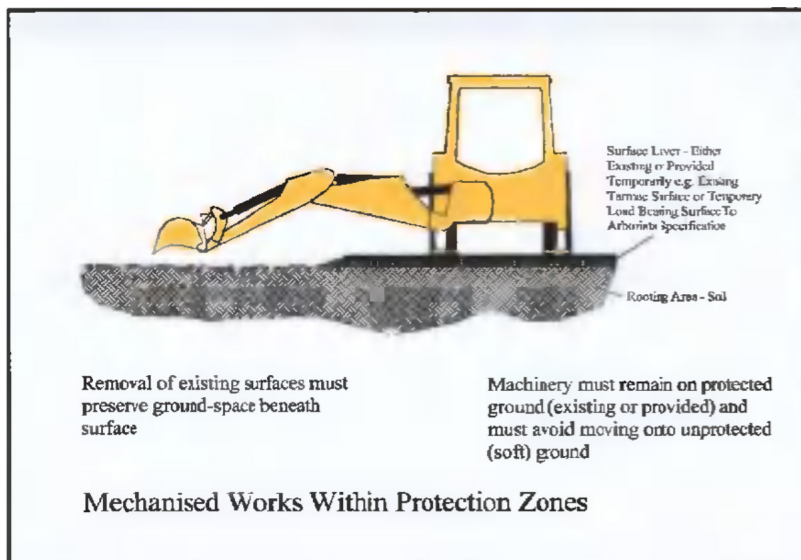
Tree Protection & Works



Location of Tree Protection



Existing Tree to be retained on site



The tree protection fencing is to be erected enclosing the root protection areas around the trees being retained as shown on this drawing and appendix 1. In some areas, the site hoarding may be sufficient to act as the protective fencing if the tree and its root zone are positioned outside and no works are envisaged within the area outside the site hoarding. This will need to be discussed and agreed at the initial site meeting.

Where tree protection fencing is needed, this will need to be 2.3m high and constructed in accordance with figure 2 of BS 5837 2012 (see detail on drawing & appendix 1) using vertical and horizontal scaffold bars or similar well braced together with the verticals spaced out at a maximum of 3m centres. Onto this, weld mesh panels (harris fence panels) are to be securely fixed with wire or scaffold clamps.

Signs are to be attached to these fences warning people that this is a protective area and that the fencing must be maintained in good condition in accordance with the approved plans and drawings for this development.

Once the protective fence line is erected, then the main construction works can commence on site.

The following is a list of activities that are not allowed within the RPA or within the vicinity of the trees being retained.

- Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials.
- Protect root systems from ponding, eroding, or excessive wetting caused during construction operations.
- Do not store construction materials, debris, or excavated material inside tree protection zones. When excavating, place excavated soil on opposite side of trench away from the tree.
- Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over root systems.
- Do not allow fires under or adjacent to remaining trees or other plants.
- Do not attach notice boards, cables or other services to any part of the tree.
- Do not use neighbouring trees as anchor points.
- Do not use high machinery such as Tele-porters, cranes or other equipment close to trees to avoid damage to the crown or any other parts.

During the construction works the following is required:

1. The main contractor or site manager is to brief all people working on site on the tree protection measures and the procedure if works need to be carried out within these areas.
2. Storage of Material, Work Yards and staff car parking- are to be identified on the work drawings prior to the construction works starting. These need to be positioned outside the root protection areas around the trees being retained.
3. The main contractor or site manager is to check the tree protective fencing daily and carry out any repairs required to ensure its stays upright and secure.
4. The main contractor or site manager is to liaise with the project Arboriculturist if and when works are to be carried out close to or within the root protection areas around the trees.
5. Any works to occur within the protection areas such as landscaping is to be carried out manually with no machinery allowed. All soft and hard landscaping within the Root Protection Area (RPA) of the trees to be retained are to be carried out manually and the soil levels are not to be lowered or raised resulting in root damage to the trees. Recommendations of sections 8 of BS5837 2012 are to be adhered to during the landscaping within the RPA'S of the trees being retained.
6. The protective fencing around the trees is to stay in position until all the construction works are complete and are only to be removed following discussions and agreement with the project arborist.



Proposed Planting & Landscape Features



Alnus glutinosa



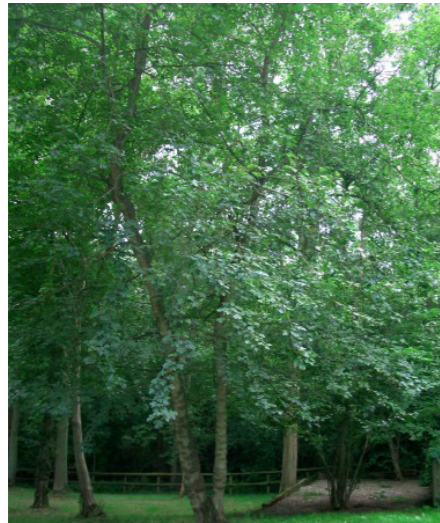
Salix alba



Salix alba 'Tristis'



Proposed Wetland Habitat Location



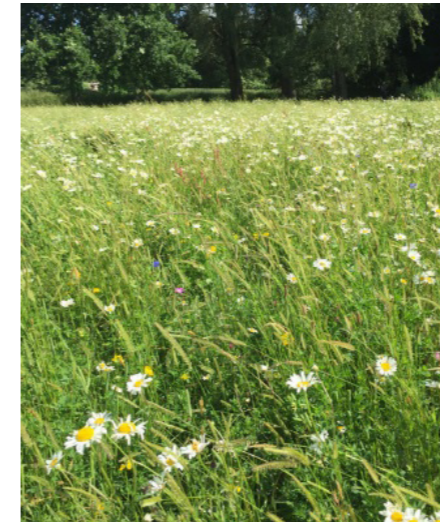
Corylus avellana



Betula pubescens



Pedestrian Foot Bridge



Wild Meadow Mix

Note: Planting shown throughout rationale are mature and are not indicative of size that shall be planted first.



Proposed Planting Mix



Marsh bedstraw *Galium palustre*



Greater bird's-foot trefoil *Lotus pedunculatus*



Sneezewort *Achillea ptarmica*



Proposed Wetland Habitat Location



Angelica
Angelica sylvestris (tall)



Purple loosestrife *Lythrum salicaria*
(tall)



Hemp-agrimony
Eupatorium cannabinum (tall)



Marsh violet
Viola palustris



Water mint
Mentha aquatica



Marsh marigold
Caltha palustris



Ragged robin
Silene (Lychnis) flos-cuculi



Gypsywort
Lycopus europaeus



Meadowsweet
Filipendula ulmaria (tall)



Valerian
Valeriana officinalis (tall)

Proposed Mix Planting Mix



Iris pseudacorus



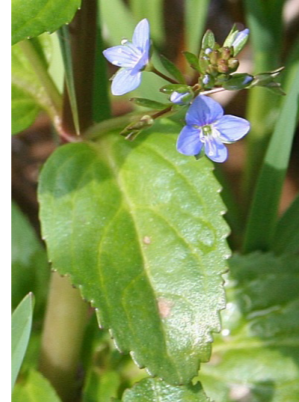
Caltha palustris



Proposed Swale Location



Myosotis scorpiodes



Veronica beccabunga



Menyanthes trifoliata



Lychnis flos-cuculi



Alisma plantago-aquatica



Proposed Planting

Street and Open Space Trees



Prunus avium 'Plena'



Acer griseum 'Multi-stem'



Fagus sylvatica 'Dawyck'



Betula jacquemontii
multi stem



Proposed Trees Location



Acer campestre 'Elsrijk'
Underplanted with
Prunus 'Otto luyken'



Betula pendula



Carpinus betulus 'Frans
fontaine'



Corylus columna



Pyrus calleryana
'Chanticleer'



Amelanchier lamerckii

Note: Planting shown throughout rationale are mature and are not indicative of size that shall be planted first.



Proposed Planting

Shrubs - To Private Spaces



Persicaria affine



Bergenia cordifolia



Libertia grandiflora



Proposed Shrub Location



Prunus 'Otto luyken'



Lavandula angustifolia



Hypericum hidcote



Astellia 'Silver Spear'



Aucuba japonica



Miscanthus sinensis



Agapanthus 'Blue Giant'



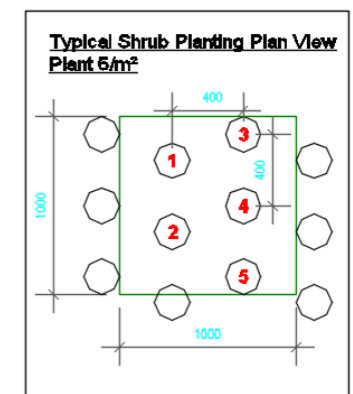
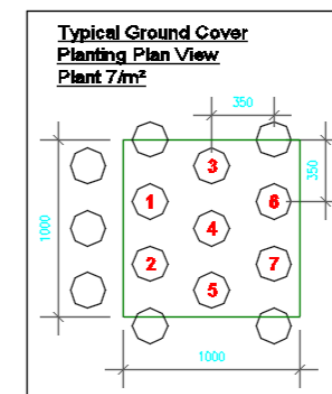
Kniphofia 'Royal standard'



Nerine bowdenii

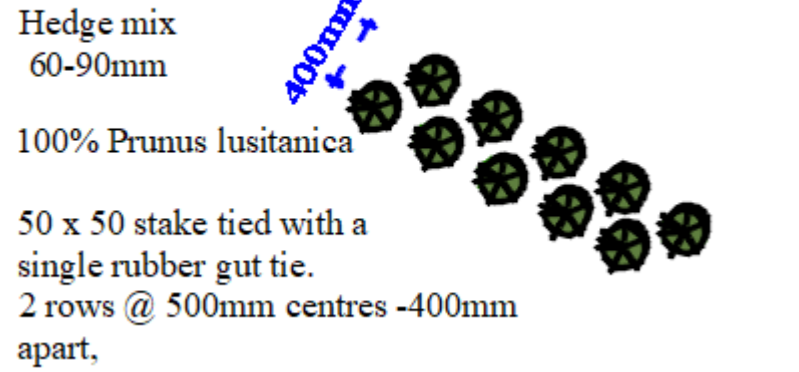


Sedum spectabile



Hedgerows

H1 - Hedgerow Planting Detail

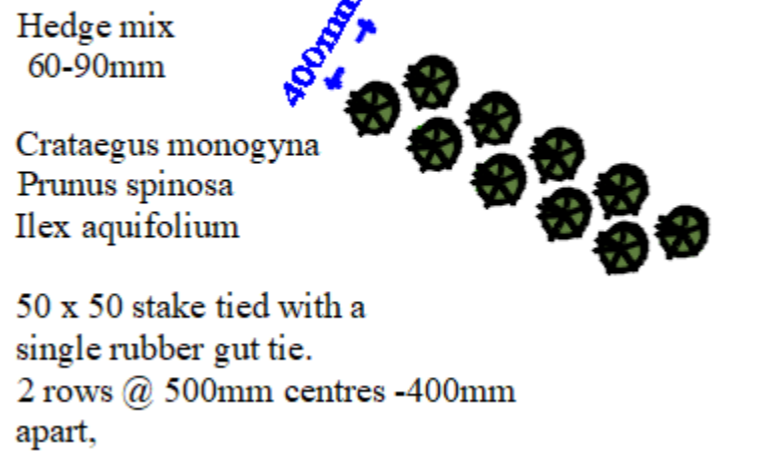


- Private Space Hedegrow
- Noise Barrier



Hedge Type 1 Mix
Prunus lusitanica Hedge

H2 - Hedgerow Planting Detail



- Public Park Hedgerow



Hedge Type 2 Mix - *Crataegus monogyna*



Hedge Type 2 Mix - *Prunus spinosa*



Hedge Type 2 Mix - *Ilex aquifolium*



Proposed Hedgerow Location



Proposed Planting

Wildflower Mix



Ribwort plantain
Plantago lanceolata



Red clover
Trifolium pratense



Bird's-foot trefoil
Lotus corniculatus



Bulbous buttercup
Ranunculus bulbosus



Proposed Wildflower Location



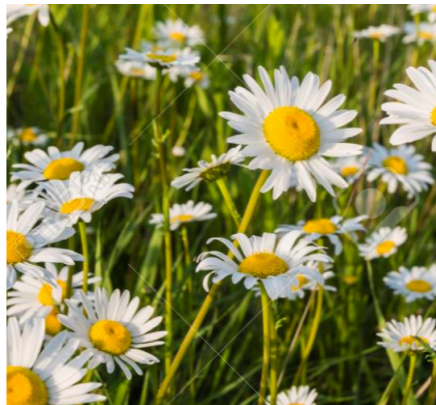
Meadow buttercup
Ranunculus acris



Lady's-bedstraw
Galium verum



Cowslip
Primula veris



Oxeye daisy
Leucanthemum vulgare



Yellow Rattle
Rhinanthus minor



Common knapweed
Centaura nigra



Common sorrel
Rumex acetosa



Burnet saxifrage
Pimpinella saxifraga



Autumn hawkbit
Leontodon autumnalis



Rough hawkbit
Leontodon hispidus



Lowland Meadow Mix



Common bent
Agrostis capillaris



Sweet vernal-grass *Anthoxanthum odoratum*



Proposed Meadow Location



Crested dog-tail
Cynosurus cristatus



Red fescue
Festuca rubra



Smooth meadow-grass *Poa pratensis*

Note: Lowland meadow like this needs to be cut a couple of times per year and the cuttings removed to avoid coarse grasses taking over and loss of wildflowers – usually this is carried out in April and August.

Additional cuts in autumn/winter could be made in the first few years if grasses are excessively dominant. The cuttings must be removed otherwise they will effectively fertilise the meadow which will result in loss of wildflowers and dominance of a few grasses and weed.



Proposed Planting

Bulbs



Daffodil – Narcissus 'Early Sensation'



Daffodil – Tamara



Crocus tommasinianus



Daffodil – Dutch Master



Proposed Bulb Location



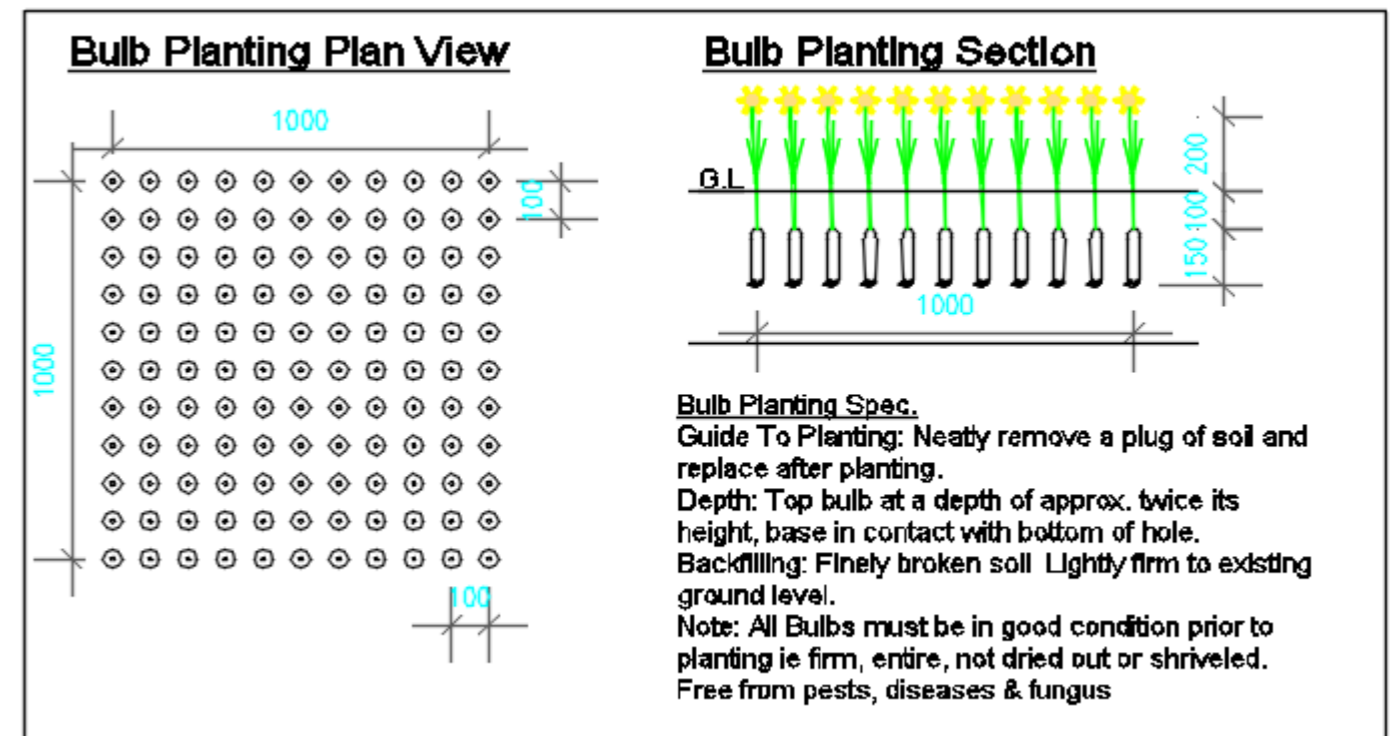
Camassia – Leicht caerulea



Allium - Sensation



Tulip - Apeldoorn



Proposed Bulb Planting

Name	Time of Flowering	Variety	Bulb Size At Planting	Planting Guide	Plant Height
A - Daffodil	January	Early Sensation	14-16cm	15cm Deep, 50/m ²	20cm
B - Daffodil	February	Tamara	14-16cm	15cm Deep, 50/m ²	20cm
C - Crocus	February	tommasinianus	14-16cm	10cm Deep, 15cm Apart, 50/m ²	7-15cm
D - Daffodil	March	Dutch Master	14-16cm	15cm Deep, 50/m ²	20cm
E - Tulip	April	Apeldoorn	12-14cm	15cm Deep, 10cm Apart, 50/m ²	20-45cm
F - Camasisa	May	Leicht Caerulea	14-16cm	10cm Deep, 20cm Apart, 50/m ²	45cm
G - Allium	June	Allium sensation	10-12cm	15cm Deep, 15cm Apart, 50/m ²	100cm

