February 2026

Glenamuck North - Northern Site

Landscape Design Statement LRD Stage 3

LANDSCAPE ARCHITECTURE

Applicant
Durkan Carrickmines
Developments Limited

CONTENTS

0.1 Development Description

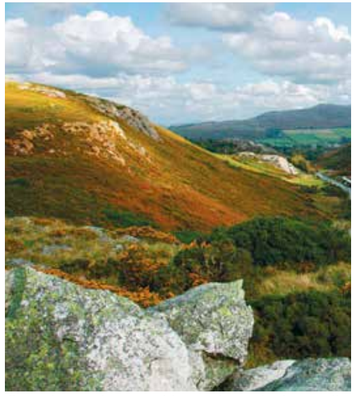
Durkan Carrickmines Developments Limited intend to apply for permission for a Large-Scale Residential Development at a site in the townland of Glenamuck North, Kilternan, Dublin 18. The site is generally bounded by: the Glenamuck District Distributor Road to the south, which is recently constructed (to be known as the Kilternan Road); agricultural land to the west; De La Salle Palmerstown Football Club and the future Jamestown Park to the north; and Bective Rangers Football Club to the east.

Road works are proposed to the approved Glenamuck District Roads Scheme (ACP Ref. HA06D.303945) to provide access to the development from the Kilternan Road which will include any necessary tie-ins to the existing footpath and cycle track.

The development will principally consist of the construction of a creche (c. 571 sq m) and 219 No. residential units comprising 69 No. houses (51 No. 3 -bed units and 18 No. 4-bed units), 108 No. apartments (38 No. 1-bed units, 31 No. 2-bed units and 39 No. 3-bed units) and 42 No. duplexes (11 No. 1-bed units, 9 No. 2-bed units, and 22 No. 3-bed units). The proposed development will range in height from 2 No. to 4 No. storeys.

The development also provides: car, bicycle and motorcycle parking; bin storage; ancillary storage; private balconies, terraces and gardens; hard and soft landscaping; boundary treatments; lighting; substations; and all other associated site works above and below ground.

INTRODUCTION 0.0



Come live with me and be my love, And we will all the pleasures prove, That Valleys, groves, hills, and fields, Woods, or steepy mountain yields.

And we will sit upon the Rocks, Seeing the Shepherds feed their flocks, By shallow Rivers to whose falls Melodious birds sing Madrigals.

And I will make thee beds of Roses And a thousand fragrant posies, A cap of flowers, and a kirtle Embroidered all with leaves of Myrtle;

A gown made of the finest wool Which from our pretty Lambs we pull; Fair lined slippers for the cold, With buckles of the purest gold;

A belt of straw and Ivy buds, With Coral clasps and Amber studs: And if these pleasures may thee move, Come live with me, and be my love.

The Shepherds' Swains shall dance and sing For thy delight each May-morning: If these delights thy mind may move, Then live with me, and be my love.

"The Passionate Shepherd to His Love"
Christopher Marlowe's

CONTEXT ANALYSIS

1.0

1.1 Historical Context - Understanding Time &

Glenamuck is an area formally of agricultural land, which lies to between Carrickmines and Kilternans Village. The subject site more specifically falls into Glenamuck North. It benefits form views to the west over the mountains, long views to the east to Dublin Bay. To the North will be a future proposed park and the South a woodland belt. Generally it is characterised by pastural farmland and forestry.

In a wider context, it is bound by the Dublin and Wicklow Mountains to the west and South, the M50 motorway and the southern most edge of Dublin City from the north and east. The surrounding landscape has a distinct and strong historic character as a result of continuous human occupation throughout the ages.

A rich and vast history originating from the Neolithic period continuing through the Iron and Medieval ages all the way up to the Victorian and modern age has left a landscape dotted with ritualistic and ecclesiastical monuments, artefacts and historic architecture.

Reflecting very much the historical patterns of the nation itself, the surrounding landscape is enriched with a various array of Neolithic monuments including Dolmens and Passage Tombs of a ritualistic nature.

Agriculture and mining which have left their mark on the surrounding landscape contribute to the historical depth of the area which can be seen at Ballycorus Lead mine with its tower proudly standing within the landscape.

Moreover, the project site is situated in an area that has historically been used primarily for agriculture. It is also notable that the layout of the plots changed after the 18th century and has remained largely unchanged to this day.

Farming and field divisions which have shaped the fabric of the surrounding landscape of Kilternan and Carrickmines give the area a distinct character and identity in which human and ecological patterns have emerged.

Celtic Cross

Medieval Monastery Remains

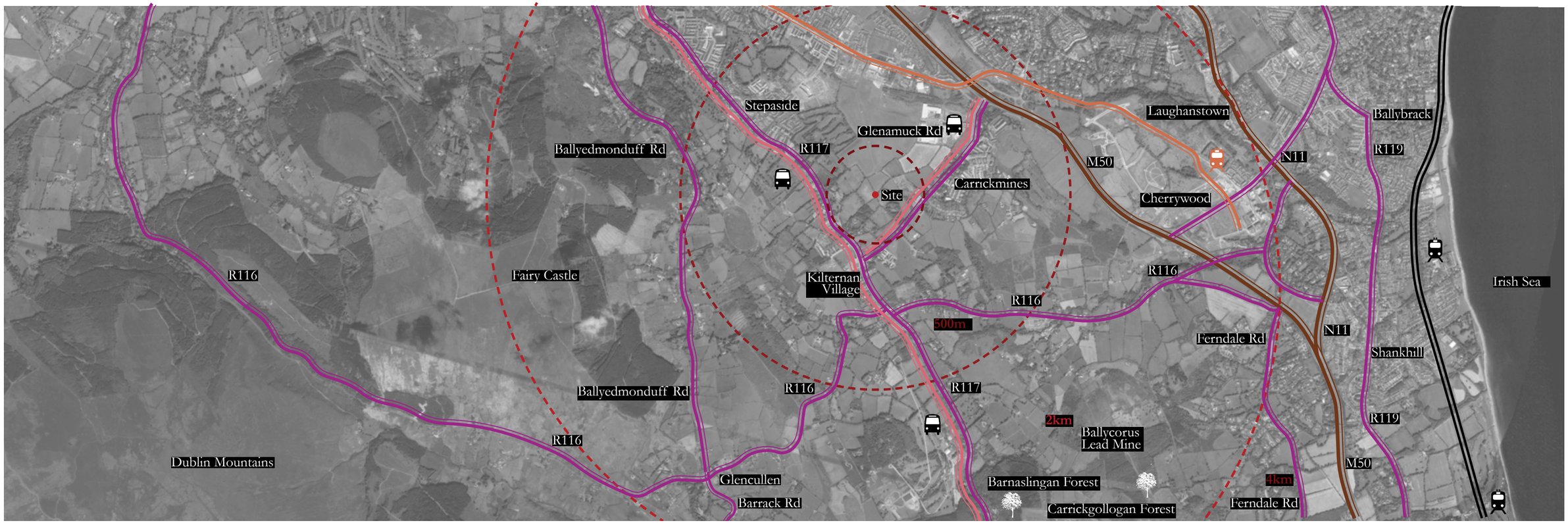
Ballycorus Lead Mine

1760

1845

1941

1.3 Wider Context - Access & Amenity



Motorway

Primary Roads

Dart (Southern Rail Line)

Luas (Light Rail Line)

Dublin Bus Route

The following map indicates how Glenamuck is both bound and connected to the wider surrounding context of the area of South Dublin. The map also indicates main road routes along with public transport links that connect the village.

Dublin Mountains

Fairy Castle

Barnaslingan Forest

Carrickgollogan Forest

Ballycorus Lead Mine

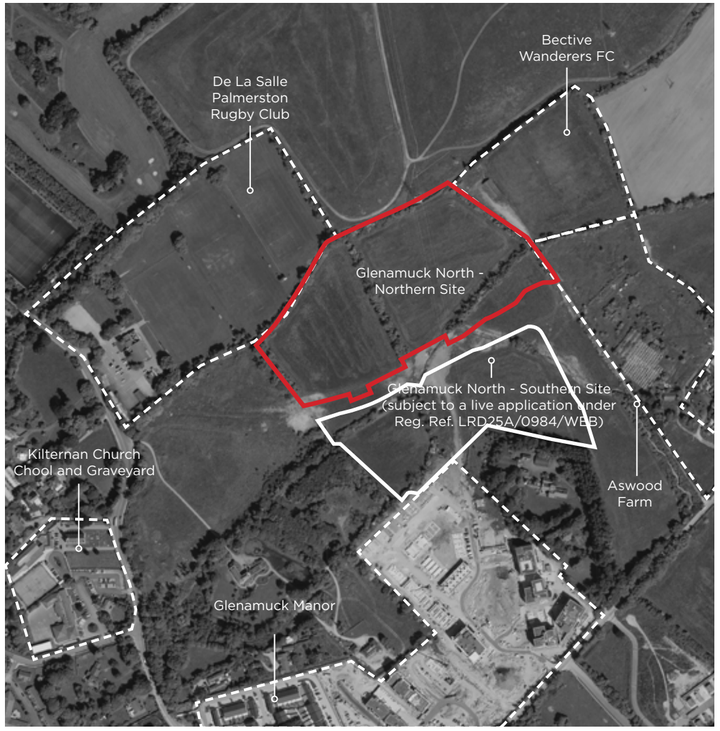
Cherrywood Luas Stop

Dart (Rail Line)

Killiney hill

1.3 Local Context

Local Context

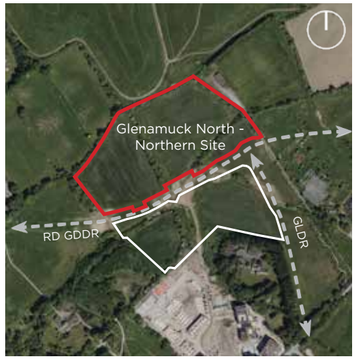


The site is located north of Glenamuck Road and in close proximity to Kilternan Village. The village offers amenities, including a public house, two churches, two schools, and soccer pitches.

Notable buildings include the Church of Ireland Parish Church of Kilternan (1826) and the timber-built Catholic Church of Our Lady of the Wayside (1929).

The project area is set back from the main road, positioned between sports facilities for leisure activities, and next to Ashwood Farm. The village is well-connected via the R117 (north-south) and R166 (east-west), with several nearby housing developments under construction, enhancing local integration.

Access + Connections



The plot is located amidst agricultural land. The nearest access road, the R117, is situated to the west, while there is also a private road along the eastern boundary. Additionally, two new roads are constructed to improve transportation in the area and facilitate the development of neighboring properties.

Note: any red line boundaries are indicative only. Refer to architects drawings for application boundary.

1.4 Existing Vegetation

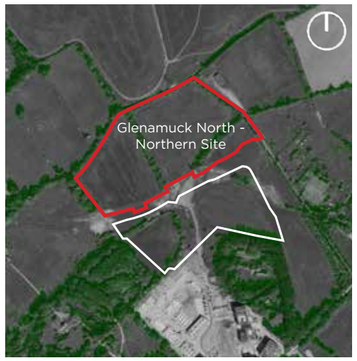
Topography

The project area and its surroundings are characterized by an agricultural landscape with mid-field tree clusters, hedgerows, and wooded thickets that provide essential habitats for wildlife. These features, shaped by historic agricultural practices, form an extensive network of vegetation that supports local ecology and enhances the area's character.

A tree and hedgerow boundary runs through the site. Additionally, a stream crossing the area contributes to a distinctive wetland ecosystem, serving as an important ecological corridor for various species.

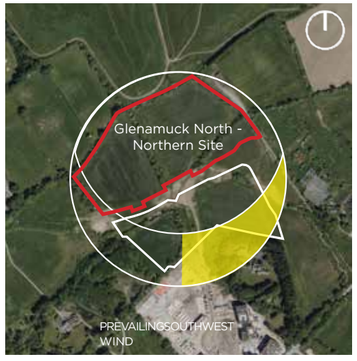
This interconnected system of trees, hedgerows, and the stream will strongly influence the landscape design, ensuring the preservation and enhancement of the area's ecological and visual identity.

Existing Vegetation



Most of the area consists of arable land with low vegetation, while tree clusters along the boundaries contribute to its identity. This interconnected system will guide landscape design, ensuring ecological and visual preservation.

Micro - Climate - Sun Rotation



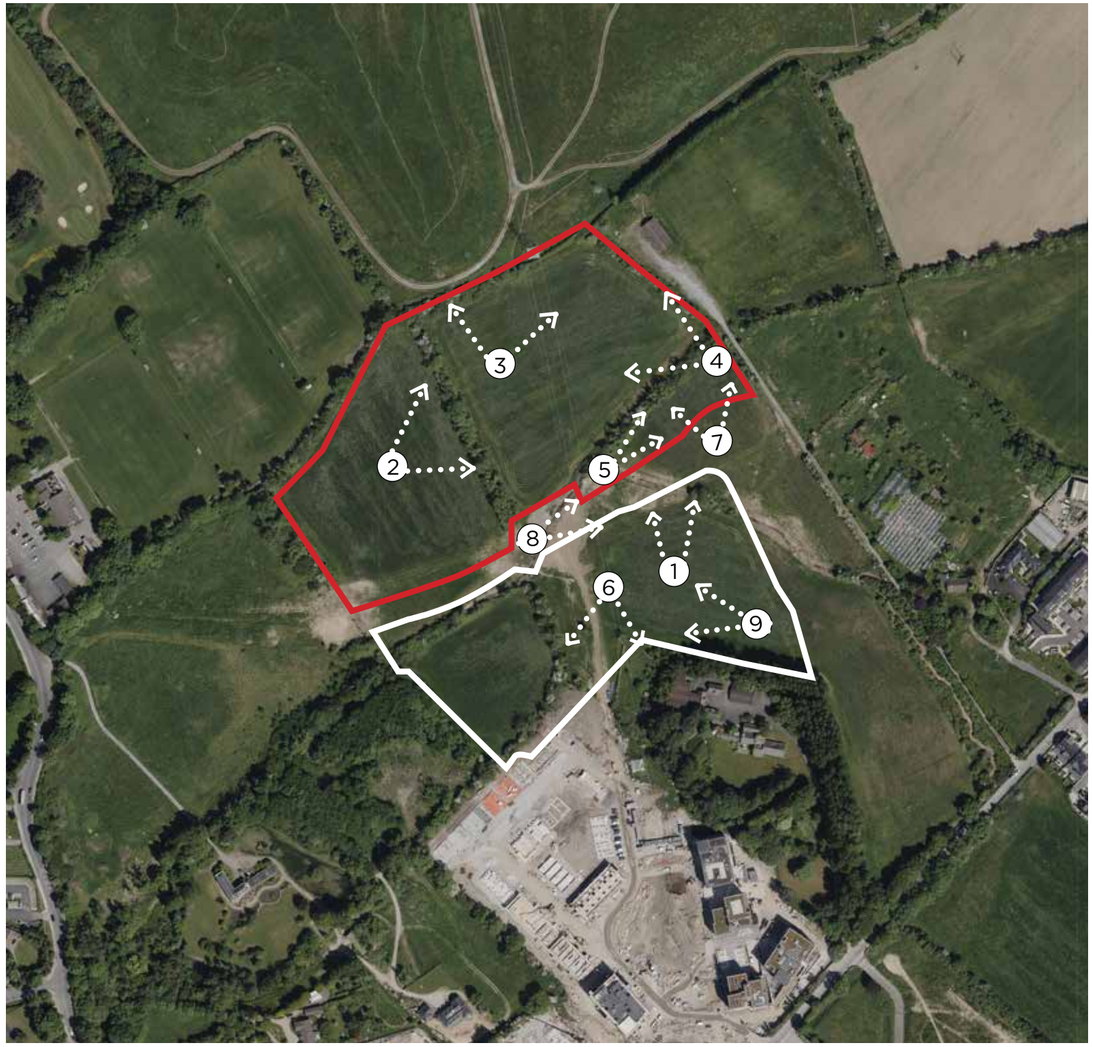
The western edge of the site is sheltered to strong westerly winds.

The most sheltered areas are located just to the west of the main tree line, which bisect the site. The northern boundary is considerably less affected by winds due to a small number of mature trees providing protection in this area.

The southern sections of the proposed development benefit from excellent natural shelter, with large groups of mature deciduous trees offering significant wind protection.

Note: any red line boundaries are indicative only. Refer to architects drawings for application boundary.

1.6 Character & Characteristics



View 1

View 2

View 3

View 4

View 5

View 6

View 7

View 8

View 9

LANDSCAPE VISION 2.0

2.1 Landscape Vision: Authenticity & Artefacts

Authenticity

Much like the Southern Site (subject to a live application), the adjacent development, it is anticipated that the design proposals will leverage rural characteristics in creating an extraordinary place, one that harmonizes dynamic movement with unique sounds to evoke a sense of wonder and vitality. This space will attract organisms and in doing so enrich the environment, making it truly distinctive. Utilising the existing Riparian Corridor and repairing its habitat the design will harness and re-integrate and protect the natural systems associated with riparian corridors while leaning into a rural crafts like design for residents and visitors to enjoy.

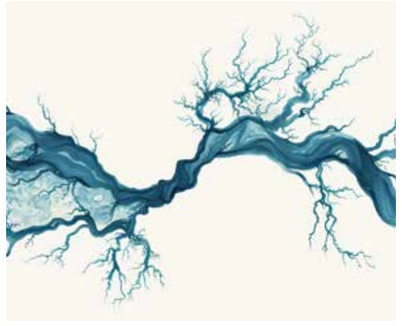
Artefacts

2.2 Landscape Vision: Agricultural influence

Riparian Landscape

Nurture and renew a landscape which has provided so much for so many. Re-establish its natural links and protect its most important resources of water and edge habitat. The design will integrate human amenity by way of contemporary interpretation of the great arts and crafts garden movement, introducing clean textured formality to where the human side resides, and creating plentiful wild edge where nature can do what it needs.

Contmporary Crafts Garden



"A RIVER MOVES FORWARD, BUT IT HOLDS THE MEMORY OF EVERY PLACE IT HAS PASSED..."

- Seamus Heaney

LANDSCAPE DESIGN STRATEGIES

3.0

3.1 Landscape Strategies: Open Space Quantum

Public Open Space for Glenamuck North LandsPhase 1 will deliver in excess of the 8 175 sq.m requirement for the LRD lands. It will be largely delivered in the form of the central garden and pocket spaces located throughout.

The residential units will have private gardens to the rear whilst the front gardens will be shorter to accommodate car parking in some instances and providing defensible space whilst also encouraging interactions.

The apartment block and duplex units will have a provision for communal open space delivered as an open courtyard.

The spaces will be delivered in line with current design and taking in charge standards, celebrating SUDs features, informal play, exercise and seating opportunities with an abundance of tree planting, shrubs and wild flower areas to support localised biodiversity needs and requirements. The woodland corridor and central garden will provide points whereby the neighbourhood can interact and gather to create a genuine sense of community as has been documented with great success across developments of similar scale.

LEGEND

- Public Open Space (POS: 8 175 SQ.M Required: 7 239SQ.M)
- Riparian Corridor (3 291 SQ.M)
- Public Open Space including Riparian Corridor 11 466 SQ.M
- Private Space (Back Gardens: 3,480 SQ.M)
- Communal Open Space (COS: 1 348 SQ.M Required: 1 048 SQ.M)

Contemporary Craft

Open Space

Natural Play

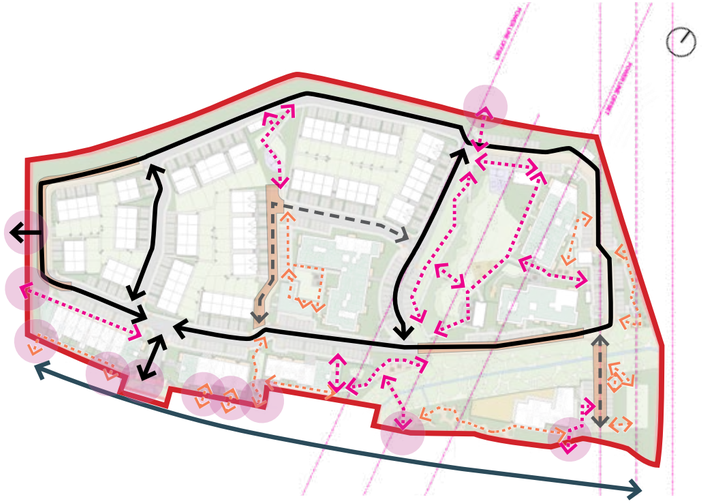
Natural Routes

3.2 Landscape Strategies: Access & Circulation

The site presents with multiple access points to and from the surrounding context and road infrastructure for pedestrains. These include one vehicular link from the new GDDR and pedestrian links are present throughout the site in particular along the GDDR Road.

Within the development vehicular and pedestrian infrastructure mostly align and follow each other in a systematic and methodical approach across the development. There is good permeability within the development allowing adequate circulation for both pedestrians and vehicular access across the site. In terms of road hierarchy, the 4 major roads that navigate the development run through the nucleus of the site and are orientated in a north south, east west direction. The principles of shared surfaces are also embraced in the design.

From the primary road, local street access and pedestrian route infrastructure will connect and circulate to the primary access routes and points. Cycling infrastructure will mirror primary roads and the local street.



LEGEND

- Road Network Beyond Site
- Primary Avenue / Cycle & Pedestrian Route
- Local Street / Cycle & Pedestrian Route
- Primary Pedestrian Routes
- Secondary Pedestrian Route
- Shared Surface / Raised Table
- Access Points

Green Connections

Pedestrian Focused

Well Planted

Pedestrian Focused

3.3 Landscape Strategies: Play, Wayfinding & Exercise

For the most part play will be delivered as informal and natural. Inclusive play spaces have been proposed to provide opportunities for everyone to play together. The play spaces are accessible, engage children of all ages and abilities and encourage them to interact with each other.

These will promote health and wellbeing, learning, and social interactions. Play is provided throughout the site and responds to age, context and ability. Several principles have driven the design all of which underpin creating a well-integrated community:

- equipment that stimulates the senses such as sound play
- equipment that is accessible to all such as rockers with the width for wheelchair access and part M compliant
- surface materials meet EN 1176 and EN 1177 standards, to be safe and visually pleasing
- play for all has been provided for with play equipment that has similar tasks but different levels of challenge for age groups and abilities, such as the climbing frame, providing children with choice.
-Providing for calm and landscaped areas with seating.
-A variety of routes to encourage exploration but also allowing for solitary play, onlooker play, parallel play (playing beside one another), associative play (playing close by and mimicking other children).

In addition to this, exercise stations will be provided in the form of functional equipment.

LEGEND

- Formal Play
- Natural Play
- Kick About
- Outdoor Gym

Challenging Play

Natural Play

Playing together

Exercise

3.4 Landscape Strategies: Tree Plan

The tree planting layout for the development is hugely significant to the success and design of the overall site.

Much of the development will contain a diversity of proposed native trees. Proposed planting styles and types will vary depending on use.

Within the public realm, plants will be more robust, evergreen and require less maintenance. Street trees will be tried and tested urban species. Scale of planting and transition in shrub planting from low medium and high to create defensible space has been planned according to programme, thresholds and spatial hierarchy. Within the semi-private apartment courtyards, the palette will be softer, colorful and generally more shade tolerant.

The central hedgerow and existing trees have been indicated for removal. This hedgerow is deemed to have a low ecological value, refer to ecologists report for detail. Further to this, the Arborist report indicates many species suffer from disease including ash die back also impacting tree quality and thus it's ability to carry and support habitat. It is proposed to retain 3,252.7 sq.m of hedgerow through the site and plant an additional 2,690 sq.m to compensate for the 729.5 sq.m of hedgerow to be removed. It is worth noting that this hedgerow is currently not continuous which is a preferred hedgerow arrangement.

The illustration on page 52-53 of the document indicates a proposed 5m wide 'hedgerow highway' which will provide mitigation against loss of the central hedgerow and will be of a much higher quality than what is currently in place. This perimeter of planting not only protects the existing hedgerow but enhances it with native plant species, a swale for run off water and will support a wider ecological system with significant depth for refuge of wildlife. In summary this proposal will protect and enhance the hedgerow, strengthens it as a continuous ecological corridor providing movement routes, refuge and food sources as well as homes for habitat.

LEGEND

- Proposed Trees: 514 No.
- Existing Trees To Be Retained: 14 No.
- Existing Trees To Be Removed: 42 No.
- Proposed Hedgerow: 2690 m²
- Hedgerow To Be Retained: 3251.7 m²
- Hedgerow To Be Removed: 729.5 m²

Accent + specimen trees

Natural arrangements

Bio-retention Tree Pits

Tree lined streets

3.5 Landscape Strategies: Riparian Rooms

It is proposed to preserve the main watercourse running through the project area, along with the surrounding hedgerow, as well as the hedgerows along the eastern, northern, and western boundaries. It is intended to mitigate and enhance the riparian corridor through replanting efforts, which will help offset the impact of the hedgerow removal.

The strategy focuses on preserving what was possible, while removing, replacing, and enhancing areas with bio retention areas and improved planting. The benefits include increased biodiversity, water retention, and aesthetic value. The notion of 'habitat cells' has been conjured to identify small nodes and depressions on the banks of the stream to provied opportunity and 'safe haven' for nature 'to happen and be nurtured. These cells will be planted with emergent and typical wetland planting, with nurse logs and boulders to provide addional structure.

Proposed Nature's waterway

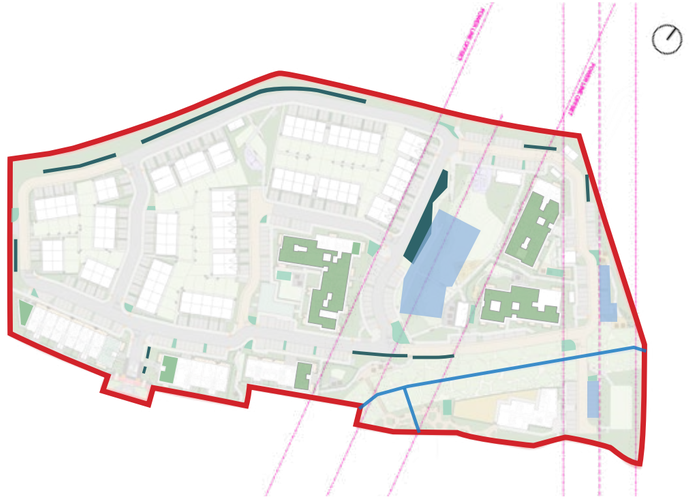
3.6 Landscape Strategies: Water Attenuation

Sustainable Drainage, or SuDS, is a way of managing rainfall that mimics the drainage processes found in nature and addresses the issues with conventional drainage. The landscape surface water drainage strategy incorporates SUDS features and has been designed in line with best practice.

The soft landscape will allow water to drain freely to recharge the ground water if not captured by filter drains before release.

Bio Retention Tree Pits are proposed for Streets and have been detailed in coordination and collaboration with engineers. The tree pits are designed with adequate depth to accommodate for large deluges and also allow for attenuation of water in case of drought.

A bioretention structure employs an engineered topsoil and is used to manage polluted urban rainfall runoff in street locations and carparks. The free-draining nature of engineered soils leads to the washing away of nutrients from the soil. The proportion of organic matter should be relatively high and replenished yearly by the application of a mulch layer of well composted green waste or shredded plant matter arising from maintenance.



LEGEND

- Swale
- Stream
- Bio Retention
- Attenuatiaon Tank
- Green Roof

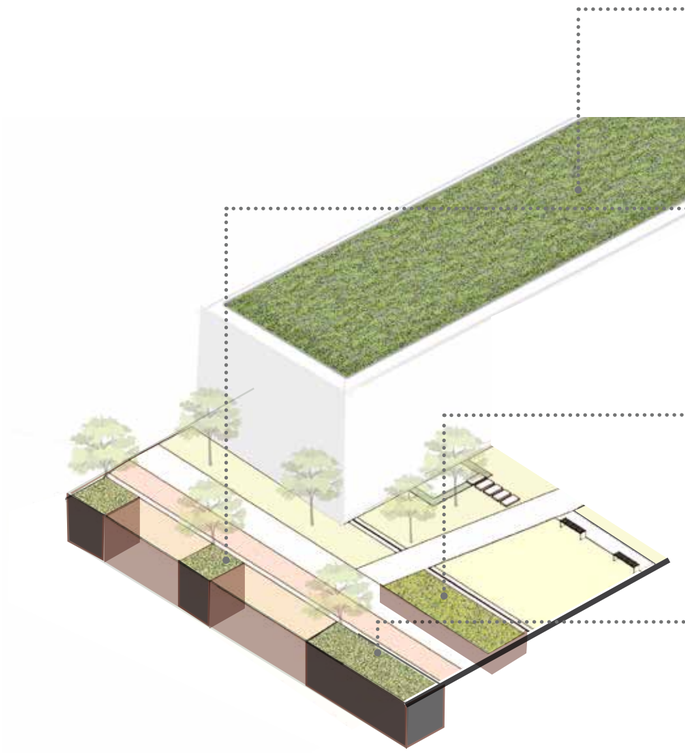
*Indicative plan only, see the drainage engineers' drawing pack for further details.

Drainage

Bio-retention Tree Pits

Green Roofs

Swale



Schematic stormwater strategy

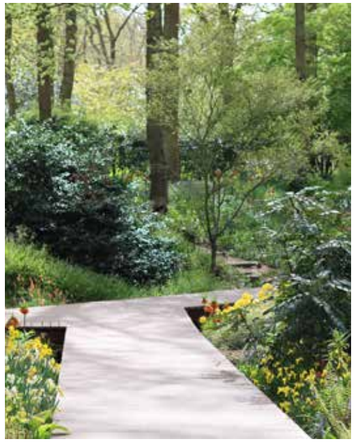
Green roof

Bio-retention tree pit

Bio retention

Kerb cuts for direct surface water infiltration

4.0 LANDSCAPE CONCEPT DESIGN



The project focuses on preserving and enhancing the site's key features, with an emphasis on the stream and its surroundings. It envisions creating spaces integrated with tree plantings, while paths and trails weave through the landscape. These routes are designed to evolve naturally over time, gradually increasing in density from east to west, complementing the stream's flow and the site's natural character.

4.1 Masterplan

Landscape design proposals for Glenamuck North Lands are driven by ecological influences in response to the sites context and relationship with surrounding character. Experienced sequentially as routes of discovery and exploration which weave themselves across the lands revealing a sensorium of spatial typologies.

The landscape design has been planned in such a way so as to maximise the site's orientation and anticipated microclimate to create habitable, quality spaces which respond to human comfort, encouraging residents and public into a safe and surveilled space. A number of potential routes through the site have been identified to benefit connections with its surroundings and provide a better amenity for the wider community. Pedestrian and cycle routes complement this strategy underpinning the sustainable credentials associated with the development.

In addition, it is anticipated that the development will offer a net gain to biodiversity through the development of additional habitat connecting existing surrounding ecological stands with continuous tree canopies for bat and bird roosting and provision of specific plants for wildlife to forage through.

An increased number of trees, areas for surface water treatment and wildflower meadows, coupled with best practice maintenance will ensure a sustainable landscape for the future. Edge conditions and relationships with neighboring developments are sensitively integrated and screened.

The primary objectives of the design are to encourage biodiversity through varied tree and shrub planting, create a series of interlinking spaces which 'blur' the boundaries and create 'moments' for interactions, crafting a sense and extension of the community for the wider neighbourhood.
The following pages will demonstrate through illustrations and narrative the spatial experience for each area of significance.

North and South Site Masterplan

LEGEND

1. Riparian Corrridor
2. Courtyard Space
3. Sunken Lawn
4. Terrace Viewpoint
5. BBQ Terrace
6. Allotment
7. Play Areas
8. Amphitheater
9. Kick About
10. Outdoor Gym
11. Green Roof
12. Stream
13. Private Garden
14. Shared Surface
15. Private Road
16. GLRCC GDRS
17. GDDR
18. De La Salle Palmerston F.C.
19. Aswood Farm
20. Glenamuck North Site A

4.2 Riparian Corridor

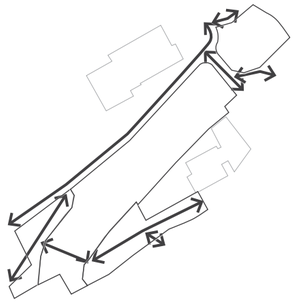
The Riparian corridor exists as a beautiful site feature. It provides use nowadays as a habitat and wildlife corridor. It has been disturbed by adjacent road works, however the proposed development works will re-establish and elevate its role.

It is proposed to integrate a gravel and rock routes which in time will provide refuge for flora and fauna. These cell like habitat structures area fashioned as shallow depressions in the landscape and provide valuable ecological edge.

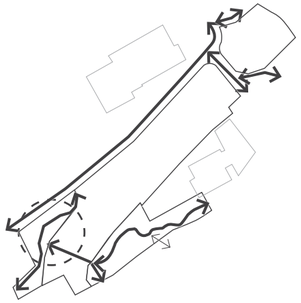
The corridor will be augmented with further tree planting to protect it and also utilise a wetland planting mix. One pedestrian bridge will be positioned across it.

Intersecting Plants

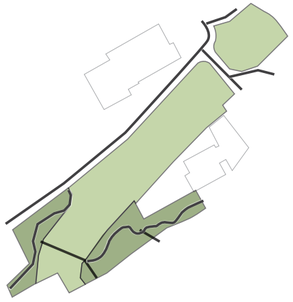
Intersecting Plants



Linking Views + Context



Creating a focal point and character



Activating Space

4.3 Central Gardens

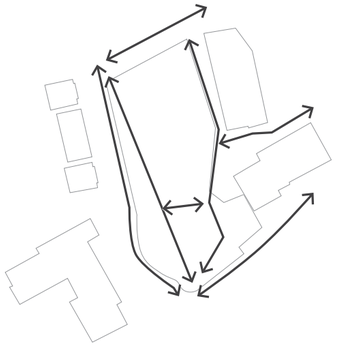
Big central gardens respond to a naturally occurring space in the landscape overlooked by housing on either side. This natural setting borrows landscape views to visually extend the space beyound its boundaries.

Dropping away as an open pasture land crafted out of tree planitng and low shrubs to provide a kickabout space. It is flexible space with natural play and programmable lawns. The communal space replicates the design language throughout the site, using crafted mounds of soil to create for tree planting and enclosure.

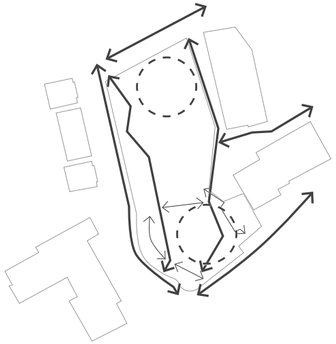
Play on the northem portion of the space is accompanied with terrace seating gardens for BBQ's or events or just sitting. A more defined gathering space is set a little further back. A naturalistic stream with shrubs flows through the central part from north to south.

The surrounds of the gardens replicate the idea of glades and meadowlands on the periphery of a woodland, whilst additional depressions are incorporated to capture rainwater and enhance opportunities for habitat creation.

Intersecting Plants



Linking Views + Context



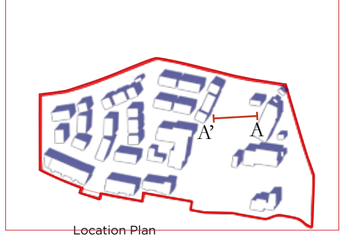
Creating a focal point and character

Activating Space

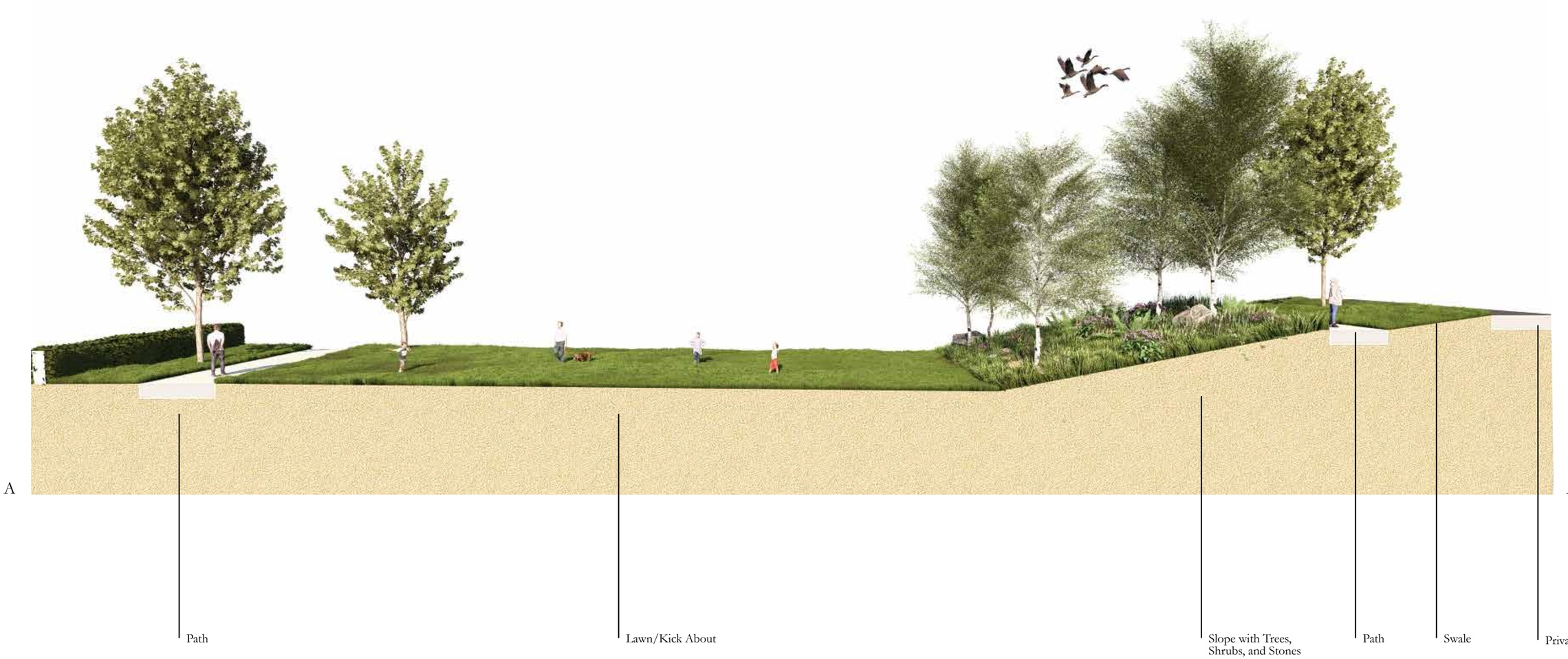
4.3 Central Gardens

Location Plan

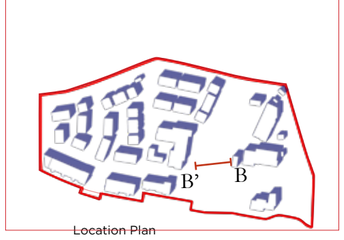
4.3 Central Gardens: Illustrative Section A-A’



Location Plan



4.3 Central Gardens: Illustrative Section B-B’



Location Plan

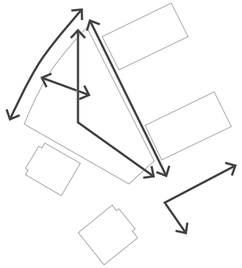
4.4 Pocket Park

The pocket park is located between the housing estate. It is a green area where you can relax and play sports.

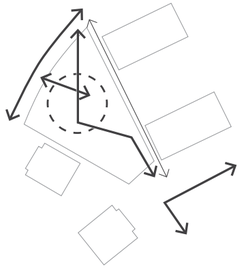
The heart of this green area is the central part, which has entertainment functions, but also relaxation and sports. There is a place for a ball game. The common space repeats the design language throughout the area, using hand-made mounds of earth to plant trees and fencing.

The external part is a green belt of trees, which allows to ostracize this place and introduce a kind of intimate atmosphere.

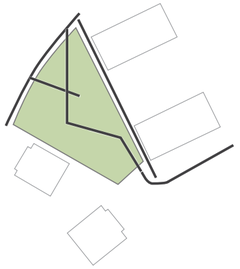
Intersecting Plants



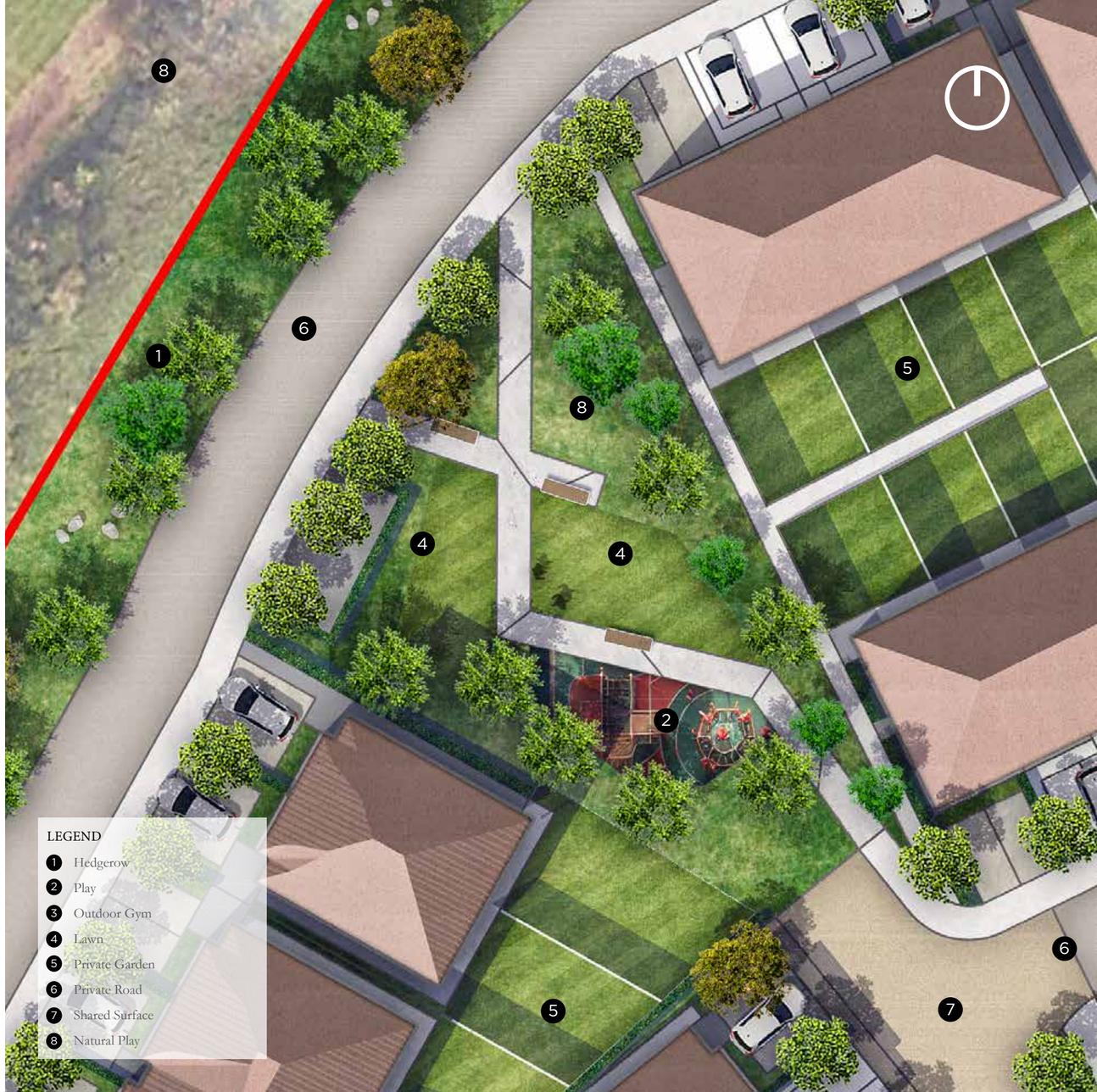
Linking Views + Context



Creating a focal point and character



Activating Space



4.4 Pocket Parks

4.5 Hedgerow: Illustrative Section

Location Plan

C

C'

Existing hedgerow and trees to be retained

Existing swale to be retained

Shared surface

Hedge

Private Path

LANDSCAPE PALETTES

5.0

Landscape Plans and schedules included in the application, prepared by NMP Landscape Architects includes a detailed schedule of proposed planting and illustrates the location and extent of mown grass, managed long grass, reinforced grass, low ground cover, hedge and tree planting as well as existing trees to be retained where applicable.

Tree species are selected for longevity, suitability to local soil conditions and micro-climate, biodiversity (native species) and where required suitability for proximity to residential buildings. Proposed tree sizes range from heavy standards and multi-stemmed trees to native whip and forestry transplants. There will be a net gain of individual trees in order to improve the species mix and the proportion of native species on site. Typical species are illustrated on the following pages.

Low planting is utilized to make and reinforce sub-spaces within the larger landscape spaces, for visual screening, defensible space, visual interest, ecological purposes and to guide or direct people's movement. The low planting is conceived as subtle layering of greens within the open spaces. The planting is layered as follows; lowest - bulb planting, ground cover planting, highest - clipped hedge planting.

The selection of hard landscape materials is determined by function but also to provide a cohesive palette of materials throughout. Materials are chosen for durability, but where practical are proposed to be constructed in a way which is sensitively integrated with lawn and soft landscape, in order to minimise the impact of hard landscape surfaces. Primary vehicular, pedestrian and cycle circulation are proposed as a durable, limited range of neutral materials with robust construction.

5.1 Indicative Hard Landscape Material Approach

SURFACE FINISHES

The hard materials palettes have been selected to represent and respond to use and character of specific spaces. They will be durable and of high quality with patterning developed in the latter stages to indicate moments and celebrate thresholds.

Brushed Concrete

To Paths on Avenues

Brushed Concrete

To Paths on Avenues

Exposed Concrete Aggregate

To Public Area's

Copper Gravel

Gravel Strip

Green Parking

Car Parking

Colored Cycle

To Cycle Tracks

Self Binding Gravel

To Woodland Paths

High Quality Paving

Parkings and Private Paths

Soft Pour

To play + fitness zone

Black and Colored Asphalt

To Roads

5.1 Indicative Hard Landscape Material Approach

FURNITURE

Bins, bollards and seating have been selected as appropriate to the design language and surroundings within which they fit. These for the most part, will be off the shelf products and specified accordingly.

Picnic Table

To Woodland

Bins

To Pedestrian Areas

Log Benches

To Public Area's

Natural Stone Benches

To Public Area's

Wooden Benches

To Public Area's

Picnic Table

To Road Edges

Bins

To Pedestrian Areas

Wooden Benches

To Public Area's

Natural Stone Benches

To Public Area's

Wooden Benches

To Public Area's

5.1 Indicative Hard Landscape Material Approach

Stone Wall

Boundery

Stone Wall

To Public Area's

Little Library / Book Swap

To Public Area's

Bike Stand

To Bike Parking

Insect Hotel

Habitat Opportunities

Bollards

To Road Edges

Natural Play

Bespoke Imaginative

Exercise

To fitness areas

Nest Box

Habitat Opportunities

5.2 Indicative Soft Landscape Material Approach

PARKLAND TREE PLANTING

Informed by the existing and formative tree planting and a native palette the tree planting will bleed into the site and grade out from north to south.

Carpinus betulus

Fagus sylvatica

Pinus sylvestris

Quercus robur

Pyrus callerayana

Sorbus aucuparia

Crataegus monogyna

Malus sylvestris

STREET TREES + SMALL FEATURE TREES + PODIUM TREES PLANTING

Specimen tree planting will provide year long interest and beauty - landmarks in the landscape, to celebrate and identify with.

Betula utilis ‘Multistem’

Liquidambar

Gleditsia triacanthos

Prunus serrulata

Arbetus unedo

Magnolia grandiflora

Acer campestre

Tilia cordata

WILDFLOWER & SHRUB PLANTING

To enhance bio-diverse credentials wildflower planting will occupy edges and large swathes of the sites periphery along with shade tolerant understory planting including plant selection to encourage foraging.

Papaver rhoeas

Silene dioica

Lotus corniculatus

Centaurea cyanus

Ranunculus acris

Medicago lupulina

Rhinanthus minor

Lavandula x intermedia

WOODLAND UNDERSTORY & SHADE LOVING PLANTING

Woodland areas and shaded gardens will be planted with mix of shade loving plants.

Polystitchum aculeatum

Dryopteris wallichiana

Viburnum davidii

Helleborus x ericsmithii

Polygonatum multi-florum

Hosta sp.

Convallaria majalis

Pachysandra terminalis

APPENDIX 6.0

Appendix 1 - Soft Landscape Outline Specification

1. Specifications for supply.

1.0 Schedule of supply:

The nursery stock material will be delivered following consultation between the Landscape Architect, landscape contractor and the selected nursery, and the Engineer. Delivery will be at all times by means of covered vehicles, and all plant material will be clearly labeled. The source of origin must be from the selected nursery as no other additional stock from other nurseries will be permitted without prior inspection and approval.

1.1 Programme of Works

The planting works shall be executed at the earliest opportunity.

1.2 Nursery stock:

All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection, aphids, red spider or other insect pests and any physical damage. It shall comply with the requirements of B.S. 3936: Parts 1-10: 1965 Specification for Nursery Stock, where applicable.

All plants shall have been nursery grown in accordance with good practice and shall be supplied through the normal channels of the wholesale nursery trade. They shall have the habit of growth that is normal for the species. Country of origin must be shown in all cases for species grown from seed.

Unless otherwise stated, the plant materials shall be supplied in accordance with the following codes where stated:

1+0	1 Year old seedling
1+1	1 Year old seedling lined out for 1 year
1+2	1 Year old seedling lined out for 2 years
1+1+1	1 Year old seedling lined out for 1 year, lifted and lined out for one further year
1u1	1 Year old seedling undercut then 1 more year in seedbed.
1u2	1 Year old seedling undercut then 2 more years in seedbed.
0/1	1 Year old Hardwood cutting
0/2	2 Year old Hardwood cutting
2X	Twice transplanted tree
3X	Three times transplanted tree
4X	Four times transplanted tree
P9	Containerised plant in 9cm pot

1.3 Species:
All plants supplied shall be exactly true to name as shown in the plant schedules. Unless stipulated, varieties with variegated and/or coloured leaves will not be accepted, and any plant found to be of this type upon leafing out shall be replaced by the contractor at his/her own expense.
Bundles of plants shall be marked in conformity with B.S. 3936: Part 1: 1965 and B.S. 3936: part 4: 1966. The nursery supplier shall replace any plants which, on leafing out, are found not to conform to the labels. Definitions of all terms used are in accordance with the following British Standards: -

B.S. No. 3936: Part 1: 1965 entitled “Nursery Stock- Trees and Shrubs”

B.S. No. 3936: Part 4: 1966 entitled “ Nursery Stock- Forest Trees”

B.S. No. 3936: 1967 entitled “Specification for Nursery Stock”

2.0 Tree specifications:

Trees shall have a sturdy, reasonably straight stem, and a well-defined straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown and root systems shall be well formed. Roots shall be in reasonable balance with the crown and shall be conductive to successful transplantation.

2.1 Standard trees shall have a clear stem 1.70m in height from ground level to the lowest branch, a minimum girth of 8cm measured at 1.00m above ground level and a total height of 2.75-3.00 m.

2.2 Light Standard trees have a clear stem 1.30m in height from ground level to the lowest branch, a minimum girth of 6cm measured at 1.00m above ground level and a total height of 1.80-2.40m.

2.3 Select standard trees shall have a clear stem 1.70 m in height from ground level to the lowest branch, a minimum girth of 10 cm. measured at 1.00.m. above ground level and a total height of 3.0 to 3.5 metres.

2.4 Heavy standard trees shall have a clear stem 1.80-1.90m in height from ground level to the lowest branch, a minimum girth of 14 cm. measured at 1.00.m. above ground level and a total height of 4.0 to 4.5 metres. All trees shall have been undercut a minimum of three times.

2.5 Extra Heavy standard trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth of 16 cm. measured at 1.00.m. above ground level and a total height of 4.5 to 5 metres. All trees shall have been undercut a minimum of three times.

2.6 Semi-mature trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth, as specified in the Bill of Quantities, measured at 1.00.m. above ground level and a total height of min. 5 metres. All trees shall have been undercut a minimum of three times.

All standards shall be clearly labeled.

2.7 Feathered Trees 180-240cm
Feathered trees shall be not less than four years old, and shall have been transplanted at least three times. Trees of species not listed in BS 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.
Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.8 Feathered Transplants 120-150cm
Transplants shall be not less than two years old, and shall have been transplanted at least once. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.
Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.9 Feathered Transplants 90-120 cms, 60-90 cm, 40-60 cm, 30-40 cm
Transplants shall be not less than one year old. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules. Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.10 Shrubs

(1) Containerised Shrubs shall be of the size specified in the schedules, with several stems originating from or near ground level and of reasonable bushiness, healthy, vigorous and with a sound root system. Pots or containers shall be appropriate to the size of shrub supplied and clearly labeled. Shrubs shall not be pot bound or with girdled or restricted roots.

(2) Bare Root Shrubs shall be of size specified in the schedules, with several stems originating from or near ground level, with reasonable bushiness, healthy, and vigorous. They shall be well furnished with fibrous roots and shall be lifted without severence of major roots. All bare root shrubs shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.11 Container Grown Conifers:
Conifers shall be of the size specified in the schedules, with one main stem originating from or near ground level and of reasonable bushiness and health, with a well-grown, root system. Pots or containers, where required, shall be appropriate to the size of plant supplied and clearly labeled. Plants shall not be pot bound, or with deformed or restricted roots.

Appendix 1 - Soft Landscape Outline Specification

2.12 Protection:
The interval between the lifting of stock at the nursery and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting transport shall be protected from the wind and frost and from drying out.
Protection shall include for the supply of stock to site to a suitable heeling-in/ storage area prior to planting. The landscape contractor shall allow for liaison with the site engineer to arrange the heeling-in area/ storage. The contractor shall continue to be entirely responsible for the maintenance of this stock to ensure that at the time of planting the stock complies with the requirements for the supply of nursery stock as per clause 1.0 thereof. No responsibility for the maintenance of the stock will attach to the site engineer whilst the stock is protected on site. No time limit shall attach to the period of protection.

In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

2.13 Damage
On completion of lifting of plants in the nursery, any broken shoots or severed roots shall be pruned, areas of damaged bark neatly pared back to sound tissue.

2.14 Inspections
The Landscape Architect will inspect the hardy nursery stock on the selected nursery during the execution of the works. Only plants selected and approved in the landscape contractors selected nursery will be accepted on the site.

2.15 Delivery and heeling in
All plants will be delivered on a phased basis as called up in advance in agreement with the Engineer, Landscape Architect and the appointed Landscape Contractor. In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

3.0 Specifications for site operations:

3.1 Setting out:
Setting out shall be in accordance with site meetings with the Landscape Architect, and the drawings listed in the preliminaries. No planting works shall take place when the soil /fill is in a waterlogged condition.

3.2 Finished grading:
All planting pits and topsoiled areas disturbed by the landscape contractor shall be left in an even state, with all soil clumps broken up and stones of greater than 50mm diameter shall be removed.

4.0 Specifications for Planting and Plant Materials

4.1.1 Stakes:
Round stakes shall be of peeled larch, pine or Douglas fir, preserved with a water-borne copper chrome arsenic composition in accordance with I.S. 131. For standard and select standards stakes shall be 1.8m long, 75mm in diameter. Stake all whips and transplants greater than 120cm in height. For all transplants exceeding 120cm height stakes shall be 1.2m long, 37mm x 37mm square. Stakes shall be pointed at the butt end. Set stakes vertically in the pit, to the western side of the tree station, and drive before planting. Drive stake with a wooden maul or cast-iron headed drive. Stakes shall be driven into the excavated planting pit to a depth of:

800mm for Standards/Light Standards/Feathered Trees
1000mm for Heavy Standards
500mm for Whips/Transplants

4.1.2 Canes:
Bamboo canes or similar approved shall be used to provide spot spraying location markers for small plants including Pinus, species. The canes are not to be attached to the plants.

4.2 Tree ties:
For standard and select standards, tree ties shall be of rubber, PVC or proprietary fabric laminate composition and shall be strong and durable enough to hold the tree securely in all weather conditions for a period of three years. They shall be flexible enough to allow proper tightening of the tie. Ties shall be min. 25mm wide for 120cms height trees and min. 38mm for larger sizes. They shall be fitted with a simple collar spacer to prevent chafing. Two ties per tree shall be applied to standards; for staked transplants, one tie per tree is required.
Ties shall be nailed to the stake with one galvanised nail.

4.3 Protection:
The interval between the lifting of stock at the heeling-in area and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting planting on site shall be stored in a sheltered place protected from the wind and frost and from drying out.

All transplants shall be wrapped in polythene from the time of lifting to conserve moisture. Except when heeled-in, they shall be protected in polythene at all times until planted into their final position on site.

4.4 Damage:
On completion of planting any broken branches shall be pruned, areas of damaged bark neatly pared back to sound tissue.

4.5 Watering / Alginure / Fertilisers:
All bare rooted light standards and select standards shall be soaked in water overnight, on site, before planting in a liquid solution containing “Alginure” at the recommended dilution rate. Fertilisers shall conform to BS 5581: 1981. In the case of granular fertiliser being added to plantings, it must be mixed through and incorporated into the base of the planting hole and covered over in order to avoid roots of plants coming in direct contact.

4.6 Setting out:
Setting out shall be in accordance with site meetings with the Landscape Architect. Transplants in mixtures shall be planted in staggered rows. Species shall be planted in groups, as indicated in the planting drawings.
No planting shall take place until all planting holes (with ameliorants) have been inspected and approved by the Landscape Architect, or a person appointed by him as a representative, to ensure accordance with the specifications. No planting shall take place when ground conditions are frozen or waterlogged. All planting holes shall be opened and closed on the same day.

Be planted in the centre of the planting pit and planted upright. Stones or other rubbish over 75mm shall be removed. Supply and drive the stake 800mm into the ground for standards, 500mm for other transplants. Backfill planting hole 4.7 Tree planting:
Trees shall be planted at the same depth as in the nursery, indicated by the soil mark on the stem of the tree. They shall with excavated topsoil, and remove all stones and debris, firming plant into position

4.7.1.Select Standards
Excavate tree pits to 800mm x 800mm x 600mm deep, or as approved. The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m.(equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.2 Heavy and Extra Heavy Standards
Excavate tree pits to 1000mm x 1000mm x 800mm deep, or as approved. The base of the pit shall be broken up to a depth of 100mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.2 Semi-mature trees
Excavate tree pits to 1200mm x 1200mm x 1000mm deep, or as approved. The base of the pit shall be broken up to a depth of 200mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.3.Light Standard Trees
Excavate tree pits to 500mmx500mmx500xx deep, or as approved. The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

Appendix 1 - Soft Landscape Outline Specification

4.8 Feathered Trees 180-240cm, container grown conifers (>2l)
Excavate tree pits to 400mm x400mm x 400 mm deep, or as approved (slit or notch planting are not acceptable planting methods). The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. Trees shall be planted at the same depth as in the nursery and backfilled with compound fertiliser 0.10.20 at the rate of 50gm per tree and 0.020m3 of Mushroom Compost or similar approved. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.9 Feathered Whips 120-150 cm:
Excavate tree pit to depth of 300mm x 300mm x 300mm deep, or as approved (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or auguring methods, approved by the Landscape Architect. The base to be broken up to a depth of 60mm and glazed sides roughened. Whips to be planted at same size as in the nursery. Apply 60gm 0.10.20 and 0.020m3 of Mushroom Compost or similar approved. Per tree pit to plants. Stakes 1.2m high x 37mm diam. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.10 Feathered Whips and Transplants 90-120cm, 60-90 cm, 40-60cm, 30-40cm, container grown conifers (<2l size) and container grown shrubs (<2l size):
Excavate planting hole to a depth of 300mm x 300mm x 300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or auguring methods, approved by the Landscape Architect. Apply 30gm 0.10.20.per planting pit. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.11 C. G. Shrubs / C. G. Wall Shrubs / C.G. Climbers:
Excavate planting hole to a depth of 300mm x 300mm x 300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened. The following products are to be supplied and incorporated in to the bottom 100mm of topsoil at the base of the planting pit and in to the topsoil for backfilling around each plant: (1)Seanure soilbuilder as supplied by Farmura @ 1.5Kg per cu.m of topsoil, (2) clean and friable green waste compost @ 25 Kg per cu.m of topsoil and (3) Sierrablen Flora 15:9:9 slow release fertiliser @ 70 grams per m2 Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.12 Grassing
All grass areas to be ripped with a tractor mounted tine prior to rotovating. The contractor shall grade off all areas to smooth flowing contours, removing all stones greater than 10mm diameter and tip off site. All hollows to be filled in. Roll all areas with a roller as approved. Following the completion of final grading and raking, the area is to be left fallow for a period of 14 days. Spray with 'Basta' at recommended rates, and seed with fine grass mix at a rate of 35gr/Sq.m together with fertilizer 10:10:20 at a rate of 50gr/Sq.m use Coburns Irish premier low maintenance mixture or other as approved by the Landscape Architect.

4.12.1 Grass cutting
Grass cutting shall be carried out during the three year maintenance period and is defined into three categories:
4.12.2 Regular grass cutting
Shall be carried out to the frequencies indicated in the Bill of Quantities. Attention to neat and tidy cutting shall be required to all areas. Sightlines, as set out with the Engineer, at junctions and roundabouts must be kept clear of vegetation at all times.

GENERAL
Upon completion of planting, all pits shall be raked over lightly to leave an even surface and neat appearance. All stones greater than 50mm dia. to be removed. Provision should be made for the watering of light and select standards during periods of prolonged drought in the first year following planting.

4.13 Inspections:
The Landscape Architect will inspect the site with the Landscape Contractor during the execution of the works and following maintenance visits.

4.14 Presentation of certificates:
The Landscape Contractor shall present for the Landscape Architect's inspection, all seed and fertiliser bags, together with their markings. If requested, the contractor shall furnish the Landscape Architect with receipts of purchase for these respective materials.

4.15 Spraying:

1) Following planting of embankments, slopes etc., weed free circles to be formed around individual plants, as directed, using an approved broad-spectrum contact herbicide, as approved by the landscape architect, in mid-spring following planting. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. In areas where grass is excessively long, such grass will be strimmed off and collected prior to spraying. The contractor shall be responsible for keeping the ground (1m diameter circle) around all planted material weed free by means of herbicidal application, using approved sprays, during the course of the contract. Weeds to be removed include grasses ,broad-leaved annual and perennial weeds and all noxious weeds.

2) Selective spot spraying will be carried out to all grassed areas, whether planted or unplanted through the application of contact herbicide to control broad-leaved annual and perennial weeds, including thistle, dock and ragwort. Contact herbicide to be approved by the landscape architect prior to application. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. The contractor shall allow for the removal of gorse by cutting, as required prior to spraying to ensure its eradication from all grassed areas for the duration of the contract.

3) The boundary hedgerows shall be kept weed free by herbicidal application by forming a 300mm wide spayed strip along the full length of each respective hedgerow. Approved herbicide (broad-spectrum contact herbicide) to be applied using controlled drop applicator containing a dye to indicate areas sprayed. Spraying of planted areas on roundabouts is also included in this spraying application.

4) Such routine spraying (1, 2 and 3 above) shall be carried out during maintenance visits over the three-year period. No spraying shall take place during adverse weather conditions or at times not recommended by the manufacturer.

4.16 Cutting back:
Plants for cutting back/tip pruning shall be cut back after inspection by the Landscape Architect. This work to be carried out initially following planting for plants suffering from wind damage.

4.17 Mulching
Mulching may be considered as an optional factor that may be implemented. Mulch shall be from coniferous trees. It shall be shredded, but not pulverised, so that no dimension exceeds 75mm. Bark shall have been composted for a min. of 3mths. In the case of areas requiring mulch the depth of bark shall measure 30 mm.

4.18 Ground finish:
Upon completion of planting, all ground finish shall include for the removal of stones greater than 50mm excavated during the course of the digging for planting purposes.

Appendix 2 - Hard Landscape Outline Specification

PAVING & KERBS

FOOTPATHS

General: Public footpaths, roadways, kerbs etc. shall be constructed in accordance with the requirements of the Roads Maintenance Dun Laoghaire Rathdown County Council.

Accuracy of Levels and Alignment: The levels of paths and paving shall be carefully set out and frequently checked. All care shall be taken to ensure that the correct cross sections are maintained. The finished face of paths shall be formed so as to provide adequate fall and satisfactory run off to surface water outlets, gullies, etc. Cross-falls of paths shall be carried without break across verges and kerbs to prevent ponding of water between back of kerb and path.

Sub-Base: Granular material shall comply with Clause 804 of the D.o.E. Specification for Roadwork's and shall be spread uniformly over the formation and compacted by vibrator roller. Rolling shall continue until there is no movement under the roller. The finished surface of the compacted sub-base shall be parallel to the proposed finished surface of the footpath. The surface levels for each layer shall not deviate from the design levels by more than +15mm or –15mm.

For sub-base thickness in paved areas see area engineers spec. and attached following schedule. Each contractor shall do all necessary tests to ensure a well compacted, plain even surface on all areas with traffic movement. If paving shows settling after 1 year which normally is related to an insufficient depth and compaction of the sub-base the contractor shall rebuilt the failed area to his own cost.

Use of Surfaces by Construction Traffic:
Constructional traffic used on pavements under construction shall be suitable in relation to the courses it traverses so that damage is not caused to the sub-grade. Where damage is caused to the formation of the sub- grade in strength or level the damaged area shall be excavated for an area and depth which shall be determined by the Architect and this area shall be filled to the required levels with crushed rock of 50mm maximum size. The degree of compaction for this area shall be the same as that specified for the remainder of the formation. All this excavation and making good of damaged areas shall be carried out at the expense of the Contractor. Where damage is caused to the sub-base, the damaged area shall be made good as noted above, using the material of which the sub-base is composed. The wheels or tracks of plant moving over the various pavement courses shall be kept free from deleterious materials.

MODULAR PAVING

Concrete Pavers Precast concrete pavers shall conform to the requirements of BS 6717 Part 1.
Ensure that sub-bases are suitably accurate and to specified gradients before being laid.

Sample: Before placing orders submit representative samples for approval.
Ensure that delivered materials match sample.

Laying Generally:

1. Laying Specification

1.1 Paving blocks/bricks shall be laid to the requirements of Part 3: 1997, BS 7533, except that the lip onto gully gratings is modified to 5 - 6 mm.
Note, in particular, the following requirements of Part 3.
i. The difference in level between two adjacent blocks shall not exceed 2 mm.
ii. The finished pavement surface shall not deviate more than 10 mm under a 3m straight edge.
iii. The accuracy of cutting a block should be such that the resulting joint should not exceed 5 mm.
iv. The surface course should be between
(a) 3 - 6 mm above drainage channels
(b) 5 - 10 mm above gullies (*BRL modify this to 5 - 7 mm above gullies to reduce "trips")
v. The surface course should be inspected soon after completion and at regular intervals thereafter - additional sand should be brushed in where necessary.
1.2 The surface course for chamfered units should be 3 - 5 mm above the kerb to facilitate surface drainage. The surface course for non-chamfered units should be 2 mm above the kerb to facilitate surface drainage.
1.3 When paving units need to be trimmed, pieces with a dimension less than 50 mm should not be used.

2. Drainage Channels

2.1 Where paving blocks are used in a channel, they shall be laid on freshly mixed moist 3:1 sand-cement mortar. The mortar should have thickness between 10 mm and 40 mm. Vertical joints should be filled with 3:1 wet sand-cement mix.
2.2 Mortar, which has been mixed for over 2 hours, should be discarded.
2.3 The mortar should be laid on a previously prepared concrete base as per construction drawing detail. Select blocks/paviors vertically from at least 3 separate packs in rotation, or as recommended by manufacturer, to avoid colour banding. Lay blocks/paviors on a well graded sand bed and vibrate to produce a thoroughly interlocked paving of even overall appearance with sharp sand filled joints and accurate to line, level and profile. Refill joints once a week three weeks after first fill. Commencing from an edge restraint lay blocks/paviors hand tight with a joint width of 2-3mm for pedestrian use and 3-5 mm for areas with traffic. Maintain an open working face and do not use mechanical force to obtain tight joints. Place blocks/pavers squarely with minimum disturbance to bedding. Supply blocks/paviors to laying face over newly laid paving but stack at least 1 m back from laying face. Do not allow plant to traverse areas of uncompacted paving. Continually check alignment of pavers with string lines as work proceeds to ensure maintenance of accurate bond.Infill at edge restraints as work proceeds. Wherever the type of bond and angle of edging permit, avoid very small infill pieces at edges by breaking bond on the next course in from the edge, using cut blocks/pavers not less than 1/3 full size. Cut stones shall be rectangular or trapezoidal; the smallest point shall be a minimum of 35mm. (May be pavers have to be turned by 90 deg.)Half stones shall be cut at manufacture. Thoroughly compact blocks/pavers with vibrating plate compactor as laying proceeds but after infilling at edges. Apply the same compacting effort over the whole surface. Do not compact within 1 m of the working face. Do not leave uncompacted areas of paving at the end of working periods, except within 1 m of unrestrained edges. Checks paving after compacting first few metres, then at frequent intervals to ensure that surface levels are as specified; if they are not, lift blocks/pavers and relay. Brush sharp sand into joints, revibrate surface and repeat as required to completely fill joints. Make sure that paving is held by a kerb on both sides before vibration to avoid uneven joints. Avoid damaging kerb haunching and adjacent work during vibration. Do not begin vibration until kerbs have matured. The paving pattern will be stretcher bond, make sure that the joints will be in straight line after vibrating. Also ensure joints are off equal width. The block pavement shall have a surface regularity/ flatness tolerance of less than 10 mm under a 3 m straight edge.

Sample: Before placing orders submit representative samples for approval.
Ensure that delivered materials match sample.

PRECAST CONCRETE FLAGS
Pre-cast Concrete Flags:
1. Precast concrete flags shall be laid to the requirements of BS 7533 Part 4.
Note the following selected items from BS 7533, Part 4.
• The difference in level between two adjacent flags should not exceed 3 mm.
• The top surface of the paving units should stand 3 - 6 mm above the drainage channel.
• A 30 - 50 mm (compacted thickness) of the sand laying course is given as suitable (for narrow joints)
2. Flags should be laid with narrow joints (2 - 5 mm).Joints should be filled with dried sand (conforming to table 4 of the code), or as determined by the Landscape Architect.

KERBS
Kerbing General: Kerb radii shall be in accordance with Architects and Engineers drawings. Use radius kerbs for all new kerbs.

Laying Generally:
Natural stone and precast concrete kerbs shall meet the requirements of BS 435 and
BS 7263-1.

1. Precast concrete kerbs shall be laid to the requirements of BS 7533, Part 6.
2. Units shall be laid on fresh concrete or mortar bed and adjusted to line and level.
3. Concrete for foundations and haunching shall be to BS 5328.
4. Bedding mortar shall be freshly mixed, moist 3:1 sand-cement between 12 and 40 mm thick.
5. Kerbs shall be backed with concrete as per drawing.
6. Radius kerbs shall be used on radii of 12 m or less.
7. Kerbs should not deviate from the required level by more than 6mm.
8. Kerbs should not deviate by more than 3 mm under a 3 m straight edge.
9. Open-jointed kerbs should have joints of 2 - 4 mm wide.
Mortar jointed kerbs should have joints of 7 - 10 mm wide filled completely with 3:1
sand-cement mortar, and finished to give a smooth flush joint or as specified by the
Landscape Architect.

Appendix 3 - Programme For Implementation, Maintenance + Defects Period

5.0 Maintenance:

5.1 Period:

The Contractor shall be responsible for aftercare of the completed works for 1 Year from the date of completion of planting. Subject to satisfactory performance the maintenance contract may be extended for two further periods of 12 months. Maintenance in years 2 and 3 shall be provisional. Maintenance during years 2 and 3 may be assigned directly. This will include grass cutting, weed control of all planted areas, litter clearance and watering of Select Standard trees during dry weather.

5.2 Organisation:
The aftercare programme will be organised as follows:-
(1) Scheduled operations, in whose timing the contractor will be permitted some flexibility and which will be the basis of payment to the Contractor.
(2) Performance standards, which the Contractor is required to meet at all times, and on which his performance will be assessed.
(3) Critical dates, by which time scheduled operations, shall have been completed, and at which performance will be assessed.

5.3 Performance standards:
Shrub, woodland and hedgerow planting to be maintained in accordance with specifications e.g. spraying, firming, tree tie adjustment. Weeds shall not cover more than 20% of the ground surface within planting areas and the maintained 1m diameter weed free circles at any time, and neither shall they exceed 100mm in height. Weeds shall be treated before they establish.

Within grass areas noxious and competitive weeds shall not be allowed to establish and all perennial weeds shall be spot treated at each maintenance visit, 3 times per year.

5.4 Watering:
The contractor is responsible for the survival of all plants during the maintenance period. Apply water to moisten full depth of root run using proprietary irrigation system. Avoid washing or compaction of the soil surface. The Landscape Contractor is responsible for informing the Landscape Architect if the plants require watering. A minimum of 16 no. waterings year1, 8 no. year 2, 4 no. year 3. Prior notification to the landscape architect and a record of attendance will be requested for each visit. Spot checks will be made to ensure full compliance with this condition.

5.5 PROGRAMME
Year One (After Planting): Period of 12 months from date of practical completion

5.5.1 By end of May (Year One):
Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Strim long grass prior to spray application. Provision for 1 no. visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. Tip prune, firm plants. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees.
Critical date: 30 May (Year One)

5.5.2 By end August (Year One):
Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Provision for 1 no. visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees.
Critical Date: 30 August (Year One)

5.5.3 October (Year One):
Remove dead plants after Landscape Architect's inspection.

5.5.4 November (Year One):
Replacement planting. Tree care shall mean pruning deciduous trees including those of hedgerow form when dormant to promote open frame works in the crown. Remove all suckers and dead branches, and branches that are encroaching on to footpaths should be cut back to point of branching.

5.5.5 By end December:
Application of herbicide agreed with Landscape Architect to all planting areas. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water extra heavy standard trees, standard trees.

Critical Date: 30 December (Year One).

5.5.6 Year 2

As year 1.

5.5.7 Year 3

As year 1 . Hedgerow to be fully pruned at end of season.

5.5.8 Sweeping and Cleaning

Sweeping shall mean sweeping of the footpaths, playing courts, car parks and the schools road network and removal of all grit rubbish moss and leaves, keeping the hard landscaped areas of the site in a neat and tidy manner. Number of sweepings per annum -12no.

Cleaning shall mean the removal of paper, plastic bags and all other rubbish from grassed areas, roads, car parks, playing courts, shrubbery's, hedging etc. or any part of the school grounds. This operation shall be carried out twice a month.
All dirt and rubbish to be removed off site to a tip to be provided by the Landscape contractor.
Autumn leaves shall be swept on a weekly basis from end of October to mid-November (three weeks). Any additional cleaning and sweeping deemed necessary, during the year, and requested will be paid for at a pro rata basis to the rates for the programmed maintenance schedule.

5.5.9 Other Maintenance Works
All grassed areas are to be edged 3 times a year using a machine and are not to be sprayed.

Carry out any other maintenance to ensure the works are kept in a satisfactory state during the defects liability period.

5.6 Grass Cutting

Grass cutting shall be deemed to include for:
[a] Removal of lodged grass.
[b] Removal and disposal of grass cuttings from adjoining roads and paving.
[c] Removal and disposal of stones and other obstructions from area of grass to be cut.

high profile grassed areas, eg. central gardens are to be Fine cut. Fine cutting shall mean mowing to 25mm high. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of the management team. A rough schedule is as follows-
March: 1cut
April: 3 cuts
May: 4 cuts
June: 4 cuts
July: 4 cuts
August: 4 cuts
September: 4 cuts
October: 4 cuts
November - February: 1 cut
Total 29 cuts

Fine cutting shall be deemed to include for grass cut to 25mm high evenly over the whole area, with cuttings left evenly spread over the surfaces. Grass not to exceed 50mm between cuts.
Other grass areas of which are less high profile are to be cut 16 times a year. These will include the grassed areas around the woodland areas etc.

Areas indicated as wildflower mix shall be cut three times per annum. Cuts shall be carried out at specified times as agreed with landscape architect and recommended by the wildflower seed producer. Remove cuttings after each cut and remove offsite to tip.

Leave cuttings evenly spread. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of the council.

At every second grass cut, grass shall be trimmed from around the base of walls and fences, back of footpaths and kerbs, litter bins, sluice valves and hydrant markers, trees, shrubberies poles and public lighting columns etc., and kept in a neat and tidy condition.

The contractor shall apply a broad spectrum weed killer, once a year, mid April, at the recommended application rate, to control weeds in the grassed areas during the growing season. In addition, 1 no. applications of herbicide to kill off clover in the grass areas shall be applied in April in line with approved herbicides under current legislation.