Residential Development (SHD) at Park West Avenue and Park West Road, Park West, Dublin 12

Landscape Design Statement

December 2021

murray & associates
landscape architecture

Control Sheet

Project No.	1757
Project Name	Park West
Filename:	1757_Landscape Design Statement
Document Title:	Landscape Design Statement

Version Control

Rev. No.	Issue Status	Date	Prepared By	Checked By
0	Pre-Planning	08-12-20	AG	MB
A	Planning	20-12-21	HT	MB

murray & associates
landscape architecture

16 The Seapoint Building
44-45 Clontarf Road, Dublin 3
Tel: 01 8540090

mail@murray-associates.com
www.murray-associates.com

Member of the Irish Landscape Institute

Table of Contents

Introduction

This report was commissioned by the applicant, Greenseed Limited, and has been prepared to accompany the planning application for the proposed strategic housing development at this site (c.9.4ha) at Park West Avenue and Park West Road, Park West, Dublin 12.

The purpose of the report is to explain the landscape context, design rationale and management requirements for the landscape architectural design proposals on the accompanying drawings.

This report should be read in conjunction with the following drawings:

Dwg No.	Sheet Title
1757_PL_P_00_IFP	Ground Level Landscape Master Plan
1757_PL_P_01.1_IFP	Ground Level Landscape Plan (1)
1757_PL_P_01.2_IFP	Ground Level Landscape Plan (2)
1757_PL_P_01.3_IFP	Ground Level Landscape Plan (3)
1757_PL_P_01.4_IFP	Green Roof Landscape Plan and Details
1757_PL_P_02_IFP	Podium and Roof Level Landscape Plan (1)
1757_PL_P_02.1_IFP	Podium and Roof Level Landscape Plan (1)
1757_PL_P_02.2_IFP	Podium and Roof Level Landscape Plan (1)
1757_PL_S_01_IFP	Landscape Sections (1)
1757_PL_S_02_IFP	Landscape Sections (2)
1757_PL_S_03_IFP	Landscape Sections (2)
1757_PL_D_01_IFP	Landscape Details (1)
1757_PL_D_02_IFP	Landscape Details (2)
1757_PL_D_03_IFP	Landscape Details (3)
1757_PL_D_04_IFP	Landscape Details (4)
1757_PL_D_05_IFP	Landscape Details (5)

A preliminary landscape specification and landscape management plan are submitted at Appendix 1 of this report. These documents outline the commitment to the quality of landscape to be achieved in this development.

Site Location Map in wider context of Dublin City and hinterland

Existing Site and Context

The site is located in Park West, some 200m east of the M50 and 500m north of the Grand Canal. The site context includes the Park West development area, which is characterised by high density residential and commercial / employment land-uses. The site is bounded by Park West Avenue to the west, Park West Road to the south, Park West Industrial Estate to the east and the Dublin to Cork Mainline Railway to the north. An existing hotel, entrance, and car park are the only built elements within the site. To the north of the rail line is Cherry Orchard, an established residntial community.

Measuring c. 9.4 hectares, the subject site is currently brownfield, having been previously cleared for a development which never occurred. The only trees within the site area are those in the hotel grounds or adjacent to the roundabout at the junction of Park West Avenue and Park West Road. These are semi-mature specimens which were planted concurrently with the development of the hotel and the other development of the area, c.15 years ago. Only the trees adjacent to the hotel have the potential to be impacted by the proposed development and these have been surveyed and included in an Arboricultural Report, also submitted with this application. The trees are considered to be of low value.

The site is gently sloped with a c.9 metre difference between the highest and lowest point. The highest point is at the bridge crossing the rail line in the north-west of the site at c.61.6m OD. This is locally c.6m higher than the 'natural' ground level where at the base of the banks and mounds which lead to the bridge. The lowest point of the site is to the south-east at c.51.2m OD. change overall. From here, the levels rise towards the north-west generally and the average gradient across the site is approximately 1-2%, which is effectively flat. As previously noted, the gradients are locally steep where there is mounding or embankments. The gradient on the path from the Hotel to the rail bridge is c.3.5%, with a level difference of c.6.5m over the 200m length of path.

Context Map

Planning Context

The site is zoned Zone Z14: Strategic Development and Regeneration Areas:
To seek the social, economic and physical development and /or rejuvenation of an area with mixed use of which residential and "Z6" (to provide the creation and protection of enterprise and facilitate opportunities for employment creation) would be the predominant uses.

The site is also part of the site known as Site 6 within the Park West and Cherry Orchard Local Area Plan 2019). Within the LAP, there is an outline of a public realm scheme for Site 6, with a central linear public realm with integrated water/other feature surrounded by high density/mixed-use.

Existing Site Photos

View north toward the existing hotel

View south, from site to Park West Avenue and Road Intersection

View of the northern edge of the site

View from southern edge, toward the northeast corner across site

View of northwest corner

Proposed Development Description

A masterplan scheme was developed for the wider Park West area before development of this application, which is the focus of this planning application. The site area measures c.9.4 hectares, which includes the existing hotel (Aspect Hotel) although there are no changes proposed to this building.

The proposed development comprises of: 750no. residential apartment units with 321no. 1 bed units, 384no. 2 bed units and 45no. 3 bed units; and non-residential floorspace including 1 no. retail unit, a creche, a community space and a café/ bar and all associated roads, streets, public spaces and services infrastructure. The built form includes 7no. blocks (A-G) with associated communal amenity space and a main central urban park space between them.

The development prioritizes pedestrian and cycle movement and connection throughout the site, with vehicular routes along the internal road system leading primarily to under-croft car parking spaces beneath Blocks A, B, C, D, E and F (314no.) and on-street car parking spaces (238no.), located mainly to the north of Block D-E as part of a proposed streetscape and buffer zone parallel with the existing rail line and to the east of Block F. On-street parking is also included along the streets, but this is broken up as much as possible. A quality audit was performed on the proposed development as part of the design process and its recommendations were taken into account in the landscape design to ensure safe and convenient access for pedestrians, cyclists and motorists.

The development includes a central public realm/park amenities area for the neighbourhood, as well as communal amenities areas at podium and roof level within the proposed blocks. Approximately 1.3 hectares of public open space are provided, which equates to c. 13.8% of the site area.

Sustainable drainage is also at the core of the development proposals, with a substantial SuDS feature in the central park space.

The proposed development includes 70no. car parking spaces related to the existing Aspect Hotel (36no. spaces beneath Blocks A, B, C and 34no. spaces and at street level) which are being to be relocated from the existing surface car park to facilitate the development of Block G. The existing Aspect Hotel car park is also the site of a permitted extension to the hotel (Reg. Ref. 3436/18). The existing car park is proposed to be demolished and the site of the permitted hotel extension is to be landscaped pending the development of the hotel extension.

Proposed Development Master Plan

Landscape Design Strategy / Precedent

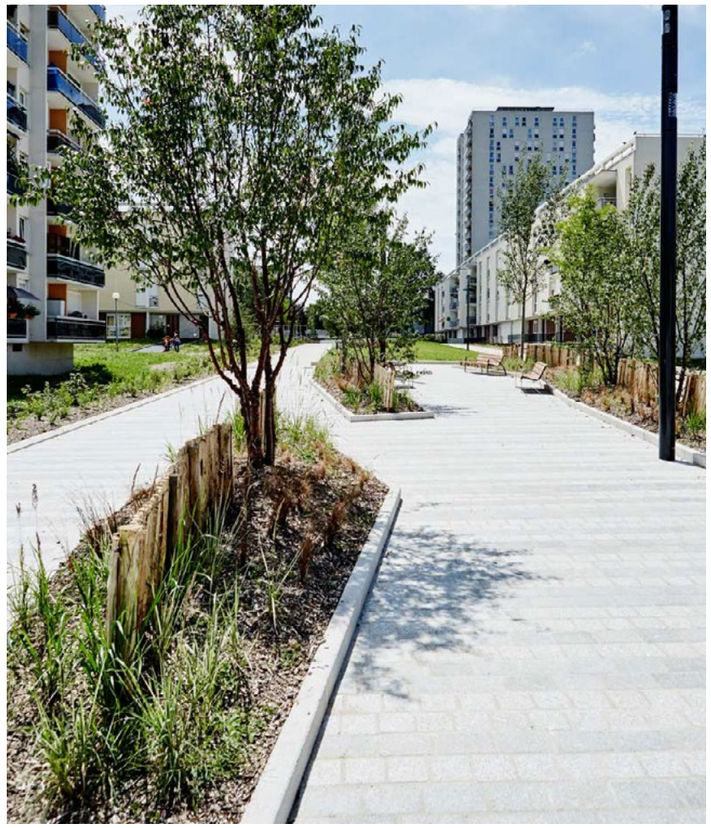
In landscape terms, the proposed development offers an opportunity to develop a new urban block, with quality landscape space at its core. This will be a space primarily for the pedestrian and cyclist; a unique place for recreation and community-building. This space also offers an opportunity to improve local biodiversity and this will be guided by a "green strategy" for the site.

The landscape design proposals have several aims and objectives:

- To create a thriving public realm that supports contemporary life with park areas, play spaces, social spaces and quiet places for mindfulness.
- To develop a "green strategy" for the site.
- To integrate the development into the existing area and link with the existing infrastructure and transport hubs.
- To enhance local biodiversity and link into green infrastructure services.

In developing the proposals, reference has been had to several precedents around Europe and further afield. The aim is to create an urban block on a par with exemplars in other parts of the world, such as Malmo's Bo01, Grand Ensemble, Alfortville (France) or recent developments in Boulogne-Billancourt (France). These places combine new urban neighbourhoods with contemporary architecture and sustainable water management to create unique and interesting places to live. The landscapes are fine-grained and full of interest, be that the patterns of water or materials, plant and animal life, or indeed human life and people congregating, performing or meeting.

Landscape proposals are compliant with the policies and principles set out in the Dublin City Development Plan requires that 10% of the site should be public open space. Of the entire gross site, c.9.402ha., 10% equates to 9,402 sq.m. public open space. This proposed developed includes a total of 12,686 sq.m public open space, for a total of 13.5% public open space of the gross site. This provision includes the public open space for this application and future blocks within the site (Site 6 in the LAP). The public realm includes a central linear park, entrance plazas, active and other play spaces, water/SuDs features, seating areas, and paths allowing clear movement through the site.



Concept Reference Imagery: Grand Ensemble, Alfortville

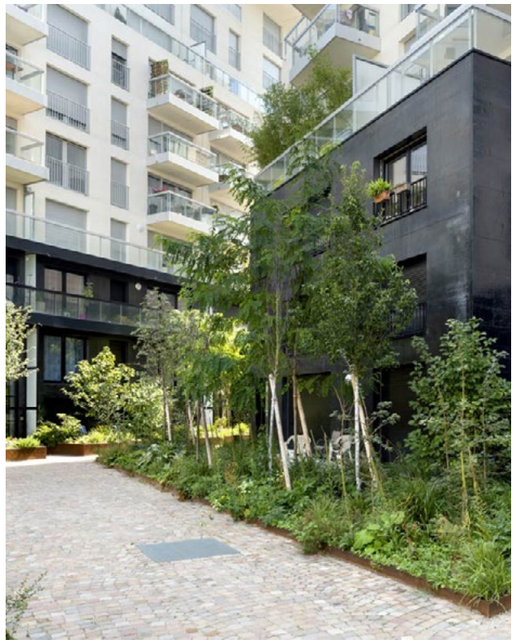
Place-making and sense of identity are central to the landscape proposals, and the design contains a number of bespoke elements which will help to impart distinctiveness to this new and evolving part of the city. Wayfinding will be aided by distinctive focal elements in both the architecture and the landscape, with verticality deployed to good effect and unusual forms in some of the buildings, as well as sculptures and focal points in the landscape.

The practicalities of pedestrian and cycle movement and getting around were analysed in the design process and the resulting network of desire lines has informed the landscape proposals, to ensure that the design is practical and accommodates the natural routes through the scheme, both in the public and communal spaces.

The joy of play is also celebrated in this design with numerous opportunities for both natural and structured play, which are inclusive and enhanced with planting textures, smells and forms. All scales and ranges of play are considered in the design from doorstep play to play equipment and from unprogrammed space to Multi-Use Games Area for organised or casual sport.

Of considerable benefit is the proposed undergrounding of an ESB cable and removal of some of the associated pylons along the northern boundary. The design looks to animate the street parallel to the railway with front doors opening onto an intricate and heavily planted streetscape with homezone areas and buffer planting. Car parking is integrated into the buffer space, with differentiation of paving and regular tree planting in large tree pits with structural soil.

Concept Reference Imagery: Bo01 and Ankar Park, Malmo



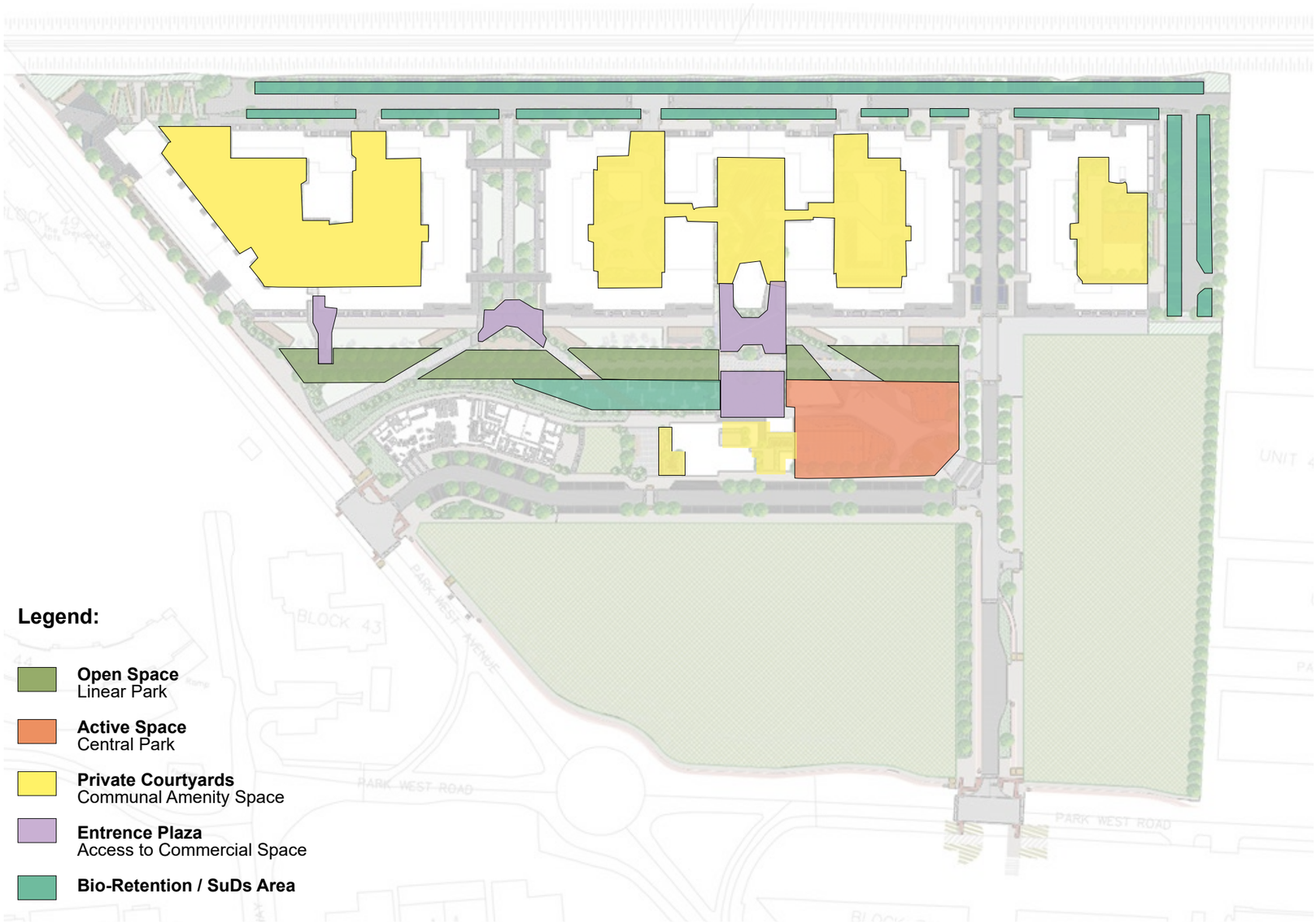
Concept Reference Imagery: Boulogne Billancourt, Paris

Landscape Design Overview

The design concept aims to create a high-quality public realm through the use of placemaking, large areas of open space and planting, and high-quality, robust materials. The public realm contains a diverse series of spaces for passive and active recreation for the community. Woven into the design are sustainable solutions to stormwater management, habitat, and biodiversity. This includes residential evergreen buffer planting, continuous canopy along circulation routes, and linked bio-retention areas. A series of courtyards within the development has a number of raised planters to create private seating areas and gathering spaces, with vegetated buffers along the edges for visual privacy for the ground floor residences.

In summary, the development includes

- 12,686 sqm of Public Open Space
- High-quality robust materials
- 6,175 sqm of communal amenity space
- 1,025 sqm of play spaces (in public and communal areas)
- 1,271 sqm of unprogrammed open space
- 300+ trees within the public realm
- Integrated stormwater management
- Active frontages (commercial or own-door units) along the majority of the public realm



Programme Diagram

Public Open Space and Communal Amenity Space

Total Site Area:
94,020 sq.m.

Public Open Space Provided
12,686 sq.m.

Communal Amenity Space Required:
(per Annex 1 Standard, Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities)
4,698 sq.m.

Communal Amenity Space Provided
6,175 sq.m.

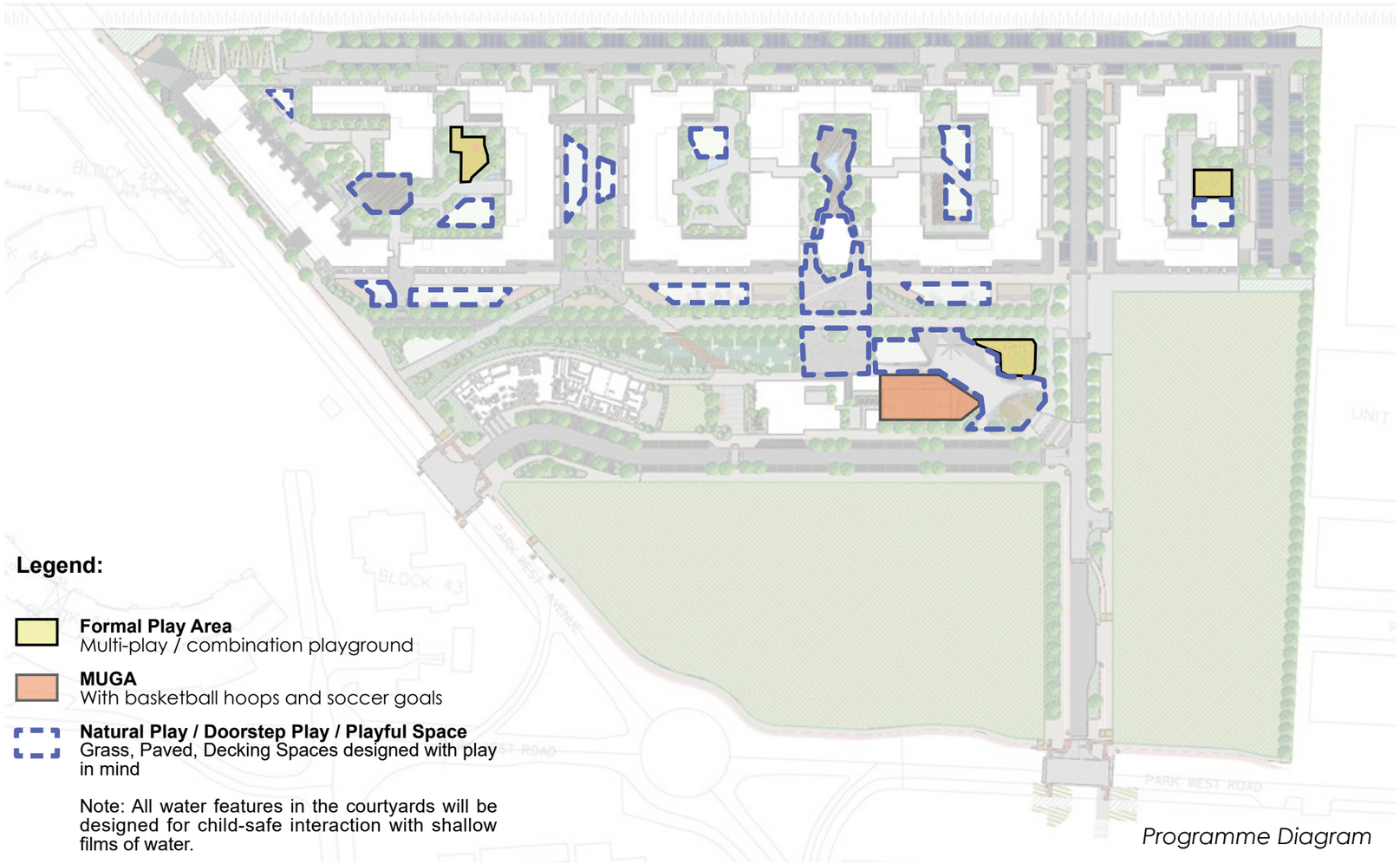
Open Space Category	Requirement	Provision under application
Public Open pace	9,402 sqm (10% of application site)	12,686 sq.m (13.5% of site)
Communal Open Space	4,698 sqm (apartment guidelines)	6,175sq.m (31% above requirement)
Private Open Space Please see Housing Quality Assessment by Darmody Architects for further details.	Minimum required: 1-Bed 2-Person Apartment: 5sqm (apartment guidelines) 2-Bed 4-Person Apartment: 7sq.m 2-Bed 4-Person Apartment: 9sq.m **TOTAL MINIMUM REQUIRED: 4,698sq.m**	Minimum proposed: 5-16.9sq.m (depending on unit type / position) 7-22.1sq.m (depending on unit type / position) 9.6-36sq.m (depending on unit type / position) *For the majority of units, the proposed area of private open space is in excess of the minimum standard.* **TOTAL PROPOSED: 6,859sq.m**
Green Buildings		
Green Roofs	70% min of flat roofs)	c.75% of roof area are proposed as intensive podium gardens at first floor level and extensive (native sedum / wildflower) roofs at roof levels.

Programme Diagram

Open Space Category	Requirement	Provision under application
Recreation		
Children's Play Space	661 sqm (apartment guidelines)	1,025 sqm
Play Units/Elements	N/A	6 no. pieces of multi-play / combination play proposed (subject to detailed design), as well as multiple doorstep play and natural play oppoortunities.
Active Units		Multi-Use Games Area 35m x 17m; with basketball hoops and soccer goals (subject to detailed design)

Play Strategy

There is 1025 sq.m of formal play provided with 3 structured play spaces within the scheme, plus several natural play elements distributed throughout. Informal and natural play is essential to the design, with opportunities for doorstep play and playful space with steps, mounds, changes in level throughout. The Design Standards for New Apartments (Department of Planning and Local Government, March 2018) recommends 200-400 sq.m of play for "scheme over includes 100 or more apartments with two or more bedrooms." This development surpasses this standard. The main play area is located in the plaza area and includes a MUGA as well as play area. Large and high play value, multi-activity play pieces are proposed at this stage, subject to detailed design post-planning, as would be usual for this type of development.



Legend:

Formal Play Area
Multi-play / combination playground

MUGA
With basketball hoops and soccer goals

Natural Play / Doorstep Play / Playful Space
Grass, Paved, Decking Spaces designed with play in mind

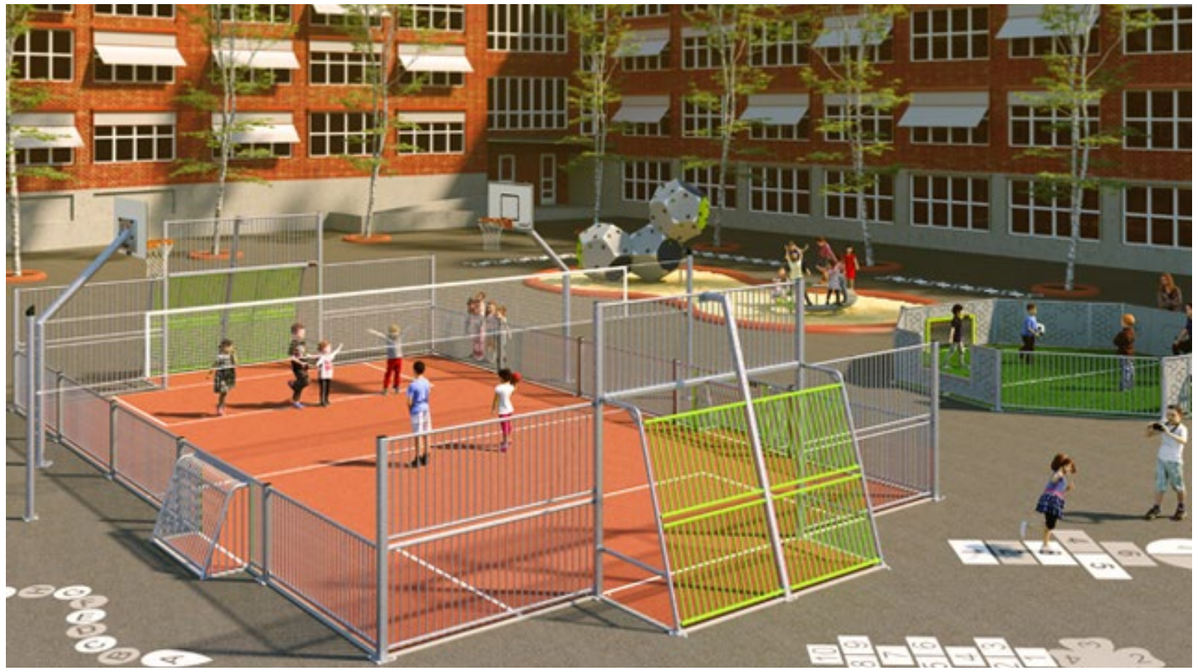
Note: All water features in the courtyards will be designed for child-safe interaction with shallow films of water.

Programme Diagram

Reference Imagery (left & middle): Playground integrated into plaza, with playfully designed space surrounding

Reference Imagery (right): Urban play space with multi-use units

Reference Imagery (left and middle): Simple natural play can be integrated into green areas; right: Urban play can be as simple as ground patterns



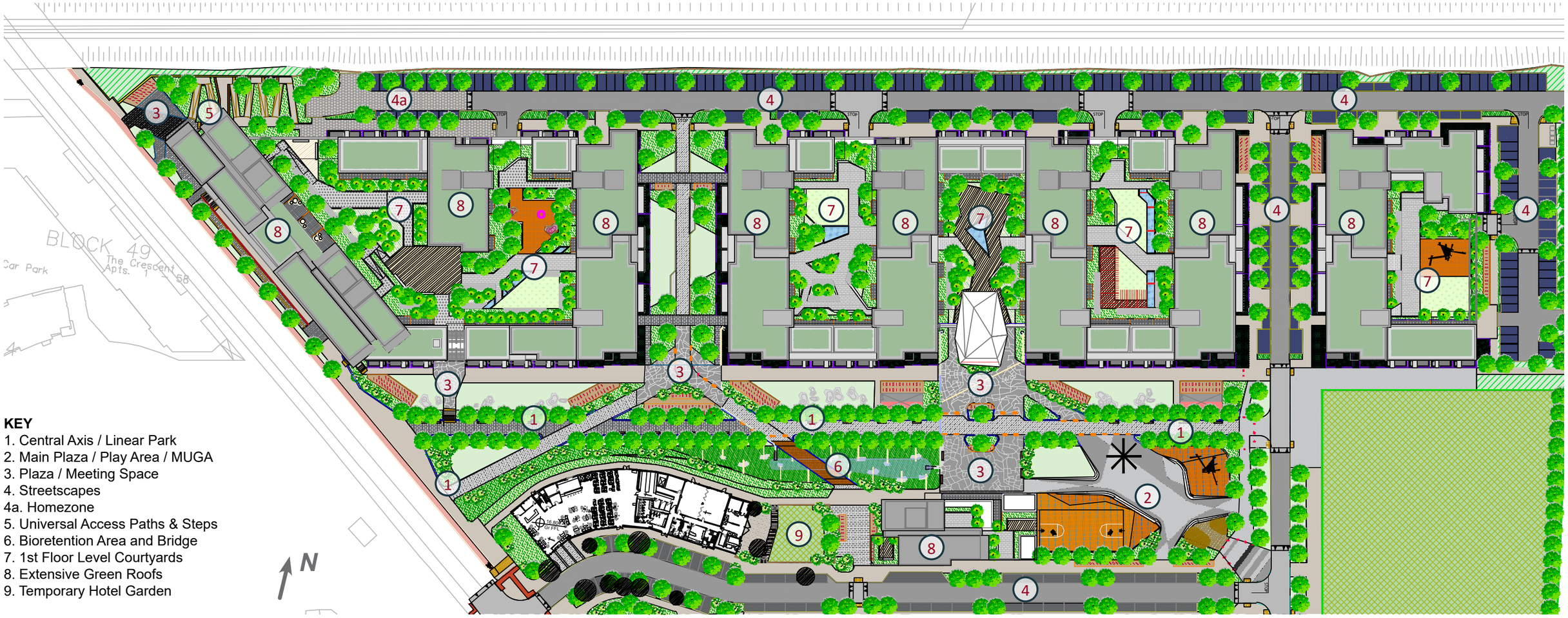
Reference Imagery: MUGA Multi-use games area

Public Open Space Design

The Dublin City Development Plan requires that 10% of the site should be public open space. Of the entire gross site, 9.402 ha, 10% equates to 9,402 sq.m. public open space. This proposed developed includes a total of 12,686 sq.m public open space, for a total of 13.5% public open space of the gross site. This provision includes the public open space for this application and future blocks within wider context (Site 6 in the LAP). The public realm includes a central linear park, entrance plazas, active and other play spaces, water/SuDs features, seating areas, and paths allowing clear movement through the site. The scheme is focused on a central linear park/axis which has pockets of unprogrammed open spaces unfolding off the main axis. The main axis has retaining walls with cantilever benches on both sides, reinforced with lines of trees. Main entrances and secondary paths break off the main pathway, each with unique paving and features within the spaces, and leading directly to Park West Avenue and the train station, prioritizing pedestrian amenity throughout.

High quality, customised paving and bespoke elements are proposed throughout the spaces in order to contribute to forming a distinctive new sense of place for this part of the city, which is still evolving its own culture and identity.

Towards the eastern end of the central park is a large plaza, which is slightly depressed (500-600mm), with universal access throughout. These areas are for intense communal and event use. The steps allow for resting or gathering adjacent to two play areas within the plaza, multi-use games area and general play area. These areas are juxtaposed with two raised open spaces, with vertical elements and/or seating, creating additional event or gathering areas.



KEY
1. Central Axis / Linear Park
2. Main Plaza / Play Area / MUGA
3. Plaza / Meeting Space
4. Streetscapes
4a. Homezone
5. Universal Access Paths & Steps
6. Bioretention Area and Bridge
7. 1st Floor Level Courtyards
8. Extensive Green Roofs
9. Temporary Hotel Garden

Main Public Open Spaces

Landscape Design Elements

Public Play/Active Space

There are multiple areas for play for different age levels throughout the Public Open Space, cumulatively, approximately 680 sq.m of public play and 1,271 sqm of unprogrammed open space. There are formal play areas in the form of a multi-use games area (MUGA) and structured play equipment, as well as pockets of informal open space and natural play areas dispersed throughout the public realm.

Focal Features

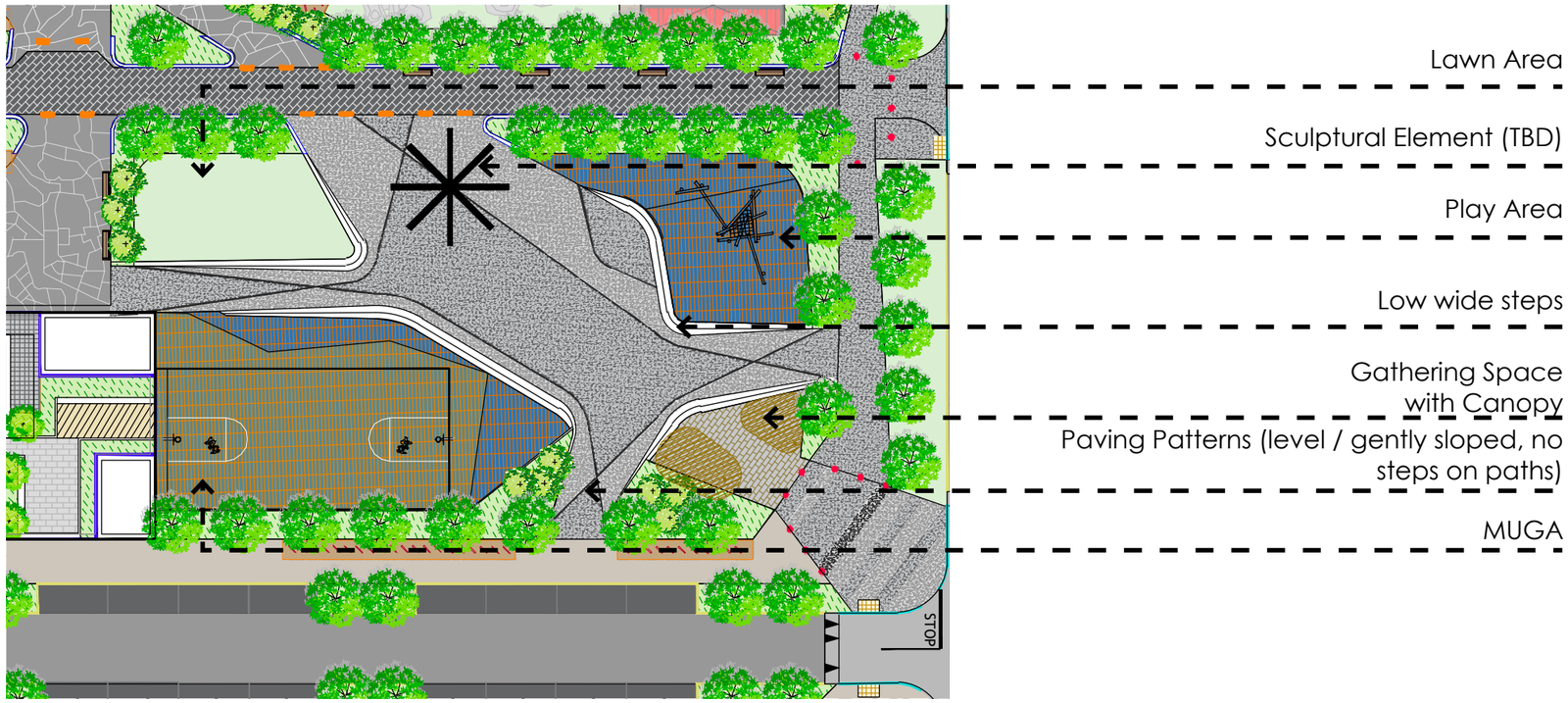
During design analysis, a focal point was revealed in the central plaza, allowing for a focal element to be incorporated into the design. This will take the shape of a piece of kinetic/ static art or interactive/passive element. This element will be selected or designed at detailed design stage, following planting and may be artist-designed or landscape architect-designed or a selected piece of art or artistic street furniture or lighting element.

Other feature elements include canopies, play pieces, specimen trees, and of course distinctiveness in the building architecture.

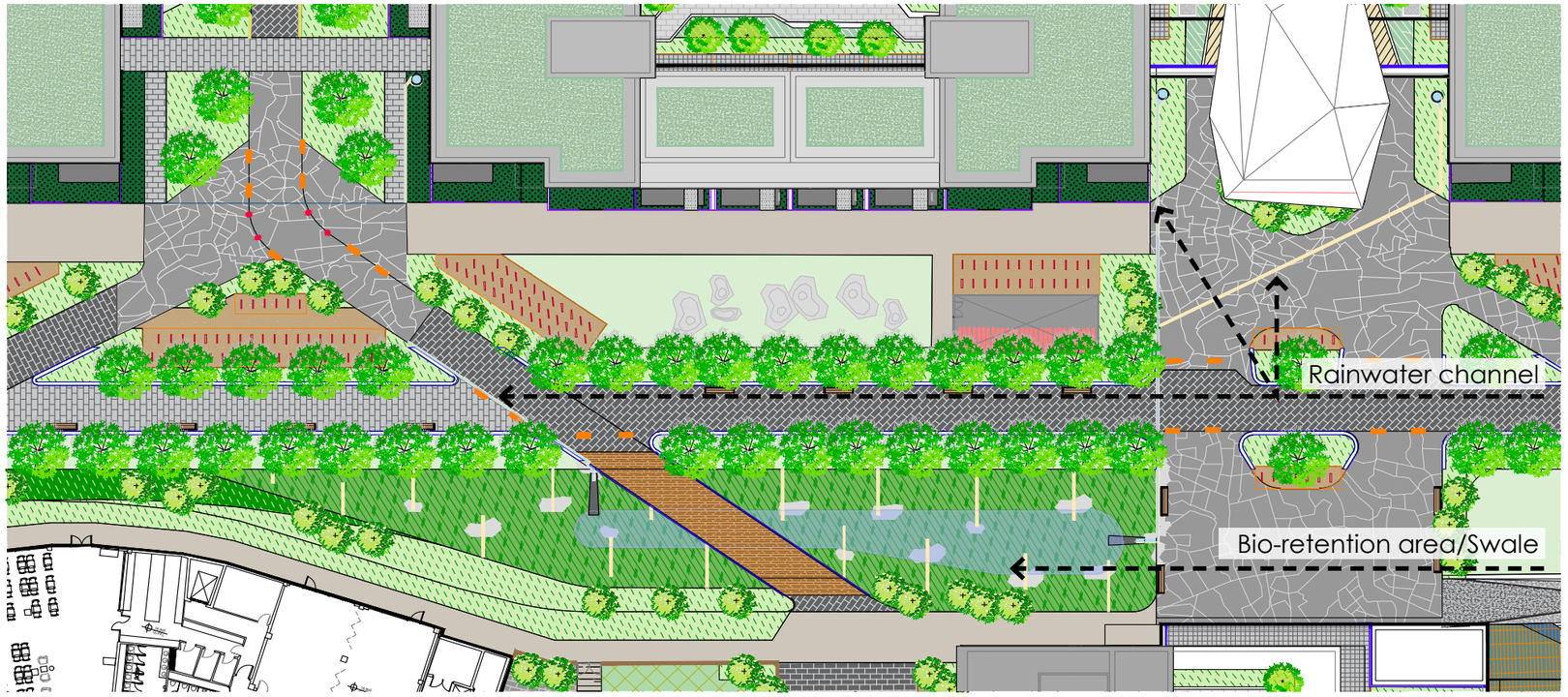
Sustainability, Topography, and Drainage

A large bio-retention area, with lush planting and natural elements, will buffer the open space from the existing hotel on site. A rainwater feature will run through grilled channels through the entrance plaza into the bio-retention area, making the process visible and activating the space. This area will not only manage stormwater but also provide native habitat and visual interest for the area.

As this is a bio-retention area there will not be permanent water present, so the design recognises this and includes lush planting suited to seasonal flooding as well as rocks and topographical forms that will reveal themselves and change dynamically as the water levels rise and recede.



Park Plaza: main gathering and active space



Central linear park and bio-attenuation feature, with plazas, cycle parking, natural play areas, etc.

Artist's CGI Impression of Western Entrence to the Development

Artist's CGI Impression of Public Play/Active Space

Access

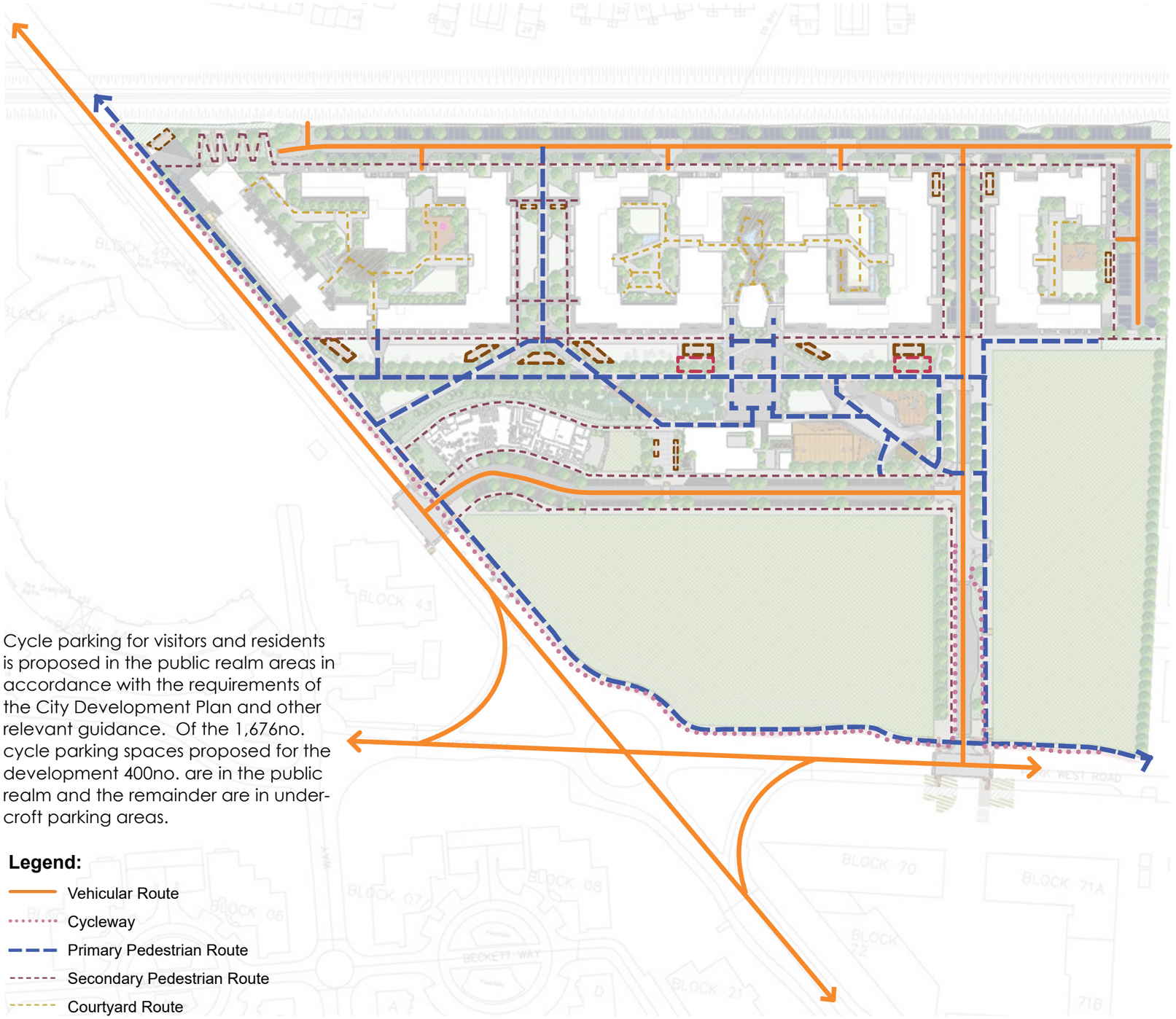
The proposed development prioritizes pedestrian and cyclist movement while allowing for necessary vehicular access through the site. Predicted patterns of movement and 'desire lines' were analysed as part of the design process and the resulting framework of pathways forms the basis of the layout and hierarchy of pedestrian and cyclist paths:

- Primary paths allow direct access to amenity spaces, main entrances and commercial units.
- Secondary paths allow for access to residential front doors, maintenance and lower use areas.

Vehicular access through the linear park space is permitted only for deliveries, loading/unloading, setdown and for emergency vehicles. Several techniques are utilized along this alignment to prevent unauthorized use and ensure that pedestrians and cyclists are prioritised and safe, including deflections, narrow carriageways, etc.

Artist's CGI Impression of Entrance Plaza to Block A-C

Cycle parking for visitors and residents is proposed in the public realm areas in accordance with the requirements of the City Development Plan and other relevant guidance. Of the 1,676no. cycle parking spaces proposed for the development 400no. are in the public realm and the remainder are in under-croft parking areas.



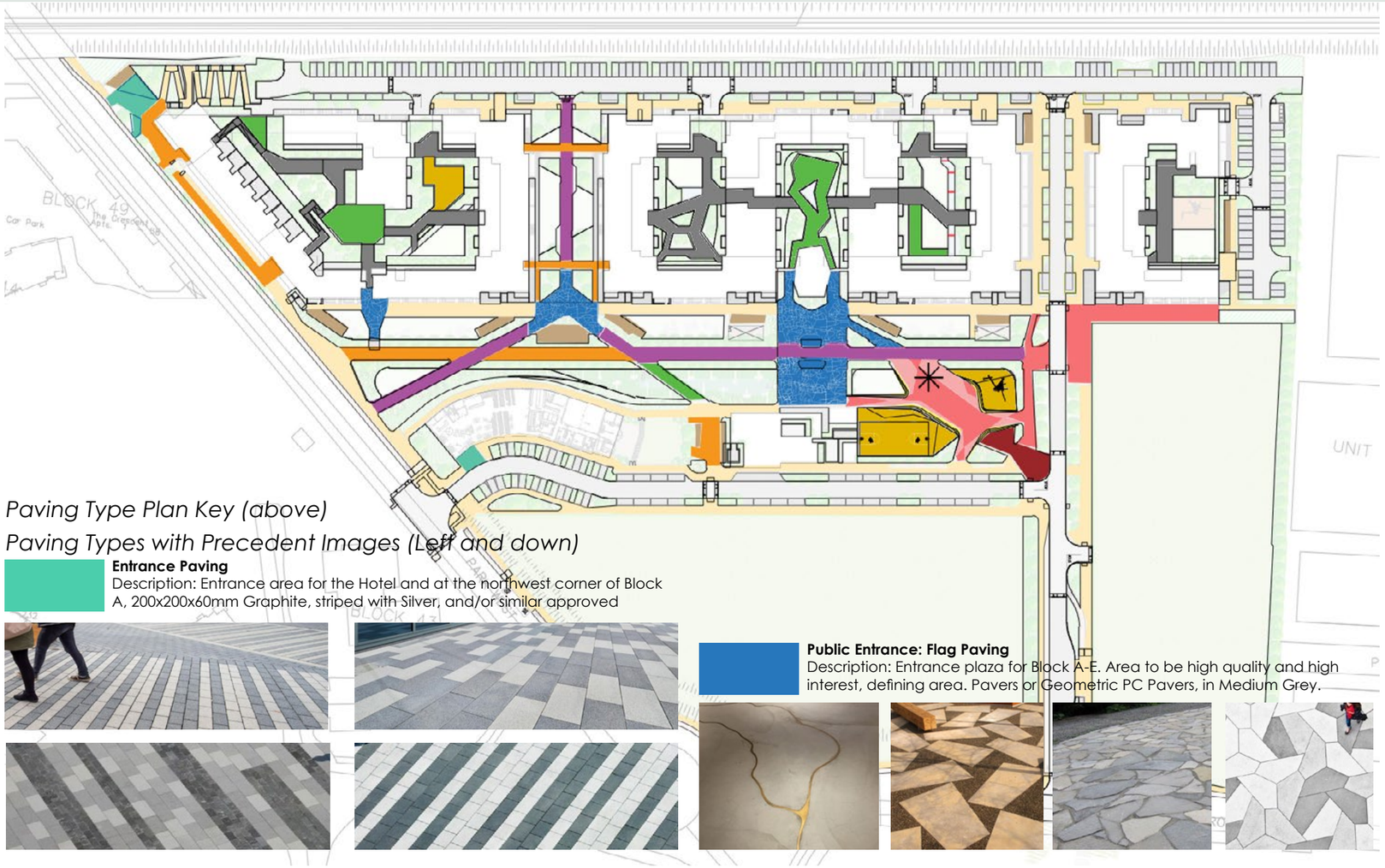
Circulation Diagram

Material

The landscape design proposes a rich palette of materials to further enhance the sense of place. Placemaking within the public realm will be reinforced by paving selection. Each area will be defined by the type of paving, colour, and pattern. Bespoke paving is to be deployed in the key spaces.

External surfaces are designed to minimise hazards or impediments to access or movement. Hard landscape surfaces are chosen for slip resistance and to be free draining.

The following is a sample palette of possible paving types for use across the scheme.



Paving Type Plan Key (above)

Paving Types with Precedent Images (Left and down)

Central Plaza Paving
Description: Central Space. Cement asphalt surface, grey tones aggregate, and/or similar approved

Central Plaza Entrence Paving
Description: stripe defining the shape and scale of the space.

Central Circulation Areas
Description: secondary central park routes; concrete Paving, Random Stretcher Bond, Grey Tones, and/or simillar approved

Podium Level Paving
Description: Communal Areas PC Paving and Central Hardscape Areas PC Paving. Anti Slip and Frost Resistant Courtyard Floor Tile.

Entrance Paving
Description: Entrance area for the Hotel and at the northwest corner of Block A, 200x200x60mm Graphite, striped with Silver, and/or similar approved

Public Entrance: Flag Paving
Description: Entrance plaza for Block A-E. Area to be high quality and high interest, defining area. Pavers or Geometric PC Pavers, in Medium Grey.

Decking Area
Description: Bio-retention bridge/boardwalk; composite decking, walnut brown, and/or similar approved. Podium level composite decking; light brown, and/or similar approved.

Cycle Parking Surface
Description: vor similar approved

Proposed Footpath/Shared Lane
Description: General Footpath area or shared surface. In-situ concrete, Brushed Finish (to Engineers Specification).

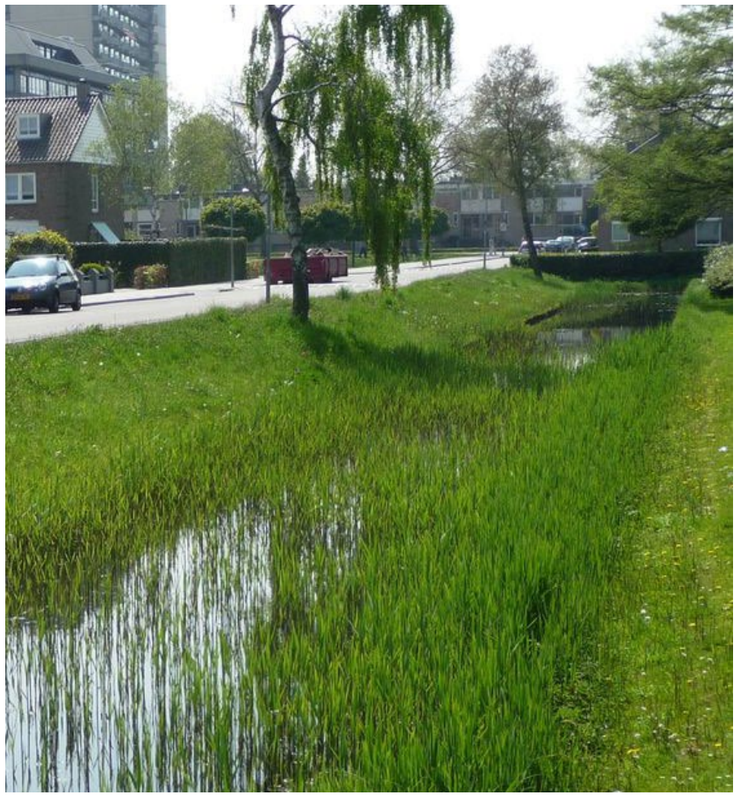
Play Area
Wetpour surface and/or Playsafe Mulch (Compliant wih EN 1177).

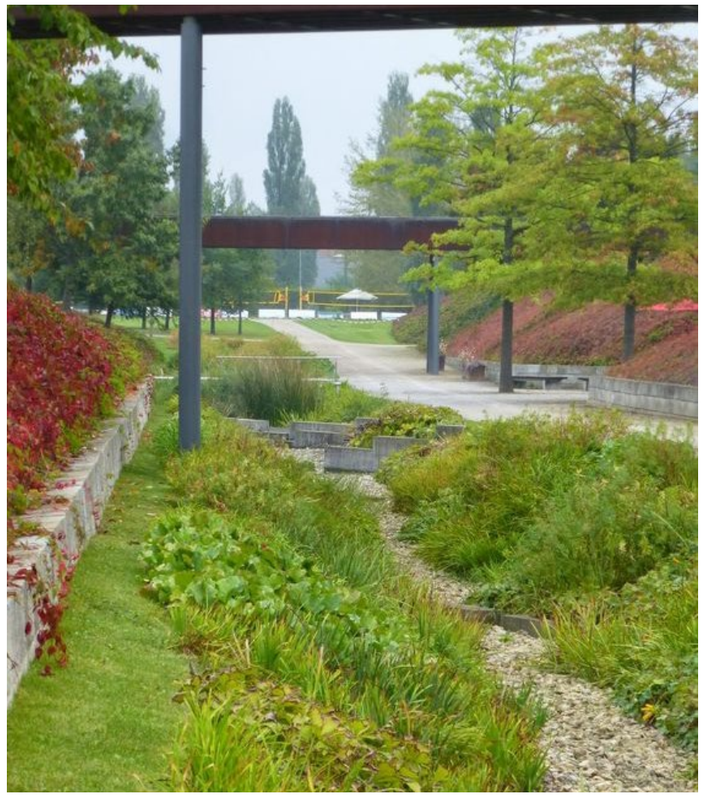
Green Infrastructure Strategy & Planting Proposals

Planting proposals also form a vital part of the strategy for the site, in accordance with City Development Plan objectives Dublin City Biodiversity Action Plan 2015-2020 (and Draft Biodiversity Action Plan 2021-26) and the All-Ireland Pollinator Plan. Green Infrastructure is a term that is used to describe the interconnected networks of land and water that sustain environmental quality and enhance the quality of our lives. The European Union's Biodiversity Strategy recognises the application of Green Infrastructure policies as a way to maintain biodiversity and ecosystems in the wider landscape. Green Infrastructure networks operate on many scales, from the national to local, and the protection and enhancement of these networks has the ability to positively affect communities into the future, especially in terms of climate change, sustainable development and spatial planning.

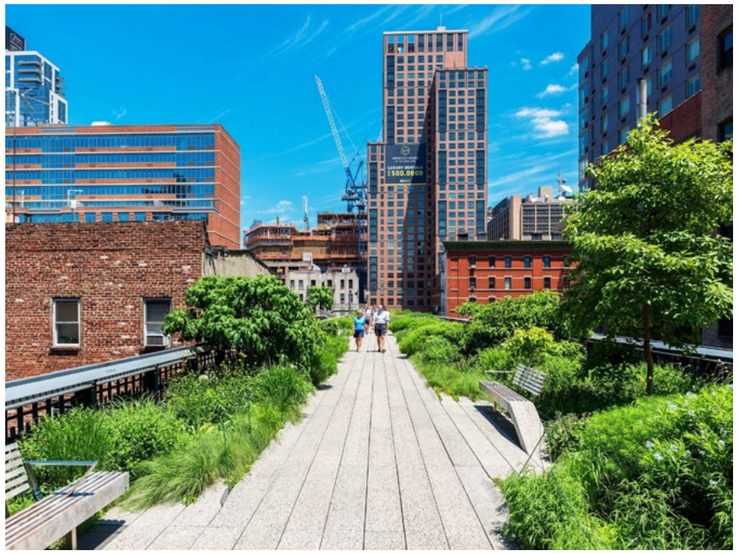
The main themes in considering Green Infrastructure are as follows: Biodiversity; Parks, Open Space and Recreation; Sustainable Water Management; Cultural Heritage; Landscape. This site at Park West brings many of these themes together and provides for a strong element of Green Infrastructure or perhaps an element of "Green-Blue" Infrastructure, with the substantial and visible SuDS features. In the wider landscape, there are areas of landscape and habitat notably the Grand Canal to the south. The proposals for the site will create linkages and stepping stones for some species, notably birds and insects, including pollinators and the planting proposals are intended to benefit these species.

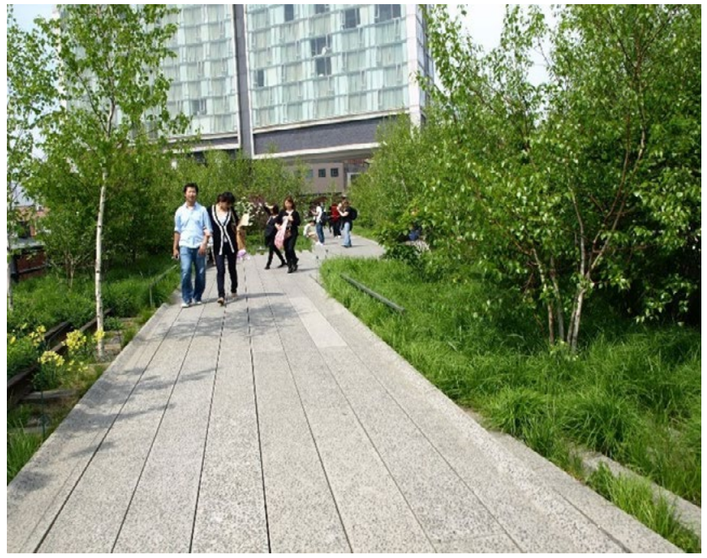
The planting in the scheme is intended to provide colour, texture, seasonality and all appropriate to the peri-urban environment. The planting also forms part of a green infrastructure strategy for the site which can see it deliver a significant improvement to the biodiversity and ecological value over the existing site. The plant palette mixes native plants and those exotic plants that are pollinator-friendly and do not pose a threat of becoming invasive in the future. Planting proposals will be in line with the recommendations of the All-Ireland Pollinator Plan.





Reference Images of bio-retention area, SuDs; Left: Schumacherstraat s'Hertogenbosch, Netherlands, Right: Volkspark Potsdam, Germany





Reference Images of contemporary schemes showing multi-stemmed, textured, informal planting schemes; The High Line, New York

Native plants would include the following:

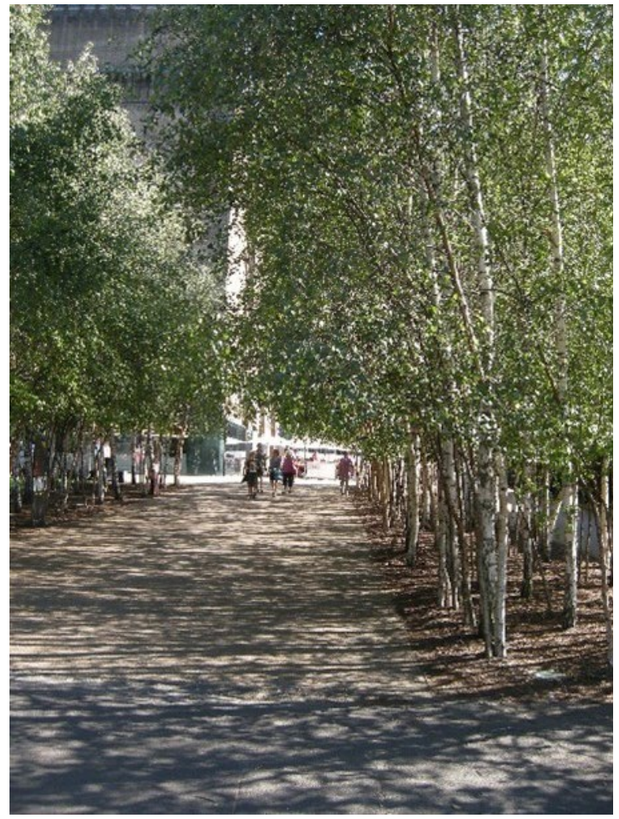
- Silver Birch (*Betula pendula*) – Single - or Multi-stemmed tree
- Hazel (*Corylus avellana*) – Multi-stemmed tree / Shrub
- Alder (*Alnus glutinosa*) – Feathered tree
- Oak (*Quercus robur*) – Single tree
- Sessile Oak (*Quercus petraea*) – Single tree
- Whitebeam (*Sorbus aria*) – Single - or Multi-stemmed tree
- Rowan (*Sorbus aucuparia*) – Single - or Multi-stemmed tree
- Aspen (*Populus tremula*) – Feathered tree
- Strawberry Tree (*Arbutus unedo*) – Multi-stemmed shrub
- Crab Apple (*Malus sylvestris*) – Multi-stemmed shrub
- Sweet Cherry (*Prunus avium*) – Single or Multi-stemmed tree / Shrub
- Holly (*Ilex aquifolium*) – Multi-stemmed shrub
- Willows – various *Salix* species as Multi-stemmed shrub
- Native rose species and honeysuckle will be included in boundary and hedgerow mixes
- Various shrubs, ferns and wildflowers

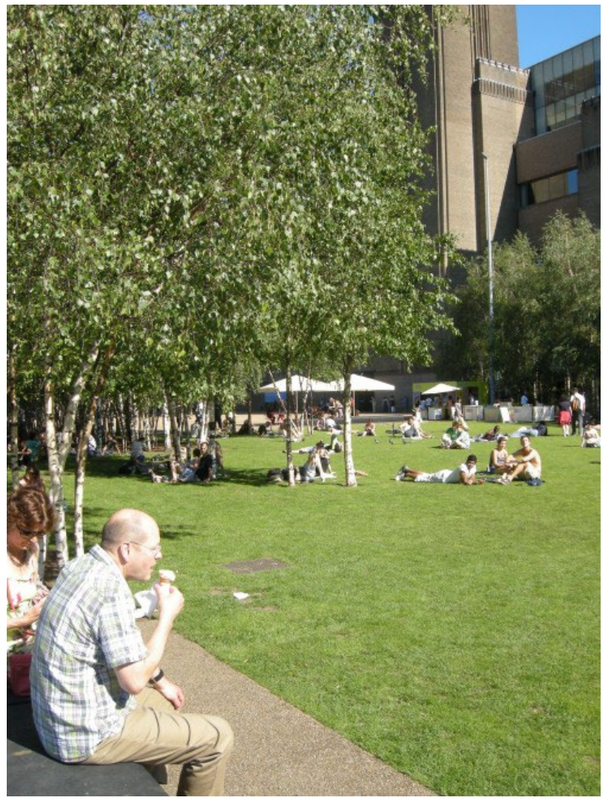
Non-native pollinators would include species such as:

- *Hebe* species
- Oregon grape (*Mahonia* species, spring flowering)
- English lavender (*Lavandula angustifolia*)
- False sunflower (*Heliopsis helianthoides*)
- European wand loosestrife (*Lythrum virgatum*)
- Common bistort (*Persicaria bistorta*)
- Water forget-me-not (*Myosotis palustris*)

The southerly aspect creates opportunities for a wide variety of plants and trees that can be grown successfully. Planting and raised planters are sited to maximise wind protection and will provide shelter locally and overall. Planting proposals have been developed with regard to the wind studies and mitigation measures recommended therein. Multi-stemmed and feathered trees (i.e. those that branch close to the ground) such as Birch (native), Hazel (native), Hornbeam, Alder and other selections are preferred for wind mitigation, and aesthetically (see below).

Tall, clear-stemmed standard trees are used primarily in avenue and more formal settings, where regularity and uniformity are part of the design intent. The contrast between the strong formal lines of avenue trees along the central open space and the more organic forms of the multi-stemmed





Reference Images of contemporary schemes showing multi-stemmed, textured, informal planting schemes; Left: Tate Modern Riverside Plaza

trees, shrubs and water feature with wildflower banks and boulders will make for an interesting visual composition.

At podium level, the proposed design utilises contemporary forms and materials including concrete and timber to provide raised planters and space above the podium for planting. The varied textures, colours and details of the plants will complement these forms, softening them and creating interest on a micro scale for the person sitting adjacent who can enjoy the flowers, the scent, etc. A contemporary example of this is at the entrance to the Tate Modern museum in London's Bankside, where the use of Birch trees in a variety of forms, planted naturalistically, creates a stunning contrast and complement to the building and plaza surrounding. Another example would be New York's High Line, where naturalistic planting at all scales creates a vibrant and dynamic foil to the linear and solid forms of the paving, planters, etc.

The variety of the proposed trees, shrubs, hedges, wildflowers and perennials proposed will add inherent visual interest and seasonality, whilst also providing biodiversity and ecology gains.

The public realm planting will be robust, low-maintenance planting which provides year-round interest. The planting will allow clear sight lines through the site, depending on the mounding and elevation of the space. Linear semi-mature tree planting will define paths and sight lines.

A variety of tree pit types are proposed in hard landscape areas, which will add to SuDS as well as provide large rooting space for root development and growth. Some use structural soils, some use a pavement support system, depending on the situation. Please see the landscape detail sheets, notably drawing no. 1757_PL_3_DD_04.

Bio-retention areas will have native planting integrated into the stormwater management, reflective of the predicted capacity. Screening planting along the base of the buildings is strong and structural providing an element of privacy to the ground floor apartments and a structural yet soft base integrating the development into the landscape.

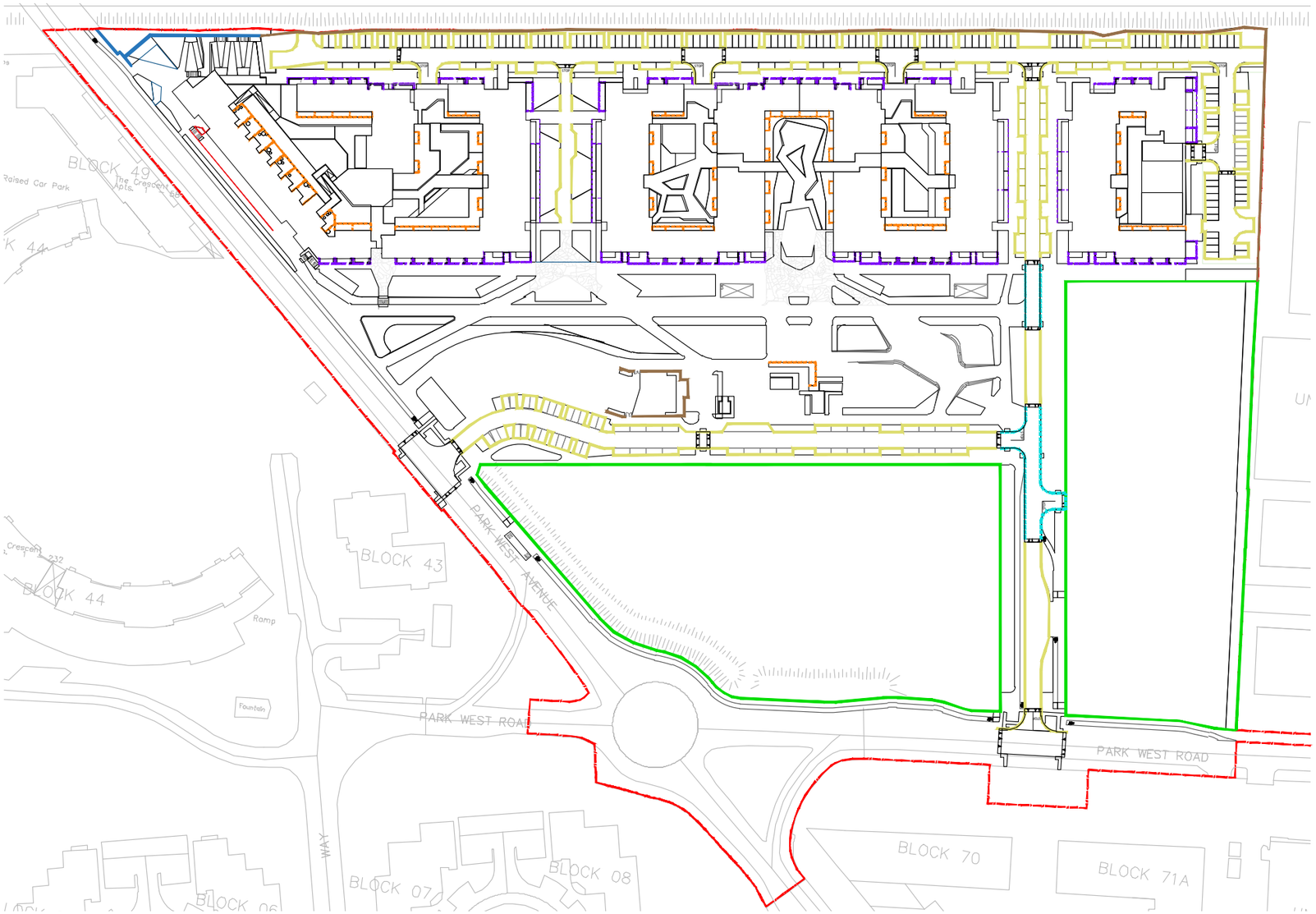
Indicative Reference Images: Selection of plants proposed for variety in texture, colour, etc.

Boundary Detail

The site is edged by the Dublin to Limerick/Waterford rail line to the north, an industrial complex to the east, and Park west Avenue and Road to the south and west. The site has a high railing and low woodland planting to the north and eastern boundary, preventing movement from the site to these areas and reducing the visual impact of these adjacent uses. Future phases within the development site (not included in this application) are similarly railed off. See 1757_PL_3_P_01.4 for more information.

The northern boundary is given particular consideration in the design. Of considerable benefit is the proposed undergrounding of an ESB cable and removal of some of the associated pylons along the northern boundary. The design looks to animate the street parallel to the railway with front doors opening onto an intricate and heavily planted streetscape with homezone areas and buffer planting. Car parking is integrated into the buffer space, with differentiation of paving and regular tree planting in large tree pits with structural soil.

At the north-western corner of the site, where the level differences are steepest, a series of steps and ramps are proposed for universal access. The boundary treatment of this area is a series of light concrete fencing panels with variations of textures to create additional visual interest along this boundary and ensure that it is bright and welcoming but also safe.



Legend:

Concrete Post Timber Fence
1.8m "Picture Frame" Panel, with climbers, Concrete H-Post

Bar Railing Fence
Powder-coated, 1.8-2.3m metal railing, and/or similar approved

Front Garden Railing
1.2m Estate Railing, powder-coated, and/or similar approved

Proposed Wall
Concrete wall with 1.1m railing on top, depending on location, and/or similar approved

Retaining Wall
Concrete Retaining Wall with Pattern, and/or similar approved.

Kerb
Slipform Concrete Kerb, and/or similar approved

Flush Kerb
Flush Concrete Kerb, and/or similar approved

Courtyard Estate Railing
1.2m Estate Railing, powder-coated, and/or similar approved

Boundary Treatments

Artist's CGI Impression of the Northern *Boundary View*

Artist's CGI Impression of the North-western *Boundary View from Entrence Plaza*

Artist's CGI Impression of the North-western *Boundary View from Outside the Development*

Communal Amenity Areas

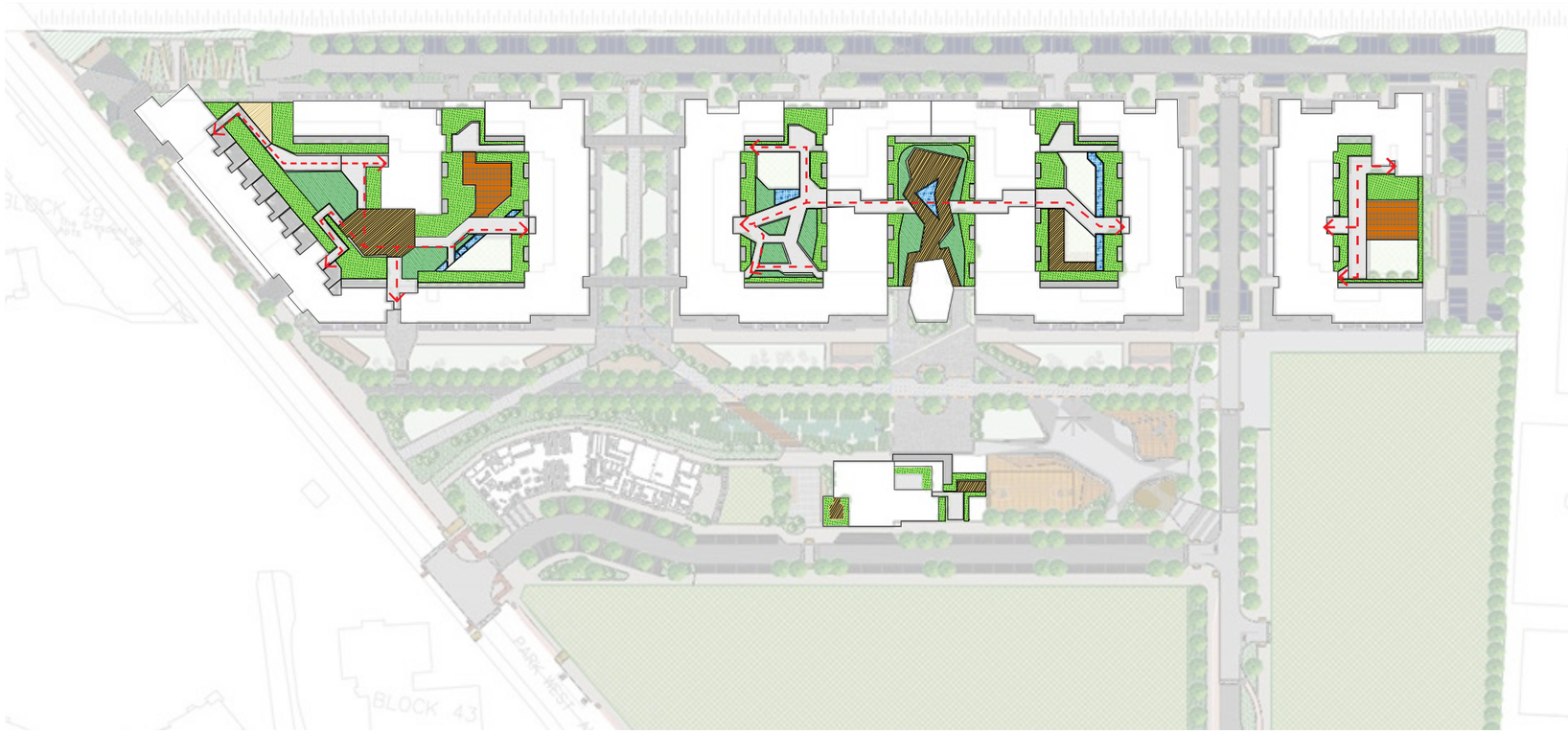
Several courtyards at podium level will provide residents with private shared amenity space for relaxation, gathering, and play. Overall, 4,795 sq.m communal amenity space is required, in accordance with the Design Standards for New Apartments (2018). The scheme provides 7,574 sq.m of communal space; 3,332 sq.m. within Block A-C's courtyard and roof terrace, 3,084 sq.m. within Block D/E's courtyard, 898 sq.m. within Block F's courtyard, and 260 sq.m. within Block G's roof terraces. Each courtyard has planted buffers between the central space and courtyard level apartments.

Access

The courtyards will be accessible to residents from the central cores. More intense/larger gathering space are providing at these entrances and adjacent to internal communal use areas.

Play

There are large structured play areas in Block A-C and Block F courtyards, approximately 332 sqm. The areas include play safe surfaces with a play elements and low mounds. The spaces are edged with a series of low mounds and treeline, allowing for buffering and sound dampening from the blocks and other courtyard spaces while maintaining a visual connection. An area for more active play is located in the central public realm adjacent and in close proximity to the other blocks, See Public Realm: Play for additional details.



Legend:

- Residential Buffer Planting
- Gathering Space
- Ornamental Planting
- Play Space
- Water Feature
- Circulation

Courtyard Programme

Material

A simple palette of hard landscape materials is proposed for the communal areas of open space. Raised planters will be faced with materials of a similar palette of the surrounding buildings. External spaces are designed to allow ease of movement, drainage, and safety. Surface material will dampen sound, especially the decking, wet pour, and artificial grass.






Courtyard Material Precedent Images

Water Feature

Water features are also proposed in the courtyards to animate the space. These will be shallow, with an emphasis on water movement and gentle sound. They will be designed to be safe for use in areas with unsupervised children, with no areas of standing water, but they will be tactile and add to the play value of the spaces.

Artist's CGI Impression of Courtyard Water Feature

Planting Proposals Summary

In the courtyard, the planting along the base of the buildings is strong and structural providing an element of privacy to the ground floor apartments and a structural yet soft base integrating the development into the landscape.
General planting within the Courtyards will provide year-round interest and be appropriate to the receiving environment – shade planting, exposure-tolerant and lower maintenance species will be used where appropriate. A reliance on form and texture will be the focus, with occasional areas of colour and form adjacent to seating, intersections and particular points on the pathways.


Courtyard Planting Precedent Images

SPECIFIC RESPONSES TO STAGE 2 CONSULTATION (ABP 308937-20)

AN BORD PLEANÁLA PRE-APPLICATION CONSULTATION OPINION

The following extract from the above Opinion is of most relevance to Landscape Architecture, with the landscape architect's response in italics below:

Updated landscape plans delineating the public open space and communal open space and including useable space for play provision necessary to comply with Section 4.13 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities.

Please see Page 7/8/9 of this report and the updated landscape plans submitted with the application.

ADDENDUM B TO AN BORD PLEANÁLA REPORT ON STAGE 2 - Report from Parks & Biodiversity - The following extracts are taken from **Section 3. Key issues**, with the landscape architect's response in italics below:

3.1Public open space

Please see p. 8 of this report for the requested table.

A masterplan layout including the remaining site shall be include in the report to show intended open space and connections.

Please see landscape drawings and diagrams presented throughout this report.

The key east-west spine shall have a high standard materials finish, including the use of natural stone. The position of the artwork sculpture should be considered for location on the spine as a visual landmark and attraction to connect to the plaza.

High quality materials will be included in the spaces, as described earlier in the report (see p.15; artwork position will be finalised post-planning and may depend on the precise nature of the piece which is selected. It is important to give flexibility to the artist, to the greatest extent possible under proper planning processes, to enable a meaningful art piece. The thinking behind the positioning proposed is that it will be glimpsed through the avenue trees along the main spine, but will come into full view as one approaches and enters the plaza.

The DCC public art office may be contacted to liaise on appropriate procurement of public art which shall be of high quality.

Appropriate consultation on artworks will be carried out post-planning.

3.2 Private/communal open space: The potential to enlarge private ground level patios (indicated below) should be reviewed so that residents have more useable space. Review ground level privacy buffer planting/screens at entrances.

All private patios at ground level exceed the minimum required under the apartment guidelines and are often double or triple the minimum required.

3.3 Boundaries: Further clarity on proposed boundaries are required. Post & rail proposals are easily crossed and would have issues for child safety on rail corridor and industrial area sides. The proposed boundary around the temporary hotel boundary shall be upgraded to secure railing to improve its visual appearance.

Detailed plans, boundary treatment details and descriptions of boundary treatments are provided, see Drawing nos. 1757_PL_3_DD_03_IFP and page 19 of this report. Secure Fencing has been included around the boundary of the temporary hotel landscape treatment.

3.4 Green roofs: A green roof plan shall be presented in the landscape report. Green roof should extend to at least 70% of all flat or gently sloping roofs.

Intensive green roof podium gardens are proposed at first floor level across almost all of the available area. Extensive native Sedum and wildflower roofs are proposed at upper levels.

The amount of coverage of green roof equates to c.75% of the total roof area.

3.5 Play spaces: The play strategy shall include play areas for each communal courtyard for

younger children and a destination play area within the plaza area.

See p.9 of this document and the submitted landscape plans detailing the provision of play areas and natural play opportunities built into the design. There are informal play spaces in all courtyards and a destination play space in the plaza area.

3.6 Undeveloped sites and phasing: A strategy for temporary greening and use of undeveloped sites and development sites which are phased without construction for over 12 months should be presented.

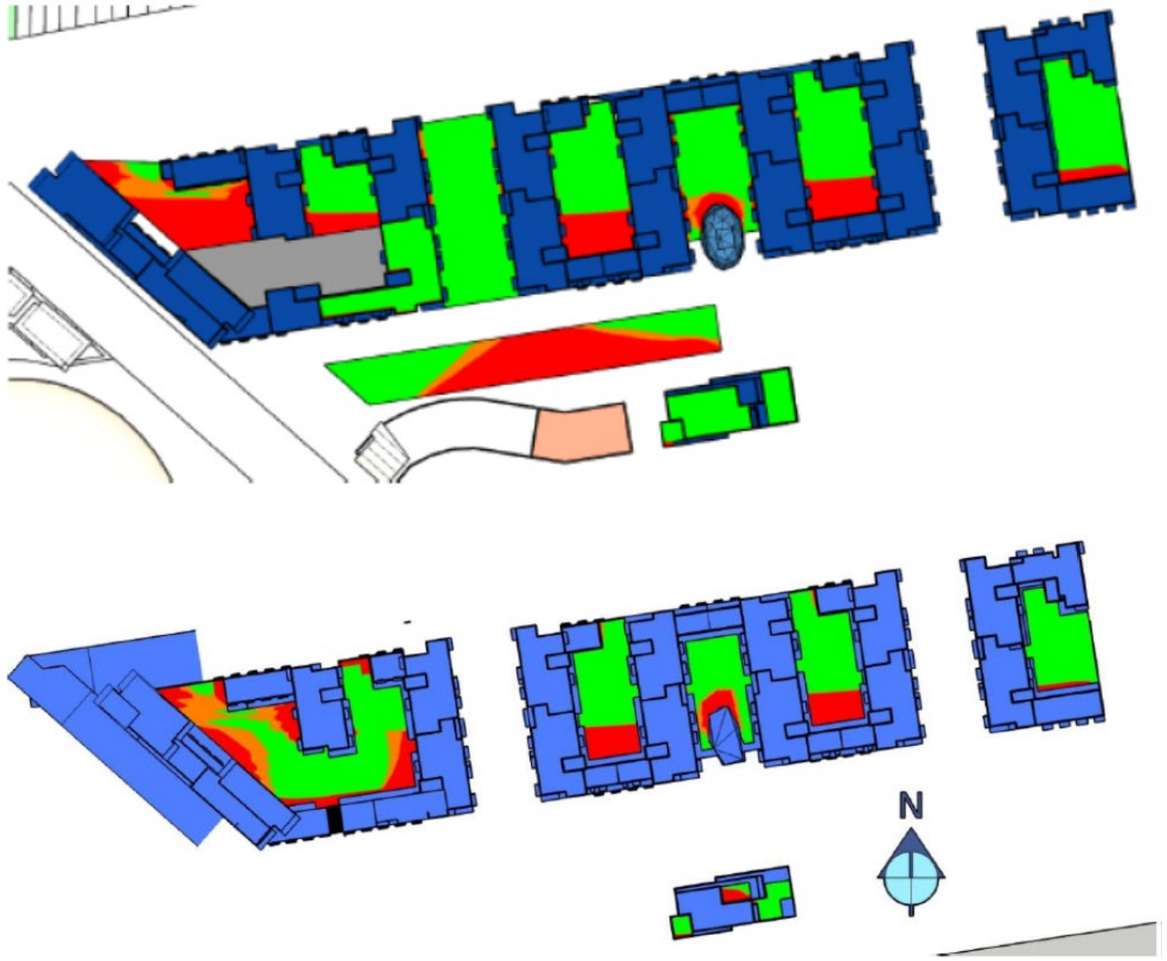
The undeveloped sites within the red line will be fenced off with a metal railing and managed for wildflower and natural regeneration of the brownfield areas, as shown on the landscape plans.

3.7 Sunlight/Shadow assessment: the impact of courtyard layout and building height to the south of the cortyard is indicated on the plan below with areas in red not reaching the BRE standard. Height reduction options to southern blocks should be assessed to improve daylight to inner courtyards. Further clarity is required on the Block A/B assessment. The assessment is required for all the application site external areas which shall also be zoned into communal/ public/private open space.The master landscape plan should be reviewed with regards to the final sunlight/shadow assessment (as shown on the right side of this page).

3.8 Biodiversity:

Please refer to the EIAR Chapter 4 Biodiversity for the full ecological assessment. Any mitigation measures recommended therein have been factored into the landscape design.

This Landscape Design Statement includes information on biodiversity insofar as it relates to landscape design, and inputs from the Ecologist have been taken on board. Whilst there are no specific mitigation measures deemed necessary, biodiversity enhancement planting including native planting and planting for pollinators is fully described on p.16-18. As described therein, planting proposals are informed by reference to policies including Dublin City Biodiversity Action Plan and All-Ireland Pollinator Plan.



Above: Stage 2; Below: Current Stage 3 Proposal.
Each courtyard reaches the minimum recommendation of 2h sunlight on 21st March.

murray & associates
landscape architecture

OUTLINE SPECIFICATIONS
for
SOFT LANDSCAPE WORKS & LANDSCAPE MAINTENANCE

for

Residential Development (SHD) at

Park West Avenue and Park West Road, Park West, Dublin 12

CLIENT:

Greenseed Ltd.

December 2021

murray & associates
landscape architecture

16 The Seapoint Building
44-45 Clontarf Road, Dublin 3
Tel: 01 8540090

mail@murray-associates.com
www.murray-associates.com

Member of the Irish Landscape Institute

CONTROL SHEET

Project No.		**1757**		
Project Name		**Residential Development (SHD) at Park West Avenue and Park West Road, Park West, Dublin 12**		
Filename:		1731_Landscape Specification_Planning.docx		
Document Title:		**Outline Specifications for Soft Landscape Works & Landscape Maintenance**		
Rev. No.	Issue Status	Date	Prepared By	Checked By
0	PL	14/12/21	HT	MB

TABLE OF CONTENTS

1 SPECIFICATIONS FOR SUPPLY OF NURSERY STOCK

1.1 Supply of nursery stock:

The nursery stock material will be delivered following consultation between the employer's representative, landscape Contractor and the selected nursery. It is intended to serve notice of delivery by means of phased orders at least two months prior to commencement of the dormant season in November of that year. Delivery will be at all times by means of covered vehicles, and all plant material will be clearly labelled. 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

1.2 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
2+2 2 Year old seedling lined out for 2 years
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
CG / c/g Containerised plant
gt. Girth
ht. Height
RB / r/bRootball
BR / b/rBareroot
MS Multi-stemmed
Ftd Feathered trees

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: 1992 entitled "Nursery Stock- Trees and Shrubs"
B.S. No. 3936: Part 4: 1984 entitled "Nursery Stock- Forest Trees"
B.S. No. 3936: 1992 entitled "Specification for Nursery Stock"

1.4 Tree and Shrub 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. All trees shall be clearly labelled.

1.4.1 Standard Root-Balled Trees

Trees shall have a clear stem from ground level to the lowest branch and a total height as appropriate to the girth size, and the minimum girth as specified shall be measured at 1.0m above ground level– all as required under BS3936: Part 1. Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. All nursery stock trees shall have been undercut and provided with a rootball of min. diameter appropriate to girth and height. All rootballs shall be wire and hessian-wrapped.

1.4.2 Multistem Trees - Rootballed

Multistem trees shall have a minimum of 3no. stems originating from or near ground level (<0.3m) and be of reasonable bushiness and health, with a well grown root system and a total height as specified on the drawings and schedules. Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. All rootballs shall be wire and hessian-wrapped. All multistem trees stock trees shall have been undercut a minimum of 3no. times and provided with a rootball of sufficient size and diameter to enable healthy transplanting and successful establishment and growth. All rootballs shall be wire and hessian-wrapped.

1.4.3 Container grown Shrubs, Ferns, Grasses, Perennials, Bamboo, Hedging

Containerised Shrubs and Climbers 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 labelled. Shrubs shall not be pot bound or with girdled or restricted roots. Shoots and aerial parts shall be free of disease, and/or damaged leaves or shoots.

1.4.4 Hedging Stock – Bare-Root

Hedging stock shall be of size specified in the schedules, with several stems originating from or near ground level, with reasonable bushiness, healthy, vigorous and with a sound root system. Shoots, roots and aerial parts shall be free of disease, and/or damaged leaves or shoots. 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 clearly labelled and wrapped in polythene from the time of lifting until planting to conserve moisture. Shoots, roots and aerial parts shall be free of disease, and/or damaged leaves or shoots.

1.4.5 Hedging Stock – Rootballed

Hedging stock shall be of size specified in the schedules, with several stems originating from or near ground level, with reasonable bushiness, healthy, vigorous and with a sound root system. Shoots, roots and aerial parts shall be free of disease, and/or damaged leaves or shoots. Such hedging shall be provided with a rootball of sufficient size and diameter to enable healthy transplanting and successful establishment and growth. Rootballs shall be hessian-wrapped only for any plant under 1m in height.

2 SPECIFICATIONS FOR CARE OF NURSERY STOCK

2.1 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.

2.2 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.

2.3 Inspections

The Employer's representative will inspect the hardy nursery stock during the execution of the works. **Only plants selected and approved in the landscape contractors selected nursery will be accepted on the site**.

2.4 Delivery and heeling in

All plants will be delivered on a phased basis as called up in advance in agreement with the Employer's representative and the appointed Landscape Contractor. In the event of the Employer's representative being dissatisfied with the care and attention given to the stocks, following heeling-in or arrival on site, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures. Any damaged plants must be replaced by the Landscape Contractor entirely at his own expense.
The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape contractor. No responsibility for the maintenance of stock delivered to site will attach to the employer whilst stock is protected on site, even if the stock requires protection beyond the normal planting season.

3 SPECIFICATIONS FOR SITE OPERATIONS

3.1 Setting out:

Setting out shall be in accordance with site meetings with the Employer's Representative, and the drawings listed in the preliminaries. No planting works shall take place when the soil /fill is in a waterlogged condition or the ground is frozen. 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 Employer's Representative, 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.

3.2 Earthworks, Soil and Grading

3.2.1 Stripping and storage of existing soil on-site

All soil removed during grading works is to be placed in storage bunds on-site. Topsoil must be stripped separately from subsoil for re-use in landscape works and must be fit for purpose. Topsoil would be defined as soil that has a high content of organic material, usually corresponding to the 'O' and/or 'A' horizon of the soil profile. Subsoil would be all mineral soils that do not have a substantial organic component. Where the difference between topsoil and subsoil is unclear, consult the Employer's Representative.

Subsoil that is excess to fill requirements is to be stored on-site in a designated location, to be agreed with the Employer's Representative. Subsoil shall be stored in stable mounds with side slopes of gradient no more than 1:2 and an overall height of no more than 2m. Mounds to be seeded with wildflower seed as per clause 3.3.3.

Topsoil shall be stripped using a tracked vehicle to avoid subsoil compaction. Avoid tracking over or compaction of the topsoil. Topsoil should be stripped and dumped to form the berms using the dump and back-actor method. Double handling of topsoil is to be avoided. Topsoil that has been compacted shall be removed off site and replaced at the contractor's expense.

Topsoil shall be stored in stockpiles of dimensions no greater than 10m long x 5m wide x 0.5m high, such that a long, narrow and low berm is created to preserve the intrinsic qualities (structure and soil life) of the topsoil whilst in storage. The topsoil shall be loose tipped to create the berm and lightly compacted with the back of a digger bucket to create a degree of compaction suitable for storage, with side slopes of gradient no more than 1:2. No machinery shall be run over the soil berm. Berms shall be seeded with grass seed as per clause 3.3.2.

3.2.2 Subsoil

(a) Supply of Subsoil
Existing subsoil shall be used for all grading works.
Imported subsoil – if required - shall be sourced from a reputable source and be free of waste, chemicals, large stones, builder's rubble and any other detritus.

(b) Formation of Slopes/Mounds
Subsoil to be used to form even slopes or mounding to contours shown on drawings. Subsoil to be formed to smooth contours to 150mm below finished levels indicated on drawings, where the area is to be grassed or 300mm.

(c) Formation of Grassed Areas
Subsoil to be graded accurately to contours / levels / falls / crossfalls shown on drawings.

3.2.3 Topsoil

(a) Supply of Topsoil
Existing topsoil may be used for all grading and planting works, if it complies with the following specification, which would also apply to imported topsoil, as required. It is expected that imported topsoil will be required for all planting areas.
Topsoil shall be sourced from a reputable source and be free of waste, chemicals, large stones, builder's rubble and any other detritus. Topsoil shall have good structure, be friable, fresh and free-draining with at least 20% organic content. Imported topsoil shall comply with BS3882: 1994, and shall be free draining sandy loam, clay or other approved. It shall be free of stones over 40 mm diameter, and stones over 10 mm diameter shall not exceed 5% by weight. It shall be free from subsoil, sods, roots of trees and shrubs, and rubbish. Topsoil shall be from the original surface layer of grassland or cultivated land, to a maximum depth of 200 mm. Soils from woodland, heathland, bog or contaminated land will not be acceptable.

(b) Removal of topsoil:
In areas to be regraded, all topsoil should be stripped and stored as per following clauses.

(c) Weather and Soil Conditions
All work involving topsoil shall not be carried out, unless the Employer's Representative permits otherwise: Where areas have been exposed to a cumulative rainfall exceeding 60mm over the preceding 28 days measured at a point approved by the Employer's Representative; or

- Where soil moisture content is wetter than the Plastic Limit (PL) of the soil less 3%. The PL of the soil can be assessed in the field as the minimum moisture content at which the soil can be rolled and moulded into a thin thread approximately 3mm in diameter without breaking or cracking and in a laboratory according to BS 1377:Part 2.
- When heavy rain is falling;
- During periods of severe frost when the soil is frozen. Handling frozen soil will cause damage to the soil structure.

(d) Topsoil Spreading
Topsoil shall be moved and spread only in dry weather. Before topsoiling, remove all stones, rubble and rubbish over 75mm diameter from the surface of the subsoil formation. Dig out any areas polluted by oil or chemicals and make up with clean soil. Loaders shall load from the base of the soil storage berm only. Placement of soil should be carried out using a tracked vehicle to avoid subsoil compaction. Reinstated areas of topsoil shall not to be tracked over. The topsoil shall be allowed to settle to a thickness of 300mm and the contractor shall make full allowance for such settlement in applying the topsoil. Uneven areas shall be topped up as necessary.

(e) Topsoil Depths & Provision
The following depths should be provided for topsoiled areas:

(i) Grassed Areas: 150mm
(ii) Bare-root planting: 300mm
(iii) Shrub planting: 450mm
(iv) Tree planting: Pit to specified size, depending on size of tree (see relevant Clauses)

(f) Grading
Topsoil to be graded accurately to contours / levels / falls / crossfalls shown on drawings. Glazed / compacted areas of subsoil to be roughened or ripped as necessary. (Drainage to be installed where necessary to Engineer's specification.) Any compacted areas to be ripped after placing of soil.

(g) Compacted areas
Any areas identified as compacted following completion shall be deep ripped and re-graded or re-soiled as necessary, to ensure a free-draining soil gradient and to avoid anaerobic conditions developing in the topsoil.

3.2.4 Surface cultivation
Surface cultivation will consist of ploughing or rotovating the topsoil to a minimum depth of 450mm over shrub areas or 150mm over grass areas. Care to be taken to ensure that the subsoil is not brought to the surface. It shall then be worked to reduce the topsoil to a fine tilth. After cultivation, all debris, perennial weeds and stones over 25mm in any dimension are to be removed off site.

Final grading is to be carried out to ensure the true specified level and slope and to avoid minor ridges, dishing or other depressions where water may collect.

Unless otherwise stated, finished levels of grass and shrub planting areas will be 50mm above adjoining paving or kerbs, retaining wall copings, manhole covers etc. and levels will be arranged to give gentle falls for drainage and to avoid ponding hollows. Any area unduly compacted during the work of grading will be loosened by forking or harrowing. The use of heavy rollers to roll out mounds will not be permitted.

Unless otherwise stated, finished levels of topsoil, after settlement, to be:

1. 50mm above adjoining pavements and kerbs
2. 300mm higher for shrubs than for adjoining grass areas
3. married in with adjoining soil areas
4. all stones above 50mm diameter to be removed off site by the landscape contractor.

3.3 Seeding:

3.3.1 Amenity Grass Areas
Fine cut areas to be sown with Coburns 'Greenlawn' Grass Seed Mixture as detailed below or equal at a rate of 40g/sq.m together with fertiliser 10:10:20 at a rate of 50g/Sq.m

15% Dwarf Perennial Ryegrass
15% Dwarf Perennial Ryegrass
20% Dwarf Perennial Ryegrass
25% Strong Creeping Red Fescue
20% Chewings Fescue
5% Browntop Bentgrass

4 SPECIFICATIONS FOR PLANTING OPERATIONS

4.1 Tree Support:
All multistemmed trees shall be anchored by means of root ball guying. Rootball is anchored by a timber frame (or equivalent support system – e.g. Platipus system) located around the top surface of the rootball, which is fastened by wires (4mm galvanised cable guying wire) to 'dead man' anchors, kerbstones or timber beams located below the rootball.

4.2 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. All trees to be double staked with crossbar 100x25mm securely attached to uprights with galvanised nails. Stakes shall be round, 1.8m long, 75mm in diameter. Stakes shall be pointed at the butt end. Set stakes vertically in the pit and drive before planting. Drive stake with a wooden maul or cast-iron headed drive. Sledgehammer should not be used. Stakes shall be driven into the excavated planting pit to a depth of 1000mm.

4.3 Tree ties:
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 – 150cm

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.

4.4 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.

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

4.6 Watering / Fertilisers:
All trees and shrubs shall be soaked in water for one hour prior to planting. Fertilisers shall conform to BS 5581: 1981. Fertiliser must be mixed through and incorporated into the base of the planting hole and covered with soil in order to avoid roots of plants coming in direct contact. Follow manufacturer's instructions for all chemical products.

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 be planted in the centre of the planting pit and planted upright. Stones or other rubbish over 75mm shall be removed. Supply and install the staking / guying system as per clauses 4.1-4.4. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position. Upon completion of planting, all pits shall be raked over lightly to leave an even surface and neat appearance. All stones greater than 25mm dia. to be removed. Provision should be made for the watering of root-balled trees in the first year following planting.

4.7.1 Specimen Trees
Excavate tree pits to 1200mm x 1200mm x 1000mm deep. Farmyard manure 80mm deep and 100g of 0.10.20 shall be applied to each tree pit prior to planting. Farmyard manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Install tree support system as per clause 4.1. Fill planting hole with topsoil as per clause 3.2.2, and remove all stones and debris, firming plant into position.

4.7.2 Small Trees / Large Shrubs
Excavate tree pits to 750mm x 750mm x 750mm deep. Farmyard manure 60mm deep and 100g of 0.10.20 shall be applied to each tree pit prior to planting. Farmyard manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Install tree support system as per clause 4.1. Fill planting hole with topsoil as per clause 3.2.2, and remove all stones and debris, firming plant into position.

4.8 Container Grown Shrubs, Grasses, Ferns, Perennials P9 / 20-30 / 30-40cm
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. Apply FYM to base of hole to a depth of 150mm and 30g of 0:10:20 per planting pit. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.9 Containerised Shrubs, 40-60cm
Excavate planting hole to a depth of 500mm x 500mm x 500mm deep; the base to be broken to a depth of 50mm and glazed sides roughened. Apply FYM to base of hole to a depth of 150mm and 50g of 0:10:20 per planting pit. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.10 Hedging 25-30cm, 40-60cm
Excavate trench to a depth of 300mm x 300mm wide; the base to be broken to a depth of 50mm and glazed sides roughened. Incorporate 200mm depth of well-rotted FYM into base and cover with 150mm soil min. Apply 100g 0:10:20 per metre into backfill. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plants into position.

4.11 Hedging 90-120cm
Excavate trench to a depth of 500mm x 500mm wide; the base to be broken to a depth of 50mm and glazed sides roughened. Incorporate 200mm depth of well-rotted FYM into base and cover with 150mm soil min. Apply 100g 0:10:20 per Sq.m into backfill. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plants into position.

4.12 Ground finish:
Upon completion of planting, all ground finish shall include for the removal of stones greater than 25mm excavated during the course of the digging for planting purposes. All soil surfaces should be even and free of mounds, rutting or hollows.

4.13 Spraying:
Following planting, weed free circles to be formed around individual plants, as directed, using an approved broad-spectrum contact herbicide, as approved by the Employer's representative, in mid-spring following planting. Herbicide to be applied using controlled drop applicator. 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. All pesticides to be approved by a Registered Pesticide Adviser.

4.14 Weed control fabric
The weed control fabric shall be 105gsm and shall suppress weeds whilst allowing water, air and nutrients to pass through. Mypex™, Plantex® or equal woven fabric product acceptable. Cut with a scissors or knife. All sharp objects should be removed from the surface soil prior to laying the weed suppressing geotextile. Overlap adjacent rolls by at least 10cm. Membrane to be pegged to ground using proprietary plastic pegs.

When planting into the geotextile membrane an 'X' shaped notch should be cut into the membrane for each individual plant, to allow for excavation. Planting should resume as per species specification. Excavated material should not be stored on geotextile and the membrane area should be thoroughly swept of any residual material prior to application of finished aggregate or mulch.

Membrane to be applied to all planting and gravel areas.

4.15 Bark mulch

Bark Mulch to be 'Golden Pine Bark' by Growise or equal and approved. The product shall consist of matured Conifer Bark with an even nominal particle size distribution of 5-75mm with less than 5% dust and fines and less than 15% wood content. The pH to be between 4.5 and 5.5. The product shall be pest, disease and weed free and not have been treated with Methyl Bromide or any additives. The product shall have been tested in accordance with the requirements of BS 4790:1987, for fire resistance.

The natural heat treatment maturing process shall have been sufficient to ensure that excess volatile substances are driven from the product. During the process, temperatures within the product heaps must exceed 50°C for a minimum 14 day period, followed by a further period of stabilisation.

Lay Bark Mulch to a finished depth of 75mm allowing at least 10% for settlement after 30 days. All such mulch of good quality from an approved source will be inspected by the Employer's representative prior to delivery. All product volumes to be calculated using The Bulk Density method, as set out in BS EN 12579:2000 and BS EN 12580:2000. Slow release Nitrogen fertiliser to be applies to soil prior to mulching.

4.16 Lifting and Re-Planting of Existing Trees on-site

All operations to be carried out between November and March. All trees to be lifted shall first be prepared by digging a trench around the rootball, appropriate to the size of the tree, and as advised by the Arborist or Landscape Architect. After an interval of time, the tree is to be lifted out of the ground using a tree spade or large bucket fitted to an excavator. Trees may then be potted up in large containers or planted directly into the new position. Copious watering is required following planting or potting. When trees are being planted out to their permanent positions from containers, additional and frequent watering is required, with soluble fertiliser and/or mycorrhizae solutions, as advised by a qualified professional. Trees to be monitored on a regular basis for the first three years.

5 SPECIFICATIONS FOR MAINTENANCE AND AFTERCARE

5.1 Period:

The Contractor shall be responsible for aftercare of the completed works for 1 year from the date of completion of planting. Aftercare is deemed to include adequate watering of standard trees and shrubs during dry periods of weather.

5.2 Organisation:

The aftercare program will be organised as follows:

(a) Scheduled operations, in whose timing the Contractor will be permitted some flexibility, and which will be the basis of payment to the Contractor.
(b) Performance standards, which the Contractor is required to meet at all times, and on which his performance will be assessed.
(c) Critical dates, by which time scheduled operations shall have been completed, and at which performance will be assessed.

5.3 Performance standards:

The following maintenance standards shall be upheld for the duration of the maintenance period:

5.3.1 Replacement planting under defect:

The Employer's representative shall inspect the planting in July following planting. Any tree found to have died from any cause except as provided below or the work of other contractors shall be replaced by the contractor at his own expense. Replacement planting shall conform in all aspects with this Specification, including all specified excavation, provision and incorporation of all fertilizers and ameliorants, and weed killer treatments.

Failures will not be charged to the contractor in the following cases:

(a) Damage by hares or rabbits, where protection has not been provided for in the contract.
(b) Losses due to theft, vandalism or disturbance by other contractors.
(c) Failures of whips and transplants due solely to prolonged dry weather, provided that the specified planting procedures have been employed and watering has been carried out in accordance with the contract specifications.

5.3.2 Plant Health:

(a) All plants shall show signs of healthy growth throughout the growth season after planting. E.g. bud break, leaf extension, branch extension, normal for such species.
(b) All plants shall not show signs of drought for any period exceeding five days. Such signs include change in leaf colour, withering leaves or leaves dropping.
(c) For all trees and shrubs pruning shall be carried out to ensure removal of dead or damaged branches and the retention of a healthy crown shape throughout the growing season.
(d) The trees shall not show signs of bark damage as a result of failure to loosen tree ties.

5.4 Maintenance Operations

5.4.1 Firming:

Firm any plants loosened by frost, wind, or cultivation at each maintenance visit. Plants to be re-dug where required.

5.4.2 Weed Control:

The contractor shall be responsible for keeping the ground around all planted material weed free by means of herbicidal application during the course of the contract. This shall include complete weed control in planting beds, woodland planting areas and along hedge lines as well as the maintenance of 1m diameter weed-free circles around trees in grass areas. Such routine spraying shall be carried out during maintenance visits over the maintenance period. No spraying shall take place during adverse weather conditions or at times not recommended by the manufacturer. Operator shall wear appropriate protective gear, including mask. Weeds shall not cover more than 10% of the ground surface at any time and neither shall they exceed 100mm in height or spread. Noxious and pernicious weeds such as Dock, Thistle, Ragwort, Nettle, and Japanese Knotweed shall be killed or removed at each maintenance visit. Allow for hand weeding of shrub beds containing plants sensitive to herbicide application or where such herbicide application is not possible due to growth near ground level. Remove self-seed tree saplings from all shrub areas.

5.4.3 Watering:

The Contractor is responsible for the watering of all semi-mature and specimen trees during the maintenance period. Apply water to moisten full depth of root run. Avoid washing or compaction of the soil surface. A minimum of 9 no. waterings per year will be required. Prior notification to the Employer's representative, and a record of attendance will be requested for each visit. Spot checks will be made to ensure full compliance with this instruction. It is the Contractors responsibility to source water

for this. Additional watering may be required. It is the responsibility of the Contractor to notify the Client of this requirement and agree the number of additional waterings to be undertaken at the dayworks rate provided.

5.4.4 Pests and Diseases:

The Contractor shall report to the Employer's representative any outbreak or build up of insect pest, fungus disease or disorder affecting the plants, as soon as it is noticed. The Employer's representative shall issue instructions for the treatment of the outbreak.

5.4.5 Pruning

- In early summer trim evergreen trees, shrubs and hedges to shape, removing all dead and damaged branches including trees encroaching onto footpaths back to point of branching.
- In late summer prune managed deciduous and evergreen hedgerows to shape. Trim back by av. 15-25cm of growth.
- Prune suckers from all avenue, street and specimen trees in open spaces
- Prune back tree branches overhanging footpaths, on main avenues or those interfering with car park spaces. In addition, prune back tree branches interfering with interfering with fencing. All trees to be cut back to point of branching.
- Prune back all deciduous shrubs encroaching in to fine cut grass areas. Cut 25cm back from rear edge of grass area.
- Prune back briars encroaching through fencing, or that are becoming prominent in hedgerows/ woodland areas.

5.4.6 Bark Mulch

Bark mulch should be thoroughly wetted down in warm, dry weather to avoid risk of fire or spreading fire. Mulch should be topped up to min. 50mm depth during maintenance period.

5.4.7 Grass and Lawn Areas

(i) General

At all times grass to look lush, vigorous and of fine quality with a minimum weed content, and a minimum variation in height of the sward during the growing season. Cutting should take place on a regular basis. Grass cutting areas shall be cleared of litter and rubbish prior to grass-cutting taking place.

No ruts are to be caused due to poor ground conditions. During periods of poor weather, no grass is to remain lodged following cutting. In periods of prolonged wet weather or where ground is waterlogged, consult with Property Manager prior to engaging in grass cutting operations.

Noxious and competitive weeds such as Ragwort, Gorse, Thistle, Dock, Nettle, Briar, Horsetail and Dandelion shall not be allowed to establish in any grass areas.

(ii) Amenity Lawn Areas

Criterion	Performance Standards
Aesthetic / functional requirements	Amenity lawn areas are those grass areas which will be maintained for general access and amenity purposes, to create a lawn which is neat, healthy, close-cut and with minimal weed content.
Permitted mower type	Cylinder mower, Rotary mower, ride-on mower, tractor-pulled gang mower (note: subject to ground conditions; hand-mowing required in designated areas and/or where ground is soft)
Height of Cut	Minimum 20mm; maximum permissible height 50mm. At the commencement of the contract, following flowering cycle of seasonal bulbs or if grass cutting has been forestalled due to poor ground conditions resulting in the grass growing above the maximum permissible height, it shall be cut to 50mm on the initial cut, then to 25mm on the subsequent cut. Such initial long grass shall be collected and removed off site.
Frequency	Mow weekly during spring; summer and autumn; only when necessary in winter. Mowing is not permitted when ground conditions are very soft, waterlogged or frozen, or during spells of cold, drying winds or when the grass is frosty or wet.
Finish	Even finish. Vary direction/pattern of cutting every 3 months. Grass shall be trimmed from around the bases of walls and fences, back of footpaths and kerbs, litter bins, sluice valves and hydrant markers, trees, poles, signage and public lighting columns, etc., and this interface between grass and walls, fences, etc., as noted above, kept in a neat and tidy condition. This trimming shall be deemed to be included for at every grass-cutting. The Landscape Contractor is bound to comply with this instruction and herbicide application is not permitted to achieve this.
Clippings	To be gathered at every cut and disposed of in designated area or off-site. Box to be emptied regularly during cutting to avoid clumps being left on the grass.
Fertiliser	In mid-spring (late March to April), use a proprietary lawn fertiliser at the manufacturer's recommended rates, to be approved by the ER. Apply fertilisers when the soil is moist, or when rain is expected. If grass loses vigour and freshness between late spring and late summer (often May to August), repeat the application of lawn fertiliser.
Weed Control	Minimum weed content permitted i.e.: (1) <5% of species content; (2) <10% of total grass area. When necessary and agreed with ER, use a selective herbicide, to control broad-leaved weeds in the sward. Weeds resistant to herbicide to be dug out by hand in autumn.
Scarifying	Scarifying to be carried out to keep levels of thatch (old grass stems, dead moss and other debris) at an acceptable level (i.e. less than 1cm deep). To remove thatch, rake vigorously but carefully with a power-scarifier. Recommended to be carried out in autumn only.
Aeration	Spiking with holes 10-15cm (4-6in) apart and deep to be carried out once per annum.
Rolling	Amenity grass areas should be reasonably even, with no variations greater than 25mm over a 1m straight edge. In September, to repair any uneven areas of the lawn, use an edging iron to slice through the turf and roll it back. Fork over the underlying ground and add or remove soil as needed. Replace the turf, pressing the edges together, roll with lawn roller (nominally 100kg, subject to site conditions) and water thoroughly.

Edging	Lawn to be edged by hand or edging machine regularly to leave an even, straight edge and to ensure that the grass or soil does not protrude over the edge by more than 25mm.
Over-seeding	After moss or weeds have been removed, or where grass is growing sparsely, over-seeding may be necessary. (Early autumn or mid-spring). Break up the surface with a fork and rake to leave a fine, even tilth; Sow grass seed at half the recommended rate (usually 10-15g/sq.m); lightly rake to incorporate the seed into the surface; water if weather remains dry for 2-3 days following seeding.
Watering	Watering to be carried out when required. Ensure that the water reaches a depth of 10cm (4in) after each watering. Rate: max. 20 litres per square metre.

Indicators of under-performance:
Excessive weeds or weeds such as clover or moss indicate poor sward health; bare patches may indicate scalping or lack of vigour; yellowing or browning of sward may indicate drying out, under-feeding, herbicide drift or inappropriate use of herbicide; thatch build-up greater than 1cm depth; rutting of the surface, wheel marks or poor drainage may indicate compaction of soil caused by mowing in wet weather or use of unsuitable mower type.

(iii) Rough Cut Grass Areas

Criterion	Performance Standards
Aesthetic / functional requirements	Rough cut grass areas are those grass areas which will not usually be accessed by users and will usually be in low priority areas, or in the background. These areas are to be maintained to create a grass area which is healthy and with minimal weed content, with grass allowed to grow relatively long between infrequent and regular cuts.
Permitted mower type	Strimmer, Rotary mower, ride-on mower, tractor-pulled gang mower (note: subject to ground conditions; strimming required in designated areas, areas of slope gradient greater than 1:3 and/or where ground is soft)
Height of Cut	Grass areas shall be cut to a height of c. 75mm
Frequency	5no. times during the growing season, at regular intervals of approximately 6 weeks
Finish	Rough cut shall mean grass of minimum height 75mm, with informal appearance
Clippings	To be gathered at every cut and disposed of in designated area or off-site.
Fertiliser	In mid-spring (late March to April), use a proprietary lawn fertiliser at the manufacturer's recommended rates, to be approved by the ER. Apply fertilisers when the soil is moist, or when rain is expected.
Weed Control	Minimum weed content permitted i.e.: (1) <5% of species content; (2) <15% of total grass area. When necessary and agreed with ER, use a selective herbicide, to control broad-leaved weeds in the sward. Noxious or invasive weeds to be spot treated with herbicide using controlled droplet applicator or glove in May, June and August and prevented from flowering.
Edging	Rough-cut grass areas to be edged by hand or edging machine regularly to leave an even, straight edge and to ensure that the grass or soil does not protrude over the edge by more than 25mm

Indicators of under-performance:
Excessive weeds or occurrence of noxious or invasive weeds unacceptable; rutting of the surface, wheel marks or poor drainage may indicate compaction of soil caused by mowing in wet weather or use of unsuitable mower type.

6 SCHEDULED MAINTENANCE OPERATIONS

6.1 Year One (After Planting)

6.1.1 By end of April (Year One)

Contact herbicide @ 5.0L/Ha to all planted areas. Protect all plants. Pull all weeds too close to nursery stock for safe treatment and remove off site.
Critical Date: 30th April (Year One)

6.1.2 By end of June (Year One)

Contact herbicide @ 5.0L/Ha to all planted areas/tree circles in grass areas where weed growth is apparent. Protect all Plants. Pull all weeds too close to nursery stock for safe treatment. Spot treat any ragworts, docks or thistles through all planting areas. All necessary cultural/husbandry methods to be completed in order to leave the site in a clean, orderly and tidy manner. Remove all waste material off – site. Watering of all standard trees.
Critical Date: 30th June (Year One)

6.1.3 July – September (Year One)

1 no. application of contact herbicide to all planted areas, followed 3 weeks later by 1 no. visit for spot application. Firm plants. Remove all waste material off-site. Watering of all standard trees. Firming.
Critical Date: 31st August (Year One)

6.1.4 October (Year One)

Remove all dead plants after Employer's representative's inspection. Remove all waste material off-site. Firming. Prunning. Replacement planting in November.
Critical Date: 31st October (Year One)

6.2 Inspections

The Employer's representative will inspect the site with the Contractor on each critical date, or as soon as possible thereafter.

6.3 Payments

The Contractor shall submit a statement of account at the critical dates. Payment will be certified with the following provisions:

If any part of the schedule aftercare is outstanding, its value will be deducted from payment.
The following will not be regarded as failures of performance:

(a) Damage by hares or rabbits, where protection has not been provided for in the contract.
(b) Losses due to theft, vandalism or disturbance by other contractors.
(c) Failures of whips and transplants due solely to prolonged dry weather, provided that the specified planting procedures have been employed and watering has been carried out in accordance with the contract specifications.

In the event of persistent failure to meet performance standards for maintenance without reasonable cause notified to the client, or in the event of failure to meet the requirements in the operations schedule,

or agreed extension to the same, the client may, at the advice of the Employer's representative, implement the following:

(a) Deduct payment for work outstanding,

(b) Withhold of retention of monies until all replacement planting is complete and has survived a full growing season (12 months),

(c) Extend the defects period for a further 12 months on replacement planting which, in the opinion of the Employer's representative, has been adversely affected by persistent failure to meet performance standards in the standard defects period,

(d) Charge the Landscape Contractor for non-completion of the scheduled maintenance work or persistent failure to uphold performance standards in accordance with the contract conditions.