The Iveagh Trust

43-50 Dolphins Barn St, Dublin 8

LANDSCAPE DESIGN STATEMENT

INCLUDING LANDSCAPE MANAGEMENT PLAN

FEBRUARY 2025

murray & associates
landscape architecture

This report was commissioned by the applicant, The Iveagh Trust, and has been prepared to accompany the planning application for the proposed development of 43-50 Dolphins Barn St, Dublin 8.

The purpose of the report is to explain the landscape context, design rationale and management requirements for the landscape works as proposed on the accompanying drawings. This report should be read in conjunction with the following drawings:

Dwg No.	Sheet Title	Scale	Sheet Size
1923_PL_P_01	Landscape Masterplan	1:200	A2
1923_PL_P_02	Boundary Treatments Plan	1:200	A2
1923_PL_DD_01	Soft Landscape Design Details	1:20	A2
1923_PL_DD_02	Boundary Design Detail	Varies	A1

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

DEVELOPMENT DESCRIPTION

The Iveagh Trust intend to apply to Dublin City Council for permission for a Large- Scale Residential Development on a site of c.0.358 ha at 43- 50 Dolphins Barn Street, Dublin 8.

The site is bound by Dolphin's Barn Street to the east, No. 51 Dolphin's Barn Street to the northeast, No. 7 Poole Terrace to the south and boundaries of rear gardens of the residential properties located on Reuben Street and Emerald Square to the west and north of the application site respectively. The proposed development consists of the following:

- The demolition of all existing buildings on site (comprising the former factory building to the rear of the site and buildings which front onto Dolphin's Barn Street (No's 43-50)), which have a total gross floor area of c.3,243.5 sqm.

- The construction of a 1-9 storey Large Scale Residential Development (LRD) comprising 119 no. apartments (70 no. 1 bed units and 49 no. 2 bed units) and a community hub space at ground floor level totalling c.523.5 sqm.

- All apartments are provided with balconies/terraces, which are located on the eastern, western, southern and northern elevations of the building.

- The proposal includes external communal open space areas (c.707 sqm) at ground floor level, and provision of PV panels at roof level.

- The proposal provides a total of 15 no. car parking spaces (12 no. for residents, 2 no. for the community hub, including 1 no. accessible parking space, and 1 no. car sharing space). 172 no. cycle parking spaces are provided for residents, and 60 no. cycle parking spaces are provided for visitors to the residential element of the development. 2 no. long stay cycle parking spaces, and 6 no. short stay cycle parking spaces are provided associated with the community hub element of the development.

- The proposal includes for alterations and upgrade of the site boundary walls / treatment.

- The proposal includes 1 no. shared pedestrian/ vehicular entrance point from Dolphin's Barn Street, alterations to the public footpath/street along Dolphins Barn Street, the provision of 2 no. ESB sub-station's, plant and storage rooms, a comms room, a LV switch room, a life safety room, bin stores and all associated and ancillary works.

- The associated site and infrastructural works include provision for water services; foul and surface water drainage and connections; attenuation proposals; permeable paving; all landscaping works including hard and soft landscaping; blue/green roofs; boundary treatment; internal roads and footpaths; electrical services; and all associated site development works above and below ground.

- The application may be inspected online on the following website set up by the applicant: www.dolphinsbarnstreetlrd.ie

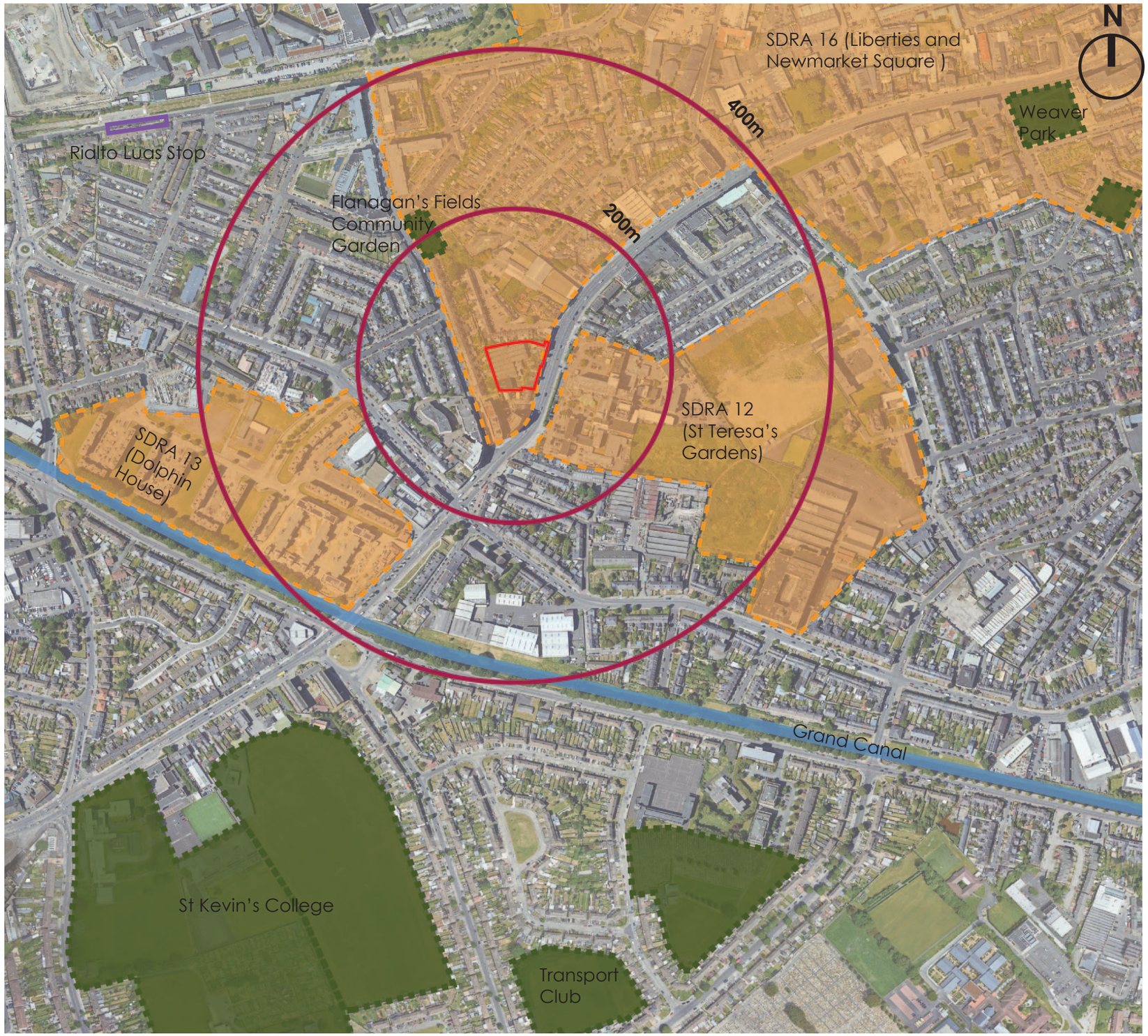


Figure 1. Site Location Map – 43-50 Dolphins Barn

Site

LANDSCAPE STRATEGY - PROGRAMME



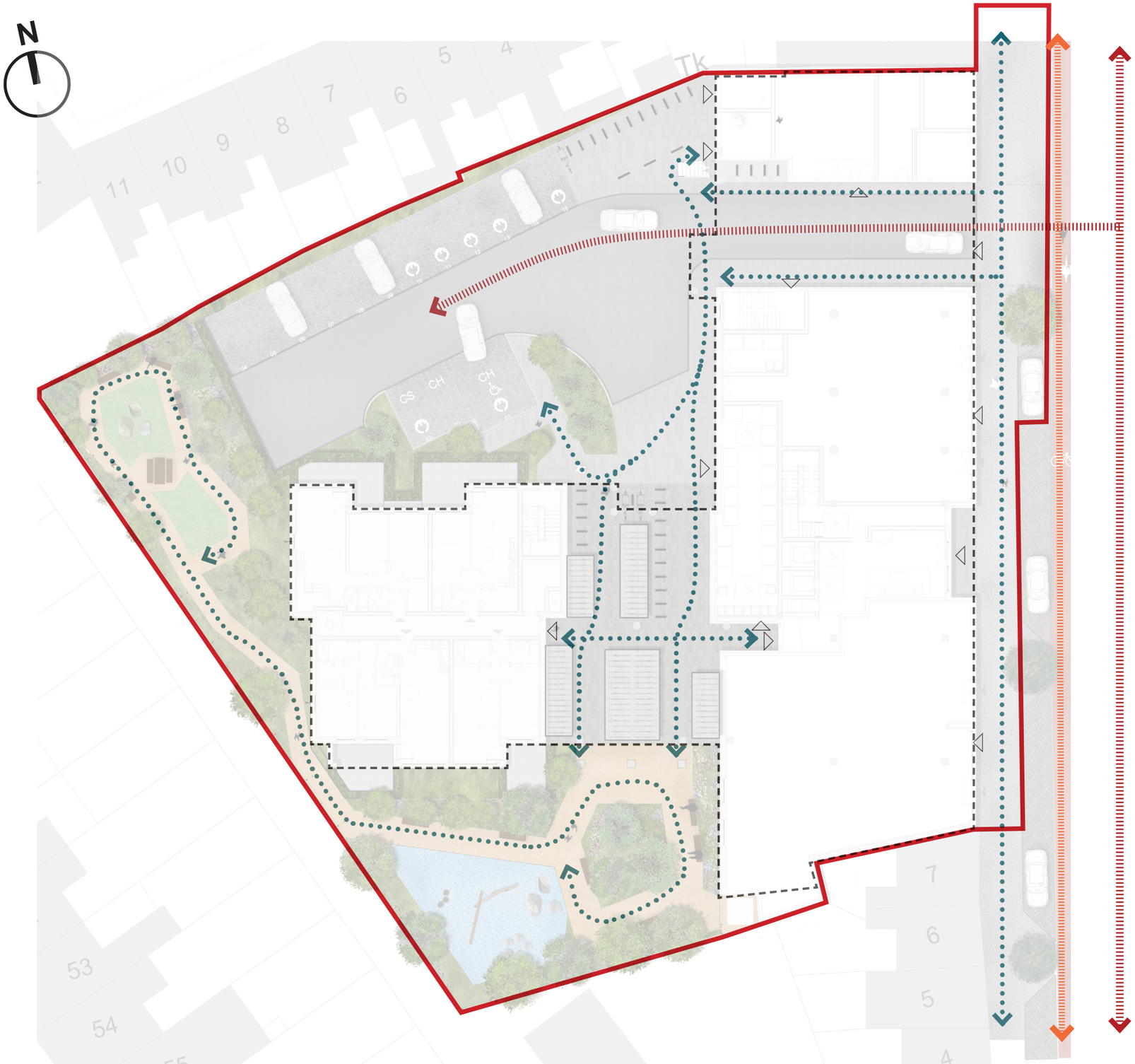
LEGEND

- **Red boundary line**
- **Building line**
- **Car Park**
- **Disabled Parking**
- **External Bike Parking**
  Visitor Space
- **External Bike Parking**
  2-Tier racks - to architect's specification
- **Private Amenity Space**
- **Communal Courtyards**
  Local open space for residents use.

The proposed development includes several key features intended to enhance the community's living experience. The plan incorporates a public amenity space, a communal courtyard, a car park, and a shared access entrance. Additionally, the design provides 60 visitor bike spaces and 8 spaces dedicated to the community hub, totaling 68 visitor bike spaces.

The communal courtyard, situated along the west and south boundaries of the site, is designed to include a play area, a sensory garden, and a secret garden. These elements are thoughtfully integrated to offer diverse recreational and leisure opportunities for residents.

LANDSCAPE STRATEGY - ACCESS & CIRCULATION



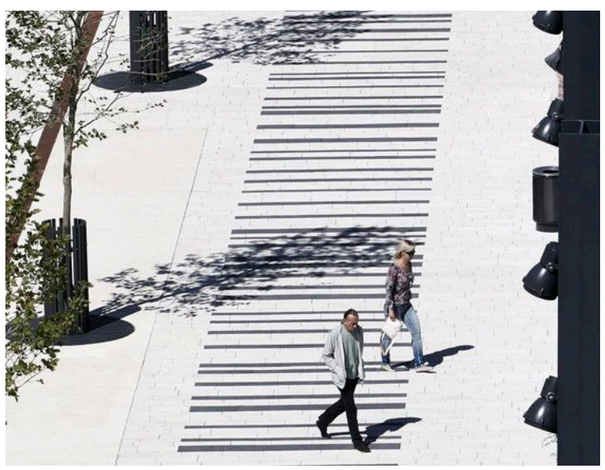
LEGEND

- Red boundary line
- Building line
- Building Access
- Main Vehicular Movement
- Cycle Lane
- Main Pedestrian Movement

INCLUSIVE DESIGN & UNIVERSAL ACCESSIBILITY

The selection of paving materials within the development is guided by the intention to offer a durable and high-quality surface that requires minimal maintenance over the long term. All paving materials are specified to be level, ensuring a smooth and safe pedestrian experience with no abrupt changes that might pose slip, trip, or fall hazards. The design also incorporates cross-falls on a sub-base according to engineer's specifications.

The chosen hard-wearing paving materials will maintain their slip resistance qualities as they age, necessitating low levels of maintenance. Detailed consideration has been given to the hard landscape and streetscape elements, aligning with current building regulations and adhering to best practices outlined in relevant guidance documentation. Notably, compliance with Technical Guidance Document Part M – Access and Use Building Regulations (2010) and 'Building for Everyone: A Universal Design Approach' by the National Disability Authority ensures that the development meets accessibility standards and universal design principles.



BLOCK PAVING TO SHARED SURFACE



LANDSCAPE PROPOSALS

Landscape design proposals have been developed on a number of levels to address the integration of existing buildings, proposed architecture, access, infrastructure and context.

The landscape design is intended to create and heighten qualities and characteristics in the open spaces enjoyed in nature such as change, surprise, awareness of transition and movement; weather, seasonal change, use and maturing. Pockets of nature are created within the hard-landscaped open spaces of the development, which are surfaced in durable attractive and hard-wearing materials to give the external spaces textural character.

Landscape proposals for the site are intended to contribute towards:

- A unique sense of place;
- A site-specific design proposal generated from existing landscape elements and context;
- A high-quality environment;
- A permeable layout that assists ease of movement for pedestrians and vehicular traffic;
- A development that acknowledges the local landscape character and integrates well into the receiving environment.
- A development that promotes beneficial effects on biodiversity by providing new habitat.

Key features include a communal courtyard and a car park along the northern boundary, The communal courtyard, positioned along the west and south boundaries, integrates a play area, sensory garden, and secret garden, providing diverse recreational and leisure opportunities. There are seating areas, large and small gathering space, play spaces, and open unprogrammed space for residents.

Specific visual screening elements are proposed to minimise the potential for visual impact from residential properties facing Reuben Street and Emerald Square and along the southern boundary. The treatments vary depending on the existing conditions and sightlines. Please see Boundary Treatments for further details.

LANDSCAPE DESIGN - SENSORY & SECRET GARDENS

The sensory garden aims to provide experiences to stimulate the senses of sight, smell, touch, taste, and hearing. The layout, plants, and materials are selected to appeal to this senses. This garden is accessible and engaging for people of all ages and abilities.

Key features of a sensory garden might include:

Visual Elements: Brightly colored flowers, varied foliage.
Auditory Elements: Plants that attract birds or insects.
Tactile Elements: Textured surfaces, such as different types of leaves or pebbled paths, and touchable plants like lamb's ear.
Olfactory Elements: Fragrant flowers and herbs, like lavender or mint.
Gustatory Elements: Edible plants, such as fruits, herbs, or vegetables that users can taste.

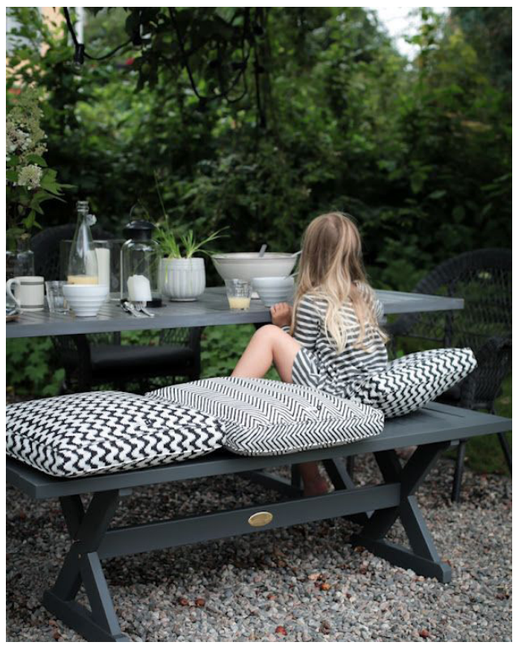
Surrounded by dense plantings, the secret garden creates an intimate and private retreat. The densely arranged lush planting emphasizes the feeling of being enveloped by nature.





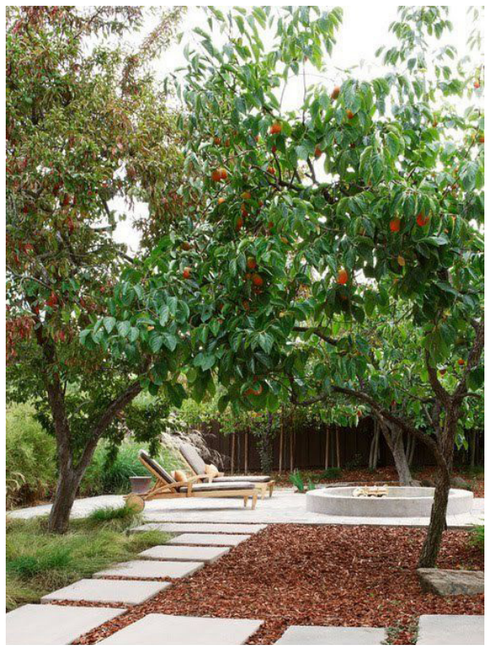


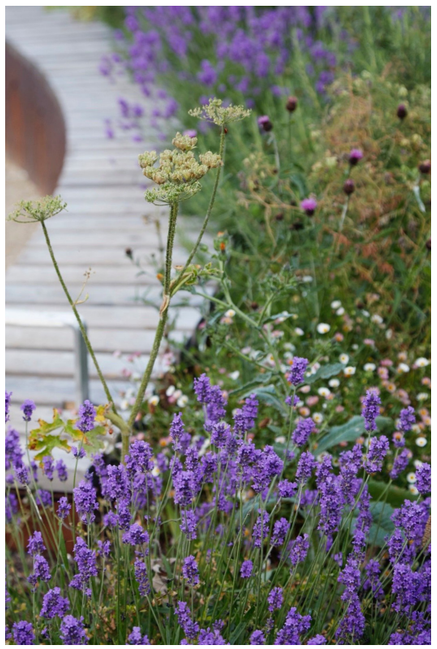












NATURE PLAY

Landscape scheme proposals have been developed to move beyond the traditional concept of play provision to a Nature-based Play approach, in line with the Irish governments National Children's Play Policy 'Ready Steady Play' and the UK's 'Learning through Landscapes' philosophy.

Nature-based play is defined as a form of play that takes place in a natural environment and/or involves interaction with natural elements and features, such as logs, rocks and water. It is characterised by enriching, naturalised, and diverse affordances, and mixed terrain and topography.

A play strategy has been developed based on the guiding principle of sustainability, re-use, connection to nature and the utilisation of found or locally sourced materials for play. Our aim is to fabricate the majority of play items and seating from locally sourced trees and existing trees felled on site as part of the construction process.

Play has been interwoven throughout the development site open space areas to provide dynamic spaces to excite, stimulate and provide children and family with a range of gathering space. Its layout and spatial design provides ease of access to seating areas and gathering spaces configured to encourage social interaction and an enhanced sense of community.

CREATING A RICH PLAY ENVIRONMENT

According to the National Play and Recreation Policies the best practice in play provision has been identified by the NPFA, PLAYLINK and CPC (2000) who suggest that a rich play environment should provide opportunities for:

- A varied and interesting physical environment – changes in level, hiding places, trees and bushes, places to inspire the imagination.
- Challenge in relation to the physical environment - activities which test the limits of capabilities, rough and tumble, chase, games.
- Playing with the natural elements – earth, water, sand, fire, digging, flying kites.
- Movement – running, jumping, rolling, climbing, balancing – beams and ropes, soft mats, space, juggling.
- Manipulating natural and fabricated materials – materials for art, making and mending, building dens, making concoctions, using tools, sand, mud, access to bits and pieces.
- Stimulation of the five senses – music making, shouting, quiet places, colours and shapes, dark and bright places, cooking on a campfire, edible plants, nuts and berries.
- Experiencing change in the natural and built environment – experiencing the seasons through access to the outdoor environment, opportunities to take part in building, demolishing, or transforming the environment.
- Social interactions – being able to choose whether and when to play alone or with others, to negotiate, co-operate, compete and resolve conflicts. Being able to interact with individuals and groups of different ages, abilities, interests, gender, ethnicity and culture.
- Playing with identity – dressing up, role play, performing, taking on different forms of responsibility.
- Experiencing a range of emotions – opportunities to be powerful/powerless, scared/confident, liked/ disliked, in/out of control, brave/cowardly.

READY, STEADY, PLAY! A National Play Policy (2000, p11)











LANDSCAPE DESIGN - BOUNDARY TREATMENT



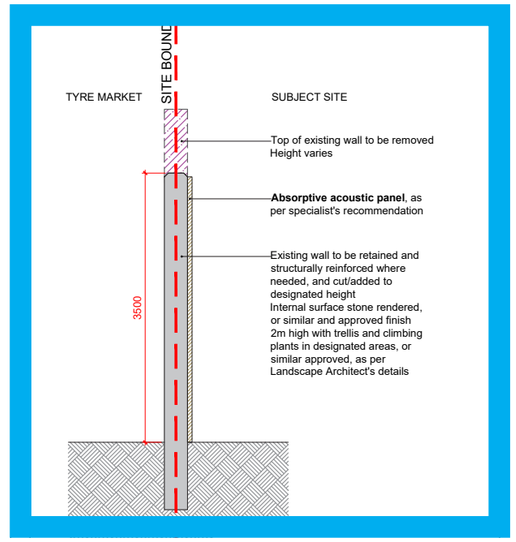
EXISTING WALL RETAINED
Existing Boundary Gable Wall with Neighbours retained and made good.

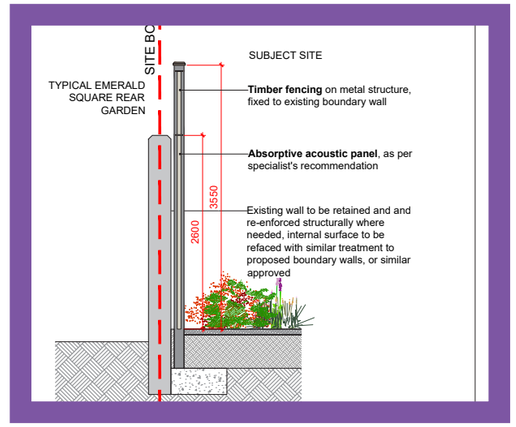
EXISTING WALL ADJUSTED
Existing Boundary Wall retained to a designated height and made good.

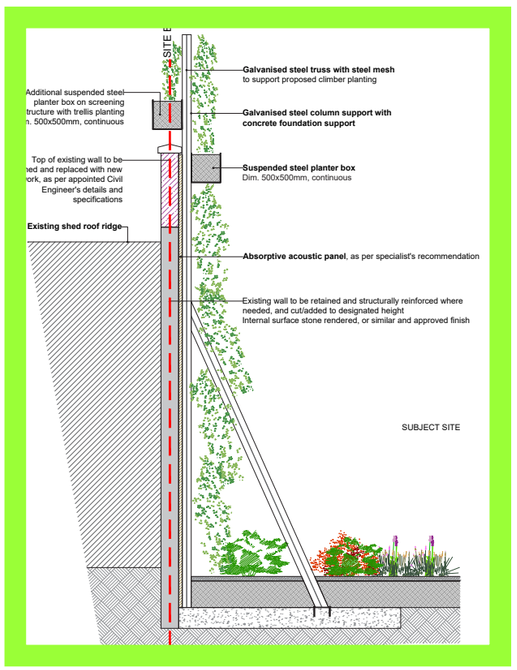
EXISTING WALL + TIMBER FENCE
Existing wall retained; Effective height of wall extended to 3.5m by Timber fencing on metal structure fixed to wall.

ACUSTIC PANEL + TRELLIS SYSTEM
Existing boundary wall retained, new wall added to designated increased level and finished with concrete cap-ping. To be finished with steel-framed lattice structure above coping to sup-port climbing plants and steel planter box integrated into structure, fixed to inside face of wall .

TRELLIS SYSTEM







Specific visual screening elements are proposed to minimise the potential for visual im-pact from residential properties facing Reuben Street and Emerald Square and along the southern boundary. The treatments vary depending on the existing conditions and sightlines and consist of the following measures:

- Extending the height of the existing boundary walls (along part of the northern and southern boundaries)
- Extending the height of the existing boundary walls further with timber screening attached on the development side (northern boundary with Emerald Square dwellings)
- Creating additional screening with climbing plants on a screen structure along the western boundary with Reuben Street dwellings, and returning along the northern and southern boundaries. The species proposed are predominantly evergreen in order to give year-round screening, with a small proportion of deciduous for biodiversity.

Planter boxes are proposed on both sides of the proposed screening structure along the western boundary, to ensure maximum coverage from climbing plants. Maintenance of this element will be through automated irrigation with occasional access required for pruning or replanting.



Climbing Plants - Indicative image of established climb-ing plants on trellis (left) and Clematis armandii (below right) and Lonicera japonica 'Halliana' (above right)

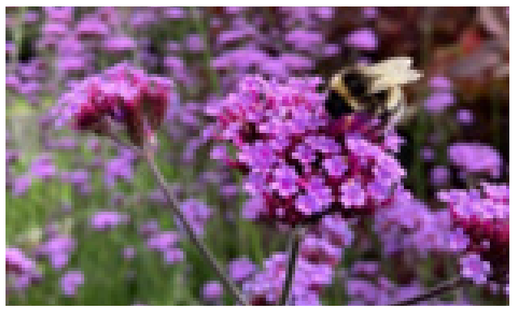


BIODIVERSITY

Using nature-based solutions will hardwire habitat into the streetscapes, creating a long-term ecological environment for nature to recolonise and occupy. This includes:

- Biodiverse Green Roof (semi-intensive, extensive)
- Planting of native flowering and fruiting tree species
- Creation of short-flowering species rich grassland
- Bat boxes
- Swift boxes
- Bug hotels

The green roof system proposed allows for enhanced biodiversity with native sedum species, wildflowers and shrubs. This results in a more place-specific green roof and enhances the biodiversity value significantly over a standard extensive green roof, which typically has non-native sedum only. The green roofs could be a combination of semi-intensive and extensive roofs, designed to enhance biodiversity. The extensive roofs will have shallow soil substrate with native sedum species and the semi-intensive areas will have deeper soil and larger plants such as native grasses and shrubs (e.g. Carex, Rosa, Cornus). See diagrams below for details. Micro-mounds for mining pollinator insects and insect hotel / log piles, etc. will also be incorporated.









Semi-Intensive Biodiverse Green Roof



Extensive Biodiverse Green Roof

Planting proposals form a vital part of the strategy for the site. 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; Open Space and Recreation; Sustainable Water Management; Landscape. This site at Dolphins Barn brings all of these themes together and provides for a strong element of Green Infrastructure or perhaps more accurately, "Green-Blue" Infrastructure.

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 proposals are aimed at gaining the maximum possible benefit for biodiversity and pollinators and are in accordance with the All-Ireland Pollinator Plan. This means that wherever possible, native vegetation is proposed and where needed for functional or aesthetic reasons, non-native plants are specified, with due care. Any non-native plants are chosen to be non-invasive (i.e. the planting selection avoids the use of all known invasive species, with reference to the latest lists of invasive species published by the National Biodiversity Data Centre) and have value to insect and other fauna as pollinator.

The microclimate has had an influence on selection of plant materials throughout, with feathered and multistem forms preferred for shelter and wind amelioration reasons, as well as aesthetic preference.

LANDSCAPE DESIGN - SUDS STRATEGY



GREEN AND BLUE ROOF
Refer to architect's drawings for exact Green and Blue Roof location.

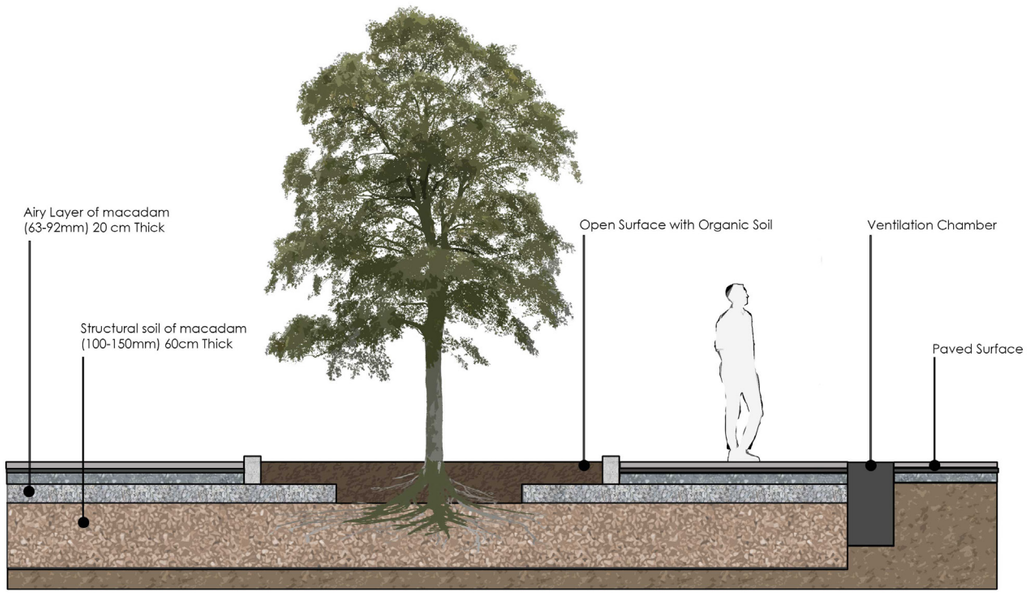
PERMEABLE PAVING

SOFT LANDSCAPE AT GROUND LEVEL

SUDS TREE PIT



STRUCTURAL SOIL BY ENRICH



STRUCTURAL SOIL TO TREE PIT DETAIL

Mature Size of Tree

All Quantities assume 600/900mm depth	**Very Small** (<5m)	**Small** (5-10m)	**Medium** (10-15m)	**Large** (15-25m)	**Massive** (>25m)
Recommeneded volume of **structural soil**	**8m³**	**16m³**	**30m³**	**40m³**	**50m³**
Recommeneded number of **air/water inlets**	**1**	**1**	**2**	**3/4**	**5**

SOIL QUANTITIES TABLE

Plant species have been selected as native where possible, and all plants proposed have value to local biodiversity as pollinators or food source for urban wildlife.

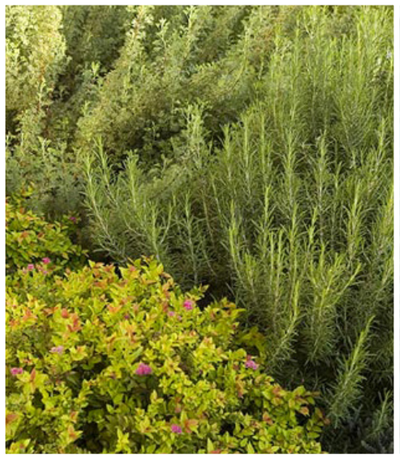
Ground Level

Standard and Ornamental Trees



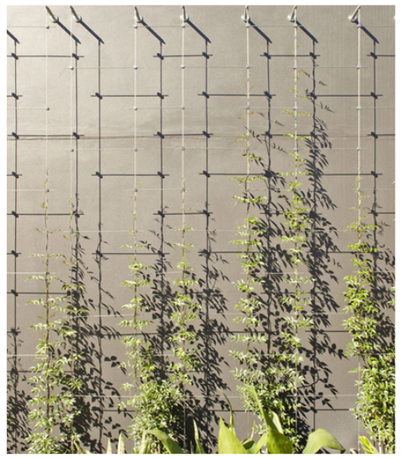
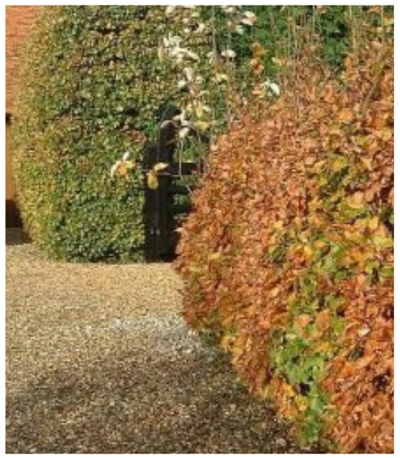

Betula pendula, Fagus sylvatica*, Crataegus monogyna*xx, sorbus aucuparia*, Hippophae sal. 'Robert', Carpinus betulus 'Frans Fontaine'*

Buffer Planting




*Lavandula 'Hidcote' xx, Sarcoccoca sp.xx , Erica sp.*xx, Luzula sp.*, Carex oshimensis 'Evergold', Hypericum 'Hidcote', Mahonia aquifolium xx, Rosmarius officinalis xx, Lonicera pileata, Vinca minor, Viburnum davidii, Pennisetum 'Karley Rose, Salvia nemorosa 'Ostfriesland'*

Climbers

Clematis armandii, Clematis cirrhosa, Clematis 'Fragrant Oberon', Clematis urophylla 'Winter Beauty', Lonicera japonica 'Halliana', Lonicera henryi, Muehlenbeckia complexa, Lonicera periclymenum, Wisteria sinensis, Rosa spp.

Multi-stemmed Trees



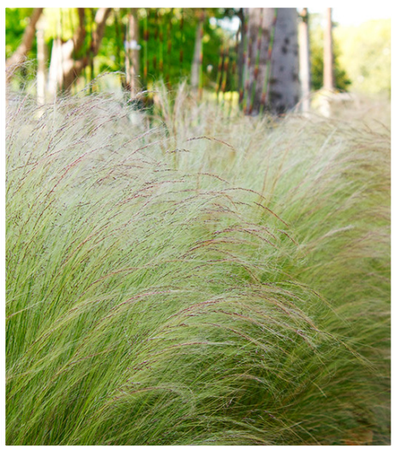

Amelanchier lamarckii, Betula pubescens, Corylus avellana* xx, Arbutus unedo* xx,*

Shade tollerant




Fatsia japonica xx , Pachysandra terminalis, Bergenias xx, Hosta sp. Matteuccia struthiopteris, Weigela 'Red Prince', Carex 'Ice Dance', acanthus mollis

Sonsory Planting

lavandula hidcote xx, Erica sp. xx , Hypericum 'Hidcote', Rosmarius officinalis xx, Vinca minor, Viburnum davidii, Pennisetum 'Karley Rose', Daphne xx, Stachys byzantina xx, Allium schoenoprasum xx, Cornus alba 'Sibirica', montbretia 'Lucifer', Salvia argentea xx, Miscanthus 'Silver Feather', Stipa tennuisima 'Pony Tails'*

* *Species Native to Ireland*
xx *species that are Pollinator friendly*

INDICATIVE LANDSCAPE PALETTE - HARDSCAPE & ELEMENTS

The selection of surface finishes is crucial to enhance both the aesthetic and functional aspects of the landscape design. They will be durable and of high quality with patterning to be developed in the later stages to aim a sense of connection to the surrounding environment.

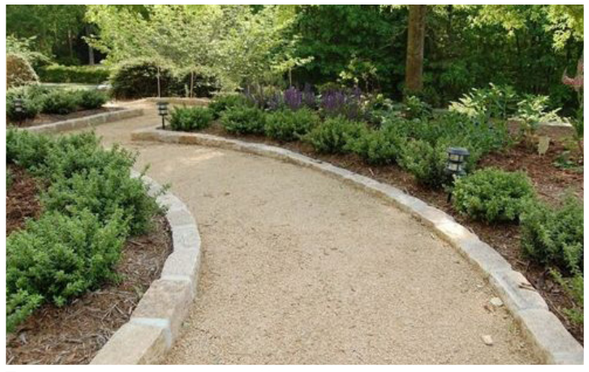
Surfacing

Paving




PC Block pavers

Permeable Self Binding Gravel



To communal amenity spaces

Wet Pour Rubber Safety Surfacing



To play areas
Color TBD

Permeable Asphalt



To engineer's specification

External Furniture

Cycle parking stands




Seating



Picnic table



Play/Fitness



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/b	Rootball
BR / b/r	Bareroot
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.

1.5 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.

1.5.1 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.

1.5.2 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.

1.5.3 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.

1.5.4 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 Inspections

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.

3.2.5 Seeding:

3.2.5.1 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.

4.7.3 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.

4.7.4 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.

4.7.5 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.

4.7.6 Hedging 60-90cm, 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.

4.7.7 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.

4.7.8 Spraying:

Following planting, weed free circles to be formed around individual plants, as directed, using an approved broad-spectrum contact herbicide, as approved by a certified Pesticide Advisor, 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.

4.8 Weed control fabric

The weed control fabric shall be 105gsm and shall suppress weeds whilst allowing water, air and nutrients to pass through. MypexTM, PlantexR 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.

4.9 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.

4.10 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 Introduction:

The purpose of this Landscape Management Specification is to provide guidance and specifications for the maintenance requirements of the landscape elements of the proposed development. This will cover both existing (hedgerows and mature trees) and proposed (trees, shrubs, hedging, grass, bulbs, etc.) on-site to ensure that all maintenance operations required for the efficient and effective management of the landscape are characterised and defined. The plan will provide a set of measurable performance standards that can be applied to evaluate landscape maintenance works carried out on the site.

5.2 Horticultural / Sylvicultural Objectives

Horticultural and sylvicultural aims relate to the appropriate management operations for all plants and trees. The specific horticultural objectives are as follows:

- All plants to be maintained so that they remain in good health;
- All plants to have a habit and form consistent with species type and aesthetic objectives;
- Specialist operations for particular types of plants where necessary to achieve the aesthetic or functional objectives, e.g. pruning, dead-heading of flowering plants, formative clipping, etc. are included in the plan;
- Areas surrounding plants are to be maintained in such a way that potential threats to plant viability are addressed, e.g. weed control (particularly invasive and noxious weeds);
- Recognition of planting (including trees) at the end of its viable life is important to ensure that it is removed and replaced in a timely manner to avoid eyesores.

5.3 Performance Standards

Performance standards will be measurable against the specified outcomes required for a particular operation, within a particular area. Performance standards must be upheld by the contractor at all times and will be monitored on an ongoing basis through regular site inspections.

Performance standards are specified in section 5.2 of this document. All required maintenance operations are defined and detailed to provide both specifications for the landscape contractor to follow and a set of measurable outcomes to appraise and value the contractor's performance against the requirements of the contract.

5.4 Environmental Considerations

Responsible and sustainable landscape management is about balancing the performance standards with the required standard of maintenance. The following principles have guided the development of the specification:

- **Utilise low input systems**
  - Includes measures such as: mulching instead of herbicide use, where possible;

- **Use of environmentally friendly products where possible**
  - e.g. biodegradable herbicides, biodegradable tree ties, timber stakes.

- **Control of Invasive Species**
  - It is an objective of this plan to control and prevent the spread of invasive species, and in particular, Giant Hogweed, in order to protect the biodiversity of the landscape.

- **Protection of site resources**
  - Appropriate maintenance will result in the protection of existing trees, vegetation and soil resource of the site.

5.4.1 Period:

The Contractor shall be responsible for aftercare of the completed works for 18 months from the date of practical completion of planting and landscape works. Aftercare is deemed to include adequate watering of standard trees and shrubs during dry periods of weather. A detailed programme of works will be agreed with the Contractor prior to maintenance operations commencing, in each year. A sample maintenance programme is contained in Section 6.

5.4.1.1 Replacement planting under defect:

Defects period to be for a period of 18 months after Certified Practical Completion by the landscape consultant.

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 planing procedures have been employed and watering has been carried out in accordance with the contract specifications.

5.4.1.2 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.

6. Maintenance Operations

6.1 Shrub Planting

(i) Groundcover / Mixed Borders / Mass Shrub Plantation

Criterion	Performance Standards for Designated Level of Prominence		
	High	Medium	Low
Aesthetic / functional requirements	Shrub planting areas shall be kept clean at all times, with an even finish. Plants to have a healthy, lush, neat appearance, typical for plant species and time of year.	Shrub planting areas shall be kept clean at all times, with an even finish. Plants to have a healthy, lush appearance, typical for plant species and time of year.	Shrub planting areas shall be kept clean at all times, with an even finish. Plants to have a healthy appearance, typical for plant species and time of year.

Criterion	Performance Standards for Designated Level of Prominence		
	High	Medium	Low
Weed Control	No weeds permitted in the shrub area. Established shrub areas may be treated with an approved residual herbicide to provide year round weed control.	Weeds shall not be allowed to cover more than 5% of the ground at any one time, neither shall weeds exceed 50mm in height. Residual herbicide permitted for established shrub areas.	Weeds shall not be allowed to cover more than 10% of the ground at any one time, neither shall weeds exceed 100mm in height. Residual herbicide permitted for established shrub areas.
Bark Mulch	Required – 75mm deep; to be kept topped up at all times.	Required – min. 50mm deep; to be kept topped up at all times.	Not required in all cases.
Fertiliser	Annual feeding with 50-100g/sq.m of general-purpose fertiliser in February. (Rake back mulch prior to application.)	Annual feeding with 50g/sq.m of general-purpose fertiliser in February. (Rake back mulch prior to application.)	No feeding required unless plants are suffering notable deficiency
Pruning / Clipping	Regular pruning as necessary to maintain the typical size and form of the plant, for plant health, for sightlines and to maintain best appearance (to include damage by traffic, salt spray, vandalism, etc.); all clippings to be gathered at every pruning and disposed of in designated area or off-site.	Pruning once per annum to maintain the typical size and form of the plant, for sightlines and for plant health; all clippings to be gathered at every pruning and disposed of in designated area or off-site.	No pruning required, unless nuisance is being created by overhanging branches.
Edging	Beds to be edged by hand or edging machine regularly to leave an even, straight edge and to ensure that the shrubs or soil do not protrude past the edge by more than 25mm.	Beds to be edged by hand or edging machine twice per annum to leave an even, straight edge. Shrubs or soil not to protrude past the edge by more than 50mm.	Edging required to prevent soil creep and nuisance only.
Watering	Watering required to ensure consistent availability of water to plants during periods of drought (i.e. after more than 5 days)	Watering required only in periods of prolonged drought (i.e. after more than 2 weeks)	Watering not required unless plants are showing signs of negative physiological effect by drought.
Dead-heading	Remove fading flowers from shrubs regularly during flowering season.	Not required.	Not required.

(ii) Specimen Shrubs

Criterion	Performance Standards
Aesthetic / functional requirements	Specimen shrub planting areas shall be kept clean at all times, with an even finish. Shrubs to have a healthy, lush appearance at all times, typical for plant species and time of year.
Weed Control	No weeds permitted in the shrub area. Established shrub areas may be treated with an approved residual herbicide to provide year round weed control.
Bark Mulch	Required – 75mm deep; to be kept topped up at all times.
Fertiliser	Annual feeding with 50-100g/sq.m of general-purpose fertiliser in February. (Rake back mulch prior to application.)
Pruning / Clipping	Regular pruning as necessary to maintain the typical size, habit and form of the plant, for health and to maintain best appearance; all clippings to be gathered at every pruning and disposed of in designated area or off-site.
Watering	Watering required to ensure consistent availability of water to plant during periods of drought (i.e. after more than 5 days) - minimum

6.2 Trees & Woodlands

(i) General:

- Canopies overhanging a pedestrian path to be maintained to 2.2m and canopies overhanging vehicular access to 4m;
- Limb damage caused by wind, passing traffic, etc. to be pruned resulting in a clean even wound;
- No signs, security boxes, etc. to be attached to trees;
- Surface tree roots not to cause a trip or mowing hazard. In grass areas, top up soil over roots and re-seed;
- Raised paviors or cracked/bulging walls due to root growth are to be reported to the Contract Administrator;
- Exposed roots from construction works to be kept moist by wrapping damp hessian around roots until soil is backfilled and then apply a one off generous application of water. Root damage to be pruned resulting in a clean even wound prior to backfilling / topsoiling;
- Control of ivy and suckering on the trunks of trees within falling distance of activity;
- Informal monitoring of trees for change of condition or evidence of a fungal fruiting body.

(ii) Specimen, Solitary and Avenue Trees

All trees to be maintained in accordance with requirements for species and habit to be maintained in accordance typical form for tree. Tree trunk will be kept visible for defect inspection with control of ivy and removal of suckering. Mulch 1m diameter will be maintained around all individual trees within grassed areas. Stakes and ties to be retained for a maximum period of 3 years, with tie loosened annually and both stake and tie to be removed after 3 year period. All nursery marking, bamboo and labels to be removed off all trees. Tree grilles in hard surface areas to be maintained weed free.

Any visible change in condition to be reported.

6.3 Herbaceous Perennial Planting (including Ferns and Ivy)

(i) Bulbs

Watering: Ensure that bulbs have adequate water throughout growth period, up until cutting back occurs (see below).

Fertiliser: Apply approved general purpose fertiliser to all bulb areas at nominal rate of 35g/sq.m in late February.

Cutting Back: Cut back dead foliage to ground level six weeks after the end of flowering (or earlier if foliage is yellow and straw-like). Do not tie or knot the leaves.

Deadheading: High prominence areas only. Deadhead flowers by cutting back spent flowers to the base of the flower stalk.

Note: Herbicides may not be used in or around bulb areas.

6.4 Hard Landscape Surfaces & Signage

Hard Standing including roads, paved areas, pavements, and kerb-lines - shall be kept clean at all times, with no growth of weeds and without moss infestation. Roads and kerb lines shall be kept free of litter and build up of grit and debris through the implementation of a regular sweeping program.

(i) Weed Control

All paved areas such as footpaths, kerb lines, feature paving, gravel areas, etc., throughout the site are to be maintained weed free at all times. The application of a suitable broad-spectrum herbicide e.g. Glyphosate (Roundup Bi-Active or equal and approved) shall be applied 3no. times per annum to achieve this. Once per annum a suitable chemical to treat moss shall be applied where it has established on hard surfaces. An initial physical treatment, such as scraping using a spade, will be required to remove existing moss growth prior to spraying.

(ii) Sweeping

Sweeping shall mean sweeping of feature paving areas, footpaths and kerb lines along all public roads (edge of road) and removal of all grit, rubbish and leaves from these areas. Soil wash from beds on to paved areas should also be swept. This work to be executed fortnightly.

Note: Particular attention is required during the period of October/ November to deal with leaf fall.

(iii) Cleaning

Cleaning shall mean the removal of paper, plastic bags and all other rubbish. Cleaning shall be carried out as follows:

- Fine cut grass areas, all paved and hard standing areas, footpaths and kerb lines: This work to be executed prior to grass cutting on each grass cutting visit. Cleaning shall be carried out 24no. times per annum, including winter.
- Rough cut grass areas: prior to each scheduled grass cut, minimum 8no. times per annum.
- Tree groups, boundary tree areas, shrub maintenance areas, all other areas: 8no. times per annum.

Cleaning shall also include the removal of grit and rubbish from road gullies, drains, Aco drains and any collapsible bollards twice per year.

(iv) Signage

All campus signs are to be cleaned to a high standard 4 times per year.

(v) Gullies

All gullies are to be inspected monthly and if full or blocked, must be cleared out as appropriate.

6.5 Weed Control

6.5.1 General

Minimal amount of herbicidal chemicals are to be utilised on the site, with non-chemical means of weed control to be preferred (mulching, mechanical control, hand weeding, etc. where feasible). Biodegradable herbicides are to be preferred where herbicide use is required. Prior to executing weed control involving the use of herbicides, advice must be sought from a Pesticide Advisor.

Where translocated herbicides are applied, spray drift should be avoided and spray guards fitted to apparatus. Where feasible, spot treatment using CDA (Controlled Droplet Applicator) or glove preferred. Use of residual herbicides shall not be used in areas of herbaceous planting, in the initial year following planting of new shrubs or over areas of bare ground within shrub beds where replacement planting is to be carried out. Hand weeding in planting beds will be required where there is a large component of herbaceous material, bulbs or prostrate groundcover plants.

6.5.2 Invasive Weeds

Invasive weeds of any kind, most particularly Japanese Knotweed, Winter Heliotrope, Giant Hogweed and Himalayan Balsam shall not be allowed to establish in any area of the site. It will be the responsibility of the contractor to be able to identify same and treat at first sign of emergence. Treatment for all except Japanese Knotweed to consist of removal of weed by mechanical means, treating any remaining plant parts with Glyphosate (e.g. Roundup or equal).

6.6 Duties of Contractor; Evaluation & Payment Procedures

The contractor shall be required to complete a site-specific maintenance programme and attend site in accordance with the program agreed with the Contract Administrator. During the course of the contract the contractor shall supply after each visit to site a record of attendance using site attendance record sheets. These should be signed by the contractor's site foreman and manager and retained in a file for use as an appendix to the payment application. Failure to complete works on the prescribed date, may result in determination of the contract, except where an adjustment to program has been agreed in advance with the Contract Administrator.

At the end of every month the contract manager shall complete the monthly report sheets to clarify the completion of works for the particular month. Items of work not completed shall be noted and a timeframe for their completion indicated. The forestalled works must be attended to at the first opportunity in the month following the submission of the monthly report sheet, unless exceptional circumstances or bad weather prevent the work from being completed. In this case the work shall be attended to, as soon as is practicable, and by agreement with the Contract Administrator.

Monthly program sheets, contained in Section 6, shall be signed by the contractor's manager and forwarded to the Contract Administrator for verification. Upon verification the document will be returned to the contractor and shall be attached at the time of payment application. If necessary, a site visit will be undertaken with the contractor to verify completion of works. The completed monthly report sheets shall be used as the basis for payment. Items of work not completed to the required standards shall be excluded from payment for that particular month. Should the Contract Administrator / Property Manager be dissatisfied with the quality of work within a particular month then a reasonable sum of money shall be withheld in proportion to the amount of incomplete work or work that is not up to standard. A minimum of 80% of work must be complete or satisfactory in order for payment to be made for a particular month.

In relation to Health and Safety, the landscape contractor will be appointed Project Supervisor for the Construction Stage under current health and safety legislation. Therefore, a safety file must be maintained by the contractor and be made available for inspection upon request. All possible precautions and risk management strategies must be in place in relation to safety of employees, personal protective equipment, use and maintenance of equipment/vehicles, signage when works are underway, procedures for closing off areas while works are in progress, traffic management, etc. as required. Any incident or accident must be reported to the Contract Administrator and recorded in the safety file.

6.7 Inspections by Employer

As part of the management of this contract, eight critical inspections per annum shall be arranged with the Contract Administrator in attendance. These may not be notified to the landscape contractor. The Contract Administrator will produce a report of the site visit, commenting on the appearance of the site and examining each aspect of work in detail. The Landscape Architect may also direct resources to a certain area of work, in agreement with the Property Manager. It is at such dates that standards will be reviewed, problems arising rectified and issues of dispute arising from the concerned parties will be settled.

A preliminary schedule of critical inspection dates is as follows:

1. February
2. March
3. April
4. May
5. June
6. July
7. August
8. September
9. October
10. December