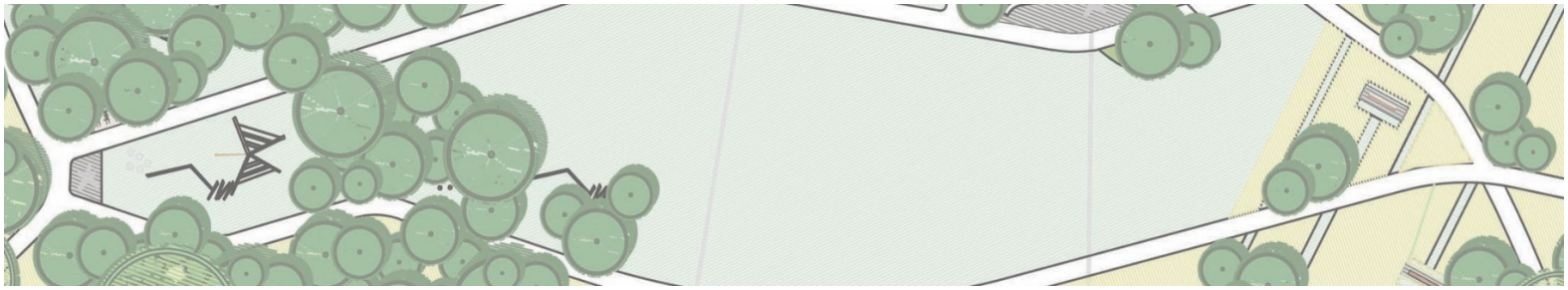
Proposed Housing Development at Cookstown, Enniskerry, Co. Wicklow



Landscape Report & Outline Landscape Specification

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Landscape Report

Contents

Outline Landscape Specification

Contents

Kevin Fitzpatrick Landscape Architecture Ltd. has been commissioned by the applicant to provide landscape architectural consultancy in relation to a planning application for the proposed residential development at Cookstown, Enniskerry, Co. Wicklow. This report should be read in conjunction with the following documents:

Kevin Fitzpatrick Landscape Architecture Drawing, 370-101_ Landscape Masterplan
Kevin Fitzpatrick Landscape Architecture Drawing, 370-102_ Landscape Proposals Detail Area 1
Kevin Fitzpatrick Landscape Architecture Drawing, 370-103_ Landscape Proposals Detail Area 2
Kevin Fitzpatrick Landscape Architecture Drawing, 370-104_ Landscape Proposals Detail Area 3
Kevin Fitzpatrick Landscape Architecture Drawing, 370-105_ Landscape Sections
Kevin Fitzpatrick Landscape Architecture Drawing, 370-106_ Boundary Treatment Plan
Kevin Fitzpatrick Landscape Architecture Drawing, 370-107_ Boundary Treatment Details

1. Existing Landscape

1.1 Overview

The subject lands are in the Cookstown townland, near Powerscourt National school at approximately half a kilometer to the south from Enniskerry town square. The site is in a rectangular form with an irregular boundary on the west perimeter but with relatively straight boundary lines on the other perimeters. The site is surrounded by a combination of residential developments, farmland, the national school and amenity woodland and walking area. Most of the perimeters are composed of a native hedgerow and trees. Part of the north eastern boundary line traverses the hedgerow field boundary on both sides. The land is in agricultural use as a pasture and has been for a period of time.

1.2 Landscape Character

The character of the landscape would be considered that of a standard agricultural landscape, with traditional hedgerow field boundaries, with no inherent aesthetic qualities. The local lands have been used as pasture/crop production and consist of field patterns and sizes common in the wider landscape. The hedgerow boundaries are generally quite strong around and within the site and there is therefore a generous amount of tree cover around the boundaries of the site. Within the wider landscape beyond the site woodland, tree groups and large tree specimens are common, especially along the Dargle River corridor to the south of the site.

1.3 Existing Trees and Vegetation

The trees within the site are entirely confined to the perimeter hedgerows. Most of the trees are within the northern boundary hedgerows where of the 21 trees surveyed (Please refer to the tree survey by The Tree File Ltd.) there are 3 category B trees and the remainder are mostly category C with 3 trees dead or dying. The trees are mostly Beech, Ash and Oak, however 2 of the Category B trees are Elm trees which are susceptible to failure due to Dutch Elm disease. The remaining trees on site are either Ash or Sycamore with 2 of the latter classed at category B.

Hedgerows on the lands contain typical native species such as Holly, Blackthorn, Hawthorn, Dog Rose and Bramble. All are in various states of dilapidation due to neglect and mismanagement. The eastern boundary includes a tree belt that is planted on the neighbouring lands but abouts the site boundary. This densely planted belt comprises of a mix of Sitka Spruce, Firs, Pines and Hollys.

2 Landscape Strategy

2.1 General Aims

The landscape strategy aims to integrate the new built development with the existing landscape and create a network of attractive and usable open spaces while contributing to the local biodiversity. The character of the landscape proposed is one of native woodland, wildflower meadow, large woodland trees and tree copses with structure shrub planting, formal clipped hedges, streams and pools and large open lawn areas. The public green areas are designed as landscape spaces that offer the opportunity for meeting, walking and formal and informal play.

Fig. 1 – Landscape Masterplan

2.2 Spatial Uses

The useable landscape space is provided throughout the scheme with a large space on the north and south sides of the site connected by a series of smaller spaces. Semi-private spaces accommodating residents of the proposed apartments have also been provided.

In the main open spaces, the levels and layout have been carefully considered to accommodate a flat area for passive recreation, play and ball games. Overlooking each of the lawn and play spaces a seating space is located including benches, ornamental planting, flowering trees and feature paving.

Desire lines through the landscape spaces are reflected in the path layout and integrate with the general street layout to provide a high level of pedestrian permeability. Proposed pedestrian routes provide for connection to the adjoining lands to fully integrate the landscape scheme with the surrounding landscape. The pedestrian circulation network is designed to accommodate movement through the space at a gradient of less than 1:20. The layout of the paths and planting allows smaller areas of lawn suitable for passive uses by smaller children and other alternative uses to the kickabout space. Screening has been considered throughout all the open spaces and has been implemented through woodland and native hedgerow planting, however, within the main open a large break in proposed vegetation has been provided in order to maintain the view to the Sugar Loaf mountain.

Fig. 2 – Southern Open Space 'The Linear Parkland' Layout

2.3 Southern Open Space 'The Linear Parkland'

This large linear open space has been designed as an ecological park with the aim of strengthening local biodiversity while offering a range of uses to residents of the local area. This approach creates new habitats for local flora and fauna and encourages easier movement of smaller mammals through the site. Breaks in the tree and shrub planting have been created to establish a visual connection between the proposed park area and the streetscape, encouraging residents and passersby to utilise the park and to allow a high level of passive supervision. New connections are also provided to the amenity walks to the south to The 'Lovers Leap' and surrounds.

The western portion of the park consists of a new woodland area. This woodland is designed in two sections with the outer (northern) section designed as a high canopy woodland. This type of woodland uses planting design and management to create a high canopy woodland which permits light to penetrate through to ground level. Under the trees a carpet of grass meadow or lawn can be established and maintained allowing a range of uses to take place. Within the high canopy woodland area in this scheme some informal or natural play elements will be positioned through the trees. The southern section of the woodland is designed as a natural woodland habitat with a native high canopy, mid canopy, shrub and ground flora layer. This will contribute significantly to the local biodiversity and provide a range of interest in terms of the vegetation layers and associated wildlife that will establish. In the centre

of the woodland a clearing is provided as a focus to this space bringing light and activity into the centre of the woodland. Within this space a seating area is provided adjacent to a central play area.

Central to this open space is a large mown grass area to act as a kickabout space. The kickabout space is spatially defined by copses of native trees, paths and wildflower meadow, it provides a space for passive and active recreation. The open space is located centrally to take advantage of the view of the Sugarloaf Mountain and maintain this view from within the space and other areas within the scheme. A seating space is provided adjacent to the large lawn area with views of the activities, to the mountains and throughout the landscape spaces within the scheme.

A wildflower meadow is proposed in the eastern half of this space with copses of native trees scattered throughout. Wildflower meadow and native tree planting attracts pollinators and creates habitats for local flora and fauna. Mown grass tracks create secondary circulation routes directed towards small secondary seating spaces cut out of the meadow.

Fig. 3 – Southern Open Space Reference Images

2.4 Northern Open Space 'The Lawn'

The design of this space is centered around a central lawn space for active and passive recreation. A series of formal hedges are used to create an edge to the space and control active activities from spilling out on to the street. The entrance to the scheme from the public road is to be marked by a series of stone walls, drawing on some of the traditional materials and landscape elements found in the local landscape. The walls will be designed in an aesthetic, sculptural arrangement to highlight the entrance area. The formal hedges and stone walls will continue across the entrance road linking the smaller space visually to the larger.

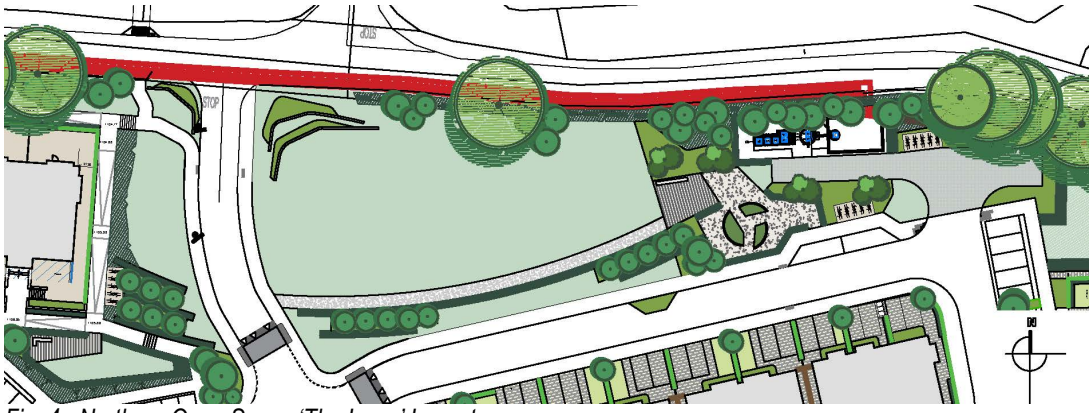

Fig. 4 - Northern Open Space 'The Lawn' Layout

A seating space is provided to the east of the lawn area overlooking this space. To the east of the seating space is a kitchen garden area where the residents are facilitated with somewhere to grown vegetables, herbs and flowers. This is designed as an arrangement of raised planters so it will remain an attractive space to walk through even if it not being used to grow vegetables at that time. The seating space sits between the two main spaces and creates a link between the two.

Fig. 5 - Northern Open Space Reference Images

2.4 Central Spaces 'The Vista'

This series of spaces has been designed using the linear drainage systems as the focal element of the landscape. The arrangement of these spaces aims to accentuate the vista to the Sugarloaf Mountain. The swales proposed as a drainage element are to be further developed and enhanced using plants, pebble surfaces, rocks and stone weirs to create attractive streams. Most sections of the stream will be dry in normal circumstances and will accommodate overflow surface water when required. The streams have a dual function of creating interesting focal elements within open spaces and along circulation routes and providing new ecological features which improve local biodiversity. In some areas, the streams will be widened to create wetland ponds, and planting will consist of appropriate plant species, creating new habitats for flora and fauna. Around these wetlands, seating spaces and a small play area is provided creating a series of focal points and staying spaces.

Fig. 6 - Central Open Space 'The Vista' Layout

Fig. 7 - Central Open Space 'The Streams' Reference Images

2.5 Semi-private Spaces

Semi-private spaces are located and designed to provide both a visual and spatial connection with the main open space. Low formal hedges and railings spatially define the spaces while allowing a visual connection with the open spaces. Circulation routes through the open space extend into the semi-private areas ensuring permeability and movement between the public realm and semi-private space. Small seating areas defined by feature paving and ornamental planting provide interesting places for meeting and relaxing while small lawn areas provide spaces for active play and passive recreation.

Fig. 8 Semi-private space reference images

2.6 Natural Play Design

There is one play area within the scheme which is designed as a 'Natural Play Space', which can be found in the main Open Space. Here, a preference is given to natural play features, materials, and objects over the standard manufactured play equipment. There is a greater emphasis on exploration and pretending as activities to extend the interest in the play area for users that visit regularly, as is common in a residential landscape space. One of the other benefits of this type of play facility is that the appearance of the space is more harmonious with a landscape space as it is primarily made up of grass mounds, sand, gravel, timber and stone. As no large structures or moving parts are used the safety risks and requirements for appropriate safety surfaces etc. are reduced.

The play area featured in Fig 8 is an example of the type to be created in this space. The surface will be grass and within the space created a number of activities are facilitated such as balancing, jumping, climbing and crawling.

Fig 8 - Precedent image for Natural Play area ('Ringfort' play space, Lucan by Playscapes)

2.7 Perimeter Boundary Strategy

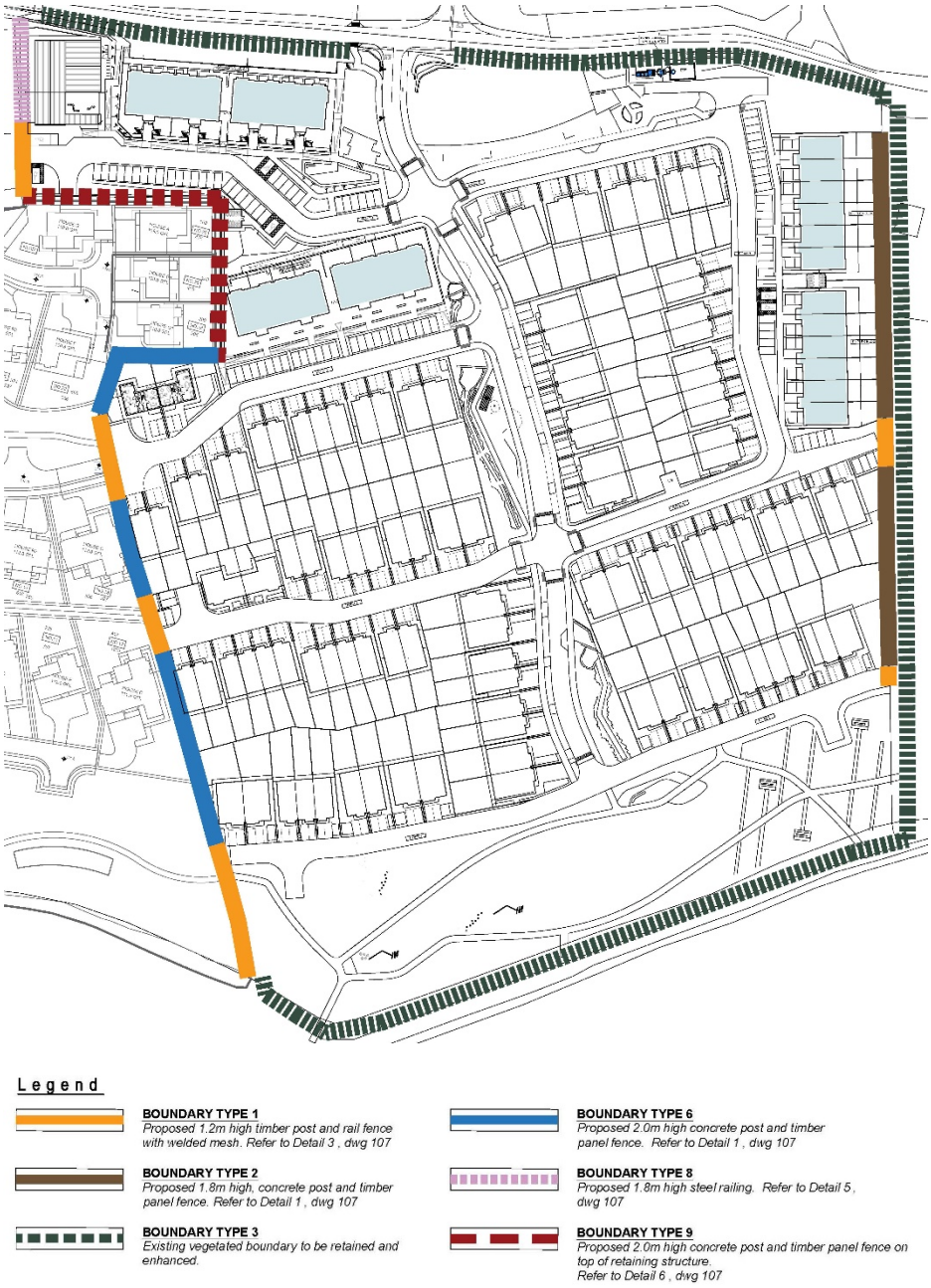

Fig. 9 Boundary Strategy Diagram

Northern Boundary

The northern boundary adjoins the public road and consists of vegetation for the full extent other than where it is broken to accommodate the agricultural gate. The Arborists report finds that the vegetation along this boundary includes a range of vegetation including a poor hedgerow thicket with some emergent Elm and Ash trees. However, the report find that the boundary also includes '*what appears to be a remnant of an aged tree alignment…*' It further reports that these trees are of an age, size and species to differentiate this line of trees from the rest of the trees on site and are most likely historic planting associated to Summerhill House.

The proposed strategy for this boundary is to retain all the large trees other than those that require removal due to being assessed by the arborist as unsuitable for retention regardless of the proposed development. To achieve this successfully a range of design and mitigation measure were required to avoid any conflict with the trees. The trees

will be incorporated into the scheme and supplemented with additional tree planting. The hedgerow will be retained and enhanced with additional planting and maintenance measures to improve its structure and form.

Eastern Boundary

This boundary is marked by a post and wire fence on the other side of which is very dense vegetation. This vegetation is from plantations on the adjoining lands but due to their proximity to the boundary some of the tree limbs encroach into the site. The Arborist's report finds that this vegetation consists in part of a good quality Cherry, Laurel and Leyland Cypress hedge. The Arborist's report finds that most of the eastern boundary is made up of vegetation it refers to as 'Tree Line 1'. This a very dense line of trees including Sitke Spruce, Douglas Fir and Scots Pine the majority of which are found to be in good health. With this tree belt being made up of Pines and Firs growing at close spacing they combine to make a very solid visual screen.

The proposed strategy for this boundary is to prune back any overhanging limbs that may interfere with the proposed development. Throughout the design process care has been taken to avoid any impact on these trees so the long-term retention of the trees is not affected. Proposed boundary treatments to the rear gardens along this boundary is limited to fencing using concrete and timber posts. This treatment will remove any need for trench foundations to avoid any severance of the root base of the trees on the adjoining lands.

Southern Boundary

The southern boundary is defined by a post and wire fence within a scrubby hedgerow that is of poor quality in terms of its form and species make up. The hedgerow is quite scrappy and dilapidated in parts and made up mostly of Bramble. The Arborists report finds that it is '*effectively devoid of trees'* except for a couple of small specimens.

The proposed strategy for this boundary is to retain the hedgerow where suitable and enhance with supplemental planting and management. Where the hedgerow is extremely poor it will be replaced with a new species rich hedgerow. The proposed treatment will be a strong, robust and species rich hedgerow with complementary woodland planting and breaks where required to provide pedestrian links to the lands to the south.

Western Boundary

The western boundary consists of a post and wire fence with a hedgerow including some trees from the south western corner for 205m along the site boundary. From this location this point to the north western corner of the site the application boundary does not align with any physical feature on the ground. The Arborist's report finds that this hedgerow is made up of a large amount of bramble and Ivy and is '*highly variable both regarding height and spread'.* There are a number of large trees within this hedgerow boundary, however the Arborist' s report states that most trees are young emergent Ash that have been distorted by early life flailing or similar hedge cutting. These trees are assessed as '*mechanically flawed and commonly predispose the affected tree to mechanical failure, a factor that is already apparent in some specimens, resulting in their designation for removal'*

The extant permission for housing on the lands to the west of this boundary permits development up to the property ownership boundary (the fence line) for a significant section of this boundary. Part of the section of hedgerow in the north east of the site falls within this development and is scheduled for removal. With the impact of the adjoining development on the hedgerow and trees considered it is prudent to propose the removal of this hedgerow where it is adjacent to development and install a new boundary treatment. The proposed boundary treatment is to use a durable timber fence and concrete posts where private gardens abut the adjoinging development. In the locations where open spaces and public spaces abut it is proposed that a 1.2m high timber post and rail fence will suffice to create a less imposing and more visually open boundary.

2.8 Planting Strategy

The plant species are chosen to respect and enhance the local environment while providing suitable vegetation that is harmonious with a residential area and will be successful through all stages of its maturity. Therefore, the planting palette has a limited number of species chosen for their appropriateness and with a preference for native planting where possible.

Large native Oaks are the dominant tree species proposed throughout the main open space areas and will be complimented by large Horse Chestnuts, Limes, Beech and Red Oak trees. These trees will mature into large parkland specimens. When the trees mature, they will have a strong visual presence and will define the character of the development as the existing trees go into decline.

The street trees are chosen due to their more compact habit. These species are appropriate for the scale of the spaces in which they are to be used and are of a variety that will complement other native trees. Each street is to be planted using a single variety of tree and hedge giving a specific landscape character to each part of the development.

The existing trees that are retained within the scheme are to be enhanced and strengthened by additional planting of native and naturalised broadleaf tree planting. Throughout the public open spaces, a mix of broadleaf deciduous trees will be planted that will increase the woodland cover while facilitating safe use of the spaces. Formal evergreen hedges are used throughout the development to define spaces and create boundaries. These hedges will complement the estate landscape character of the site. Evergreen shrub mixes are also used as robust structural planting to define the streetscape and spatial uses. Ornamental and groundcover planting will be used to frame seating areas and cover the existing embankments in the open spaces, which will increase the aesthetic qualities of the space. Some more ornamental trees will be utilized for their visual quality and to provide interest around the seating areas.

The perimeter planting around the site will be native and naturalized broad-leaf hedgerow and tree-planting, along with dense woodland and understory planting to create visual screening and improve biodiversity. Native plants Blackthorn, Hawthorn, Hazel and Holly are all used in the hedgerow mix and tree-planting in the hedgerows consists of Common Birch, Native Oak, Horse Chestnuts and Common Alder

Fig 10 - Sample planting images

Prunus kanzan

Prunus avium ‘Plena’

Pyrus ‘Chanticleer’

Sorbus intermedia ‘Brouwers’

Mauls trilobata

Fig 11- Sample Tree Species Images

2.09 Plant List

Large Tree Planting
To be planted as 14-16cm, 3xtr, wrb, 4-4.5m high, 2m clear stem. To be of the following species:

Aesculus hippocastanum (Horse Chestnut)
Fagus sylvatica (Beech)
Quercus rubra (Red Oak)
Quercus robur (Oak)
Tilia platyphyllos (Lime)

Medium Sized Street Tree Planting
To be planted as 10-12cm girth specimens with underground guying support. To be selected from following:

Malus trilobata (Field Maple)
Prunus avium (Wild Cherry)
Pyrus chanticleer (Ornamental Pear)
Prunus kanzan (Ornamental Cherry)
Sorbus intermedia 'Brouwers' (Aria Section)

Ornamental/Multi-stemmed Tree Planting
To be planted as 14-16cm, 3xtr, wrb, 4-4.5m high, 2m clear stem. To be of the following species:

Aesculus hippocastanum (Horse Chestnut)
Fagus sylvatica (Beech)
Quercus rubra (Red Oak)
Quercus robur (Oak)
Tilia platyphyllos (Lime)

Proposed Native Woodland Planting Mix
To be planted as 20% 6-8cm half standards and 80% transplants. To be of the following species :

Crataegus monogyna
Prunus spinosa (Blackthorn)
Ilex aquifolium (Holly)
Corylus avellana (Hazel)

Formal Hedge Planting
Carpinus betulus
Cotoneaster lacteus
Fagus sylvatica
Prunus lusitanica

Shrub Planting
Abelia x grandiflora
Buxus sempervirens (Box)
Cistus x hybridus (Rock Rose)
Cornus alba 'Sibirica' (Red Barked Dogwood)
Calamagrostis 'Karl Foerster'
Hypericum 'Hidcote' (St Johns Wort)
Ilex aquifolium (Holly)
Ligustrum japonicum (Japanise Privet)
Ligustrum vulgare (Common Privet)
Mahonia x media
Prunus lusitanica (Portugese Laurel)
Prunus laurocerasus (Common Laurel)
Salix brtizensis (Willow)
Stipa gigantea

Groundcover + Grasses
Carex testacea
Hedera helix 'Hibernica' (Ivy)
Lavandula stoechas (Lavender)
Libertia formosa
Lonicera pileata (Honeysuckle)
Lonicera nitida 'Maigreen' (Honeysuckle)
Luzula nivea (Snowy Woodrush)
Molinia caerulea (Purple Moor Grass)
Persicaria affinis 'Superba'
Stipa calamagrostis
Stipa tenuissima
Vinca minor (Periwinkle)

Herbaceous Plants
Allium spp.
Anemone japonica 'Honorine Jobert' (Windflower)
Crocosmia 'Lucifer'
Ligularia 'Przewalskii'
Rudbeckia fulgida 'Goldsturm' (Black Eyed Susan)

2.10 Materials

Fig 12 - Exposed aggregate concrete footpaths

Fig 13– Coloured Asphalt Surface

Fig 14 - Hardwood and steel street furniture design typologies

Fig 15 –Stone Paving, Silver Granite Slabs, Flamed finish

Appendix 1

Landscape Works and Maintenance Specification

1.0 EARTHWORKS SPECIFICATION

1.1 STRIPPING AND STORAGE OF TOPSOIL

1.1.1 Weather and Soil Conditions

All work involving topsoil shall not be carried out, unless the engineer permits otherwise;

a) where areas have been exposed to a cumulative rainfall exceeding 60mm over the preceding 28 days measured at a point approved by the engineer; or
b) where 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.
c) when heavy rain is falling.

Topsoil shall not be stripped, excavated or worked in way when frozen or waterlogged.

1.1.2 Stripping

Prior to stripping existing, all vegetation will be cut to a maximum height of 100mm and sprayed with an approved systemic herbicide.

Existing topsoil to a maximum depth of 150mm shall be stripped from all areas liable to disturbance of any kind including building works, all temporary access routes, underground services, permanent mounding areas, ponds, compounds and storage areas.

Do not run machinery over ground before stripping. Strip the full depth of the sod and topsoil, but avoid extending the stripping into the subsoil layers. Doubling handling/working of all material shall be avoided.

1.1.3 Stockpiles

Stockpiles shall be kept as low as possible, and shall not exceed 1.5m metres in height. Avoid running machinery over stockpiles, if this is compatible with the operation of the machines employed. In all cases, minimise the running of machinery over stockpiles. Do not compact them. In formation of stockpiles, soil should be loosely dumped and stockpiles should be shaped to shed water. Any temporary stockpiles, made before loading, shall not exceed 1.5 metres in height. Do not run machinery over the surface of stockpiles.

Stockpiles shall be located on dry, free draining ground, not subject to temporary standing water. If water ponds against the stockpile, temporary drains shall be cut to relieve it.

Topsoil stockpiles shall not be covered or contaminated by subsoil, rock, rubble, remains of trees, site debris, fuel or chemical pollution. Any contaminated soil stripped from the site shall not be incorporated into the stockpile. Where space is short, or where there is any risk of contamination or of topsoil and subsoil stockpiles intermingling, the topsoil stockpile shall be surrounded with a temporary fence.

Temporary yards or hardstandings, or any area where fuel or chemicals are stored shall not drain towards topsoil stockpiles.

1.1.4 Maintenance of Topsoil Stockpiles

Stockpiles of One Year's Duration or less: Treat growing weeds with 'Roundup' applied to manufacturer's recommendation and to the approval of the Engineer, diluted and applied in accordance with the manufacturers recommendations for the equipment used, when they are growing strongly. Noxious weeds (Docks, Thistle, and Ragwort) shall be treated before they flower.

Stockpiles of up to Two Year's Duration: Roughly grade top and slopes of topsoil to reasonably even slopes (no flat areas). Sow Italian Ryegrass at 50 kg. per hectare as a temporary grass cover. Control noxious weeds (Docks, Thistle, Ragwort) with a proprietary selective weedkiller such as 'Bandock', diluted and applied in accordance with the manufacturer's instructions for the equipment in use, when they are growing strongly.

1.2 SPREADING OF TOPSOIL

1.21 Decompaction

Prior to subsoiling or topsoiling all disturbed areas (excluding engineered slopes) shall be decompacted using a back-actor of a 'Hymac' to a depth of 450mm and only during dry weather conditions.

1.2.2 Subsoil Formation

Formation levels shall allow for the following depth of Class 5A topsoil, after settlement and cultivations:-

Grass Areas:	200 mm.
Shrub Planting	350 mm

Make up excessive depth with subsoil material before topsoiling. This material shall be clean subsoil (soil layer extending between the natural topsoil and the parent material), free draining, free from rubbish, building contamination, large stones/rocks greater than 250mm. Subsoiling operations shall be carried out in layers with each layer being lightly consolidated with a maximum depth of 250-300mm per layer.

Allow for topsoil to stand 30 mm proud of all kerbs, paths, edgings and manhole covers etc.

1.2.3 Topsoil - General

Topsoil for use in all landscape areas shall be subject to the inspection and approval of the landscape architect before spreading.

Topsoil will be premium grade topsoil of high intrinsic fertility, loamy texture and good structure and shall conform to BS3882. It shall be free from pernicious weeds including dock, thistle, stinging nettle, ragwort and couch grass. It shall not have been compacted and shall not be in an inert state.

It shall be acidic, pH 5.5-6.5 and free from stones over 50mm in diameter. It shall be free from subsoil, sods, roots of trees and shrubs, plastics, metals, paper, brick, concrete or any other foreign object. 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. Do not strip from under the canopy of any tree, nor closer than 4 metres to a hedge.

The organic content shall not be less than 5% (dry weight). Where the soil contains more than 60% sand, the organic matter shall not be less than 6% (dry weight).

1.2.3 Topsoiling

Topsoil shall not be spread over any area of the site indicated until preliminary ripping operations are complete. Once the topsoil has been spread, **no access** will be allowed for construction plant and machinery. Site preparation and soiling operations shall take place only in suitable dry site and weather conditions.

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

The use of a heavy roller to roll out humps will not be permitted and any area that becomes unduly compacted during the grading operations shall be loosened by forcing or harrowing.
The level of the topsoil is to be at least 30 mm above all paved areas to allow for shrinkage or settlement.

Finished Levels

Localised hollows and mounds are to be levelled out and areas so finished that they drain to hard standing areas or elsewhere as indicated.

1.2.3 Topsoil for Tree Pits

Planting pits for standard trees will be dug and backfilled with Class 5B topsoil. Volume of topsoil to be as follows:-

Extra Heavy Standard Trees	1.2 cubic metres
Standard Standard Trees	1.0 cubic metres

1.2.6 Reinstatement Work

Reinstate all ground driven over and otherwise disturbed to even flowing gradients. Match reinstated levels to those of surrounding ground. Finished levels shall be free of humps, depressions and vehicle tracks. Rainwater shall not lie on reinstated ground nor on adjacent areas.

2.0 PLANTING SPECIFICATION

2.1 Materials

All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection, Aphis, Red Spider or other insect pest, and physical damage. It shall comply with the requirements of Part 1: 1965 Trees and Shrubs section of B.S. 3936, Specification for Nursery Stock.

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.

Except for any cultivated varieties or exotic species which do not set viable seed in Ireland, all plants shall have been grown from seed.

2.2 Species

All plants supplied shall be exactly true to name as shown in the plant schedules. Unless stipulated, varieties with variegated or otherwise coloured leaves will not be accepted, and any plant found to be of this type upon leafing out shall be replaced

Bundles of plants shall be marked in conformity with the relevant part of B.S. 3936. Replace any plants that are found not to conform to the labels. An inspection of plants shall be undertaken prior to planting to ensure quality control.

2.3 Trees

Selected standard trees shall have a minimum girth as specified at 1.00 mm above ground level, a clear stem to 1.8m high and a total height of 3.0 to 3.5 metres.

Selected standard trees shall have a minimum girth as specified at 1.00 mm above ground level, a clear stem to 2.0m high and a total height of 4.0 to 4.5 metres.

Trees shal have a sturdy, reasonably straight stem, a well defined and upright central leader, with branches growing out of the stem with reasonable symmetry, or a well balanced branching head according to the Schedule. The crown and root systems shall be well formed and in keeping with the nature of the species. Roots shall be in reasonable balance with the crown and shall be conducive to successful transplantation.

Trees shall be supplied rootballed unless otherwise scheduled. All trees shall have been regularly undercut or transplanted. Root balled trees shall be supplied with a rootball made from a mechanical 'Damcon' undercutter or similar approved, shall be 90cm diameter, wrapped in bio-degradable burlap and tightened with a 90cm diameter tempered steel root ball cage.

Bare root trees shall have been lifted carefully to avoid tearing of major roots and to preserve a substantial proportion of smaller and fibrous roots. Trees shall have been grown on their own roots. Budded or grafted trees will be rejected.

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2.4 Shrubs

Shrubs shall be of the minimum size specified in the schedules, with several stems originating from or near ground level and of reasonable bushiness, healthy, well grown, and with a good root system. Pots or containers shall be as scheduled. Plants shall not be pot bound, nor with roots deformed or restricted. Bare root material will only be accepted where specified.

2.5 Herbicides

All herbicides will be approved under current regulations and proof of compliance provided where requested by the Landscape Architect

2.6 Weedkiller Application

All weedkiller shall be applied with properly designed equipment, maintained in good working order and calibrated to deliver the specified volume, evenly and without local over-dosing. Measure all quantities of weedkiller with a graduated measuring vessel.

2.7 Bulky Organic Manure/ Mushroom Compost

Bulky organic manure shall consist either of spent peat compost, mushroom compost, as described above, spent hops, or of well rotted farm manure. Farm manure shall consist of predominantly of faecal matter and shall be free of loose, dry straw and of undigested hay. Manure shall be free of surplus liquid effluent. This shall be used on mounds only. Well spent mushroom compost shall be used in all ornamental planting areas.

2.8 Fertilisers

Controlled release fertiliser N:P:K 15:9:11 plus trace elements - Osmocote plus or similar approved applied at specified rates. Fertiliser shall be supplied in sealed bags or containers bearing the manufacturer's name, the net weight and analysis.

2.9 Stakes for Extra heavy Standard Trees

Stakes shall be of peeled Larch, Pine or Douglas Fir, preserved with water-borne copper-chrome-arsenic to I.S. 131, to a net dry salt retention of 5.3 kg per cubic metre of timber. Stakes shall be turned, and painted one end. Size shall be 2700 x 75 mm diameter.

Set stakes vertically in the pit and drive before planting. Drive stake with a drive-all, wooden maul or cast-iron headed mell, not with a sledgehammer.

2.10 Tree Ties

Tree ties shall be of rubber, P.V.C. 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. 40 min. wide for standard trees. Provide a simple collar, free of rough or serrated edges, to prevent chafing. Provide for subsequent adjustment of the tie either by means of a buckle (nail tie to stake immediately behind it) or by leaving heads of securing nails slightly proud, to permit easy extraction and repositioning. All nails shall be galvanised.

2.11 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 planting on site shall be stored in a sheltered place protected from wind and frost, from drying out and from pilfering. Bare rooted plants not immediately required shall be heeled-in in a prepared trench, the bundles of plants first having being opened, the plants separated and each group separately heeled-in and clearly labelled. The roots shall be covered with moist peat or soil and shall be kept moist until planted. Pots shall not be removed until plants have been carried to their planting station. Plants packed in polythene must be stored in shade.

All forest transplants and bare root shrubs 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.

Plants shall be handled with care at all times, including lifting in and despatch from the nursery. Plants or bundles of plants shall not be tossed, dropped of subjected to any stress likely to break fine roots.

2.12 Damage

Any roots damaged during lifting or transport shall be pruned to sound growth before planting. On completion of planting any broken branches shall be pruned.

2.13 Vine Weevil

Line out all container grown plants on level ground. Drench pots with 40 g of 40% Diazinon W.P. in 100 litres water. Allow to stand for at least three days before planting.

2.14 Setting Out

Setting out shall be from figured dimensions where indicated, and otherwise by scaling.

Shrubs and ground covers planted in mass shall be at the spacing indicated on the drawings. Shrubs shall not generally be planted closer to a kerb or to the edge of a planting area than a distance equal to half the spacing indicated for that species.

2.15 Site Preparation

Preliminary Weedkilling: 'Roundup' @ 5.0 litres per hectare, in water @ 200 litres per hectare, and application pressure not exceeding 2 bars.

Shrub Planting: Weedkill. Spread over all planting areas: -

Organic Manure:	50 mm deep
Osmocote plus:	75 gm/msq

Cultivate beds 225 mm deep, incorporating ameliorants evenly. Remove stones, rubbish over 50 mm dia.

2.16 Extra Heavy + Select Standard Tree Planting

Excavate tree pits to 1.2 cubic metres volume (1.2 m diameter x 1.0 m deep). The base of the pit shall be broken up to a depth of 15 cm and glazed sides roughened. Supply and drive 2nr stakes.

For planting in areas of made up ground, load and carry topsoil from stockpile on site. In undisturbed ground, backfill with excavated material. Mix the following ameliorants evenly throughout the topsoil while it is stacked beside the pit. (Quantities are calculated for a pit of the specified dimensions):-

Soil ameliorant:	0.047 cubic m (equivalent to manure 6 cm deep over 1 m dia. of tree pit).
Osmocote plus:	250 gm

Trees shall be planted at the same depth as in nursery, as indicated by the soil mark on the stem of the trees. They shall be centred in the planting pit and planting upright. The roots shall be spread to take up their normal disposition. Fit tie.

2.17 Planting of Shrubs and C.G. Transplants

Remove all plastic and non-degradable wrappings and containers before planting. Make four vertical cuts with a sharp knife on the quadrants through the edge of C.G. rootballs to sever girdling roots. Excavate hole to min. 10 cm greater diameter than the root spread, and to a depth to allow planting to same depth as in the nursery. Spread out roots of bare root species. Backfill in layers of not more than 10 cm, firming each layer and on completion.

2.18 Replacements

The planting will be inspected in April and September following planting (refer to implementation programme). Any tree or shrub found to have died from any cause shall be replaced. Replacement planting shall conform in all respects with this Specification, including all specified excavation, provision and incorporation of all fertilizers and ameliorants, and weedkiller treatments.

3.0 MAINTENANCE SPECIFICATION

3.1 Performance Standards (Detailed at end of Aftercare Section)

General

Woodland Planting

Noxious weeds (Dock, Thistle, Ragwort) shall not be allowed to establish.

Stone or debris over 50 mm diameter shall be removed or buried at each visit.

Tree stakes, ties and any tree shelters shall be secure and correctly adjusted.

Weeds shall not exceed 150 mm in height and all weeds shall be killed at each aftercare visit.

Trees

Weed-free circles around trees shall be 1000 mm diameter in grass areas.

Weeds shall not cover more than 10% of each circle at any time after the first scheduled weedkilling.

All weeds in the circles shall be killed at each aftercare visit.

Weeds shall not exceed 100 mm in height at any stage.

Hedges

Weed free band 750 mm wide along hedge, with hedge in the centre of the band. Include the bottom of any adjacent fence.

Weeds shall not exceed 100 mm in height and all weeds shall be killed or removed at each visit.

Shrubs and Ground Covers

Soil surfaces shall be generally free of weeds at all times and, on the Critical Dates shall be entirely free of all weeds.

No encroaching grass in soil area.

All Plants

Shall be alive, healthy, free of minor defects and free of weedkiller or cultivation damage.

Planting areas shall be free of litter and debris from weeding, cultivation or pruning.

Mulches, where present, shall be maintained in continuous cover.

3.2 Inspections

The Landscape Architect will inspect the works on each critical date, or as soon as possible thereafter.

3.3 Weedkilling

Weedkillers and their application shall be as specified under 'Planting' above.

Protect foliage of all plants during applications of a non-selective foliar-acting herbicide with an 'Arboguard', 'Politec' guard, or equivalent to the satisfaction of the Architect. No plant, foliage or stem, shall be directed sprayed, even in winter. Take particular care when using Glyphosate.

3.4 Weed Control in Shrubs and inHedges

Weed shall be controlled by a combination of hand weeding and herbicide application. If foliar-acting weedkillers are applied, all plants shall be protected during their application, as specified. **No residual herbicides shall be used in the first season after planting**.

3.5 Weeding

Remove weeds by surface hoeing and pulling. Dig out all roots of deeply rooted or noxious species. Remove all weeds from site each day and dispose. Make good disturbance to mulch.

3.6 Watering

All trees, hedges, shrubs, ground-cover, herbaceous and annual bedding will be watered asnecessitated by dry weather. Apply water as a fine spray, to moisten full depth of root run. Avoid washing or compaction of the soil surface.

3.7 Firming

Firm any plant loosened by frost, wind or cultivation.

3.8 Pruning

Any shoot damaged or found to be dying back on a periodic visit shall be cut back neatly to sound growth with a sharp pruning knife. Prune off wind-damaged shoots to sound growth.

3.9 Fertilizer: Trees and Shrubs

Osmocote 18:11:10, applied @ 50 g/sq.m., and lightly raked in through mulches.

3.10 Hypericum Rust

Apply 'Bayleton 5' in accordance with manufacturers instructions.

3.11 Grass Mowing

Mowing shall be carried out with machines in good repair, sharp and evenly set, avoiding laying or pulling of the grass.

Mowing shall be carried out in dry conditions.

Mow swards evenly. At each visit, mow all areas of equivalent standard at the time, to ensure an even appearance and finish. Include for completion of each cut around obstacles. Leave grass cuttings evenly spread. Sweep up mowings on hard surfaces and remove from site

3.12 Selective Weedkiller: Clover

All herbicides will be approved under current regulations and proof of compliance provided where requested by the Landscape Architect

3.13 Fertilizer: Grass

10:10:20. Apply in two equal passes in transverse directions at a combined rate of 17 g/m. sq. (0.5 oz. per square yard). Avoid any 'banding'.

3.14 Litter

Prior to mowing, remove litter. Remove all litter in all planting when weeding or spraying.

3.15 Defects Arising

Any defect noted at an aftercare visit, e.g. plants loosened by wind, tree shelters fallen or stakes broken, fence wires loose or posts rocking will be remedied before the next inspection visit.

3.16 Pests and Diseases

Any outbreak or build up of insect pest, fungus disease or disorder affecting the plants, or grass shall be notified to the LA as soon as it is noticed.. The Architect shall issue instructions for treatment of the outbreak.

3.17 Vandalism

A provisional sum has been inserted in the schedule of quantities to cover costs of prompt repair and reinstatement of vandal damage.

3.18 Access

Access to the site must be arranged in advance and clearance at security will be required for each visit.

3.19 Protection

Any overhead and underground services shall be protected during works.

Protect paving, roads, kerbs, channels, gullies, walls, fences, structures, furnishings and existing vegetation during the course of his works. Include where necessary temporary coverings, planked barrow runs, etc. Clean mud and soil of all hard surfaces and surroundings to the work.

3.20 Tidiness and Clearance

All areas of work and access routes shall be kept in a tidy condition. All areas of the site will remain in use by the public and/or building users during the course of the contract. Clean all debris from beds and surrounding surfaces daily during his visits to site, and at more frequent intervals if necessary for the safety of users of the site.

3.21 Safety

All safety standards will be adhered to.

4. PLANTING PERFORMANCE STANDARDS

4.1 Shrubs - General

The borders must be kept weed free, particularly of perennial weeds, to allow planting to give early cover. However, the plants may be required to be thinned so that the shrubs that are retained are able to achieve an attractive form. This may involve removing the intermediate plants soon after shoots are touching.

4.1.1 Maintenance Objective

Maintain shrub growth to cover as much as possible of the border area and allowing the individual plants to achieve as nearly as possible their natural form. Maintain the borders free of visible weeds and shape and prune the shrubs to avoid obstructing pathways or blocking light to, or adhering to windows.

4.1.2 Maintenance Operations

a) After planting, if appropriate and in season for the species involved, prune shrubs to develop their desirable ornamental characteristics. At the same time remove intermediate plants that are restricting the natural and attractive development of their neighbours. Remove all arisings from site.

b) Lightly cultivate the surface soil, to a depth of approximately 50 mm, remove or bury all annual weed or natural litter and break any surface capping. Take special care to avoid unnecessary damage to the shrub plants and ensure that all the shrubs are firmly bedded in the soil. Leave the surface with a fine and even tilth with soil crumbs of less than 50 mm in diameter. Once a year operation in early winter.
Note: This operation is only essential where the soil is compacted or as a means of incorporating mulch. Not required where the areas are mulched.

c) Maintain the soil surface substantially free of weeds (less than 10 per cent weed cover) by hand removal and spot treating with Glyphosate, or approved equivalent. Spot treatment at approximately four-weekly intervals in the main growing season, to a total of five times per season.

Note: As an alternative the borders can be regularly hand-hoed at up to two-weekly intervals in the main growing season, to 6 times per year. This procedure is recommended for the first year after planting when the plants may be more sensitive to contact herbicide damage and residual herbicides may not be used.

d) Immediately after planting or, when and where subsequently directed, mulch the surface of the border with a 50 mm layer of pulverised bark (maximum particle size 40 mm), or other approved equivalent. Thereafter, top dress the mulch as necessary and at least once a year to maintain effective cover. Spot treat or remove any emergent weeds as specified in c) above but do not cultivate or incorporate the mulch into the soil.

3.2 Ground Cover - General

Described as dense, low-growing plants, which cover the ground and smother any weeds. Ground-cover needs careful establishment, to ensure that any perennial weeds are eliminated.

4.2.1 Maintenance Objective

Maintain a dense, weed free cover of healthy growth, clipped or pruned as necessary to give a neat and tidy finish and contained within the planted area.

4.2.2 Maintenance Operations

a) Maintain the area substantially free of weeds (less than 10 per cent of weed cover at maximum) by hand removal or spot treating any emergent weeds during the growing season with Glyphosate, or approved equivalent. Spot treatment or weed removal at approximately four-weekly intervals in the main growing season, to 5 times per year in total. Frequency of sprays to drop, as the plants establish.

b) Trim and tidy the plants once a year in the winter months, to remove dead vegetation or overgrowing branches. Remove all arisings from site. The amount of work will vary according to the species.

4.4 Care of Newly Planted Trees - General

Young trees will need regular attention to ensure establishment. Either guards or fencing have been used to protect the plant against rabbits, etc. The most important operation is to keep the soil around the base of the tree free from weeds or grass and to ensure secure and correct staking.

4.4.1 Maintenance Objective

Establish a stable and healthily growing tree with a well-shaped framework for future growth.

4.4.2 Maintenance Operations

a) Maintain a 1 m diameter circle of plant-free soil around the base of each isolated tree by hoeing *or* the use of approved herbicide other than a residual.

Allow for hoeing up of soil once every 4 weeks in the growing season (5 times per year). Allow for herbicide treatment once in the winter or spring and 3 additional treatments.

Note: In some areas this operation may be replaced by the application of bark mulch as ground cover.

b) Cut back any tall vegetation that is threatening to shade or smother the young tree (i.e. taller vegetation growing from outside the 1 m weed free area). Allow for cutting back regularly (3/4 times a year).

c) Water the newly planted trees throughout the summer months (May to August) as required after any period of 4 weeks without significant rainfall (less than 5 mm). Apply sufficient water to thoroughly wet the top 150 mm of soil around the tree roots. This will normally require approximately 10 litres for a seedling or whip and 20 litres for a standard tree.

d) Check stakes and ties for firmness and support and adjust as necessary. Allow for checking twice a year, preferably in late spring and late summer.

e) Firm the soil around the roots to ensure that the plant is securely planted in the ground and upright. Allow for firming once in the spring after planting.

f) Formative prune to remove any dead, diseased or damaged shoots and create a balanced form for future growth. Allow for pruning once in the season after planting.