

LANDSCAPE REPORT

In relation to the development at:

**Strategic Housing Development at
Ballymany Newbridge, Co. Kildare.**

On Behalf of;
Briargate developments Newbridge Ltd.

February 2021

PP255

LANDSCAPE ARCHITECT;

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1.0 Introduction

This Landscape and public realm report has been prepared by Jane McCorkell Landscapes on behalf of Briargate Developments Newbridge Ltd & Anthony Neville Homes in support of the detailed planning application. The Report should be read in conjunction with the submitted Landscape drawings. This Detailed Proposal is for a residential development including 336 new homes and apartments on a site of approximately 11.42 hectares (GROSS) with landscaping and associated infrastructure at Ballymany, Newbridge, County Kildare.

Jane McCorkell Landscapes engaged with the Parks department representative from Kildare County Council on the 13th of April 2021. The design strategy and requirements for creating usable and engaging open spaces, play, surfacing, soft landscaping strategies and trees in relation to services were discussed and appropriate design principles have been applied to the proposal. The landscape guidelines and principles required by Kildare Co. Co. to create meaningful and engaging usable spaces have been adopted by the full design team.

Project description.

The proposed residential development with creche, served by a Link Road will consist of the following:-

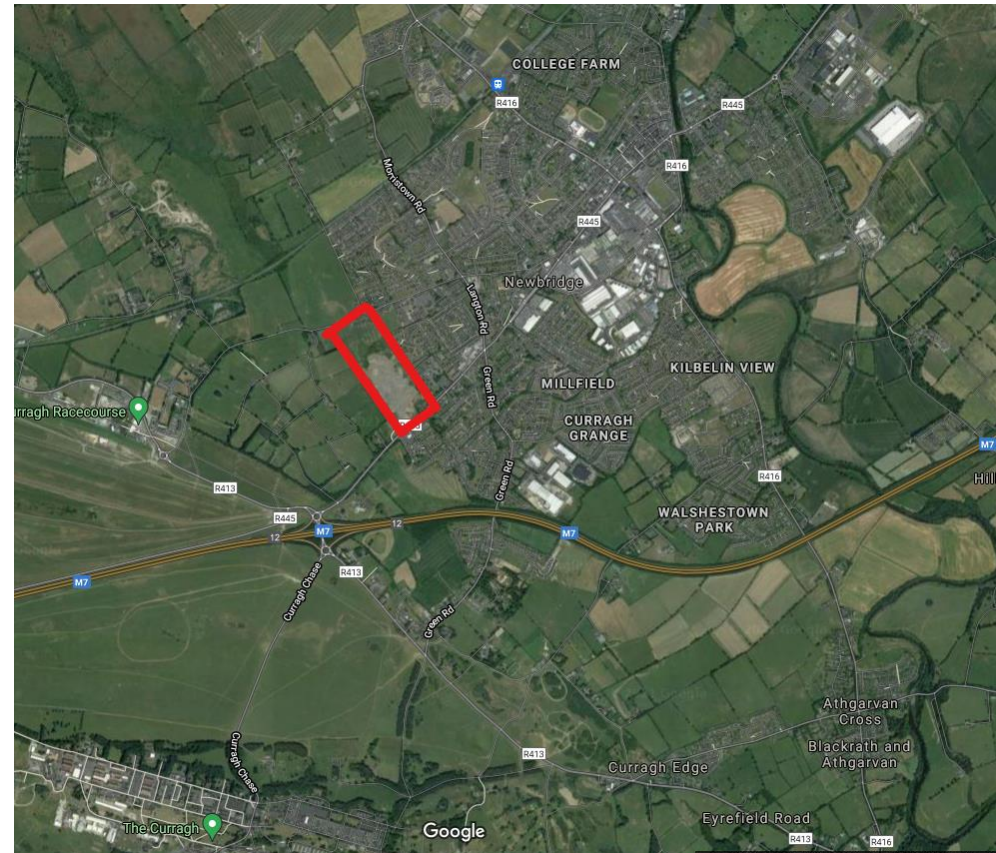
- Construction of 336 no. residential units consisting of 245 no. houses, 27 no. apartments and 64 no. duplexes;
- The 245 no. houses will comprise 2-storey, detached, semi-detached and terraced units to include: -
 - 17 no. 2-bed houses;
 - 184 no. 3-bed houses;
 - 44 no. 4-bed houses;
- The 27 no. apartments are located in a part 3-storey and part 4-storey building and include: -
 - 13 no. 1-bed units;
 - 13 no. 2-bed units;
 - 1 no. 3-bed units;
- The 64 no. duplexes are located across 6 no. 2 to 3-storey buildings and include: -
 - 32 no. 1-bed units;
 - 16 no. 2-bed units;
 - 16 no. 3-bed units;
- A 2-storey creche.
- Car parking, bicycle parking, internal roads, services infrastructure, bin stores and bicycle stores ;
- Footpath improvements along Standhouse Road.
- Landscaping, play areas, boundary treatment and public lighting.
- All associated site works and services.

2.0 Site Context and Analysis

The proposed development site is located at Ballymany, Newbridge, Co. Kildare. The Site fronts onto the R445 Ballymany road to the South and Standhouse Road to the North. Ballymany stud farm adjoins the development along the west perimeter. Large trees denote this border. The East of the development borders largely residential properties. Scoil Mhuire and its associated lands along with Keadeen Hotel, Spa and leisure centre also adjoins a large proportion of the Eastern boundary. The Curragh lies to the West of the site.

Phase 1 of the development granted under planning reference Ref. 16/658 (ABP-249038), is currently under construction. The ground level of the site is significantly lower in comparison to the Curragh. The site is undulating and it is nestled between Ballymany stud farm and Newbridge town centre. Due to this reduced location there will be no visual impact from the development post construction phase onto the Curragh. Under the Newbridge Local Area Plan 2013-2019 the site is zoned under category C for New residential purposes.

The area is serviced well with a 1.3km distance from the entrance at Strand House Road to Newbridge town centre and 1.2km distance from the Ballymany road entrance to the town centre. The link road granted under phase 1 will provide residents a link to both routes. The M7 motor way is less than 1km distance from the south entrance and this provides a direct link to Irelands main motor network routes. Newbridge itself is well serviced with numerous cafes, restaurants, shops, and other passive recreational facilities.



3.0 Landscape Design

3.1 Design strategy

The strategy to create a successful landscape must address a wide variety of consideration from practical matters such as pedestrian circulation and micro-climate to more elusive concepts such as identity and character. The proposed design strategy acknowledges all existing landscape features and aims to provide the following :

- The retention of existing trees where possible within public open space.
- Ecology and biodiversity; creating new and enhancing existing, natural habitats.
- To incorporate a selection of native trees specimens within the development to enhance the landscape character.
- To provide a sustainable soft landscape treatment which marries with the proposed development and the landscape setting.
- To encourage pollinator friendly and native species within the plant selections.
- To provide for a range of usable space areas for residents that promotes social and communal interaction.
- To provide natural style play facilities for range of ages.
- To comply with all statutory guidelines and to work within the local development guidelines
- Using high quality and robust hard and soft landscape materials.
- To create legible pedestrian movement and connectivity whilst minimizing conflict between vehicular and pedestrians.
- The selection of hard landscape materials shall provide a high-quality, robust, safe and durable landscape.

3.2 Design aim

Aim: The proposed design aims to create a high-quality, attractive landscape for residents to engage with and enjoy. The design shall provide a landscape that enhances the biodiversity and ecological value of the site. The design aims to meet 'Standard Open Space & Landscaping Requirements' set out by Kildare County council. The design objective is to provide natural play opportunities for all ages, within the open spaces. Play equipment has been specifically chosen to meet Kildare Parks department requirements.

4.0 Landscape Palettes

4.1 Soft Landscaping

The existing hedgerows along the boundary with the lands to the north, along with the existing mature treeline to the west (retained) shall reflect the agricultural history of the site, and provide a refuge for biodiversity (assisting with integration and establishment of the scheme as part of the local environment). The landscape proposal builds on this proximity – soft landscape on the site will minimise the impact of the proposed development and integrate naturally with the bounding vegetation of the site. The proposed planting palette features native and pollinator friendly species, including semi-mature specimen trees, thus enhancing the amenity and aesthetic value of the development.

The indicative species list demonstrates a commitment on creating a natural species rich landscape that will benefit the community and wildlife. This commitment is not a destructive approach and shall aim to create a high quality, ecologically friendly environment for the delight and enjoyment of this new community. The plant selection has been based upon ecological and horticultural criteria – these plants contribute to the wider ecosystem while also being beautiful. The species selected are predominantly a mix of native species, with non-native varieties mixed in to provide additional source of nectar and pollen (while native species are dominant). N.B the plant palette shown is indicative only and will be subject to design development. Species selected from the following :

Please Note it is the council’s policy that root barrier must be installed where trees are located within 2.5m of services and hard landscape surfaces. Please refer to the Landscape drawing set ‘Tree and Services plan 1 – 4) for details. Randomised site inspections will be carried out during construction to ensure root barrier is installed.

Trees Public Realm;

<i>Specimen varieties</i>	<i>specification</i>	<i>Size</i>	<i>Height</i>
T1 Alnus glutinosa	Clearstem	12-14cm	4.0m+
T2 Carpinus betulus	Clearstem	12-14cm	4.0m+
T3 Acer campestre	Clearstem	18-20cm	4.0m+
T4 Betula pubescens	Clearstem	10-12cm	4.0m+
T5 Fagus sylvatica	Feathered	10-12cm	4.0m+
T5 Liriodendron tulipifera	Clearstem	12-14cm	4.0m+
T6 Metasequoia glyptostroboides	Feathered	12-14cm	4.0m+
T7 Pinus Sylvestris	Clearstem	16-18cm	3.0m+
T8 Pinus nigra	Clearstem	16-18cm	3.0m+
T9 Prunus avium 'Plena'	Clearstem	16-18cm	4.0m+
T10 Quercus palustris	Clearstem	16-18cm	4.0m+
T11 Quercus robur	Clearstem	16-18cm	4.0m+
T12 Quercus 'Koster Fastigata'	Feathered	10-12cm	3.0m+
T13 Tilia palida	Clearstem	16-18cm	4.0m+

Trees Private Realm;

Specimen varieties	specification	Size	Height
P1 Acer 'Autumn Blaze'	Clearstem	12-14cm	3.5m+
P2 Amerlancierlamarkii	Multistem	2.0m+	2.0m+
P3 Betula pendula	Clearstem	10-12cm	3.5m+
P4 Corylus colurna	Clearstem	12-14cm	3.5m+
P5 Malus 'Everest'	Clearstem	10-12cm	3.0m+
P6 Pyrus Chanticleer'	Clearstem	10-12cm	3.0m+
P7 Sorbus acuparia	Clearstem	12-14cm	4.0m+

Please refer to Soft Landscape Drawings for detailed planting specifications



Trees Private Realm;

<i>Specimen varieties</i>	<i>specification</i>	<i>Size</i>	<i>Height</i>
Acer 'Autumn Blaze'	Clearstem	12-14cm	3.5m+
Amerlanchier lamarkii	Multistem	2m+	2.0m+
Betula peendula	Clearstem	10-12cm	3.0m+
Corylus colurna	Clearstem	12-14cm	3.5m+
Malus 'Everest'	Clearstem	10-12cm	3.0m+
Pyrus 'Chanticleer'	Clearstem	10-12cm	3.0m+
Sorbus acuparia	Clearstem	12-14cm	4.0m+



Mixed hedge specification public realm; – Planted at 5 plants per linear meter

<i>Specimen varieties</i>	<i>specification</i>	<i>% mix</i>	<i>Size</i>
Crataegus monogyna (Whitethorn)	b/r	60%	90-120cm
Acer campestre (Field Maple)	b/r	20%	60-90cm
Corylus avellana (Hazel)	b/r	10%	60-90cm
Prunus spinosa (Blackthorn)	b/r	10%	60-90cm

Woodland mix – 3 plants per linear meter

Indigenous planting shall be positioned as a backdrop to the open space of the development. Species will include hazel, whitethorn, field rose and wild apple. This will provide flowering species and berries to provide year-round interest and improve ecological value of the site. The planting will provide a valuable food source and habitat for birds and invertebrates. Species to be planted in random groups to create a 'natural' effect.

Woodland mix (60%)

<i>Specimen varieties</i>		<i>specification</i>	<i>% mix</i>	<i>Size</i>
Corylus avellana	(Hazel)	b/r (1+1)	10%	60-90cm
Sorbus acuparia	(Rowan)	b/r (2+0)	10%	90-120cm
Crateagus monogyna	(Whitethorn)	b/r (1+1)	10%	60-90cm
Salix spp.	(Willow)	b/r (1+1)	10%	60-90cm
Sambucus nigra	(Elder sp.)	b/r (0+1)	10%	60-90cm
Malus sylvestris	(Wild Apple)	b/r (1+1)	10%	90-120cm
Euonymus europaeus	(Peg Bush)	b/r (1+1)	10%	60-90cm
Ilex aquifolium	(Holly)	container	10%	2ltr
Rosa canina	(Dog Rose)	b/r (1+1)	10%	30-40cm
Viburnum opulus	(Guelder Rose)	b/r (1+1)	10%	60-90cm

Herb layer planting (40%)

<i>Specimen varieties</i>		<i>specification</i>	<i>% mix</i>	<i>Size</i>
Hyacinthoides	(Bluebells)	container	10%	3ltr
Anemone nemorosa	(Wood anemone)	container	15%	3ltr
Primula vulgaris	(Primrose)	container	10%	3ltr
Viola riviniana	(Dog Violet)	container	10%	3ltr
Dryopteris affinis	(Male Fern)	container	15%	3ltr
Polystichum setiferum	(Shield Fern)	container	10%	3ltr
Digitalis purpurea	(Fox Glove)	container	15%	3ltr
Allium ursinum	(Ramsons)	container	15%	3ltr



Grass Seeded Area: Public & Private Realm

<i>Species</i>	<i>% mix</i>
Festuca ovina	20%
Poa pratensis	10%
Festuca rubra	30%
Festuca rubra	30%
Festuca rubra subsp. Commutata	30%
Agrostis capillaris	15%
Trifolium repens	5%

Sowing Rate : 30grams/ sqm

Bulb mixes

Bulb Mixture Breda

A bee attracting mixture flowering from February to April, flowering occurs in two phases. In February to March a flood of Yellow and soft lilac species crocuses, followed by March through till April by a colourful mix of specie tulips muscaries and anemones.

Mowing Advice from end of May onwards. Height 10- 25 cm, Colour advice per m2 350 bulbs.



Bulb Mixture Veenendaal

A bee attracting mixture that flowers from February to April, Flowering occurs in two phases. In February to March rich flowering Crocus Ruby Giant, followed in March to April by a blue / red mixed specie tulip and muscaries.

Mowing advice; from end of May onwards. Height 10- 25 cm, Colour advice per m2 350 bulbs.



Bulb Mixture Floriade

This mixture is very successful with a flowering period from February until the end of June. It flowers in three phases. In February to March a sea of mixed yellow Daffodils. From March to April a mix of later flowering daffodil and red specie tulip. From May through to the end of June purple Allium.

Mowing Advice from July onwards. Height 30- 80 cm, Colour advice per m2 120 bulbs.



Ornamental Planting List

A mix of evergreen and deciduous shrubs along with selected perennials will be planted in selected areas to soften the development and provide continuous aesthetic value to the landscape throughout the year. Two mixes have been carefully selected for both private and public realm. The mixes include a mix of large, medium and low growing varieties of shrubs and perennials and shall be positioned the larger varieties to the back of the beds and lower growing varieties to the front of selected beds.

<i>Species</i>	<i>Plan/ Sqm</i>	<i>spec</i>	<i>Size</i>	<i>% mix</i>
Bergenia 'Harzkristall'	5/sqm	cg	2L	10%
Calimagrostis 'Karl Foerster'	3/sqm	cg	3L	10%
Carex 'Evergold'	5/sqm	cg	2L	10%
Euonymus "emerald Gaiety'	5/sqm	cg	3L	10%
Hydrangea 'Limelight'	1/sqm	cg	10L	10%
Nepeta 'Walkers Low'	5/sqm	cg	2L	15%
Pachysandra 'Green Carpet'	5/sqm	cg	2L	10%
Penstemon 'Apple Bossom'	5/sqm	cg	3L	15%
Pittosporum 'Tom Thumb'	3/sqm	cg	5L	10%

Public Realm Planting List

<i>Species</i>	<i>Plan/ Sqm</i>	<i>spec</i>	<i>Size</i>	<i>% mix</i>
Anenome 'Honoire Jobert'	5/sqm	cg	2L	5%
Cornus 'Elegantissima''	2/sqm	cg	5L	15%
Ilex 'Silver Queen'	1/sqm	cg	10L	10%
Mahonia 'Wintersun'	1/sqm	cg	5L	10%
Miscanthus 'Purpurascens'	3/sqm	cg	2L	10%
Osmanthus burkwoodii	1/sqm	cg	10L	10%
Rudbeckia 'Goldstrum'	5/sqm	cg	2L	15%
Viburnum davidii	3/sqm	cg	3L	15%
Libertia grandiflora	4/Sqm	cg	2L	10%

4.2 Hard Landscaping

The hard materials have been selected to provide a high-quality environment that is attractive durable and conducive to SUDS where practically possible. Consideration has been given to the appearance to the material in years hence. Those chosen will withstand the weathering effects of the external environment and/or develop characterful patination. The construction policy of pathways within the public realm close to or within the root protection zones of mature trees shall be one of a no dig policy. The alteration of ground levels within the root protection zones shall be deterred by all disciplines to avoid future issues with existing mature trees. Public paths within open space shall be constructed of macadam and shall have concrete pin kerb bounding it. Kerbs shall all be flush within open space. Seating shall be positioned with open space. Seats shall have anti-skateboarding rings included.

Playground equipment has been specified to encourage natural play, A mixture of play equipment for all age groups have been specified throughout the development. Large rocks, stationary equipment and ground moulding all form part of the key elements of these natural paly areas. All play equipment pieces have been specifically specified to meet Kildare Parks departments requirements, A list of equipment included is shown below. All play shall be positioned on play safety mulch or similar approved, ground reinforced matting shall be used with in areas of ground moulding.

Play equipment pieces available through Kompan Ltd. And large climbing frame can be sourced through Richter Spielgeräte.

- NRO204 - Fairy-tale Throne with 10 Pole Seats (available from Kompan Ltd)
- NRO871 - Balance Plus (available from Kompan Ltd)
- M385 - Embankment Slide, Long (available from Kompan Ltd)
- Climbing Structure 21 - Order No. 6.51021 / L6.51021 (available from Richter Spielgeräte)

Play equipment specification sheets can be found in appendix.



5.0 Landscape Specifications and Performance standards.

5.1 Outline of Landscape specification.

Works will be carried out as a sub-contract with the Employer and will involve spreading of topsoil, supply, protection, and planting of trees, shrubs herbaceous, bulbs, grass seed and aftercare for eighteen months from the completion of planting. All landscape works shall take place in the appropriate season and only when conditions are suitable, i.e. dull, moist & mild, without undue risk of frost or drying winds. There shall be no cultivation or planting when soil is frozen or waterlogged. The drawings for the landscape contract have been prepared by the Landscape Architect. The works will be supervised by the employer. The Landscape Architect shall inspect and advise upon the works at the request of the employer.

Defects Period

The defects liability period for each phase or element of work shall be eighteen months from the completion of that phase of work. The contractor will be responsible for the aftercare of both planting and grass for this period. Any of the works found to be defective within this period due to materials or workmanship not in accordance with the specification shall be replaced by the contractor at his own cost. All trees and plants are to be adequately and carefully packed & protected to survive transport, loading and unloading. If roots, branches or shoots suffer slight damage they can be pruned. If major damage occurs the plant or tree shall be rejected and replaced at the Landscape Contractors own cost.

Inconsistencies

Any discrepancy in the Documents and Drawings shall be reported to the client for their decision, which shall be final.

Payments

The contractor shall submit a statement of account to the contract managers every month (copy to the Landscape Architect). The Landscape Architect will recommend the amount to be paid in respect of the contract to the Contract Managers who shall certify payment. The Employer will pay the contractor within 10 working days of receipt of the Certificate.

Access

Access to be agreed with the employer prior to the commencement of works. The contractor shall be required carry out necessary precautionary measures to protect the canal and safeguard it during construction. The space available for use by the contractor in carrying out the work and for his operatives, plant and materials shall be agreed with the employer prior to the commencement of works. The contractor shall be required to confine crew and materials to this space and will be held responsible for any damage caused by his men or operations to any property outside the prescribed area. The contractor shall be deemed to have visited and examined the site and have fully acquainted and satisfied himself as to local conditions, facilities for access to the site, storage of materials,

the full extent and character of the operations, the nature of the ground, the conditions affecting the supply of labour and materials, and the execution of the works generally.

Retention

A retention fund of 10% will be established from interim certificates. One half (5 %) will be released on practical completion of each phase or element of work. The residue will be released at the end of the defects liability period.

Fixed Price

Except for increases or decreases in cost arising directly from changes in taxation, Employer's social insurance contribution's or other contribution, payable under a legislative enactment, rule or order, the contract shall be for a fixed price. No adjustment in rates or price will be permitted. Items marked 'Provisional', Provisional and Contingency sums shall be expended only on the specific written instructions of the Employer or Landscape Architect.

Insurance

The Contractor shall provide for all necessary Employer's and public liability Insurances to indemnify the Employer against all claims whatsoever arising out of the execution of this sub-contract. The minimum sum for public liability Insurance is €6.5 million and employer's liability is €13 million. This contractor shall forward his insurance documentation to the Contracts Manager, for checking by his brokers, before the contract is signed. The Contractor shall maintain his insurances until final completion of the works, including the period in which aftercare is provided.

Works Programme

The Contractor shall be prepared to commence work within 14 days of an order to proceed and shall execute his works in conformity with a programme to be agreed with the Contracts Manager. Except for any periods of delay that may be required for herbicide to take effect prior to cultivation, the Contractor shall maintain a continuous and effective presence on site at all stages of his works from their beginning until completion. He shall be responsible for ordering his materials to ensure that this requirement is met. The contractor shall prepare for the above-named parties a bar-chart programme indicating the order in which he proposes to carry out the different parts of the work, and the labour on site at each week of the contract.

The following are requirements of the sub-contract programme: - Seeding shall be carried out only between 15th of April and 15th of September. Planting of bare root material shall be carried out only between 1st of November and 31st of March. Container and Root balled plants may be planted outside this period, but shall then be watered in, and watered as often as necessary to ensure their establishment. Weedkillers based on Gylphosate shall be applied not later than 15th of August. Weedkillers based on propyzmide shall applied only between November and Christmas. Where protective fences are shown to any area of planting, they shall be erected before planting is begun. The Contractor shall enter dates for day works if provided for in the Schedule of Day Works. If any

work is specifically instructed by the Contracts Manager or Landscape Architect that cannot be properly measured and valued at the rates inserted elsewhere in the Schedule of Quantity, the Contractor shall be allowed day work prices.

The Contractor shall not be permitted to sub-contract any part of the work without the prior written agreement of the Employer. Such consent shall not be unreasonably withheld. Water will be supplied on site at agreed locations. The contractor will be responsible for moving the water to the required locations and will allow for this in his rates. Notwithstanding the location of services and the layout of work shown on the Contract Drawings, the Contractor shall liaise with the Contract Managers and Main Contractor to determine the positions of all overhead and underground services, and he shall satisfy himself that none will be damaged by his works. Any damage to services caused in consequence of the contract operations shall be made good at his own cost.

The Contractor shall take all necessary steps to protect roads, kerbs, channels, gullies, walls, fences, and existing vegetation during the course of his work, and shall include, where necessary, temporary coverings, planked barrow runs, etc. The contractor shall be responsible for cleaning off mud and soil from all roads, kerbs, footpaths and surroundings to the works.

Any work damaged or soiled by weather, traffic or other causes due to inadequate protection shall be removed and made good at cost of the contractor. The Contractor shall provide full and adequate supervision of the works, and at all stages shall have competent foremen, experienced in the work in hand, available to act upon the instruction of the Employer/Landscape Architect. All areas of work and surroundings shall be kept in a tidy condition, all surplus material, excavated subsoil and rubbish being cleared as the work proceeds, and upon completion. Excavated soil, rubble or rubbish shall not be tipped against any hedgerow, into any ditch or stream nor under the canopy of any tree. No store cabin, or compound shall be erected against any hedgerow, nor under the canopy of any tree. No machinery shall be parked under any tree.

The Contractor shall provide all temporary accommodation on site necessary for the storage of materials, tools, equipment and drying facilities for clothing in a location to be agreed with the Employer. The Contractor shall allow for the removal on a daily basis and as necessary to remove their rubbish, debris, surplus materials, protective casings etc. off site. The Contractor shall give notice to the Employer/Landscape Architect by telephone, telex, or in writing of each period of his presence on site.

Health and Safety

The Contractor shall be responsible for the safety of his work people. He shall comply with the legal acts and regulations which apply to this site. Particular attention is drawn to the requirements of:

- Safety, Health and Welfare Act, 2005
- Safety, Health and Welfare (General Applications) Regulations 2007

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- Safety, Health and Welfare (Construction) Regulations 2006

The Contactor shall provide for complying with these Acts, and relevant Regulations including Notifications and placards for display. The Contractor shall provide for complying with the requirements of the Project Supervisor (Construction) and shall include for all cooperation, the supply of additional information and resources, and all other matters to ensure that the Project Supervisor (Construction) can fulfil his function as defined in the Safety, Health and Welfare (Construction) Regulations 2006.

The contractor shall provide, prior to the commencement of the works, the following:

- Copy of form of notice to be served on the Minister of Labour in pursuance of Regulations (5), (12), and form CR1
- Company Safety Statement
- Names of Contractors' Staff responsible for site safety, health and welfare and for first aid
- Site layout plan showing facilities, materials storage, temporary parking, canteen, drying, toilets, washroom, etc.

The Contractor shall supply all the management, labour resources, plant, equipment, and facilities necessary to meet the requirements of safety, health and welfare on the site.

The Contractor shall allocate to a senior member of his staff the overall responsibility and resources necessary for ensuring that all obligations arising from legislative enactments are fully complied with.

The Contractor shall provide details and duties of the personnel to be involved both on and off site and of any independent safety, health and welfare inspecting authority which he proposes to employ.

The Contractor shall ensure that all personnel have appropriate qualifications, experience or training for tasks allocated to them. The Contractor shall arrange for all necessary site training of the labour force.

The safety, health and welfare shall be periodically and systematically reviewed by the contractor to ensure its continued effectiveness. Records of the review shall be maintained and made available for examination.

The Contractor shall provide to each site meeting a report to the employer in an agreed format advising on records kept, safety equipment and site tidiness.

The Contractor shall ensure that all Contractors operate the necessary safety, health and welfare procedure and controls required by legislation and by his safety statement.

The Contractor shall take all precautions for the safety of users of public and site roads, shall comply with all regulations governing road safety, and shall include for warnings of any temporary obstruction. No vehicle entering or leaving the site shall deposit mud or materials of any kind on the surrounding roads.

Earthworks

The Contractor shall not fell or injure any tree which is within a designated working area. Excavated soil, rock, rubble or rubbish shall not be deposited under the canopy of the tree. No fires shall be lit under the canopy of any tree. No machinery shall be parked or materials deposited under any tree.

Erect temporary fencing to enclose the full area under the crown of any trees within or adjoining the designated working area, unless the tree is to be felled. Fencing shall be constructed as specified in PP135 - 02. Remove fencing on completion of the works.

The Contractor shall agree with the employer the location of any compound for storage of materials or plant, and the location of any site buildings. No materials shall be deposited or machinery parked outside the agreed areas, which shall be fenced with a temporary fence as described above or with such other stronger fence as the contractor may at his discretion require. No fuel, oil, or chemical product shall be stores outside a compound area, nor be permitted to flow onto adjoining ground.

Topsoil shall conform to B.S. 3882:1994, and shall be a free draining sandy loam. It shall be acid, pH 5.0-6.0, free of stones over 50mm diameter, and stones over 10mm 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 200mm. Soils from woodland, heathland, bog or contaminated land shall not be acceptable. Do not strip from under the canopy of any tree, or closer than 4 meters to a hedge.

Topsoil shall be friable, well aerated and with a good crumb structure. It shall not be obtained from a site subject to waterlogging. It shall be free from persistent weeds, including dock, creeping thistle, stinging nettle, ragwort and couch grass.

Topsoil shall be subject to the inspection and approval of the landscape architect before spreading. Visible presence of fibrous roots and plant remains will be required.

Topsoil shall be moved and spread only in dry weather. No work to topsoil shall be carried out when it is waterlogged, or if its moisture content is conducive to structure deterioration. Minimise compaction of topsoil during spreading, running machinery over the surface as little as possible. Topsoil heaps not to exceed 1.5 meters in height during storage period on or off the site.

Before top soiling, remove all stones, rubble and rubbish over 50mm diameter from the surface of the subsoil formation. Dig out any areas polluted by oil or chemicals and make up with clean soil. Break up the formation under any areas liable to ponding after rainfall, so that they drain.

Tree pits shall be backfilled with topsoil by the Contractor.

The contractor shall allow for the disposal of subsoil excavated from tree pits, and for stones, rubble and rubbish removed from grass areas during cultivation

The contractor shall allow for the disposal off site of all debris, pruning's and rubbish relating to the landscape contract on site.

Planting

The Contractor shall satisfy the Employer / Landscape Architect that all works have been carried out to comply with BS 4428:1989 (General Landscape Operation) and BS 3936 (Nursery Stock).

It is essential that the site is tidy at all times and that the planting appears healthy. The Contractor should be prepared, at all times, to ensure that such conditions are met, and should include for this in his rates.

Any materials not meeting the specifications or qualifying for the approval for the Employer / Landscape Architect, for whatever cause, shall be rejected.

The Contractor shall familiarize himself with the layout of services and the position of all structures on the site and shall be liable to any damage to the above.

All operations hereinafter described will be carried out by suitable approved machines or by hand. Any work around the bases of existing trees, saplings, footpath edges, manhole covers, underground services etc. which cannot be carried out by machine for any reason shall be executed by hand and the Contractor must include for this in his rates.

Excavation, filling, cultivation, planting and other works will be suspended in wet weather and when conditions are unsuitable, and the Contractor shall allow in his prices for such eventualities.

“Suitable weather conditions” for planting will mean open weather (i.e. mild, dull and moist even in winter). Planting operations will be suspended in periods of drought, when soil is frost-bound or waterlogged and in periods of persistent drying cold winds. The Employer / Landscape Architect reserves the right to halt the works should the Employer / Landscape Architect consider the working conditions for the weather unsuitable.

Containerised plants may be planted throughout the year provided the weather is considered suitable, the soil is sufficiently moist and each plant is watered following planting.

Planting outside the specified planting period will only be permitted in exceptional circumstances at the desecration of the Employer / Landscape Architect; such exceptional circumstance shall include unsuitable weather and no penalty shall be incurred under the heading of liquidated damages provided that any delay is formally accepted by the Employer / Landscape Architect as attributable to this cause. In the event that works are delayed by inclement weather, the contractor shall complete them at the earliest opportunity afforded by suitable weather conditions.

All chemicals used will be non-toxic to human beings, birds and animals under normal use. No chemicals will be used for any purpose without the prior approval of the Employer / Landscape Architect. The Contractor will submit a list of all chemicals to be used to carry out the contract prior to commencement.

The Contractor shall be responsible for setting out all areas of planting to the satisfaction of the Employer / Landscape Architect.

The Contractor will give 48 hours' notice to the Employer / Landscape Architect of his intention to commence any of the following operations; setting out, planting, seeding, fertilising, herbicide application and maintenance visits. Alternative notification requirements may be stated relating to specific items and this over-rule this general requirement.

The Contractor will take all precautions to protect in the course of his work, any existing plant materials from malicious or accidental damage and will ensure that no branches will be lopped and no roots over 50mm diameter severed from growing trees without express prior permission from the Employer / Landscape Architect.

All damaged plant materials shall have all cuts made flush leaving no snags or any cut over 50mm diameter and no bruises or scars on the bark, the injured cambium will be traced back to living tissue and removed. Wounds shall be smoothed so as not to retain water and the treated areas will be coated with "Tree Three" or other approved tree wood paint.

No soil, spoil, constructional materials or rubbish will be stored or tipped and no construction plant or vehicles will be parked within the spread of existing trees, shrubs or hedges.

All operations hereinafter described may be carried out by suitable approved machines or by hand. Any work around the base of existing trees, in confined spaces or which it is impracticable to carry out by machine for any reason, shall be executed by hand, and the Contractor must include or this in his rates.

All litter, debris and fly-tipping are to be removed from the entire area of the site before planting operations begin. No burning shall be allowed on site.

The Contractor shall clearly mark boundaries of all planting and seeding areas and obtain approval of setting out by the Employer / Landscape Architect before commencing work.

In areas to be ripped all aggressive perennial weeds, dock, thistles and nettles are to be eliminated from the site.

In areas where existing grass is to be removed and the soil cultivated a combined contract / translocated herbicide is to be applied to remove all grass and weeds.

Surface cultivation will consist of ploughing or rotavating the topsoil to a minimum depth of 450mm over shrub 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 coping, 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.

Plants

All trees, shall conform fully to the specification in respect of species, size and quality. The Contractor shall name his supplier in his tender for approval by the Employer / Landscape Architect. All plants shall be well grown, sturdy and bushy according to type and free from all diseases and defects. The Employer / Landscape Architect reserves the right to reject any plant material (not previously approved) before or after planting if it does not conform to the specification. All plant material which does not conform to the specification will be automatically rejected and must be removed from site and replaced at the Contractors' expense.

All plant materials shall be good quality nursery stock, free from fungal, bacterial or viral infection, Aphid's, Red Spider or other insect pest, and physical damage. It shall comply with the requirements of the following sections of B.S. 3936, Specification for Nursery Stock, where applicable:

Part 1: 1992: Specification of Trees and shrubs.

Part 6: 1992: Specification of herbaceous, perennials & alpines

Part 7: 1992: Specification of bulbs, corms & tubers

Plant materials will also comply with the following where applicable:

BS 5236 Recommendations for cultivation and planting of trees in advanced 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.

The Contractor will be deemed to have advised his specification, including all protection required, at the time of enquiry and shall in all cases be liable to replace materials brought on site which are not in accordance with this specification. 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 by the Contractor at his own expense.

Bundles of plants shall be marked in conformity with the relevant part of B.S. 3936. The Contractor shall replace any plants which are found not to conform to the labels.

Advanced nursery trees shall comply with B.S. 8545: 2014. They shall have a well-defined straight 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 shall be well shaped, balanced, of a form and habit natural for the species. Trees shall have a sturdy, reasonably straight stem not less than 1.80 metres from ground level to the lowest branch, and other dimensions as follows:-

Category Girth At 1.00m Min. Height

Mature 40-50cm 6.00 – 7.00m

Heavy standard 12-14cm 3.60m

Select standard 10-12cm 3.00m

Trees shall be supplied with roots balled, and securely wrapped to ensure that the soil and roots remain moist and impact until planting. Trees shall have been transplanted or undercut and shall have been spaced in the nursery to permit development of a full and balanced crown. Trees shall have been carefully lifted, avoiding tearing of major roots and preserving a suitable proportion of smaller and fibrous roots to be conducive to successful transplantation. Any torn or lacerated roots shall be pruned to sound growth before dispatch.

Except for named cultivated varieties, all trees shall have been grown on their own roots. Budded or grafted trees will be rejected. Each tree shall be labelled with a durable tie-on label.

Trees shall have a sturdy, reasonably tapered 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 reasonably balanced with the crown and shall be conducive to successful transplantation.

Trees shall be supplied root-balled unless otherwise scheduled. All trees shall have been regularly undercut or transplanted. Root balled trees shall be supplied with a root-ball made from a mechanical 'Damcon' under cutter 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 growing on their roots. Budded or grafted trees will be rejected.

Half standard trees shall be as described for trees but with a clear stem of 1.05m to 1.35m, a minimum girth of 6cm, a total height of 1.8m to 2.4m, and a well-balanced, branching head.

The Contractor will allow in his price for the up to 3 people of the Design Team to inspect all plant materials in the nursery prior to any deliveries to site. The Design Team must be given at least 10 working days' notice in order to permit inspection of trees.

All trees of the same species and size shall be of the same clone. All trees shall have a certificate of origin and the number of times a tree has been transplanted shall be certified.

The Contractor will provide a certificate to the effect that all plant materials are fully in accordance with the specification. All plants will be inspected by the Employer / Landscape Architect at time of planting for variety and size, but approval from this inspection will not preclude rejection of plant materials for defects which may appear during the progress of the works.

One plant of each group, bundle or batch of plants will bear a permanent label of metal or other indestructible material, securely attached, having the full botanical name thereon.

Upon submission of substantial evidence that materials are not available at the time of contract, the Contractor will be permitted to substitute other plants with the approval of the Employer / Landscape Architect with an adjustment of price, if necessary, to that originally specified.

All plants are to be adequately and carefully packed and protected to survive transport, by whatever means, to the site, without damage in loading, transit or unloading. If, in spite of these precautions, roots, branches or shoots suffer slight damage they are to be carefully pruned. If major damage has occurred the plants will be rejected and replaced at the Contractor's own expense.

If plants cannot be planted immediately upon arrival they will be heeled in or their roots be adequately covered with moist Hessian or, good quality topsoil for a maximum period of 10 days. The roots are to be kept moist throughout this time by adequate watering, water-logging shall be prevented as shall exposure to wind, frost or direct sunlight. Any plants which fail due to inadequate protection prior to planting will be rejected and shall be replaced at the Contractor's own expense.

Planting of containerised materials may be permitted outside this period with the Employer / Landscape Architect's approval. Planting will not be permitted during periods of drought, frost or cold drying winds nor when the ground is water-logged.

All planting operations shall be carried out in accordance with BS 4428 and good horticultural practice. Particular attention must be paid to correct depth of planting ensuring the soil is firmed around the roots.

Prior to planting all broken roots must be carefully pruned back and any snags to the crown carefully cut back. Bad bruising or abrasion of their cambium must be treated with "Tree Three" or equal and approved tree paint. Roots must be kept well moistened before planting in the prepared pit.

Herbicides

Glyphosate – 'Roundup' by Monsanto Chemicals Ltd. Do not apply when rain is forecast within 6 hours. Do not apply when wind is likely to cause spray drift (over 24 kph/15 mph). Allow leaf symptoms to develop before carrying out any cultivations.

Basta – by Hoechst Ltd. Do not spray when wind is likely to cause drift (over 24 kph/15 mph). Protect all foliage of transplants or shrubs.

Propyzamide – 'Kerb 50W'. Apply between 1st October and 20th December only, when ground is damp. Ensure complete cover of the ground.

The Contractor may use alternative formulations of the above herbicides, by other manufacturers, with the prior approval of the Main Contractor and Employer / Landscape Architect. Such alternative formulations shall be applied to give the same degree of control as the application provided for in the Schedules of Quantity.

All weed killer shall be applied to manufacturers' recommendations with properly designed equipment, maintained in good working order and calibrated to deliver the specified volume, evenly and without over-dosing.

The Contractor may, with the Employer / Landscape Architect's prior agreement, apply foliar acting weed killers with an ultra low-volume applicator. The rate of application shall be such as to achieve the same control as the general rate specified. Such application shall not be used post-planting, nor with fosamine ammonium.

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.

Tree Pits

Tree pits shall be excavated to 1.5 cubic metres in square shape. The base of the pit shall be thoroughly forked to a depth of 300mm to allow roots to penetrate below the pits. The Contractor shall draw the attention of the Employer / Landscape Architect to any waterlogged pits. All trees shall be planted according to the general directions on planning given above.

A mixture of slow release fertiliser and approved tree compost in quantities stated in the Schedule shall be placed at the bottom of each pit prior to spreading out roots. Backfilling shall be with good quality topsoil to BS 3882: 1965 and shall conform to the above specification. The finishing surface to the filled tree pit shall be slightly cambered. In waterlogged areas, at the direction of the Employer / Landscape Architect, the pit shall either be over dug by 250mm and have the base filled with 10mm gauge pea gravel or tree pit drainage may be required.

All heavy standard trees shall be short, triple -staked, using 2.5m long round peeled pressure treated 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, 75mm minimum diameter, pointed at one end. Stakes shall be turned and painted one end. The stakes shall be set 900mm into the ground and shall be set around the tree as agreed with the Employer / Landscape Architect. A cross brace 100x30mm length and approved tree tie shall be affixed to the tree and stakes. Cross brace shall be recessed into the stakes. Drive stakes before planting with a drive-all, wooden maul or cast iron headed mallet, not with a sledge hammer.

Set Stakes vertically in the pit, to the tree station, and drive before planting. Drive stake with a drive-all, wooden maul, or cast-iron headed mallet. Not with a sledge hammer.

Tree ties shall be hessian 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.

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

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.

All plant materials shall be free of eggs, larvae and adult form of vine weevil. Prior to material arriving on site all materials shall have been treated for vein weevil. A statement of the vein weevil protection plan shall be provided by the plant nursery if requested.

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

Planting shall be not carried out while the ground is frozen or waterlogged, or during periods of drought. Ripping shall be carried out only when the ground is dry enough to fracture. Cultivations shall not be out when the ground is frozen or waterlogged. All root balled and pot grown plants shall be well soaked before planting. All planting shall be watered after planting, to consolidate soil around the roots, unless ground is so wet as to make additional water unnecessary.

Standard Tree Planting

Excavate planting pits 1500 x 1500 x 1500mm deep. Position tree, drive 2nr 1500 x 75mm stakes 900mm into firm ground to leave 500mm over ground avoiding damage to either services, root system or root-ball. 1nr 100x30x1200mm cross brace and approved tree tie affixed to tree and cross brace. Stakes rebated to accommodate cross brace. Backfill incorporating 40g fertilizer and 0.25cu.m. moist organic matter.

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 panting upright. The roots shall be spread to take up their normal disposition. Fit tie. Clean a neat circle 1000mm diameter of all grass. Fit rabbit guard if scheduled. Spread mulch 50mm deep.

Tree pits shall be excavated a further 500mm to accommodate position of timbers in the case of underground guyed species. Refer to Detail 1 for planting specification of 40/50 rootball specimens.

Horticultural graded bark from coniferous trees, particles 25-75mm, free of fine materials, dust or wood. Spread to 75mm deep, over full areas of tree and shrub planting described in the schedule.

Include for tip pruning of all standard trees. Pruning will be undertaken to reduce the crown volume, while retaining a proportion of live buds on each branch. The extent of pruning for each species will be instructed on site. Leading shoots shall not be pruned. **A high quality of finish will be expected at all times on this prominent site.**

Shrubs and Ground Covers: Rake off surface, to leave even, free of all stones over 30mm diameter, and free of weeds, before mulching.

The planting will be inspected in Spring and again in the September following planting. Any tree or shrubs found to have died from any cause except as provided below or the work of the other Contractors shall be replaced by the Contractor at his own expense. 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.

Replacements

Failures will not be charged to the Contractor in the following cases: -

- Damage by hares or rabbits, where not protected by fencing or shelters.
- Damage by livestock, where not protected by fencing.
- Failure solely due to prolonged dry weather, except where the Contractor will be responsible for watering.
- Losses due to theft, vandalism or disturbance by other Contractors.
- Persistence of weed in planting areas will be regarded as a contributory cause of failure due to drought. Prolonged dry weather will not exonerate the Contractor if he scheduled aftercare operations have not been carried out as programmed.

Standard Shrub and Herbaceous Planting

All shrubs shall be pit planted in precise locations of planting plan to be provided prior to planting. Pits shall be excavated 150mm wider in all directions than the natural root spread of the plant, and the bottom of the pit must be well forked to improve drainage.

Back filling of all pits shall be with soil and compost, or an approved peat substitute in the ratio of 4:1

All plastic and non-degradable wrappings and containers shall be removed before planting. Make four vertical cuts with a sharp knife on the quadrants through edge of container grown root balls to sever girdling roots.

Amenity Grassland

Seeds shall be of specified varieties and cultivars and shall conform in all respects to the European Communities (Seed of Fodder Plants) Regulations, 1976.

Seeds shall be obtained only from a firm registered as a Seed Mixer under the said Regulations. Each bag of mixed seeds shall be labelled inside and outside in accordance with the Regulations. The Contractor shall produce a certificate from his supplier stating the varieties used in the mixture, if not indicated on the label.

The varieties of seed to be used shall not be altered without the Employer / Landscape Architect's written agreement. Agreement will be given only if the specified variety is not available in Ireland and cannot be imported within the time required. The Contractor shall be responsible for ordering materials in good time to meet his programme.

The seed mixture is specified on the work schedule for the type of sward required. Ensure that the correct mixture and seed rate are used for each area of grass seeding. Retain all labels from seed bags and hand over to the Employer / Landscape Architect, together with a delivery note or invoice stating the quantity of each mixture supplied for the works.

10:10:20, N:P:K – supplied in bags bearing the names of the manufacturer, the analysis of the content and the net weight. The Contractor shall produce to the Employer / Landscape Architect the original deliver docket or invoice stating the quantity supplied for these works.

Glyphosate: 'Roundup' by Monsanto Chemicals Ltd. Do not apply when rain is forecast within 6 hours. Do not apply when wind is likely to cause spray drift (over 24 kph/15 mph). Allow leaf symptoms to develop before carrying out any cultivations (at least 7 days).

Basta – by Hoechst Ltd. Do not spray when wind is likely to cause drift (over 24 kph/15 mph).

The Contractor may use alternative formulations of the above herbicides, by other manufacturers, with the prior approval of the Employer / Landscape Architect. Such alternative shall be applied to give the same degree of control as the application specified.

All weed killer 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.

Follow the manufacturer for the use of weedkiller, and for all safety precautions.

'Actrilawn 10' by May and Baker Ltd., used in accordance with the manufacturer's instructions.

Apply 'Actrilawn' when grasses have reached the two-leaf stage or beyond, and when seedlings have emerged and have reached cotyledon or two-leaf stage (approx 4 weeks after sowing). Do not mow within 7 days of treatment. Do not apply during drought. Apply on a fine, still, warm day.

All machinery shall be in good and serviceable condition. Harrows and cultivators shall have their full complement of tines, which shall be sharp, effective, and set to a specified depth of cultivation. Plough shares and ripping chisels shall be sharp and set to the specified depth. Mowers shall be sharp and evenly set to the specified height and shall in use avoid pulling or laying the sward.

Tractors for use in ripping shall be four-wheel drive or tracked. All tractors shall be fitted with position control to ensure even cultivation, at the minimum specified depth.

All work to soil shall be carried out in dry weather, and when the soil can be reduced to a friable condition, avoiding smearing or panning, and rutting and compaction by tractors.

Seeding shall be carried out in the fine, still weather. Seed shall not be permitted to fall onto hard surfaces or into planting areas. Any grass germinating there shall immediately be treated with a total weed killer at the Contractor's expense.

Application: Killing existing grass pre-seeding, and killing weeds germinating in re-spread topsoil. Apply 'Roundup' to manufacturers' recommendations.

If germinating weed grasses are less than 100mm high and broad leaf weeds have not produced full-sized leaves, apply 'Basta' to manufacturers recommendations 4 to 7 days before cultivating.

Where directed rip 300mm deep below finished level, with ripping tines set at max. 600mm apart. Rip the tines set on bar, mounted on a crawler tractor. One tine shall be set centrally in each wheel track of the tractor. Rip only in dry weather conditions, when soil will fracture. Rip in two transverse directions.

Plough 150mm deep over whole surface of field, parallel to the maximum fall of the land, breaking and turning over the furrow slice. Do not smear the topsoil/subsoil surface.

The Contractor shall cultivate the site to break up the full depth of topsoil by two passes in transverse directions of suitable machinery and a tilt up to 25mm suitable for seeding shall be produced in the

topsoil by rotovating and/or chain harrowing. Remove weeds and roots, metal items and rubbish. The bed shall be fine, smooth, evenly firmed but not over consolidated.

Hand cultivations shall be carried out to achieve the same finish on areas where machine cultivations are impossible, i.e. adjacent to kerbs, manholes, small grass and footpath junctions.

Bar levels or other machinery which may cause excessive or uneven compaction shall not be used. Any areas which in the opinion of the Employer / Landscape Architect have been over compacted shall be forked over and worked over until a suitable seed bed is produced.

On completion of cultivations, the surfaces shall be lightly graded to running level.

Surplus vegetable matter, rubbish and stones having any dimensions greater than 25mm shall be collected and removed from the site by the Contractor.

If rotary cultivators are used, the ratio of tractor speed to tine speed shall be sufficient to avoid smearing at the base of cultivation.

In preparation for sowing the surface will be lightly and uniformly firmed and reduced to a fine tilth up to 25mm in depth by raking or harrowing stones exceeding 25mm in size in any direction will be removed from the surface. Raking and harrowing to produce a full tilth will include marrying in with adjoining soil areas.

When required, areas to be grassed will be finely graded during cultivation with a light blade grader to bring them to a uniform and even grade at the correct finished levels and to remove all minor hollows and ridges. This operation will only be carried out when the soil is in reasonably dry and crumbly condition.

The Contractor shall include in his tender price for carrying out any cultivation from time to time, as and instructed by the Employer / Landscape Architect, to destroy all weed growth of owing to the time of year, weather, or other causes, there is a period of waiting between completion of top soiling and preparation of the actual seeding operations.

Incorporate ameliorants described in the operation schedule to the full specified cultivation depth, with at least four passes of cultivators. Mix ameliorants evenly into soil throughout the cultivated depth.

Topsoil shall stand 30mm proud of manholes, paths and kerbs after cultivation and firming. During last stages of cultivation, apply fertilizer evenly over the full area of seeding in two equal passes in transverse directions, and incorporate into the seed bed up to 50mm deep.

Grass seed shall be sown to the rates stated. No seeding will be carried out until the cultivation and preparatory work have been approved by the Employer / Landscape Architect. Before seeding, seed beds shall be firm. If soil is puffy, roll at end of cultivation sequence. A slight impression of a heel (12mm) will indicate an acceptable standard.

Sowing shall be carried out during suitable calm weather conditions using an efficient broadcast machine for large areas or by hand in small areas and confined spaces. The operation will be carried out in equal sowings in transverse directions. Broadcast seed evenly through a calibrated machine over the whole area in two equal passes in transverse directions, to the total specified. Seed shall be thoroughly re-mixed before sowing.

After sowing, the ground will be raked or chain harrowed, then rolled and cross-rolled with a light-weight roller. All stones exceeding 25mm in any direction which are brought to the surface during this operation will be removed. Where the ground cannot be rolled, due to gradient, all stones exceeding 25mm in any direction will be removed.

All seeded areas will be top dressed with a spring fertilizer in April, to be applied at the manufacturer's recommended rate and requirements. All damaged grass areas will be made good with either approved turf or re-seeded in accordance with this specification. Depressions and subsidence must be made good prior to the end of the maintenance period and any damage to the grass made good.

About 48 hours before topping, stones (over 25mm diameter) will be removed and grass areas rolled with a light roller to firm grass and press in remaining stones. Arising's shall not be deposited on paved surfaces or panting areas. When the grass reaches 75mm height or otherwise as instructed, it will be topped with a suitable cutter so as to leave 50mm growth.

The quality of the grass sward which the Contractor is to produce is defined in the Performance Standards. The Contractor shall make good any areas not of this quality. Make up and seed over any depressions which develop after seeding. Re cultivate and re-seed any areas which fail to germinate or which die off.

Aftercare

The Contractor shall be responsible for aftercare of the completed works for 18 months from the date of practical completion.

The aftercare program will be organised as follows :

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

Performance

The Contractor is to note and make full allowance for the high-profile nature of the site and to observe a high standard of maintenance at all times.

Trees; Weed-free circles around trees shall be 1000mm diameter in grass areas. Weed control shall only be done by hand, except in circumstances where persistent perennial weeds may be chemically treated. The use of chemicals shall only be upon approval from the Landscape Architect.

Shrub & Herbaceous; Weed control shall only be done by hand, except in circumstances where persistent perennial weeds may be chemically treated. The use of chemicals shall only be upon approval from the Landscape Architect.

Grass; Cut to the specified height evenly over the whole area, with cuttings removed from the surface. Cutting shall not fall onto adjacent hard surfaces or planting areas. Cuts carried out at regular intervals, as provided in the programme. Grass shall be healthy, and of the quality specified above for each respective grade of grass.

Programme

Programme is subject to alteration dependent on progress of construction works of the site. A provisional programme is as follows but is subject to review at time of appointment of the Contractor.

Approx. Time Element

CRITICAL DATE: TBC **Practical Completion**

CRITICAL DATE: TBC All snags completed

CRITICAL DATE: TBC Assessment of Plant Establishment

CRITICAL DATE: TBC **End of Defects Liability Period**

Inspections

The Employer/Landscape Architect will inspect the site with the Contractor on each critical date, or as soon as possible thereafter. The Contractor may apply for a variation of the programme. Any application must be made to the Employer/Landscape Architect at least two weeks before a critical date. An application will be granted if sought for reason beyond the Contractor's control (e.g. inadequate development of noxious weeds to justify spraying before the critical date). It will not be granted to allow time to remedy poor performance.

Weed Control

Weed killers 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 Employer/Landscape Architect. No plant, foliage or stem, shall be directed sprayed, even in winter. Take particular care when using Glyphosate.

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.

The Contractor will be responsible for watering planting in all trees in grass, hedges, shrubs, ground-cover, herbaceous and annual bedding areas necessitated by dry weather. Apply water as a fine spray, to moisten full depth of root run. Avoid washing or compaction of the soil surface. Firm any plant loosened by frost, wind or cultivation.

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. Osmocote 18:11:10, applied @ 50 g/sq.m, and lightly raked in through mulches. Apply 'Bayleton 5' in accordance with manufacturer's instructions.

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 mowing's on hard surfaces and remove from site. If a delay to or omission of a scheduled grass cut results in unsightly swathes of long grass being left after cutting, the Contractor shall rake the cuttings off at no extra cost to the contract.

A formulation of Mecoprop and 2, 4-D suitable for turf. Apply when clover is growing vigorously, according to the manufacturer's instructions. Do not spray in windy conditions, or within 1.5m of shrub planting without protection. Apply in two half-doses, at right angles to each other.

10:10:20. Apply in two equal passes in transverse directions at a combined rate of 17 g/ sqm. Avoid any 'branding'.

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

Defects Arising

The Contractor shall include in pricing for the immediate remedy of 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.

The Contractor shall report to the Employer/Landscape Architect any outbreak or build-up of insect pest, fungus disease or disorder affecting the plants, or grass, as soon as it is noticed. The Employer/Landscape Architect shall issue instructions for treatment of the outbreak

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

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

Protection

The Contractor shall verify the position of any overhead and underground services, and shall ensure that none will be damaged by his work.

The Contractor shall take all necessary steps to protect paving, roads, kerbs, channels, gullies, walls, fences, structures, furnishing and existing vegetation during his works. Include where necessary temporary covering, planked barrow runs, etc. Clean mud and soil of all hard surfaces and surroundings to the work. Any damage to services, surfaces or structures or to existing vegetation caused in consequence of the work shall be made good at the cost of the Contractor.

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. The Contractor shall 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 the site.

The Contractor shall provide full and adequate supervision of the works, and at all stages shall have a competent foreman, experienced in the work in hand, available to act upon the instructions of the Employer/Landscape Architect.

Water will be available at locations on the site and locations of sources to be agreed with Employer/Landscape Architect.

The contractor shall be responsible for the safety of his workpeople.

The Contractor shall take all precautions for the safety of users of public roads, shall comply with all regulations governing road safety, and shall include for warning of any temporary obstruction. He shall comply with the instructions of the Garda Siochana. No vehicle entering or leaving the site shall deposit mud or materials of any kind on the public road.

Naturalised Bulbs In Grassland Areas

Bulbs should be planted so that the top of the bulbs is at a depth of approximately twice its height with the base in contact with the bottom of the hole. Backfill with finely broken soil and lightly firmed to the existing ground level.

When planting in existing grassed areas, bulb planting machinery shall be used under supervision of Beechill bulbs. Planting shall take place in Sept./Oct. and to supplier's recommendations. Bulbs to be planted in grassed area at rate recommended by Beechill Bulbs. www.bulbs.ie

5.2 Performance Standards

Introduction

The regular care and maintenance of any area of landscape has a profound effect on its appearance, its value as an amenity area, and even in the long term, its plant structure and overall nature. The right levels of maintenance and the methods to be used, will vary considerably from site to site as well as being influenced by the layout and use, will also be a reflection of the soil types, topography, exposure to the elements and local climatic variations.

Matching the maintenance regimes to the needs of a site is a major part of landscape management and it is not possible to give any absolute prescription or standard specification that can be applied for a particular type of landscape. However this chapter attempts to describe and define the main operations that go into routine maintenance. Under the heading of each main type of landscape feature there are performance specifications and objectives for the various operations.

The specifications and operations are grouped under the following headings;

Amenity Grass Areas

Newly Planted Trees

General Litter Clearance

Grass Areas

Maintenance Objectives

To provide an even stand of vegetation of uniform height and colour comprising predominantly grass species, although a small percentage of dicotyledonous plants – no more than 5 per cent – will be accepted.

Maintenance Operations

Mowing shall be carried out using a cylinder mower to maintain the vegetation length within the limits of 30mm and 35mm during April to August inclusive and between 35mm and 50mm during the rest of the year. (This will normally require mowing at up to once a week in the peak of the season and up to, 20 times per year).

The arisings shall be left fly but must be distributed evenly over the surface and at no time shall the layer of clippings be of such a depth that will affect the growth of vegetation. At no stage must arisings come to rest on paved or planted areas.

Additional Operations

All edges of grass areas, against buildings, footpaths, roadways, trees, posts, and any other obstruction shall be kept neat, trimmed and tidy. Mowing strips against walls, etc. shall be 100mm wide and may be maintained by the use of an appropriate approved herbicide. Border edges shall be clipped and not be allowed to exceed 75mm length. Grass areas must be sprayed overall with a suitable approved selective herbicide in accordance with the manufacturer's instructions. Alternatively, spot weeding of isolated weed infestation may be carried out.

Fertilisers to be applied in the period of March to April and in period September to October to provide 40kg N, 10 kg P and 40 kg K per hectare annually. Provisional item reinstatement reseeding of worn areas may be undertaken as necessary.

Newly Planted Trees

Young trees will need regular attention to ensure establishment. 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.

Maintenance Objectives

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

Maintenance Operations

Maintain a 1 meter 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 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.

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).

Provisional item water the newly planted trees throughout the summer months (May to August) as required for any period of 4 weeks without significant rainfall (less than 5mm). Apply sufficient water to thoroughly wet the top 150mm of soil around the tree roots. This will normally require approximately 20 litres for a standard tree, and 40 litres for any larger. Supply / Transport of water to be the responsibility of the Landscape contractor.

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.

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.

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

Litter Clearance

Maintenance Objectives

Collect and remove from the site, all extraneous litter and rubbish on a regular basis so that its presence is not detrimental to the appearance of the site. (This means that the site should be free from litter after each visit to the site)

Maintenance Operations

Collect and remove to the contractors tip all extraneous rubbish, not arising from maintenance works, which is detrimental to the appearance of the site. This rubbish to include stones (over 50mm dia.

which may be buried), bricks, debris, paper, confectionery and other wrappings, bottles, cans and plastic containers.

Allow for this operation to be carried out at regular intervals based in conjunction with other maintenance visits and operations

Provisional item Collect and remove to the contractors tip all extraneous matter which has deliberately been deposited on the site by persons known or unknown (fly tipping). Such matter to include bricks, rubble, garden and household refuse, discarded domestic appliances, furniture and scrap metal. Priced per occasion based on an estimate of the volume of material to be collected.

6.0 Appendix

<i>Issue Sheet</i>				
Landscape plans				
PP255-01-01	Landscape Masterplan	1 / 1000 @	A1	
PP255-02-01	Open space Area 1	1 / 200 @	A1	
PP255-02-02	Open space Area 2	1 / 200 @	A1	
PP255-02-03	Open space Area 3	1 / 200 @	A1	
PP255-02-04	Open space Area 4	1 / 200 @	A1	
PP255-02-05	Open Space Link Road Park 1	1 / 200 @	A1	
PP255-02-06	Open Space Link Road Park 2	1 / 200 @	A1	
PP255-02-07	Open Space Link Road Park 3	1 / 200 @	A1	
PP255-03-01	Open Space Section details	As Shown	A1	
PP255-03-02	Boundary treatment plan	1 / 1000 @	A1	
PP255-03-03	Open Space Plan	1 / 1000 @	A1	
PP255-04-01	Soft Landscape Specification 1	1 / 500 @	A1	
PP255-04-02	Soft Landscape Specification 2	1 / 500 @	A1	
PP255-04-03	Soft Landscape Specification 3	1 / 500 @	A1	
PP255-05-01	Tree and service plan 1	1 / 500 @	A1	
PP255-05-02	Tree and service plan 2	1 / 500 @	A1	
PP255-05-03	Tree and service plan 3	1 / 500 @	A1	
PP255-05-04	Tree and service plan 4	1 / 500 @	A1	