

# Landscape Specifications for Proposed Development at Kishoge, Co Dublin



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## 1.0 Planting Schedule

### Planting Schedule

#### Proposed Tree Planting

Species	Size/Spec	Condition
Sorbus aria	14-16cm girth	RB X17
Betula jacqueomintii Multistemmed	14-16cm girth	RB X18
Pyrus calleryana 'Redspire'	14-16cm girth	RB X18
Corylus columna	14-16cm girth	RB X9
Sorbus aucuparia	14-16cm girth	RB X8
Amelanchier lamarckii	14-16cm girth	RBX4

#### Proposed Hedge Planting

Species	Size/Spec	Density	Condition
Crataegus monogyna	60-80	4/1m	BR
Prunus lusitanica	60-80	5/1m	BR

#### Proposed Shrub Planting

##### Mix 1

Species	Size/Spec	Density	Condition
Hebe raikiensis	30-40cm	5/m <sup>2</sup>	C5
Lavandula angustifolia	40-60(D)	4/m <sup>2</sup>	C5
Verbena bonariensis	40-60cm	5/m <sup>2</sup>	C5
Potentilla fruticosa Abbotswood	30-40cm	5/m <sup>2</sup>	C4
Geranium 'Johnsons Blue'			

##### Mix 2

Sedum spectabile	30-40cm	5/m <sup>2</sup>	C5
Pittosporum tom thumb	30-40cm	5/m <sup>2</sup>	C4
Geranium sanguineum	30-40cm	5/m <sup>2</sup>	C5
Viburnum tinus	40-60cm	3/m <sup>2</sup>	C5

#### Proposed Bulb Planting

Narcissus 'February Gold'	10-15cm	x280
Tulipa tarda	10-15cm	x180

**2.0 Landscape Specifications: Earth Works**

Temporary yards, storage areas or hard standing areas shall not drain towards topsoil stockpiles.

Topsoil is the property of the Employer, and shall not be removed from site without consent given from the Employer or the Landscape Architect. All earth works should comply with BS 4428:1989.

**2.1 Subsoil cultivations**

Subsoil should be placed in layers not exceeding 150mm thick; consolidation of fill may be accomplished by the use of special compacting machinery or by running over it with the next load; filling by tipping over an exposed face is not recommended because of the difficulty of consolidation.

After completion of subsoil moving, the formation level should be graded with the box scraper to even, running contours and then, depending on the soil texture and degree of compaction, loosened with a subsoiler or ripper.

**2.2 Subsoil levels**

Subsoil levels shall be 200mm below the finished ground levels in all areas for grass seeding to allow for 250mm of topsoil to be placed so that 50mm of topsoil stands proud of all kerbs, paths, etc.

Subsoil levels shall be 400mm below the finished ground levels in all areas for shrub planting to allow for 450mm of topsoil to be placed so that 50mm of topsoil stands proud of all kerbs, paths, etc.

Subsoil levels shall be 550mm below the finished ground levels in all areas for shrub planting to allow for 600mm of topsoil to be placed so that 50mm of topsoil stands proud of all kerbs, paths etc. Subsoil levels in all areas for tree planting shall be 900mm below the finished ground levels to allow for 900mm of topsoil to be placed.

**2.3 Topsoil**

Topsoil shall be native topsoil as removed and stored.

All imported topsoil to be of medium texture, pH matching that of the native topsoil. Stone content 10mm in size not greater than 5% by weight, and no stones greater than 40mm in any dimension, and shall conform to BS 3882:1965. Topsoil shall be a free draining sandy loam. Depth of topsoil to be as specified.

Topsoil shall be free of perennial weed roots, i.e. couch grass, sticks, sub soil or any waste, toxic, putrescent or foreign matter.

After spreading, the soil should be cultivated to crumb size to a condition suitable for blade grading. Large stones and unwanted material 75mm and over should be picked off and carted away. Areas should then be blade graded to true flowing contours. As topsoiling proceeds all consolidated wheel tracks shall be forked over. Final grading of the top 150mm is to be carried out to ensure a true specified level and slope 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 operation shall be loosened by forking or harrowing.

**2.4 Topsoil levels**

All topsoil shall be placed and graded by the Main Contractor to the following levels:

- Grass seeding 250mm
- Shrub/groundcover planting 450mm
- Hedge planting 600mm
- Tree planting 1000mm x 1000m x 900m pit

## **2.5 Maintenance of topsoil stockpiles**

Stockpiles of 1 year duration or less: treat the growing weeds with 'Roundup' applied at 5 litres per hectare, diluted and applied in accordance with the manufacturer's instructions, when they are growing strongly (May-June). Noxious weeds (dock, thistle, and ragwort) shall be treated before they flower.

Stockpiles of up to 2 year's duration: roughly grade top and slopes of topsoil. Sow Italian Ryegrass at 50kg per hectare as a temporary grass cover. Control noxious weeds with a proprietary weedkiller such as 'Bandock', diluted and applied in accordance with the manufacturers instructions, when they are growing strongly (May – June).

## **3.0 Landscape Specifications: Tree Works**

### **3.1 Workmanship**

#### **3.1.1 Site Clearance**

Remove and dispose of off-site any rubbish still occurring in all areas, including weeds, rubble, metal wood and stones. Any remnants of masonry or stonework found are to be reported immediately to the Landscape Architect.

All scrub areas shall be grubbed and all existing plants of same shall be removed and disposed of off site to licensed tip including all root systems unless otherwise specified.

Extreme care shall be taken when felling, removing and transporting trees and during tree surgery operations, that no damage is done to existing trees to be retained and the ground flora.

#### **3.1.2 Existing Tree Roots**

Do not cut roots of existing trees to be retained without the approval of the Landscape Architect.

#### **3.1.3 Works to Trees**

Before starting work the contractor shall verify with the Landscape Architect, and clearly mark or otherwise indicate on site trees to be removed and trees where surgery will take place.

All works to comply with Forestry and Arboriculture and Training Council Safety Guides.

All tree work shall be in accordance with current arboriculture practice and all operations shall be carried out with due regard to current safety regulations and requirements and using appropriate machinery tools and guards for the same as necessary.

All treeworks to comply with BS 3998 'Tree Work'.

Tree removal shall include the grubbing up of rootball and stump in areas where construction is to take place. In areas where no construction is to take place the Contractor shall grub up all roots of shrubs and smaller trees if directed by the Contract Administrator.

The Contractor shall allow for backfilling of all voids created as a result of tree stump removal, with approved compacted fill material.

All branches, roots, debris and all arisings to be chippd and disposed of in the fell area. All large timber (as identified by the Landscape Architect) to be left on site in approved storage location. All large timber to remain on the property of the employer unless the Contractor:

- is instructed to remove it from site or
- purchases it a price to be agreed.

Take trees down carefully in small sections to avoid damage to adjacent trees/structures that are to be retained, where tree canopies overlap and in confined spaces generally.

Obtain Landscape Architect's approval before removing stumps by winching and do not use other trees as supports or anchors.

No temporary buildings, machinery, storage areas, or materials are to be located within 5m (horizontal distance) of the canopy spread of trees or shrubs unless approved by the Landscape Architect.

**3.1.4 Replacement Costs**

The value of all trees to be retained shall be calculated in accordance with the Arboricultural Association Guidelines.

The Contractor shall be liable for vegetation loss or damage to roots, trunk or branches, which in the opinion of the Landscape Architect significantly affects the value or life of existing trees to be retained.

Replacement plants or any tree surgery work that the Landscape Architect may decide to be appropriate shall be carried out by the Contractor, at the Contractor's own expense and to the requirements and satisfaction of the Landscape Architect.

Any accidental damage which occurs during the execution of the works shall be carefully repaired without delay. All such work shall be carried out to conform with BS 3998 'Tree Work' and to the satisfaction of the Landscape Architect.

**3.1.5 Trees in Relation to Construction**

All works carried out during construction need to conform to BS 5837:2005 'Trees in relation to construction – Recommendations'. This standard makes reference to the importance of carrying out a tree survey before development occurs. Measures need to be put in place before development begin to as to safeguard against any damage occurring to important trees on site as identified in the tree survey. A construction exclusion zone including ground protection needs to be put in place. Any new planting that takes place needs to be strategically placed so as to avoid any future damage to structures by trees.

Trees in close proximity to any construction/demolition will need to be protected. Design considerations need to be to the forefront for new planting such as proximity to buildings, proximity to other trees etc.

## **4.0 Landscape Specifications: Soft Works**

### **4.1 Preliminaries**

#### **4.1.1 Description of Work**

The work consists of general works, site preparation, grass seeding, wildflower seeding, bulb/corm planting, shrub groundcover planting, and tree planting. Exact dates for completion of works will be finalised after the award of contract.

#### **4.1.2 Standards of Workmanship and Materials**

The Landscape Contractor shall satisfy the Landscape Architect that all works have been carried out to comply with BS 4428 (General Landscape Operations), BS 3936 (Nursery Stock), and BS 3882 (Topsoil).

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

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

The Landscape Contractor shall familiarise himself/herself with the layout of services and the positions of all structures on the site and shall be liable for any damage to the above.

No existing plants shall be removed or damaged, other than those specified by the Landscape Architect.

#### **4.1.3 Notice of Intentions and Recording Actions**

The Landscape Contractor shall give 48 hours notice of his/her intention to commence setting out, planting and maintenance visits. The Landscape Contractor shall return a weekly record of all site actions.

#### **4.1.4 Leaving the Site Tidy**

The site shall be left in a neat and orderly condition at the end of each day's work.

#### **4.1.5 Season**

Landscape work shall take place in the appropriate season and only when the conditions are suitable, i.e. it is dull, moist and mild, without undue risk of frost or drying winds.

There shall be no cultivation or planting when the soil is frozen or waterlogged. If exceptional weather conditions occur after planting, e.g. heavy frosts, measures shall be taken as approved by the Landscape Architect.

#### **4.1.6 Replacement**

The sub-contractor shall make good at his own expense any losses of trees and plants which die or appear unhealthy at any time up to practical completion in the twelve months after planting.

The sub contractor shall make good at his own expense any losses of trees and plants which die or appear unhealthy at any time prior to hand over. Plant failures will not be charged to the Landscape Contractor if the failure is due to; damage by hares, rabbits, deer, livestock where not protected by guards or fencing, damage/losses due to theft, vandalism or disturbance by other contractors.

Persistence of weed in planted areas will be regarded as a contributory cause of failure due to drought. Prolonged dry weather will not exonerate the Landscape Contractor if the scheduled maintenance operations have not been carried out as programmed.

#### **4.1.7 Damage**

All trees and plants are to be adequately and carefully packed and protected to survive transport, whatever means, to the site, during 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 plant or tree shall be rejected and replaced at the Landscape Contractor's own expense.



**4.1.8 Defects Liability Period**

The Landscape Contractor shall be responsible for any plants that fail to take during the first full growing season (12 months) from date of completion.

**4.1.9 Protection**

The Landscape Contractor shall provide adequate temporary protection to the whole of his/her work and shall include temporary coverings, planked barrow runs and all other measures for protecting the work from damage.

The Landscape Contractor shall also protect from damage all existing roadways, kerbs, services and other completed works on site.

Any work damaged or soiled by weather, traffic or other causes due to inadequate temporary protection shall be removed and made good at the cost of the Landscape Contractor. The form of protection is left to the discretion of the Landscape Contractor.

**4.1.10 Programme of Operation**

The Landscape Contractor shall execute his works in conformity with a programme to be agreed with the Landscape Architect and shall include in his estimate for working within an agreed time limit.

No individual areas will be handed over unless there is an agreed sectional completion. The Landscape Contractor shall allow for keeping individual areas adequately maintained until the whole has been completed.

**4.1.11 Site Inspection**

Prior to the submission of tenders to the Landscape Architects, the Landscape Contractor is expected to visit the site and familiarise himself/herself with the nature of the existing roads and pathways, the soil conditions, slope gradients, any hazards and other matters affecting the works. No extra charges will be made for any misunderstandings, or incorrect information or any of these points, or on grounds of insufficient description or lack of information will be allowed.

**4.1.12 Setting Out**

The Landscape Contractor will be responsible for checking all schedules and drawings by the Landscape Architect. In the event of any discrepancies being found between such schedules and drawings, or if the Landscape Contractor considers that additional detail drawings are required, the Landscape Contractor shall report such discrepancy in writing at least ten days before the works are to be executed.

The right is reserved to adjust the exact position of trees and specimen shrubs after they have been set out on site. Any trees which are planted without approval of the setting out may be required to be re planted at the Landscape Contractor's expense.

**4.1.13 Supervision and Contractor's Staff**

The Landscape Contractor shall ensure full and adequate supervision of the site during the duration of the works.

The Landscape Contractor shall at all times during the Contract period employ sufficient persons of appropriate abilities, skills, care., and experience as are required for the proper performance of the services in accordance with the contract and shall ensure that a sufficient reserve of persons is available to provide the services during holiday periods, absences due to sickness and special events/emergencies.

The Landscape Contractor will appoint a contract manager to supervise those persons employed to perform the Services in accordance with the contract. The contract manager must be available and present in the contract area at all times that the services are being carried out.

## **4.2 Specification**

### **4.2.1 Topsoil**

Topsoil shall be native topsoil as removed and stored.

All imported topsoil to be of medium texture, pH matching that of the native topsoil, stone content 10mm in size not greater than 5% by weight, and no stones greater than 40mm in any dimension, and shall conform to BS 3882:1965. Topsoil shall be a free draining sandy loam. Depth of topsoil to be as specified.

Topsoil shall be free of perennial weed roots, i.e. couch grass, sticks, sub soil or any waste, toxic, putrescent or foreign matter.

### **4.2.2 Plants Generally**

All plants conform fully to the specification in respect of species, size and quality. The Landscape Contractor shall investigate the sources of supply and satisfy himself that he can supply all of the plants specified on the planting schedule in the size, variety and quality before submitting a bid. Substitutions will not be permitted. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of nearest equivalent size or variety, with an equitable adjustment of contract price. All plants shall be well grown, sturdy and bushy, according to type, and free from all disease and defects.

The Landscape Architect reserves the right to reject any plant material before or after planting if it does not conform with the specification.

All plants shall be adequately hardened off prior to planting, where frost or cold winds may be a problem. All plants shall be supplied with temporary labels with the full botanical name, on each bundle or batch of plants.

The Landscape Contractor should indicate in their tender source of material; to be used and where it can be inspected prior to award of contract.

All plants that do not conform to the specification will be automatically rejected and must be removed from site and replaced at the Landscape Contractors expense.

All trees, shrubs and other plant material shall comply with the minimum requirement of the relevant British Standards below:

BS3936 Part 1: Specification for trees and shrubs

BS 3936 Part 4: Specification for forest trees

BS 3936 Part 5: Specification for Poplars and Willows

BS 3936 Part6: Specification for herbaceous, perennials and alpines

BS 3936 Part9: Specification for bulbs, corms and tubers

BS 3936 Part 10: Specification for groundcover plants

### **4.2.3 Time of Lifting**

Bare root plants must only be lifted when the ground is moist and the plant is dormant between November and end of March of current year. Lifting must never take place when there is a severe ground frost. Particular attention must always be paid to the protection of the roots on lifting when there is a strong drying wind or sun.

### **4.2.4 Protection**

Care must be taken to ensure that bare roots are protected from physical damage and desiccation at all times. All bare roots must be covered within two hours of lifting.

### **4.2.5 Bundling**

Whip planting must be in bundles of the same species and size, all shoots must face in the same direction so that roots and shoots are not in contact, and must be of equal numbers. Bundles are to be securely tied with supple material which will not, by its nature or tension, cause damage to the plants.

### **4.2.6 Labelling**

Each individual plant, bundle, bag or lot of one species shall be labelled with a securely attached label, clearly indicating the plant name, grade and quantity.

**4.2.7 Grass Seed**

Grass seed shall conform to the requirements of British Standard 4428:1969 and subsequent amendments, and to the European communities (seed and fodder plants) regulations 1976.

The Landscape Contractor shall supply, with each seed mixture, a certificate stating the composition, purity, germination, year of collection and country of origin. The germination capacity of each constituent of the mixture should not be less than 80%, and the purity of the mixture not less than 90%.

Total weed seed content should not be more than 0.5% and the total content of other crop seeds should not be more than 1%. These minimum figures shall be for the current 14 month period of annual tests.

The seed is to be thoroughly re mixed before sowing to avoid patchiness on the ground and is to be 'Corburn's Urban Parks mix' or similar approved, sown at a rate of 35-50g per square metre.

**4.2.8 Wild Flower Seed**

Wild Flora Mix is to be 'Corburn's Light Soil mix' or similar approved as supplied by Corburn's, seed merchants. Grass seed shall conform to the requirements of British Standard 4428:1969 and subsequent amendments, and to the European communities (seed and fodder plants) regulations 1976.

The seed is to be thoroughly re-mixed before sowing to avoid patchiness on the ground. The seed can be bulked up with sand to ease distribution, lightly raked or rolled in with a ringed roller, taking care not to bury the smaller seeds. The seed is to be sown at a rate of 5gms per square metre.

**4.2.9 Container Grown Shrubs, Groundcovers, Climbers and Herbaceous Plants**

Shrubs shall be bushy, well established nursery stock with a good fibrous root system. They shall be container grown, true to size, name and description as scheduled. Shrubs shall conform to the appropriate British Standards. Plants shall not be pot bound, nor with roots deformed or restricted. Bare root material will only be accepted where specified.

Herbaceous plants shall be supplied as well rooted clumps, showing several healthy buds, and grown in pots. Pots shall be appropriate to the size of the plant supplied, minimum size 0.5litres (80mm square or 90mm diameter).

**4.2.10 Whips and Transplants**

All plant material must comply in all respects with the current edition of BS 3936 Parts 1, 4 and 5.

Transplants shall not be less than 3 years old and have been transplanted at least once. Trees shall be sturdy, with a balanced root and shoot development and sizes shall conform to schedule.

Willows shall have been stumped and transplanted at the end of the first year in the nursery.

**4.2.11 Trees**

Trees shall conform to the appropriate British Standards.

All trees should be full and well shaped, bark unmarked and have healthy root systems. The Landscape Architect must inspect and approve all trees prior to lifting or planting. Trees must all be of identical size and shape and should originate from the same stock nursery and stand.

Rootballed trees shall be rootballed immediately when lifted at the nursery. The rootball shall be suitable for the size of crown and the rootball shall be flat bottomed.

The rootball shall be formed through regular transplanting; every 2-3 years minimum. The rootball shall be wrapped in Hessian and steel wire netting or other suitable and approved decomposable material.

Standard pleached trees shall have a clear stem 1.7m to 1.85m in height from ground level to the lowest branch, a minimum girth of 8cm at 1m from ground level and a total height of 2.75m to 3m.

They shall have a well defined, straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown shall be well shaped, balanced, of a form and habit natural for the species.

All advanced nursery trees shall comply with BS 5236: 1975. They shall have a well defined, straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown shall be well shaped, balanced, of a form and habit natural for the species. Trees shall have a sturdy, reasonable straight stem not less than 1.8m from ground level to the lowest branch. All advanced nursery stock trees shall be supplied with roots balled.

All coniferous trees shall be supplied rootballed or container grown, with a good fibrous root system. Trees shall conform to specified height with well developed, uniform branching systems.

**4.2.12 Shrubs/Groundcover Sizes**

All shrubs and groundcovers shall be supplied as sizes indicated in the Bill of Quantities and Contract drawings.

**4.2.13 Whip Sizes**

Unless otherwise specified, all trees shall be as follows:-

Whips, 600-1200mm high, 150 x 150 150mm minimum root dimensions. All whips are to have a sound central leader and well formed branches.

**4.2.14 Tree Sizes**

Unless otherwise specified, all trees shall be as follows:-

Type	Girth	Height
Whip Planting	-	600-1200mm
Half Standard Tree	4-6cm	1.8-2.1m
Light Standard Tree	6-8cm	2.25-2.5m
Standard Tree	8-10cm	2.75-3m
Selected Standard Tree	10-12cm	3-3.5cm
Heavy Standard Tree	12-14cm	3.5-4m
Extra Heavy Standard Tree	14-16cm	4-4.5m
Advanced Extra Heavy Standard Tree	16-18cm	5m
Semimature Tree	20-22cm +	6.5-7m +

**4.2.15 Tree Anchors, Stakes, Guys, etc.**

All trees other than semi mature trees shall be supplied and fitted with one tree stake per tree.

Tree stakes shall be peeled poles of oak, sweet chestnut, pine or Douglas fir, or tanalised larch. All stakes shall be preserved with water borne copper chrome arsenic to IS 131, to a net dry salt retention of 5.3kg per cubic metre of timber. Stakes shall be supplied as sizes specified.

They shall be at least 1.8 metres long unless otherwise specified, with a minimum diameter of 75mm at both butts.

Stakes shall be driven prior to planting with a drive all, wooden maul or cast iron mell.

Trees shall be tied to each stake with a purpose made tie and spacer, the tie to be overlapped and thrice nailed to the stake. Tree ties shall be rubber or PVC or proprietary fabric laminate composition, and shall be durable enough to hold the tree secure in all weather conditions for a period of three years. They shall be flexible enough to allow for proper tightening of the tie. Tree ties shall be 25mm-40mm wide depending on tree size. They shall be fitted with a simple collar spacer to prevent charring, and with a buckle for adjustment.

**4.2.16 Mulch**

Mulch shall be graded bark chippings from coniferous trees, particles 25-75mm, free of fine material, dust or wood.

Mulch will be rejected if in the Landscape Architect's opinion it is likely to be wind blown.

**4.2.17 Approved Chemicals**

All chemicals used shall be non-toxic to human beings, birds and animals under normal use, and chemicals which are not agriculturally approved shall not be used.

The use of the following herbicides is acceptable:

Roudup

Bata

Actrilawn 10

Casoron G

Kerb Flo

The use of the following fertilizers is acceptable:

Fisons PS5: grass areas

Osmocote Plus- fertilizer N:P:K 15:9:11 plus trace elements: Shrub areas

Enmag- 4:19:10 + 7.5%: Tree planting

**4.3 Workmanship**

**4.3.1 Site Clearance**

Remove and dispose of off site any rubbish still occurring in topsoiled areas, including weeds, old masonry and rubble, metal, wood, and stones, excavating as necessary to permit the specified depth of final cultivations.

All scrub areas shall be grubbed and all existing plants of same shall be removed and disposed of including all root systems unless otherwise specified.

Before topsoiling, remove all stones over 75mm in diameter. 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 of rainwater, so that they drain.

Topsoil shall be moved and spread only in dry weather. No work to topsoil shall be carried out when it is waterlogged, or if it's moisture content is conducive to structural deterioration. Minimise compaction of topsoil and subsoil when spreading, running machinery over the surface as little as possible.

**4.3.2 Cultivation Generally**

The aim of cultivation is to produce a well drained and textured soil suitable for plant growth. All areas to be planted or seeded shall be cultivated to a minimum depth of 450mm or deeper if specified. Areas where obvious compaction has occurred shall be ripped. Stones above 75mm longest dimension shall be removed from the top 100mm layer of shrub planting areas.

**4.3.3 Final Preparation – Seeding Areas**

One week before seeding, Fisons PS5 or similar approved pre-seeding fertilizer shall be spread at a rate of 70g per square metre and incorporated in the surface layer. The soil shall be firmed and raked to a fine tilth suitable for seeding.

**4.3.4 Final Preparation – Wild flower Seeding Areas**

The soil shall be firmed and raked to a fine tilth suitable for seeding. No fertilizers shall be used on areas for wildflower seeding.

**4.3.5 Final Preparation – Shrub planting areas**

Coarse clean moist compost or approved peat substitute shall be forked in at a rate of 5kg per square metre and incorporated to a depth of 200mm.

Controlled release fertilizer N:P:K 15:9:11 plus trace elements – Osmocote plus or similar approved shall be applied at specified rates and raked into the top 50mm. The surface shall be raked to a tilth suitable for planting.

**4.3.6 Final Preparation Whip planting areas**

Coarse clean moist compost or approved peat substitute shall be forked in at a rate of 5kg per square metre and incorporated to a depth of 200mm. An approved fertilizer shall be spread at a rate of 70g per square metre and raked into the top 50mm layer. The surface shall be raked to a fine tilth for planting.

**4.3.7 Planting**

Forestry transplants and feathered trees other than evergreens will be planted between November and March inclusive. Evergreens will be planted in October or in April/May. Planting shall normally be carried out during the period 1<sup>st</sup> October to 31<sup>st</sup> March in suitable weather.

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

Planting out with the specified planting period will only be permitted in exceptional circumstances at the discretion of the Landscape Architect; such exceptional circumstances shall include unsuitable weather and no penalty shall be incurred under provided that any delay is formally accepted by the Landscape Architect as attributed to this cause. In the event that works are delayed by inclement weather, the Landscape Contractor shall complete the works at the earliest opportunity afforded by suitable weather.

**4.3.8 Planting Generally**

All planting operations shall be carried out in accordance with BS 4428 and good horticultural practice.

The Landscape Contractor shall provide the Landscape Architect with the species and quantities reserved from each named nursery, and the Landscape Architect shall have the right to inspect such nursery stock as deemed necessary, prior to its purchase by the contractor.

All plant labels are to be kept on their respective plants by the Landscape Contractor until the final inspection has been carried out. Only on approval from the Landscape Architect may such labels be removed by the Landscape Contractor.

Bare root stock shall be delivered to the site on the day of planting.

If under exceptional circumstances planting cannot take place within 12 hours of delivery, stock shall be heeled in or their roots shall 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. Any plants which fail due to inadequate protection prior to planting shall be rejected and replaced at the Landscape Contractor's own expense.

Any plants stored temporarily on site shall be protected from adverse weather conditions. Plants with damaged root systems shall not be accepted. After planting, any minor damage shall be rectified by pruning. Plants which, in the opinion of the Landscape Architect, have been seriously damaged during planting shall be rectified by pruning. Plants which, in the opinion of the Landscape Architect, have been seriously damaged during planting shall be rejected and replaced at the Landscape Contractor's expense. All planting shall be firmed up if loosened by frost or wind.

Prior to planting all bare rooted plants shall be completely immersed in a container of Alignure Root Dip (1:99) solution and container grown plants shall be sprayed with the solution according to manufacturers instructions.

**4.3.9 Seeding & Establishment**

Grass seeding rate shall be: 25-35gm per square metre.

Wildflower seeding rate shall be: 5gm per square metre.

Seeding shall only be carried out at the correct season and in suitably calm but moist weather conditions.

Seeds shall be cross sown in two directions at right angles to each other (half the seed to be used in each direction) to prevent striping.

After sowing, all areas shall be lightly raked with a chain harrow or by hand.

About 48 hours before first cut, large stones (more than 40mm in any dimension) should be removed and all areas rolled with a light roller to firm grass and press in all remaining stones.

When the grass is established and from 40 mm to 75 mm high, according to the seed mixture, it should be topped with a roto-scythe so as to leave from 25mm to 50mm of growth, to cut weeds, to control the growth of coarser grass and to encourage tillering. Grass areas shall only be accepted as reaching practical completion when germination has proved satisfactory and weeds have been removed.

No payment for re-seeding shall be made to the landscaping Sub-Contractor if the seed fails due to any cause whatsoever. He shall be required to make good the soiling and repeat the seeding until a good sward is obtained.

**4.3.10 Bulbs/Corms**

Bulbs/Corms shall be planted in a random pattern and allowed to naturalise. Avoid planting in straight lines. To plant, take out core in grass/shrub area, placing bulb/corm at base of hole ensuring no space is left under bulb. Hole must be wide enough to allow for base of bulb/corm to be placed directly on the soil. Repair the core and firm flush.

**4.3.11 Shrubs**

All shrubs shall be pit planted in precise locations as shown in plans. 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. Backfilling 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 4 vertical cuts with a sharp knife on the quadrants through the edge of container grown rootballs to sever girdling roots.

**4.3.12 Whip planting**

All whips shall be notch planted in staggered pattern. Whip trees shall be planted randomly with no more than 5 plants of the same species planted in groups. Blocks of similar species are not to be planted. Pits shall be excavated 150mm wider in all directions than the natural root spread of the plant.

**4.3.13 Tree Planting**

Planting tips for trees in undisturbed ground will be backfilled with excavated material. Tree pits in mounds or other made up ground shall be backfilled with topsoil.

All tree pits other than semi mature trees shall be excavated 200mm wider in all directions than the natural root spread, or rootball, and the base forked to improve drainage. Stakes shall be positioned before backfilling. Topsoil backfill shall be mixed with peat substitute in the ratio of 4:1. 60g Enmag or similar approved slow release fertiliser shall be incorporated. The backfill shall be settled and well firmed around the roots avoiding air pockets.

All semi mature tree pits shall be excavated 500mm wider than the natural root rootball, and 150mm deeper to allow for 250mm of backfill mix, tamped firm to 150mm. In all semi mature tree

pits an additional depth of 150mm should be dug to allow for a 150mm gravel layer at the bottom of the pit to aid in drainage. Sides of the tree pit shall be ripped and loosened to ensure a good bond with the backfill and to avoid root girdling.

All semi mature tree pits shall be backfilled with mix consisting of: 10 parts native topsoil and 5 parts sharp sand. 60g Enmag or similar approved slow release fertiliser shall be incorporated. Backfilling shall be firmly tamped every 150-200mm and when pit is half full the backfill shall be flooded for further settlement. After excess water has drained further soil shall be added, tamped, and a final watering shall be given just before the final 75mm of backfill added. The backfill shall be settled and well firmed around the roots avoiding air pockets. All trees shall be well watered after planting.

All semi mature trees shall be transported to the site of planting one tree at a time, and only when the pit has been dug and the backfill mixed on site. All semi mature trees shall be supported on transit by the rootball only. Manhandling of the rootball will not be permitted. The stem shall not be supported. The crown may be supported by hand only if the Landscape Contractor deems it necessary. No tyred machinery except approved balloon-tyred machinery shall be used in the excavations of the tree pits. While excavating, tracked or balloon wheeled machinery shall operate on protective mats or wooden sheets to prevent compaction.

All semi mature trees shall be secured with a Platipus rootball fixing kit as per manufacturer's instructions. All timber frames to be used with the Platipus rootball fixing system shall be fixed with nail plates at each junction so that the individual members of the finished frame shall be flush with each other and of one level. Where possible the timber frames shall be constructed so that an optimum condition is achieved between preventing the timber frame from appearing above ground levels, and also ensuring that an uncompromised frame for anchorage exists (i.e. the frame shall be made as large as possible so that it can sit on the lowest part of the top rootball).

All ratchet tensioning systems shall be nailed to the timber frame so that the ratchet shall remain upright and in the position intended when installed. All timber frames of the rootball fixing system shall be installed to ensure that when the tree pit is backfilled the frame shall be covered by a minimum of 50mm of mulch. All rootballs of semi mature trees are to be surrounded with a 4 inch perforated land drain pipe to aid in future waterings.

#### **4.3.14 Mulch**

On completion of planting, the total area of the disturbed soil is to be mulched to a depth of 150mm. The soil and the mulch shall be thoroughly wetted prior to application, and also prior to application a complete clearly through and weeding of the area shall be carried out, leaving the soil weed free, smooth and conforming to acceptable finished levels.

#### **4.3.15 Watering**

During dry periods at any other times deemed necessary prior to practical completion, the Landscape Contractor shall water all plant areas.

The Landscape Contractor is to ensure that he is aware of any restrictions on the use of water and hose pipes which may be applied by the water authority and is to comply with any such restrictions. Any water carried out shall take care to avoid soil wash off the shrub area and disturbance of the peat mulch. Any damage caused by soil wash shall be immediately rectified by the Landscape Contractor at his own expense, to the approval of the Landscape Architect. Watering shall be carried out to add moisture to the full planting depth. No minor surface watering shall be carried out. The Landscape Contractor shall allow for watering of all plants to field capacity as and when necessary, until practical completion is achieved.

#### **4.3.16 Weeding**

All planting areas are to be kept free of weeds and rubbish prior to practical completion. All planting areas are to be hoed, forked or hand weeded. The use of chemicals shall only be upon approval from Landscape Architects.



**Roundup** – by Monsanto chemicals Ltd. 4-5litre/Ha. Do not apply when rain is forecast within six hours. Do not apply when rain is likely to cause spray drift. Allow for leaf symptoms to develop before carrying out any cultivation. Apply to manufacturers recommendations. Apply 'Roundup' to kill existing grass preseeding, and weeds germinating in topsoil.

If germinating weed grasses are less than 100mm high and broad leaved weeds have not produced full sized leaves, do not apply 'Roundup'. Apply 'Basta' @ recommended rates, 4 to 7 days before cultivating.

**Basta** – by May + Baker Ltd., 11litre/Ha. Shall be used in accordance with manufacturers instructions. Apply 'Actrilawn' when grasses have reached the 2 leaf stage or beyond, and when seedlings have emerged and reached cotyledon or 2 leaf stage (approx. 4 weeks after sowing). Do not mow grass within 7 days of treatment.

**Casoron G** – Granular weedkiller to be applied 5.6-22.5 kg/1000sq.m. Shall be used in accordance with manufacturers instructions.

Apply and keep covered by wind until any maintenance on the site has been completed. The soil should be covered out of at least 100mm for 2 weeks. If any maintenance has been completed, the soil should be covered out of at least 100mm for 2 weeks. The soil should be covered out of at least 100mm for 2 weeks. The soil should be covered out of at least 100mm for 2 weeks.

**2.3 Weed Control**

Apply a pre-emergent herbicide to the site prior to sowing. This will help to control weeds that are likely to emerge from the soil. Apply a post-emergent herbicide to the site after sowing. This will help to control weeds that are already growing on the site. Apply a granular herbicide to the site after sowing. This will help to control weeds that are already growing on the site.

**2.4 Watering**

Watering should be carried out regularly to ensure that the soil remains moist. This will help to ensure that the seedlings are able to establish themselves. Watering should be carried out regularly to ensure that the soil remains moist. This will help to ensure that the seedlings are able to establish themselves.

**2.5 Plant Density**

Plant density should be maintained at the recommended level. This will help to ensure that the seedlings are able to establish themselves. Plant density should be maintained at the recommended level. This will help to ensure that the seedlings are able to establish themselves.

**2.6 Fertiliser Dressing**

Fertiliser dressing should be applied to the site at the recommended rate. This will help to ensure that the seedlings are able to establish themselves. Fertiliser dressing should be applied to the site at the recommended rate. This will help to ensure that the seedlings are able to establish themselves.

It is important to be aware of the potential for pests and diseases. This will help to ensure that the seedlings are able to establish themselves. It is important to be aware of the potential for pests and diseases. This will help to ensure that the seedlings are able to establish themselves.

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## **5.0 Landscape Specifications: Maintenance**

### **5.1 Scope of Work**

The maintenance of grass trees and shrubs, for the period of each contract.

During this period the contractor shall keep all roads and pavements clear of weeds, grass mowings, mulch and rubbish from site at the conclusion of each days work.

### **5.2 Trees and Shrubs**

Tree stakes and ties shall be checked at least once a month to make sure they are still performing their function correctly. Any loosened tree stakes shall be re-firmed and any damaged or broken stakes shall be replaced immediately and the ties adjusted so that the tree is held firm.

Shrubs and trees loosened by wind, frost or any maintenance operations shall be firmed up. This shall be carried out at least four times a year. If any plants have been completely lifted out of the ground they shall not be replanted but replaced.

A 500mm diameter circular shall be kept grass free around each tree to facilitate grass cutting. A similar 500mm weed and grass free area shall be maintained around the outer leaf reaches of shrubs to facilitate grass cuttings.

### **5.3 Weed Control**

Any weed growth occurring during the maintenance period in the shrub areas shall be spot treated with a translocated herbicide such as 'Roundup' or a similar approved chemical or removed by hand. An application of pre germination herbicide such as 'Simazine' or similarly approved shall be applied in the spring of each year. All herbicides shall be applied according to the manufacturer's instructions using a directional spray to prevent spraying of adjacent shrubs. Spraying shall only be carried out in calm conditions to prevent drift damage.

### **5.4 Watering**

Watering shall be carried out when it will be most beneficial to the plants, preferably later in the day when transpiration and evaporation rates are at their lowest. Trees and shrubs shall be watered when the contractor deems it necessary and/or at the discretion of the Landscape Designer after the initial planting operation and during the maintenance period. Watering shall be taken to mean a thorough soaking of the soil within the area of the plant pit, to the depth of the roots. Under no circumstances shall small amounts of water be applied to trees and shrubs.

### **5.5 Plant Deaths**

All tree and shrub losses due to natural causes after planting shall be replaced by the contractor within the following season with plants equal in size and shape to those first planted.

### **5.6 Pests and Diseases**

All plants shall be inspected by experienced personnel at least twice a year for the presence of pests and diseases. If either or both are present, the contractor shall report the conditions and implement the appropriate control measure immediately.

All chemicals to be used for the control of pests and diseases shall be approved, and applied in accordance with the manufacturers written instructions.

If any plants are so heavily infested that even after control measures have been taken death is likely, they shall be removed from site and replaced with new healthy stock.