

REPORT: LANDSCAPE SOFTWARES SPECIFICATION

PROJECT: GREENHILLS ROAD NURSING HOME

DATE: February 2022

Report Title Outline Landscape Softworks Specification and
General Landscape Maintenance

Project Greenhills Road Nursing Home

Revision	Issue Date	Author	Checked by	Description of Revisions
-	2022.01.07	LD	DOT	n/a

Table of Contents

Item	Title	Page
100	Preliminaries	3-8
200	Topsoiling/Ground preparation	8-12
300	Grassing	12-14
400	Grass Maintenance	14-16
500	Planting	16-27
600	Planting Maintenance	27-31
700	General Maintenance	31-32.

100 PRELIMINARIES

101 Scope of Work

Works will be carried out as a direct contract. All soft landscape works associated with the Infrastructure and Private Contracts for the Greenhills Road Nursing Home.

102 Site

The site is located in Tallaght, on the Old Greenhills Road.



Fig 1. Site lands, off Old Greenhills Road Tallaght.

103 Contact Personnel

Landscape Architect	doyle + o'troithigh landscape architecture Ltd.	Linda Doyle Daithi O'Troithigh
----------------------------	--	-----------------------------------

104 Forms of Contract

The planting to infrastructure works will be undertaken by a domestic sub-contractor to the Main Contractor.

105 Supervision

The documents for the landscape contract have been prepared by doyle + o'troithigh Landscape Architecture Ltd. The Landscape Architect will inspect and advise upon the works at the request of the Employer.

106 Period of Liability for Defects

The defects liability period shall be six months from the completion of topsoiling and grass seeding works. The Contractor will be responsible for the aftercare of the grass areas for this period.

A defects liability of 12 months from completion of topsoiling and shrub / hedgerow planting. 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.

A defects liability of 18 months from completion of topsoiling and Tree planting. 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.

107 Inconsistencies

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

108 Quantities

Quantities have been measured and calculated from the Contract Drawings, and from the best information available at the time of tendering. The tenderer shall ensure that all quantities are checked in advance of tendering.

109 Payments

All payments will be in accordance with the contract between the main contractor and the client.

110 Access

Access to the site by the Landscape Contractor will in agreement with the Main Contractor.

111 Availability of Site

The site will be available for landscape works from TBC. The space available for use by the Contractor in carrying out the work and for his operatives, plant and materials shall be agreed prior to commencement of works. The Contractor shall be required to confine his men 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.

112 Preliminary Investigation

The Contractor shall be deemed to have visited the site. The trees and hedgerows scheduled for removal (or areas where trees have already been removed) shall be examined and the tenderer shall have fully acquainted and satisfied himself as to local conditions, facilities for access to the site, 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.

113 Retention

A retention fund will be established with the Main Contractor, of which half will be released upon practical completion, whichever is the later, and the balance at the end of the defects liability period.

114 Fixed Price

Adjustments will only be allowed in accordance with the contract. This is a fixed price tender for the duration of the works.

115 Bond
Not required.

116 Insurances
The Landscape Contractor and Tree Felling 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 contract. The minimum sum for Public Liability Insurance is €6,500,000 (Six million, five hundred thousand EURO).
The minimum sum for Employers Liability Insurance is €13,000,000 (Thirteen million EURO).

The Main Contractor will require the successful tenderer to produce relevant insurance documentation upon request.

The Contractor shall maintain his insurances until completion of the works.

117 Sub-Letting
The Contractor **shall not** be permitted to sub-let any part of the landscape works without the prior written agreement of the Employer. Such consent shall not be unreasonably withheld.

118 Water
The Main Contractor will be responsible for delivering water to the site and will allow for this in his rates.

119 Protection
The Contractor shall liaise with the Employer and relevant authorities to determine the positions of services, including 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.

A hard copy of service drawings (not 'as-builts') are available from the client for reference. These drawings are incomplete in terms of all services on site. The Contractor shall make contact with relevant authorities regarding positioning of services. The drawings provided in hardcopy are to be taken as a guide only as it is the Contractors responsibility to determine the location of all services. Localised scanning of ground in advance of carrying out works will be required in advance of works.

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 sawdust, mud and soil from all roads, kerbs, footpaths and surroundings to the work.

Any work damaged or soiled by weather, traffic or other causes due to inadequate protection shall be removed and made good at the cost of the Contractor.

120 Foreman

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

121 Tidiness and Clearance

All areas of work and surroundings shall be kept in a tidy condition, all surplus material, excavated subsoil, sawdust 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.

122 Safety

A preliminary health and safety plan will be prepared for the contract by the Project Supervisor Design Process (Main Contractor). The Contractor will have fully read the document and shall comply with items therein. All costs associated with the health and safety requirements shall be included within preliminary section of the Bills of Quantity.

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 at Work Act, 2005.
- Safety, Health and Welfare (General Applications) Regulations 2007.
- Safety, Health and Welfare at Work (Construction) Regulations 2013 (SI 291 of 2013)

The Contractor 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 co-operation, the supply of additional information and resources, and all other matters to ensure that the Project Supervisor (Construction) can fulfill his function as defined in the Safety, Health And Welfare At Work (Construction) Regulations 2013 (SI No. 291of 2013).

The contractor shall be responsible for cordoning off the work site area to keep all persons and vehicles at a safe distance from felling operations. Warning notices of the works should be erected. Fuel for equipment must be safely stored on site in accordance with COSHH – Control of substances hazardous to health act.

The contractor shall not permit the handling or use of any tools or machinery by any person other than trained staff. Only authorised personnel are permitted into work site area.

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 Regulation (5), (12), form CR1
- Company Safety Statement
- Names of Contractor's Staff responsible for site safety, health and welfare and for first aid
- Site layout plan showing facilities, crane positions, materials storage, temporary parking, office, canteen, drying, toilets, washroom, etc.
- Training records confirming PA1 and PA6 (with regard to chemical application).

The Contractor shall provide all the management, labour resources, plant, equipment, offices 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, site tidiness, etc.

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

123 Hazardous Substances

The following routine precautions in the use of weedkillers and other hazardous or polluting substances shall be adhered to at all times. Any persons administering chemicals shall be in receipt of the NPTC Safe Use of Pesticides Hand-Held Applicator PA6 qualification and the NPTC Safe Use of Pesticides Foundation Module PA1 qualification.

- Read the label, especially the safety precautions, carefully before use.
- Use all products only as recommended on the labels.
- Avoid drift onto livestock, neighboring property or wildlife habitats and take care to prevent contamination of any water source whether for drinking or irrigation purposes, e.g. streams, or ponds or any effluent water in, for example ditches, cess pools or sewers.

- Products shall be stored only in the containers in which they were supplied. Do not transfer them into other storage containers, especially beer or soft drink bottles.
- Close tightly any partly-full containers. Do not store any hazardous substances on site unless in a securely locked hut or trailer. Keep away from food and feeding stuffs and out of reach of children or animals.
- Wash any accidental spillage from surfaces or protective clothing immediately.
- Wear all protective clothing recommended for the product. Clean all protective clothing used when the job is completed.
- Wash hands and exposed skin before eating, drinking, or smoking and after the job is completed.
- Remove all used containers from site after each day's work and dispose of them safely.
- On no account use empty weed killer containers for any other purpose.
- Any theft of a hazardous substance shall be reported immediately to the Garda Siochana.

124 Public Roads

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 (including temporary fencing) of any temporary obstruction. ***No vehicle entering or leaving the site shall deposit mud or material of any kind on the surrounding roads.***

125 Contract Administrator (CA) - Instructions

All communications will be through the designated foreperson.

126 Temporary Site Boards

Advertisements shall not be displayed on the site.

200 **TOPSOILING/GROUND PREPARATION**

To be read with Preliminaries/General Conditions

Topsoil to be imported to 'fill' areas which have been subject to tree removal and any other associated damage as a result of the same. The contractor shall not be wasteful in his delivery to site.

201 Compounds

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 stored outside a compound area, nor be permitted to flow onto adjoining ground.

202 Scope

This specification covers tree felling, earthworks, ground modeling, (supply and spread of imported topsoil and grass seeding and associated maintenance. All cultivations, including ripping/subsoil cultivation are assumed to be included in the landscape contract. The contractor must familiarize himself with the site in advance

of completing tender documentation.

203 Existing Services

The contractor shall make himself aware of all existing site services in advance of proceeding with the works. **A hard copy of service drawings (not 'as-builts') are available from the client for reference. These drawings are incomplete in terms of all services on site. The Contractor shall make contact with relevant authorities regarding positioning of services. The hard copy drawings are to be taken as a guide only as it is the Contractors responsibility to determine the location of all services. Localised scanning of ground in advance of carrying out works will be required in advance of works.** Scanning of the ground will be required by the Contractor in any case and the contractor will have allowed for this in the pricing document.

204 Site Features to be Retained

All site features shall be retained (both hard and soft landscape elements) other than those areas identified for tree felling and associated grass seeding/remedial works.

205 Access Routes

Refer to clause 111 above.

206 Existing Open Drains

Open drains and streams shall be kept open during the works, and shall not be polluted with soil, fuel or chemicals. No drain shall be filled without prior written agreement of the Employer.

207 Materials Arising

Arisings from the tree work such as wood chip, timber and stumps will be disposed of at a registered greenwaste site or otherwise by Tree Felling Contractor.

Remaining (or smaller) debris shall be removed from site during seedbed preparation stage by the landscape contractor.

208 Site Works

Prior to topsoiling, all soft landscaped areas shall be thoroughly decompacted. Where service runs are located areas for decompaction they shall be carefully sealed off and protected. Areas directly adjacent service runs shall be decompacted by appropriate means (to the approval of the CA), e.g. by hand.

Prior to topsoiling all disturbed areas (excluding structural engineered slopes) shall be decompacted to a depth of 450mm and only during dry weather conditions.

No machinery shall pass over decompacted areas. The Contractor shall inform the Employer upon completion of decompaction before topsoiling operations commence.

Excavated material shall be disposed of off site at an approved licensed landfill site in accordance with the Waste Management Act (1996).

Generally: Keep all excavations free from water until:
Formations are covered.

Below ground construction are completed.

Drainage: Form surfaces of excavations and fill to provide adequate falls.

Removal of water: Provide temporary drains, sumps and pumping as necessary.

209 Permissible deviations from Formation Levels

Embankments and cuttings: ± 50 mm.

Ground abutting external walls: ± 50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

210 Excavation Works

Adjacent structures, membranes and buried services:

- Do not overload, destabilize or damage.
- Submit proposals for temporary support necessary to ensure stability during filling.
- Avoid damage to edge of existing brick work/other hard landscape edging/kerbing.

211 Imported Topsoil

Topsoil shall conform to B.S. 3882, classification: Multi-purpose amenity grade.

The topsoil shall be a fertile loam and shall be naturally occurring material of good quality obtained from the top 150mm of ground. Any manufactured topsoil or topsoil containing couch grass will not be accepted.

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. The PH of the topsoil shall be in the range of 6.0 – 7.5.

Topsoil shall be subject to the inspection and approval of the Employer before spreading. Visible presence of fibrous roots and plant remains will be required. Any fertilizer or soil ameliorants required to bring the topsoil up to an acceptable fertility level shall be added by the Contractor at his own expense.

The contractor shall deliver at his own expense to site a sample load of not less than 5m³.

Give notice: Allow inspection before making further deliveries to site. A notice period of 7no. days is required.

The sample load on approval shall be dumped and kept in a location to be agreed with the Employer and used for comparison with all subsequent imported topsoil. After approving the sample load, it shall be maintained in a weedfree state by mechanical or approved chemical means, as a control on the quality of all topsoil imported onto the site.

Any topsoil brought to site without approval will be deemed to have been brought on at the Contractors risk unless instructions to the contrary be given in writing.

212 Handling Topsoil

Aggressive weeds: Give notice and, obtain instructions before moving topsoil.

Plant: Select and use plant to minimize disturbance, trafficking and compaction.

Contamination: Do not mix topsoil with:

Subsoil, stone, hardcore, rubbish or material from demolition work.

Other grades of topsoil.

Multiple handling: Keep to a minimum. Use topsoil immediately after stripping (if applicable).

Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit less than 3%, to BS 1377-2 (1990).

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

213 Weed killing

Should areas become infested with weeds throughout the course of the contract works, these weeds shall be removed by chemical means.

214 Topsoiling

Topsoiling shall be carried out in layers with each layer being lightly consolidated with a maximum depth of 250-300mm.

Before topsoiling, remove all stones, rubble and rubbish over 75 mm 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 of rainwater, so that they drain.

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

No machinery shall pass over decompacted areas. The Contractor shall inform the CA upon completion of decompaction before topsoiling operations commence.

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

The use of a heavy roller to roll out humps will not be permitted and any area that becomes unduly compacted during the grading operations shall be loosened by forcing or harrowing.

The finished levels of topsoil (after settlement) shall be 30mm above adjoining paving or kerbs and 50mm above adjoining grass areas.

Localised hollows and mounds are to be leveled out and areas finished so that they can drain to hard standing areas.

Formation levels shall allow for the following depths of topsoil, after settlement and cultivations:-

Grass Areas:	150mm.
Shrub Areas:	450mm

Hedge Areas:	450mm
Tree Planting:	1200mm

For normal amenity grass, topsoil depths over 150 mm are unnecessary and wasteful: Make up excessive depth with clean subsoil before topsoiling.
Allow for topsoil to stand 30 mm proud of all kerbs, paths, edgings and manhole covers to allow for natural settlement.

215 Debris

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

216 Disposal

The Contractor shall allow for the disposal off-site of all debris, prunings and rubbish relating to the landscape contract on site.

300 **GRASS SEEDING**

301 Grass Seeding

To be read with Preliminaries

Where trees have been felled and stumps removed, grass seeding shall be carried out as part of the remedial works program.

GENERAL INFORMATION/REQUIREMENTS

302 Seeded Areas

Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.

Appearance: A close knit, continuous ground cover of even density, height and colour.

303 Topsoil

At the time of starting the subcontract work, the areas to be seeded will consist of: Topsoil 150 mm thick (with 200mm subsoil on fill areas) for grass seeding areas

304 Climatic Conditions

Carry out the work while soil and weather conditions are suitable. Grass seeding to be carried out during the first available opportunity, depending on weather conditions.

305 Machines and Tools

Use only machinery and tools suitable for the site conditions and the work to be carried out. Use hand tools around trees, plants and in confined spaces where it is impracticable to use machinery.

306 Watering Generally

Ensure the full depth of topsoil is thoroughly wetted.

Use a fine sprinkler or oscillating spray.

Frequency: As necessary to ensure the establishment and continued thriving of seeding.

307 Water Restrictions

If water supply is or is likely to be restricted by emergency legislation do not carry out seeding until instructed. If seeding has been carried out, obtain instructions on watering.

308 Setting Out

Clearly mark boundaries of seeding areas and obtain approval before starting work.

309 Preparation Materials Generally

Do not use materials containing concentrations of toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

Submit to the Employer the seed supplier's certificate for the following materials and obtain approval before ordering or using the materials:

Source of supply

Analysis of content

Confirmation of suitability for proposed purpose

Confirmation of absence of harmful substances.

310 Herbicide

Weeds shall receive a herbicide suitable for suppressing perennial weeds. During the fallow period before cultivations.

311 Cultivation

Break up any compacted topsoil to full depth.

Reduce top 100 mm of all topsoil to a tilth suitable for blade grading (10 mm down particles).

Remove undesirable material brought to the surface including stones and clay balls larger than 50 mm in any dimension, roots, tufts of grass and foreign matter.

312 Grading

When topsoil is reasonably dry and workable grade to smooth, flowing contours, with falls for adequate drainage, removing all minor hollows and ridges.

Unless otherwise stated, finished levels after settlement to be 25 mm above adjoining paving, kerbs, manholes etc.

Soil levels may be adjusted by blade grading ensuring that there is nowhere less than 150 mm of topsoil. If the required levels cannot be achieved by movement of the existing soil, obtain instructions.

313 Fertilizer

Fertilise grass during seeding with Contractors choice of fertilizer. Fertiliser to be applied to manufacturers instructions.

314 Final Cultivation

After grading carry out further cultivation to reduce top 25 mm to a fine firm seed bed with good crumb structure.

Rake with chain harrow, drag mat or hand rake to a true, even surface, lightly firmed but not over compacted, removing all stones and earth clods more than 50 mm in any dimension on general areas.

Extend cultivation into any adjacent existing grass areas to ensure full marrying in of levels.

Obtain approval of appearance of prepared soil areas before seeding.

315 Quality of Seed

Purchase fresh seed for each growing season. Do not use seed purchased for previous seasons.

Use blue label certified seed varieties complying with EC regulations for purity and germination and also complying with the Ministry of Agriculture Fisheries and Food Higher Voluntary Standard.

Samples of mixture: supply when requested

316 Sowing

Sow seed in calm weather during early autumn in accordance with B.S. 4428

Spread seed evenly at the specified rate(s) applied in two equal sowings in transverse directions.

Lightly harrow or rake.

On light soils roll and cross roll after seeding using a lightweight roller.

317 Seeding for general grass amenity areas:

Mixture: 40% Perennial Ryegrass
 40% Creeping Red Fescue
 20% Chewings Fescue

- Supplier and reference: n/a
- Rate of application: Seed @ 30g/Sq.m.
- Increase rate of application by 50% for slopes exceeding 1 in 2

318 Edges to Seeded Areas

Locations: Planting beds and around newly planted trees.

Timing: After seeded areas are well established.

Edges: Cut to clean straight or smooth curves. Soil drawn back to permit edging.

Arisings: Remove.

PROTECTING/WATERING/CUTTING

319 Watering

During establishment of grass areas ensure that sufficient water is applied using a fine sprinkler or oscillating spray to maintain healthy growth.

Planting sites: Form level, stepped or gently sloping areas as scheduled and/ or appropriate to planting water depths and container/ bag sizes and shapes.

320 First Cut of General Grass Areas

When grass is 100 mm high, remove debris, litter and all stones and earth clods larger than 25mm in any dimension, and when grass is reasonably dry, cut to approximately 25 mm high using appropriate machinery.

Arisings: to be collected and removed off site.

321 Cleanliness

Remove soil and arisings from hard surfaces and leave the works in a clean, tidy condition at Practical Completion and after any maintenance operations.

400 GRASS MAINTENANCE

401 Period

Maintenance works shall be for a period of 6 months post practical completion.

402 Grass Maintenance Objective

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

Maintenance Operations

Before each cut remove all litter and debris.

At the time of each cut, trim all grass edges round the base of trees, manholes, etc. and remove arisings. Sweep all adjoining hard areas clear of cuttings and remove from site.

Mowing shall be carried out using a to maintain the vegetation length within the limits of 30 mm and 75 mm during April to August inclusive and between 50 mm and 90 mm 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, 30 times per year).

The arisings shall be let 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.

Ensure that trees and shrubs are not damaged by the use of mowers, nylon filament rotary cutters and similar powered tools.

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 100 mm 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 may 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 to provide 40 kg N, 10 kg P and 40 kg K per hectare annually.

Reinstatement by re-turfing or re-seeding of worn areas will be undertaken as necessary. On flat areas, and feature mounds worn areas shall be repaired with suitable turf and protected until it roots into the subgrade.

Water as necessary to ensure the establishment and continued thriving of all

seeding. Water to be brought onto site at Main Contractors expense.

403 Fertilizer

Fertiliser to be applied to manufacturer's instructions.

404 Edges to Seeded Areas

When seeded areas are well established, form edges to shrub planting and around newly planted trees with a suitable edging tool, to clean straight lines or smooth curves. Draw back soil from edges to permit use of edging shears and remove all arisings.

405 Failures of seeding

Bare areas, areas of dead grass that have failed to thrive, which are apparent during the defects liability period, will be regarded as defects due to materials or workmanship not in accordance with the Contract and must be made good by recultivation and reseeded/returfing at times agreed with the Employers Representative.

406 Defects Arising

If applicable, the Contractor shall include in pricing for the immediate remedy of any defect noted at an aftercare visit.

407 Pests and Diseases

The Contractor shall report to the Employer 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 shall issue instructions for treatment of the outbreak.

408 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, furnishings and existing vegetation during the course of his works. Include where necessary temporary coverings, planked barrow runs, etc. Clean mud and soil of all hard surfaces and surroundings to the work.

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.

409 Tidiness and Clearance

All areas of work and access routes shall be kept in a tidy condition. 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 users of the site.

500 **PLANTING**

501 Standards of Workmanship and Materials

The Contractor shall satisfy the Employer's Representative that all works have been carried out to comply with BS 4428:1989 (General Landscape Operations) and BS 3936-1:1992 (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 material not meeting the specifications or qualifying for the approval of the Employer's Representative, for whatever cause, shall be rejected.

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

502 Work by Machine or Hand

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.

503 Unsuitable Weather

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.

504 Planting

"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 water-logged and in periods of persistent drying cold winds. The Employer's Representative reserves the right to halt the works should the Employer's Representative consider the working conditions or the weather unsuitable.

505 Planting Season

The planting season has been addressed as part of the program of works scheduled in clause item 119 above. 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 discretion of the Employer's Representative; 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's Representative 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.

506 Approved Chemicals

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's Representative. The Contractor will submit a list of all chemicals to be used to carry out the contract prior to commencement.

507 Planting Generally

The Contractor shall be responsible for setting out all areas of planting to the satisfaction of the Employer's Representative.

508 Notice of Intentions

The Contractor will give 48 hours notice to the Employer's Representative of his intention to commence any of the following operations: tree and shrub removal, setting out, planting, fertilising, herbicide application and maintenance visits. Alternative notification requirements may be stated relating to specific items and these over-rule this general requirement.

509 Protection of Existing Vegetation (where applicable)

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's Representative.

All damaged plant material 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 approved tree wound 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.

PREPARATORY WORKS

510 Litter, Debris Removal

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

511 Planting Areas

The Contractor shall clearly mark boundaries of all planting areas and obtain approval of setting out by the Employer's Representative before commencing work.

512 Weed Removal

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 contact/ translocated herbicide is to be applied to remove all grass and weeds.

513 Surface cultivation

Surface cultivation will consist of rotovating the topsoil to a minimum depth of 450 mm 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. Works within the planting beds will require hand working and the contractor shall include this in his price.

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 shrub planting areas will be 50mm above adjoining paving or kerbs, retaining wall copings, manhole covers etc. and levels will be arranged to give gentle falls for drainage and to avoid ponding hollows.

Any area unduly compacted during the work of grading will be loosened by forking. The use of heavy rollers to roll out mounds will not be permitted.

514 Plants generally

All trees, hedging, specimen shrubs, shrubs, ground cover planting and bulbs, shall conform fully to the specification in respect of species, size and quality. The Contractor shall name the supplier in his tender for approval by the Employer's Representative. All plants shall be well grown, sturdy and bushy according to type and free from all diseases and defects. Shrubs shall be container grown, rootballed or bare rooted as stated in the plant schedules. If container grown, root growth shall not have been restricted by the containers. The Employer's Representative 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.

515 Materials

All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection. Aphids, Red Spider or other insect pest, and physical damage. It shall comply with the requirements of the following sections of B.S. 3936-1, Specification for Nursery Stock, where applicable:

Part 1:	1992:	Trees and Shrubs.
Part 2:	1990:	Roses.
Part 10:	1981:	Groundcover plants.
Part 9:	1992:	Bulbs, corms and Tubers

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 suppliers of the relevant sections of this 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.

516 Species

All plants supplied shall be exactly true to name as shown in the plant schedules. Unless stipulated, varieties with variegated or otherwise coloured leaves will not be accepted, and any plant found to be of this type upon leaving 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. 3936-1. The Contractor shall replace any plants which are found not to conform to the labels.

517 Plants/Trees - General

Condition: Materially undamaged, sturdy, healthy and vigorous.

Appearance: Of good shape without elongated shoots.

Hardiness: Grown in a suitable environment and hardened off.

Health: Free from pests, diseases, discoloration, weeds and physiological disorders.

Budded or grafted plants: Bottom worked.

Root system and condition: Balanced with branch system.

BS Standard: The relevant sections of BS 3936.

Species: True to name.

518 Root Balled Trees (if applicable)

Trees supplied root-balled shall comply with Sections 1 and 2 of BS 4043: 1989, Recommendations for Transplanting root-balled trees as well as BS 3936:1992, Nursery Stock, Part 1, Specification for Trees and Shrubs.

Trees shall have a well-defined straight and upright leader. The crown shall be well shaped, balanced, of a form and habit natural for the species. Trees shall have a sturdy, straight stem not less than 1.90 metres from ground level to the lowest branch, unless otherwise specified, and of other dimensions as set out in the plant schedules.

Trees shall have been transplanted or have had their roots pruned and shall have been placed in the suppliers nursery to permit development of a full and balanced crown and root system, in accordance with Section 2.1 and 2.3 of B.S. 4043.

Trees shall have been carefully lifted, avoiding tearing of major roots and preserving a suitable proportion of smaller roots to be conducive to successful transplantation. Any torn or lacerated roots shall be pruned to sound growth before dispatch.

Root balls must be firm and solid and the roots must penetrate the whole ball. The root ball must be free of perennial weeds. The size of the rootball must be appropriate to the species or cultivar and its age or growth rates under the cultural and soil conditions within which it is growing. The root balls shall be wrapped with non-synthetic, untreated, bio-degradable hessian, and tightly bound with non-synthetic rope or twine. Alternatively, if specified, the wrapped root ball may be placed in a wire basket lined with non-synthetic, biodegradable rope or twine. The wire basket shall be made from non-galvanized steel or aluminum. The root collar shall be apparent at the surface of the ball.

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 removable tie-on label.

519 Container Grown Trees/Shrubs

Growing medium: With adequate nutrients for plants to thrive until permanently planted.

Plants: Centred in containers, firmed and well watered.

Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.

Hardiness: Grown in the open for at least two months before being supplied.

Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

520 Bulbs/Corms/Tubers

Firm, entire, not dried out or shriveled, visually free of pests, diseases and fungus.

Remove from packaging immediately. If necessary, store for the minimum period of time in a well ventilated, dark, covered location at 18-21degC, away from vehicle exhausts and fruit.

521 Inspection of Plants at Nursery

Non Applicable

522 Certification

The Contractor will provide a certificate to the effect that all plant materials are fully in accordance with the specification and with BS 3936. All trees shall have a Certificate of Provenance Declaration Form and the number of times a tree has been transplanted shall be certified.

All plants will be inspected by the Employer's Representative at time of planting for variety and size, but approval from this inspection will not preclude rejection of plant material for defects which may appear later during the progress of the works.

523 Identification

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.

324 Plant/Tree Substitution

Upon submission of substantial evidence that certain plant materials are not available at the time of contract, the Contractor will be permitted to substitute other plants with the approval of the Employer's Representative with an adjustment of price if necessary to that originally specified. Submit alternative stating price and difference from specified plants/trees.

525 Damage

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.

526 Heeling In

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; waterlogging 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.

527 Planting Generally

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 in and around the roots.

The planting season shall be November to March or otherwise as agreed with the Employer's Representative . Planting outside the specified planting period will only be permitted in exceptional circumstances at the discretion of the Employer's Representative . In the event that the works are delayed by inclement weather, the Contractor shall complete them at the earliest opportunity afforded by suitable weather conditions.

Deciduous trees and shrubs: Late October to late December.

Conifers and evergreens: September/ October

Herbaceous plants September/ October.

Container grown plants: At any time if ground and weather conditions are favourable.

- Watering and weed control: Provide as necessary.

The Contractor shall provide a schedule of watering to be carried out for the Employer's Representative 's approval in advance of planting any containerised tree outside of stated planting season.

528 Herbicides

Glyphosate - 'Roundup' by Monsanto Chemicals Ltd. Do not apply when rain is forecast within six 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.

Pistol - Contains: 250g/L glyphosate & 40g/L diflufenican. Apply Pistol post-emergence of weeds at any time from March until the end of October, provided that the weeds are actively growing. Annual broad-leaved weeds should have at least two fully exposed leaves, and annual grasses should be at the one leaf growth stage

or beyond. Some perennial weeds, including Docks, Perennial Sow Thistle and Willowherb are best treated just before flowering or the setting of seed.

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

529 Weedkiller Application

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

The Contractor may, with the Employer's Representative s prior agreement, apply foliar acting weedkillers with an ultralow-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.

530 Fertilisers – General Fertiliser

Fertiliser to be agreed with Employer's Representative in advance of fertilizing operations.

Apply evenly over all planted areas at manufacturers specified rate g/sq m prior to the application of mulch.

Soil Conditioner/Ameliorant

Manure: Spread well rotted horse or farmyard manure or farmyard dung over all planted areas @ 1cubic metre per 10 Sq.m. prior to cultivation. (Poultry or pig manure will not be permitted on this site.)

531 Cultivation to Shrub Beds

The Contractor shall cultivate planting areas to break up the soil to a depth of 450 mm by the use of suitable machinery or by hand as necessary. After cultivation the areas is to be graded, stone picked and all stones, debris and the like in excess of 25mm in any dimension shall be removed from site. Spread the following over the planted area:

Manure: 25mm depth

General Fertiliser: To manufacturer's instructions

532 Tree Pits

Tree pits shall be excavated to the dimensions and shape as shown on the contract drawings. The base of the pit shall be thoroughly forked to a depth of 300mm to allow roots to penetrate below the pits. The excavated tree pits shall be left open for inspection by the Employer's Representative prior to backfilling and planting. The Contractor shall notify the Employer's Representative least 72 hours before commencement of tree pit excavations to permit inspection. The Contractor shall draw the attention of the Employer's Representative to any waterlogged pits.

Pit Size(s): Whip and small feathered trees:- 600 mm diameter; 450 mm depth.
Standard and large feathered trees:- 900 mm diameter; 600 mm depth. Heavy

standard trees 1200 mm diameter; 750 mm depth. Semi-mature trees 2100 mm diameter; 750 mm depth.

533 Planting Advanced Nursery Trees/Specialist Trees /Semi-mature trees/Whips:

Excavate pit to dimensions as noted in above clause or to a diameter 400 mm greater than rootball/container. Stockpile topsoil for re-use. Remove excavated subsoil, weeds, roots, stones and rubbish over 50 mm diameter to tip, and make up with topsoil. Fork over the base of the pit to decompact thoroughly.

Supply and incorporate the following ameliorants evenly into the backfill beside the pit:-

Moist manure:	0.047cu.m
Slow Release Fertilizer 'Osmo Pro 2' recommendations	Apply to manufacturers

(Note: Osmo Pro 2 is available from White's Agri, Ballough, Lusk, Co. Dublin.

Place tree upright in centre of pit, and orientate to best effect. Remove wrappings and bindings of the rootball/container. Partially backfill the pit, to hold rootball steady. Probe the rootball on the west side of the tree for the stake. Drive 2 no. 1950 x 100 mm diameter stakes to leave 650mm over the ground.

Backfill pit in layers 150 - 225 mm deep, to set rootball at same depth as in nursery, allowing 50 mm for settlement. Firm backfill.

Secure tree to cross bar (for double-staking) using rubber flat back block and rubber tie.

Unless the soil is already wet, water thoroughly before placing the last layer of soil and allow to drain.

534 Stakes for Standard Trees.

Stakes: Softwood (preserved), peeled chestnut, larch or oak, free from projections and large or edge knots and with pointed lower end.

Nails: To BS 1202: Part 1, galvanized, minimum 25 mm long and with 10 mm diameter heads.

The stakes shall be set vertically into the ground, and shall be set on the windward side of the tree as agreed with the Employer's Representative. Drive stakes before planting with a drive-all, wooden maul or cast iron headed maul, not with a sledge hammer.

For feathered trees, stake shall be 1500 x 7 mm (diameter) and for advanced nursery stock stakes shall be 2400 x 100mm (diameter). **Refer to landscape details drawing for specific staking requirements.**

535 Tree Ties

Ties are to be approved by the Employer's Representative prior to their use. Tree ties shall be of rubber, PVC or proprietary fabric laminate composition, and shall be strong and durable enough to hold the tree securely in all weather conditions for a

period of three years. They shall be flexible enough to allow proper tightening of the tie.

Ties shall be min. 45 mm wide. They shall be fitted with a simple collar spacer to prevent chafing, and with a buckle for adjustment. Nail each tie to the stake with one galvanised nail immediately behind the buckle, leaving the tie end free for adjustment. Non-adjustable, buck-less types will not be permitted.

536 Planting Shrubs

Prior to planting all bare rooted plants shall be completely immersed in a container of Alginure Root Dip (1:99) solution and container grown plants shall be sprayed with the solution in accordance with the manufacturer's instructions.

All plants will be planted in an excavated pit to the dimensions specified in the Schedule of Quantities or to give 50mm minimum growth space (whichever is the greater) to accommodate root spread. Where turfing or seeding has been carried out prior to planting, canvas, hessian or other suitable material will be laid around the pit to receive excavated soil.

The contractor shall mix planting compost, fertiliser and slow release fertiliser, at the rates stated in the Schedule of Quantities, with sufficient excavated topsoil and place 50mm of the mix at the bottom of the pit. The plants shall be carefully removed from the container and shall be placed in the pit and carefully backfilled with the mix ensuring that the planting depth is correct, the total root system is covered and the plant is firmed in. Any surplus topsoil shall be spread evenly over the surrounding area.

After planting the plants shall be thoroughly watered to field capacity and the planting area left clean and tidy. If planting is performed after grass area preparation, proper protection to grass areas should be provided and any damage resulting from planting operations removed promptly.

The contractor shall allow for the watering of plants to field capacity as and when necessary, until practical completion is achieved.

On completion of planting, any broken branches shall be pruned, damaged areas of bark shall be neatly pared back to sound tissue and all cuts and wounds over 25mm in diameter shall be treated with a fungicidal sealant.

537 Hedges

Shrubs for hedges: As specified, consistent in species, cultivar and clone to ensure a uniform hedge. Plant shrubs in trenches large enough to take full spread of roots. Set out plants evenly as scheduled. Allow incorporating a 1.2metre high fence (1.5metre posts (every 3.0m) and sheepwire fencing. Hedge planting to be carried out on the basis of a double-staggered row.

538 Herbaceous Planting (if applicable)

Remove pots, wrappings or containers. Excavate for rootball. Insert plant into ground with minimum disturbance of its roots so that the soil level of the pot matches the surrounding soil level. Do not cover or damage dormant resting buds or shoots.

539 Bulbs/Corms/Tubers

Plant so that the top of the bulb/corm/tuber is at a depth of approximately twice its height with base in contact with bottom of hole. Backfill with finely broken soil and lightly firm to existing ground level.

When planting in existing grassed areas neatly remove a plug of turf and replace after planting. Scatter naturalized bulbs/corms/tubers at random over the allocated area and plant where they fall.

540 Tip Pruning

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.

541 Cutting Back

Plants scheduled for cutting back shall be cut back after inspection. They may be cut back before or after planting. Cut back to approx. 200 mm above ground level, making a sloping cut slightly above a live bud. Cuts shall be made with a sharp pruning knife.

542 Bark Mulch

Horticultural graded bark from coniferous trees, particles 25-75 mm, free of fine material, dust or wood. Spread to 50 mm deep, over full areas of planting (including 1.0metre diameter circles around specimen trees) described in the Schedule.

543 Watering

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.

544 Replacements

The planting will be inspected in Spring and again in the September following planting. Any tree or shrub found to have died from any cause except as provided below or the work of other contractors shall be replaced by the Contractor at his own expense. Replacement planting shall conform in all respects with this Specification, including all specified excavation, provision and incorporation of all fertilizers and ameliorants, and weedkiller treatments.

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

545 Setting Out

Setting out shall be from figured dimensions where indicated, and otherwise by scaling. All planting areas shall be set out and agreed with the Employer's Representative prior to any planting.

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

546 Workmanship

A high quality of finish will be expected at all times.

Shrubs and Mixed Transplants/Shrubs: Leave surface reasonably even, free of all stones and debris over 50 mm diameter, free of weeds.

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

600 **PLANTNG MAINTENANCE**

601 Period

Defects liability and Maintenance works shall be for a period of 12 months for shrubs and hedge planting and 18 months for Tree planting following receipt of practical completion.

602 Organisation

The maintenance programme will be organised as follows:-

Scheduled operations, in whose timing the Contractor will be permitted some flexibility, and which will be the basis of payment to the Contractor.

Critical dates, by which time scheduled operations shall have been completed, and at which performance will be assessed.

603 Performance Standards

General items only shown below:

Trees:

- All weeds within tree planters shall be killed at each maintenance site visit.
- Weeds shall not exceed 100 mm in height at any stage.
- If newly planted trees (<35cm girth) are noted as dead, the contractor shall remove these and dispose of appropriately off site.

Shrubs/Ground Covers

- Soil surfaces shall be generally free of weeds at all times, and on the Critical Dates shall be entirely free of all weeds.
- No encroaching grass in soil / shrub area areas.

All Plants

- Shall be alive, healthy, free of minor defects and free of weedkiller or cultivation damage.
- Planting areas shall be free of litter and debris from weeding, cultivation or pruning.
- Mulches, where present, shall be maintained in continuous cover.

604 Inspections

The Employer's Representative shall attend a review on site on each critical date, or as soon as possible thereafter.

605 Trees: Maintenance

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

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

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

Cut back any tall vegetation that is threatening to shade or smother the young tree
Allow for cutting back regularly (3/4 times a year).

For trees in gravel - spray as above and provide and lay any additional gravel required to make up subsidence.

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

Every month check condition of stakes, and ties. Replace broken or missing items. Adjust if necessary to allow for growth and prevent rubbing of bark. Cut back any damaged bark.

Firm the soil around the roots to ensure that the plant is securely planted in the ground and upright (as necessary and after periods of strong winds)

Formative prune to remove any dead, diseased or damaged shoots and create a balanced form for future growth. Prune trees to favour a single central leading shoot, unless specified otherwise. Remove all arisings from site. Allow for pruning once in the season after planting.

Apply 150g slow release fertiliser (Emnag 4+19+10+7.5% Mg or equivalent) to each tree as growth commences in early spring.

606 Shrub/Herbaceous/Hedge: Maintenance.

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

Maintenance Operations: After planting, if appropriate and in season for the species involved, prune shrubs to remove dead or dying and diseased wood and suckers, to promote healthy growth and natural shape and to develop their desirable ornamental characteristics. At the same time remove intermediate plants that are restricting the natural and attractive development of their neighbors. Remove all arisings from site.

Lightly cultivate the surface soil, to a depth of approximately 50 mm, remove or bury all annual weed or natural litter and break any surface capping. Take special care to avoid unnecessary damage to the shrub plants and ensure that all the shrubs are firmly bedded in the soil. Leave the surface with a fine and even tilth with soil crumbs of less than 50 mm in diameter.

Note: This operation is only essential where the soil is compacted or as a means of incorporating mulch. Not required where the areas are mulched.

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

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

Immediately after planting or, when and where subsequently directed, mulch the surface of the border with a Horticultural graded bark from coniferous trees, particles 25-75 mm, free of fine material, dust or wood. Spread to 50 mm deep or other approved equivalent. Thereafter, top dress the mulch as necessary and at least once a year to maintain effective cover. Spot treat or remove any emergent weeds as specified above but do not cultivate or incorporate the mulch into the soil.

Apply slow release fertiliser to all planted areas in Autumn (NPK 0:20:30) at 25g/sq.m to encourage strong root structure and winter hardiness.

Water as necessary to ensure the establishment and continued thriving of all planting. Water to be brought onto site at Main Contractors expense. Water using a fine rose or sprinkler until full depth of topsoil is saturated.

607 **Final Mulching**

At the end of the defects liability period.

Ensure that the soil is thoroughly moistened prior to remulching, applying water where necessary. Remulch the whole surface of planting beds as specified at 30mm

depth . Agree mulch type with Employer's Representative prior to application.

608 Weedkilling

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

The Contractor may, with the Employer's Representative s prior agreement, apply foliar acting weedkillers 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.

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's Representative. No plant, foliage or stem, shall be directed sprayed, even in winter. Take particular care when using Glyphosate.

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

For clover, 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 1.5 m of shrub planting without protection. Apply in two half-doses, at right angles to each other.

609 Weed Control in Shrubs Planted Areas

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

610 Watering

The Contractor will be responsible for watering planting in all trees, 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.

611 Firming

Firm any plant loosened by frost, wind or cultivation.

612 Pruning

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

613 Fertilizer:

Trees and Shrubs

Slow Release Fertilizer 'Osmo Pro 2' or similar and approved and lightly rake through mulches. Apply to manufacturers recommendations

A combination of slow release fertilizer and an approved organic seaweed meal can be used as an alternative. Manufacturer and reference: Arramara Teoranta, Kilkieran, Connemara, Co. Galway. Product: Asco Top Dress Fertiliser. (or similarly approved organic seaweed meal).

Apply evenly over all planted areas at manufacturers specified rate g/sq m prior to the 'topping up' of bark mulch. Horticultural graded bark from coniferous trees, particles 25-75mm, free of fine material, dust or wood. Spread to 50mm deep, over full areas of planting described in the schedule.

614 Soil Conditioner/Ameliorant

Manure: Spread well rotted horse or farmyard manure or farmyard dung over all planted areas @ 1cubic metre per 10 Sq.m. on one occasion during the landscape maintenance contract. Timing of application to be reviewed with Employer's Representative. (Poultry or pig manure will not be permitted on this site.)

700 **GENERAL MAINTENANCE**

701 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, furnishings and existing vegetation during the course of his works. Include where necessary temporary coverings, planked barrow runs, etc. Clean mud and soil of all hard surfaces and surroundings to the work.

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.

702 Tidiness and Clearance

All areas of work and access routes shall be kept in a tidy condition. 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 users of the site.

Maintenance Operations

Collect and remove to the contractor's tip all extraneous rubbish, and material arising from maintenance works, which is detrimental to the appearance of the site. This rubbish to include stones, bricks, debris, paper, confectionery and other wrappings, bottles, cans and plastic containers and all other rubbish.

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

Collect and remove to the contractor's tip all extraneous matter which has deliberately been deposited on the site by persons known or unknown (fly-tipping). Such matter to include, inter alia, bricks, rubble, garden and household refuse, discarded domestic appliances, furniture and scrap metal.

703 Paved Areas and General Maintenance

Maintenance Objective: Regularly sweep or clean paved surfaces to keep it clear of litter or other debris that will detract from the appearance of the site. Keep the surface free from weed (including moss) growth and all associated drainage gulleys in working order. Gravel surfaces are to be maintained as an even surface to designed grades, without weeds moss, subsidence or other imperfections.

Maintenance Operations: Sweep all paved areas at regular intervals and remove all arisings from the site. Frequency may vary according to time of year or other maintenance operations. Hand or mechanical - sweeping may be used.

Control all annual weed (moss) growth by the application of residual weedkiller. A single application in March/April should normally be sufficient but follow-up spot treatment may be necessary in late summer.

Clear silt and extraneous matter from the drainage gulleys, including the lifting and replacement of the drain cover.

Inspect and clear any leaves and other litter from drain gully covers.

Collect and remove from site all leaf litter in autumn (allow two visits monthly in October, November and December).

Safeguard and make good any damage to paving on an ongoing basis (no defect is to be left longer than one week). Damage that might have a bearing on safety is to have an immediate response.

Gravel areas are to be inspected and maintained in a similar fashion; any subsidence, rutting, or pot holes are to be made good with a similar gravel to that used for the initial construction. All gravel areas are to be kept free from soil or other contamination and any areas so contaminated shall be removed and made good with clean gravel as above.

704 Cleanliness

At completion and at each visit, remove soil and other debris from all hard surfaces and leave the works in a clean tidy condition

705 Foreman

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's Representative.

706 Water

Water to be brought onto site by Landscape Contractor at his own expense.

707 Safety

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

708 Public Roads

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 warnings 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 material of any kind on the public road.

