

Landscape Design Report

Estuary Way, St. Michael's Drive, Mahon, Cork.



Project Ref :
Client:
Date:

24-011
Cork City Council
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1.0 Introduction

This landscape design report corresponds to the following landscape drawings prepared the in support of a 38-units modular housing scheme at Estuary Way, St. Michael's Drive, Mahon, Cork City.

Estuary Way, St. Michael's Drive, Mahon, Cork. City.				
Drawing Name	Drawing No.	Size	Rev	Scale
Landscape Plan	LP-01-PP	A1		1:200
Landscape Plan with Service	LP-02-PP	A1		1:200
Boundary Plan	BP-01-PP	A1		1:200
Boundary Details	BD-01-PP	A1		1:25
Planting Plan	PP-01-PP	A1		1:200
Planting Plan - Open Spaces	PP-02-PP	A1		1:200
Landscape Details	LD-01-PP	A1		1:25
Landscape Details	LD-02-PP	A1		NTS

The 1.01 ha site is located to the north of Mahon Point Shopping Centre and is accessed via St. Michael's Drive to the south. The site largely comprises of a hard standing zone which is currently used a site compound. An established residential scheme (St. Michael's Close) lies immediately to the east of the site; light industrial units edge the site to the north and commercial/office buildings are located to the west. Refer to Architects and Engineers drawings, details and reports for information with regard to the proposed built development.

2.0 Landscape Proposals

It is proposed that all areas of the proposed development will receive a landscape treatment of a high standard in terms of materials and specification; both for hard and soft landscape elements. The key objectives of the landscape proposals specific to this development are:

- To provide a landscape scheme that integrates the development into the surrounding environment and that will be sensitive to the nearby local landscape;
- To create an attractive and purposeful landscape for future residents;
- To ensure that the plant material proposed is suitable in terms of scale, species selection, on-going maintenance;
- To adopt a repetition and rhythm of plant species to ensure a cohesive plant palette style and an overall consistency.
- To develop sustainable tree growth to the streets and open spaces.
- To create and facilitate passive amenity for the future residents.
- To create outdoor recreation and opportunities for social interaction in the outdoor spaces.

The proposed landscape design relates to the following key areas:

2.1 Open Space – Central Courtyard

An overlooked courtyard space is proposed within the centre of the scheme. This space shall be edged by the units immediately to the north and south of the space, new walling to the west to aid privacy and set-down and turning area/shared surface to the east with further units edging the zone. A series of pathways surrounding the space offer multiple opportunities and connections for engagement. The following key elements are proposed within the central open space:

- Pathways which link to surrounding pedestrian routes
- Structural tree planting
- A naturalised zone with native hedge planting, a wildflower mix meadow feature insect houses. Seating in the form of rounded informal boulders are also proposed within this zone to offer opportunity for engagement with nature and contemplation as well as social interaction.
- Callisthenic unit to offer opportunity for active exercise/HIIT training (set on a tiger mulch base)
- Bench seating
- Tree planting coordinated with a soakway and associated services.
- Shrub planting and naturalised bulb planting.



2.2 Southern Open Space

This open space is located south of the boundary railings proposed as part of the scheme. The space seeks to engage with the wider community as well as future residents of the scheme. The proposed entrance road and pedestrian links 'divide' the space to the south; with the proposed boundary railings featuring a native hedge to provide a quality backdrop

and improve local biodiversity. Whilst 2no. trees require removal to the east of the entrance way to facilitate the installation of a soakway unit and associated services, further tree planting is proposed with similar species. A series of east-west pathways offer opportunity for walkers, along with spaces for resting and engagement. The space shall also receive shrub planting, a wildflower meadow mix and naturalised bulb planting which will compliment and enhance the local landscape.

2.3 Front Gardens/Internal Access Roads

It is proposed that the internal access roads will receive specimen trees, suited to a streetscape development. Size, seasonal interest, colour and variation have all been considered in choosing specific trees for these locations. Supporting shrub planting will be included along these routes to ensure an overall unified approach is adopted.

Planting within the front gardens of the modular units shall comprise of a mix of shrub herbaceous plant material with hedging at select location to aid privacy as necessary. The shrub planting shall be structural in nature. Herbaceous planting is envisaged which will provide seasonal interest and colour.

2.4 Boundary Edge

Along the southern edge of the site, the active site shall receive a 2.0m high flat bar railing which shall be edged by a native hedge. This consistent treatment along the public road edge with the complimenting linear green space will offer a strong and rich character to the scheme and will enhance and offer an aesthetically pleasing edge.

Walling in the form of a 2m high rendered finish (to all public sides) with concrete capping is proposed to the western boundary of the scheme. To the north and east of the scheme the existing walling shall be retained and repaired/reinstated /increased to provide an overall height of 2m where there is evidence of damaged or missing sections.

For all boundary proposals and details refer to drawing no. BP-01-PP and BD-01-PP.

3.0 Planting Programme

Planting on site will commence with the completion of the works and as a result the programme is closely tied to construction operations. Ground preparation will precede planting and will include weed clearance and soil amelioration where necessary.

Planting will largely be carried out during the dormant period from November – March, with grass seeding carried out from April – September. Landscape maintenance for each area will be carried out for a period of 12 months from the practical completion date. A 12 months defects liability period will be set in place for all plant material with plant failures being replaced in the following planting season.

Plant materials selected for this residential scheme will largely follow the planting plan as prepared for the scheme (refer to drawing no. PP-01-PP & PP-02-PP)

4.0 Landscape Specification

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.

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.

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.

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.

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.

Planting Season

The planting season has been addressed as part of the program of works scheduled. 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.

Planting Generally

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

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.

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.

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.

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.

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.

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.

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.

Species

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

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, discolouration, 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.

Container Grown Trees/Rootballed Trees/Shrubs

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

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.

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.

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.

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.

Planting Generally

All planting to be carried out during planting season October - March; unless otherwise detailed by the project programme.

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.

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.

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.)

Cultivation to Shrub Beds

The Contractor shall cultivate planting areas to break up the imported soil to a depth of 300-400 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

Planting rootballed Semi-mature trees

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' **Apply to manufacturers recommendations**

Place spring-ringed or container grown tree upright in centre of pit, and orientate to best effect. 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.

Stakes for 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. Refer to landscape drawings enclosed.

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.

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.

Shrub & Herbaceous Planting

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.

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.

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.

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 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.

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.

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.

Mulching & Hand-edging

The contractor shall allow for edging around all existing trees; i.e. by providing a clean edge with a hand edger to a depth of 100mm. All excess topsoil derived from the edging process to be removed from site. Allow for topping up of all 'edged' areas (i.e. 500mm radius around trunk of tree) with medium grade bark mulch to a depth of 50mm. Allow for mulching on all formal shrub planting and hedging areas, as well as a 1.0m diameter circle around all existing and proposed trees; to a depth of 50mm. Contractor shall allow for edging around all existing light posts, site structures (should as mini-pillars, postboxes) within the context of the contract area. Mulching in accordance with the above shall also be carried out.

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.

Topsoil

Allow for topping up to allow for an even grass sward to be prepared post contract works.

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.

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.

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.

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

Setting Out

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

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:
 1. Source of supply
 2. Analysis of content
 3. Confirmation of suitability for proposed purpose
 4. Confirmation of absence of harmful substances.

Herbicide

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

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.

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.

Fertilizer

Fertilise grass during seeding with Contractors choice of fertilizer. Fertiliser to be applied to manufacturer's instructions.

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.

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

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.

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 @ 35g/Sq.m.

Increase rate of application by 50% for slopes exceeding 1 in 3

Edges to Seeded Areas

Locations: Planting beds and around newly planted trees. Timing: After seeded areas are well established. Arisings: Remove.

PROTECTING/WATERING/CUTTING

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.

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.

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.

Maintenance and Performance Standards

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

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

Amenity Grassland

Amenity grassland describes all natural and semi-natural grassland used for recreation purposes as distinct from that used for productive agriculture. It forms the major part of the landscape and its maintenance requires more time during the summer growing season than any other activity.

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

- Mowing shall be carried out using a cylinder mower to maintain the vegetation length within the limits of 30 mm and 35mm during April to August inclusive and between 35 mm and 50

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, 20 times per year).

- The 'arisings' shall be collected and discarded appropriately off site by the Landscape Contractor. At no stage must arisings come to rest on paved or planted areas.
- 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 and in period September to October as noted above.
- Provisional item Reinstatement by re-turfing or re-seeding of worn areas may be undertaken as necessary.

Meadow Grassland / Wildflower

Wildflower meadow grassland areas, these open habitats are areas are seeded with a wildflower meadow mix to attract wildlife and support flora and fauna.

- To provide a low maintenance naturally occurring wildflower rich meadow with mown grass pathways. Providing cover and food for wildlife through the development of a habitat rich environment with pollinator plants.
- Mowing, the whole area should be trimmed back to approximately 100mm height using a tractor pulled mower or strimmer in Autumn
- Raking, the cut material should be raked off and removed off site. The raking will help open up the ground and allow any fallen wildflower seed to establish in the following year.

Newly Planted Trees

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

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

- Maintain a 1 m diameter circle of plant-free soil around the base of each isolated tree by hoeing or the use of approved herbicide other than a residual. Avoid strimming around the base of standard trees which readily damages young bark.
- 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 (i.e. taller vegetation growing from outside the 1 m weed free area). Allow for cutting back regularly (3/4 times a year).
- If required, water the newly planted trees throughout the summer months (May to August) as required after any period of 4 weeks without significant rainfall (less than 5 mm). Apply sufficient water to thoroughly wet the top 150 mm of soil around the tree roots. This will normally require approximately 10 litres for a seedling or whip and 20 litres for a standard tree. Supply/transport of water to be the responsibility of the Landscape Contractor.
- Check stakes and ties for firmness and support and adjust as necessary. Allow for checking twice a year, preferably in late spring and late summer.
- Firm the soil around the roots to ensure that the plant is securely planted in the ground and upright. Allow for firming once in the spring after planting.
- Formative prune to remove any dead, diseased or damaged shoots and create a balanced form for future growth. Allow for pruning once in the season after planting.
- Where tree guards, stakes, ties, strimmer guards, rabbit guards and temporary fencing is no longer deemed necessary, the contractor shall allow for removing and discarding of these elements appropriately off site.

Planting Areas (Shrubs/Herbaceous)

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

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.

After planting, if appropriate and in season for the species involved, prune shrubs to develop their desirable ornamental characteristics. At the same time remove intermediate plants that are restricting the natural and attractive development of their neighbors. Remove all risings from site. If plants have become over mature, rejuvenation by a once over complete coppice is recommended; however, this should be reviewed with the Employer in the first instance. Lightly cultivate the surface soil, to a depth of approximately 50 mm, remove or bury all annual weed or natural litter and break any surface capping.

- Take special care to avoid unnecessary damage to the shrub plants and ensure that all the shrubs are firmly bedded in the soil. Leave the surface with a fine and even tilth with soil crumbs of less than 50 mm in diameter. Once a year operation (in early winter). Note: This operation is only essential where the soil is compacted or as a means of incorporating mulch. Not required where the areas are mulched.
- 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, as required and where subsequently directed, mulch the surface of the border with a 50 mm layer of pulverized bark (maximum particle size 40 mm), or another approved equivalent. Thereafter, top dress the mulch as necessary and at least once a year to maintain effective cover. Spot treat or remove any emergent weeds as specified in c) above but do not cultivate or incorporate the mulch into the soil.

Hedging

Regularly clip hedges to maintain a uniform and tidy appearance (according to the type of hedge and situation) and a well-developed cover of vegetation over the whole of the hedge surface. Control any weed or grass growth at the base of the hedge so that it does not detract from the overall appearance or adversely compete with the hedge.

- Clip the top and sides of the hedge to maintain true and even levels and using suitable mechanical cutters to maintain the shape and height. Remove any cuttings lodged in the surface of the hedge and rake up and remove all arisings.
- Allow for the operation to be carried out to suit the species and position of the hedge.
- Maintain weed free 750mm wide band at the base of the hedge (weeds at a maximum height of 100mm and a maximum ground cover of 10%) by regular hand removal, hoeing or by the use of approved herbicide. Allow for control once every 6 weeks in the main growing season (4 times per year).

Litter Clearance

Collect and remove from the site, all extraneous litter and rubbish on a regular basis so that its presence is not detrimental to the appearance of the site. (This means that the site should be free from litter after each visit to site). Collect and remove and dispose appropriately off sit all extraneous rubbish, not arising from maintenance works, which is detrimental to the appearance of the site. This rubbish to include stones (over 50mm dia. which may be buried), bricks, debris, paper, confectionery and other wrappings, bottles, cans and plastic containers. Allow for this

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

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

Pathway Areas

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 gullies in working order.

- Sweep all pathway 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 weed killer. 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 gullies, including the lifting and replacement of the drain cover. Programme for once every six months but more frequently where silting up is a particular problem.
- Inspect and clear any leaves and other litter from drain gulley covers. Programme for up to once a week in the autumn when there is likely to be heavy leaf fall.

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