



LANDSCAPE MANAGEMENT AND MAINTENANCE PLAN

Huntstown Circular Economy Hub – Phase One

prepared on behalf of

Rathdrinagh Land Limited

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Disclaimer

All feasible and reasonable attempts have been made to ensure that the information provided by a range of public sector institutions and presented in this report is accurate and up-to-date. Park Hood is not responsible for accidental perpetuation of inaccuracies in these records and any consequent effect on the conclusions in this report.

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Contents

- 1 Contract Requirements
- 2 Site Information and Introduction
- 3 Landscape Softworks – Establishment Maintenance
- 4 Landscape Softworks – Long term Management
- 5 Landscape Hardworks – Long term Management
- 6 Conclusions
- 7 Appendices

Notes

This document is to be read in conjunction with the following drawings and documents:

- Drawing No. 7670-L-2100 Landscape Masterplan
- Drawing No. 7670-L-2101 Phase One Landscape Proposals 1-500
- Drawing No. 7670-L-2102 Phase One Landscape Proposals 1-1000
- Drawing No. 7670-L-2700 Development Impact Plan
- Drawing No. 7670-L-RPT-02 Green Infrastructure Plan

1.0 INTRODUCTION

Purpose and Scope

- 1.1 The Landscape Management and Maintenance Plan has been prepared with regard to the *Fingal County Development Plan 2023 to 2029* which is the relevant plan covering the subject site. The plan is part of a standard requirement for the planning application process and relates to the management proposals for external landscape areas which are part of this proposed development.
- 1.2 The proposed development is Phase 1 of the proposed 9.56 ha Huntstown Circular Economy Hub. It comprises a Materials Recovery Facility, a Food Container Cleaning Plant and ancillaries.
- 1.3 The Plan shall be taken to include this document and any supporting plans, reports and specifications approved as for this proposed Materials Recovery Facility. This includes any documentation containing quantitative and qualitative information about the external areas of the site that will be useful to those responsible for managing and maintaining them. Phase 1 comprises the MRF (5,302m²), Food Container Cleaning Plant (5,302m²), two Storage Buildings, paved open yards, weighbridge, car and bicycling parking areas, surface and foul water drainage systems, landscaping.
- 1.4 The Management Plan sets out the management aims and objectives for the site along with the specific management objectives for each landscape component, and the associated maintenance works required on an Annual and Occasional basis. Annual Works are those works that will be required every year, such as watering, weeding and cleaning. Occasional Works are those that will be required on an irregular or cyclical basis, such as repairs and renewals.

Contract Requirements

- 1.5 The company undertaking any part of the works:
 - must adhere to all local government legislations and regulations concerning their respective industry;
 - must adhere to all local government legislations and regulations concerning health and safety; and
 - must be a member of the local statutory body representing and regulating their respective industry.
- 1.6 Any personnel working on site:
 - must be supervised by an appointed senior member of staff;
 - must be suitable trained in their respective task;
 - must hold the necessary government approved certificates if required (i.e., use of chemicals, machinery etc.)
- 1.7 Any hazardous material:

- has to be correctly labelled, stored and used as per the concerning local government regulations;
- shall only be used by a supervised, trained, certified (if applicable) and appointed member of staff;
and
- must be approved for use by a representative of the owner.

Health & Safety

- 1.8 Management of all areas will be undertaken in accordance with current Health and Safety regulations and Safety, Health and Welfare at Work Acts 2005 and 2010. This will include the Safe System of Work Plan (SSWP) which complements the Safety Statement required under the Safety, Health and Welfare at Work Act.
- 1.9 This will include staff must undergoing a site health and safety induction course regarding the site-specific issues and submission of a Health and Safety Plan prior to commencement of any works.

2.0 SITE INFORMATION AND INTRODUCTION

Table 1 General Site Information	
Site Location	Lands in the townlands of Huntstown and Coldwinters
Council Authority	Fingal County Council
Client	Rathdrinagh Land Limited t/a Irish Recycling Limited
Nature of Development	Phase 1 of the proposed 9.56 ha Huntstown Circular Economy Hub. It comprises a Materials Recovery Facility, a Food Container Cleaning Plant and ancillaries.

Table 2 Landscape Works and Types Summary	
<i>Summary description of external Landscape treatments, areas and components</i>	<p>Soft Landscape Areas include the following elements:</p> <ul style="list-style-type: none"> • (Management of) existing trees and hedgerows; • Grass Seeding; • Groundcover and shrub planting; • Tree and woodland planting; • Buffer Planting; and • Hedgerow planting <p>Hard Landscape Areas include the following elements:</p> <ul style="list-style-type: none"> • Footpaths / hard landscape treatments; • Roads; • Walls and Copings; and • Gates, railings and fencing.

Management Plan Objectives

- 2.1 The aim of the Management Plan is to coordinate a high standard for maintenance and management of landscape elements across the site to ensure successful visual integration of the development proposal into the surroundings and to protect and enhance nature conservation interests in accordance with the design objectives in the approved planning documents. This includes the appropriate maintenance of existing retained and proposed landscape components within an easily maintained comprehensive landscape framework that can provide (where possible) a diversity of landscape experiences.

2.2 The objectives are summarised as follows:

- To ensure a high standard of sustainable management of all landscape areas in a neat, tidy and substantially weed free condition;
- To ensure that all seeded areas are established and maintained in a condition that contributes to the visual amenity of the MRF site and local area;
- To establish and maintain tree and shrub planting to provide an overall landscape framework and landscape character;
- To maintain and enhance biodiversity and fulfil all legal requirements in relation to the protection and management of ecological features and the protection and management of protected species.
- To ensure health and safety to minimise risk of injury and damage to people and property;
- To provide a mechanism or monitoring and review with practices reviewed on an annual basis in accordance with changing site circumstances and the views of key stakeholders.

2.3 There will be a five-year guarantee after construction that all the proposed planting works still exist and is established in line with landscape design expectations. This is to ensure that no planting has been removed or damaged due to the subsequent construction or plant failure.

2.4 If removal of any tree is necessary, agreement shall be reached with the Council as to replacement with matching or appropriate species in the next planting season.

Landscape Maintenance Specifications and Drawings

2.5 Landscape works to be undertaken by an ALCI approved landscape contractor and in accordance with BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces). The general landscape proposals are indicated on Drawing No. 7670-L-2100 to 2102 Landscape Masterplan and / Landscape Proposals.

2.6 When using pesticides, the Contractor must use a certified operator and take appropriate safety precautions in accordance with the European Communities (Sustainable Use of Pesticides) and Sustainable Use Directive (SUD) Regulations and the Irish National Action Plan for the Sustainable Use of Pesticides (Plant Protection Products) Feb 2019 .

2.7 Plant supply shall be obtained from a nursery that are members of the Horticultural Trades Association Nursery Certification Scheme and approved by the project and local authority landscape architect.

2.8 All planting stock shall be of local provenance or if unavailable national provenance. Origin and provenance have the meaning given in the National Plant Specification and grown in Ireland corresponding to the lists provided in the All-Ireland Pollinator Plan 2015-2020.

Ground Preparation

2.9 Prior to cultivation, planted areas shall be cleared of all loose debris, rubbish, stones over 25mm in diameter, roots, and other extraneous matter. Grass and weeds shall be sprayed with 'Glyphosate' or

similar *SUP / SUD* approved herbicide.

2.10 Topsoil Depths: spread over prepared subsoil in layers not exceeding 150 mm, each layer firmed before spreading the next. Top Soils shall comply with multipurpose grade within *BS 3882:2015: Specification for Top Soil*. Overall minimum depths after firming and settlement to be:-

- Shrub / Hedgerow areas 500 mm
- Lawn and Grass areas 150mm

2.11 Planted areas to be cultivated to a depth of 300mm by hand or rotovator, incorporating planting compost, soil improver and fertilizer base dressing of the types. The topsoil shall have been reduced to a fine tilth on completion of the cultivation works.

Timetable for Landscape Works

2.12 The landscape works shall be undertaken by the end of the next available planting season and during the following periods:

- Deciduous trees and shrubs: Late October to late March;
- Conifers and evergreens: September/ October or April/ May; and
- Container grown plants: At any time if ground and weather conditions are favourable.

Proposed Standard Tree Planting

2.13 Tree supply and planting shall correspond to *BS 8545:2014 Trees: from nursery to independence in the landscape - Recommendations*. Planting of trees shall be undertaken in favourable weather conditions between October 31st to March 31st.

2.14 Tree pits shall be excavated to suitable dimensions to accommodate roots or root-balls or baskets with bases and sides broken up to a minimum depth of 150mm to assist drainage and root penetration. Any unsuitable material such as large clay lumps, bricks, concrete, timber and sand shall be removed off-site. All tree pits shall be backfilled, after planting, with a 3:1 volume mixture of topsoil and mulching compost/manure or similar approved.

2.15 The planted trees shall be full and well-shaped with crowns thinned by 30% according to good horticultural practice and in a manner that does not affect the overall stature, structure or good appearance of the tree. All work shall conform to a minimum standard as set out in *BS 4043:1989 Recommendations for transplanting root-balled trees*.

Proposed Woodland Belts

2.16 Trees supply and planting shall correspond to *BS 8545: 2014 Trees: from nursery to independence in the landscape - Recommendations*. Planting of trees shall be undertaken in favourable weather conditions between October 31st to March 31st.

2.17 Transplants shall be of the size stated in the schedules and conform to *BS 3936 - Part 1: Nursery stock specification for trees and shrubs*. Planting pockets 400x400x300mm deep with cultivated and evenly incorporated: organic manure 100mm layer over area of pit, fertiliser 35g at 2.0m centres.

Proposed Shrub and Groundcover Planting

- 2.18 Shrub plants to be planted at 2 to 3 plants per m² to linear strip to base of bank. Transplants and container grown shrubs shall be of the size stated and conform to *BS 3936 - Part 1: Nursery stock specification for trees and shrubs*.
- 2.19 Planting pockets 400x400x300mm deep with cultivated and evenly incorporated: organic manure 100mm layer over area of pit, fertiliser 35g. 75mm depth bark mulch dressing on completion of planting.

Hedgerow Planting

- 2.20 Hedgerow plants to be planted at 4 per linear meter (in double staggered row at 500mm centres) to top of bank. Transplants shall be of the size stated, shall conform to *BS 3936 - Part 1: Nursery stock specification for trees and shrubs*.
- 2.21 Planting pockets 400x400x300mm deep with cultivated and evenly incorporated: organic manure 100mm layer over area of pit, fertiliser 35g. 50mm depth bark mulch dressing on completion of planting.

Grass Seeding

- 2.22 To be undertake with a grass seed suitable for general amenity areas. Sowing rate 35g per m².

Performance Criteria

- 2.23 Performance criteria are indicators for assessing the quality and success of the particular plant mixtures used for a purpose i.e., screen planting, seeding, tree planting etc. Such indicators will be based upon aspects such as:-
- Health and condition of planting;
 - Plant growth; and
 - Achievement of desired visual effect.

Existing Trees and Boundary Hedgerows

- 2.24 There are existing hedgerows to be retained and protected (in accordance with the recommendations included in BS 5837: 2012). This covers:-
- The provision of adequate fencing around trees to prevent harmful encroachment / damage by vehicles or storage of materials during construction;
 - The avoidance of any reduction in levels in the root protection area of individual trees; and
 - Inspect for disease, dead wood or storm damage and, if necessary, treat or carry out tree surgery accordingly (using advice of qualified tree surgeon if necessary).

Protection Measures during Construction Works – Generally

- 2.25 A protective barrier, 2.3m high and comprising a vertical and horizontal framework of scaffolding, well braced to resist impacts and securely supporting weldmesh panels, (as illustrated in Figs 2 & 3 of

BS5837:2012) shall be erected around the base of all trees to be retained on site. No construction traffic, materials or debris will be permitted within this zone of protection.

Protection Measures – Post Construction

- 2.26 The management company will be responsible for the maintenance and upkeep of trees within the property boundary. Protected trees should be visually reviewed annually by the managing company and subject of regular ongoing health and condition inspections undertaken at 5-year intervals.

3.0 LANDSCAPE SOFTWORKS – ESTABLISHMENT MAINTENANCE

General Introduction

- 3.1 Establishment maintenance will form part of the landscape contractors works. The period of establishment maintenance will be 12 months after the completion of the planting and grassing works prior to handover.
- 3.2 Prior to handing over, all plants deaths shall be replaced, and all defects made good to the satisfaction of the landscape architect and/or the management company.

Establishment Maintenance Operations – Grass Areas

- 3.3 The developer and contractor shall be responsible for maintaining all grassed areas in a neat and tidy, weed free and litter free condition, throughout the complete growing season, or when the landscape works are completed, whichever is the later.

Works required prior to First Cut

- 3.4 When the new sward has reached a height of 50mm the contractor shall remove all loose debris, stones and rubbish above 25mm in any direction prior to cutting. Following the surface clearance and prior to cutting the contractor shall lightly roll all newly grassed areas with a smooth and even weight.

First Cut

- 3.5 All new grass sward shall be given first cut at least two days after rolling. The first cut shall leave not less than 35mm height.

Subsequent and Management

- 3.6 Grass shall be cut regularly (a total of 12-16 times during the growth season) to a length consistent with the season and quality of growth. The normal establishment of cut shall be 25mm. All arisings shall be removed if the height of the grass exceeds 100mm prior to cutting.
- 3.7 All established grass areas shall receive an application of an approved top dressing (N:P:K) (20:10:10) at the rate of 15g/M² as directed by the site management or landscape architect.
- 3.8 Any areas of settlement or local depressions shall be made up and re-sown by the contractor at his own expense.
- 3.9 The edges of seeded areas, adjacent to shrub beds and margins are to be carefully trimmed square and to a true line. The contractor should note that this also applies to the area around the base of trees planted in grass areas.
- 3.10 All areas of failed grass shall be reinstated using the seed mix as specified within the landscape contract, with ground cultivation prior to seeding meeting the same requirements.
- 3.11 All new grass areas shall be handed over as complete, well established sward at the end of the establishment maintenance period.

Establishment Maintenance Operations – Planting operations

- 3.12 Weed Control: All planted areas shall be kept entirely weed free throughout the establishment maintenance period, using approved residual and translocated herbicides, or mechanical means, or a combination of both.
- 3.13 Wind Firming: All plants shall be inspected at monthly intervals for wind firmness, and re-firmed as necessary.
- 3.14 Stakes & Tree Ties Checking: Stakes shall be checked monthly for firmness, and re-firmed as necessary, and all tree and plant ties inspected and loosened as required.
- 3.15 Pruning: Shall be carried out on a monthly basis, and will include the removal of minor dead wood or damaged wood. Formative pruning shall be undertaken at the appropriate time of the year for the species involved in order to enhance the plants best feature e.g., flowering, stem colour etc.
- 3.16 Inorganic Fertilizer: All shrub-planting areas shall receive a fertilizer top dressing in July of ‘Osmocote’ slow-release fertilizer (N:P:K) (18:11:10) to be lightly raked in.
- 3.17 Watering: All plants shall be watered as required during the establishment maintenance period to ensure survival of all plant material. Suggested water requirements for tree irrigation are as per following **Table 3 Watering Requirements** below.

	Feathered	Light Standard	Standard	Heavy Standard	Extra Heavy Standard	Semi-Mature
Girth (cm)	6	6-8	8-10	10-12	12-14	14-16
Height (m)	1.8-3.0	2.4-2.7	2.7-3.0	3.0-3.6	3.6-4.2	4.2-4.8
Estimated daily* transpiration rate (litres)	1	1	1.2	2	3	4
Suggested first season summer watering requirements (litres per month)	36	36	45	75	115	150
*Calculations for transpiration and suggested watering requirements are based on a typical Plane Tree in a tree pit ameliorate with 25% peat and with a 50mm mulch layer. The figures are approximate and are for guidance only. Allow an extra day for every 10mm of rainfall.						

- 3.18 Litter Removal: Litter that may have accumulated in grass and planted areas must be lifted and removed from the site each month.
- 3.19 Failed Planting Areas: Prior to the end of the establishment maintenance period, the contractor will receive from the landscape architect a list of plant material that must be replaced by the contractor. Any plant material which has failed to establish, or has died, throughout this period must be replaced with healthy plant stock of similar specification at the contractors own expense. Successfully established plant material shall be those plants showing positive signs of growth i.e., shoot extension and growth over time. Breaking into leaf is not to be taken as evidence of successful establishment.
- 3.20 Handover of Planted Areas: All newly planted areas shall be handed over as complete and well established at the end of the establishment maintenance period.

4.0 LANDSCAPE SOFTWORKS – LONG TERM MANAGEMENT

Grass Areas

- 4.1 Performance Criteria: Grassed areas shall have good grass cover without obvious bare patches.
- 4.2 Maintenance Objectives: To establish and maintain an even cover of grass sward.

Maintenance Operations Years 1 – 20

- Grass Cutting: All grassed areas will be maintained between 20 – 40mm in height during April to August inclusive and between 30 – 50mm at all other times;
- Frequency of cuts may be up to 20 cuts per annum, dependent on the length of the growing season and weather, with the majority undertaken during the spring and summer months. Clippings may be let fly, but all adjacent hard surfaces shall be swept clean after cutting with all clippings removed to contractors tip;
- Grass Verges & Edges: All edges to grassed areas against buildings, footpaths, roadways, trees and any other obstruction shall be kept neat and tidy. Border edges shall be clipped and not exceed 50mm length at any time;
- Weeding: Spot weeding of isolated areas of weed infestation may be undertaken using an approved selective herbicide; and
- Reinstatement of failed areas: All areas of failed grass shall be reinstated using the seed mix as specified within the original landscape contract, with ground cultivation prior to seeding meeting the same requirements.

Groundcover and Shrub Planting Areas

- 4.3 Performance Criteria: By year 5 all ground cover planting shall have achieved closed canopy and shall have been thinned and pruned.
- 4.4 Maintenance Objectives: To establish and maintain a weed free cover of healthy growth, clipped or pruned as necessary to give a neat and tidy finish contained within the planted area.

Maintenance Operations Years 1 – 3

- Monthly inspection for wind firming and watering to establish good growth;
- Annual application of an approved fertilizer in July of 17:17:17, N:P:K at a rate of 30g/M²; and
- Remove and replace all dead, dying and diseased or vandalized plant material, replacements to be as originally specified within the main landscape contract or as agreed with Management Company.

Maintenance Operations Years 3 – 5

- Annual application of an approved residual herbicide in the winter months, with removal or spot treatment with an approved translocated herbicide during the main growing season;

- In the appropriate season for the species involved, prune and tidy the plants removing dead, dying or diseased plant material;
- Selectively thin plants that are restricting the natural and attractive development of their neighbours; and
- Remove all arising from site.

Maintenance Operations Years 5 – 20

Operations to include the above, plus:

- Bi – annually prune and tidy the plants removing all dead, dying or diseased plant material from the site; and
- Replace as necessary all shrubs that are not contributing satisfactorily to overall objectives of the landscape management plan. Replacements shall be approved with the supervising officer.

Hedgerows

- 4.5 Performance Criteria: All hedges shall have a complete canopy and be managed to form a continuous impenetrable thicket to the desired height by year 5.

Maintenance Operations Years 1 – 3

- Monthly inspection for wind firming and watering as required ensuring establishment and survival of plant material;
- Pruning shall be directed at maintaining true and even levels as necessary during the growing season, with all arisings removed from site;
- The first cut can commence when all danger of frost has receded. When cutting avoid strong sunlight, best carried out on a dull and wet day;
- The last cut shall commence no later than 4 weeks before the first frost. Annual application of an approved fertilizer in July of 17:17:17, N:P:K at a rate of 30g/M²;
- Maintain the planted area weed free by applying an annual dressing of an approved residual herbicide in the winter months and spot treatment with an approval translocated herbicide during the growing season; and
- Remove and replace all dead, dying, diseased or damaged plant material, replacements to be as originally specified within the main landscape contract, or as agreed with management company representative.

Maintenance Operations Years 3-20

Operations to include the above, plus:

- Maintain top and side of hedges in a rectangular profile using suitable, approved mechanical methods, to true and even levels. Remove any cuttings lodged in the surface of the hedge and rake up and remove all arisings; and

- Maintain weeds or grass growth at the base of the hedge to a maximum height of 100mm by regular hand cutting or by application of an approved residual herbicide.

Woodland Belts

- 4.6 Performance Criteria: By year 7, shrub planting will have achieved closed canopy and have been thinned and pruned; and
- 4.7 Maintenance Operations: To establish and maintain a wooded landscape, allowing plants to achieve natural form whilst avoiding obstruction to footways and windows.

Maintenance Operations Years 1 – 3

- Hand hoe all planted areas fortnightly during the main growing season in order to maintain a substantially weed free soil surface. This can be reduced to monthly out with the main growing season;
- Monthly inspection for wind firming and watering to establish good growth;
- Annual application of an approved fertilizer in July of 17:17:17, N:P:K at a rate of 30g/M²;
- In the appropriate season for the species involved, prune and tidy the plants removing dead, dying or diseased plant material, and to develop the desired characteristics;
- Remove intermediate plants that restrict the natural and attractive development of their neighbours;
- Remove and replace all dead, dying, diseased or damaged plant material, replacements to be as originally specified within the main landscape contract or as agreed with the supervising officer; and
- Remove all arising from site.

Maintenance Operations Years 3 – 10

Operations to include the above, plus:

- Maintain woodland substantially weed free by applying an annual application of an approved residual herbicide in the winter months, with removal or spot treatment with an approved translocated herbicide during the main growing season.

Maintenance Operations Years 10 – 20

Operations to include the above, plus:

- Prune trees as necessary, in appropriate season to achieve their desirable screening or wooded effect and to prevent them from overgrowing footways or blocking light from windows;
- Replace as necessary all trees and scrub that are not contributing satisfactorily to the overall objectives of the landscape management plan.

Standard Tree Planting

- 4.8 Performance Criteria: To provide a healthy growing tree that contributes to the overall aesthetics of the landscape.
- 4.9 Maintenance Objectives: To ensure establishment and maintenance of trees with a well-shaped habit.

Maintenance Operations Years 1 – 3

- Monthly inspection for wind firming and watering as required ensuring establishment and survival of plant material (fortnightly during dry spells);
- Bi-monthly tree tie check to ensure that the trees are not being strangled by support. Loosening of trees ties as necessary;
- Maintain a 1m diameter area of weed free soil around the base of each tree by hand. This to be carried out monthly during the main growing season and bi-monthly thereafter;
- Annual application of an approved fertilizer in July of 17:17:17, N:P:K at a rate of 60g/tree;
- Remove and replace all dead, dying, diseased or damaged plant material, replacements to be as originally specified within the main landscape contract, or as agreed with the supervising officer;
- Prune the trees to remove any dead, dying or diseased shoots and limbs to create a balanced form for future growth, remove; and
- Tree Guards and Grilles: Where supplied and fitted, tree guards (mild steel and ‘Weldmesh’) are to be inspected, re-fixed or replaced as necessary to original specification and to prevent chaffing of tree.

Maintenance Operations Years 3-5

Operations to include the above, plus:

- Removal of tree stakes, tree ties and tree guards as necessary, as trees become wind firm and established to prevent strangulation of tree.

Maintenance Operations Years 5-20

Operations to include the above, plus:

- Some selective thinning of tree groups may be required during this period, at years 10 and 20;
- Visibility Splays: Any vegetation other than grass on visibility splays or road sight lines will be kept to below 600mm above channel lines on road. In addition, the visibility splay will be kept free of all structures or vegetation other than that approved in the planning consent.

Watering

- 4.10 In any period of extended drought ensure survival of all plants, for recommended water requirements refer to Table 3 for guidance.

Existing Trees

4.11 Management Objectives:

- To maintain the trees in as healthy and attractive condition for as long as possible;
- To ensure continuity in tree cover and their contribution to the landscape structure, biodiversity, and screening/amenity value of the site;
- To ensure that trees are healthy and safe, particularly in places in proximity to adjacent properties and with public access; and
- In certain locations, arising's from woodland management activity can be used as basis for opportunities for amphibians, invertebrates and bryophytes micro-habitats by leaving piles of dead wood or recumbent dead logs.

Maintenance Operations – Annual and Occasional

- Trees should be regularly visually checked for the presence of any diseased or rotten wood; fungal or other infections/disease; and stability. If any such issues are identified then the advice of qualified Arboricultural consultant should be sought immediately;
- The health of the trees shall be monitored and any works required for health and safety or to promote the health and sustainability of existing trees shall be identified, scheduled and actioned at a suitable time of year;
- All works should be completed at an appropriate time of year and in accordance with relevant EU legislation. Where possible this should be outside of the bird nesting season (i.e., between October through to March inclusive). In any event according to the nature of the works, there may be an additional requirement for monitoring or a watching brief by a qualified ecologist to ensure there are no nesting birds or bats present;
- All works shall be carried out by a skilled, qualified and approved Arboricultural Contractor in accordance with *BS3998: 2010 'Tree Work - Recommendations*.
- Where possible, and where health and safety constraints permit, arisings may be formed into habitat piles within public open spaces, and standing dead wood maybe left within the woodland to provide additional dead wood habitats to maximise invertebrate biodiversity. All other brushwood and logs that result from surgery and felling of trees on site shall be removed off site. Brushwood may be chipped on site, but all wood chippings resulting from these operations shall be raked up, bagged and removed;
- Where surgery works affect carriageways or public roads, the Arboricultural Contractor shall ensure the relevant permissions and road control permits are obtained, and all necessary health and safety parameters are met;
- Selective thinning and coppicing of existing scrub and trees is to be assessed on site. This will allow trees and shrubs to develop diversity of form and different types of nesting, feeding and foraging

habitat and extend the potential life of individual plants. Additional thinning of the scrub areas may be required at intervals following an initial selective thin and coppice. The timing of thinning should be informed by an assessment on site. A competent person, such as a qualified arboriculturist should plan thinning and coppicing operations. All thinning and coppicing operations should be undertaken between October and February; and

- Possible damage to drainage/services and adjoining building foundations must be considered before choosing a replacement tree species and location.

Monitoring Objectives and Performance Criteria

- 4.12 At the end of the defects liability period (1 year), the overall soft landscape areas shall be in a visually neat and tidy condition and completed to the contract specification prior to handing over to the appointed management company. The management company will inspect all areas of seeding and planting regularly throughout the year, to ensure the landscape management objectives are achieved.
- 4.13 The landscape sub-contractors with responsibility for the site shall record all site visits, maintenance operations undertaken and any other significant events i.e., fire, theft or vandalism of plant materials. This information shall be used to prepare an annual report at the end of each year that will summarize maintenance operations together with an assessment by the contractor of the current state of the site.
- 4.14 The appointed supervising officer shall prepare a long-term review after years 5, 10, 15 and 20. This report shall summarize the management undertaken together with an assessment of the performance of the landscaped areas against the performance criteria stated within this plan. This review shall include recommendations for improving the management plan, if necessary, dependant on findings.

5.0 LANDSCAPE HARDWORKS – LONG TERM MANAGEMENT

Paved Areas

- 5.1 Performance Criteria: All hard surface areas shall remain in good repair and free of any trip hazards.
- 5.2 Maintenance Objectives: To repair any sunken/raised paving elements, making good damaged units or subsistence to match original materials and retain the paved areas in clean condition.

Maintenance Operations

- Annual inspections of hard surface areas and maintenance carried out as necessary e.g., re-pointing as required;
- Sweep with pedestrian equipment and dispose arisings (1 x per month, March – September);
- Apply herbicide, weed wipe (1 x per year); and
- Clean paved surfaces according to manufacturer’s recommendations including removal of stained surfaces and removal of chewing gum.

Gates, Fencing, Barriers & Bollards

- 5.3 Performance Criteria: All fences shall remain in good visual condition.
- 5.4 Maintenance Objectives: To repair any damaged elements and ensure barriers succeed in design objective e.g., protect planting.

Maintenance Operations

- Annual inspections of hard works areas and maintenance carried out as necessary;
- Extension or strengthening of barriers as required;
- Clean bollards and barriers only according to manufacturer’s recommendation; and
- Repaint fencing as required and as per manufacturer’s recommendation.

Walls and Copings

- 5.5 Performance Criteria: All walls, planters and copings shall remain in good visual condition.
- 5.6 Maintenance Objectives: To repair any structural damage as required and retain surfaces in clean condition.

Maintenance Operations

- Annual inspections of hard surface areas and maintenance carried out as necessary;
- Maintain and clean painted surfaces;
- Remove graffiti as required; and
- Repaint and/or re-point as required and as per manufacturer’s recommendation.

Light Fittings

- 5.7 Performance Criteria: All external lighting within public realm areas should remain in good working order and good visual condition.
- 5.8 Maintenance Objectives: To maintain lighting fitting in good working order.

Maintenance Operations

- Regular inspections and repair as necessary;
- Clean and/or repaint as required and as per manufacturer's recommendation;
- All repair works to be carried out according to the latest H&S and BS legislation; and
- All repair works to be inspected and signed off by a certified electrician.

6.0 GENERAL SUMMARY

Introduction

- 6.1 All works, materials and operations will be in accordance with relevant legislation, European Standards, Regulations (including the CDM Regulations) and Codes of Practice.
- 6.2 It is important that all maintenance activities, significant events, surveys and monitoring activities are recorded. These provide an effective database against which the effects of maintenance and management activities can be assessed.
- 6.3 The landscape contractor responsible for maintaining the site shall maintain a record of site visits and the maintenance operations undertaken. The landscape contractor shall also record any significant events, i.e., fire, theft or vandalism of plant material or fencing. Specialist Contractors may be used on an as needs basis to complete specialist operations and/or occasional works.

Process for Monitoring and Review

- 6.4 The Landscape Management Plan and maintenance schedules will be monitored and assessed for their effectiveness on an annual basis for the first five years following the completion of the development. The review will include advice from specialist consultants as required (such as a qualified arboriculturist and ecologist), the Landscape Management Contractor and other stakeholders. The review shall include (as appropriate):
 - Technical Reports - advising on particular aspects such as protected species, general management and health & safety issues;
 - Records / Attendance sheets demonstrating the maintenance work undertaken;
 - Site visit to assess landscape components, condition, and need for any mitigation or enhancement; and
 - Record and Minutes.

Annual Reviews

- 6.5 The landscape contractor will prepare an annual report at the end of each year of maintenance that shall be made available to the appointed member of the management committee supervising the maintenance contract.
- 6.6 The report will include a summary of the maintenance tasks undertaken during the course of the year together with an assessment by the landscape contractor of their perceived effects be they positive or negative. The appointed member will prepare a long-term review report after 5, 10 and 15 years of the maintenance contract.
- 6.7 The report shall include a brief summary of the preceding period of the management plan together with an assessment of the performance of the landscape areas against the performance criteria stated in this plan. The review shall also include recommendation for future maintenance including potential remedial or enhancement works.

Five Year Review

- 6.8 The Landscape Management Plan will be reviewed every five years, or as required to ensure the satisfactory management of the landscape in perpetuity.

Appendix A Management and Maintenance Report

SAMPLE MAINTENANCE REPORT			
Date		Weather	
Start Time		Finish Time	
Personnel on Site			
Staff Names		Skills	
Tasks Undertaken			
Management Tasks	Tick Box	Comments	
Cutting Grass	<input type="checkbox"/>		
Weeding	<input type="checkbox"/>		
Strimming Meadow	<input type="checkbox"/>		
Pruning	<input type="checkbox"/>		
Dead-heading	<input type="checkbox"/>		
Litter Picking	<input type="checkbox"/>		
Weed Spraying	<input type="checkbox"/>	Specify chemicals and location	

Other	<input type="checkbox"/>		
Tasks incomplete			
Management Task	Specify Reasons		
Management and Maintenance Notes			
Date of next site Visit			

Management Signoff			
Site Foreman		Signature	
Approved Manager		Signature	

Appendix B Specifications for Replacements - Post planting

Plant Material Generally

- B1 Trees, shrubs and other plant materials as specified on the drawing shall be supplied from an approved source. Landscape products will be obtained from sustainable sources and from suppliers committed to sustainability.
- B2 All trees and shrubs shall correspond exactly with the species, varieties and sizes shown on the planting plan, and shall comply with the relevant sections of *BS 3936 - Part 1: Nursery stock specification for trees and shrubs*.
- B3 All shrubs, hedging plants, whips, feathered whips and climbing plants shall be properly grown, healthy, well established nursery transplants of good form, stock & strain, and shall have a well-developed fibrous root system.

Trees and Woodland Areas

- B4 All trees shall have a well – balanced crown with an established framework of branches consistent with the species, a single straight stem and a well-developed fibrous rooting system.
- B5 Bare rooted trees, where specified shall conform to the above.
- B6 Root-balled trees, where specified shall be supplied with a root-ball of diameter and depth appropriate to the size and species of the tree. The minimum diameter shall be no less than ten times the diameter of the stem measured at 300mm above ground level. The root-ball shall be thoroughly moistened, prior to lifting from the nursery.

Appendix C Maintenance Task Schedules

Month	Location	Task	Duration	Comments
January	Lawn Shrubs/Borders	Cut and collect arising Weeding/Litter picking	Every 3 weeks Every 3 weeks	
February	Lawn Shrubs/Borders	Cut and collect arising Weeding/Litter picking	Every 3 weeks Every 3 weeks	
March	Lawn Shrubs/Borders Roses Rhododendrons Topiary	Apply slow release fertiliser Cut and collect arising Apply Medium release fertiliser Weeding/Litter picking Mulch all beds Apply slow release fertiliser Remove dead buds Prune dead wood Prune into shape	Once Every 2 weeks Once Every 2 weeks Once Once Once Once Once	10%N:5%P ₂ O ₅ :3%K ₂ O 7%N:7%P ₂ O ₅ :7%K ₂ O 15%N:6%P ₂ O ₅ :12%K ₂ O Only light prune
April	Lawn Shrubs/Borders	Cut and collect arising Weeding/Litter picking	Every 2 weeks Every 2 weeks	
May	Lawn Shrubs/Borders Rhododendrons	Cut and collect arising Weeding/Litter picking Apply herbicide/pesticide Dead Heading	Every 2 weeks Every 2 weeks Once Every 2 weeks	Aphids, Vine Weevil, Black Spot, Mildew etc. Start as soon as the flowers are going over
June	Lawn Shrubs/Borders	Water on Sulphate of Ammonium Cut and collect arising Weeding/Litter picking	Once Weekly Weekly	Only necessary if lawn appears pale Aphids, Vine Weevil, Black Spot, Mildew etc.

	Rhododendrons	Apply herbicide/pesticide Dead Heading	Every 2 weeks Weekly	
July	Lawn Roses Shrubs/Borders Rhododendrons	Water on Sulphate of Ammonium Cut and collect arising Apply slow release fertiliser Dead Heading Weeding/Litter picking Apply herbicide/pesticide Dead Heading	Once Weekly Once Weekly Weekly Every 2 weeks Weekly	Only necessary if lawn appears pale 15%N:6%P ₂ O ₅ :12%K ₂ O Aphids, Vine Weevil, Black Spot, Mildew etc.
August	Lawn Roses Shrubs/Borders Rhododendrons Topiary	Cut and collect arising Dead Heading Weeding/Litter picking Apply herbicide/pesticide Dead Heading Prune into shape	Weekly Weekly Weekly Every 2 weeks Weekly Once	Aphids, Vine Weevil, Black Spot, Mildew etc. Only guidance prune
September	Lawn Shrubs/Borders Rhododendrons Lavenders	Apply slow release fertiliser Aerate and overseed Cut and collect arising Weeding/Litter picking Apply herbicide/pesticide Apply medium release fertiliser Dead Heading Dead Heading	Once Once Every 2 weeks Every 2 weeks Every 2 weeks Once Once Every 2 weeks Every 2 weeks	10%N:5%P ₂ O ₅ :3:K ₂ O Aphids, Vine Weevil, Black Spot, Mildew etc. 7%N:7%P ₂ O ₅ :7%K ₂ O
October	Lawn Roses Shrubs/Borders Rhododendrons Lavender Climber Topiary Hedges	Cut and collect arising Prune back Weeding/Litter picking Prune back Apply herbicide/pesticide Prune out dead wood Cut back Prune back Prune into shape Prune into shape	Every 2 weeks Every 2 weeks Once Every 2 weeks Every 2 weeks Once Once Once Once Once Once	Aphids, Vine Weevil, Black Spot, Mildew etc. Hard prune and shaping for next year Hard prune and shaping for next year

			Once	
November	Lawn Shrubs/Borders	Cut and collect arising Weeding/Litter picking Apply herbicide	Every 2 weeks Every 2 weeks Every 2 weeks	
December	Lawn Shrubs/Borders	Cut and collect arising Weeding/Litter picking Apply herbicide	Every 3 weeks Every 3 weeks Every 3 weeks	