

**PROPOSED DEVELOPMENT**

**TAXI HOUSE**

**MAIDA VALE**

**LANDSCAPE MANAGEMENT \ MAINTENANCE PLAN**

**21167-DCLA-XX-ZZ-SP-L-00107 – Landscape Management Plan**

**Rev. P01**

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## **Planting Philosophy**

The planting is designed to create a quality landscape for the development that will complement the development, soften facades and hard spaces and create filtered views to and from the surrounding areas.

Planting will include a variety of shrubs and herbaceous species, some with wildlife friendly properties. It will also partly serve to break clear views to the development from surrounding streets. The planting would in the long term add to the visual interest and the biodiversity of the area. A number of specimen trees will provide some height and visual relief in key areas where space and site conditions allow. New tree planting will assist with mitigating tree losses along the canal side. Soft landscaping on ground level has been included where space is available. These include mixed shrub and herbaceous planting of colourful and visually attractive nature with wildlife friendly properties in accordance with the project ecologist requirements. The soft landscaping will provide opportunities for local wildlife, soften the hard elements and provide a seasonally changing colourful setting for the development.

A range of green roofs will be provided as part of the development, gravel ballast and some wildflower areas. This should be monitored by installers / designers to ensure that the specification is met and construction methods are to appropriate standards. The green roofs should be allowed to become mostly self-sustaining with an appropriate amount of maintenance visits to ensure that invasive and unwanted species (butterfly bush, thistle and fleabane, tree saplings) are removed. Any fertilizers and herbicides on the green roofs should be organic based and applied outside the winter season. Raised planters will be fitted with irrigation system to ensure planting establishes and thrives as intended.

Soft landscaping has been designed under consideration of maintenance requirements. Standard maintenance operations are required as set out in the following document.

## **Management Objectives**

- To ensure the overall well-being and healthy, vigorous growth of all plant material.
- To ensure the overall appearance of the site remains neat and tidy.
- Monitor the planting works and take remedial action were necessary.
- Limit the use of chemicals were possible.

The maintenance will include establishment maintenance by a landscape contractor followed by long term maintenance that will come under the responsibility the building owner.

The property owner will periodically review the ongoing maintenance operations to ensure that they are meeting the desired objectives for the site. This will form part of the ongoing monitoring system for the site.

## **Management Regimes**

This will include the initial planting and on-going maintenance operations which will include the following:

- Weeding: removal of all unwanted plant material within landscape areas
- Litter: removal of all waste items and arisings found in planting areas
- Watering: as necessary to ensure successful plant establishment and continuous thriving
- Fertilising: for continual stable growth
- Pruning: removal of dead and diseased wood, thinning out of overcrowded shrub plantings, removal of planting material overhanging pedestrian areas
- Supports: inspecting and adjustment of underground guys, stakes, ties etc.
- Plant replacement: as necessary

The following specifications will be used for both the initial planting works and future management of the site. The Management Plan will be reviewed on a regular basis and adapted where necessary to meet changing local conditions.

## Q31 Planting Works

### GENERAL INFORMATION/ REQUIREMENTS

- 112 SITE CLEARANCE GENERALLY
- General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
  - Stones: Remove those with any dimension exceeding 50 mm.
  - Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
  - Vegetation: Clear scrub to ground level by flail mowing and remove arisings; retain and protect trees indicated on drawings.
  - Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
  - Additional requirements: none.
- 118 SOIL CONDITIONS
- Soil for cultivating and planting: Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
  - Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.
- 120 CLIMATIC CONDITIONS
- General: Carry out the work while soil and weather conditions are suitable.
    - Strong winds: Do not plant.
- 125 TIMES OF YEAR FOR PLANTING
- Deciduous trees and shrubs: Late October to late March.
  - Conifers and evergreens: September/ October or April/ May.
  - Herbaceous plants (including marginal): September/ October or March/ April.
  - Container grown plants: At any time if ground and weather conditions are favourable.
    - Watering and weed control: Provide as necessary.
  - Dried bulbs, corms and tubers: September/ October.
  - Colchicum (crocus): July/ August.
  - Green bulbs: After flowering in spring.
- 130 MECHANICAL TOOLS
- Restrictions: Do not use within 100 mm of tree and plant stems.
- 145 WATERING
- Quantity: Wet full depth of topsoil.
  - Application: Even and without damaging or displacing plants or soil.
  - Frequency: As necessary to ensure establishment and continued thriving of planting.
- 150 WATER RESTRICTIONS
- General: If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.1
- 160 NOTICE
- Give notice before:
    - Setting out.
    - Applying herbicide.
    - Applying fertilizer.
    - Delivery of plants/ trees.
    - Planting shrubs.
    - Planting trees into previously dug pits.
    - Watering.
    - Visiting site during maintenance period.
  - Period of notice: One week.
- 200 PLANTS/ TREES - GENERAL
- Condition: Materially undamaged, sturdy, healthy and vigorous.
  - Appearance: Of good shape and 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.
  - Standard: The National Plant Specification.
- Species: True to name.
- Origin/ Provenance: Contractor's choice.
  - Definition: Origin and Provenance have the meaning given in the National Plant Specification.

#### 215 PLANTS/ TREES - SPECIFICATION CRITERIA

- Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification.

#### 225 BULBS/ CORMS/ TUBERS

- Condition: Firm, entire, not dried out or shrivelled.
- Health: Free from pests, diseases and fungus.
- Handling: Remove from packaging immediately.
- Storage: Permitted only when necessary.
  - Location: Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit.
  - Duration: Minimum period.
  - Temperature: 18-21°C.

#### 235 CONTAINER GROWN PLANTS/ TREES

- 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.

#### 260 PLANT/ TREE SUBSTITUTION

- Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
  - Price.
  - Difference from specified plants/ trees.
- Approval: Obtain before making any substitution.

#### 265 PLANT HANDLING, STORAGE TRANSPORT AND PLANTING

- Standard: To CPSE 'Handling and establishing landscape plants'.
- Frost: Protect plants from frost.
- Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Plant packaging: Black polyethylene bags.
- Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
- Planting: Upright or well balanced with best side to front.

#### 280 TREATMENT OF TREE WOUNDS

- Cutting: Keep wounds as small as possible.
  - Cut cleanly back to sound wood using sharp, clean tools.
  - Leave branch collars. Do not cut flush with stem or trunk.
  - Set cuts so that water will not collect on cut area.
- Fungicide/ Sealant: Do not apply unless instructed.

#### 290 SURPLUS MATERIAL

- Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

### **PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS**

#### 300 HERBICIDE TO CLEAR OVERGROWN BEDS

- Locations: All planting areas.
- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
  - Duration (minimum): As manufacturer's recommendation.

#### 301 GROWING MEDIUM FOR RAISED PLANTERS

- Locations: All raised planters on green roofs, terraces and along facade.
- Type: Lightweight growing (GT growlite or similar and approved)
- Depth: to suit height of planter

### **PLANTING SHRUBS/ HERBACEOUS PLANTS**

#### 401 REGULAR PLANT LAYOUT TO ALL PLANTING

- Spacing: As per planting schedule
- Density: As plant schedule.

#### 405 SHRUB PLANTING PITS

- Timing: Excavate 1-2 days (maximum) before planting.
- Sizes: Wide enough to accommodate roots when fully spread and 75 mm deeper than root system.
- Pit bottom improvement Break up to a depth of 150 mm, incorporating 25 g of slow release fertilizer per planting pit.

#### 415 ANTIDESICCANT FOR CONIFERS/ EVERGREENS

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Application: Dip before delivering to site. Spray soon after planting.
  - Do not apply in wet or frosty weather.
  - Ensure full coverage of underside of foliage.

#### 435 CLIMBING PLANTS USED AS GROUND COVER

- Planting:
  - Canes or other supports: Remove.
  - Arrangement: Spread stems.
- Fixing: Pinned to ground to ensure good contact.

#### 526 UNDERGROUND GUYING FOR SEMI MATURE TREES AND MULTI STEM TREES

- Manufacturer: contractor's choice
- Product reference: Arborraft or similar and approved
- Anchoring system: anchoring system with aeration and irrigation inlet
- Installation: ensure tree is positioned correctly and vertically prior to tightening guy line tensioners

NOTE: Tree pits set into hard areas to receive accessories, including underground guying and underground root cells as set out in drawing details.

#### 480 AFTER PLANTING

- Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
- Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
- Top dressing: Mulching and top dressing system  
Depth: 50 mm.

### **PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS**

#### 710 MAINTENANCE

- Duration: Carry out the operations in the following clauses from completion of planting until the end of the rectification period.
- Frequency of maintenance visits: Contractor's choice.

#### 720 FAILURES OF PLANTING

- Defects due to materials or workmanship not in accordance with the Contract: Plants/trees/ shrubs that have failed to thrive.
  - Exclusions: Theft or malicious damage after completion.
  - Rectification: Replace with equivalent plants/ trees/ shrubs.
- Replacements: To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
- Timing of making good: During the next suitable planting season.

#### 740 CLEANLINESS

- Soil and arisings: Remove from hard surfaces and grassed areas.
- General: Leave the works in a clean tidy condition at completion and after any maintenance operations.

#### 750 PLANTING MAINTENANCE GENERALLY

- Weed control: Maintain weed free area around each tree and shrub.
  - Diameter (minimum): The larger of 1 m or the surface of original planting pit.
  - Keep planting beds clear of weeds: By use of suitable herbicides.
- Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
- Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
- Staking: Check condition of stakes, ties, guys and guards.
  - Broken or missing items: Replace.
  - Rubbing: Prevent.
  - Ties: Adjust to accommodate growth.
  - Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
  - Frequency of checks: At each scheduled maintenance visit.
- Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
- Trees: Spray crown when in leaf during warm weather.
  - Timing: After dusk.
- Watering: Contractor's choice.

#### 760 PLANTING MAINTENANCE - PRUNING

- General: Prune to promote healthy growth and natural shape.
  - Dead, dying, diseased wood and suckers: Remove.
  - Timing: As appropriate to the species.
  - Trees: Favour a single central leading shoot.
- Arisings: Remove.

#### 790 FINAL MULCHING

- Timing: At end of the maintenance period.
- Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
- Planting beds: Remulch.
  - Depth (minimum): 75 mm.
- Trees: Remulch.
  - Depth (minimum): 75 mm.

### Q35 Landscape maintenance

#### GENERALLY

#### 130 REINSTATEMENT

- Damage or disturbance to soil structure, planting, grass, fencing, hard landscaping, structures or buildings: Reinstate to original condition.

#### 155 WATERING

- Supply: t.b.c.
- Quantity: Wet full depth of topsoil.

- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to rootzone.
- Frequency: As necessary for the continued thriving of all planting.

#### 160 WATER RESTRICTIONS

- General: If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.

#### 170 DISPOSAL OF ARISING

- General: Unless specified otherwise, dispose of arisings as follows:
  - Biodegradable arisings: Remove to recycling facility.
  - Grass cuttings: Spread evenly.
  - Tree roots and stumps: Remove from site.
  - Shrub and tree prunings: Remove to recycling facility.
  - Litter and nonbiodegradable arisings: Remove from site.

#### 180 CHIPPING OR SHREDDING

- General: Not permitted on site.

#### 190 LITTER

- Extraneous rubbish not arising from the contract work: Collect and remove from site.

#### 197 CLEANLINESS

- Soil and arisings: Remove from hard surfaces.
- General: Leave the works in a clean, tidy condition at completion and after any maintenance operations.

### **SHRUBS/TREES/HEDGES**

#### 500 ESTABLISHMENT OF NEW PLANTING

- Duration: One year.
- Weed control:
  - Method: Keep planting beds clear of weeds by use of suitable herbicides.
  - Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
- Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
- Watering: Contractor's choice.

#### 502 ESTABLISHMENT OF NEW PLANTING - FERTILIZER

- Time of year: March or April.
- Type: Slow release.
- Spreading: Spread evenly. Carefully lift and replace any mulch materials.
  - Application rate: As manufacturer's recommendations.

#### 520 REFIRMING OF TREES AND SHRUBS

- Timing: After strong winds, frost heave and other disturbances.
- Refirming: Tread around the base until firmly bedded.
- Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

#### 540 PRUNING GENERALLY

- Pruning: In accordance with good horticultural and arboricultural practice.
  - Removing branches: Do not damage or tear the stem or bark.
  - Wounds: Keep as small as possible and cut cleanly back to sound wood.
  - Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
  - Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
- Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance.
- Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of

- bark or wood with a sharp knife.
  - Disease or infection: Give notice if detected.
  - Growth retardants, fungicide or pruning sealant: Do not use unless instructed.
- 545 PRUNING OF EXCESSIVE OVERHANG
- Timing: As instructed.
  - Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
  - Special requirements: None.
- 550 PRUNING OF EXCESSIVE HEIGHT
- Timing: As instructed.
  - Operations: Remove excessive height: as instructed.
- 555 PRUNING TREES AND SHRUBS
- Standard: To BS 7370-4.
  - Special requirements: None.
- 575 PRUNING ORNAMENTAL SHRUBS
- General: Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
  - Suckers: Remove by cutting back level with the source stem or root.
- 580 PRUNING FLOWERING SPECIES OF SHRUBS AND ROSES
- Time of year:
    - Winter flowering shrubs: Spring.
    - Shrubs flowering between March and July: Immediately after the flowering period.
    - Shrubs flowering between July and October: Back to old wood in winter.
    - Rose bushes: Early spring to encourage basal growths and a balanced, compact habit.
- 600 TRIMMING RAPIDLY ESTABLISHING HEDGES
- General: Allow to reach planned height as rapidly as possible.
  - Form: Trim back lateral branches moderately.
- 620 REMOVAL OF DEAD PLANT MATERIAL
- Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.
- 630 DEAD AND DISEASED PLANTS
- Removal: Within one week of notification.
  - Replacement: In the next suitable planting season.
- 635 REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS
- Dead and damaged plants: Remove.
  - Mulch/ matting materials:
    - Carefully move to one side and dig over the soil, leaving it fit for replanting.
  - Do not disturb roots of adjacent plants.
  - Replacement plants:
    - Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater
    - Additional requirements: None.
  - Dressing: Slow release fertilizer:
    - Type: Contractor's choice.
    - Application rate: As manufacturer's recommendations.
- 645 WEED CONTROL GENERALLY
- Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm high.
  - Adjacent plants, trees and grass: Do not damage.
- 650 HAND WEEDING
- General: Remove weeds entirely, including roots.
  - Disturbance: Remove the minimum quantity of soil, and disturb plants, bulbs and mulched surfaces as little as possible.



- Completion: Rake area to a neat, clean condition.
  - Mulch: Reinstated to original depth.
- 655 WEED CUTTING BY HAND OR MACHINE
- Undesirable grass, brambles and herbaceous growth: Cut down cleanly to a maximum height of 25 mm.
  - Herbicides: Remove arisings before application.
- 657 HERBICIDE TO KILL REGROWTH
- Type: Suitable foliar acting herbicide to kill regrowth.
  - Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.
- 665 WEED CONTROL WITH WINTER HERBICIDE
- Type: Suitable residual soil acting herbicide.
  - Time of year: Unless otherwise agreed, complete before end of March.
  - Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.
- 670 WEED CONTROL WITH SUMMER HERBICIDE
- Type: Suitable foliar acting herbicide.
  - Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.
- 680 SOIL AERATION
- Compacted soil surfaces:
    - Prick up: To aerate the soil of root areas and break surface crust.
    - Size of lumps: Reduce to crumb and level off.
 Damage: Do not damage plants and their roots.
- 685 SOIL LEVEL ADJUSTMENT
- Level of soil/mulch at edges of beds: Reduce to 50 mm below adjacent grass or hard surface.
- Arisings (if any): Spread evenly over the bed.
- 690 MAINTENANCE OF LOOSE MULCH
- Thickness (minimum): 75 mm.
    - Top up: Annually.
  - Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
  - Weeding: Remove weeds growing on or in mulch by herbicide treatment.

## **NBS SECTION Q37 - DESCRIPTION OF WORKS**

Section Q37 deals with the design and installation of the Green Roof landscaping system, including the various related elements i.e. separation, protection, and drainage layers, substrates, supplied planting and accessories such as inspection chambers, trims etc. It invokes clauses from related sections for waterproofing, insulation, landscaping and maintenance as necessary for a complete system.

It is intended for use on projects where the detailed design is completed by the specifier (architect or landscape architect) with technical assistance from the manufacturer as required and should be read in conjunction with any project specific drawings provided.

## **SCOPE OF WORKS**

**This section includes:**

- Extensive green roof system components/ landscaping
- Intensive biodiverse roof planting
- Related Green Roof accessories
- Maintenance of green roof elements, including:
  - Wildflower turf
  - Gravel

- Log piles
- Intensive green roof planting
- Biodiverse ponding
- Moveable planters

**This section does not include:**

- Construction of the Structural deck
- Waterproofing system
- Lead sheet coverings / flashings.
- Fall arrest systems.
- Lightning protection
- Proprietary rainwater drainage / plumbing

**Q37 GREEN ROOFS**

**GENERAL**

**130A EXTENSIVE GREEN ROOF (Wildflower Areas, Mix 1):**

<b>Landscaping finish:</b>	Wildflower Seeding
<b>Substrate:</b>	see roof landscape drawings
<b>Waterproofing system:</b>	to be confirmed by Architect
<b>Drainage / protection layer:</b>	to be confirmed by Architect
<b>Vegetation blanket:</b>	see roof landscape drawing
<b>Landscaping depth:</b>	<b>80mm</b> depth of appropriate substrate, increasing locally to 200mm as indicated
<b>Vegetation:</b>	<b>Bauder FLORA 3 Mix</b>
<b>Accessories:</b>	metal edging of appropriate height to allow build-up of wildflower turf including growing medium

**130B EXTENSIVE GREEN ROOF (Wildflower Areas, Mix 2):**

<b>Landscaping finish:</b>	Wildflower Seeding
<b>Substrate:</b>	see roof landscape drawings
<b>Waterproofing system:</b>	to be confirmed by Architect
<b>Drainage / protection layer:</b>	to be confirmed by Architect
<b>Vegetation blanket:</b>	see roof landscape drawing
<b>Landscaping depth:</b>	<b>80mm</b> depth of appropriate substrate, increasing locally to 200mm as indicated
<b>Vegetation:</b>	<b>Bauder FLORA 5 Mix</b>
<b>Accessories:</b>	metal edging of appropriate height to allow build-up of wildflower turf including growing medium

**130C GRAVEL AREAS**

<b>Landscaping finish:</b>	washed gravel / ballast
<b>Substrate:</b>	see roof landscape drawings
<b>Waterproofing system:</b>	to be confirmed by Architect

<b>Drainage / protection layer:</b>	to be confirmed by Architect
<b>Depth:</b>	50mm
<b>Vegetation:</b>	n.a.
<b>Accessories:</b>	metal edging between soft landscape areas and gravel areas as per roof landscape drawings

**THE FOLLOWING SECTION SETS OUT ESTABLISHMENT AND LONG TERM MAINTENANCE OF ALL ELEMENTS AS SET OUT BELOW**

**941A ESTABLISHMENT MAINTENANCE: WILDFLOWER AREAS**

In common with ground level planting green roofs require some maintenance to ensure that the original species selected establish and thrive. This is usually only necessary in the first year of laying. We recommend that in this period of the first 12 months a maintenance visit consisting of two visits followed by a minimum of one further visit per year after the first year will give optimum satisfaction.

Typical procedures carried out during maintenance are as follows:

1. Removal of unwanted plant material, ie tree seedlings and undesired weeds.
2. Correction of any localised plant system problems that may have occurred post installation.
3. Replacement of any naturally failed plants not exceeding 5% of total plants installed.
6. Inspection of rainwater outlet chambers and surrounding vegetation breaks.
7. Replenishment of any areas of settled soil/substrate
8. Cutting of wildflower areas in accordance with manufacturer's recommendation to ensure continued growth and re-seeding of wildflower species; height of cut 50-75mm (One cut in autumn or spring depending when mats are installed)
9. Removing all dead vegetation from the mat
10. Watering operations to be carried out as and when required or a responsive irrigation system should be installed

**941B LONG TERM MAINTENANCE: WILDFLOWER AREAS**

A minimum of two further visits per year after the first year will ensure the wildflower mats thrive as desired.

Typical procedures carried out during maintenance are as follows:

1. Removal of unwanted plant material, ie tree seedlings and undesired weeds.
2. Correction of any localised plant system problems that may have occurred post installation.
3. Replacement of any naturally failed plants not exceeding 5% of total plants installed.
6. Inspection of rainwater outlet chambers and surrounding vegetation breaks.
7. Replenishment of any areas of settled soil/substrate
8. Cutting of wildflower areas in autumn: strim and rake to remove cuttings; length after cutting to be 50-75mm (carry out after plants have set and shed their seed)

9. Apply a light dose of fertiliser every once a year to improve plant development, if required (carry out check to monitor establishment)

#### **942A ESTABLISHMENT AND LONG TERM MAINTENANCE: GRAVEL AREAS**

A minimum of two visits per year is required.

Typical procedures carried out during maintenance are as follows:

1. Removal of unwanted plant material, ie tree seedlings and undesired weeds.
6. Inspection of rainwater outlet chambers and surrounding vegetation breaks.
7. Replenishment of any areas of gravel as required (overall depth to be 50mm to all gravel areas)

#### **943A ESTABLISHMENT AND LONG TERM MAINTENANCE: LOG PILES**

A minimum of one visit per year is required.

Typical procedures carried out during maintenance are as follows:

1. Check condition of log piles
2. If disintegrated/rotted away to less than 50% of original size, leave rotted material in place and add new log piles as per original

#### **943B ESTABLISHMENT AND LONG TERM MAINTENANCE: BIODIVERSE PONDING**

A minimum of one visit per year is required.

Typical procedures carried out during maintenance are as follows:

1. Check condition of liner and fix if necessary
2. Check for litter, debris and remove as required
3. Remove undesired plant species and algae growth
4. Spread aggregate over pond area to original condition





Item	Maintenance Operation	Action	Check List
1	WATERING – Essential after a dry Spring or Summer following the planting season	Trees- water well, especially in dry conditions, to settle the soil around the roots and at any subsequent dry periods. Sedum and Wildflower mats and wildlife friendly planting on roof: water in first year to ensure vegetation establishes correctly	Up to 5 years in drought conditions.  First year
2	WEED CONTROL	Green Roofs: Weed control to be carried out annually; all undesired species to be removed by hand. Crushed aggregate areas are to be checked for undesired and invasive species whilst native wildflowers are to be encouraged to settle.  Gravel and aggregate areas on roof to be maintained weed free	Annually
3	PEST & DISEASE INSPECTION	Examine planting once a season for green fly, mildew, rust on ornamentals etc and carry out any necessary control measures.  Applies to all areas including green roofs	Annually
4	FERTILISING	Green roofs: fertiliser to be applied to sedum roofs and wildlife friendly planting  Green roofs: wildflower mats: light dose of fertiliser (if required)	Twice annually  Annually
5	REPLACEMENT PLANTING	The contractor undertakes to replace the plants if the cause is poor workmanship, bad specification, vandalism or theft. Before replanting, the cause of death should be determined. Replanting should be carried out during the planting season and replacement shrubs and trees should be, if possible, the same age and size as those existing on site. Replace loses if widely spaced or thin out after 3 years.  (all areas including green roofs)	As required.
6	GRAVEL AND AGGREGATE AREAS	The contractor is to check depths of all aggregates and replenish as required to maintain correct depths.	As required.
7	LOG PILES	Check and replace	As required.
8	IRRIGATION SYSTEM	Check twice-annually, drain and switch off in autumn and re-commission in spring	Twice annually