Management Plan

Objectives

Consideration has been given to the future management requirements of the softworks elements within the public realm associated with the Station Approach and Upper Yard. As a result, the following objectives have been identified:

- To ensure the successful establishment and continuity of the overall design concept.
- To prescribe all necessary management and maintenance principles and management tasks to ensure satisfactory establishment and maintain plants in a continuing healthy and attractive condition.
- To establish appropriate amenity and biodiversity value.
- To provide a mechanism for the ongoing monitoring and reviewing of the management plan and the specific maintenance operations contained therein.
- To establish a mechanism for the replacement of any failing plant or one which has reached maturity.

Duration

Once the initial construction defects and maintenance period is complete, all of the general activities highlighted below will need to be addressed by the maintenance team as part of the standard maintenance procedures.

The management plan will cover a time period of 15 years. After this time a full review of the site should be undertaken and a new management and maintenance plan produced.

Monitoring

Monitoring is of fundamental importance, since this is the means by which the success of the plan will be measured. It is therefore important to establish standardised survey and monitoring methods, which enable valid year on year comparisons to be made. There will be a need for flexibility during its implementation. The Management Plan must be an evolving one, able to adapt to the specific needs of the site.

This maintenance provider should undertake an annual review of the site, providing written documentation as to the ongoing establishment of the planting.

This report should include a condition review of all new /existing plant material, success rates of newly planted material, and recommendations for future management regimes and immediate management requirements.

Health and Safety

A Health & Safety plan is an important consideration for any area of public realm. The landscape maintenance team are expected to produce a risk assessment and method statement for the maintenance of the planting.

Chemicals

Chemicals generally should be restricted in use. All chemicals, herbicides, pesticides and fertilisers, should be approved by English Nature and should be used, stored and disposed of in accordance with EN guidelines and COSHH Regulations 2002.

Maintenance Operations

Set out in the tables overleaf are the maintenance operations that should be carried out over the next 15 years in order to achieve the design objectives.

They have been set out in a format that can be easily followed by all parties, ensuring that the Management Plan exists and a working document and not an archived report. The management prescriptions are flexible such that each section can be changed and updated on an annual basis, allowing targets to be set, progress monitored and accurate reporting made.

Future Training and Volunteering Operations

The Science and Industry Museum will monitor the maintenance regime during the 12 months defects period under the contractor. Reviewing requirements including tasks, training needed, hours required and number of volunteers/operatives needed. A plan will then be formulated following this.

Trees

Projected Maintenance

The tree species have been carefully chosen for their suitability to the location. Formative pruning has already been carried out at the nursery and this will produce suitable growth and canopy shape for the space provided.

In the event of any structural damage to the trees by unknown circumstances such as an extreme weather event the following guidelines should be observed:

The tree should be inspected by a qualified arboriculturist and any necessary works undertaken in accordance with recognised standards. If too damaged to retain then it should be replaced with a tree of the same species and size.

Where possible, pruning should be carried out in the dormant season to avoid excessive sap loss. Some deciduous trees and shrubs will bleed if pruned in late winter.

Irrigation

Irrigation of the trees and shrubs particularly during the frost growing season will be fundamental to their long term successful establishment.

Nutrition

The tree pits have been backfilled with a suitable growing medium containing nutrition sufficient for the initial period of establishment.

It would be advisable to apply an application of fertiliser in the Spring as a top dressing. A broad spectrum fertiliser such as HortiTop Complete (available from Hortifeeds) would be suitable.

Tree Planting					
Code	**Species - Latin**	**Common Name**	**Size: girth (cm)**	**Size: height (cm)**	**Rootball**
Ca	Corylus avellana	Common Hazel	20-25, 300-450cm high	Multi-stem specimen, 300-450cm high, 3 x transplanted	**RB** or Containerised if outside tree planting season
M'E'	*Malus* 'Evereste'	Crab Apple 'Everest'	20-25, 300-450cm high	Multi-stem specimen, 300-450cm high, 3 x transplanted	**RB** or Containerised if outside tree planting season
Sa	*Sorbus aucuparia*	Mountain Ash/Rowan	20-25, 300-450cm high	Multi-stem specimen, 300-450cm high, 3 x transplanted	**RB** or Containerised if outside tree planting season

Tree Work

Maintenance Operation Overview

- Identification: Before starting work agree which trees are to be removed or pruned
- Protection: Avoid damage to neighbouring trees, plants and buildings
- Standards: To BS 3998 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'
- Removing branches: Cut as shown in Arboricultural Association Leaflet No 8 'Mature tree maintenance'. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater
- Appearance: Leave trees with a well balanced natural appearance
- Chain saw work: Operatives must hold a Certificate of Competence
- Tree work: To be carried out by an approved member of the Arboricultural Association

Additional Work

Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

Prevention of Wound Bleeding

Standard: To BS 3998, clause 8.

Prevention Of Disease Transmission

Standard: To BS 3998, clause 9 and Appendix B.

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.

Prescription	Year (s)	Season	Frequency (per year)
TREE PLANTING	1 – 15		
To establish new planting, maintain a 800mm diameter weed free area around all trees	1 – 15	Spring - Autumn	Each visit
UNDERGROUND TREE GUY WIRES			
Inspection / maintenance times: Quarterly and after strong winds	1 – 15	Throughout year	4
Operations: Replace or re-secure loose or missing guy wires			
Adjust to suit stem growth and to provide correct and uniform tension			

Prescription	Year (s)	Season	Frequency (per year)
Apply granular organic fertiliser according to manufacturer's recommendations. Give notice.	1 – 15	Spring	Bi-annual
Ensure trees remain firmly bedded after disturbance and re-firm as necessary	1 – 15	As required	Each visit
Control all pests and diseases as necessary	1 – 15	As required	Annual
Prune in accordance with good horticultural practice, thin, trim and shape as appropriate. Eg. Removing branches: Do not damage or tear the stem. 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, 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. Tools: Use clean sharp secateurs, handsaws or other approved tools. Disease of infection: Give notice if detected. Growth retardants, fungicide or pruning sealant: Do not use unless instructed. Assess and prune all trees annually as needed to maintain a minimum 2.2m clear stem and desired form.	1 – 15	Late winter - early spring	1
Prune Corylus avellana and Malus 'Evereste'	1-15	Late Winter - Early Spring (Feb-Mar)	1
Prune Sorbus aucuparia	1-15	Late Winter - Early Spring (Jan-Mar)	1
Watering – Regular checks using a moisture probe testing during the first two years after planting on a monthly cycle. During dry weather, increase frequency as necessary to ensure continued thriving and establishment of all trees. Ensure any compacted topsoil is loosened to ensure water reaches rootzone, being careful not to loosen or damage surrounding plants.	1 – 2	All	12 minimum
Water as necessary to full depth of topsoil to ensure healthy growth and continued thriving of all planting.	1 - 15	All	12
Replace dead or damaged trees to original specification. Give notice and remove within 1 month or as soon as possible and replace within the next available planting season. Cut down and grub up roots being careful not to disturb surrounding planting. Remove replaced plant material off site to licensed recycling facility.	1 - 15	All	As required
Top up mulching to original specification annually.	1 - 15	Spring/ Autumn	1
LEAF REMOVAL			
Collect accumulations of drifted leaves from the vicinity and from paved area by hand raking. Leave the works in a clean and tidy condition after completion.	1 - 15	Autumn/Winter	As required
Arisings: Remove from site to licensed recycling facility.			