

JOHN DALTON HOUSE

MANCHESTER

LANDSCAPE MANAGEMENT & MAINTENANCE PLAN

116-LYR-H1-ZZ-RPT-L-0001-01-**PLN**

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REVISION 01



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SECTION A - Landscape Management Plan

1.0 Introduction

1.1 General

L A Y E R (Landscape Architecture Ltd) on behalf of the applicant, have prepared this report in relation to the landscaping works relating to John Dalton House.

The landscape management and maintenance proposals contained within this report cover all proposed planting as identified within the following drawings:

- 116-LYR-XX-XX-DWG-L-1001 [GENERAL ARRANGEMENT]
- 116-LYR-XX-XX-DWG-L-3001-SOFTWORKS
- 116-LYR-XX-XX-DWG-L-3002-PLANTING PLANS _01
- 116-LYR-XX-XX-DWG-L-3002-PLANTING PLANS _02

The above drawings provide further details of the landscape proposals for the proposed scheme.

1.2 Overall Aims

- The aim of the landscape management plan is to ensure that all landscape elements establish and mature successfully.
- The proposals aim to successfully mitigate against any negative impact of the development, resulting in positive additions to the visual amenity.
- It is envisaged that QBIC Management company oversee the upkeep of the public space. Whilst a portion of the space is Adopted Highway, the entirety of the space remains in the Title of QBIC.

1.3 Overall Objectives

- To prescribe all necessary management and maintenance principles and tasks to enable successful establishment, and ensure the continued maturing of the planting elements.
- To maximise the nature conservation value of all planting.
- To ensure that the management and maintenance regime is appropriate to the site.
- To provide a mechanism for the on going monitoring and reviewing of the management plan and the specific maintenance operations contained therein.

2.0 Vegetation Types and Design Objectives

2.1 General

A number of separate vegetation types are proposed for the site. These are:

- Specimen Tree planting
- Shrubs & Ornamental planting

The above will require varying management in order to successfully achieve the design objectives.

2.2 Design Objectives

The overall objective is to successfully integrate the development into the site by providing a series of planted areas that increase the sites bio-diversity and compliment the existing site vegetation.

3.0 Management Principles

3.1 Proposed individual trees:

The landscape management principles for proposed individual and structure tree planting are as follows:

- To ensure satisfactory establishment and continuing health
- To maintain the plants in a healthy condition and develop the sites tree structure
- To ensure the successful establishment and continuity of the overall design concept
- To maximise conservation and wildlife value.

3.2 Shrubs & Ornamental planting:

The landscape management principles for proposed ornamental planting are as follows:

- To ensure satisfactory establishment and continuing health
- To maintain plants in a healthy and attractive condition
- To ensure the successful establishment and continuity of the overall design concept.
- To establish a diverse and varied environment
- To establish a mechanism for the replacement of any failing plant or one which has reached maturity

3.4 Hardworks:

The proposed new surface material will predominantly in natural Stone paving.

The management principles for hardworks areas are as follows:

- Procedures for regular inspections of all hard surfaced areas
- Procedures for non-attributable damage reinstatement
- Specification and sources of materials for repair/reinstatement (Refer to relevant drawings for details)
- Procedures for cleaning

SECTION B: Landscape Maintenance Plan

4.0 The Use Of Chemicals

Chemicals generally should not be used, unless specifically instructed to do so. All chemicals, herbicides, pesticides and fertilisers, should be approved by Natural England and should be used, stored and disposed of in accordance with NE guidelines and COSHH Regulations 1988 / 2002.

4.1 Maintenance Operations

Set out in the tables below, are the maintenance operations that should be carried out 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 as 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:

SOFTWORKS

Group No	Prescription	Year (s)	Season	Frequency (per year)
1	<u>Tree Planting</u>			
	a) Maintenance during defects liability period or 5 years after planting whichever is the greater. Operations to include:			
	Maintain a 0.5m weed free ring around the base of each newly planted tree by hand weeding operations.	1 – 5	As required	As required
	Application of granular fertiliser (15:15:15).	1 – 5	Spring	1
	Water as necessary to ensure establishment and continuing health. During periods of hot weather, the company should record the frequency of visits and the total volume of water delivered.	1 – 5	Summer Autumn-Spring	Weekly As required (min 10 visits)
	Ensure trees remain firmly bedded after disturbance and re-firm as necessary	1 – 5	As required	As required
	Remove all dead, dying, damaged and crossed wood	1 – 5	Spring/Autumn	2
	Control all pests and diseases as necessary	1 – 5	As required	As required
	Replace any dead or dying trees planted in year 1.	1 – 5	Autumn	1
		6 – 15	Autumn	1
	b) Replace any dead/ under performing trees planted. Where planting continually fails to establish, undertake investigations to ascertain any underlying cause.	6-15	Autumn	1
	c) Carry out an annual inspection of all trees and carry out remedial work as necessary			

Group No	Prescription	Year (s)	Season	Frequency (per year)
2	<u>Shrubs & Ornamental Planting</u>			
	a) Maintenance during defects liability period or 5 years after planting whichever is the greater.			
	Operations to include:			
	i) Maintain all areas in a weed free condition	1 – 5	As required	10

	through hand weeding operations. Herbicide applications on instruction only.			
ii)	Application of granular fertiliser (15:15:15).	1 – 5	Spring	1
iii)	Water as necessary to ensure establishment and continuing health	1 – 5	Summer Autumn-Spring	Weekly As required (min 10 visits)
iv)	Ensure plants remain firmly bedded after disturbance and re-firm as necessary	1 – 5	As required	As required
	Control all pests and diseases as necessary	1 – 5	As required	As required
	Replace any dead or dying plants implemented in year 1.	1 - 5	Autumn	1
	Prune early flowering shrubs after flowering	1 - 5	Early summer	1
	Prune late flowering shrubs before new growth	1 - 5	Early spring	1
	Prune evergreen shrubs	1 – 5	Mid spring	1
	Prune herbaceous perennials as required to maintain form and supply supports as needed	1 - 5	Early summer	1
b)	Post 5 years maintain as above.	6 - 15	As required	As required
c)	Replace any dead/ under performing plants. Where planting continually fails to establish, undertake investigations to ascertain any underlying cause.	6 - 15	Autumn	As required
d)	Control all pests and diseases as necessary	6-15	As required	As required

4.2 Hardworks Maintenance

Surfaces need to be maintained to ensure they are in a good condition providing safe routes for all.

It is important that paved surfaces are regularly inspected so that defects can be identified and rectified. Typically, early life maintenance, or aftercare of new works will be the responsibility of the Contractor. The maintenance and defects liability period will be 12 months. Contractors should visit the site at regular intervals to inspect all paved areas regularly during the maintenance period, and to undertake any remedial works. At the end of the maintenance period (or Rectification Period), the contractor will be required to undertake remedial works to the satisfaction of the Client. Owing to the high visual quality of the stone paving, effort is required to ensure surfaces are maintained as they were originally constructed. The need for replacement of high quality materials is required for all streetscape projects at some time. Delivery periods for many materials will be 2 to 3 months if not more. Details below describe how paved areas should be maintained.

Following Contractor hand-over at the end of the Rectification Period, the Management Company will undertake all required management and maintenance activities.

Common defects

Paved areas deteriorate in a variety of ways, depending upon the type of construction and cause of distress. When deterioration presents a safety hazard then maintenance becomes essential. Timely maintenance, in some instances can prevent deterioration progressing to a state where reconstruction is required. The majority of failures tend to be confined to the surface layers of paved roads, i.e. they concern the bedding and jointing that surrounds stone elements.

Broken or damaged elements

Apart from being unsightly, cracking and spalling can become a hazard if it creates a trip. Spalling occurs during transport and laying, but can less commonly be a fault in the material. It can result during manufacture, impact loading, abrasion and weathering. Inappropriate size or depth of element results in fracture under loading.

Treatment options

Maintenance treatment will depend on the type of defect and what has caused the deterioration. For some surfacings, topping up of jointing may be all that is required, but poor surface profile may require a site investigation to provide information on the condition of the pavement at depth. Suitable strategies can then be formulated based upon informed engineering judgment.

The Table on the following page summarises some common defects, resulting problems and treatments.

<i>Defect</i>		<i>Problem</i>	<i>Treatments</i>	
<i>Flexible</i>	<i>Rigid</i>		<i>Temporary</i>	<i>Long-term</i>
Loss of jointing material	-	Loss of stability	Replace jointing material	-
	Debonding of jointing material	Initiation of failure mechanism	Monitor/investigate	Replace jointing or reconstruct if poor design
Broken or damaged elements	Broken or damaged elements	Unightly, water ingress	-	Replace or reconstruct
Missing elements	Missing elements	Trip, water ingress	Fill holes	Replace element
Rocking elements	Rocking elements	Hazard to users	Relay	-
Spalling of arises or surfaces	Spalling of arises or surfaces	Unightly, trips	-	Replace
Widening of joints	-	Loss of stability, water ingress	Fill wide gaps if hazard	Relay elements and strengthen edge restraint if necessary
Depressions and bumps		Hazard for users	Fill or ramp. Contact undertaker if cause is failed reinstatement	Relay
Rutting		Hazard for users	Monitor, warn users	Relay
Slippery surface		Hazard for users	Warn users or restore texture	Clean, restore texture or renew surfacing
Surface contamination		Hazard for users and unightly	Clean or neutralise	Replace surfacing if necessary
Vegetation		Surface slippery	Warn users, clean	Consider increasing frequency of maintenance
Water		Surface water	Salt if freezing	Relay surfacing to correct gradients and crossfall
		Blocked drain	Clear blockage	-

Lifting and relaying

Relaying elements of flexible construction should be carried out in the same way as new construction. Additional guidance for flags is given in BS 6677. Removing a damaged single element prior to relaying can be difficult, particularly if it is small element, as breaking it out may disturb adjacent modules. It may be necessary to consider relaying all elements, which abut the damaged area, or to relay a full line of elements back to an edge restraint. If the surface has poor profile, elements will need to be lifted over the whole of the affected area. In all cases a complete renewal of the bedding material should always take place. An experienced paver is required to execute a good reinstatement.

Joint repairs

Where elements are part of a rigid construction and degradation of the cement mortar joint has occurred, it will be necessary to refill the joint. If necessary the joint should be raked out, which is time-consuming and costly. It may be more appropriate to use a small hand-held grinder with an attachment to remove the dust and debris, in a controlled manner, into some form of hopper. Once the joints have been cleaned out they can be refilled with a mortar appropriate to the trafficking category. Care is required to confine the mixture to the joint and prevent staining of the surface. Trafficking should only be allowed once the mortar has gained the appropriate strength as specified by the manufacturer.

Retexturing

Re-texturing of stone surfaces which have become slippery due to vehicular or heavy pedestrian traffic can be undertaken by various methods including scabbling, sand or shot blasting, high pressure water jetting or application of a weak acid. Scabbling is slow but can be used successfully on flags, especially where there is some form of surface growth. Sand blasting can be successful but results in a lot of fine particles and debris, which have to be removed separately. Shot blasting with steel shot involves the use of specialised machinery, which sucks up the debris and shot by vacuum. The steel shot is separated magnetically in the return loop for continuous re-use. This is a very successful process that tends to form a lightly exposed aggregate surface on flags, giving a pleasing appearance. However, regular use of this technique can sometimes cause problems and retexturing areas around street furniture is difficult. Flexible Joints may need resealing with sand after any high-pressure method has been used.

Guidance: Stone surfaces will become slippery and an appropriate re-texturing technique should be used to restore skid resistance

4.3 Street Furniture

Stainless Steel/Galvanised or Powder Coated finishes; Balustrades, handrails etc.

The steel should be washed down with proprietary cleaner and washed down with clean water, This should be done annually to retain the finish and prevent the build up of corrosive salts. Remember that most surface corrosion on stainless steel is due to contamination from site operations.

SPECIFIC CLEANING TASKS:

Power Washing

The Use of Power Washing Equipment on hard surfaces.

To aid in the removal of surface staining power washing equipment is often considered. Whilst such techniques offer certain benefits, particularly for larger areas, it is important that care is taken in their use to avoid damage to the structural integrity of the paving.

When using any form of Power Washer the following guidelines should be strictly adhered to:

- The power washer should be used on a setting, which is sufficient to remove the dirt without causing any further distress. A low-pressure setting is recommended.
- Do not direct the power lance directly down on to the paving, as this can result in loss of jointing material.
- Ideally a spraying movement should be adopted holding the power lance at a shallow angle, not greater than 30° across the diagonal (i.e. not parallel to joints)
- Certain high-pressure jetting machines have been known to mark / damage the surface of certain types of paving material. It is therefore prudent to carry out a small test area before commencing on a larger area.
- The area should be inspected after cleaning to ensure that joints are full.

Dirt and Detritus

To remove general dirt and detritus regular brushing is recommended. If detritus reduces the intensity of the colour of the material then this can be re-established by scrubbing with a mild detergent e.g. washing up liquid, and hot water. Ensure all the detergent has been thoroughly washed from the surface on completion of the cleaning and the resulting run-off is carefully channelled to either drainage points or containers where it can be safely disposed of.

Moss, lichens and algae

Moss, lichen and algae can be prevalent on hard surfacing where the area is heavily shaded, under trees or is not laid to an adequate fall. If such growths do occur and are considered undesirable then the area should be treated with a proprietary weed or moss killer used in accordance with the manufacturers' instructions. Such products take some days to be effective and are most effective when applied during a spell of dry weather. The washes work best if any thick growths are scraped off first and the wash is well brushed in. Some treatments leave a residue to discourage the re-growth of the moss and algae but this will only be of limited value if the surrounding conditions leave the paving damp and in shade.

Weeds & Plant growth

All plant growth found within any hardworks is to be treated with an appropriate herbicide (in accordance with item 4.1.). All arisings are to be removed from site and disposed of accordingly in the correct manner.

Rust Stains

Initially action must be taken to eliminate the sources of staining.

To remove the rust stain, the surface should first be wetted with clean water and then the affected area treated with a 7 to 10% dilution of Hydrochloric acid solution.

*Guidance on the safe use of chemical treatments is given below (Acid Washing) of this document.

Oil Stains

Oil can penetrate readily into hard surfacing materials, but it should not stain if any spillages are removed promptly with an absorbent material e.g. paper towels, cloth or absorbing granules. Do not attempt to wipe the stain as this will drive the oil into the surface and spread it over a wider area.

If the stain persists then an emulsifying degreaser should be employed. Brush the cleaner onto the affected area, leave for a period of time according to the manufacturers instructions and then wash the emulsified oil away with plenty of clean water.

Alternatively the surface can be scrubbed with a detergent and hot water taking care to ensure that the strength of the detergent is not detrimental to the appearance of the paving. However, for persistent oil staining, steam cleaning may have to be considered.

Bitumen Stains

Fresh bitumen should be allowed to cool down before removing it with a paint scraper or similar. If it is particularly resistant, the use of ice to make the bitumen brittle may be required prior to scraping it from the paving. Any residue should be removed with an abrasive powder and finally the whole area rinsed with clean water. Certain proprietary cleaning agents are available to remove bitumen but these should be tested on an inconspicuous area of paving first.

Graffiti & Paint Stains

Both paint and graffiti are difficult to remove from most hard surfacing materials. Fresh wet paint should be soaked up with an absorbent material without wiping the paint, as this will spread the stain. It should then be treated with a suitable solvent such as white spirit and then the area washed with a de-greasing agent taking care in the disposal of the run-off material.

Dried paint should be scraped off as far as possible and then an appropriate paint remover applied. Paint manufacturers may often be able to give more detailed advice on the removal of paint and graffiti. Therefore they should be consulted directly for specific recommendations.

Epoxy & Polyester Stains

Areas of solidified epoxy or polyester resin can be removed by carefully burning off the area with a blowtorch. Care must be taken not to inhale any fumes given off. If, after burning, a black stain remains, this can be removed by scrubbing with detergent and hot water. For larger areas grit blasting may have to be considered, however the effect of such treatment on the micro texture of the surface should be carefully considered. Again it is advised that a small area be tested before any large-scale operations are undertaken.

Smoke, Fire and Tobacco Stains

Normally such stains can be removed by scrubbing with detergent and hot water. Where the stains persist, a mixture of scouring powder and household bleach can be used. It is important the bleach is washed from the area with clean water once cleaning is completed and the run-off carefully disposed of.

Beverage Stains

These can normally be removed by scrubbing the stain with detergent and hot water. If the stain is persistent, apply a household bleach solution and then rinse the area with clean water taking care to dispose of the run-off safely.

Chewing Gum

Chewing gum is a particularly difficult substance to remove from hard surfaces. Newly discarded gum can be scraped off by using a mechanical scraper but hardened gum can only be removed by both freezing the gum and chiselling it from the surface of the paving or utilising a hot water/steam cleaner. For specific advice on chewing gum removal it is recommended that specialist contract cleaning companies be contacted directly for further details.

Scuff Marks from Vehicle Tyres

These can normally be removed by steam cleaning, or by scrubbing the area with detergent and hot water.

Cement and Lime staining

Both types of staining can occur on paved surfaces, usually as a result of contamination from other sources, such as concrete street furniture or the use of onsite mortars and concrete. Cement and lime deposits are generally insoluble and therefore require treatment by a suitable acid cleaner to fully remove them.

Acid Washing

Stubborn and persistent stains that will not generally weather away naturally will require the application of a specific acid cleaning treatment to remove them.

Prior to any acid cleaner being applied, the surface must be thoroughly wetted with clean water to prevent the acid being absorbed directly into the paving. A dilution of 7 to 10% of hydrochloric acid should then be prepared and applied to the affected area.

As the staining begins to dissolve, some frothing may be apparent, which should be followed by agitation of the surface using a stiff bristle brush to completely remove all trace of the stain.

Once this process is complete the whole surface should be rinsed thoroughly with clean water, taking care to dispose of the run off safely. In the vast majority of cases, one treatment will be sufficient; however, in some cases re-treatment may be required. When using any form of chemical treatment the following guidelines should be strictly adhered to:

- With deeper stains, the degree of acid treatment may result in an acid etched appearance.
- Protective clothing (gloves, boots, goggles etc.) should be worn at all times when using chemicals and the appropriate first aid measures must be available on-site.
- Take care to ensure that surrounding materials and landscaping are protected. Soft landscaping and exposed metals can be severely affected by chemical treatments.
- It is better to treat several times with the correct dilution than to use concentrated acid, which may damage the surface of the unit.
- When diluting acids, always add acid to water and not water to acid.