

Nant Y Cafn 7 Sisters Industrial Start Up Units

Landscape Management and Maintenance Plan

ISU-CAM-XX-XX-RP-L-0003 P02

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Refer to detail planting layout plans: ISU-CAM-XX-XX-DR-L-0003 Soft Landscape Proposals

1. Introduction

This landscape management and maintenance plan should be read alongside drawings DR-L-0003 Soft Landscape Proposals.

After the one-year establishment period the management and maintenance will become the responsibility of Neath Port Talbot council.

1.1 Format of the Management and Maintenance Plan

This plan sets out general principles and quality standards required for the maintenance of softworks and for the long-term landscape management. It can be used by the maintenance team to produce a detailed priced programme of work. It can form the basis for periodic (annual) reviews and evaluation of actual maintenance works.

1.2. Aims of the Management and Maintenance Plan

This plan aims to ensure that the vision for the landscape at the Nant Y Cafn 7 Sisters site can be achieved through a long term, co-ordinated and informed approach to landscape management.

2. Landscape Management Objectives

2.1. The Establishment Period

Any landscape implementation contract should include a one-year aftercare maintenance period to cover intensive post-installation maintenance requirements for the whole of the landscape works. During this period the implementation contractor would be responsible for all horticultural maintenance operations, including planting which has failed to flourish. At the end of the initial one-year aftercare period any defects in soft landscape materials due to materials or workmanship should be rectified by the implementation contractor before responsibility is handed over to Neath Port Talbot.

2.2. Access

The landscape maintenance contractor shall liaise with Neath Port Talbot site management and the Principal Contractor directly regarding site access, working hours and permissions for parking. Maintenance work associated with pruning of trees and shrubs to be actioned outside of the bird breeding season: March to September.

2.3. Facilities

The landscape maintenance team shall liaise with Neath Port Talbot site management and the Principal Contractor directly regarding working hours, permissions for parking, storage, use of water and any other resources.

2.4. Maintenance Objectives for Soft Landscape - Generally

- apply good horticultural and ecological practice to all operations.
- promote healthy growth and establishment of all plants, trees, grass, wildflower areas.
- ensure consistent control of invasive weeds.
- promote optimum display and flowering periods and stem colour.
- ensure development of optimum plant form, shape, and planting density.
- provide protection against pests and diseases.
- promote wildlife value and species diversity where appropriate.
- ensure long term commitment to replacement of defective plant material.
- review opportunities for introduction of new species or replacement of exhausted species where appropriate, in line with original design intentions.

2.5. Landscape components with specific management objectives

2.5.1 Trees

- ensure that good horticultural practice is employed to encourage long term health and vitality of all trees
- ensure well-balanced crowns and natural shape

2.5.2 Understorey and shrub mixes & hedges

- ensure that good horticultural practice is employed to encourage long term health and vitality of all trees, shrubs, hedges and whip planted areas
- planting to be thinned / re-spaced in order that they have sufficient room to develop
- review opportunities for introducing native shrubs and those with particular wildlife value into planted areas
- maintain a clean and safe environment
- ensure cultural techniques are employed which use a variety of mulches and organic fertilisers and which minimise the use of chemicals and peat wherever possible.

2.5.3 Conservation grassland

- ensure appropriate management regime for conservation grass areas to maintain a diverse and healthy sward encouraging the flowering and seeding of meadow species (for ecological and visual interest benefit), whilst maintaining an even managed appearance, and without the encroachment of pernicious weeds, bramble or scrub. The management regime is to be reviewed by the contractor in subsequent years to consider the development of species within the sward and to encourage continued diversity. Any recommendations by the consulting Ecologist are to be included.

3. Programming of Maintenance and Management Operations

3.1. Monitoring

To protect the investment in the quality of soft landscape works, the long-term maintenance team must provide a high standard of maintenance; the long-term success of the scheme is dependent on its maintenance regime.

The management plan and maintenance operations included herewith will be reviewed following the end of the initial implementation works defects period and from then on, on a regular basis.

This management plan is intended to provide a basic performance specification to enable the maintenance team to agree a detailed three-year programme of work which shall include scheduled dates for planting refurbishment and review.

The following is an indicative annual schedule of maintenance visits applicable for the first five years of establishment. This provides a reasonable frequency of the more common operations, and a good indication of the required level of intensity of management required but is not intended to be fully comprehensive or restrictive. The landscape maintenance team can construct a schedule specifying operations and frequency using his own experience and horticultural knowledge.

The ongoing programme of maintenance work will also include proposed frequency of visits and operations detailed in the schedules. It shall also include dates for:

- infrequent operations such as re-spacing of plants, pruning, topping up of mulch, replacement of plants / restocking of beds etc.
- planting review and refurbishment.
- monitoring and review; the effectiveness of the management operations is to be closely and continually monitored and reviewed annually against this Landscape Maintenance Plan, with any resulting changes incorporated into the subsequent years' programme.

3.2. Soft Landscape Maintenance Schedules

Trees

Maintenance Operation	FREQUENCY												Subsequent Years	Special Comments
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Check for Stability / Damage / Disease and check stakes and loosen ties			1						1				Continue	Stakes to be attached to trees no higher than 1/3 of the clear height of stem. Plants loosened by the effects of wind, frost heave, etc shall be set upright and re-firmed.
Prune damaged, diseased or dead wood			1						1				Continue	Remove clippings etc. from site
Maintain 1m diameter circle around each tree weed-free			1			1			1				Continue	Care must be taken to avoid damage to the new planting, to avoid mixing mulching material with topsoil, and to avoid disturbing root system.
Top up mulch to specified 75mm depth – continue annually until establishment			1										Continue	Use originally specified mulch material.
Apply liquid manure / fertiliser lightly worked into surface of mulch			1										Continue	Approved alternative slow release fertiliser at manufacturer's recommended rates
Watering – Years 1 & 2				2	2	2	2	2	2	2				Watering – 25 litres per standard. Watering to be undertaken weekly during drought conditions during the early morning or early evening.
Watering Years 3 to 5				As required (see comments)										Drought conditions exist when there are 14 consecutive days or more without rain. In times of water restrictions 2 nd class water may be used
Existing Trees		1									1			All existing trees on site to be reviewed bi-annually for health and to establish any necessary tree works. Undergrowth to be cut back tidy and to prevent encroachment and to prevent dominance of undesirable single species eg bramble, holly, sycamore

General notes:

Where any new plantings fail to establish, measures will be taken to resolve any underlying problems. Any plant material which dies, or is not in a thriving condition, whether due to the effects of weather, lack of water, poor pruning technique, lack of maintenance, herbicide damage, or any other cause shall be replaced.

A programme of leaf clearance will be required near the buildings and in the car park areas.

Native Hedges

Maintenance Operation	FREQUENCY												Years 2 to 5	Special comments
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Remove weeds and fork over bare soil – 5 years / or until establishment			1	1	1	1	1	1	1				Discontinue once full cover is achieved	Do not disturb root system
Top up to 75mm depth of mulch			1										Discontinue once full cover is achieved	Shredded bark suitable for mulch
Check for pest and disease and replant as necessary											1		Continue	
Apply liquid feed / slow-release fertiliser				1									Continue	
Pruning Year 1 (Formative prune on planting) Lightly trim whip sides to encourage bushing out						1								Remove clippings to agreed composting area
Pruning Year 2 February – formative pruning cut back growth by half September - cut sides only		1							1					Remove clippings to agreed composting area
Pruning Years 3-5 and Subsequent Years Trim top and sides, tapering towards the top to maintain desired height and width		1							1					Remove clippings to agreed composting area
Check / replace rabbit guards									1				Remove rabbit guards from site after Year 2	
Watering Years 1 & 2				2	2	2	2	2	2	2			Watering to be undertaken weekly during drought conditions. Watering should be carried out during the early morning or early evening – 5 litres per linear metre of hedging	
Watering Years 3 to 5				As required (see comments)									Drought conditions exist when there are 14 consecutive days or more without rain. In times of water restrictions 2 nd class water may be used	

General notes:

Where any new plantings fail to establish, measures will be taken to resolve any underlying problems. Any plant material which dies, or is not in a thriving condition, whether due to the effects of weather, lack of water, poor pruning technique, lack of maintenance, herbicide damage, or any other cause shall be replaced.

Mown Edges: Species Rich Flowering Lawn – Emorsgate EL1 seed mix

Maintenance Operation	FREQUENCY												Subsequent Years	Special comments
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Year 1: Cut height to 4-6cm				2	3	4	3	3	2	1				Mow newly sown flowering lawns regularly (every 7 -10 days during growing season) throughout the first year of establishment. Cut to a height of 40-60mm, removing cuttings if dense. This will gradually develop a good sward structure, help maintain balance between faster growing grasses and slower developing wild flowers, and control annual weeds. Dig out any residual perennial weeds such as docks.
Year 2-5: Cut height to 3-5cm				2	3	3		2	2	2			Continue	Mow regularly as a lawn but not too short (3-5cm). To permit flowering, mowing can be relaxed from late June. Cut again when the sward gets untidy (after 4-8 weeks). Mowing may be suspended earlier in the year to allow cowslips to flower. Heavy quantities of cuttings should be collected and removed from site.
'Lawn' areas associated with buildings and closely mown margins around car park edges, - circa 2m wide			1	2	3	4	3	3	2	1				Mowing margin between kerb and conservation sward / hedge to be maintained as amenity grass

Marshy Grassland managed as Meadow – Be-spoke seed mix to be agreed with Ecologist

Maintenance Operation	FREQUENCY												Subsequent Years	Special comments
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Year 1: Cut height to 7-10cm							1	3	3	1				After sowing there will be a flush of annual weeds, these weeds can look unsightly, but they offer shelter to the sown seedlings and will die before the year is out. So, resist cutting the annual weeds until mid-summer. Then cut, remove, and compost. This will reveal the young meadow, which can then be kept short to the end of March of the following year. Dig out any residual perennial weeds such as docks.
Year 2-5: Cut height to 5cm								1	1	1			Continue	Hedgerow grassland is not cut or grazed from spring through to late July/August to give the sown species an opportunity to flower. After flowering in July or August take a 'hay cut': cut back with a petrol strimmer to 50mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site. Mow the re-growth through to late autumn/winter to c 50mm and again in spring if needed

Sides of Swale/Attenuation Basin - Conservation Meadow Mix for Wetlands EM8

Maintenance Operation	FREQUENCY												Special comments
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Year 1: Cut height to 5cm 1st cut mid to late summer, remove and compost the cuttings. This will reveal the young meadow, which can then be kept short by grazing or mowing through to the end of March of the following year. Dig out any residual perennial weeds such as docks.							1		1	1	1	1	The sides of the swale are to be seeded with meadow mixture of wetlands and site won topsoil from existing marshy grassland to be used for growing medium to ensure the ‘seed bank’ of the marshy grassland is utilised. Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals.
Year 2 and subsequent years: Cut height to 5cm After flowering in July or August take a ‘hay cut’ : cut back with a scythe, strimmer or tractor mower to c 50mm. Leave the ‘hay’ to dry and shed seed for 1-7 days then remove from site. Mow or graze the re-growth through to late autumn/winter to c 50mm and again in spring if needed.	1	1	1				After flowering 1		1	1	1	1	In the second and subsequent years EM8 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. The best results are usually obtained by traditional meadow management based around a main summer hay cut in combination with autumn and possibly spring mowing or grazing. Meadow grassland is not cut or grazed from spring through to July/August to give the sown species an opportunity to flower.

	FREQUENCY	Subsequent	Special comments
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Bird Boxes and Bat Boxes

Maintenance Operation	FREQUENCY												Subsequent Years	Special comments
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Bird Boxes – Clean out used nesting materials and wipe down using hot water.											1		Continue	
Bat Boxes – no action required.														Bat boxes are self-cleaning. Note - Any work to bat boxes must be undertaken by a licensed bat worker.