

GREAT WOLF LODGE, CHESTERTON, BICESTER NORTHERN PARK WITH WESTERN AND SOUTHERN BUFFER

5 YEAR LANDSCAPE MAINTENANCE AND MANAGEMENT PLAN

FOR TENDER

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1. Introduction

1.1 Purpose Of The Document

This Landscape Maintenance & Management Plan (LMMP) has been prepared by BMD to cover the 5 year establishment period for the management and maintenance of the Landscape within the development at Great Wolf Lodge.

The overarching aim of this LMMP is to provide a framework that will ensure the continuing successful management of the site through which the landscape can be maintained and developed to contribute to the quality of the area and to ensure that the original concept and design intent is realised. Once implemented, this plan will help to maximise the overall quality and appearance of the development, its amenity and ecological value and its enjoyment by site users.

Design Documentation

The overall landscape proposals are shown on the following drawings:

Landscape:

 BMD.19.010.DR.T001 BMD.19.010.DR.T101 - 102 BMD.19.010.DR.T103 - 104 	Northern Park with Western and Southern Buffer - Overall General Arrangement Northern Park Detailed GA Western and Southern Buffer Detailed GA
Planting Plans & Schedule: • BMD.19.010.DR.T301 - 302	Northern Park Planting Plans
• BMD.19.010.DR.T303 - 304	Western and Southern Buffer Planting Plans
• BMD.19.010.SP.T003	Northern Park with Western and Southern Buffer Planting Schedule
Soil Requirements Plans:	
• BMD.19.010.DR.T201 - 202	Northern Park Soil Requirements Plan
• BMD.19.010.DR.T206 - 207	Western and Southern Buffer Soil Requirements Plan
Details:	
• BMD.19.010.DR.T501	Typical Hard & Street Furniture Details
• BMD.19.010.DR.T502	Boundary Treatment Details
• BMD.19.010.DR.T601 - 604	Typical Tree Pit Details
• BMD.19.010.DR.T605	Typical Soft Details
• BMD.19.010.DR.T606	Typical Pond Detail / Section
Landscape Specification:	

• BMD.19.010.SP.T001

Northern Park with Western and Southern Buffer NBS Landscape Specification

Management Responsibilities

The maintenance operations outlined in this plan will run for a minimum of 5 years commencing on the date of certification of Practical Completion. After certification of Practical Completion, maintenance will be undertaken by the Landscape Contractor responsible for the implementation of these works based on the rectification periods timeframes below. After certification of Final Completion, maintenance for the remaining duration of the 5 year establishment maintenance period will be undertaken by the Client or their appointed Estate Management Company.

This maintenance period will run concurrently with the Rectification Period. During this time the Landscape Contractor responsible for implementing the works will be liable for any defects.

The Rectification Period will run for;

- Grassland 36 months
- Woodland planting, extra heavy standard trees and smaller 36 months
- Semi-mature trees 36 months

At the end of the 5 year establishment period, it is recommended that the management operations prescribed by this document are reviewed. This will allow for amendment of the prescribed management operations, ensuring sustainable management in the medium and long term.

1.2 Relevant Standards

The following list includes a number of key standards to be adhered to when undertaking maintenance operations, however this is not exhaustive.

- BS 2998: Tree Work Recommendations.
- BS 5837; Trees in relation to design, demolition and construction.
- BS 7370-1: Grounds maintenance. Recommendations for establishing and managing grounds.
- BS 7370-3: Grounds maintenance. Recommendations for maintenance of turf (other than sports turf).
- BS 7370-4: Grounds maintenance. Recommendations for maintenance of soft landscape.
- BS 8516: Recommendations for tree safety inspection.
- BS 8545: Trees from nursery to independence in the landscape.

1.3 Key Management Objectives

The following key objectives for maintenance and management set out the approach to maintenance operations throughout the site. Objectives specific to different landscape features have been detailed in the following sections.

Whilst the creation of optimum planting conditions (combined with high standards of implementation) are essential to give properly specified plant material the best start in life, the establishment and future success of the landscape will be dictated by the quality and frequency of the subsequent maintenance and management it receives.

The following key objectives have been informed directly by best practice guidance to ensure a robust regime will be adopted for the site both during the establishment period and thereafter.

Key objectives for maintenance and management include:

- To facilitate an efficient and sustainable landscape management and maintenance regime throughout the lifetime of the development, that avoids intensive long term maintenance requirements.
- To balance the objectives of ecology, hydrology, recreation and amenity functions.
- To provide a high quality external environment for all site users.
- To ensure that the landscape develops in a manner commensurate with the original design intent.
- To accommodate use of the sitex, by promoting a management regime which is appropriate to the site's role.
- To ensure the successful establishment and continued growth through to maturity of the trees and other planting identified on the Planting Plan drawings.
- To secure a long term future for the new trees and grasslands with particular emphasis upon achieving visual amenity and, where native & wildlife friendly planting is proposed, the enhancement of its ecological potential.
- To manage the landscape in a manner which ensures the safety of site users, such as maintaining visibility splays, maintaining good surveillance, removal of dead, dying or diseased trees and plants.
- To be flexible and adaptable to changing needs of the landscape through its establishment and long term management.

2.1 Existing Trees & Vegetation Retained

Maintenance (first 5 years after works)

- Existing mature trees retained should be risk assessed annually by qualified Arboriculturists using industry approved methods. Where risks are identified, remedial actions must be taken to eliminate or reduce any risk to an acceptable level.
- Maintenance of a weed free area around the base of each tree. Trees within grassland or planting should have all weeds around the trunk removed by hand or application of herbicide.
- Removal of any items that have been attached to trees, such as posters, signage, cable ties or bike locks/chain etc.
- Inspect trees for dead, dying or diseased wood. Prune back to living wood, good growing points or main branches, do not leave any snags, cut back to branch collars avoiding any flush cutting. Avoid making any large spring cuts which could cause excessive bleeding.
- Remove suckers /epicormic growth.
- Formatively prune if necessary to achieve natural shape, healthy growth, remove crossing or rubbing branches, correct any potential weak attachments or narrow V crotches and to favour a strong single leader.
- · Crown lift if needed to maintain clearance of circulation routes and visibility splays.
- Inspect trees for signs of pest and disease, in cases of serious attack employ appropriate control measures.
- Check tree for Ivy growth, when 80% of the crown is covered, cut ivy at the base, leave cut material in the tree.

Maintenance Schedule

The below schedule includes the initial maintenance operations as well as long term maintenance requirements. The frequency and timings of each operation has been indicated for a typical annual cycle or as required.

		Time of year when maintenance operation is required or number of operations required											
Maintenance Operation	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Long Term Maintenance Operations													
Health and safety check of existing trees and vegetation	1 x Annually		1										
Weed control and removal	2 x Annually						1				1		
Pruning works (general)	Annually												
Removal of items attached to trees	As required						All	Year					
Inspect trees for pest and disease	1x Annually	1											
Check for nesting bird presence prior to any necessary remedial action.	As required												
Check Ivy growth in crowns, if 80% coverage in crown cut at base	As required	All Year											

Long Term Management (year 6 onwards)

2.2 Tree Planting

Establishment Maintenance (first 5 years after planting)

To ensure survival and optimal development these trees will be subject to intensive establishment maintenance.

- Trees adjacent to footpath cycleways are to have no branches that could impede the movement of cyclists or pedestrians.
- Trees in grass should have a circular area of 1m bark mulch and be maintained weed free and topped up regularly to keep a 75mm layer. Trees within planting should have all weeds around the trunk removed by hand or application of herbicide.
- Watering to ensure moisture levels are maintained appropriate for optimum growth.
- Application of a slow release fertiliser in spring around the base of all trees to ensure soil fertility is maintained.
- The removal of any vandalised, unhealthy or dead specimens as soon as possible and replacement with trees of the same size to those adjacent where practicable, during the next available planting season.
- Inspection, adjustment and maintenance of anchors, stakes and ties. Stakes and ties to be removed when instructed and when the tree(s) has established successfully.
- Removal of any items that have been attached to trees, such as posters, signage, cable ties or bike locks/chain etc
- Re-firming of trees after strong winds, frost heave or other disturbances.
- Inspect trees for dead, dying or diseased wood. Prune back to living wood, good growing points or main branches, do not leave snags, cut back to branch collars avoiding any flush cutting. Avoid making spring cuts which could cause bleeding.
- Remove suckers /epicormic growth.
- Formatively prune if necessary to achieve natural shape, healthy growth, remove crossing or rubbing branches, correct any potential weak attachments or narrow V crotches and to favour a strong single leader.
- Crown lift if needed to maintain clearance of circulation routes and visibility splays.
- Any deadwood should be used to create small log piles to provide habitat in areas inaccessible or out of view of the public.
- Inspect trees for signs of pest and disease, in cases of serious attack employ appropriate control measures.
- Topping up mulch at the end of the rectification period to achieve a 75mm layer.

Maintenance Schedule

The below schedule includes the initial maintenance operations as well as long term maintenance requirements. The frequency and timings of each operation has been indicated for a typical annual cycle or as required.

		Time of year when maintenance operation is required or number of operations required											
Maintenance Operation	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Establishment Maintenance Operatio	ns (years 0-5 only)												
Re-firming of trees	As required						All	Year					
Replace damaged / vandalised / unhealthy stock	Annually												
Apply slow release fertiliser to base of tree	Annually			1									
Watering of area to ensure moisture levels are appropriate	As required												
Top up mulch	1 x Annually			1									
Establishment & Long Term Maintena	nce Operations												
Weed control and removal (Long term frequency to be reviewed and reduced as required)	2 x Annually						1				1		
Pruning (general)	As required												
Inspect trees for pest and disease	1x Annually	1											
Check for nesting bird presence prior to any necessary remedial action.	As required												
Removal of items attached to trees (except bird & bat boxes)	As required	All Year											

Long Term Management (year 6 onwards)

2.3 Amenity Grassland, Mown Path & Verge Strips

Establishment Maintenance (first 5 years after planting)

- Regular mowing between March and October to maintain between a height of 30 50mm.
- Verge strips to be maintained adjacent all paths and hard landscape areas, cut to maintain between a height of 30 50mm.
- Trim edges to hard standing, planting beds & tree pit mulch circles.
- Do not cut areas containing bulbs until 6 weeks after flowering has finished.
- Control and removal of aggressive self seeded weeds.
- Reform edges once per year with edging tool to create clean straight lines and flowing curves, form clean edge and remove soil as required.
- Application of a slow release fertiliser as necessary to ensure soil fertility is maintained at appropriate levels.
- Watering to ensure moisture levels are maintained appropriate for optimum growth.
- Repair damaged or failed areas by re-seeding and top dressing or turfing.
- Removal of litter to maintain the site in a tidy condition.
- Aerate soil by spiking or hollow tines once a year to depth of 75mm. Spike when needed to relieve compaction and areas of ponding.
- Remove leaves regularly in autumn.

Maintenance Schedule

The below schedule includes the initial maintenance operations as well as long term maintenance requirements. The frequency and timings of each operation has been indicated for a typical annual cycle or as required.

		Time of year when maintenance operation is required or number of operations required											
Maintenance Operation	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Establishment Maintenance Operation	s (years 0-5 only)												
Replacement of damaged or worn grass areas by seeding and top dressing or turfing	As required												
Trim edges to hard standing and tree mulch circles	As required or every two weeks in growing season												
Watering of area to ensure moisture levels are appropriate	As required												
Apply slow release fertiliser	2x Annually				1					1			
Establishment & Long Term Maintenan	ce Operations												
Mowing of grass areas	As required or every two weeks in growing season												
Reform edges	1x Annually			1									1
Aerate soil by spiking or hollow tines	1x Annually or as required			1									
Application of selective herbicide	1x Annually				1								
Removal of litter	At time of each grass cut or maintenance visit												
Removal of leaves	As required												

Long Term Management (year 6 onwards)

2.4 Grassland (Wildflower and Wet Meadow)

Establishment Maintenance (first 5 years after planting)

- Regular mowing within the first growing season to max. height of 75-100mm, approx every 6 weeks.
- Cutting 2x annually after first growing season to height of 50-75mm.
- Cutting regime to vary, sections should be cut at different times ranging from late July to late August. An additional cut should take place before November to ensure grassland is left short over winter.
- To protect reptiles, only cut grassland during conditions when reptiles are active and able to move away from machinery (air temperatures above 9 °C). Cut from the centre outwards to encourage movement of reptiles into adjacent suitable habitat and avoid trapping reptiles in the path of machinery.
- Trim edges to hard standing and tree pit mulch circles.
- Arisings to be left in situ for several days to allow seed to fall, before removing.
- Undesirable weeds species will be removed or managed by spot treatment with herbicides.
- Watering to ensure moisture levels are maintained appropriate for optimum growth.
- Repair damaged or failed areas by re-seeding.
- Removal of litter to maintain the site in a tidy condition.
- Review and remove areas of encroaching scrub.

Maintenance Schedule

The below schedule includes the initial maintenance operations as well as long term maintenance requirements. The frequency and timings of each operation has been indicated for a typical annual cycle or as required.

		Time	of year	when n	nainten	ance op	eration	is requii	red or nu	umber o	of opera	tions ree	quired
Maintenance Operation	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Establishment Maintenance Operation	s (years 0-5 only)												
Mowing in first growing season	As required												
Trim edges to hard standing and tree mulch circles	As required or every two weeks in growing season												
Repair of damaged & failed areas	As required												
Removal of weeds	As required												
Watering of area to ensure moisture levels are appropriate	As required												
Establishment & Long Term Maintenan	ce Operations												
Weed control and removal (Long term frequency to be reviewed and reduced as required)	2 x Annually				1				1				
Removal of Litter	At time of each maintenance visit												
Removal of scrub	1x Annually											1	
Check for nesting birds prior to any management works	As required												

Long Term Management (year 6 onwards)

2.5 Native Shrub & Woodland Planting

Establishment Maintenance (first 5 years after planting)

- Control and removal of weeds by hand weeding or application of herbicide.
- Monitoring of any invasive or unwanted non native species, carry out control measures according to best practice at the time.
- Re-firming of plants/trees after strong winds, frost heave or other disturbances.
- Inspect and replace any missing or defective shelters, guards and stakes.
- Inspect trees/shrubs for dead, dying or diseased wood. Prune back to living wood, good growing points or main branches, do not leave any snags, cut back to branch collars avoiding any flush cutting. Avoid making any large spring cuts which could cause excessive bleeding.
- Prune if necessary to achieve natural shape, healthy growth, remove crossing or rubbing branches, correct any potential weak attachments or narrow V crotches and to favour a strong single leader.
- Any deadwood should be used to create small log piles to provide habitat in areas inaccessible or out of view of the public.
- Any fallen deadwood should be left in situ unless this poses a risk to the public.
- The removal of any failed, vandalised, unhealthy or dead specimens as soon as possible and provide replacements of the same size to those adjacent, where practicable during the next available planting season.
- Watering of plants to ensure moisture levels are maintained appropriate for optimum growth.
- Removal of litter from all planting areas to maintain site in a tidy condition.
- Inspection for signs of pest and disease, in cases of serious attack employ appropriate control measures.

Maintenance Schedule

The below schedule includes the initial maintenance operations as well as long term maintenance requirements. The frequency and timings of each operation has been indicated for a typical annual cycle or as required.

		Time of year when maintenance operation is required or number of operations required											
Maintenance Operation	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Establishment Maintenance Operation	s (years 0-5 only)												
Re-firming plant /trees	As required						All	Year					
Selective pruning for optimum growth	Annually												
Watering of area to ensure moisture levels are appropriate	As required												
Replace damaged / vandalised / unhealthy stock	Annually												
Establishment & Long Term Maintenan	ce Operations												
Monitor and control invasive and non- native species.	As required												
Weed control and removal (Long term frequency to be reviewed and reduced as required)	2 x Annually						1				1		
Removal of litter from planting beds (Long term frequency to be reviewed and reduced as required)	2 x Annually				1					1			
Inspect for pest and disease	1x Annually	1											
Check for nesting bird presence prior to any necessary remedial action.	As required												

Long Term Management (year 6 onwards)

2.6 Wetland Marginal & Emergent Aquatic Planting

Establishment Maintenance (first 5 years after planting)

- Selective removal of undesirable self seeded weeds;
- Cut back and remove selected areas of vegetation every 2-3 years in rotation;
- Cutting regime to vary in different areas by varying time and height of cut to help with habitat creation;
- Selectively thin dense stands of single species e.g reeds, water mint & yellow iris;
- Arisings to be used on site to create compost heaps and hibernacula;
- Watering to ensure moisture levels are maintained appropriate for optimum growth;
- Repair damaged or failed areas by re-seeding;
- Remove any failed, unhealthy or dead plug plants as soon as possible and provide replacements of the same specification, during the next available planting season;
- Removal of litter to maintain the site in a tidy condition.

Maintenance Schedule

The below schedule includes the initial maintenance operations as well as long term maintenance requirements. The frequency and timings of each operation has been indicated for a typical annual cycle or as required.

		Time of year when maintenance operation is required or number of operations required											
Maintenance Operation	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Removal of undesirable weeds	As required												
Selectively thin areas of planting	1 x every 2 years												
Cut back and removed areas of vegetation on rotation	1 x every 2 years												
Remove scrub and woody species	As required												
Cut reed beds	1 x every 4 years												
Excessive Algal, submerged and emergent plant growth to be removed	At time of each grass cut or maintenance visit												
Monitor for invasive non-native species, removal or control	At time of each grass cut or maintenance visit												
Replacement of damaged or failed seeded areas by re-seeding or plug planting	As required												
Replace damaged , failed or unhealthy plug stock	As required												
Watering of area to ensure moisture levels are appropriate in periods of drought (establishment period only)	As required												
Removal of Litter	At time of each grass cut or maintenance visit												
Check for nesting birds prior to any management works	As required												

Long Term Management (year 6 onwards)

2.7 Hard Surfaces

Maintenance (first 5 years after implementation)

Self Binding Gravel:

- Collect and remove all litter at each scheduled maintenance visit.
- Inspect path edging for damage or failure, make good or replace as required.
- Inspect surface for damage such as potholes. Repairs should be carried out as soon as a pot hole appears. Cut out a neat square around the pot hole and remove all material in that square down to the Type 1 sub-base. Fill the area with new Breedon gravel and compact using wacker plate or roller in accordance with installation specification.
- Weeds: spray the area with a water non residual based weedkiller. Never pull the weeds up out of the gravel, this will loosen the bonded surface.
- Remove moss using a water based weedkiller or moss remover and apply this to the affected area when dry (and no rain expected for a few days) using either a watering can with a rose, a sprayer, a roller or a soft brush. This should take a few days to start working, then use a light rake to loosen the moss and sweep away, however take care not to put too much pressure on the surface and loosen up the bonded gravel itself.
- Autumn leaves are to be removed from the surface by using a blower or a vacuum. Alternatively a very soft broom can be used to gently sweep off the surface leaves. Never use a coarse hard brush.

Maintenance Schedule

The below schedule includes the initial maintenance operations as well as long term maintenance requirements. The frequency and timings of each operation has been indicated for a typical annual cycle or as required.

		Time of year when maintenance operation is required or number of operations required											
Maintenance Operation	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Remove litter, debris and fouling from fall hard surfaces.	1x per month or at each scheduled maintenance visit	1	1	1	1	1	1	1	1	1	1	1	1
Removal or treatment of weeds, moss and algae from all surfaces	1x Annually									1			
Remove Autumn leaves from all surfaces	As required												
Inspect all surfaces and edging, make good, repair or replace.	2x Annually or as part of play area inspections.			1						1			

Long Term Management (year 6 onwards)

2.8 Street Furniture

Establishment Maintenance (first 5 years after implementation)

Seating, benches and picnic tables:

- Inspect all fixings every 3 months, repair and replace as required to maintain seating in a safe and fit for purpose condition.
- A visual check should be completed twice annually, any splinters or sharp edges of wood to be lightly sanded to remove them. Apply wood stain if needed post sanding.
- Wood should be coated with a proprietary wood treatment on an annual basis so as to preserve its appearance and longevity.
- Inspect all timber for signs of rot and decay twice yearly. Any benches or seats identified as no longer fit for purpose should be removed and replaced with a product either to the original specification or an equivalent product.
- Inspect all ground fixing (where applicable) to ensure benches and seating are secure and free from movement. Re-secure and make good as needed.

Litter bins:

- Empty bins every two weeks or to a scheduled time period agreed to meet usage requirements.
- Visually inspect every month for signs of damage. Repairs to be made in accordance with manufacturer's instructions.
- Clean every three months using mild soapy water or car wash and wax products using a soft brush or sponge, then rinsing with clean water.
- Remove graffiti using non-solvent cleaners such as car t-cutting compound or other specialist cleaner.

Maintenance Schedule

The below schedule includes the initial maintenance operations as well as long term maintenance requirements. The frequency and timings of each operation has been indicated for a typical annual cycle or as required.

		Time of year when maintenance operation is required or number of operations required											uired
Maintenance Operation	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All Street Furniture: Visually inspect for signs of damage. Repairs to be made in accordance with manufacturer's instructions.	12x Annually												
Seating & benches: Inspect all fixings, repair and replace as required.	4x Annually												
All timber street furniture: check for any splinters or sharp edges of wood to be lightly sanded to remove them.	2x Annually												
All timber street furniture: apply wood stain	1x Annually												
All timber street furniture: inspect for sign of decay, Repair or replace	2x Annually												
All Street Furniture: Inspect ground fixings, re-secure as required.	12x Annually												
Powder coated steel street furniture: wash down with soapy water	4x Annually												
Remove graffiti	As required												
Empty bins	Every two weeks or as agreed												

Long Term Management (year 6 onwards)



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