ARBORICULTURAL IMPACT ASSESSMENT (AIA)

December 2023

Four Seasons Glamping
Leisure Lakes Caravan, Camping and Outdoor Pursuits Centre
Mere Brow
Preston
PR4 6JX

URBAN GREEN

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2. Introduction

2.1. Instructions and References

2.1.1. Urban Green have been instructed by Four Seasons Glamping to carry out an Arboricultural Impact Assessment (AIA) in accordance with BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations at the site location and produce our findings in a report to be submitted as part of a detailed retrospective planning application.

2.1.2. All trees, regardless of their statutory status, are a material consideration in a planning application. BS 5837: 2012 recognises the potential conflict between trees and development. The standard sets out to assist those concerned with trees in relation to construction and aid with decision making. This is achieved by providing impartial and balanced information on trees and their potential impacts.

2.1.3. Due to the size and nature of the site, it was decided that the survey methodology would include broadly grouping trees that share very similar characteristics. This method is in line with point 4.4.2.3 of BS 5837: 2012 that states '*Trees forming groups...should be identified and considered as groups where the arboriculturist determines that this is appropriate... It may be appropriate to assess the quality and value of trees as a whole, rather than individuals.*'

2.1.4. The site is within the grounds of the Leisure Lakes Complex, located in the area indicated in Figure 1. The Ordnance Survey (OS) Grid Reference is SD 40795 17915.

Figure 1 – Site Location Plan.

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Reference T= Tree G = Group H = Hedge W = Woodland	Age & Species	Height (m)	Crown Ht (m)	Lowest Branch Height (m)	Lowest Branch Direction	DBH (mm)	Crown Spread (m) N W E S	Notes	Recommendations Priority	Recommendations Inspect Freq (yrs)	Visual Amenity 1-Low 2-Moderate 3-High 4-Very High	Physiological Condition Structural Condition	Life Expectancy (yrs) Retention Category	RPA Radius (m)
G1	Semi-Mature Oak *Quercus* spp.	av 14	av 2.5	0	n/a	av 400	av 6 6.5 8.5 5 each	1: Group of two turkey and two pedunculate oak growing in 2: Historic large-scale excavation of ground around root plates with structural root severance and decay evident. 3: Multiple pruning wounds due to crown lifting with good occlusion. 4: Multiple stems arising from ground level. 5: No imminent indication of failure, trees are structurally unstable with minimal long term value. Northernmost tree within falling distance of track.	Fell northernmost tree to 2m. Very High	1	2	Good Very Poor	<10 U1.2	4.80
G2	Early-Mature Silver Birch *Betula pendula*	av 15	av 4.5	3	NW	av 230	av 4 4 4 4 each	1: Linear group of four trees is small grass bund. 2: Branch snap outs, deadwood, bark wounds and decay cavities throughout. Fallen branch in situ with *Fomitopsis betulina* fungal bracket attached. 3: Audible indication of internal hollowing to all four trees. 4: Slightly sparse canopies. 5: Within falling distance of track.	Remove. High	n/a	1	Poor Fair	<10 U	n/a
T3	Early-Mature Silver Birch *Betula pendula*	14	3	2.5	N	240	4 5.5 4.5 3.5	1: Growing adjacent track with gorse understory, restricting inspection. 2: Trifurcated stem at ground level. Growing with pronounced lean east but appear structurally stable. 3: Small diameter deadwood noted, stubs present from previous branch loss. 4: Adequate clearance over track. 5: Acceptable condition at present.	No action required. n/a	3	2	Good Fair	40+ B1.2	2.88
T4	Mature Silver Birch *Betula pendula*	16	3	1.8	S	540	4.5 6 5 5.5	1: Growing at edge of grass verge adjacent track. 2: Multiple large bark wounds noted all around lower stem with some occlusion and wound wood formation. Multiple pruning wounds due to crown lifting, generally occluding well. 3: Large pruning wound from previous basal limb removal to south with decay evident. Large basal limb growing south has snapped at 1m, small amount of unidentified fungal fruiting body at site of old pruning wound to basal limb. 4: Canopy to south overhangs track with approximately 2m clearance currently. 5: Acceptable condition at present.	No action required. n/a	1.5	2	Fair Good	40+ B1.2	6.48

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G5	Semi-Mature Mixed Species	av 11	av 3.5	0.5	n/a	av 160	av 4.5 5.5 4 4.5 each	1: Linear group of grey alder, common alder and one goat growing along water body embankment with bramble understory preventing a detailed inspection. 2: Generally single stemmed and upright form, slight lean south away from adjacent track. 3: Minimal evidence of previous management, provides screen for barge glamming pod. 4: Canopies to north beginning to overhanging track and merge with adjacent canopies, approximately 3m overhead clearance currently. 5: Acceptable condition at present.	No action required. n/a	3	2	Good Good	40+ C1.7	192
G6	Semi-Mature Mixed Species	av 12	av 2.5	0	n/a	av 280	av 3 4 3 4.5 each	1: Linear group of silver birch and turkey oak with natural c pedunculate oak and gorse to ground flora adjacent track. 2: Multiple pruning wounds due to crown lifting, generally occluding well. 3: Canopies to south overhanging track with approximately 2m clearance currently. 4: Bark wounds noted throughout, generally occluding well. 5: Generally single stemmed with occasional bifurcated stem at ground level.	No action required. n/a	3	2	Good Good	40+ B1.7	3.36
T7	Dead Silver Birch *Betula pendula*	9	n/a	5	S	280	0 0 0 0	1: Dead specimen growing adjacent track. 2: Clusters of *Coprinus* sp. fungal fruiting bodies around entire base of stem. Multiple brackets of *Fomes fomentarius* all along stem. 3: Within falling distance of track.	Remove. High	n/a	1	Dead Dead	Dead U	n/a
T8	Semi-Mature Turkey Oak *Quercus cerris*	13	3.5	3	SW	340	4 4.5 3.5 4	1: Growing within G6 adjacent track. 2: Bifurcated stem at ground level. Secondary stem closest to track appears completely dead with deadwood up to approximately 100mm diameter overhanging track. 3: Occasional pruning wounds due to crown lifting with good occlusion, others have been made recently. 4: Birds nest noted to southwest canopy.	Remove dead stem. Moderate	1	2	Fair Good	40+ B1.7	4.0 8

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G9	Early-Mature Mixed Species	av 14	av 2.5	2	n/a	av 260	av 4.5 4 5 4 each	1: Moderately spaced mixed group of predominantly silver oak, pedunculate oak, and beech to north, with infrequent natural colonisation of pedunculate oak and sparse gorse and bramble understory. 2: Stem and bark wounds with good occlusion and wound wood formation and some minor decay, snapped branches, small diameter deadwood, and small decay cavities noted throughout. 3: Generally single stemmed and upright form with occasional specimens with bifurcated and trifurcated stems. 4: Minimal evidence of previous management. Bark wounds predominantly to lower stems of silver birch, possibly due to wildlife and/or vandalism. Evidence of recent small fires between occasional gaps in trees. 5: Low use area, acceptable condition at present.	No action required. n/a	3	3	Good Good	40+ B1.7	3.12
G10	Semi-Mature Silver Birch *Betula pendula*	av 12	av 4	2.5	S	av 340	av 2 3 3 3 each	1: Two trees growing between track and water body with ç restricting inspection. 2: Large bark wound noted to west of stem of westernmost tree from 0.5-1.5m above ground level with some wound wood formation. 3: Small diameter deadwood and stubs from previous branch loss noted. 4: Adequate clearance from track. 5: Acceptable condition at present.	No action required. n/a	2 1.5	2	Fair Good	40+ B1.7	4.08
G11	Semi-Mature Silver Birch *Betula pendula*	av 13	av 3.5	2.5	S	av 310	av 4.5 4 4.5 3.5 each	1: Three trees growing in grassed area with multiple stems level. Bark wounds noted to lower stems throughout with some occlusion. 2: Occasional wounds and stubs present due to self pruning. 3: Decay cavity noted at base of northernmost tree with minimal indication of internal hollowing. 4: Small diameter deadwood noted. 5: Acceptable condition at present.	No action required. n/a	2 1.5	2	Good Fair	40+ B1.7	3.72
T 12	Dead Silver Birch *Betula pendula*	7	n/a	2	n/a	200	0 0 0 0	1: Dead specimen adjacent track.	Remove. High	1 n/a	1	Dead Dead	Dead U	n/a

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T 13	Semi-Mature Silver Birch *Betula pendula*	12	6	4	E	220	1.5 2 2 1.5	1: Growing in grassed area adjacent track. 2: Bifurcated stem at 3m above ground level with upright form. 3: Bark wounds noted to lower stem with some occlusion. 4: Occasional pruning wounds due to crown lifting. 5: Acceptable condition at present.	No action required. n/a	3	1	Good Good	40+ C1.7	2.64
W 14	Semi-Mature Mixed Species	av 18	av 8	0	n/a	av 300	av 4.5 4.5 4.5 4.5 each	1: Moderately spaced woodland group containing predominantly silver birch with turkey oak, pedunculate oak, and sessile oak with occasional beech. Ground cover dominated by grass with sections of bramble, denser to the west. 2: Generally single stemmed and upright form. 3: Bark and stem wounds to lower stems throughout. Occasional standing and fallen dead trees within group pose no significant risk. 4: Evidence of fires in occasional spaces between trees. 5: Acceptable condition at present.	No action required. n/a	3	4	Good Good	40+ B1.7	3.60
T 15	Early-Mature Turkey Oak *Quercus cerris*	18	4	2.5	S	420	7 5 7.5 6	1: Growing at edge of W14 in grass verge adjacent track and 2: Bifurcated stem at ground level. 3: Occasional pruning wounds due to crown lifting with some occlusion, small stubs also present. 4: Bark wounds noted to lower stem with good occlusion, small diameter deadwood noted. 5: Acceptable condition at present.	No action required. n/a	3	3	Good Good	40+ A1.7	5.0 4
T 16	Semi-Mature Silver Birch *Betula pendula*	18	6	4	S	270	2 4 5 2	1: Growing at edge of W14 adjacent track and static home. 2: Single stemmed and upright form. 3: Bark wounds noted to lower stem with some occlusion. 4: Unidentified fungal fruiting body to north of stem at base. 5: Acceptable condition at present.	No action required. n/a	1.5	1	Good Good	40+ C1.7	3.24
G17	Early-Mature Oak *Quercus* spp.	av 18	av 5	3.5	NE	av 460	av 6.5 6 6 6 each	1: Group of two pedunculate oak and two turkey oak at edg track, chalet, and static home. 2: Single stemmed and upright form with high canopies. 3: Bark wounds noted to lower stems, generally occluding well with some areas of minor decay. 4: Occasional stubs and small diameter deadwood noted. 5: Dead branches to south overhanging chalet.	Prune dead branches. Moderate	1.5	3	Good Good	40+ A1.7	5.52

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G18	Semi-Mature Silver Birch *Betula pendula*	av 18	av 8	0	n/a	av 230	av 2.5 2.5 2.5 2.5 each	1: Growing at edge of W14 adjacent static home and chalet. 2: Single stemmed and upright form. 3: Bark wounds noted to lower stems with some occlusion. 4: Small diameter deadwood noted. 5: Acceptable condition at present.	No action required. n/a	3	1	Good Good	40+ U1.7	2.76
T19	Early-Mature Turkey Oak *Quercus cerris*	18	8	4.5	W	480	5.5 5.5 5.5 5.5	1: More open grown tree at edge of W14 adjacent track and chalet. 2: Stubs present to lower stem from previous branch removal with small amount of epicormic growth at site of pruning wounds. 3: Single stemmed and upright form. 4: No significant defects observed, one dead branch stub to south at 6m over low use area. 5: Acceptable condition at present.	No action required. n/a	3	3	Good Good	40+ A1.7	5.76
G20	Semi-Mature Silver Birch *Betula pendula*	av 18	av 10	0	n/a	av 210	av 2.5 2.5 2.5 2.5 each	1: Linear group at edge of W14 adjacent chalet. 2: Single stemmed and upright form. 3: Small diameter deadwood noted. 4: Old discarded furniture stored against stems. 5: Acceptable condition at present.	No action required. n/a	3	2	Good Good	40+ U1.7	2.52
G21	Early-Mature Mixed Species	av 15	av 2	0	n/a	av 340	av 4 4 4 4 each	1: Group of six silver birch and one turkey oak in grassed are and parking. 2: Single stemmed, slight curves to lower stems but overall upright form. 3: Other smaller trees within group topped at 1m. 4: Occasional stubs and pruning wounds due to crown lifting, small diameter deadwood noted. 5: Acceptable condition at present.	No action required. n/a	3	2	Good Good	40+ B1.7	4.08
T22	Early-Mature Turkey Oak *Quercus cerris*	16	4	4	SE	450	6 6 6 6	1: Growing adjacent G21 at edge of water body. 2: Single stemmed and upright form, stem leans east slightly. 3: Occasional pruning wounds due to crown lifting with good occlusion. 4: Small diameter deadwood noted. 5: Acceptable condition at present.	No action required. n/a	3	2	Good Good	40+ B+1.7	5.40
T23	Early-Mature Downy Birch *Betula pubescens*	12	3	2.5	SE	260	3.5 3.5 3.5 3.5	1: Growing at edge of glamping island and entrance bridge. 2: Bifurcated stem at ground level and upright form. 3: Multiple pruning wounds due to crown lifting, generally occluding well. 4: Fairy lights on lower stem and branches. 5: Acceptable condition at present.	No action required. n/a	3	3	Good Good	40+ B1.7	3.12

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G24	Semi-Mature Mixed Species	av 13	av 4	2	n/a	av 160	av 2.5 2.5 2.5 2.5 each	1: Group of three silver birch, one downy birch, and one tur glamping island. 2: Single stemmed and upright form, slight lean north towards water body. 3: Occasional bark wounds noted to lower stems with some occlusion, one small basal cavity noted. 4: Fairy lights on lower stems. Stems of oak and silver birch to east are crossing/rubbing at 0.5m. 5: Acceptable condition at present.	No action required. n/a	3	2	Good Fair	40+ C1.2	192
G25	Early-Mature Downy Birch *Betula pubescens*	av 14	av 2.5	0	S	av 320	av 4 4 4 4 each	1: Restricted access prevented a detailed inspection. 2: One single stemmed tree and one tree with bifurcated stem at ground level growing close to glamping chalet. 3: Occasional stubs and pruning wounds due to crown lifting, generally occluding well. 4: Canopies to east overhanging chalet with adequate clearance currently. Birds nest noted within canopy. 5: Included union noted to easternmost stem of bifurcated tree at 3.5m.	No action required. n/a	1.5	2	Good Good	40+ B1.2	3.84
T26	Semi-Mature Silver Birch *Betula pendula*	14	6	5.5	N E	240	2.5 2.5 2.5 2.5	1: Growing in gravel pit adjacent chalet. 2: Single stemmed and upright form. 3: Large wounds to lower stem to south with good wound wood formation. 4: Fairy lights on stem. 5: Acceptable condition at present.	No action required. n/a	1.5	2	Good Good	40+ B1.2	2.88
G27	Early-Mature Mixed Species	av 14	av 3	0	n/a	av 220	av 4.5 4.5 4.5 4.5 each	1: Restricted access prevented detailed inspection. 2: Four silver birch and one pedunculate oak built into chalet of water body. 3: *Fomitopsis betulina* fungal bracket noted to central stem of largest silver birch with previously snapped limb above. 4: Deadwood noted overhanging water body poses no significant risk. 5: Stubs present from previous branch removal.	Remove central stem of southernmost silver birch. High	1	4	Good Fair	20-40 B1.2	2.64
T28	Early-Mature Silver Birch *Betula pendula*	14	2.5	2.5	E	190	4 3 3 1.5	1: Growing in woodchip bed in grassed area adjacent chalet. 2: Bifurcated stem at ground level with gorse growing around base, restricting inspection. 3: Slight lean north towards water body but appears structurally stable. 4: Bark wounds noted to lower stem with some occlusion. 5: Fairy lights crossing stem to south.	No action required. n/a	1.5	2	Good Fair	40+ B1.2	2.28

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T29	Semi-Mature Silver Birch *Betula pendula*	9	2	2	SE	120	3 / 3 / 3 / 3	1: Growing at edge of water body adjacent chalets. 2: Bifurcated stem at ground level with upright form. 3: Occasional pruning wounds due to crown lifting with some occlusion. 4: Acceptable condition at present.	No action required.	n/a	1	Good / Good	40+ / C1.2	144
G30	Young Mixed Species	av 6	2	0	n/a	av 100	av 3 / 3 / 3 / 3 each	1: No access and limited inspection. 2: Growing out of water just beyond island edge. 3: Predominantly goat willow with hawthorn and rowan. 4: Acceptable condition at present.	No action required.	n/a	1	Good / Fair	40+ / C1.2	120
T31	Semi-Mature Downy Birch *Betula pubescens*	10	2	1	E	150	3 / 3 / 3 / 3	1: Growing at island edge adjacent chalets. 2: Multiple stems arising from ground level. 3: Bark wounds to lower stems with some occlusion. 4: Occasional pruning wounds due to crown lifting with some occlusion. 5: Acceptable condition at present.	No action required.	n/a	2	Good / Good	40+ / C1.2	1.80
G32	Semi-Mature Mixed Species	av 10	av 2	0	n/a	av 180	av 3.5 / 3.5 / 3.5 / 3.5 each	1: Restricted access prevented detailed inspection. 2: Linear group of oak, hawthorn and alder at island edge adjacent chalet. 3: Multiple pruning wounds due to crown lifting with some occlusion. 4: Provides screen to chalet, some stems lean north towards water body but overall upright form. 5: Acceptable condition at present.	No action required.	n/a	2	Good / Fair	40+ / C1.2	2.16
T33	Early-Mature Silver Birch *Betula pendula*	14	6	6	n/a	350	3 / 3 / 3 / 1.5	1: Restricted access prevented detailed inspection, growing in fenced off area of chalet. 2: Bifurcated stem at ground level with upright form. 3: Fairy lights on stems. 4: Acceptable condition at present.	No action required.	n/a	3	Good / Fair	40+ / B1.2	4.20
T34	Early-Mature Downy Birch *Betula pubescens*	10	2.5	1.8	S	270	3.5 / 3.5 / 3.5 / 3.5	1: Growing within chalet structure, no access to base and l 2: Bifurcated stem at 1.8m above chalet ground level, stem leans north but appears structurally stable. 3: Multiple pruning wounds due to crown lifting with minimal occlusion and minor decay evident. 4: Fairy lights on stems. 5: Acceptable condition at present.	No action required.	n/a	4	Good / Fair	40+ / A1.2.3	3.24

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T35	Early-Mature Sessile Oak *Quercus petraea*	16	4	1	S	470	5.5 5.5 5.5 5.5	1: Limited access prevented a detailed inspection. 2: Growing at edge of two glamping structures in slightly raised pebble bed. 3: Wound to west of stem at 0.5-1m with good wound wood formation. 4: Single stemmed and upright form. 5: Acceptable condition at present.	No action required. n/a	3	4	Good Good	40+ A1.2	5.64
T36	Early-Mature Silver Birch *Betula pendula*	14	2	1.8	n/a	160	2.5 2.5 2.5 2.5	1: Growing in raised pebble bed adjacent chalet. 2: Single stemmed, slight lean south but appears structurally stable. 3: Canopy to west encroaching chalet roof. 4: Fairy lights on stem. 5: Acceptable condition at present.	No action required. n/a	3	2	Good Fair	40+ B1.2	192
G37	Young Mixed Species	av 9	av 2	2	n/a	av 120	av 3 3 3 3 each	1: Linear group of silver birch and common alder at island ed chalet. 2: Wounds noted to lower stems with some occlusion. 3: Single stemmed and overall upright form. 4: Provides screen to chalet. 5: Acceptable condition at present.	No action required. n/a	3	2	Good Good	40+ C1.2	144
T38	Early-Mature Sessile Oak *Quercus petraea*	18	4	2	SW	610	6 6 6 6	1: Growing within chalet structure with no access to base, inspection. 2: Bifurcated stem at 1.7m above chalet ground level with upright form. 3: Fairy lights on stems. 4: Acceptable condition at present.	No action required. n/a	1	4	Good Good	40+ A1.2.3	7.32
G39	Young Alder (common) *Alnus glutinosa*	av 8	av 1	0.5	n/a	av 110	av 2.5 2.5 2.5 2.5 each	1: Linear group of self set trees growing between two sheds. 2: Minimal evidence of previous management. 3: Acceptable condition at present.	No action required. n/a	3	1	Good Good	40+ C1.2	1.32
T40	Early-Mature Sessile Oak *Quercus petraea*	18	4.5	4	n/a	500	5.5 5.5 5.5 5.5	1: No access and severely limited inspection. 2: Growing in fenced off area at island edge adjacent chalet. 3: Occasional pruning wounds due to crown lifting with some occlusion. 4: Single stemmed and upright form. 5: Acceptable condition at present.	No action required. n/a	1	3	Good Good	40+ A1.2	6.00

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									Priority	Inspect Freq (yrs)	1-Low 2-Moderate 3-High 4-Very High	Structural Condition	Retention Category	(m)
T41	Young Turkey Oak *Quercus cerris*	6	1.5	1.8	SE	130	N 3.5 W 3.5 E 3.5 S 3.5	1: Small tree growing in woodchip bed at island edge. 2: Bifurcated stem at ground level. 3: Occasional pruning wounds due to crown lifting with good occlusion. 4: Acceptable condition at present.	No action required. n/a	3	1	Good Fair	40+ C1.2	156
T42	Young Silver Birch *Betula pendula*	7	2.5	2	N	10 0	N 1.5 W 1.5 E 1.5 S 1.5	1: Small tree growing in woodchip bed at island edge. 2: Single stemmed, slight curve to lower stem but overall upright form. 3: No evidence of previous management. 4: Acceptable condition at present.	No action required. n/a	3	1	Good Good	40+ C1.2	120

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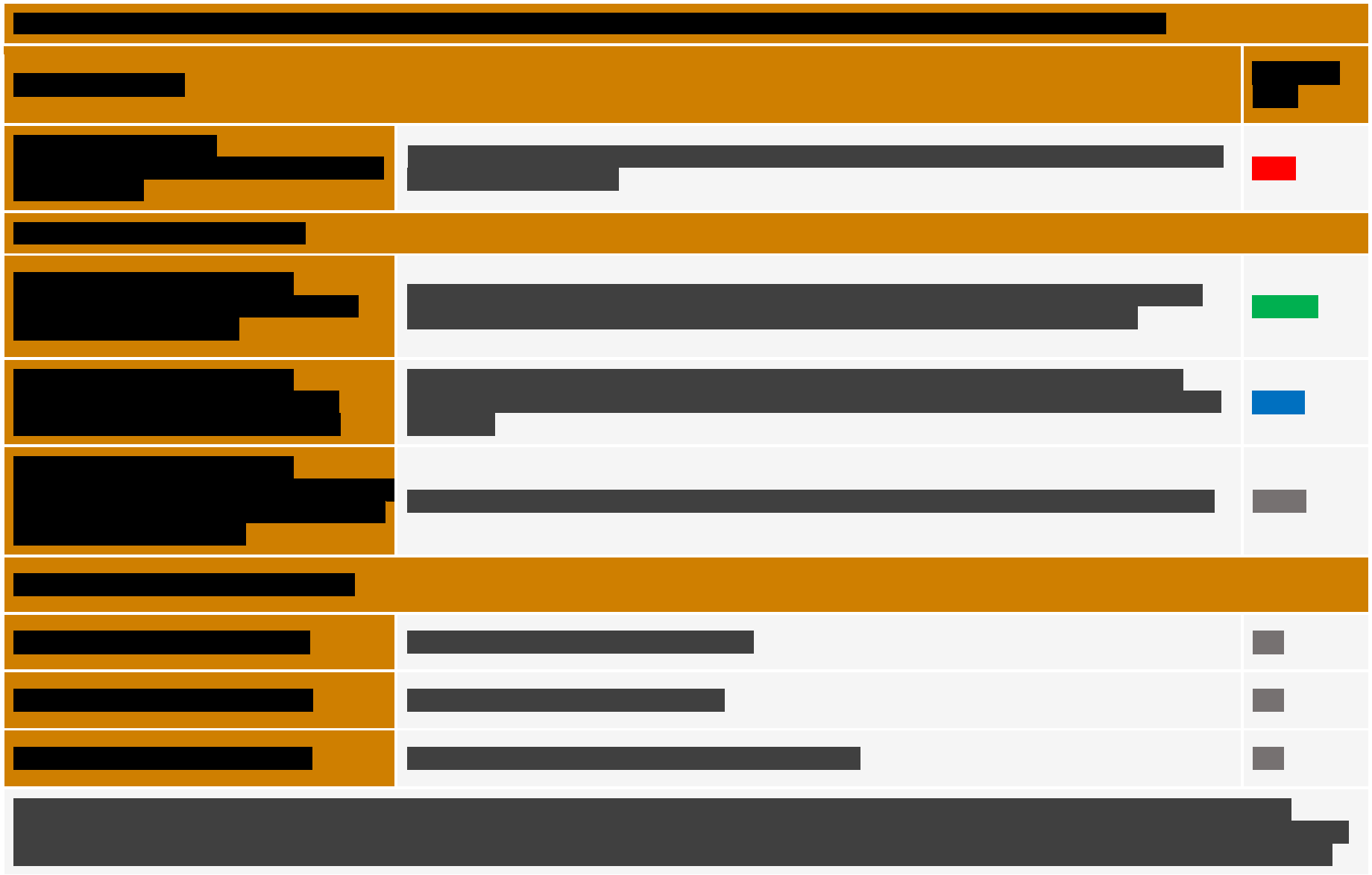

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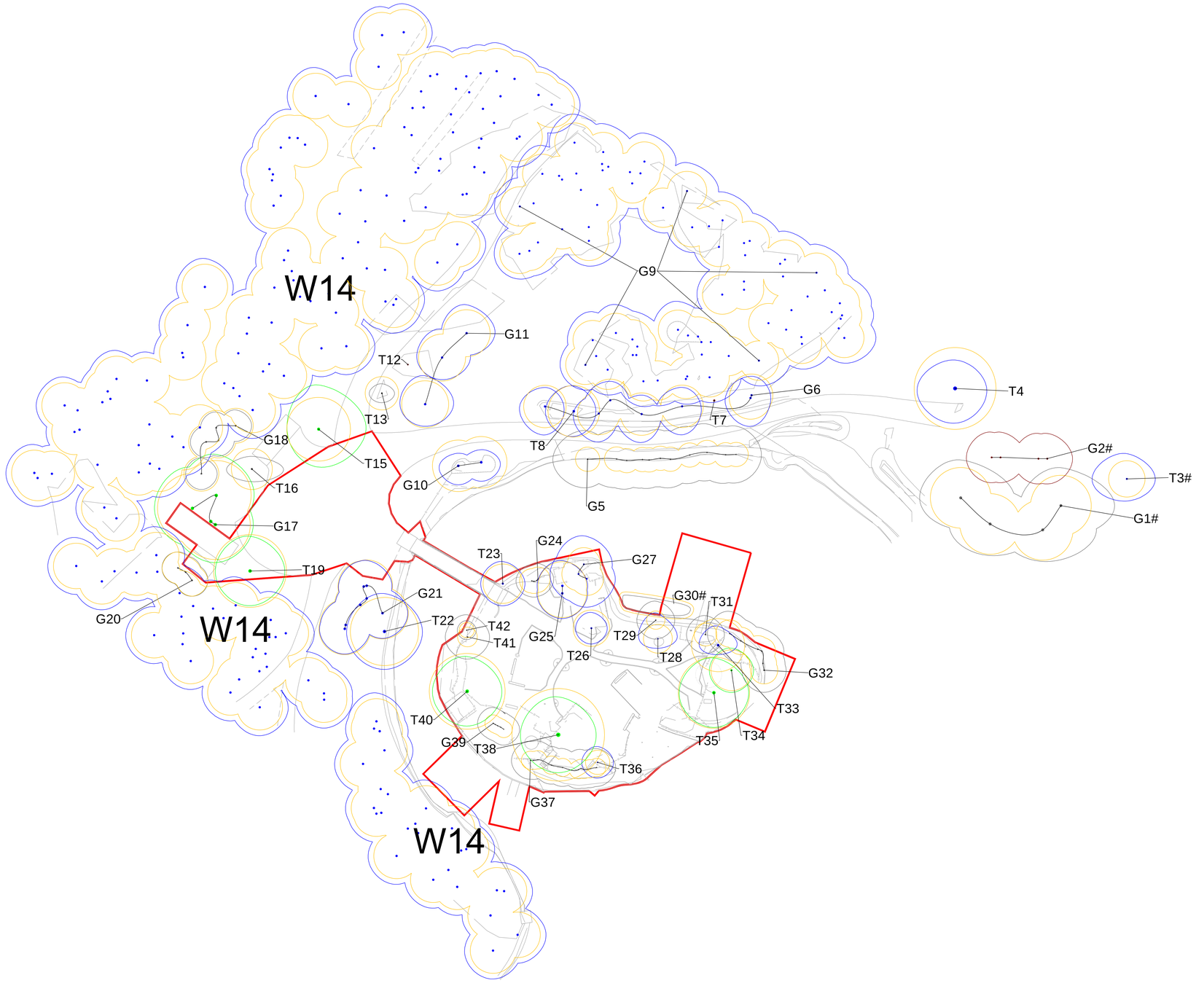

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Notes:-

BS 5837: 2012 Retention Category A Tree, Group or Hedge

BS 5837: 2012 Retention Category B Tree, Group or Hedge

BS 5837: 2012 Retention Category C Tree, Group or Hedge

BS 5837: 2012 Category U Tree, Group or Hedge

Root Protection Area (RPA)

Position Estimated on Site

Redline Site Boundary

REV.	DATE	DESCRIPTION	DRAWN	CHK'D

URBAN GREEN

A: Ground Floor, The Tower, Deva City Office Park, Trinity Way, Manchester M3 7BF

T: +44 (0) 161 312 3131

weareurbangreen.co.uk

Client:
FOUR SEASONS GLAMPING

Project:
FOUR SEASONS GLAMPING, LEISURE LAKES

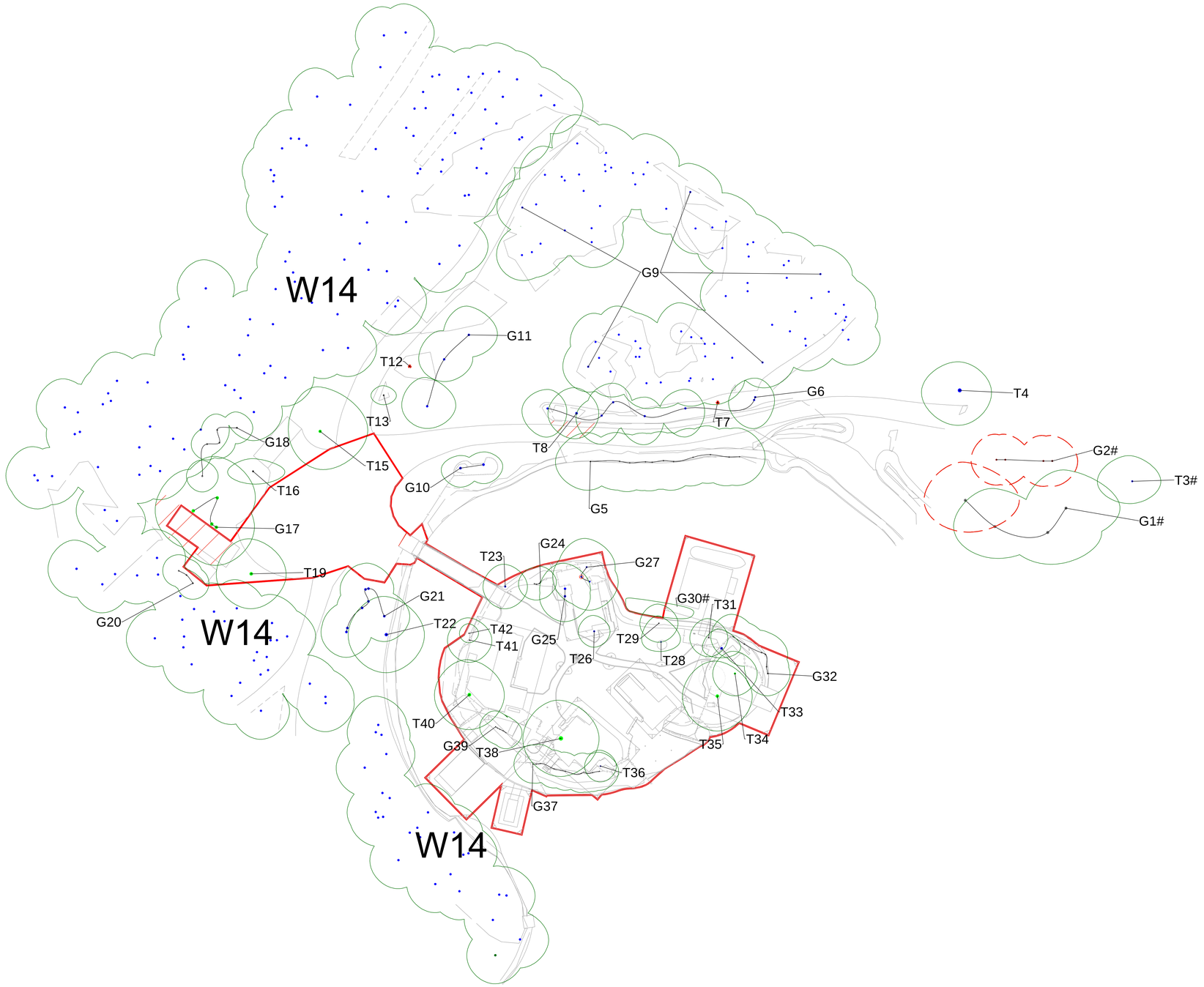
Title:
TREE CONSTRAINTS PLAN

Issue:
PLANNING

Drawn:	Checked:	Approved:
AH	MK	MK

Project:	Scale @ A0:	Date:
UG2292	1:250	17/11/23

Dwg No:	Revision:
UG_2298_ARB_TCP_01	00



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Notes:-

- BS 5837: 2012 Retention Category A Tree, Group or Hedge
- BS 5837: 2012 Retention Category B Tree, Group or Hedge
- BS 5837: 2012 Retention Category C Tree, Group or Hedge
- BS 5837: 2012 Category U Tree, Group or Hedge
- Retained Tree
- Removed Tree
- Extents of Pruning
- # Position Estimated on Site
- Redline Site Boundary

REV.	DATE	DESCRIPTION	DRAWN	CHK'D

URBAN GREEN

A: Ground Floor, The Tower, Deva City Office Park, Trinity Way, Manchester M3 7BF

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Client: FOUR SEASONS GLAMPING

Project: FOUR SEASONS GLAMPING, LEISURE LAKES

Title: TREE REMOVAL PLAN

Issue: PLANNING

Drawn:	Checked:	Approved:
AH	MK	MK

Project:	Scale @ A0:	Date:
UG2292	1:250	17/11/23

Dwg No:	Revision:
UG_2292_ARB_TRP_01	00

Tree Works Schedule

Tree Number	BS 5837: 2012 Retention Category	Species	Works Required	Reason
G1	C	Oak spp.	Fell northernmost tree in group to 2 metres above ground level	Arboricultural best practice
G2	U	Silver Birch	Fell to ground level	
T7				
T8	B	Turkey Oak	Fell dead stem to ground level	
T12	U	Silver Birch	Fell to ground level	
G17	A	Oak spp.	Selectively prune to remove dead branches	
G27	B	Mixed Species	Fell central stem of southernmost tree to ground level	

REV.	DATE	DESCRIPTION	DRAWN	CHK'D

URBAN GREEN

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Client:
FOUR SEASONS GLAMPING

Project:
FOUR SEASONS GLAMPING, LEISURE LAKES

Title:
TREE WORKS SCHEDULE

Issue:
PLANNING

Drawn:	Checked:	Approved:
AH	MK	MK
Project:	**Scale @ A0:**	**Date:**
UG2292	N/A	17/11/23
Dwg No:		**Revision:**
UG_2292_ARB_TWS_01		00

[redacted]

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[redacted]

KEY

- APPLICATION SITE BOUNDARY

LAND COVER:

- BUILDINGS
- ROADS
- WATER BODIES
- GRASSLANDS
- EXISTING VEGETATION
- PROPOSED VEGETATION

Outline Accomodation Schedule

1. Floating Holiday Homes	33
2. Woodland Holiday Homes	106
3. Static Caravans	225
Total	**364**

URBAN GREEN

Project: Leisure Lakes	Notes:-	Designed By: MS	Checked By: AT	Approved: MK	Scale@ A1: 1:2500
Title: Illustrative Masterplan	N	Drawing No: 11302_L02	Date: 17/07/17	Client: Leisure Lakes	Revision: P03

[redacted]

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2017/0756/OUT. [redacted]

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HABITAT CREATION, MANAGEMENT AND MAINTENANCE PLAN

THE MERE, MERE BROW
ON BEHALF OF LEISURE LAKES Ltd.

APRIL 2017
REV C (APRIL 2018)

URBAN GREEN

Leisure Lakes
Outdoor Pursuits Watersports
and Caravan Park

Contents

Introduction

This Management Plan has been produced by Urban Green on behalf of Leisure Lakes Ltd to provide a framework for the creation and long term habitat management of the proposed Masterplan at Leisure Lakes, Mere Brow. This land is located in the parish of Tarleton, approximately 8km east of Southport within Lancashire is shown in Appendix 1 Plan 1.

This document provides details of the creation, enhancement and management of both new and existing landscape and ecological elements that form part of the Masterplan proposals at Leisure Lakes.

This plan covers the application site as shown in Appendix 1 Plan 1, has been based upon the Arboricultural, Ecological and Landscape Architectural input carried out for the outline planning submission of the site and contributes to the recommendations contained within the relevant reports of each discipline above for the proposed development.

This report is structured as follows:

a) Section 2 sets out the management considerations and responsibilities to be taken on board by the managing organisation.
b) Section 3 summarises the significant Constraints, Opportunities and Threats
c) Section 4 sets out the Management Plan Intentions
d) Section 5 deals with the habitat creation, landscape and ecological proposals and existing landscape and ecological enhancements to the site; in respect of identifying and describing each landscape and ecological element proposed and existing within the development.
e) Section 6 summarises the strategic vision of the management plan through a description of the key aims and objectives of the plan.
f) Section 7 describes the management and maintenance operations and services to be undertaken by the managing organisation to ensure the establishment and long term interests of the ecology and landscape of the site.
g) Section 8 sets the objectives of the maintenance specification and maintenance regime to fulfill the vision of the management plan.
h) Section 9 provides the specific management and maintenance operations schedule for year 1 and then from year 2 to 5 onwards.
i) Section 10 sets out the possibilities for Community involvement and interpretation
j) Section 11 includes for the ongoing monitoring and review of the management plan
k) Section 12 describes the scope and limitations of the plan
l) Section 13 summarises the source documents used to inform the plan
m) Appendix A contains plans described within this document for information.
n) Appendix B contains the Arboricultural Impact Assessment
o) Appendix C contains the Arboricutural Method Statement
p) Appendix D contains the Construction Environmental Management Plan

URBAN GREEN

Leisure Lakes
Outdoor Pursuits Watersports and Caravan Park

1 - Background Information

1 - Background Information

1.1 Location

Nearest town, village or feature:	Mere Brow
Grid reference:	D 41133 17915
Total area (approx ha):	48.0

1.2 Description of the Site in the Landscape

The Mere site is situated to the south of the village of Mere Brow and sits within a landscape comprising a largely flat area of land in the coastal plain characterised by high quality arable fields, drainage ditches and small parcels of woodland.

It is a distinctive landscape of open exposed character. It is low lying flat land with a few woodlands, mostly in geometric blocks, long straight drainage channels and large geometric fields.

The site falls within Natural Area 13 Lancashire Plain and Valleys. The area is recognised for its importance to wintering populations of wildfowl and waders which use the area's coastal plains and grazing marshes.

The woodland at Mere Brow and Holmeswood influence the visual quality of the landscape.

The site lies within the green belt and a significant area including the woodland is also designated as a Lancashire County Council Biological Heritage Site. (BHS 41NW01)

Four biological heritage sites are located within 2km and include The Mere, Mere Brow:

- **Mere Brow (Leisure Lakes) -** This 48 hectare compartment comprises the Leisure Lakes facility and is built upon a former sand quarry which represents a diverse mix of habitats. Of particular note, water violet and bird's foot have been identified and Water Voles are present.
- **Holmes Wood -** A bird reserve with two molluscs of importance, prickly snail and English chrysalis snail
- **Nucks Wood -** Providing habitat for bird and invertebrate species.
- **Martin Mere -** A large area of marsh and conservation importance to many breeding and wintering/passage birds.

1.3 Description of the woodland

The Leisure Lakes facility is an existing recreational area including caravans, boating water, fishing, golf, stables and is a location for the enjoyment of the landscape. The site is primarily used for leisure pursuits. Vehicular access is via the Gravel from Mere Brow.

The area was formerly used during the last decades of the 20th century for the extraction of sand and gravel. The site also contains areas of pasture. It contains the following habitat and is located approximately 450 metres to the south west of the Mere Brow rural settlement:-

- Broadleaved woodland
- Scrub
- Open water
- Ditches
- Ruderal vegetation
- Semi improved grassland
- Short / ephemeral vegetation
- Bare ground

A 48 Ha area of the site was designated as a Biological Heritage Site in June 1994.

A Woodland Tree Preservation Order was made on the site in 2008 to protect the existing trees. The site was designated due to the presence of a wide range of habitats, the combination of wetland and dry habitats makes this a very valuable wildlife site and its interest is enhanced by the extent of semi natural landscape.

The woodland is visible across the flat coastal plain and as a result is an important feature in the local setting.

The woodlands comprise self-seeded birch in the early mature stage. A small percentage of very young oak form a succession to the birch woodland. In heavily used areas the understorey and natural regeneration is suppressed.

FIGURE 1. Aerial View of The Mere, Mere Brow, (The Leisure Lakes Site)

WOODLAND MANAGEMENT PROGRAMME BOUNDARY

BIOLOGICAL HERITAGE SITE BOUNDARY

The BHS is designated principally for the woodland which falls within its boundaries, but also for a number of other elements, including remnant heathland and Birdsfoot. Following site surveys, it was confirmed that there is only one small area of remnant heathland remaining within the woodland northeast of the eastern lake. Birdsfoot was identified on the eastern and southern shores of the lake.
None of the proposed development areas will affect the areas of heathland and Birdsfoot. Proposed management of the areas will seek to enhance the existing habitats, including additional areas of woodland and woodland management which will ensure that all habitats identified as part of the BHS will not only be protected, but will be enhanced as part of the proposals.

2 - Management Considerations

2 - Management Considerations

2.1 Policy Context

The following documents form the policy context for the woodland with reference to the management of the BHS and for development.

2.1.1 Local and National Planning

The National Planning Policy Framework (NPPF), (2012)
The NPPF provides the planning policy framework and recognises the importance of Local Sites (referred to as BHS in Lancashire).

2.1.2 West Lancashire Local Plan (2012- 2027)

Policies within the Local Plan require the planning system to contribute to and enhance the natural and local environment in planning for development and preserving environments by minimising impacts on biodiversity through conservation or mitigation.

Relevant West Lancashire Local Plan (WLLP) policies:
DS2 – Green Belt
EN1 – Biodiversity
EN9 – Protecting Trees and Woodlands
EN10 – Flood Risk
GD 1 – Design of Development
Relevant West Lancashire Local Plan (2012-2027) Submitted document policies:
EN2 – Preserving and Enhancing West Lancashire's Natural Environment
GN3 – Criteria for Sustainable Development
In addition the following supplementary documents are material considerations:
SPD – Design Guide (Jan 2008)
SPD - Development in the Green Belt (October 2015)

2.1.3 Landscape History Importance of County significance

The site lies within an area of Landscape History Importance of County significance and the Martin Mere and Environs Landscape Character Area.

2.1.4 Green Belt

The whole site is allocated Green Belt in the Local Plan.

2.1.5 Biological Heritage Site (BHS 41NW01)

A substantial part of the site – the area south-west of the touring caravan site including all woodland areas, the two lakes, lake fringes and parts of mixed grassland situated between Tarleton Runner watercourse to the west and Mere Brow Watercourse to the east was allocated as a Biological Heritage Site in June 1994 and is covered by Policies EN1 and EN2 in the Local Plan.

DEFRA Local Sites guidance emphasises that Local Sites (BHS) are of substantive nature conservation value and recognises that Local Sites have a fundamental role to play in helping biodiversity. All recommendations in this WMP are consistent with the lands situation within the BHS.

2.1.6 Tree Preservation

The site is covered by a Woodland Tree Preservation Order, in 2008. The site was designated due to the presence of a wide range of habitats, the combination of wetland and dry habitats makes this a very valuable wildlife habitat site and its interest is enhanced by the extent of semi natural habitat.
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2.2 Management Responsibilities

The implementation of this management plan will be the responsibility of the land owner. Any transference of responsibility of this plan should be undertaken with the appropriate appointment of a competent organisation capable of delivering the detailed measures within this document.

The organisation and implementation of this plan will be undertaken by a management company with the necessary certificates of competence to implement landscape management operation on site. Where practical, contractors with experience in habitat creation and biodiversity management will be sought. The managing organisation will ensure that management complies with best practice standards and all relevant health and safety procedures, protection of the environment, avoidance of pollution and protection of protected species and habitats.

2.3 Health and Safety

The site will be managed to comply with all relevant health and safety legislation, approved codes of practice (ACOP'S) and Health and Safety Executive (HSE) guidance.

As the managing organisation will be the main company involved in on site works, the managing organisation will fulfil the landowner's role and the work mangers role. This places an obligation on the managing company to ensure that any contractor understands and fulfils their health and safety role and any work undertaken on the site will follow the guidelines of the HSE.

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3. Significant Constraints, Opportunities and Threats

3.1 Significant Constraints, Opportunities and Threats

The provision of public access for leisure purposes has always been the primary objective at The Mere since gravel extraction ceased. The woodlands attract many local and visiting walkers and there is lower level usage by local horse riders and fishermen.

The woodland currently present on site has been divided into areas, labelled areas A-G, for ease of reference. A plan identifying the location of the areas is contained below as Illustration 2.

A	SOUTH WEST WOODLAND
B	MOTOCROSS AREA
C	CHALET AREA (Planning Permission Ref. 8/91/917)
D	EASTERN WOODLAND
E	NEW WOODLAND HABITAT
F	NEW WOODLAND COMPENSATION HABITAT
G	THE CARAVAN SITE AND CAR PARKING AREAS
H	18-HOLE GOLF COURSE

Illustration 2
Map illustrating proposed areas throughout site, including woodland zones A-H

The use of woodland in area A of the zoning map for paint-balling has had a significant effect on the health of the young birch woodland and its succession to maturity. This activity has now ceased under the current management. In the northerly part of area A where paintballing and camping activities have not taken place, an understorey of dense bramble scrub has developed.

Area B to the south of site is a small wooded area situated centrally within the motocross track. The woodland is currently of low value due to the lack of previous management. The majority of trees are semi-mature and have been unable to develop to maturity. The area would benefit from additional planting that aims to link the existing trees. Management practices can also be implemented that aim to encourage stronger specimens to develop and allow for ground flora regeneration.

Area C is an area of silver birch woodland where bramble scrub encroachment has been suppressed by camping activities. Ground flora consists mainly of common grasses and short ephemeral species.

Situated centrally on the western boundary linking the onsite section of the BHS to that found on third party property lies a significant wooded area comprising of well-developed Turkey Oak. This area (area D) benefits from an open and inviting appearance that should be retained. There is a small area of remnant heathland habitat within this area of woodland that has suffered from overshading from encroaching trees.

Area G is the most well developed areas of the site, consisting of the site entrance, associated access and parking areas along with existing buildings and caravan Park. Vegetation in this area is fragmented and predominantly of low value. To the north west of the area is the caravan park which is surrounded by a large quantity of trees, most noticeably to the south (area C) and to the north and west with well-established trees screening the existing golf driving range.

Overall there are substantial areas of woodland across the site, however, they are separated from each other and do not form a cohesive feature across the site. Creating linkages by additional planting across the site will provide significant ecological and landscape enhancement across the site.

In its current state the tree stock onsite is lacking in species diversity, as such, can be significantly affected by pest, disease and climatic change. Greater species biodiversity can lead to enhanced resilience to future threats.

The northern sections of the site (existing driving range, 9-hole golf course, equine facilities, proposed driving range, entrance and proposed 18-hole golf course - Area H) primarily comprise of open land with limited tree cover. Trees in these area tend to form the boundaries of open fields.

The increasing range and numbers of recreational users has led to localised degradation of the woodlands and the adoption of the Habitat Creation, Enhancement and Landscape Management Plan is intended to help sustain leisure activity within the BHS through strategic and active management.

It is considered highly desirable that a more formal woodland management structure for the site be established and adopted by all parties involved.

Large parts of the site are sub-let as concessions for leisure activities. A means of securing best management practice that includes the engagement of concessions and other parties needs to be achieved if the ecological and woodland management objectives of the site are to be accomplished.

The extent of open access to the woodland does mean that the potential for anti-social behaviour such as tree damage, vandalism and debris is present in line with similar woodlands with public access. The adoption and understanding of conservation and woodland management by managers and users of the site will help to keep such anti-social behaviour to a minimum.

Motorised access to the site could be controlled by the installation and maintenance of lockable steel barriers at the main access point.

A balance will be sought between the volume of visitors and catering for their needs, site operations and management of the woodlands. Managing multi-purpose woodland imposes additional costs and will restrict some woodland management and leisure options.

Risk assessments should be carried out as a first action on the use of the woodland by occupiers, visitors and neighbours. The water bodies and woodland require risk management and the risk can be minimised by careful site management. Risk assessments should be reviewed on an annual basis.

Our woodland assessment has identified a number of trees which require treatment, removal or replacement. This work should be undertaken over the recommended period. Further surveying would be beneficial to establish the extent of work required to trees adjacent to paths and access routes.

4 - Management Plan Intentions

4. Management Plan Intentions

4.1 Vision of the Management Plan, Aims and Objectives

The vision of this plan is to ensure that the management of the landscape, open space and ecology described within this document achieves the aspirations of the intended design and proposed planting. This will safeguard the provision of a valuable asset, which is welcoming and responds positively to the landscape context. It will enhance biodiversity and ecological value through the creation and maintenance of new areas of habitat to protect species and habitats of the landscape and ecology of the site.

Good management and maintenance operations are integral to establishing and maintaining good design and biodiversity. This in turn provides favourable environments and conditions for people, flora and fauna.

This plan covers the lifetime of the proposed operation, being subject to 5 year reviews with the LPA. Detailed operational and management prescriptions are given for the period 2017–2022.

This management plan covers the whole area indicated by the masterplan (shown at Appendix to this document). As part of the masterplan, a detailed application for a new 18 hole golf-course has been consented, which has it's own accompanying Habitat Management Plan. Information presented in this Habitat Management Plan aligns with the recommendations contained within the consented Golf Course Habitat Management Plan, to ensure the consistent management of habitats across the site.

The correct conservation management of the woodlands is a key element of this plan and ecological recommendations have been treated as key objectives.

4.2 Aims of the Management Plan

The main aims, below, guide the basis for the specific management operations of this plan, these include:

Aim 1: To conserve and enhance the landscape and ecological value of the site by identifying, protecting and creating habitats and features which contribute to this purpose.

Aim 2: Promoting the value of the site to wildlife, and encouraging its use by protected and notable species including water vole. This will be achieved through an ecosystem-wide approach.

Aim 3: To provide a safe and secure site which establishes and maintains health and safety procedures for management and maintenance of the site complying with all statutory legislation and best practice.

Aim 4: To ensure a sustainable site, which minimises waste and use of fuels, promotes cost effective management, and minimises the use of herbicide.

Aim 5: Maintains a flexible management approach which responds to the changing needs of the residents, landscape and ecology of the site.

Aim 6: Creating a leisure facility where the environment and wildlife are valued; a place where visitors can experience and learn about local wildlife without having a detrimental effect on it.

Aim 7: Maximising the biodiversity of the site both in terms of managing the existing habitats and creating new habitat areas such as woodland, ponds and wetland.

Aim 8: Ensuring that species present on the site are protected where appropriate and that connectivity of the site is maximised allowing species to move through it and within it.

Aim 9: To maintain and enhance the visual amenity of the woodland as a feature within the local landscape.

Aim 10: To safeguard and enhance the biodiversity value of the woodland and associated habitats.

Aim 11: To provide a habitat of naturally regenerating native trees, shrubs and ground flora.

5 - Habitat Creation and Enhancement

5.1 The Site

The Leisure Lakes complex lies approximately 8km east of Southport and occupies 140.43 hectares (347 acres) of land on the south western edge of the village of Mere Brow. The leisure park currently comprises a caravan park, water activities, an events area, a golf driving range, a 9 hole golf course, a golf shop, a bike shop, equestrian facilities, children's play area, model aeroplane club, a camping ground and large car parking areas. The proposed masterplan will encompass the whole Leisure Lakes compass, including land to the north of the current extents of the Leisure Lakes facilties. This land is currently utilised as agricultural fields, however a consented 18 hole golf course will be located in this area. The proposed red line boundary is shown at Appendix A. Development of the consented 18 hole golf course in the northwest area of the site will require land raising which will bring in significant new material, albeit to bring about low-key change to the profile of the site, before the golf course features are created. The issue of soil handling on site has been dealt with as part of the associated conditions with the detailed application for the 18 hole golf course.

Currently, the dominant habitats on the site include semi-improved neutral grassland, arable, semi-natural broadleaved woodland and waterbodies. The largest water features are two lakes in the centre of the site, though there is also a network of ditches throughout the site and within the immediate surroundings. Additional, though less notable habitats include bare ground, caravan park, buildings, and scattered broadleaved trees.

A landscape, planting and ecological scheme have been created for this development which include the creation, enhancement and retention of both existing and new landscape elements and these are described below.

5.2 Existing Habitat

Broadleaved Woodland
The Mere site contains significant areas of mixed broadleaved woodland and is identified as regionally important by its inclusion as a priority habitat in the Natural Area statement.

The vitality of the woodland has been reduced by management activities, undefined access, paint balling, motorcross and other activities and there is plenty of scope for improvement.

The woodland is predominantly birch with a scattering of young and semi mature oak. Oak is regenerating in areas generally free from human traffic. It is dominated by silver birch (Betula pendula) which is less than 50 years old, with an understorey of willow (Salix spp) and elder (Sambucus nigra).

The woodland is set in a wet woodland environment characterised by bare ground and some areas with a dense field layer dominated by bramble (Rubus fruticosus agg), nettle (Urtica dioica), red campion (Silene dioica), and hogweed (Heracleum sphondylium). In the wetter areas reed canary grass (Phalaris arundinacea) is a conspicuous part of the flora along with other wetland species including yellow flag (Iris pseudoacorus), angelica (Angelica sylvestris) soft rush (Juncus effusus), Indian balsam (Impatiens glandulifera) and marsh thistle (Cirsium palustre).

Large parts of the woodlands have been affected by paint-balling and motocross activities. In the paint-balling areas the activity has resulted in the removal of the field layer flora through trampling. In the motocross area part of woodland is now bare ground, mostly sand and wetland which forms the track.

The woodland includes ditches, tracks, bare ground, wet areas and marginal vegetation areas which create a diverse woodland habitat.

The section of woodland to the north west of the western lake is an area currently utilised for camping. The tree cover in this area is more sparse allowing more grass species to colonise the ground cover. Grass species include mainly Yorkshire fog (Holcus lanatus) and sweet vernal grass (Anthoxanthum odoratum). In areas where disturbance is heaviest some short ephemeral species have benefitted including common whitlowgrass (Erophila verna).

Directly to the west of the western lake the woodland has not been disturbed by camping or paintballing activities and so a dense bramble understorey has formed.

The area where paintballing was previously undertaken is now dominated by Himalayan balsam in the understorey.

Temporal Habitats
The site's sandy soils, mosaic of habitats, and localised disturbances have allowed a variety of habitats to develop. Due to the non-uniform habitat and therefore increase of habitat 'edges', biodiversity is relatively high and the temporary nature of some habitats is of specific benefit to some wildlife such as invertebrates.

These habitats illustrate the potential benefit of maintaining some human disturbance which serves to arrest succession to scrub and woodland and preserves some of the site's diversity. It is also the case that significant disturbance in some areas is a fundamental damaging factor. Improved management and zoning is therefore proposed to balance the levels of disturbance and achieve significant gains for biodiversity on the site.

Improved Grassland
In the northern sections of the site there are two large fields of improved grassland which contains frequent perennial rye-grass (Lolium perenne), as with frequent Yorkshire-fog (Holcus lanatus) red fescue (Festuca rubra) with occasional Parsley Piert (Aphanes arvensis), Common Mouse-ear (Cerastium fontanum), Spear Thistle (Cirsium vulgare) and Hairy Sedge (Carex hirta). The improved grassland is species-poor with negligible botanical interest or nature conservation value. It is a planted MG7 Perennial Rye-grass and related grasslands ley NVC mesotrophic grassland community. This plant community is of widespread and common occurrence in farmland countrywide including in Lancashire. The borders of Fields 1 and 2 are colonised by frequent Cock's-foot (Dactylis glomerata), False Oat-grass (Arrhenatherum elatius), Field Horsetail (Equisetum arvense), Bramble (Rubus fruticosus agg.), Cow Parsley (Anthriscus sylvestris), Common Nettle (Urtica dioica) and Cleavers (Galium aparine), with occasional Tufted Vetch (Vicia craca).

Arable
The majority of the northern section of the site is composed of arable fields which are predominantly barley crop. Some colonisation had occurred at the time of survey, species include occasional wavy bitter-cress (Cardamine flexuosa), dove's-foot crane's-bill (Geranium molle), a hawkweed species (Hieracium sp.), locally frequent yorkshire-fog (Holcus lanatus) at less than 1% cover, germander speedwell (Veronica chamaedrys), common bent (Agrostis capillaris)

Tall Ruderal Vegetation
There are areas of tall ruderal vegetation around the site species include abundant tall grasses including tufted hair-grass, Perennial rye-grass, yorkshire-fog, cock's foot and false oat-grass. There is locally frequent common reed, Soft-rush and hard rush (Juncus inflexus) in the wetter areas, with occasional bramble, silverweed (Potentilla anserina) and purple loosestrife (Lythrum salicaria).

Hedgerows
Hedgerows are present in the northern section of the site between arable fields. They are dominated by hawthorn (Cratageus monogyna), dog rose (Rosa canina) and elder (Sambucus nigra). Hedgerows are well established ranging from 2 to 2.5 m in height.

Ditches
There are several ditches around the site, ditch bank-side vegetation includes abundant false oat-grass, common nettle and frequent meadowsweet (Filipendula ulmaria), hogweed, bramble and cow parsley (Anthriscus sylvestris) The water level in the ditches varied however in all the ditches the water was standing with no perceptible flow. The surfaces of the water in was blanketed by Common duckweed (Lemna minor) in most cases, indicating eutrophocation.

Reedbeds
Around the two lakes are areas of phragmites reedbed. The reedbed varies in depth and quality with thicker more established reedbeds in the western lake where disturbance is lower, with thinner less established reedbeds in the eastern lake where disturbance is higher from jet ski activity.

Retained Landscape Elements

5.3 Retained Habitats

The landscape elements which have been retained as part of the development are indicated on the Masterplan proposals contained in Appendix 1.

Retained Trees
Trees will be retained where practicable and room for future growth will be accounted for. Existing trees will be protected in accordance with BS5837:2012 Trees in relation to design, demolition and construction. The tree stock across site is lacking in diversity and will be improved by planting of a wider range of plant species.

Retained Scrub
Within the woodland some of the dense bramble scrub will be retained as it offers good habitat for nesting birds and invertebrates

Retained hedgerows
The existing hedgerows retained onsite are generally well managed, to a good height of approximately 2m height. The only hedgerows on site are those located along the boundary with the A565 Southport New Road, and within the central body of the site. The hedgerows will all largely be retained and in some cases are to be extended and gaps filled, as shown on the landscape proposals drawing (Appendix 1, Plan 2).

Retained ponds and ditches
Several ponds are present within the application boundary, these are mainly formed by pooling around the motocross track. 11 ditches are found throughout the site, principally located in the south-west. The Tarleton runner is the largest of all the identified ditches, located along the southwest boundary to the site. As described in the latest Water Vole Survey (Urban Green, August 2015, updated September 2016), 5 of the 11 ditches were identified as showing evidence of Water Voles. Two of the remaining ditches (Ditch numbers 8 and 4) were assessed as unsuitable for Water Voles (due to a combination of shallow water depths / lack of water, lack of suitable foraging habitat, or excessive shading). (see Appendix 1 Plan 3 for detailed plan of identified areas).

5.4 Existing Ecology

Great Crested newts, badgers, bats and reptiles were considered in Urban Green's Preliminary Ecological Appraisal and based on various surveys (including eDNA in respect of Great Crested Newts).

5.5 Proposed Habitat Creation

The vast majority of existing habitat will be retained on the site, particularly to the boundaries. However, the existing rough grassland which forms the majority of the habitat (associated with the agricultural field use) will be lost through development.

To enhance the site and form a mosaic of habitats, a landscape scheme has been proposed which includes the creation of additional ponds, native and wildlife friendly ornamental and native tree and shrub planting and bio-diverse grass meadow. The creation of these landscape elements are illustrated in the Masterplan contained in Appendix 1 and described in detail below.

Shrubs – native shrubs will be planted beneath proposed woodland and trees throughout the site. Use of this planting in these areas is for wildlife benefit and provides refuge and foraging habitat for the common toad, bats and birds.

Existing retained rural hedgerows - Existing retained boundary hedges will be maintained as an informal rural hedge to a height of approximately 2.5 – 3 metres trimming once per year to prevent overhang onto highways. The main pruning operations will be carried out in between October and February to avoid bird-nesting season. Infill planting will be monitored and where required, gaps will be re-stocked with native hedging plants.

Hedgerows – native hedges are proposed to the boundaries of the proposed scheme to enhance and define the site boundaries, while also providing a form of inter-connectivity and green linkages for the benefit of wildlife.

Trees – Individual trees are proposed throughout the scheme at sporadic points. These not only provide an enhanced level of amenity and interest for users of the golf course, but also provide an additional beneficial habitat for the scheme.

Woodland and existing trees – The woodland will be maintained to promote biodiversity. To achieve this, an understorey / shrub layer will be encouraged to develop naturally or planted if necessary. Dead wood will be retained where it is safe to do so, and any logs, brash etc. from any felled / trimmed trees will be retained as habitat piles within the woodland. The habitat piles will be located away from any recreational areas.

Trees particularly along fairways will be inspected annually for health and safety. Arboricultural works will be carried out as required to provide a safe environment for golf course users. Sensitive pruning works will be required to manage edges where native and ornamental woodland enhancement planting is proposed throughout the scheme. There are three key woodland types proposed:

- Birch-Oak Woodland
- Alder wood
- Light Canopy Ornamental Woodland

New Trees - Newly planted trees will be inspected regularly to check for damage or disease and weeding carried out to ensure a 1m diameter circle of ground around the stem is maintained in a weed free state for the first 3 years at least to encourage rapid and healthy establishment. Mulch could be used where appropriate around the base of the trees to help inhibit weed growth. All tree staking will be inspected regularly and adjusted accordingly to prevent damage to the tree. Newly planted trees will need to be watered during establishment i.e. 3 years after planting.
Trees will be planted to replace those that fall or die to maintain tree numbers and pattern.

Grasses – a combination of amenity grass to the tees, fairways and greens, semi-rough grass mix and a rough grass wildflower seed mix. The taller rough grass wildflower grassland provides foraging for birds and bats.

Ponds and Drains – all existing pond is retained on site and all existing ditches and lakes. Water voles are known to occur within ditches throughout the area. Their habitats are to be safeguarded by avoiding capital works within or adjacent to ditches which are suitable for use by this species. This will ensure a similar environment is maintained and provide a refuge from the ongoing intervention.

Additional ponds are proposed on the site, particularly within the area subject to the consented 18 hole golf course scheme. Retained ditches will be protected from pollution incidents as specified in the associated CEMP. Groundworks are only proposed in ditches which are completely unsuitable for use by water voles, so there would be no risk of causing an offence. Additional measures include the planting of wet meadow, reeds, emergent and aquatic planting to the ponds and ditches.

Hard landscape – the development includes a variety of proposed hard landscape treatments including principally two different hard surface materials; maintenance and access roads in vehicle tarmac, and buggy tracks throughout the 18 hole golf course scheme in self-binding gravel. Car parking surfacing will be permeable where possible and practicable. Footpaths throughout the site will be permeable in nature where possible and will vary in treatment according to the location. Particular care will be taken with surface treatment within woodlands.

5.5 Proposed Habitat Creation

Proposed Understorey - Scrub will be coppiced on a rotational basis to create a diversity of height and structure and maintain an ecological gradient between trees and grassland. Different plots wil be cut on different rotation to ensure some areas of scrub remain unmanaged in any one year. In remnant heathland area thinning of Turkey oak will allow this habitat to re-establish.

Rough/wild flower grassland - The rough/wildflower grassland wil be maintained as a summer flowering meadow with 50% cut once in August/September to a height of 100mm and the other 50% left for 3 years between cuts. These cuttings will be removed within 48 hours but will be left for at least 48 hours to allow any invertebrates to move to other areas and for any seed to drop. An onsite composting facility would be desirable to avoid taking cuttings off site.
The effects of this cutting regime will be monitored through survey work and the timing/ frequency of cutting adjusted if necessary to maximise the biodiversity benefits.
Although the grass is allowed to grow longer, these areas will still be kept litter free.

Wet Grassland and Ditches
This wildflower meadow with some wetland species will be cut annually in August / September. The cuttings will be removed within 48 hours but will be left for at least 24 hours to allow any invertebrates to move to other areas and for any seed to drop. An onsite composting facility will avoid the need to take cuttings off site.
The effects of this cutting regime will be monitored through survey work and timing/ frequency of cutting adjusted if necessary to maximise the biodiversity benefits.

Retained Ditches
All ditches should be subject to annual monitoring during July. In cases where the channel is choked with excessive vegetation (50% or more of surface area obscured by aquatic and emergent plants), then removal should take place during November of the same year.

Water / Waste Management and Fertiliser/Pesticide Management
There will be a management policy of non-intervention on areas containing trees, hedgerows, woodland understorey and rough/wildflower grassland. No fertilisers or herbicides will be used in these areas and no waste will be dumped in these areas.

Summary of Habitat Creation
Biodiversity will be enhanced through management and habitat creation. These are set out above. However, feedback from the council's ecological adviser has made several references specifically to habitat creation. Therefore habitats which will specifically be created are set out in Table 1 below.

Habitat	Elements to be created	Methods	Timing
Woodland	Increased structural diversity	Planting of understorey, selective coppicing	February of all years as required
Woodland	Habitat for roosting bats	Installation of self-cleaning bat boxes	Year 1
Woodland	Long term integrity of habitat	Monitor for presence of invasive species	August of each year of management period
Woodland	Habitat for invertebrates and amphibians	Installation of habitat piles	As and when material becomes available (e.g. from woodland management)
Rough / wild flower grassland	Florally diverse grassland	Meadow to be created and sown on Year 1	Autumn, Year 1
Rough / wild flower grassland	Florally-diverse grassland	Management through rotational cutting	50% cut annually during late summer / autumn. 50% cut every 3 years. Cutting to be carried out by strimming and mowing and should therefoe be supervised by an ecologist.
Wet grassland and ditches	Wetland / damp grassland	Mowing / strimming	Cut annually during late summer / autumn. Cutting to be carried out by strimming and mowing and should therefore be supervised by an ecologist.
Hedgerows	New boundary hedgerows	Management through rotational cutting	Hedgerows to be cut on annual rotation, alternating a cut to either side of hedgerow every other year.

6 - Long term vision, management objectives and strategy

6 - Long term vision, management objectives and strategy

6.1 Management Vision, Aims and Objectives.

This initial plan covers the ten year period, the HCMM will continue beyond this period into the future. Leisure Lakes Ltd will carry out a review of the management plan at 5 yearly intervals to enable any improvements and alterations to be made if necessary. The local planning authority will be consulted on any changes or amendments proposed to the plan in order to ensure all parties are satisfied with the proposed changes prio to implementation.

Appropriate conservation management of the habitats is a key element of this programme and ecological recommendations have been treated as key objectives.

The aims of the management programme can be summarised as follows:

- Creating a leisure facility where the environment and wildlife are valued; a place where visitors can experience and learn about local wildlife without having a detrimental affect on it.
- Maximising the biodiversity of the site both in terms of managing the existing habitats and creating new habitat areas such as woodland, ponds and wetland.
- Ensuring that species present on the site are protected where appropriate and that connectivity of the site is maximised allowing species to move through it and within it.
- To maintain and enhance the visual amenity of the woodland as a feature within the local landscape.
- To safeguard and enhance the biodiversity value of the woodland and associated habitats.
- To provide a habitat of naturally regenerating native trees, shrubs and ground flora.

6.2 Management Objectives

Woodland Management

The details of this management programme have been created with consideration to maximising the ecological improvement of the area.

The loss or degradation of woodland habitat on the site will be compensated for by the cessation of paintballing activities (paintballing activity ceased in 2015), the creation of areas of newly planted woodland and the creation of less frequented areas of woodland. Woodland will be restored, managed and created that will complement that which is found in undisturbed areas of the site and adjacent to the site. Woodland will be fully functional in terms of its vegetation layers, nutrient cycle and use by other species. Whilst much of the woodland will be accessible by pathways, sections will be more difficult to access due to lack of paths or dense understorey. These areas will provide habitat and shelter for woodland fauna.

Management operations will provide sustainable shifting habitat for scarce plants, reptiles, invertebrates and birds.

As regular disturbance ceases in specific areas of the woodlands, the natural regeneration of birch and oak with a vigorous understorey will take place. In open areas of bare ground such as the motocross area, semi-natural habitats will start to develop and over time these will become complex habitat mosaics containing a variety of open ground textures, grasslands, wetlands, ruderal habitats, scrub and secondary woodlands. This will add to the diverse habitats that exist at The Mere.

Open sand areas at The Mere offer particular opportunities for dry restoration to heathland habitat.

Temporal landscape management

Disturbance of the site will be adopted as a management tool and regarded as a positive for specific habitat areas. Varying levels of disturbance will be used to maintain a mosaic of temporal habitats including wave washed sand, bare ground, short ephemeral vegetation and disturbed areas suitable for arable weeds, dwarf shrub heath and grassland.

New Woodland Areas

Woodland habitat will be created as compensation for development. A woodland edge of scrub / hedgerow will be created around the proposed woodland to provide biodiversity benefits through the creation of species rich habitat.

Prior to carrying out the planting of new woodland, an assessment of impacts on protected and priority species will be carried out and, if necessary, proposals prepared to mitigate and compensate impacts on any such species.

On-site Operations and Services

The Site management company will utilise local companies / labour to ensure a local presence and will be accessible to all occupiers. It will deliver the following services:

- Security and supervision of the Site
- Maintenance of lakes, ditches and pond features.
- Maintain the trees, planting, grass cutting, grounds maintenance.
- Erect and maintain signage
- Pest control

A buffer of native shrubs, grasses and emergent planting will be maintained around ponds and ditches to create a microhabitat and foraging area. All water bodies will be maintained and kept free of litter and debris which may have a detrimental effect on biodiversity and be a risk to public health and safety.

Use of herbicides and fertilisers across the site will be restricted in use such that there will be a 10m offset from all waterbodies, in order to avoid runoff. Machinery utilised for herbicide and pesticide spreading shall not utlilise broadcasting methods and will be directional. Spot treatment herbicide as required will not be utilised within 10m of a watercourse. Hand-pulling of weeds will instead be utilised.

All vegetation clearance will be undertaken outside the bird nesting season (early March-late August) unless a nesting bird survey is undertaken on site prior to any clearance works to ensure no nesting birds are present. Any active nests will be left undisturbed until the young have fledged.

7 - Management Operations

7 - Management Operations

7.1 General Management Issues

Training will be carried out by a suitably qualified professional to the UK Woodland Assurance Standard (UKWAS - an independent certification standard for verifying sustainable woodland management in the UK), to cascade the Woodland Management Programme, its strategy and detail to site managers and operators. It is important that the value of conservation and its principles are developed as basic management objectives that run hand-in-hand with leisure provision.

Areas of less disturbed woodland will be developed throughout the site.

A general code of conduct for visitors to the site will be promoted.

As some of the site is leased to third parties who run the leisure facilities, it will fall to the landowner to include management of the site's woodland and ecology in any agreements with third parties.

Interpretation of the site history and conservation will provide information to visitors and users of the site. Interpretation will describe how the site was formed, details of the ecology, observable wildlife and how the site is to be managed with conservation as a principal aim.

Risk assessment will be updated regularly to inform site conditions and practices, including visitor safety.

A defensible Tree Management Strategy will be implemented following agreed principles. This will involve regular inspections by the owner of the trees with frequency and level of inspection related to the risk to people and property.

Additional measures to enhance biodiversity will be implemented by avoiding damage to wet areas through limited trafficking, the avoidance of woodland operations during the bird nesting season and avoiding damage to areas outside the newly defined access routes and paths.

7.2 Woodlands

Controlled access will be achieved by identifying paths through the woodland through clearing and strimming. This will retain their natural feel and negate the need for excessive signage and barriers.

Paths outside the development area will be created using no-dig construction methods and left unsurfaced wherever practicable. On-site materials such as sand, chipped wood or wooden boardwalks will be utilised in these areas.

Existing tracks, routes and desire lines will be followed wherever possible and paths will be maintained at a size appropriate for pedestrian or cycle access only. The number of routes will be reduced in number where there are many access paths.

A defined single access route will be used for maintenance. Other areas in the woodland and the pedestrian routes will not be accessed by maintenance vehicles.

Natural regeneration of ground flora, shrub layer and understorey will be encouraged to create areas which are naturally more difficult to access. Limited removal of poor condition birch could be considered to aid this process.

Provide a limited amount of signage and barriers to establish route ways and to allow regeneration.

Dead wood will be left in the woodland; dead or dying trees will only be felled where they pose a health and safety risk. Timber can also be used to delineate routes and temporary parking areas within the development.

Regeneration will be allowed to occur naturally in areas along the banks of the two main lakes.

Regeneration will be aided by the selective removal of birch to allow the development of emergent oaks and other secondary woodland species.

Planting of native birch, oak and pine will support the natural regeneration of damaged woods.

Lake bank regeneration will be supported by the limited planting of willow and birch.

Planting of new woodland will act to link existing areas of woodland by planting locally collected seed stock, where applicable. Genetic diversity is also important and several sources of plant materials should be utilised. This will help protect against future threats within the environment.

Water body margins will remain undisturbed except where lakeside chalets are to be situated. These chalets will be elevated above the water and mud so as to

minimise the long-term / operational impacts of their presence. Fishing points will be established by selective and non intrusive vegetation removal.

Ditches will be inspected and cleared as required in accordance with character and function of the ditch, taking into consideration biodiversity issues. A long reach excavator will enable the base only of the ditch to be cleared without impacting on the bank side vegetation. Perimeter ditches will be maintained by the drainage board. Any work to or around water bodies will take the presence of water vole into account. If activities are to impact on the structure of banksides or the level of water in ditches or ponds, a survey for water vole will be first carried out and, if present, a mitigation scheme will be developed.

7.3 Non-wooded Habitats

Woodland encroachment onto temporal habitat areas is a potential long term threat to the ecological value of those areas. Regular scrub clearance work will keep this problem in check. These areas will be clearly defined on detailed proposals.

Paths, tracks and access roadways on site will remain unsurfaced wherever practicable. The sandy substrate is free draining and is easily moved to effect repairs. Disturbance of these areas will create permanent bare areas.

A limited number of access routes and tracks will be moved on an annual basis. By moving tracks as little as 0.5m to one side or changing a route slightly, new habitat is created which can be colonised by ephemeral vegetation.

The vegetated borders of track ways on the east of the site will be strimmed back (at the same time as the ditches are cleared) and cut vegetation raked back aggressively to disturb the soil and allow the persistence of scarce arable weeds in this area.

Hollows and ephemeral pools created or existing on the site and away from the vehiclular access will be retained. In cases where the removal of such features cannot be avoided, they will be replaced like for like elsewhere on the site. Ponds on the motocross area (Area B) will be protected. Encroaching scrub will be removed from these areas and heather will be seeded on bankings to help support these features.

Heathland vegetation will be restored to other parts of the site by thinning of Turkey oak.

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7.4 Open Treed Areas

Open treed areas include the car park areas, the pub/club area, the existing caravan site and Area C (the approved chalet development site) on the zoning plan.

Areas excluding Area C have a number of tree species of ornamental and alien nature to the local habitat. These trees, such as cypress, poplar and maple will be gradually removed over a period of 10 years and replaced with trees associated with the local habitat, i.e. birch, oak, pine, hazel and willow.

The canopy cover will increasingly establish a birch and oak landscape.

Understorey planting is similarly ornamental in places. The understorey will increasingly establish a heathland landscape through the planting and seeding of heather on the sandy soil. Other appropriate plants are broom, coppice hazel, gorse and coppice willow. Over a period of 10 years the landscape around the caravan areas, the car park and buildings will change to a birch and oak landscape with heathland understorey.

Maintenance of these areas will not be intensive, the soils will be kept poor, open sand areas and longer grass will be encouraged.

Area C contains open treed areas. As described in the detailed proposals, the positioning of the chalets has been largely dictated by a combination of the pre-existing open areas and areas that will be newly opened up as a result of necessary tree removals due to poor physiological and/or structural condition. Regardless of condition, any tree loss will be mitigated by the planting of native specimens as part of landscape proposals on the application site which will increase the canopy cover to that which currently exists.

Bases for the chalets will be suspended above the woodland floor on piles, with unchanged ground levels which will maintain the existing conditions in terms of gaseous and water exchange. Access tracks will be free draining and constructed with a crushed aggregate employing a no-dig methodology as detailed. A cellular construction is for the parking / drop off laybys. Services are located under or at the side of roads and footpaths ensuring minimal impact on tree roots Tree and tree root zones will be protected during construction as per the Arboricultural Method

Statement.
New planting in Area C will consist of native oak and pine with marginal mere planting of willow and hazel and downy birch. The understorey will increasingly establish a heathland landscape through the planting and seeding of heather on the sandy soil. Other appropriate plants are broom, coppice hazel, gorse and coppice willow. Over a period of 10 years the landscape around the caravan areas, the car park and buildings will change to a birch and oak landscape with heathland understorey.

7.5 Rate of Change

The woodland has developed through natural regeneration over recent decades following sand and gravel working. Changes described in this Woodland Management Programme will be gradual and regular over the next 20 years. The Woodland Management Schedule covers, in general, the first 5 years. Reviews of the programme will take place in year 1 and 2 to fine tune the details of the programme and make any minor changes that may be seen to be necessary and evident through practical implementation and observation. In year 5 the programme will be further reviewed for the following 5 years.

The rate of change will be incremental dependant on implementation of the Woodland Management Programme. In the first year significant change will be seen in the removal of paint-balling structures and in the following 4 years the paint-balling area will be seen to recover through the natural re-growth of understorey plants, pathways will become fewer and more defined and there will be a greater awareness of the value of the site and its conservation through training and interpretation.

The HCELM and any subsequent amendments approved by the Council will be operative for the lifetime of the Development.

7.6 Protection and maintenance

Pest and Disease Management

Commitment to reducing the use of pesticides wherever practicable will be undertaken, however pesticides are still recognised as important tools that provide effective and efficient treatment for many woodland operations where absolutely necessary.

The use of chemicals will reflect guidance expressed in Forestry Commission Field Book 8.

7.7 New Planting

Species for new and replacement planting

Areas	Species	
Woodlands		
	Birch	*Betula pendula*
	Oak	*Quercus sp*
	Scots pine	*Pinus sylvestris*
	Beech	*fagus sylvatica*
	Field maple	*Acer campestre*
	Hawthorn	*crataegus monogyna*
	Rowan	*Sorbus aucuparia*
Woodland Edge		
	Broom	Cytisus scoparius
	Willow	Salix spp
	Hazel	**Corylus** avellana
	Hawthorn	crataegus monogyna
	Wild cherry	Prunus avium
Waters Edge		
	Wiilow	*Salix spp*
	Alder	*Alnus glutinosa*
	Birch	*Betula pubescens*
Open Treed Area		
	Birch	*Betula pendula*
	Oak	*Quercus sp*
	Pine	*Pinus sylvestris*
	Wild cherry	Prunus avium
	Hazel	***Corylus*** avellana
	European lime	Tilia x europaea
	Hawthorn	crataegus monogyna
	Wild service tree	Sorbus torminalis
	Hornbeam	Carpinus betulus
	Wych elm	Ulmus glabra
	Rowan	*Sorbus aucuparia*
Heathland Areas		
	Heather	Harvested and sown on site
	Broom	*Cytisus scoparius*
New Woodland Planting		
Areas E and F	Birch	*Betula pendula*
Details to be agreed	Oak	*Quercus sp*
	Scots pine	*Pinus sylvestris*
	Beech	*fagus sylvatica*
	Field maple	*Acer campestre*
	Hawthorn	*crataegus monogyna*
	Rowan	*Sorbus aucuparia*
Edge species		
	Broom	*Cytisus scoparius*
	Hazel	***Corylus*** avellana
	Hawthorn	*Crataegus monogyna*
	Blackthorn	*Prunus spinosa*
	Holly	*Ilex aquifolia*

8 - Maintenance Specification

8 - Maintenance Specification

8.1 Maintenance Regime

A maintenance operations schedule for year 1 and year 2-5 onwards can be found within section 9 of this document, this has been prepared in order to provide a best practice base line for the maintenance and management of the external landscape for the proposed development. The success of the scheme is dependent upon the quality and frequency of the maintenance it receives during its lifetime.

The following aims and objectives will be adopted as part of the maintenance regime:

- To ensure the successful establishment and continued growth to maturity of the soft landscape scheme.
- To ensure that the design intentions of the scheme are fulfilled.
- To ensure the effects of the different elements within the scheme such as the rough grassland, wet meadow and the tree planting are both successful and effective.
- To enhance the ecological suitability of habitats through planting, ensuring net gains from both an ecological and landscape perspective.
- To maximise the viability of all plants through the adoption of good management practices specific to species or groups of plants.
- To maintain a safe environment for site users by maintaining clear sight lines and removal of dead, dying or diseased tree branches.
- To ensure all new woodland habitat is managed to such an extent to fully establish and provide the ecological and landscape objectives set out.

During the first year after Practical Completion, the soft landscape will be maintained by the Landscape Contractor responsible for implementation of the works. The contract should include a defects liability clause to ensure replacement planting is carried out and successful establishment achieved. Section 9 of this document provides an indicative schedule of maintenance for year 1. Thereafter the management company will undertake maintenance contracts on an annual basis. The maintenance and management plan for years 2 through 5, in section 9, provides information on the general techniques and methods to be adopted for the ongoing maintenance operations.

This plan covers the maintenance of grass, newly planted and existing trees, shrub planting, hedges, hard surface areas, water bodies etc. The overall objectives are as follows:

Amenity Grass: To provide an even stand of closely mown grass lawn of uniform height and colour, comprising grass species free of broad-leaved weeds.
Rough grassland: Predominantly grass rich tussock forming species which can cope with competition from taller vegetation. Once established this mix should require little or no maintenance and will provide beneficial habitat for insects, small mammals, birds and other wildlife.
Shrub planting – native understorey planting: To maintain shrub planting to cover as much as possible of the understorey area, and allow the shrubs to develop as nearly as possible to their natural form.
Hedges: Where appropriate, to clip the retained and proposed new hedges (on annual rotation) to maintain a tidy appearance and maintain a well-developed cover of vegetation over the whole hedge. Cutting to be within ecological guidelines and in winter months.
Trees: To establish a stable and healthily growing tree with a well-shaped framework for future growth. Trees to be pruned if required for health and safety purposes and left to form natural forms and habitat where possible.
Woodland: The woodland planting will be assessed and maintained in order to establish a good structure to allow all trees to develop as strong and healthy specimens. Woodland will be created and managed in order to deliver woodland with varied structure (canopy, understorey, ground flora) and age range (woody species). Operations will be carried out during early autumn when the soils are driest and there is least risk of disturbing nesting birds.
Hard landscape: To keep all hard landscaped areas, including access roads free of litter, weeds and other debris that will detract from the appearance of the site.
Water Bodies: Wet meadow grassland sward is predominantly a perennial grass mix with some annuals. Once established this mix should require little or no maintenance and is a good habitat for insects, small mammals, birds, amphibians and reptiles. Emergent planting is to be maintained in an attractive and free-flowering state, and kept free of weeds, unsightly dead flowers or damaged shoots. Planting is to be thinned as necessary to prevent the ditches and ponds becoming overgrown or dominated by one species, and to maintain the free flow of water. Ponds and ditches are to be kept free of litter and debris which may have a detrimental effect on biodiversity and be a risk to public health and safety.
Ditches: In order to ensure that ditches function correctly, management of the ditches will ensure that they are weed free and debris free. Annual cutting of the bankside vegetation (on rotation) will ensure that the ditches will continue to function effectively and will not impact adversely on the surface water management of the site. Cutting should be undertaken using hand-held strimmers. The sward should be left at least six inches in height. Arisings to be removed from ditches to ensure eutrophication of water does not occur.

8.2 Protection and maintenance

Pest and Disease Management
Commitment to reducing the use of pesticides wherever practicable will be undertaken, however pesticides are still recognised as important tools that provide effective and efficient treatment for many woodland operations where absolutely necessary.

The use of chemicals will reflect guidance expressed in Forestry Commission Field Book 8.

Pests and disease can cause extensive damage to ecologically important woodland. There are a number of pests and diseases currently in the UK and many faster approaching from across the world. Projected climate change such as milder winters and warmer, wetter springs may favour the outbreak of such pests and diseases. The key to protecting sites in the future is through genetic diversity. Whilst it is understood that the key objectives of the current document is to enhance the ecological benefits of the site through planting of locally native species, it is also essential that the site is protected from future threats. This can be best achieved by utilising the widest possible planting pallet and by sourcing trees from a variety of different nurseries to ensure genetic diversity.

Plant material should be inspected prior to delivery at the nursery to ensure that the specimens are free from pest and disease. This will help prevent pest and disease being inadvertently introduced onto site during planting.

All onsite contractors should be encouraged to take up hygienic working methods whilst undertaking works on site. Tools and machinery such as chainsaws, spades, climbing equipment, PPE (boots and gloves) and vehicles have the potential to transfer pests and disease from site to site.

The woodlands will be monitored for outbreaks of damage caused by pests and diseases. Remedial action will only be taken if the threat to the woodland is deemed significant.

Management of Deadwood
Deadwood, both standing and falling, is of enormous conservation benefit. Management will allow for the retention of deadwood where it does not pose a hazard for public safety of personnel working in the woodlands. As a consequence, deadwood and brash will generally be left on site to break down.

- Additional measures to enhance biodiversity
- Avoid damage to wet areas through limited trafficking
- Avoid woodland operations during the bird nesting season

PHOTO 1 Area G - The Caravan Area

PHOTO 2 Area F- Part of the Compensation Woodland Area

FIGURE 3. PHOTOGRAPH LOCATION PLAN

PHOTO 3. Area E - Compensation Woodland Area

PHOTO 4 Area B - The Motocross Area

PHOTO 5 Area A - The former paint-ball area

PHOTO 6 Mere Margin

PHOTO 7 Area C - The chalet area

PHOTO 8 Area A - Former paint-ball Structures

PHOTO 9 Area D - Oak succession and ground vegetation

9 - Management and Maintenance Operations Schedule

9.1 Management and Maintenance Operations Schedule

The following tables set out the landscape elements of the site and provides management operations for all existing and proposed landscapes and habitats.

General Woodland Management Issues

Compartment	Operation	Frequency / Years
1	Arrange training for managers and grounds staff.	Year 1
2	Carry out ecological monitoring	Annually
3	Review management plan	Annually
4	Full review of management plan	Year 5
5	Establish a strategy for the interpretation of the sites history, its geological status, the conservation and management of woodland and wildlife. Write and display a code of conduct for the woodland	Years 1 to 2
6	Implement the interpretation plan	Years 2 to 5
7	Develop and implement a community and volunteer programme	Years 1 to 5
8	Include management of the sites woodland and ecology in any agreements with third parties and concessions	Years 1 to 5
9	Undertake visual inspection of trees, particularly trees located in high priority areas such as adjoining access routes and paths for general defects and associated priority health and safety issues. Undertake all identified works resulting from this inspection so as to alleviate or abate potential health and safety issues	Twice yearly and following high winds.
10	Carry out coppicing of hazel on a 5 year rotation	Year 5
11	Carry outrisk assessment on use of woodlands in particular regarding public access areas, pond areas, water safety	Year 1
12	Install water safety / rescue equipment and implement findings of the risk assessments within the context of the woodland management plan.	Year 1
13	Inspect woodland areas, open areas and access paths for safety and repair. Surveys of individual trees should be carried out in sensitive areas early in the plan period. This will indicate the current condition of the trees and identify treatment priorities.	Ongoing
14	Collect and remove litter and debris	Ongoing
15	Identify and define single access routes to be used for maintenance access (other areas in the woodland and the pedestrian routes should not be accessed by maintenance vehicles).	Ongoing
16	Following all large scale planting “beating up” should be carried out. This is the silvicultural technique of where all unsuccessful trees are counted and replaced.	Every 5 years

Area A - The former paintballing area		
16	Paintballing to cease to operate	Year 1
17	Identify and mark out access routes and any tree removal necessary for the removal of paintball structures and bridge.	Year 1
18	Remove paintball structures	Year 1
19	Design layout of paths through woodland and mark out as appropriate. Controlled acc should be achieved by identifying paths through the woodland	Year 1
20	Review layout of paths and amend as necessary. The number of routes should be reduced in number where there are numerous access paths.	Years 2 to 5
21	Strim and clear path areas only	Annually
22	Retain hollows and temporary pools.	Ongoing
23	Natural regeneration of ground flora, shrub layer and under-storey will be encouraged creating areas which are naturally harder to access. Limited removal of poor condition birch to aid this process.	Years 1 to 5
24	Monitor re-growth of under storey and field layer and thin canopy trees by selecting weaker trees for removal	Annually
25	Dead wood will be left woodland, dead or dying trees will only be felled where they pose a health and safety risk.	Ongoing
26	Stack brash and timber in woodland.	Annually
27	Identify and develop less disturbed areas of the woodland	Year 1
28	Ditches will be cleared by a half ditching method	Annually in phases
29	Water body margins to rema undisturbed. Fishing points will be established by selective and non-intrusive vegetation removal	Ongoing
30	Lake bank regeneration wi supported by the limited planting of willow and birch.	Years 3 to 5
31	Some planting of birch, oak and pine will support the natural regeneration of the dan woodland.	Years 1 to 5
32	Regeneration will be aided by the selective removal of birch to allow the development of emergent oaks.	Years 1 to 5
33	Provide a limited amount of signage and natural barriers to establish some route ways and to allow regeneration.	Year 2

Area B- The motocross area		
34	Identify and mark out the boundar of the motocross area and track	Years 1 to 5
35	Remove motocross structures outsi the motocross boundary.	Year 2 to 3
36	Design layout of paths through are and mark out as appropriate Controlled access should be achieved by identifying paths.	Year 1
37	Develop detailed conservation proposals for area B.	Year 2 to 3
38	Review layout of paths and amend necessary. The width of routes shou be reduced to achieve natural regeneration of motocross track are no longer in use. Path shall be constructed in accordance wit Arboricultural Method Statement (Appendix C)	Year 2 to 5
39	Retain hollows, temporary pools a permanent pond areas	Ongoing
40	Natural regeneration of ground fl shrub layer and under-storey will be encouraged creating areas which are naturally harder to access.	Ongoing
41	Monitor re-growth of under storey an field layer and aid this process small number of selecting weaker trees for removal as appropriate following management plan revie .	Ongoing
42	Dead wood will be left in the woodland, dead or dying tree only be felled where they health and safety risk.	Ongoing
43	Stack brash and timber in woodlan	Ongoing
44	Ditches will be cleared b ditching method.	Annually in phases
45	Disturbance to waterbodies w minimised by elevating chalets abo the water and restricting human access to specific points.	Ongoing
46	Additional areas of woodland will be created; planting of native species in accordance with table 1 will support natural regeneration of bare gro and damaged woodland.	Year 3 to 10
47	Prepare proposals for additiona woodland.	Year 2 to 3
48	Agree and implement proposa additional woodland.	Year 3 to 10
49	Provide a limited amount of signage and natural barriers to establish some routes and to allow regeneration.	Year 4
50	Heathland vegetation will be restored to some bare ground areas as identified in detailed proposals.	Year 3 to 10
51	Encroaching scrub will be rem from bankings and bare ground areas, heather will be see bankings to help support these features as identified on detailed proposals.	Year 3 to 10
52	The vegetated borders of track ways on the east of the site will be strimmed back (at the same time as the ditches are cleared) and cut vegetatior raked back aggressively to disturb the soil and allow the persistence of scarce arable weeds in this area.	Annually
53	A limited number of access routes and tracks will be moved on an a basis.	Annually
54	All new structures must be designed in such away as to limit any pot impacts to trees (Arboricultural Impact Assessment and Method Statement – Appendix B and C)	

Area C - The approved chalet development area		
54	Chalet siting and installation will be as per detailed proposals (on mini piles suspended above the woodland floor) and construction method statement to minimise impacts within woodland setting. Each chalet is proposed to be erected concrete base which chalets are suspended above the woodland flo piles, with unchanged ground levels	Year 1 to 5
55	Services are located under or at the side of roads and footpaths ensuring minimal impact on tree roots Tree and tree ro zones will be protected during construction as per the Arboricultural Method Statement (appendix C)	Year 1 to 5
56	Access tracks should be free draining and constructed with a crushed aggregate with a no dig methodology as detailed. A cellular construction is proposed f parking / drop off laybys	Year 1 to 5
57	No dig construction methodolog implemented with no change to existin ground levels.	Year 1 to 5
58	Heathland vegetation will be restored around the chalets and to other parts of the site where appropriate. Heather seeded to help support these features.	Year 1 to 5
59	New planting of native oak and pine around the chalets will support the longevity of the woodland and support natural vegetation.	Year 1 to 5
60	Planting of native birch, oak and pin support the natural regeneration of damaged woodland to the western edge of this area	Year 1 to 5
61	Regeneration will be aided by the selective removal of birch to allow the development of emergent oaks.	Year 1 to 5

Area D - The eastern woodland		
62	Cease groundworks and the deposition of materials	Year 1
63	Removal of Rhododendrons including root stock.	Year 2 to 4
64	Design layout of paths through woodland and mark out as appropriate. Controlled access should be achieved by identifying paths through the woodland.	Year 1
65	Review layout of paths and amend as necessary. The number of routes should be reduced in number where there are numerous access paths.	Year 2 to 5
66	Strim and clear path areas only	Annually
67	Retain hollows and temporary pools, create additional hollows as appropriate following management plan review.	Ongoing
68	Natural regeneration of ground flora, shrub layer and under-storey will be encouraged creating areas which are naturally harder to access. Limited removal of poor condition birch to aid this process to allow the development of emergent oaks.	Ongoing
69	Dead wood will be left in the woodland, dead or dying trees will only be felled where they pose a health and safety risk.	Ongoing
70	Stack brash and timber in woodland.	Ongoing
71	Provide a limited amount of signage and natural barriers to establish some route ways and to allow regeneration.	Year 2

Area F - New Woodland Habitat

73	Submit detailed proposals for approval.	Year 1
74	Dry woodland habitats will be created in this area as compensation habitat	Year 1 to 3
76	A woodland edge of scrub / hedgerow will be created around the new woodland.	Year 1 to 3
77	For area E. Additional drainage channels will be created to separate the compensation habitat from other land.	Year 1 to 3
78	Carry out replacement of any defective planting	Year 2 to 4
79	Thin out planting as necessary following year 5 management plan review.	Year 6

Area G - The caravan site and car parking areas

80	Carry out a detailed risk assessment of the trees and remove all potentially hazardous specimens.	Ongoing
81	Replace with new planting in accordance with table 1.	Years 1 to 5
82	Establish mixed species native woodland landscape.	Years 1 to 10
83	Remove ornamental understorey and shrub planting and allow for natural regeneration and additional planting.	Ongoing
84	Replace with heathland species such as in accordance with table1.	Years 1 to 5
85	Establish heathland understorey landscape with poor soils.	Years 1 to 5

Area H - 18-Hole Golf Course

Refer to approved Habitat Creation, Enhancement and Landscape Management Plan, associated with consented 18-Hole Golf Course

	Year 1 Maintenance Schedule
	Description
	During the initial twelve month period after Practical Completion. Allow for 22 maintenance visits comprised of 18 during the growing season and 4 during the dormant season. A visit is defined as the period of time required by the Contractor to carry out all maintenance items specified in the Schedule below.
1. General	
a	Tidy up all areas; remove rubbish, litter, etc from planted and grassed areas. Repeat at each maintenance visit
b	Check that plants are firmly seated and firm in where required. Six times total
c	Treat pests and diseases as necessary by agreement with the Contract Ad ministrator.
d	Prune trees and shrubs as necessary to avoid conflict with footpaths, grass mowing, etc.
2. Tree and Woodland Planting	
	Check and adjust tree anchors, stakes, ties and tree guards/shelters and remove as necessary. Water when appropriate and carry out replacement of failed specimens.
3. Hedgerows	
a	Keep areas clear of weed growth by spot treating with herbicide as appropriate from mid-April to October. Four times.
b	Cut back hedge along boundary with A565 to maintain current size and shape. Cut the topmost branch or leading shoots to maintain current height. Cut back from February to March. Once.
c	Cut back proposed new hedges on rotation in order to achieve tall, wide and dense hedgerows for the benefit of wildlife. Once.
4. Shrub Planting	
a	Water shrubs as required to maintain healthy growth.
b	Prune dead, dying or diseased wood from plant material.
c	Keep shrub areas clear of weed growth by hand pulling weeds and spot treating with herbicides as appropriate for persistent, deeply rooted weeds such as dock, thistle or dandelions. 12 times.
d	Apply a slow-release fertiliser, such as Enmag CRF, composition NPK 11-22-9 Mg 6 or equivalent, to shrub areas at a rate of 30gms/m² in spring. Once only (timing to be agreed with Contract Administrator).
5. Amenity Grass	
a	Water grass as needed to achieve establishment and maintain healthy growth. (Between late April and end of June (late Spring / early Summer)
6. Rough Grassland Sward	
a	Most of the sown species are perennial and will be slow to germinate and grow and will not usually flower in the first growing season. There will often be a flush of annual weeds from the soil in the first growing season. This weed growth is easily controlled by topping or mowing.
7. **Wet Meadow Grassland Sward and Emergent Planting**	
a	The mixture is 30% grasses and 70% wildflower species. Many of the wildflowers in the mix are herbaceous and will die back to ground level in winter. Weed growth is easily controlled by topping or mowing.
8. Ditch Management	
a	The existing ditches on Site will be maintained to ensure that they are weed and debris free. No machinery will be used except for the hand held strimmers required for grass management.

Item of work		Year 2	Year 3	Year 4	Year 5
General					
Tidy up areas removing rubbish, litter etc from planted and grass areas		✓	✓	✓	✓
Treat pests and disease as necessary		✓	✓	✓	✓
Check plant material is firmly in place and firm in where required		✓	✓		
Dead, dying or disease wood to be pruned out		✓	✓	✓	✓
Removal of diseased or dead plants and planting of replacements as appropriate		✓	✓	✓	✓
Tree Planting					
Prune water and feeds as necessary.		✓	✓	✓	✓
Check and adjust tree anchors, stakes, ties and tree guards/shelters as necessary.		✓	✓	✓	
Remove stakes, ties and tree guards/shelters as appropriate.					✓
Remove dead, dying or diseased branches. Works to be carried out by an Arboricultural Associated approved contractor in accordance with BS3998: Recommendations for Tree Work.		✓	✓	✓	✓
Woodland Planting					
Prune water and feeds as necessary.		✓	✓	✓	✓
Check and adjust tree anchors, stakes, ties and tree guards/shelters as necessary.		✓	✓	✓	
Remove stakes, ties and tree guards/shelters as appropriate.					✓
Removed dead, dying or diseased branches. Works to be carried out by an Arboricultural Associated approved contractor in accordance with BS3998: Recommendations for Tree Work.		✓	✓	✓	✓
Replace failed specimen where appropriate.					✓
Hedges					
Keep areas clear of weed growth by spot treating with herbicide as appropriate from mid-April to October. Four times.		✓	✓	✓	✓
Cut back hedge along boundary with A565 to maintain current size and shape. Cut the topmost branch or leading shoots to maintain current height. Cut back from February to March. Once.		✓	✓	✓	✓
Cut back all new hedges once per year. Sides to be cut on annual rotation.		✓	✓	✓	✓
Planted Areas					
Weed growth to be controlled by mechanical and herbicidal means: Semi-native, Evergreen and groundcover shrubs Native shrubs		12 visits 4 visits	12 visits 4 visits	12 visits 4 visits	12 visits 4 visits
Prune shrubs as necessary to maintain shape and prevent vigorous species smothering less aggressive species also to prevent overhanging onto areas of hard paving		✓	✓	✓	✓
Apply fertiliser as appropriate to ensure establishment of planting			✓		
Grass Areas					
Application of fertiliser and selective weedkiller as appropriate		✓	✓	✓	✓
Reseed worn areas		✓	✓		
Rough Grassland Sward					
Unwanted perennial weeds (docks, thistles) may need control by occasional spot treatment with a herbicide.		✓	✓	✓	✓
Cut on a rotational basis once a year between October and Febuary so that no more than half the area is cut in any one year leaving part as an undisturbed refuge. Sward to be maintained to a height of 20-30cm and a little layer 7-10cm deep. The area must not be cut less than 125mm above ground level		✓	✓	✓	✓
Wet Meadow Grassland Sward and Emergent Planting					
Unwanted perennial weeds (docks, thistles) may need control by occasional spot treatment with a herbicide.		✓	✓	✓	✓
Mown hard in November, and then again at the end of February. Sward to be maintained to a height of 20-30cm and a little layer 7-10cm deep. The area must not be cut less than 125mm above ground level		✓	✓	✓	✓

Remove by hand dead flowers or damaged shoots from emergent planting.		✓	✓	✓	✓
Planting to be thinned by hand as necessary to prevent the attenuation basins becoming overgrown or dominated by one species.			✓	✓	✓
Ditches					
Weed removal (hand pulling) and debris removal.		✓	✓	✓	✓
Cutting of vegetation along ditch banks. Mower with minimum height set or strimmer to be utilised. Arisings to be removed from ditch. Once in late autumn or winter.		✓	✓	✓	✓

10 - Community Involvement and Interpretation

10-Community Involvement and Interpretation

The site has regular visitors and users of the leisure facilities. The wellbeing of the woodland will be enhanced by their active involvement, for instance in compiling species lists and records for the site for practical conservation tasks or for educational walks by bird watching groups or reptile and amphibian watching groups.

It is recognised that there is potential for interpretation facilities at various locations throughout the site to allow visitors to learn about the site's history as well as flora and fauna etc. These facilities will require development.

The provision of interpretation for the entire site will be reviewed through the production of an Interpretation Plan. This will address ecological, woodland, wildlife, history, management, practical conservation and cultural linkages within the locality as well as develop themes specific to the site. The conservation and management of woodland and wildlife will help people better understand and value the site. A community and volunteer programme could be developed and those interested could also be members of the Habitat Management Group.

11 - Monitoring and Review

11 - Monitoring and Review

To determine the success of the management programme monitoring and review will be programmed.

It is considered highly desirable that a more formal habitat management structure for the site be established as part of the Leisure Lakes management operations. The monitoring and review of objectives, will be overseen by a Habitat Management Group (HMG). As a minimum the HMG should comprise of the Owner and/or its representatives, a representative from West Lancashire Borough Council and the County Council Ecology Officer.

It is recommended that the HMG meet at least every six months to review progress in the preceding six months and agree the forward programme for the next period (meeting at least annually and minutes of the meeting shall be forwarded to the Council within 1 month of the date of the meeting) This will provide a monitoring framework that will guide the delivery of the management programme objectives in pursuit of the longer term aims.

Monitoring will seek to record the condition of the key areas subject to this management programme and identify the need to alter management regimes should it become apparent that the existing management is not maximising the condition of the woodland, the wildlife potential or presenting other significant problems.

Monitoring visits will be carried out annually. Monitoring will be carried out by suitably qualified managers and ecologists, standardised and recorded for reference by third parties and for comparison documents for future management assessments. 5. In addition to regular annual review the HMP shall be reviewed and updated in response to:

In addition a full review of the management programme is recommended in year 5. The scope of the review will incorporate:

- Progress made in achieving the plan.
- A consideration of the impact of the owners risk assessments.
- A review of the practical woodland, ecological and conservation objectives.
- Appropriate adjustment to the programme to achieve its objectives.
- The setting of the main tasks for the ensuing period to achieve the plan.
- Any development that is approved by the Council on the Land
- A new use or development carried out on the Land as Permitted Development
- Other land use changes on the Land, such as the cessation of a use.

The necessary competencies of those undertaking monitoring should also be as follows:

- Tree condition survey requires a qualified arboriculturalist
- Botanical/ biodiversity recording requires a qualified ecologist
- Landscape management requires a qualified landscape manager

SMART objectives will be developed and the strategy and vision defined for each area. A table will be developed for use in the monitoring and review process so that progress can be tracked. The SMART objectives will relate closely to the schedule in section 9 so that work programmes can follow scheduled activity and progress towards the objectives.

Monitoring Plan Summary

Objective	Method of assessment	Monitoring period	Responsibility	How will information be used
Ecological Survey	Carry out ecological recording and monitoring	Annually	Owner/ Ecologist	Feed into Ecological records and provide response in the Woodland Management Plan (WMP)
Woodland Areas	Walkover survey. Assess the variety, age and condition of species, the vigour of the understorey, regeneration and succession to mature woodland.	Biannually	Owner/ Manager/ Ecologist	Feedback into WMP
Temporal Habitats	Walkover survey. Assess the condition and species diversity. Monitor for managed disturbance of open ground.	Annually	Owner/ Manager/ Ecologist	Feedback into WMP
Maintenance Access	Monitor access routes, definition of single routes and any disturbance of other areas.	Biannually	Owner/ Manager	Feedback into WMP
Pedestrian access	Walkover survey. Monitor the use of defined access paths and assess other desire lines.	Bi annually	Owner/ Manager	Adjust definition of defined paths as appropriate. Feedback into WMP
Open treed areas and general safety inspections	Walkover survey. Assess the variety, age and condition of species. Assess health and condition of trees adjacent paths and access routes.	Quarterly	Owner/ Manager/ Grounds staff	To identify problems and enable timely action. To inform future management decisions.

12 - Scope and limitations

12 - Scope and limitations

The report is based upon site visits and visual inspections. The consultant shall not be responsible for events that happen after the date of the report due to factors that were not apparent at the time, and the acceptance of this report constitutes an agreement with the guidelines and the terms listed in this report.

Any defects seen by a contractor or the employer that were not apparent to the consultant must be brought to the consultant's attention immediately.

The consultant accepts no liability in respect of the woodland unless the recommendations of this report are carried out under his supervision.

Assessing the potential influence of trees upon load bearing soils, beneath existing and proposed structures resulting from water abstraction by trees or rehydration of shrinkable soils was not included in the contract brief and is therefore not considered in the report. The consultant cannot be held responsible for damage arising from such action.

Trees have the potential to cause indirect damage to existing and proposed structures by desiccation of the soil. Where soils are suspected to be shrinkable, they will be analysed by laboratory testing to determine the plasticity index. This will allow management decisions to be made relating to foundation depths, new planting and the effect of tree removals.

Risk assessments will be carried out by the owner or the owner's agent as a first action on the use of the woodland by occupiers, visitors and neighbours.

The ponds are a public safety hazard particularly to young children. The risk is minimised by careful management of the surrounding land and fencing where appropriate following risk assessment.

The desire for public access will require particular risk assessment by the owner and / or the owner's agent to establish the appropriate management process regarding site safety, hazards on site, property protection and public safety. Open access to the woodland does mean that the risk of anti-social behaviour such as fly-tipping, vandalism and fire is increased.

Any inspections or action required in relation to the safety of trees will be obtained by the owner or his agent from an approved tree consultant.

Any inspections or actions required in relation to drainage, structures, water quality, works to water and built elements should be obtained by the owner and/or the owner's agent from an appropriate engineer.

11 - Source documents

10 - Source documents

Local and National Planning
The National Planning Policy Framework (NPPF), (2012)

West Lancashire Local Plan (2012- 2027)

Mere Brow (Leisure Lakes) Biological Heritage Site (BHS 41NW01)

Environmental Research and Advisory Partnership. (ERAP) Ecological survey and assessment. April 2009.

Environmental Research and Advisory Partnership. (ERAP) Leisure lakes, Habitat and vegetation map of the Leisure Lakes Site. Nov 2008.

ERAP Ltd Consultant Ecologists. Leisure Lakes BHS. Report of measures to reconcile the nature conservation and leisure uses of Leisure Lakes BHS including proposals to integrate beneficial biodiversity with site uses. June 2010.

ERAP Ltd Consultant Ecologists. Avoidance of ecological impacts and mitigation/ compensation in relation to the proposed chalets and paint-balling area at Leisure Lakes, Mere Brow. V3. May 2011.

ERAP Ltd Consultant Ecologists. Proposed habitat creation scheme to compensate for the BHS losses resulting from the permitted chalet development. August 2011

ERAP Ltd Consultant Ecologists. Amended report- result of natterjack toad surveys. July 2009.

Lancashire County Council. Dr. S. Manchester. Ecological comments. July 2nd 2012

B. E, Brooks Ecological Ltd. Ecological Assessment. October 2007

B. E, Brooks Ecological Ltd. Leisure Lakes, Mere Brow. Habitat Management Plan. Nov 2007

Tavendale I. Proposals in respect of location of chalets around the windsurfing sailing lake and in respect of the defined paintball site- Leisure Lakes, Mere Brow, Tarleton. Details in respect of Arboricultural Impacts and Mitigation
Works, Accepted Practices and Methodology. (2009)

Tavendale I. Survey Details for Trees at Leisure Lakes, Mere Brow. (2008)

Sensible Ecological Survey Solutions (2003) Leisure Lakes, Mere Brow, Tarleton, Woodlands Habitats Losses and Gains Statement, SESS, Warrington.

British Standards 5837 Trees in Relation to Construction

Arboricultural Practice Note 12

Planning Application 2001/1512/ARM Reserved Matters- Siting of 49 self-catering holiday chalets; erection of amenity building, office extension, toilets, bungalow for park warden, shop and maintenance building; associated car parking and landscaping. Leisure Lakes Ltd, The Gravel, Tarleton

Planning Application 2015/0098/FUL 18-Hole Golf Course

West Lancashire Enhanced Phase One Habitat Survey. Mere Brow (Leisure Lakes) BHS 17/06/94

The Wildlife and Countryside Act (1981)

The Natural Environment and Rural Communities Act 2006

Biodiversity and Geological Conservation (DEFRA 01/2005,ODPM 06/2005)

Urban Green. Woodland Management Plan (2014)

Urban Green. Ecological Impact Assessment. March 2017

Appendices

Appendix A - Design Development

Following the production of this Habitat Creation, Enhancement and Landscape Management Plan (HCELMP) for the whole site, Urban Green has utilised the findings and recommendations to further assess the location of the proposed 33 floating holiday chalets,124 woodland holiday chalets and 263 Static Caravans and look in more detail at the design of the area to identify the most suitable means of implementing the outline planning permission in that location in relation to its woodland and lake edge setting.

Approach

This design development of the chalet area has been informed from the HCELMP and best practice and research of similar woodland sites elsewhere in the UK, along with a full and thorough audit of the existing environment, character and appearance of the woodland.

A further arboricultural impact assessment of the woodlands has been undertaken (**see Appendix B**), as part of the HCELMP to produce and underpin a coordinated and detailed strategy that demonstrates a low impact and sustainable approach to the positioning and design of the chalets that minimises impact on trees and habitats. Landscape proposals have been further developed that will provide mitigation and enhancements directly to this area of the site and the BHS. These will be implemented alongside the recommendations of the Habitat Management Programme.

Precedent

There are a number of recent similar and relevant developments across England that have been made reference to. Of note are Forest Holidays, which is a joint venture between the Forestry Commission and the Camping and Caravanning Club, who have an established track record of delivering low impact chalet developments within sensitively designated locations across the country. These include a number of sites subject to overriding international and nationally important designations e.g. SPA, NPA, SSSI's, SAC and AONB's. These have been developed in line with the ethos of the Forestry Commission and many of these principles are adopted in this work for Leisure Lakes.

The approach and offer at Leisure Lakes is unique to the region and aims to ensure that a careful balance is struck between meeting visitor and holidaymaker's needs, whilst also maintaining and protecting the special and unique attributes of the woodland setting and character. The focus for the design and siting of these chalets is to provide a tranquil natural setting within woodland or by the lakeside for visitors. The design and proposed number of units also responds to the unique and individual natural setting of the area and the resulting scheme is one of low density and which assimilates into the natural environment without detriment.

Chalet Design

The chalets are industry standard and have been designed to assimilate into a natural and woodland setting. A key feature of the proposed development at Leisure Lakes is the quality of the natural environment and, as such, the construction of the units, their appearance and the ongoing operation and management of the chalet site have been engineered to provide minimal disturbance to its setting.

Each chalet is proposed to be erected onto a concrete base which is suspended above the woodland floor on piles, obviating the need for excavation and allowing the woodland floor to remain unaltered. These piles will be driven into the ground by a specialist, low impact bottom driven piling rig, set on rubber tracks and with a gross weight of only 1.5 tonnes. Its size and weight ensure that it can operate within a woodland setting without comprising the sensitive characteristics of the location. Further, the piles will be only 150mm in diameter, crimped at the driven end, and so displace rather than cut through any tree roots when driven into the ground. (Please see **Appendix D** – Construction Environmental Management Plan.)

The chalets are pre-fabricated in modular, panel form, off-site using FSC timber, and therefore the construction of the units can be undertaken without the use of heavy machinery. The panels can either be hand carried into place or manoeuvred with a telescopic loader from the access road. This light touch construction ensures minimum disturbance to the woodland.

The positioning of the chalets in detail has been dictated by existing clearings and spaces that will be created by the removal of trees that have been identified during the Arboriculture assessment of the woodland to be in poor structural and/or physiological condition. Using this approach there is a less regimented layout, and the chalets therefore, sit more harmoniously within their environment.

Site Access Routes

All vehicle access routes to serve the development will be constructed with a crushed aggregate with a no dig methodology as detailed in **Figure3 - Indicative Details** This will provide a suitable surface for cars and pedestrians to move safely around the site, whilst also providing a method of construction and fin-ish which does not disturb the woodland and without regular use is quickly recovered by the woodland flora. A one way system has been designed and it is envisaged that Leisure Lakes will operate a strict 10mph speed limit within their site, to ensure any disturbance or safety concerns are adequately mitigat-ed against. The loose finish on the aggregate surface acts as a natural traffic calming measure. Car parking bays are proposed to be constructed with a cellular construction for parking / drop off such as “Aco Ground Guard” which are filled will soil and seeded with woodland grasses (or gravel as appropriate) to give a natural effect with effectively a reinforced permeable grassed area. Footpaths from these laybys to the chalets will be formed from permeable block paving, again utilising no dig construction methods laying them onto clean gravel on the sand bed.

All cars will be required to park on the existing main car park as part of the operational management by Leisure Lakes. This will ensure that all vehicles remain outside of the chalet and woodland area excluding designated drop off / unloading times.
Existing tracks and footpaths are to be utilised wherever possible for movement within the development and only improved with a shallow aggregate topping where necessary which assimilates in to the forest floor and naturally reduces speed. Drop off / loading areas will be located in the natural clearings, adjacent to the roadway; there are no kerbs and surface water runs off into the forest floor maintaining the status quo. These ‘laybys’ will be delineated by natural woodland objects (tree trunks etc).
Services will be located below or at the side of roads and footpaths ensuring minimal impact on tree roots. Where roots are encountered service trenches will be hand dug. Electricity, telephone and water connections are all available in the immediate area on and around site.
Services and sewers will connect back into the existing site infrastructure.The detail of such treatment will be agreed with the Environment Agency.

Impact on Woodland/Trees

The proposed layout has evolved to retain as many healthy trees as possible, with minimal tree loss. Chalets will be inserted along the lake edge to benefit from the natural aspect following removal of trees as recommended in the Arboricultural Impact Assessment and into natural clearings within the existing woodland. Given the context of the woodland setting, coupled with proposed improvements, it is considered that there will be no detrimental impact in the short and long term, through the loss of a small number of trees. The existing woodland is predominantly birch planted at very close centres and has received little in the way of silvicultural management. Woodland management recommendations in the HCELMP include thinning by the removal of trees to allow the remaining specimens to develop more successfully. Any tree loss to facilitate the proposed development is therefore anticipated to be minimal

in the overall management of the site. Furthermore, the woodland will be improved by replanting with a more diverse range of species in the canopy, shrub and ground layers.

In order to evaluate the impact of the development on trees, an Arboricultural Impact Assessment has been undertaken. This report has assessed the woodland within the area of the built development and in the immediate vicinity (see **Appendix B**).
During construction, adequate tree protection measures will be put in place as per the Arboricultural Method Statement (AMS - see **Appendix C**) to ensure that no trees or their roots are harmed. The sensitive nature of the construction methods developed specifically for this woodland environment and the outline 'Construction Management Plan' (see **Appendix D**), ensures minimal risk to the woodland. Tree protection measures, which have been employed successfully else-where, include high visibility 'plasnet' type fencing to define the extent of the Constuction Exclusion Zone and of the working zone. These areas will be clearly marked on site and construction workers will be given a full site induction to ensure that all personnel are fully briefed on tree protection matters.

The woodland area of the site will be managed in line with the Woodland Management Programme by Leisure Lakes.

Landscape Proposals

This design development has also included an appropriate landscaping scheme that provides suitable mitigation in the immediate vicinity of the chalets within the area of the BHS. This follows the principle objectives as set out in the Management Plan for this area of the site to establish the chalets within a native birch, oak and pine woodland with a heathland understorey and marginal wetland landscape adjacent to The Mere. additional woodland will be provided on the site at Area E as indicated on Figure 1 to the main report.

Landscaping has been a prime consideration in the design and layout of the proposals, providing two main functions:

- Planting / mitigation in line with the HCELMP recommendations to increase species and age diversity of the woodland;

- Provide a natural visual buffer to development as well as softening the appearance of such on the landscape, embedding the development within its surrounding environs.

The landscape scheme and associated Habitat Management Programme have been prepared and coordinated with these design developments to complement the long term vision for the management and enhancement of the site, its woodland and its wetlands to ensure that the development has a positive contribution to the character and appearance of the area.

Planting Proposals

The proposed landscaping scheme in the area of the chalets provides significant new planting replacements which details the full extent of additional planting proposed within the development area of the BHS, in line with the woodland management programme recommendations.
The scheme will encompass broadly one for one replacement as mitigation of tree losses. These will be planted as part of the wider landscape scheme for the site.

The replanting will include the following native species:

Sessile Oak	(Quercus petrea)
Downy Birch	(Betula pubescens)
Silver Birch	(Betula pendula)
Willow	(Salix sp.)

Understorey to include:

Hazel	(Corylus avellena)
Willow	(Salix sp.)
Heather	(Calluna vulgaris)
Broom	(Cytisus sp.)

Trees are sited in existing clearings within the wood where there is sufficient light for the trees to develop. Given these significant planting proposals, the tree losses will not affect the amenity of the wood when viewed from the surrounding environs on site.

The trees will be securely pit planted in holes which are excavated to at least 0.3m larger in all dimensions than the rootball of the tree, and back-filled with topsoil. Each tree will be supported with a treated softwood stake inserted at a 45 degree angle to the ground, avoiding the rootball and secured with an adjustable rubber tie. Spiral guards (60mm x 50mm) will be fitted around the lower stem to prevent small mammal damage. Bark or composted woodchip mulch will be placed around each tree to a depth of 75mm. The mulch will cover an area of at least 1m2 centred on the stem of the tree to reduce weed growth.

Summary

The revised layout and detailed positioning is designed to fit in with and around the natural features present across the site, inlcuding the woodland, lakes and open space. This ensures harmony and retains the woodland balance, whilst also creating an attractive and unobtrusive ‘back to nature’ holiday feel.

The layout will ensure that the best tree specimens are retained and only trees that would otherwise be thinned, are in poor health or are dangerous are to be lost.

The HCELMP has informed these design developments and can be seen as a good practice guide, final fine adjustment and positioning of chalet locations and infrastructure will be made on site by marking out and supervising prior to construction to ensure the final scheme has minimal impact to the woodland environment.

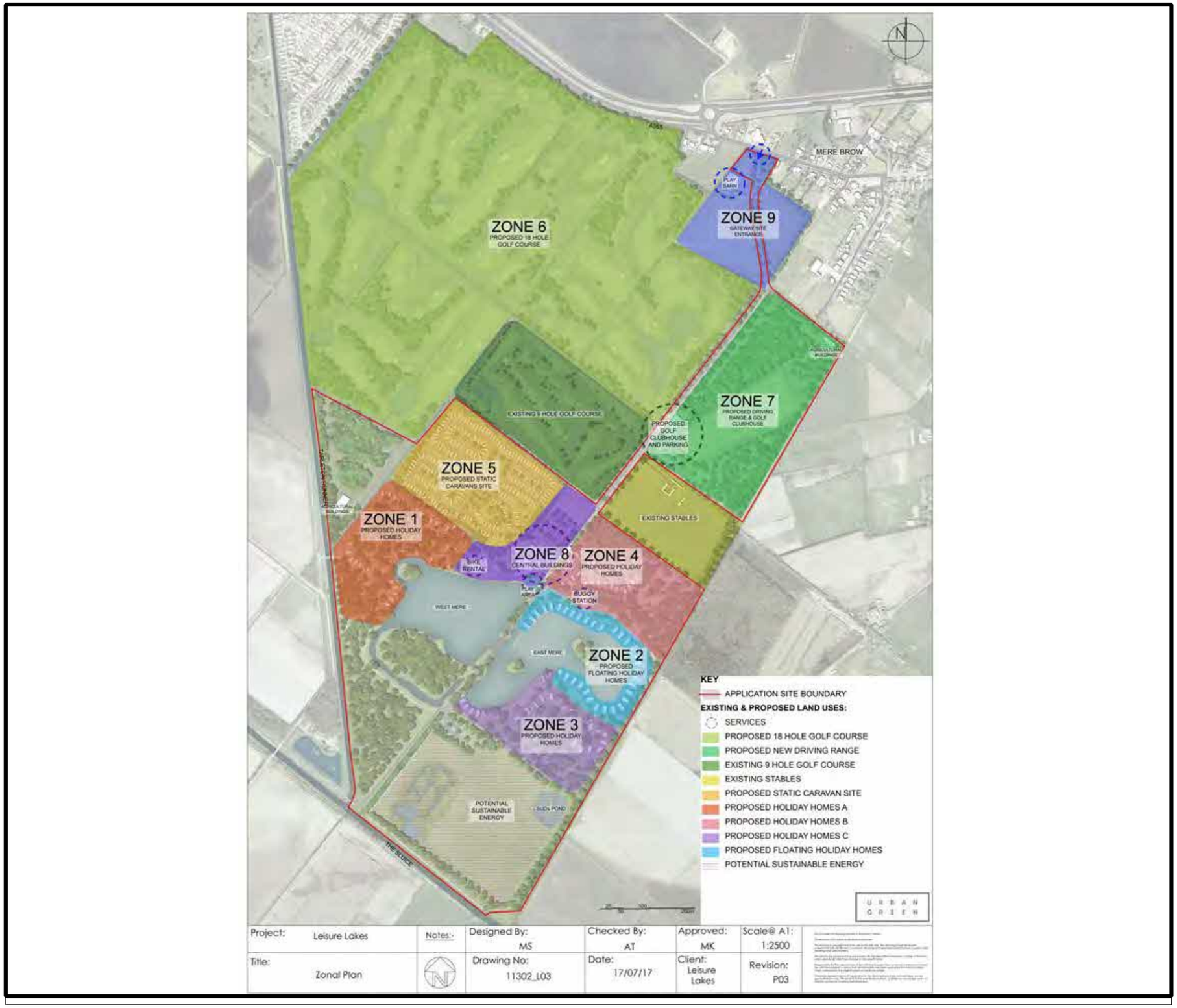
Technical drawings have been produced seperate to this document that demonstrate these design developments, as follows:

- Existing Site Plan (location)
- Proposed Masterplan
- Vehicle and Pedestrian Path Strategy
- Proposed Services Strategy

The drawings in the following section are a summary representation of these technical drawings.

PRECEDENT IMAGES

Proposed Masterplan



Proposed Zoning plan

Proposed Access and Circulation Plan

Proposed Services Strategy

Appendix B - Arboricultural Impact Assessment

Appendix B - Arboricultural Impact Assessment (AIA)

The rationale of the leisure development, and in particular the location off the holiday chalets is not just to maintain the woodland setting but to put the trees and woodland at the core of the project.

The application site is covered by a Woodland Tree Preservation Order, which effectively means that the full extent of the woodland floor is protected regardless of whether a tree is currently growing. We have therefore taken the approach where we consider that the entire development footprint is within the Root Protection Area (RPA) and will therefore be protected in its entirety in line with BS5837:2012. This will not only protect the woodland floor throughout the construction process, but will maintain favourable rooting conditions to maximise the potential for any proposed planting.

Construction of Chalets

Given the proximity of the majority of chalets to retained trees, all of the chalets will be constructed with piled foundations.

BS 5837:2012 allows for building within the RPA of retained trees if there is no other design solution. It states that buildings within the RPA of retained trees should be constructed with minimal excavation using specialist foundations such as mini piles. In this case the proximity of the trees to the proposed chalets is at the heart of the design concept. All the chalets will be constructed on piled foundations using a mini piling rig. This method has been refined on a number of successful developments of this type across the UK (Fig. 1 and 2).

Surface Alterations

No-dig surfacing will be used for the access roads, all parking areas and paths within the RPA of retained trees. These will be constructed without excavation with a crushed aggregate, a proprietary three dimensional cellular confinement system could also be used, but it is deemed that aggregate alone will suffice and is the most sustainable approach.

Fig1. Example of Mini Piling in the Forest of Dean

Fig 2. Example of Mini Piles in Forest of Dean – demonstrating minimal disruption to the forest floor.

For the car parking areas and linking paths a lesser specification of ground protection is proposed such as “Aco Ground Guard” (squares of cells filled will soil and seeded with woodland grasses or gravel as appropriate) or a similar product.

The no-dig road and path surfaces, by its nature, will be raised above the existing ground level. Therefore, the sections of no-dig routes are planned to avoid any undesirable changes of level (Fig 2. Where trenching through the RPA of retained trees is unavoidable special techniques will be employed.

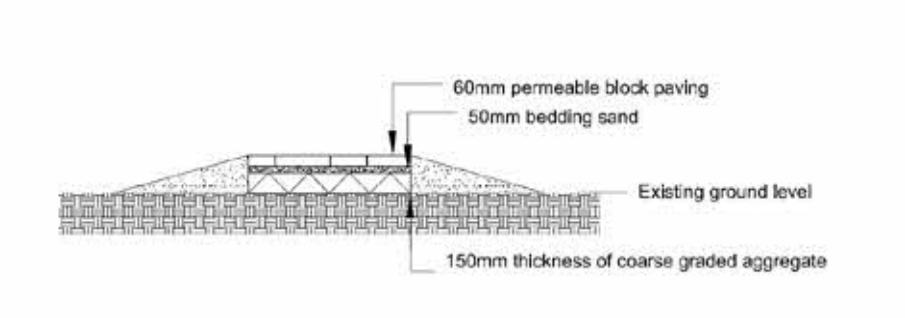


Fig 3. Example no dig pathway construction

The four general principles that will require strictly upholding when designing a no dig solution within the RPA are:

- Roots must not be severed.
- Ground Levels must not be changed.
- Soil structure must not be damaged by compaction.
- Oxygen and water must be able to diffuse into the soil below.

Any excavation required within the RPA will be carried out by hand. This may be supplemented by the use of an air spade or similar non-intrusive investigation method. Small roots may be severed with sharp hand tools. Roots smaller than 25mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist, as such roots might be essential to the tree’s health and stability.

Access routes and laybys may require alternative methods that utilise geotextile material (cellular confinement system). A cellular confinement system acts to “spread the load” on soft ground by distributing the load of a wheel/track/footfall over a larger surface area. This cellular system should then be filled with no-fines granular sub-base material that can penetrate the cells with a geotextile layer below to prevent the loss of aggregate. This interlock between aggregate and grid provides a reinforced platform (Fig 4).

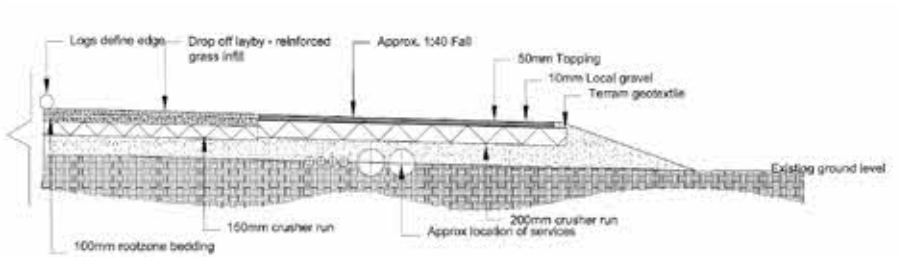


Fig 4. Example of a typical access route incorporating a cellular confinement system.

Tree work required for development purposes in relation to individual plots will be completed before construction commences in that area. Where facilitative pruning is recommended this must conform to BS 3998(2010) “Tree Work – recommendations” and be restricted to the minimum necessary to allow the positioning and construction of the chalets.

Demolition works

When demolishing a structure (including underground structures) within what would otherwise be the RPA, barriers should be erected, and ground protection installed to protect the underlying soil to the edge of the existing structure.
All plant, machinery and vehicle involved with demolition work should be operated outside the RPA of retained trees. Where this is not possible ground protection measures should be implemented (see Appendix 3 – Arboricultural Method Statement).

Where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the existing building.

Removal of existing hard surfaces

When removing existing hard surfacing in the RPA of retained trees, care should be taken to ensure that roots that may proliferate below the existing subbase are not damaged. Hand held tools or suitable machinery should be used, whilst under the supervision of an arboriculturist.

Appendix C - Arboricultural Method Statement

Appendix C - Arboricultural Method Statement

Scope of Works

This Arboricultural Method Statement (AMS) has been prepared to ensure that the system used, as far as is practicable, conforms to BS5837:2012 “Trees in relation to design, demolition and construction - Recommendations” and related industry best practices. The principle tree protection measures for the retained trees on site are as follows:

- Arboricultural site monitoring, auditing and supervision.
- Provision of temporary protective barriers.
- Temporary ground protection.
- Mini piled foundations for all chalet units.
- Manual positioning and construction of all buildings
- Use of no-dig surfaces (a method of constructing a surface without excavation) for the new access routes, car parking spaces and paths.
- Facilitative pruning as required.

Development implementation phases

The arboricultural consultant will need to be involved in the following processes:

Phase 1 - Site preparation

- Marking trees for removal as part of pre-construction tree surgery works.
- Monitoring of any access facilitation pruning.
- Installation of protective fencing and ground protection.
- Demolition of existing structures
- Installation of protective fencing and ground protection
- Pre-development inspection.

Phase 2 – Construction process

- Foundation installation in the RPA including mini piling rig activities
- New surfaces in the RPA
- Installation of services
- Working in the RPA
- New surfaces in the RPA
- Hard landscaping

Tree surgery works

Tree works required to facilitate the development will be carried out prior to the commencement of any onsite operations. This will allow sufficient space for approved construction to be carried out.

Any unforeseen tree works that become apparent during the construction process will require written consent from the Local Authority Tree Officer and be monitored by the Arboricultural Consultant.

General construction activity

All operations that could affect trees must be considered as part of the project management of the Proposed Development. It is therefore imperative that an Arboricultural Consultant is appointed as part of the design and management team to advise on pre-development issues and supervise on-site operations.
The Arboricultural Consultant may also have an advisory role in the preparation of site including tree surgery works and the protection of trees during demolition processes.

It is essential to adhere to the recommendations within this document during onsite operations to ensure the successful retention of trees as part of the Proposed Development. Compliance with the AMS will be a requirement of all relevant contracts associated with the Proposed Development.

The AMS aims to provide general guidelines to onsite personnel that must be followed when working close to trees on construction sites. All site personnel will have access to this document and be made aware of any sections that may be relevant to their specific area of work.

The developer will inform the Local Planning Authority (LPA) within twenty-four hours if the Arboricultural Consultant is replaced.

Potential damage to above ground parts of retained trees

Care will be taken when planning site operations to ensure that the mini piling rig is able to operate without coming into contact with retained trees. Any contact has the potential to cause life limiting damage. It is therefore essential that any activities in close contact with retained trees is carried out under the supervision of a banksman to maintain sufficient clearances.

Any tree damage must be reported to the Arboricultural Consultant or Local Authority Tree Officer as unreported damage could lead to the structural instability.

Protective fencing

Temporary protective fencing will need to be installed prior to the commencement of any construction activities on site including the delivery of materials and site facilities. Any fencing that is damaged so that it is no longer able to protect retained trees must be replaced/repaired immediately with appropriate fencing.
All RPAs will be protected by 'Heras' steadfast type fencing with back stay supports where construction activity is expected to be minimal (Fig 1)

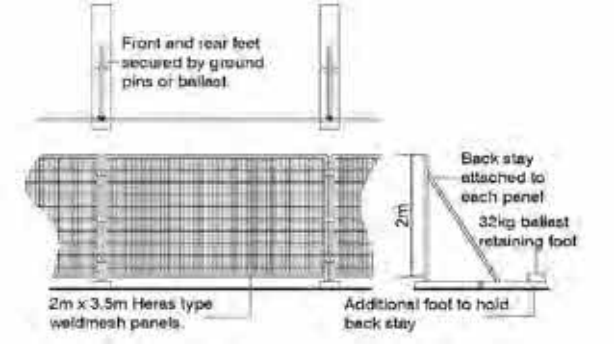


Fig 1. Temporary Protective Fencing with back stay supports

In areas of site where construction activity is expected in close proximity to RPAs, it will be necessary to employ the more robust 'in-ground' system following BS 5837 guidelines (Fig 2).

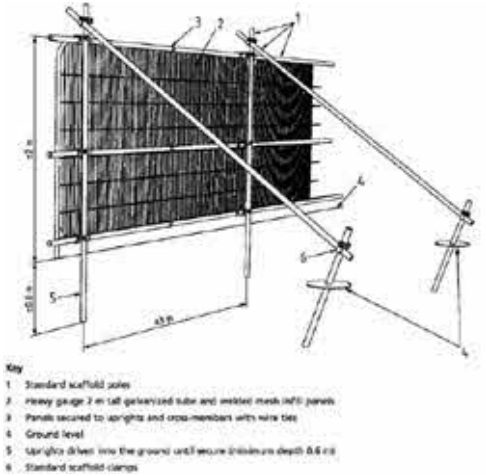


Figure 2. Temporary Protective Fencing (in ground system).

The 'in-ground' system involves driving vertical scaffold poles approximately 0.6m into the ground onto which are affixed horizontal scaffold poles and bracing struts. 2m high anti-climb weldmesh panels are then wired to the scaffold framework. The vertical scaffold poles should be at a maximum of 3m apart.

No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to the tree roots when locating uprights.

Where space is limited, it is sometimes necessary to construct a temporary tree guard to physically protect the main stem of the tree (Fig 3. below). This should be made by joining together 4 X 25mm Exterior Grade pieces of plywood to 47mm X 47mm treated timber posts to create a box shaped frame which is attached to the ground or adjacent structures. No fixings are to be made to the tree and suitable ground protection should be employed within the RPA of the tree.

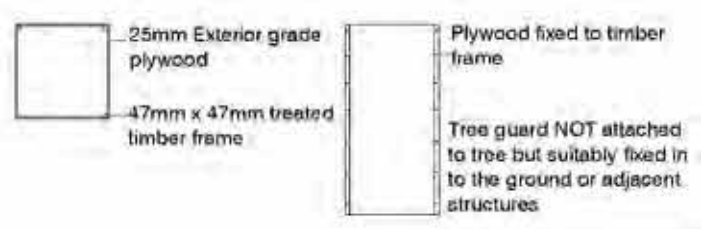


Fig 3 - Temporary Protective Fencing.

A 600mm x 300mm warning sign reading “TREE PROTECTION AREA KEEP OUT” shall be fixed to every 10m of protective fencing. (Fig 4).

Fig 4. Tree Protection Sign

Ground protection for wheeled or tracked vehicles

All vehicles will use existing hard surfaces. However, it may be necessary on occasion to drive plant machinery within the RPA. To avoid compaction of the soil during construction, a minimum of 100mm compressible material, followed by temporary interconnected road plates or similar that is capable of sustaining the expected loads should be installed. This system will ensure that the weight is evenly distributed over the affected area.

Ground protection for pedestrians or light vehicles

The primary method of ground protection is the installation of a compressible layer (e.g. woodchip) over a geotextile fabric with side butting scaffold boards (Fig 5).

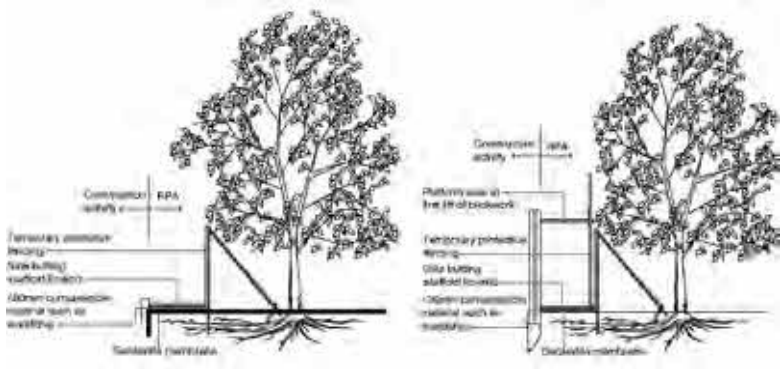


Fig 5. Ground Protection in RPA

Ground protection measures whilst working the RPA must be capable of supporting the expected loads and avoid compaction of the soil.

The boarding will be left in place until the construction works are finished.

Scaffolding may first be erected with the uprights on spreader boards and the ground protection installed around the uprights.

Pre-development inspection

The site will be inspected by the appointed Arboricultural Consultant or Local Authority Tree Officer following any facilitative tree surgery works and the installation of protective fencing and ground protection measures.

Phase 2 – Construction process

Demolition and removal of surfaces in the RPA

During demolition, the following restrictions will apply:

- Where direct damage by falling masonry is likely, the tree should be protected by exterior grade plywood sheets constructed around the main stem.
- The main body of any mechanical excavator will operate outside the RPA.
- Masonry will be pulled away from trees where possible.
- When breaking masonry, a fine water spray will be used to minimise dust particles.
- Excessive dust particles on trees will be removed each day by spraying with water.

Hard surfaces should be kept in place for as long as possible during construction works in order to prevent soil compaction in the RPA.

During surface removal, the following restrictions will apply:

Only hand operated tools will be used to lift existing surfaces and sub-base. No mechanical excavators are to be used.

No excavation below the existing sub-base will occur.

All surface removal within the RPA will be supervised by the Arboricultural Consultant or the Local Authority Tree Officer.

Excavation in the RPA

Any necessary excavation must be carried out using hand tools to avoid direct damage to the protective bark of tree roots. It may be possible in some instances to use specialised equipment such as high air pressure machinery to excavate the soil with minimal disturbance to roots.

Exposed roots will be wrapped in dry, clean Hessian sacking to prevent desiccation and to protect from rapid temperature changes. In warmer weather, the sacking should be kept moist by regular watering. Sacking should be removed before backfilling.
Roots less than 25mm diameter may be pruned back, preferably to a growing point.

A sharp cutting tool such as bypass secateurs or a handsaw should be used to leave the smallest wound possible. Roots greater than 25mm in diameter should be retained wherever possible.

Root pruning should be carried out under the supervision of the Arboricultural Consultant or the Local Authority Tree Officer to ensure that only roots necessary to facilitate the development will be removed and the long-term well-being of retained trees is maintained.

Backfilling of any excavation should be carried out by hand to avoid direct root damage by excessive compaction and should include, where possible, the replacement of inert granular material mixed with sharp sand (not builder's sand) around retained roots.

Temporary site cabins

All storage facilities and deliveries will make use of existing hard surfaces to avoid unnecessary compaction within RPAs. The locations will be agreed in writing with the LPA prior to delivery and will remain in the agreed locations unless approved by the LPA.

If storage facilities require siting within RPAs, every effort will be made to ensure that any damage to aerial parts of retained trees is avoided and that appropriate footings are used to avoid root damage or compaction of the soil.

New structures in the RPA

No concrete strip foundations are to be installed within the RPA of any retained tree. Traditional strip foundations can cause an unacceptable amount of damage during the excavation process where roots are easily torn by mechanical excavators.
Small, light structures such as sheds and bin stores can be laid directly onto the soil surface without the need for significant excavation. A small amount of excavation may be permissible to provide a level surface, however, no roots over 25mm in diameter should be severed without the advice of an arboriculturist or Local Authority Tree Officer.

Traditional footings should not be used within the RPA for the construction of non-load bearing walls. It may be possible however, to construct walls in proximity to trees by bridging existing roots with lintels.

Where foundations are to be laid in the RPA of retained trees, root damage can be minimized by using small diameter piles located to avoid major tree roots. The proposed area for pile installation should be dug by hand to a depth of approximately 750mm in order to ascertain the position of roots present. Beams, slabs and suspended floors should be laid at or above ground level and cantilevered, as necessary, to avoid tree roots.

Where piling is to be installed in proximity to trees, the smallest practical pile diameter should be used as this reduces the possibility of striking major tree roots, and reduces the size of the rig required to sink the piles. The latter is particularly important where piling within the branch spread is proposed, as mini-rigs reduce the need for access facilitation pruning. Sheathed piles protect the soil and adjacent roots from the potential toxic effects of concrete.

Backfilling of any excavation should be carried out by hand to avoid direct root damage by excessive compaction and should include, where possible, the replacement of inert granular material mixed with sharp sand (not builder's sand) around retained roots.

Any pruning should be carried out under the supervision of the Arboricultural Consultant or the Local Authority Tree Officer to ensure that only branches necessary to facilitate the Proposed Development will be removed and the long-term well-being of retained trees is maintained.

Utilities

All services will need to be designed to avoid the RPAs of retained trees including foul and surface water drains, electricity, land drains telephone and cable services, soak-aways, lighting, gas and water.

The installation of underground utilities within the RPA should not be considered unless it is absolutely necessary. Trenching can cause an unacceptable amount of damage to tree roots.

The National Joint Utilities Group publication, NJUG10 recommends the following precautions when working in the RPA:

- No excavation should be carried out using machinery.
- When digging by hand, carefully work around roots, retaining as many as possible.
- Do not sever roots over 25mm in diameter without the consent of the Arboricultural Consultant or Local Authority Tree Officer.
- Any root pruning will be carried out using a sharp tool (eg secateurs or handsaw). Make a clean cut and leave as small a wound as possible.
- Backfill the trench with an inert granular material and topsoil mix. Compact the backfill with care around the retained roots. On non-highway sites backfill only the excavated soil.
- Do not repeatedly move or use heavy mechanical plant except on hard standing.
- Do not store spoil or building material, including chemical and fuels.
- Protect roots with dry sacking if they are to be left exposed overnight when there is a risk of frost. Sacking must be removed before backfilling.

Working in the RPA

Special care will need to be undertaken when working in the RPAs that are not protected by temporary fencing. The RPA is defined on the Tree Protection Plan Appendix 4 by coral hatched circles surrounding retained trees. Where necessary, temporary protective fencing will be placed in the marked positions, beyond which is a Construction Exclusion Zone (CEZ). This zone precludes all construction activity, with the sole exception of specified arboricultural works that have been agreed by all parties and under the supervision of an arboriculturist.

RPAs explained

The RPA is an area of ground around the base of a retained tree, which is calculated in relation to the stem diameter, where disturbance should be kept to a minimum and avoided if at all possible.

The majority of tree roots grow within the upper 600mm of the soil profile where most nutrients are available as the result of the decomposition of organic matter close to the surface. Rooting conditions become less favourable at depth as the soil density increases, creating anaerobic conditions.

It is essential that roots are protected from construction works including physical damage from excavation and changes in soil structure from compaction and changes in ground levels.

Construction Exclusion Zone (CEZ)
No construction activity will take place unless otherwise stated in this report or agreed in writing with the LPA prior to required works. Any required works will be carried out under the supervision of the Arboricultural Consultant or Local Authority Tree Officer
Any materials which have the potential to contaminate the soil, e.g. concrete mixing and diesel oil will not be discharged within 10m of the tree stem. This should take into consideration the topography of the site and slopes, to avoid materials such as concrete washings flowing towards retained trees.

Fires shall not be lit in a position where their flames can extend to within 5m of foliage, branches or trunk. This will depend on the size of the fire and the wind direction.
Notice boards, telephone cables or other services should not be attached to any part of retained trees.

Surface design
It is essential to maintain adequate supplies of water and oxygen for trees through the soil. New impermeable surfacing should not cover more than 20% of the RPA.
Design and construction specification should take account of further growth.
Paving slabs and block pavers are available with built in infiltration spaces between the slabs or blocks. They should be laid dry-jointed on a sharp sand foundation to allow air and moisture to penetrate to the rooting area.

It may be necessary to lay paving and other surfaces on a flexible base to allow movement and to facilitate relaying if distortion becomes excessive due to the activity of tree roots.

Edgings and associated foundations and haunchings can damage tree roots. This should be avoided within the RPA by either the use of alternative methods of edge support or by not using supports at all.

Where wheeled or heavy pedestrian traffic is expected in the RPAs of retained trees, it will be necessary to construct the new surface using a cellular confinement system with a permeable surface. A supplementary method statement will be included in the appendices if necessary.

Changes in ground level
Changes in ground level can be harmful to trees where stripping or filling of soil is carried out in the RPA. It is therefore important that no significant changes in level occur within the RPA of retained trees.

Pedestrian Paving
Any pedestrian paving or patios that may be installed over rooting zones, as part of a post construction landscaping scheme, should be constructed in a manner sympathetic to tree roots. Excavation should be limited to 100mm. Paving with a thickness of 50mm bedded on mortar, or sand bearing directly onto the ground, with a finished surface which is level with existing ground levels will be acceptable. No retaining kerbs should be used.

Boundary treatments
Where fencing is to be installed within RPAs of retained trees, post holes will be excavated by hand and kept as narrow as possible. Trial holes will be dug using a manually operated soil augur in order to position post holes to avoid major roots.
Exploratory post holes will be dug before committing to positions. If any roots in excess of 25mm are encountered they are to remain intact and the post hole will be relocated to avoid them. The fencing system must permit such flexibility (i.e. where fixed panel widths are used, all post holes must be excavated before committing to the final location)

All post holes will be excavated by hand and kept as narrow as possible (maximum diameter 300mm).

Any roots in excess of 10mm which are severed will be neatly pruned back with secateurs. This will encourage healing and reduce the likelihood of infection.

Soft landscaping
No machinery used for landscaping such as rotovators are to operate within the RPAs of retained trees.

All planting must be carried out carefully, by hand to avoid damage to existing roots. Mulch should be used around the base of trees, where possible, to maintain ground level and to avoid mower and strimmer damage to buttresses and surface roots.

Monitoring
The Arboricultural Consultant will be responsible for the monitoring of all arboricultural works and issuing a certificate of practical completion.

Appendix D - Construction Environment Management Plan

Appendix D - Construction Environment Management Plan

This Construction Environment Management Plan (CEMP) is for the construction phase of the development, and sets out the intended methods of effectively managing potential environmental impacts arising from the construction of the 18-hole Golf Course.

The responsibility for implementation of the CEMP lies with the Principal Contractor and it shall be implemented by the Site Manager who shall work in conjunction with key personnel to ensure it is implemented. In order to ensure that the plan remains relevant it will be the responsibility of the Site Manager to take ownership of the CEMP and ensure its relevance to activities being undertaken on site in light of any changes from the initial scope of the plan, this requires its regular revision and updating as necessary. Any revisions or updates shall be subject to agreement in writing with the LPA.

CEMP Overview

This CEMP identifies the project management structure roles and responsibilities with regard to managing and reporting on the environmental impact of the construction phase. A number of surveys have been conducted during the planning process which have identified and assessed the aspects of construction that could have an environmental impact. All proposed mitigation measures as identified in the reports will be applied and are specifically described in the applicable sections of the CEMP.

The overall environmental objectives that will be applied to the project are:

- All practicable steps shall be taken to minimise the environmental effects of construction works.
- All activities shall be conducted in accordance with the CEMP, relevant legislation, Codes of Practices, Guidelines and any local environmental procedures.
- Environmental licenses, permits and consents and other statutory requirements are to be obtained prior to works commencing, and fully complied with.
- All staff (including sub-contractors) shall be aware of the environmental issues relevant to the Project through the provision of site specific information on the environmental impacts of construction and the mitigation measures to be applied during inductions, briefings and tool box talks.
- Regularly reviewing of the environmental requirements of the project and ensuring that environmental controls remain adequate throughout the duration of the project.

Environmental Management

Pre-Phase / Activity planning

During the initial planning of the construction and prior to the commencement of construction, the activities likely to cause environmental impacts will be identified and the most suitable mitigation measures selected from those identified generally in this CEMP for the specific activities will be incorporated into the method statement. These mitigation activities will be communicated to and agreed with the LPA no later than 2 weeks prior to the start of construction.

The following subsections outline the processes and methods to be implemented on site to ensure all environmental risks are identified and sufficient mitigation measures are put in place to reduce environmental impacts associated with the works.

Overall Project Management Actions

All environmental documentation shall be kept on site at all times and be available for inspection by internal and external auditors and regulators, as well as the client and management. Site personnel shall be made aware immediately if any significant changes in work procedures are implemented.

Relevant documentation shall include the following:

- Site Weekly Checklist
- Impacts and Aspects Matrix
- Environmental Risk Assessment
- Construction Environmental Management Plan
- Training and Responsibilities Matrix

Weekly environmental inspections shall take place on site by the construction supervisor. The findings of these inspections and any associated actions shall be appropriately documented on the Weekly Checklist.

Site management shall meet as necessary with the LPA to review activities on site and the potential environmental impacts and mitigation measures relevant to those activities that will be implemented.

The site management shall regularly liaise with the Environment Agency and other authorities and regulatory bodies with regards to all consents, exemptions and licences. Any applications shall be made with consideration of appropriate timescales.

A consents schedule shall be completed and held on site files, detailing information from date of application. Where specific limitations are set through any licence, consent or exemption, this is to be clearly identified and regularly reviewed to ensure compliance.

Contact details of key personnel in relation to emergencies shall be clearly displayed on site and information explained to all site personnel. A clear and detailed plan of the site which indicates the location of sensitive receptors such as watercourses and drainage points will be displayed in a prominent position within the site office.

Use of piled foundations

The chalets are within the RPA of retained trees. The British Standard states that buildings can be built within the RPA of trees provided special foundations, such as mini piles are used to minimise excavation. The mini piling system to be used for the chalets and all other buildings on site is one that has been implemented successfully elsewhere on similar sites. The piles will be driven with a low impact Piling Mole supplemented by a small drop hammer mini piling rig on tracks. The light piles will be 150mm in diameter, closed at the bottom end. The ends of the piles are specially shaped to deflect roots. When in position the closed piles will be filled with concrete by the on-site augured method thus avoiding leachates percolating into the soil.

The buildings will be set above ground level, as shown, with no excavation.

To ensure that this piling work does minimal damage to the trees. Personnel and machines involved in the piling work will work off temporary ground protection edging the piling area or in the case of the piling rig on boards or mats as required.
The prefabricated buildings will be delivered to site in flat pack form and the sections will, as far as is practicable, be manually manoeuvred into place avoiding the use of heavy plant.

Hard surfacing within RPA of retained trees

Given the extent of tree cover, all vehicle access routes, car parking spaces and linking paths will be of a No-Dig method of construction without excavation. As the No-Dig surface will form part of the site access it will be built immediately after the temporary fencing is erected and prior to any other construction work taking place is complete. The linking paths will not be edged with temporary protective fencing as this would add considerably to the length and complexity of the fencing requirements. These will be constructed carefully working only off the surface that has been laid and the route will be edged with barrier tape.

The hard surface is designed to avoid localised compaction by evenly distributing the load over the road, path or car parking space. Given that the site has little change in level the surfacing will be merged and graded into the existing sections of road as you enter the site.

The construction of a No-Dig surface must be undertaken in dry weather. There will be no machine movement within the RPA of the trees before the ground is protected by a load spreader and sub base.

Any major protrusions such as flints will be removed prior to commencement. Any hollows will be filled with clean sharp sand prior to laying a fibretex F4M separating geotextile.

The “Cellweb” panels will be extended to the full length and pinned into place with staking pins to anchor the cells open. Adjacent panels will be stapled together to form a continuous mattress. The surface must be located at least 0.5m from the base of the retained trees.

The mattress will be edged with treated softwood edging boards of sufficient width to accommodate the infill material and held in place with pegs at a minimum spacing of 500mm.

The cells will be filled with no fines angular stone (40 to 20mm). The infill material will be piled at the end of the extended web and pushed over the expanded cells working off the infill material. No machinery will encroach on the ground unless supported by the infill material.

If the No-Dig surface is used for heavy construction traffic a sacrificial layer of stone should be laid on another geotextile membrane and scraped off at the end of the construction to form the final surface.

A range of other surface finishes can be used. However the final surface must be permeable to allow continued water and gaseous diffusion.

For the car parking areas and linking paths a lesser specification of ground protection may be appropriate such as “Aco Ground Guard” If this or a similar product is used it must be laid over the existing ground level.

The suggested methodology will be as follows:

- The existing ground vegetation will be killed using a translocated herbicide taking care to avoid drift on to retained trees. Dead vegetable matter can be scraped off maximum depth of 25mm
- Remove all major protrusions such as flints. Stumps within the RPA of retained trees to be ground out. High spots should not be graded off.
- Any major hollows to be filled with sharp clean sand.
- Lay a geotextile membrane.
- Fit Aco Ground Guard or similar, ensuring they are linked together to form a rigid mat.
- Fill cells with good Quality top soil and firm into place/ or lay a gravel or shingle infill.
- Sow grass seed where required
- Tidy edges adding additional top soil to grade up to the edge of mats and seed.

Construction

The movement of plant in proximity to retained trees will be conducted under the supervision of a banksman to ensure adequate clearance from the branches of the trees. Hydraulic cranes, forklifts, excavators or piling rigs (other than small rigs used for mini piling) must be avoided in the immediate vicinity of the crown of the trees.

Cement, oil, bitumen or any other products of which spillage would be likely to be detrimental to tree growth will be stored well away from the outer edge of the RPA of retained trees. Precautions will include ensuring all toxic liquids are stored in fully bunded containers. Equipment such as barriers or sandbags must be available on site to deal with any accidental spillages that may occur.
Given the woodland setting and the potentially high fire risk the lighting of fires on site will be completely prohibited.

Introduction:

This Construction Environment Management Plan has been prepared for Leisure Lakes utilising current good practice and relevant precedent of similar projects that have been carried out within similar settings in England. This focus being on the conservation of habitats and the preservation of natural environments being of particular importance. The design philosophy is to utilise chalets befitting for the woodland setting, then locate and construct them sensitively in woodland. This will deliver a site that allows the general public to appreciate the natural environment, based on the specifics of the site and industry good practice.
The plan briefly outlines the principles underlying the construction of a sustainable woodland holiday experience at Leisure Lakes. It is intended to highlight the main elements of work to be carried out and the methods of quality control to be adopted to reduce the impact on the woodland and the surroundings.
For the methods being used on matters relating to ecological, landscaping and woodland management at pre-construction and construction please refer to the Design Proposals, Arboricultural Report and Woodland Management Programme.

The construction of chalets at Leisure Lakes has the following main elements of work being carried out within the construction zone:

- Enabling Works
- Local consultation
- Establishment of contractor site facilities
- Provision of contractor office & welfare facilities
- Setting out
- Infrastructure
- Installation of main services
- Construction of chalet access tracks
- Construction of paths to chalets
- Construction of chalets
- Construction of the central building
- Construction of the maintenance area

During the course of the works no material will be taken off site. Wherever possible the design balances cut and fill and the limited amount of material generated, for example, by scraping topsoil from track beds will be incorporated into the landscape scheme on site.

Construction Methodology:

Safety
The construction process includes the consideration of how the works are to be constructed safely and with the minimum of disturbance to the woodland and surrounding areas. All works will be carried out in strict compliance with the Construction (Design & Management) Regulations 2015 and in accordance with the current legislation and best practice methods resulting in benefits to on- site safety and speed of construction. This will facilitate the control necessary to ensure a high standard of finish and protection to the natural environment.

The health & safety aspects of the project will be a major consideration by Leisure Lakes, the designers and contractors before construction work is started. When on site the Health and Safety Co-ordinator will implement a safety regime that will include regular audits by qualified safety officers, personnel site safety inductions and instruction. All workers will be inducted into the site rules and any visitors that have not been inducted will be escorted around site following the guardian principle.
With the works being carried out in a Forest Environment, fire is recognised as a potential hazard during the construction phase. Fire precautions will be discussed and agreed with the relevant authorities before construction work commences.

Setting Out:
As outlined in the Arboricultural method statement and the detailed proposals, the trees and existing tracks define the setting out the access route, paths and parking areas - any minor site specific adjustments to be supervised by an arboricultural clerk of works.

Construction Vehicles:
A selection of appropriate construction vehicles will be important to ensure minimal impact to the woodland setting. For example, wide tracks and low pressure tyres will be used so there will be low pressure on, and minimum damage to the woodland floor.

Infrastructure:
To reduce the extent of service trenches, one combined trench will be used to contain all the services and will be dug to comply with the methods set out in the Arboriculture Method Statement.
The Track finish will be a gravel type one, similar to that used by the Forestry Commission. The final surface of the road is left until just before the site opens and the construction traffic has left site.

Chalets
The chalets will be factory manufactured timber framed units which will be delivered to site in flat packs for erection on a pre-constructed chalet floor and foundation. The chalet floor will be suspended over the forest floor and supported on pile foundations. Through research and examples of successful developments delivered on National Park sites and other similar locations a mini piling system will be used to install the piles. The system gives flexibility to install using a small construction vehicle or hand held system to minimise the impact on the woodland floor and tree canopy over.
The construction of the chalets will be by an industry standard specialist supplier of prefabricated building elements. The size of the prefabricated units will be suitable for manual handling (whenever possible) therefore reducing the need for large construction vehicles and significantly reducing impact to the woodland floor and tree canopy. The whole process ensures that consistent quality and speed of construction is achieved. The external façade of the buildings will be clad in sustainably sourced FSC timber.

Protection
The timing and phasing of construction will be in accordance with the ecological and arboricultural requirements, with important areas being surveyed and protected, under the supervision of an arboricultural clerk of works, before construction work starts. Construction activity on site will be controlled through the programme and the relevant Management Plans, with the works being carried out in a controlled, phased way around the site to limit access through completed areas and minimise impact to the woodland.
For example: Trees will be protected through cordoning off areas using personnel type barriers. These will be located at control points and areas which are vulnerable to construction traffic. The remainder of the construction zone will be defined by yellow and red tapes wrapped around trees. Yellow tape will define the boundary of the working area, and red the ‘no go” area. To gain access to the area between the yellow and red tapes an operative will require written approval to carry out work on this zone. Under no circumstances is an operative to be allowed beyond the red tape (construction zone).

Site Set-up:
Construction activity will be strictly controlled within the construction zone, except for the laying of pipelines and cables to connect to the main services.
Only where required fencing will be set up and security will be implemented throughout the entire construction period.
A zone will be identified for offices, welfare facilities and clean storage for materials and equipment in an area with minimum impact on the woodland and surroundings.

Construction
All Visitors to site will be required to check in at the entrance where the management and site security chalets will be located. From this point they will be escorted around site.

The proposed sequence of work will be:
- tracks & paths (proposed site plan, hand dig where necessary)
- primary service trench (infrastructure roads and trenches to carry on in front of chalet construction)
- lay main services. (start at lowest point on the site)
- foundations and floor slab (refer)
- prefabricated timber frame manually handled (whenever possible) safely into place
- secondary service trench and service to chalet
- chalet completed and handed over for furniture

The works will be carried out in a controlled, phased way around the site with the actual phasing of the works being subject to the time of the year the work starts, the ecological constraints and the methods set out in the Habitat Management Plan. It will be likely the works will commence with the chalets and the maintenance / substation / sewage treatment.
All external works will be carried out during daylight hours meaning there will be no external construction lighting.

Off-site Traffic Movement & Routing:
Location of Access will consider:
- Minimum disruption
- Maximum Safety
- Appropriate sight lines
- Minimum disruption to local residents and will take account of local circumstances and deliveries will be sequenced to accommodate local constraints.
- All major deliveries will be phased to avoid congestion, with allocated lay down areas within the construction zone.
- Operatives cars will not be allowed onto the site past the designated car parking area (located in the vicinity of the main car park)

On-site Vehicle Routing, Parking and Storage:

Traffic Management system will be set up to control the movement of vehicles around the site; this will reduce the number of construction vehicles required to drive around site therefore promoting best practice and on site safety. All routes will be coordinated with existing tracks and new track construction.
The principle construction routes are to be one-way as this provides greater site safety

Wheel Cleaning Facility:

To prevent the spread of mud around the public roads, a lorry wheel cleaning facility will be provided near the main entrance to the site.
In order to keep mud and dirt to a minimum during construction the tracks will be constructed up to a base course as part of the early infrastructure works. This will help greatly to avoid passage of dirt from the site onto public roads.

Storage & Disposal of Wastes:

Minimal secondary storage areas (e.g. for piles) will be provided at each cluster at the proposed locations for the future car parking bays. Deliveries will be phased so that materials do not need to be stored on site for longer than necessary.
A site waste management plan will be implemented throughout the duration of the works, with segregate waste for recycle / reuse / recovery or disposal. Refuse from the offices and welfare facilities will be segregated and dealt with in the same way. Portable toilets will be provided during the construction of each cluster. These will be emptied every few days.
Existing watercourses will require protection through implementing robust safeguards to prevent contamination of the ground and watercourse. In this case the contractors will refer to Environment Agency guidance PPG6 and the Pollution Prevention Guidelines.

Air Quality Impacts:

It is not expected that air quality will be noticeably affected. Good practice will be adopted in all construction works to minimise other sources of dust and thereby enhance health and safety of the construction work force.

Noise Impacts:

Noise levels will be kept to a minimum during the construction period and any noisy works will be carried out during the agreed working hours. e.g. it is anticipated the piling works shall create approximately max 65 db at 15 metres from the point of piling. An operative would be required to wear ear defenders at noise levels of 80db and over, therefore one of the primary sources of noise on site will be within acceptable levels.

Dust control:
Earthworks
Excavations, piling, loading and unloading of materials on-site and stockpiling of materials have the potential to be a major contributor to dust emissions. During excavation, previously stable surfaces are disrupted and exposed to the wind. As these materials are generally dry they can easily become suspended by the wind or mechanical disturbance and readily become airborne in significant quantities.

Surfaces will be disturbed as little as possible and will be stabilised as soon as possible after disturbance by damping down with water sprays to minimise dust emission and re-suspension.

Materials handling (throughout the construction period)
A wide range of materials will be handled during the construction phases of the development and the handling of these materials has the potential to create dust emissions. The use of dry or powdery material on site will be minimised. The following precautions will be implemented to minimise dust emissions arising from materials handling;

- Material drop heights will be kept to the minimum height possible,
- Damping down will be used to reduce dust emissions; in dry, hot weather damping down frequency will be increased,
- Steep sided stockpiles / mounds or those with sharp changes in shape will be avoided; heights of stockpiles will be restricted to 2m in height t mitigate airborne dust potential.
- Stockpiled materials will be kept away from the site boundary and sensitive receptor locations and damped down, enclosed or securely sheeted as appropriate.
- Wind barriers will be used to protect stock piled loose material and skips will be enclosed or covered. Lorries will be covered and closed tankers will be used for transporting dry and fine powdery materials,
- Materials delivered to site will be left wrapped until needed,

Construction Pollution Prevention

Facilities will be established to minimise risk to the environment and promote efficient use of resources. This will include:

- Temporary protective fencing will be erected to delineate the working areas, site boundaries and protect sensitive features from disturbance.
- Temporary offices, welfare facilities and secure storage of equipment.
- Any necessary fuel and oil will be stored in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001. Refuelling will only be undertaken in a designated area, designed to contain contaminated run-off, and by trained personnel. Emergency spill kits are to be readily available.
- Materials storage areas will be set up and managed.
- Waste segregation areas will be established utilising containers of an appropriate design to ensure that no waste can escape.
- The temporary site compound will be reinstated to its former condition, suitable for agricultural use, following completion of the project.

To minimise the risk of pollution from oils on site, measures are required in relation to their storage, use and disposal. Environmentally considerate lubricants, such as synthetic, non-toxic biodegradable hydraulic fluids are available and may be used at sensitive locations.

Measures will be developed to control site runoff and prevent contamination. Account will be taken of the Environment Agency Pollution Prevention Guidelines.

- PPG 1 'General guide to the prevention of pollution'
- PPG 5 'Works and maintenance in or near water'
- PPG 6 'Working at construction and demolition sites'
- PPG 18 'Managing fire-water and major spillages'
- PPG 21 'Pollution Incident Response Planning'
- PPG 22 'Dealing with spillages on highways'

Fuel and Oil Handling

All fuel and oil will be stored in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and they will be handled in such a way that risk of pollution is minimised. This will include:

- Fuel and oil storage tanks will comply with the Control of Pollution (Oil Storage) (England) Regulations 2001 and will be locked when not in use.
- Storage areas will not be located within 10m of the watercourse or highway gully.
- Mobile bowsers will be bunded and will comply with the Control of Pollution (Oil Storage) (England) Regulations 2001 and will be locked when not in use.
- Drums will be stored in bunded areas with a minimum capacity of 25% of the total volume contained within the bund, or 110% of the largest container, whichever is greater.
- Drums will be maintained in good condition, fitted with lids and labelled to indicate the contents.
- Trained operatives only will carry out refuelling of plant and equipment.
- Plant will be regularly checked for leaks and will be regularly maintained.
- Spill kits will be provided within close proximity to fuel and oil storage areas and operatives will be trained in their use.

Maintenance of Plant

Any maintenance of plant and equipment will be carried out at least 10m away from any watercourse or drain. Spill kits will be available during all plant maintenance operations and drip trays used to contain any leakage of oil.

Any plant or equipment considered to be a pollution risk will either be repaired or removed from site.

Emergency Procedures

The main priority is to avoid spillages and emergency situations. This should be achieved through minimising the risk of spillage at source through avoiding the use of polluting materials where possible. Where the use of polluting materials is unavoidable, then suitable containment in a sensible location is essential.

In addition, pathways for pollution to escape should be removed and/or easily intercepted. This can be achieved through isolating polluting materials from drainage infrastructure and ensuring that there are appropriate methods for intervention and containment e.g. Spill kits and drain covers. General guidance on the prevention of pollution is available from the Environment Agency's Pollution Prevention Guidelines (PPGs):

- PPG1: General Guide to the Prevention of Pollution;
- PPG6: Working at Construction and Demolition Sites; and
- PPG21: Pollution Incident Response Planning.

A set of standardised emergency response procedures will govern the management of environmental incidents. Construction contractors will be required to adhere to and implement these procedures and ensure that site operatives are familiar with the emergency arrangements.

The emergency procedure will contain emergency phone numbers and the method of notifying local authorities and statutory authorities. Contact numbers for key personnel will also be included.

Materials should be stored in accordance with appropriate health, safety and environmental legislation.

On site storage of chemicals, fuels, etc, will be checked regularly and any container found to be leaking will be removed immediately. Oils should be stored (including bowsers) in accordance with any regulations pertaining to the storage of potentially polluting materials e.g. The Control of Pollution (Oil Storage) (England) Regulations 2001.

A Control of Substances Hazardous to Health (COSHH) register documenting all materials stored and safe handling requirements will be kept in the site office. All site staff will be made aware of risks associated with the handling, storage and use of hazardous materials through training sessions.

Guidance relating to the storage of contaminating materials in the following Environment Agency Pollution Prevention Guidelines will be followed: PPG2: Above Ground Oil Storage Tanks; PPG8: Safe Storage and Disposal of Used Oils; and PPG26: Storage and Handling of Drums and Intermediate Bulk Containers.

Refuelling, oiling and greasing of plant will: Take place above a drip tray or on impermeable hard standing; Be located away from surface water drains; and Be supervised at all times.

Spill kits with instructions should be located near areas used for refuelling. If a bowser or tanker is used for refuelling, then the bowser or tanker should carry an appropriate spill kit. All staff will be trained in the use of spill kits and the correct disposal of used spill control material. Guidance is available from the Environment Agency's Pollution Prevention Guidelines, PPG7: Refuelling Facilities.

Use of detergents should be avoided as they may compromise the effectiveness of any oil separators or interceptors. A site drainage plan will be kept showing the water interests within and in the vicinity of the Site (Refer to accompanying Landscape General Arrangement Plan). This plan will include the location of both foul water drains and surface water drains.

The spill kits will be clearly marked and sign-posted, sited close to the area where materials are stored and handled. The spill kits should be subject to periodic inspection to ensure they contain appropriate equipment in sufficient quantities.

Spill response training, including the location of spill kits should be recorded on the site plan and correct use of spill kits should be included in induction training. A process of on-going refresher training on pollution prevention should be delivered through 'tool box talks'.

Procedures will be established with a number of specialist spill contractors in the event of a major spill.

In the event a spill occurs, the following actions will be taken: Stop the source of the spill by up-righting the container, blocking leaks (using compound in spill kit) or shutting off valves; Inform site management immediately; In dealing with the spillage the personal safety of the site-workers and the general public will not be compromised; Block access to all local drains using spill containment materials, booms or drain blockers; Clean up spill using granules / spill clean-up materials; Segregate cleared materials and dispose of in accordance with the Hazardous Waste (England and Wales) Regulations 2005 as amended; If the spill has entered the drainage system, a watercourse, or an area of porous ground/non-hard standing and the site are dealing with the incident themselves it must be reported to Environment Agency and the Site Manager immediately; and In the event of major or complicated spills, the Site Manager will assess the incident and if appropriate request a specialist spill contractor to attend the Site.

Any spillage should be recorded and investigated. Appropriate corrective and preventive actions should be implemented and recorded to reduce the likelihood of such events reoccurring.

Health and Safety procedures and processes should be established to minimise the risk of, and the appropriate management of, a fire emergency. Consideration should also be given to the appropriate management of any subsequent fire water (the run-off generated from fire fighting activities), such as temporary storage on-site. This water should be considered contaminated and it has the potential to cause pollution. In developing strategies for dealing with a fire emergency, consideration should be given to minimising the risk to the environment associated with fire water. The guidance on the control of fire water detailed in the Environment Agency's Pollution Prevention Guidelines PPG18: Managing Fire Water and Major Spillages should be followed as appropriate.

Notification Procedure

Procedures for reporting any spillages or pollution incidents are to be set out.

The procedure will include recording all incidents in the project progress report and providing details to the Client Project Manager.

Contact details for key site and emergency response personnel with responsibilities relating to the protection of the environment will be kept and publicised in key locations on site. Key contacts will include:

- Contractor's Project Manager
- Construction Manager
- Construction Environmental Manager
- Client Project Manager
- Community Liaison Officer
- Fire, Police, Ambulance
- Environment Agency 0800 80 70 60

Fertiliser and Pesticide Management
Fertiliser Best Management Practices
Preventing over application of nutrients:

The maintenance staff at the Leisure Lakes will be adhering to the following guidelines:

- Apply smaller amounts of nutrients more often as opposed to large amounts only a few times a year.
- Use slow release fertiliser during slow plant growth to provide nitrogen more gradually (reducing the possibility of nutrient run-off)
- Avoid late spring and summer fertilisation except for applicant schedules that provide small quantities of nutrients throughout the growing season. Excess nutrients promote lush growth that makes turf susceptible to disease and drought.
- Limit nutrient applications prior to heavy rainfall or when the turf or soil is saturated by evidence of standing water.
- Calibrate fertiliser spreaders for accurate application amount and placement. Use the right kind of spreader and spreading techniques.
- Establish buffers in sensitive areas (waterways, burns, ditches etc) for the purpose of restricting or limiting fertiliser application. Do not fertilise within 30 feet of the water line.
- Optimise turfgrass cultural practices such as aeration, topdressing and vertical moving to maximise effectiveness of nutrients.
- Avoid fertilising on non-target areas such as around water bodies and water ways.
- All fertiliser spills must be cleaned immediately.
- Never apply fertiliser to frozen ground.

Handling of Fertiliser
If not handled properly, fertiliser can alter or degrade the environment. Nutrients such as N and P in fertilisers can lead to the excessive growth of algae and noxious plants in streams and burns.

Loading
Load fertiliser well away from wells or surface bodies. A concrete pad with rainwater protection is ideal.

Spill avoidance and clean up

In case of a spill, the first priority should be containing the material and not allowing it to escape. Ideally, granular products should be swept up immediately and used appropriately.

Storage of fertiliser

Fertiliser should always be stored in an area that is not exposed to rainfall and is protected from the general public and animals.

Always store nitrate based fertilisers separate from solvents, fuels and pesticides since nitrate fertilisers are oxidants and can accelerate a fire. Ideally, fertiliser should be stored in a concrete building with a metal or other flame resistant roof.

Pesticide Management BMPs

The maintenance staff at Leisure Lakes Golf Course will be adhering to the following guidelines:

Select pesticides appropriate to the pest.

Select pesticides that are the least toxic least water soluble, least volatile and most effective.

Mix pesticides according to label instructions

- Do not mix more spray than you need.
- Always dilute pesticide concentrates according to label instructions. Only use full strength if specified on the label.
- Keep special tools for measuring and mixing pesticides locked away.
- Wear rubber gloves, long sleeves, long pants and goggles.
- Apply pesticides according to label instructions
- Spray when conditions for drift are minimal, generally in early morning or late evening
- Avoid drift by using low pressure nozzles and nozzles with large openings
- Check the calibration of equipment before every pesticide application

Use appropriate pesticide application equipment, correctly calibrated

The best spray pattern used to cover an area is one that gives uniform coverage with little overlap. The spray pattern should be continuous and uninterrupted. If good coverage is questionable, cut the application rate in half and apply the pesticide first in an east-west pattern, then in a north-south pattern. The spray should form an arc no more than 3 to 4 feet on either side of the applicator.

Clean up thoroughly

- Always follow the label instructions for disposing of pesticide containers.
- When you are finished applying the pesticide, clean all equipment immaculately. The best way to dispose of a small quantity is to apply according to label instructions.
- If excess pesticide is left that cannot be used, spray it over an area that you know it will not harm. Equipment should be cleaned inside and out with clean water. Always flush out hoses and nozzles.

Recycle empty pesticide containers

- To be acceptable for recycling:
- Plastic containers must be empty
- Pressure rinse the container as soon as it is emptied. Containers must be cleaned or they will not be accepted
- Ensure all formulation has been rinsed out
- Keep containers dry

Store pesticides in a safe manner

- Always store pesticides:
- In their original, labelled containers.
- Out of reach of children and animals. A well ventilated, dry, locked and labelled storage room is highly recommended.
- Separate from protective clothing, respirators, gas masks or goggles.
- Away from source of flame or ignition and away from water sources. Consider the potential for flooding and leaking.
- Keep the label intact and legible.
- Keep all lids tight.
- Always store on metal shelves.
- Have a sumped area under the storage area for spillages.

Inventory

- Keep an accurate inventory record that indicates product storage information such as special storage and handling needs and dates of arrival.

Shelf Life

- Store in the original container tightly sealed.
- Store in a cool, dry and ventilated area.
- Keep liquids above their recommended minimum temperatures.
- Keep solids from becoming damp.

Site, Access and Public roads (throughout the construction period)

Vehicle movements on site will be controlled by signage and compliance will be monitored by construction site supervisors. Vehicles will be restricted to a minimum commensurate with the construction requirements and speeds will be limited to 5 mph on un-surfaced roads and 10 mph on properly surfaced and maintained roads. This will contribute to the reduction in the re-suspension of dust as a result of the movement of vehicles.

Site roads will be inspected once a week and kept in a compacted condition using static sprinklers, bowsers, low emission additives and binders if necessary.

Damping down techniques used to minimise the re-suspension of dust into the air can also cause the build-up of mud and dirt on roads which is picked up by vehicle wheels. Therefore wheel washing techniques and rumble grids will be implemented, before vehicles enter public highways, to prevent the transportation of mud and dirt off site.

Vehicles leaving the construction areas will be inspected at the wheelwash at each entry and exit point and subject to further cleaning as required.

Transportation and Traffic Management

A Construction Traffic Management Plan (CTMP) shall be produced and implemented on site for the entire construction period. The plan shall outline timings of deliveries and routes to be taken by construction vehicles to ensure minimal disruption to local residents and businesses. This shall include potential risks for noise disturbance as well as minimising additional traffic during peak periods.

Water Usage

Within site accommodation taps shall be switched off when not in use and all staff will be made aware of water saving techniques. Every effort to ensure reduction in water use shall be implemented where available.

Vermin

Maintenance of a clean and tidy site including vermin control is essential. Control measures throughout the construction phase shall include:

- Correct and satisfactory stopping and sealing of all disused drains and sewers where applicable;
- Prevention of accumulation of refuse and putrescent materials;
- Ensuring any on-site catering facilities pay careful attention to food delivery, handling and storage and disposal of any food waste.

Ecological Management

The existing ecological features could potentially be affected by the proposed construction works. However, the initial assessments for the site have concluded that if appropriate mitigation and enhancement activities were to be undertaken then the impacts would not be considered significant.

General Ecological Mitigation

The following mitigation measures will be employed:

- Dust minimisation methods shall be employed (see section 2.1.15 above)
- Construction lighting shall avoid lightspill on to trees and hedgerows.
- Security lighting and non-essential lighting shall be fitted with automatic cut-off switches where practicable.
- The Environment Agency's Pollution Prevention Guidelines will be followed to reduce the risk of sediment pollution resettling further downstream and potentially smothering benthic habitats.

Personnel will be asked to report any wildlife sightings to the project ecologist. In the event that a protected species is seen then all works within that area shall cease immediately. Site management shall be immediately informed and they shall contact the project ecologist. No further work may take place within that area until permission has been given by the project ecologist and site management

Toolbox Talk

Prior to the commencement of works the Ecologists will present a 'Toolbox Talk' to all contractors working on Site, to ensure that they are aware of procedures in place to prevent injury or disturbance to Water Vole and to ensure that contractors can identify Water Vole activity, and ensure that construction work can be halted if a Water Vole is encountered.

Prior to the commencement of works the arboriculturist will present a 'Toolbox Talk' to all contractors working on Site, to ensure that they are aware of procedures in place to prevent damage to retained trees across the site.

Nesting Birds

All birds, their nests and eggs, are protected by the Wildlife and Countryside Act (1981, as amended).

Scattered hedgerows and scrub within the survey area have the potential to be used by birds as nesting habitat within the breeding season. Since some vegetation within the site (excluding existing boundary vegetation) is to be removed as part of the current development proposals, the following mitigation is advised.

Suitable mitigation for birds includes the replacement of the loss of potential nesting habitat through the planting of favourable shrub and tree species.

Where possible, vegetation clearance during the bird nesting season will be avoided. However, in the event that any vegetation removal is required between March and August (inclusive), an ecologist will be present to determine whether active bird's nests are present. The ecologist will check and observe each 20m sector of vegetation for approximately 20 minutes prior to clearance works commencing. If an active bird nest is detected at any point, works in that sector will immediately cease and an area of 5m radius around the nest will be cordoned off and clearly marked using hi-visibility tape and appropriate signage to prevent disturbance to nesting birds. Any noisy machinery such as chippers will be moved at least 10m away from the location of the nest. Works within the cordoned off area where active bird nests have been detected will only proceed once an experienced ecologist has confirmed the nests are no longer active.

The loss of foraging habitat should be compensated for by the use of native and/or wildlife-friendly plant species in any landscaping scheme (including fruit, seed and berry producing species) and the creation of plant rich verges.

Species of Principal Importance and their habitats (ponds, ditches, hedgerows) Habitats:

Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

The following habitats have been identified on the site.

Arable
Arable is the dominant habitat type on site and by its nature is intensively managed and of low ecological value.

Broadleaved Trees
The only trees on site are an avenue running east-west of planted Lombardy Poplar (Populus sp.) trees situated in the centre of the site.

Improved grassland
The improved grassland contains frequent Perennial Rye-grass (Lolium perenne) with frequent Yorkshire-fog (Holcus lanatus). Red Fescue (Festuca rubra) Parsley Piert (Aphanes arvensis) are of local and scattered occurrence, as are Common Mouse-ear (Cerastium fontanum), Spear Thistle (Cirsium vulgare) and Hairy Sedge (Carex hirta).

The improved grassland is species-poor with negligible botanical interest or nature.
Semi-improved grassland (Field Margins)

Colonised by frequent Cock's-foot (Dactylis glomerata), False Oat-grass (Arrhenatherum elatius), Field Horsetail (Equisetum arvense), Bramble (Rubus fruticosus agg.), Cow Parsley (Anthriscus sylvestris), Common Nettle (Urtica dioica) and Cleavers (Galium aparine), with occasional Tufted Vetch (Vicia cracca), Hogweed (Heracleum sphondylium), Great Willowherb (Epilobium hirsutum), Curled Dock (Rumex crispus), Broad-leaved Dock (Rumex obtusifolius), Silverweed (Potentilla anserina), Ribwort Plantain (Plantago lanceolata) and Greater Plantain (Plantago major).

Hedgerows
All hedgerows on site contain Hawthorn (Crataegus monogyna) and Dog Rose (Rosa canina). Other species include occasional Elder (Sambucus nigra) and Crack Willow (Salix fragilis). The herbaceous species of the hedgerow bottom vegetation are largely False Oat-grass (Arrhenatherum elatius) and Cock's-foot (Dactylis glomerata), both of which are of constant occurrence.

Tall Ruderal Vegetation
Some areas of tall ruderal vegetation are present between fields. The vegetation consists of abundant tall grasses including Tufted Hair-grass, Perennial Rye-grass, Yorkshire-fog, Cock's foot and False Oat-grass. There is locally frequent Common Reed, Soft-rush and Hard Rush (Juncus inflexus) in the wetter areas, with occasional Bramble, Silverweed (Potentilla anserina) and Purple Loosestrife (Lythrum salicaria).

There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

Local species records within a 2km radius of the site were obtained from the Lancashire Ecological Records Network (LERN). The key findings are highlighted below. Records were only taken from the last 10 years unless stated.

Great Crested Newts
Great crested newts are believed to be absent from the site based on the following:

1. The 2005 Survey by Brooks Ecological detected no Great Crested Newts in the Application Site and in the entire Leisure Lakes complex;
2. The site is surrounded by large, fast-flowing ditches which would prevent the dispersal of amphibians in to the area;
3. Flood plains such as this tend to be susceptible to fish inundation due to historic overtopping of watercourses which contain fish, spreading them to waterbodies throughout the area;
4. There are no records of Great Crested Newts in the Application Site or in the entire Leisure Lakes Site and in the surrounding area;
5. The Application Site contains poor terrestrial habitat for Great Crested Newts; and,
6. All waterbodies in the southern area of the Leisure Lakes development area were assessed for their suitability for use by great crested newts. Those with a Habitat Suitability Index rating of average or above were subject to eDNA surveys (reported in Urban Green' Preliminary Ecological Appraiasal, August 2015). All results were negative. There are no potentially suitable waterbodies within the golf course area (notwithstanding the ditches, which are considered unsuitable due to their connectivity with larger watercourses which contain fish), and therefore the absence of great crested newts has been confirmed from the most suitable waterbodies in the area.

Reptiles
An assessment of habitat suitability and potential habitat value of the Survey Site for reptiles was made, with consideration of its suitability for sheltering, basking, breeding and hibernating reptiles.

The site has a flat topography and is poorly connected to higher quality habitat; this is coupled with a lack of local historical records from within the last 10 years. Prey abundance, vegetation structure, refuge opportunity and hibernation site potential are all reasonable but considering all other characteristics it is deemed to be unlikely that any reptile species will occur on site. The likelihood of reptiles being present and affected by the proposed development is considered to be negligible.

Water Voles
There are records of Water Voles from within the site or within close proximity. Detailed water vole surveys have been carried out in August 2015 and have confirmed their presence in a number of ditches.

The location of bridges across the ditches within the golf course, has been chosen because of an absence of Water vole burrows. In order that the installation of small footbridges avoids any potential harm or disturbance to water voles and their burrows, all such works will be subject to approval by a suitably qualified ecologist who will advise on micrositing and working methods. No groundworks will be undertaken within at least 5m of a water vole burrow. Any bridges crossing watercourses 3c, 3d, 6, 7 and 10 will be supervised by a suitably qualified ecologist.

Following a detailed survey of the proposed site, the following information is relevant. Note that the recommendations presented here supersede those in Urban Green's most recent water vole survey report (August 2015).

Water voles have been confirmed to be present in the following ditches: 3c, 3d, 6, 7 and 10. Most of the remaining ditches contain at least some areas of suitable habitat except ditches 8 and 4 which are dry.

In accordance with Environment Agency guidance, a suitable buffer zone between a water-course and the development must be maintained, given that there is no requirement to undertake any capital works to the ditches or their banks (for example, for drainage purposes). The buffer zone should be a minimum of 5 metres width from the banktop. The buffer zone will be demarcated during the construction phase with the use of fencing, bunting, or netlon.
This buffer zone will remain undisturbed throughout the construction phase.

This buffer zone will remain undisturbed throughout the construction phase.

It is recommended that a strategy to prevent any pollution incident occurring during the construction and post-construction phases is prepared in accordance with Pollution Prevention Guidance (PPG), particularly the following:
a. PPG1: General Guide to the Prevention of Pollution
b. PPG5: Works in, Near or Liable to Affect Watercourses
c. PPG7: Refuelling Facilities.

No evidence of Mink was noted in any of the ditches in the survey, but any incidences should be immediately reported to an ecologist.

Habitat enhancement.
Because enhancement of ditches would require groundworks, enhancement measures are only proposed on those ditches which are very clearly unsuitable, due to being completely dry. These are ditches 8 and 4. These measures should be undertaken simultaneously with the construction of the golf course, and should be supervised by an ecologist.

Ditches 8 and 4 should be mechanically re-profiled so that they are a minimum of 1.5m in depth (from base of channel to banktop), with 45 degree banks. Scrub, ruderal and other vegetation should be removed from the channel.

The existing drainage system on site should be operated sympathetically to water voles, and should seek to maintain a minimum of 0.75m water depth within all ditches. Note that the proposals do not require the drainage system to be altered, but this measure is included nonetheless because the proposals present an opportunity to do so.

Bank side vegetation should be enhanced by additional planting of grasses and wildflowers such as the Emorsgate EM8 Meadow Mixture for Wetlands which includes common bent (Agrostis capillaris), Sweet Vernal-grass (Anthoxanthum odoratum), Tufted hair-grass (Deschampsia cespitosa) and Crested Dog's tail (Cynosurus cristatus) grasses. Wildflowers include Cowslip (Primula veris), Ragged robin (Lychnis flos-cuculi), Greater bird's-foot-trefoil (Lotus pedunculatus), Meadowsweet (Filipendula ulmaria), Yarrow (Achillea millefolium) and Great Burnet (Sanguisorba officinalis). The objective for bankside habitat along ditches should be to create a sufficiently dense sward to provide cover for commuting wildlife, and to attract small mammals, whilst not creating excessive shading that could inhibit short-herb growth.

Toolbox Talk

Prior to the commencement of works the Ecologists will present a 'Toolbox Talk' to all contractors working on Site, to ensure that they are aware of procedures in place to prevent injury or disturbance to Water Vole and to ensure that contractors can identify Water Vole activity, and ensure that construction work can be halted if a Water Vole is encountered.

Badgers
There are no historical records of Badger Meles meles within 2km of the site boundary.

Following the preliminary ecological assessment conducted by Urban Green in June 2015, no evidence of badgers was found within the application site or within 30m of the development boundary. Therefore the likelihood of badgers being present and affected by the proposed development is considered to be negligible.

As a low-lying flood plain, the site is of low suitability for the location of setts. While Urban Green will continue to remain vigilant for the presence of badgers, they are currently considered to be absent from the site.

Fig 2. Example of Mini Piles in Forest of Dean - demonstrating minimal disruption to forest floor

Fig 3. Typical finished chalet installation

Fig 4. Example of Mini Piling Rig technical specification

Leisure Lakes
Outdoor Pursuits Watersports
and Caravan Park

URBAN
GREEN

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England

North West & West Midlands Area
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Area Director
Keith Jones

Urban Green Space
21 Swan Street
Manchester
M4 5JJ

23 Feb 2015

Application Ref: 010/197/14-15

Dear Scott Fitzgerald

Felling Licence (Forestry Act 1967)
Leisure Lakes

I will be recommending that your application of 20 Jan 2015 for a felling licence is granted subject to a number of conditions.

The conditions are detailed overleaf. If you agree to these conditions please sign and date one of the attached documents in the relevant box and return it to this office.

If you have any concerns regarding these conditions or require further information please contact Danielle Lea-Smith at the above office.

Please note that this does not constitute a felling licence and no felling should commence at this stage.

[redacted]

AMY MARTIN

For the Forestry Commission

Conditions

Felling Licence Application (Forestry Act 1967)

Application Ref: 010/197/14-15
Leisure Lakes

The following conditions will apply to the licenced felling in Leisure Lakes and will be part of the agreement between the Forestry Commission and Mr P Whitter.

-The following conditions apply to the licenced felling in cpt G

1. Before 30th June 2021 the land on which the felling took place must be:

Planted with NBL SPP to achieve not less than 1600 plants per hectare evenly distributed over the site

2. For a period of 10 years from the planting:

a. The plants must be protected against damage and be adequately weeded.

b. Any failure or losses should be replaced as necessary to provide a stocking of not less than 1600 plants per hectare evenly distributed over the site.

c. Site must be kept weed free and must be maintained in accordance with the rules and practice of good forestry.

The following conditions apply to the licenced felling in cpt A

1. The land on which the felling took place is to be managed in accordance with the rules and practice of good forestry so as to secure restocking with Hazel to achieve not less than 1100 plants per hectare evenly distributed over the site by natural regeneration, coppice regrowth or replanting.

2. All licenced trees felled are to be removed quickly and carefully so as to avoid damage to the remaining trees or seedlings or coppice shoots.

3. If before 30th June 2021 the restocking described in 1. above is not achieved then the land is to be planted or sown before 30th June 2022 in order to secure a stocking of not less than 1600 trees per hectare of Hazel evenly distributed over the site.

4. For a period of 10 years from the restocking:

a. The plants must be protected against damage and be adequately weeded.

b. Any failure or losses should be replaced as necessary to provide a stocking of not less than 1100 plants

Conditions

Felling Licence Application (Forestry Act 1967)

Application Ref: 010/197/14-15
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-The following conditions apply to the licenced felling in cpt G

1. Before 30th June 2021 the land on which the felling took place must be:

Planted with NBL SPP to achieve not less than 1600 plants per hectare evenly distributed over the site

2. For a period of 10 years from the planting:

a. The plants must be protected against damage and be adequately weeded.

b. Any failure or losses should be replaced as necessary to provide a stocking of not less than 1600 plants per hectare evenly distributed over the site.

c. Site must be kept weed free and must be maintained in accordance with the rules and practice of good forestry.

The following conditions apply to the licenced felling in cpt A

1. The land on which the felling took place is to be managed in accordance with the rules and practice of good forestry so as to secure restocking with Hazel to achieve not less than 1100 plants per hectare evenly distributed over the site by natural regeneration, coppice regrowth or replanting.

2. All licenced trees felled are to be removed quickly and carefully so as to avoid damage to the remaining trees or seedlings or coppice shoots.

3. If before 30th June 2021 the restocking described in 1. above is not achieved then the land is to be planted or sown before 30th June 2022 in order to secure a stocking of not less than 1600 trees per hectare of Hazel evenly distributed over the site.

4. For a period of 10 years from the restocking:

a. The plants must be protected against damage and be adequately weeded.

b. Any failure or losses should be replaced as necessary to provide a stocking of not less than 1100 plants