

LME LEMP 2022 - 2027 SECTION TWO - WIDER ESTATE





Originally Lower Mill Estate was a livestock and arable farm with a farmhouse and a water mill drawing its power from the River Thames. It later became an extraction site for South Cerney gravel, resulting in virtually all the fields within the Estate being excavated to several metres depth and then allowed to flood. Some excavated fields were backfilled with the overburden and gravel washings and some left to vegetate naturally with willow being the main colonising tree.

It is now actively managed by Habitat First Group to maximise its recreational and ecological value.

At completion, the built footprint of the Estate will comprise eight villages. In the order they were built, these are:

Mill Village
Clearwater Village
Howells Mere
Water Garden
Spinney Lake (to be completed)
Minety Lake (to be completed)
Lakeshore Reserve (to be completed)
Barberry Lake (to be completed)

The villages have been designed to be as nature-inclusive as possible and the newer phases have been designed to be sustainable and climate-resilient. Habitat First Group have committed to becoming carbon neutral by 2030.

An allotment has been established at the entrance to the Estate and this provides organically grown produce for the onsite restaurant.

Lower Mill Estate covers 195 hectares comprising ten lakes (when completed); sections of three rivers (Thames, Swillbrook & Flagham Brook); a SSSI grassland (Pike Corner); a large wildflower meadow; a nature reserve grassland; several woodland copses; and areas of scrub. In addition, Habitat First Group, own and manage Swillbrook Lakes which comprises a large area of lake-habitat, wetland, woodland and scrub.

In 2019, Habitat First Group were accredited with the Building with Nature Design Award for their Masterplan of up to 575 holiday homes as part of the ecologically sensitive restoration of the former quarry site that Lower Mill Estate sits on. The accreditation stated that Lower Mill Estate provides a rich network of green infrastructure, bringing benefit to both people and wildlife through a landscape-led approach.

The Building with Nature Full Award (Excellent) was granted for the completed phases at Mill Village, Clearwater, Howells Mere, Water Garden, Clearwater Village and Howells Mere.

The level of compliance of Building with Nature Standards at Lower Mill Estate is such that the Award given met the Excellent level of the Building with Nature

Benchmark; and as such Lower Mill represents a national exemplar in the design, delivery and maintenance of high quality

green infrastructure for the benefit of people and wildlife, now and long into the future.

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FIGURES Continued

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FIGURE 20: Nature Reserve

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FIGURE 23: Swill Meadow

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FIGURE 25: Allotment Area

APPENDIX

APPENDIX A: Guidance from Cotswolds and Vale Ash Dieback Forum (COVAD)

Management & M	lonitoring Task/s	Location/Area	Timing	Frequency	Responsibility	Comments
Keep southern corner of lake edge scrub free and retain the bare ground	Remove small saplings that self-set and keep vegetation short through strimming.	Southwestern corner (A on Fig 15)	1 st Sept to 28 th /29 th Feb (inclusive)	Annually	Grounds team	Bare ground areas provide great habitat for a wide range of invertebrates.
Scrub cutting (bramble, small diameter self- seeded trees)	Cut scrub on 7 year rotation (i.e. 1/7th cut every year) Don't cut adjacent sections in successive years (i.e. patchwork cutting)	Sections B, D, E and Fig 15 cutting can occur on either side of the footpath)	1 st Sept to 28 th /29 th Feb (inclusive)	Annually	Grounds team	The aim is to create habitat in these areas which is of different growth phases which provides a mosaic of different habitats for a range of different species.
Stonewort conservation	Coppice willow and alder where red line is displayed in image (every 5 years)	88	1 st Sept to 28 th /29 th Feb (inclusive)	2024/2025	Grounds team	Charophytes (stoneworts) are most sensitive to change in aquatic habitats and tend to when lakes mature and reeds and bank trees and shrubs affect the open nature of their habitat. Cutting existing trees and shrubs on the banks of the lakes, where shallow underwater sand and grave shelves are present is of high importance.
Scrubbing up (allow scrub to develop)	Allow scrub to develop and supplement with hawthorn and blackthorn removed from other areas of the Estate	Section C (Fig 15)	Ongoing	Annually	Grounds team	The purpose of this 'scrubbing-up' is to provide more habitat that is suitable for Nightingale which are declining globally and across the Cotswold Water Park. Scrub, Trees and Wet Woodland is one of the Action Plans under the new Cotswold Water Park Nature Recovery Plan. Creating corridors and 'stepping-stones' across the Cotswold water Park is vital if Nightingale numbers are to be retained and enhanced. We will encourage this 'scrubbing-up' for the 5 year duration of this LEMP. After that we will assess if we need to manage the scrub to keep it in optimal condition for Nightingale.
Hedgerow management	Continue laying hedgerow (ca. 100m annually) until all of it is laid. Then the hedgerow can be trimmed on a 3 year rotation (i.e. 1/3 rd cut every year)	Section F (Fig 15)	1 st Sept to 28 th /29 th Feb (inclusive)	Annually	Grounds team	rightingdict

Mill Lake (CV	Mill Lake (CWP 44) (Figure 15)									
Management & Monitoring Task/s		Location/Area <u>Timing</u>	Frequency	Responsibility	Comments					
Footpaths	Mow footpaths and keep clear of fallen trees	All around lake	April-September	Annually	Grass cutting team					
Monitor gauge board and outflow	Monitor gauge board and keep the outflow clear of debris	Gauge board	Weekly	Annually	Grounds team					
Monitor angling	 Carp, Tench, Bream all year Pike 1st October – 14th March. Maximum 3 rods at any time. No fish retention at any time. No keep-nets or sacks. 	Set swims	Ongoing	Ongoing	Grounds team	Fishing swims to be kept clear throughout the year				
	Mow angling 'swims' to allow access by anglers									

Management & M	onitoring Task/s	Location/Area	Timing	Frequency	Responsibility	<u>Comments</u>
Wildflower area	Leave 1 m of uncut vegetation at lake edge. Cut and collect grass once in: Feb/March September	Lake edge A in Fig 16				Please ensure cuttings are removed from this area to help reduce the nutrient burden of the soil and, therefore, help encourage wildflower growth.
Scrub cutting (bramble, small diameter self- seeded trees)	Cut scrub on 7 year rotation (i.e. 1/7th cut every year) Don't cut adjacent sections in successive years (i.e. patchwork cutting)	Sections B, C, D in Fig 16 cutting can occur on either side of the footpath)	1 st Sept to 28 th /29 th Feb (inclusive)	Annually	Grounds team	The aim is to create habitat in these areas which is of different growth phases which provides a mosaic of different habitats for a range of different species.
Footpaths	Mow footpaths and keep clear of fallen trees. Monitor northern corner for flooding from adjacent ditch	All around lake	April-September	Annually	Grass cutting team	
Stonewort conservation	Coppice willow and alder where red line is displayed in image (every 5 years)	Free W	1st Sept to 28th/29th Feb (inclusive)	2024/2025	Grounds team	Charophytes (stoneworts) are most sensitive to change in aquatic habitats and tend to when lakes mature and reeds and bank trees and shrubs affect the open nature of their habitat. Cutting existing trees and shrubs on the banks of the lakes, where shallow underwater sand and grave shelves are present is of high importance.
Hedgerow management	Continue laying hedgerow (ca. 50m annually) until all of it is laid. Then the hedgerow can be trimmed on a 3 year rotation (i.e. 1/3 rd cut every year) Remove tree guards when hedgerow plants are large enough. Reuse the tree guards where possible.	Section D (Fig 16)	1 st Sept to 28 th /29 th Feb (inclusive)	Annually	Grounds team	
Maintain bird hide	(i) Check and clean inside of hide and close any windows left open Keep vegetation cut down in front of hide to allow good views of the lake		(i) Weekly Cut in Feb and then keep cut all year	Ongoing	Grounds team	
Monitor gauge board and outflow	Monitor gauge board and keep the outflow clear of debris	Gauge board	Weekly	Annually	Grounds team	

Farmhouse L	Farmhouse Lake (CWP 42) (Figure 16)									
Management & Monitoring Task/s		Location/Area	Timing	Frequency	Responsibility	Comments				
Monitor angling	Carp, Tench, Bream all year Pike 1st October – 14th March Maximum 3 rods at anytime. No fish retention at any time. No keep-nets or sacks.					Homeowners, Guests and Renters are NOi allowed to fish on Farmhouse Lake until they have fished on Mill Lake for a minimum of one year and have demonstrated that they are competent anglers with adequate fishing equipment.				
	Mow angling 'swims' to allow access by anglers									

Management & N	onitoring Task/s	Location/Area	Timing	Frequency	Responsibility	Comments
Tree and scrub management	Periodic cutting of some shoreline trees or scrub to maintain good areas of marginal vegetation removing trees, particularly where there are declines in marginal vegetation. Use the cut brash to make habitat piles. Retain a scrub screen along the track/footpath to reduce disturbance to the waterfowl from walkers/runners.	Sections A & B (see Fig 17)	1st September to 28th February (inclusive) only	Assess every 3 years (2022/2025 /2028)	Ground staff	No hedgerow/tree/scrub cutting during Breeding Bird Season between 1st March and 31 st August Aim for a shoreline with a mix of full shade, dappled shade and open areas. Th benefits of shade include: • cooling the water which can help counter the effects of climate change • limiting wind and wave action,
Scrub management	Clear 1/5 th of the scrub (blackthorn/hawthorn/bramble) in each year to retain the open grassland that supports a good range of orchids and other wildflowers.	Grassland either side of the track between Somerford Lagoon and Freeth Mere	1st September to 28th February (inclusive)	Annually	Ground staff	reducing shoreline disturbance. Grazing this area, as in the past, is an option if the appropriate livestock and grazier can be found.
	On the peninsula, coppice lakeside vegetation on a 10 year rotation (i.e. a different 1/10 th cut annually) creating a mix of open shoreline and scrub. In woodland in Cowland and on the Penisula manage bramble scrub on a 5 year rotation (i.e. a different 1/5 th annually)	Section E (Fig 17)	1st September to 28th February (inclusive)	Annually	Ground staff	Grazing this area, as in the past, is an option if the appropriate livestock and grazier can be found.
Tree and scrub management	Cut small trees and scrub to ground-level (excluding well-formed standard trees) in blocks c. 10m wide and 40m apart. Use brash to make habitat piles.	Section C (Fig 17)	1st September to 28th February (inclusive)	Every 2 years	Ground staff	No hedgerow/tree/scrub cutting during Breeding Bird Season between 1st March and 31st August.
Tree thinning	Thin trees on an occasional basis. Remove poor, weak, diseased or overcrowded trees to make the remaining trees stronger and sturdier and to let more light reach woodland floor. Removal can be by ring-barking which will create valuable standing dead wood. Make 2 rings spaced an inch apart.	Section D (Fig 17)	1st September to 28th February (inclusive) only	Assess every 3 years	Grounds team	No hedgerow/tree/scrub cutting during Breeding Bird Season between 1st March and 31st August.
Osprey platform	Check osprey platform for use and repair artificial nest as required	Osprey platform in Section E	March-September	Annually	Grounds team	Any sightings of osprey or signs of use on the platform to be reported to the ecologist.

Freeth Mere	(CWP 41) (Figure 17)					
Management & M	<u>Ionitoring Task/s</u>	Location/Area Timing		Frequency	Responsibility	Comments
Footpath management	Restrict access to footpath along Western bank (between Freeth and Somerford Lagoon) by padlocking all gates at all times There is an increasing number of people continuing to walk/run this area. Look at how to restrict access fully.	Western bank	1st October – 31st March	Annually	Ground staff	Closing this footpath is one of the planning conditions so must be carried out during these set dates.
Angling	Coarse fishing from 16th June to 14th March. Pike fishing from 1st October to 14th March. Keep fish 'swims' open for access by anglers	All lake	As stated	Annually	Ground staff/Estate management	No fish to be stocked in this lake.

Management & Mo	nitoring Task/s	Location/Area	Timing	Frequency	Responsibility	Comments
Stonewort conservation	Cut 30% reeds (see red line on map) every year on the gravel bars and islands in the red line area to keep open gravel areas for Stonewort conservation. Cut a different section annually. Cut reeds to water level. Remove cut reeds to compost area for processing.	ST From the Control of the Control o	November to March	Annually	Grounds team	Reed cutting is best done between November and March. If water level rising will impede cutting , then it may have to b done earlier (No earlier than Sept)
Reedbed management	Cut 30% reeds (see red line on map) every year on the gravel bars and islands in the red line area to keep open gravel areas for Stonewort conservation. Cut reeds to water level. Remove cut reeds to compost area for processing. Retain and enhance reedbeds elsewhere around the lake.	FB 87	November to March	Annually	Grounds team	Creating as much reedbed as possible on Somerford Lagoon is important as in recenyears Bittern have started to feed here. With more reed bed created the chances of Bittern breeding on site will increase. Reed bunting and Reed warbler are target species for Lower Mill Estates Section 106 Wildlife auditing and also rely on reedbed. Reedbeds are one of the priority habitats in the Cotswold Water Park Nature Recovery Plan. The reedbed cutting is to create the correct habitat for the Stonewort present at this location.
	Cut kayak access through the reeds from each property.	Sections H and I (see Fig 18)	Cut winter and the keep cut through the summer to allow	Annually	Grounds team	
Tree management	(i) Retain alder copse in location shown. (ii) Remove self set alder and willow from shoreline and grassland strip. Leave a few specimen trees on the water's edge.	(I) Monage willow and alder on lake odgs to create open habitat for shoreholds. (I) Monage willow and alder on lake odgs to create open habitat for shoreholds. (I) Monage willow and alder on lake of the shoreholds. (I) Monage will be shoreholds. (I)	access. 1st September to 28th February (inclusive)	Annually	Grounds team	Alder is of great value to wildlife but can easily take over an area. The grassland strip on this shoreline supports a large number of orchids of various species, as well as an established native wildflower flora. The Cotswolds AONB Glorious Grasslands Team have advised on keeping this area free from colonising scrub to aid the conservation of this important wildflower area.

Management & M	onitoring Task/s	Location/Area	Timing	Frequency	Responsibility	Comments
	(i) Thin self set willow and alder on a 3 year rotation. (ii) Retain several specimen trees and monitor these for the need for coppicing/pollarding	Section B (infront of Howells Barn) Section H (infront of Mill Village properties)	1st September to 28th February (inclusive)	Annually	Grounds team	Any trees needing coppicing/pollarding must be checked for potential bat roosts before works commence.
Scrub management	Clear 1/5 th of the scrub (blackthorn/hawthorn/bramble) in each year to retain the open grassland that supports a good range of orchids and other wildflowers. Section F (Fig 18) – Area between Freeth Mere and Somerford Lagoon (inclusive)			Annually	Grounds team	Continue to lock for livestock to perform this function.
Island management	(i) Strim centre of island annually (ii) Cut 1/5 th of self set trees around the edge of the island annually. Lay cut trees into water.	Section G (Fig 18)	1st September to 28th February (inclusive)	Annually	Grounds team	Recently Oystercatchers have started nesting on the island.
	(i) Cut one half of the scrub on the island and leave the other half with scrub.	Section A (Fig 18)	1st September to 28th February (inclusive)	Annually	Grounds team	Creating the island with two types of habitat will meet the needs of different species of waterbird.
Sand martin boxes	(i) Clean out nesting material from nesting boxes and repack the nesting tunnels with sand (ii) Cut any scrub which starts to grow in front of the nesting boxes. (iii) Place safety rope line in front of nesting boxes at least 6m back from boxes.	Section F (Fig 18)	(i) Winter (ii) Winter (iii) Before April	Annually	Grounds team/Ecologist	The access to the boxes must be free of scrub otherwise the birds won't use it. The safety rope line will keep kayakers away from the boxes and stop disturbance to any prospecting or nesting birds.
Tern rafts	(i) Place tern raft out and fix in place. (ii) Bring tern raft in, repair, and replace gravel and chick covers as needed.	Lake	(i) Late April (ii) September	Annually	Grounds team	The second tern raft from Somerford Lagoon is now on Flagham Fen where there will be a little less disturbance.
Barn owl box	(i) Arrange nest box checks. (ii) Make nest box repairs. (iii) Check the pole the box is mounted to make sure it can safely take the weight of a ladder and box checker.	Corner of Somerford Lagoon	(i) May/June (ii) Winter	Annually	Ecologist/Licenced Barn owl worker	When doing repairs be aware that the box may still be in use.
Footpath management	Restrict access to footpath along Western bank (between Freeth and Somerford Lagoon) by padlocking all gates at all times.	Western bank	1st October – 31st March	Annually	Grounds team	Closing this footpath is one of the planning conditions so must be carried out.
Maintain bird hide	(i) Check and clean inside of hide and close any windows left open.		(i) Weekly (ii) Cut in Feb and then keep cut all year	Ongoing	Grounds team	

Management 8	& Monitoring Task/s		<u>Frequency</u>	Responsibility	Comments	
	(ii) Keep vegetation cut down in front of hide to allow good views of the lake.					
Outflow	Remove debris and keep outflow clear	Outflow between Somerford Lagoon and Flagham Fen	Fortnightly	Ongoing	Grounds team	Ensure this outflow doesn't get blocked as it forms part of the Flood Route.
Angling	 Coarse fishing all year. No access to swims in closed footpath area during October-March. Keep fish 'swims' open for access by anglers. 	All lake	As stated	Annually	Ground staff/Estate management	

Management & M	onitoring Ta	ask/s	Location/Area	Timing		Frequency	Responsibility	Comments
Beavers	(iii)	Monitor population through observations from staff and residents	Lake, woodland and scrub	Ongoing		Ongoing	Grounds team/Ecologist	The beaver population now comprises only 3 individuals.
Fence maintenance	(i) (ii) (iii)	Fence and fence posts need to be checked for signs of damage or areas where rabbits or beavers may have been digging. Repair as needed Strim 2-3m vegetation back from the fence line to keep the electric fence working Monitor electric output of fence in bird hide	Lake boundary	(i) (ii)	Weekly Monthly in growing season Weekly	Ongoing	Habitat First Group	
Beaver deceiver	(iii)	Clear debris from the beaver deceiver surrounding the outflow into Freeth Mere	Outflow	Fortnightl	.	Ongoing	Grounds team	This outflow is part of the Flood route so needs to be kept clear.
Tern raft	(i) (ii)	Place tern raft out and fix in place. Bring tern raft in, repair, and replace gravel and chick covers as needed	Lake	(i) (ii)	Late April September	Annually	Grounds team	
Maintain bird hide	(i)	Check and clean inside of hide and close any windows left open. Keep vegetation cut down in front of hide to allow good views of the lake		(i) (ii)	Weekly Cut in Feb and then keep cut all year.	Ongoing	Grounds team	
Tree/scrub management	(i) (ii) (iii)	Monitor activities of the beavers on their habitat to determine if intervention is required. Remove an trees/branches which fall across the fence. Keep access to Miss Mouse Treasure Chest clear.	Woodland/Scrub	Ongoing		Ongoing	Ecologist/Grounds team	The ecologist and Grounds team can determine when habitat management of Flagham Fen may be required.
Stiles	Check stil	es are structurally sound and		Fortnightly	′	Ongoing	Grounds team	
Angling	(i)	Trout fishery opens 1st April – 30th September. Boat fishing only. No lure fishing. Maximum of one rod per person. Maximum of three fish removed per person per day.	Lake	As stated		Ongoing	Estate management/ Grounds team	

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Management & Mo	nitoring Task/s	Location/Area	Timing		Frequency	Responsibility	Comments
Grassland management	(i) Top a different 1/3 rd of this in Years 1-2 (ii) Years 3-5 – cut and collect 1/3 rd of field Continue to look into suitable and practical livestock grazing scheme for this area.	Fenced area	(i) (ii)	2022,2023 2024,2025,2026	Annually	Contractor under guidance of Grounds team	Due to lack of grazing this area is currently too thick to cut and collect. A 1/3 rd was topped in 2021. After two more years of topping, cut and collect should be an option. In discussions with the Cotswold AONB Glorious Grasslands Project it was agreed to do manage 1/3 rd annually to encourage the wildflower fauna, while leaving suitable hunting habitat for the resident Barn owls.
	Cut and collect	Grassland between fenced area and the Swill Brook.	July-Sept		Annually	Contractor under guidance of Grounds team	
New area of scrub	(i) Allow this corner to scrub up and to be removed from cutting regime. (ii) Transplant Hawthorns, removed under licence from Pike Corner SSSI, to this corner.	South west corner of fenced Nature Reserve	Ongoing		Ongoing	Grounds team	This area of the nature reserve is less structurally diverse than the other areas with less wildlife diversity. As the structure of the Nature Reserve is not very diverse it was decided (and confirmed as a good idee by Glorious Grasslands Team) to scrub this corner up. Some trees, grown from seeds collected from Lower Mill, have been planted into this area. Using Hawthorns removed as part of the SSSI Pike Corner management is the most sustainable way to scrub this area up.
Pond dipping pond	(i) Maintain boardwalk (ii) Every 5 yrs look at enhancing the pond if it has become shallowed by grass growth.	Western edge of Nature Reserve	(i) (ii)	Ongoing 2026	Ongoing	Grounds team/Ecologist	This deepening was done winter 2021 under supervision of an ecologist.
Pond complex	(i) Monitor health of 4 remaining ponds and survey for amphibians annually. (ii) Enhance ponds every 5 years if they have become shallowed by grass growth. (iii) Retain bramble clumps adjacent to each pond but keep them from overshading the ponds.	In Nature Reserve	(i) (ii)	Ongoing 2026			This deepening was done winter 2021 under supervision of an ecologist.
Barn owl box	(i) Arrange nest box checks (ii) Make nest box repairs	Corner of Somerford Lagoon	(i) (ii)	May/June Winter	Annually	Ecologist/Licenced Barn owl worker	When doing repairs be aware that the box may still be in use.