



AWE Aldermaston - HYDRUS

***LANDSCAPE AND BIODIVERSITY
MANAGEMENT PLAN***

MER-110-011952

STATUS: FOR PLANNING

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Executive Summary

- This report has been prepared on behalf of AWE and describes the proposed landscape and biodiversity management works for the hard and soft landscape associated with Hydrus at AWE Aldermaston. This includes both new works as well as existing landscape features such as individual trees.
- Several protected species are known to occupy the site and are protected by law therefore the details of any landscape management and maintenance operations should be carried out in consultation with a suitability qualified ecologist.
- The report describes the maintenance regimes necessary to allow for the establishment of the new planting and seeding areas and to maintain existing landscape features for a period of five years. However, given the longer establishment period for the proposed woodland habitats which will extend beyond the 5-year aftercare period, particularly for canopy woodland species, indicative longer term management aims are also described.
- Seven management zones requiring general maintenance tasks are identified. These have been further sub-divided into their component landscape elements and a range of further specific maintenance tasks identified. These are described and an indicative programme showing the period and frequency of the proposed maintenance tasks is provided.
- Management of soft landscape is a dynamic process that is difficult to define within a single document or at a single point in time. As an integral part of the management plan the effectiveness or otherwise of the maintenance tasks will be inspected at least twice per annum and the programme and frequency of maintenance adjusted accordingly.

1 Introduction

- 1.1 This report has been prepared on behalf of AWE and describes the proposed landscape and biodiversity management works for the soft landscape associated with Hydrus at AWE Aldermaston. This includes both new works as well as existing landscape features such as individual trees.
- 1.2 The report includes maintenance proposals for the 5 year period following the successful completion of the 12 month defects liability period associated with the main contract for the implementation of the soft landscape works. In addition and, given the longer establishment period for the woodland habitats which will extend well beyond the 5-year aftercare period, particularly for canopy woodland species, indicative longer term management aims are also described.
- 1.3 The report should be read in the context of the overall site proposals MER-110-011952, the Application Master Plan JSL1664-100, Planting Proposals JSL1664-500/501 and the following associated documents; the Soft Landscape Specification (for the initial 12 months) and Ecology Desk Study and Phase 1 Habitat Survey.
- 1.4 A number of management zones have been identified for which a range of general maintenance regimes are proposed. These include Woodland Copses, Hedgerows and Grasslands (see Section 2). To further inform maintenance of the hard and soft landscape the zones have been sub-divided into their component landscape elements, each of which require their own specific maintenance regimes, such as the area of Acid Heath Grassland within the overall "Grasslands" management zone. The landscape elements are listed in Section 3.
- 1.5 Several protected species are known to occupy the site and are protected by law therefore any landscape management and maintenance operations should be carried out in consultation with a suitability qualified ecologist.
- 1.6 Bats are present on the site which are protected under the Wildlife and Countryside Act 1981. It is illegal to intentionally or deliberately kill, injure or capture bats, deliberately disturb bats (in or out of a roost), recklessly disturb roosting bats or obstruct access to their roosts, damage or destroy bat roosts, possess or transport a bat, or bat part, unless acquired legally, sell (or offer for sale) or exchange bats or bat parts. Any works that could potentially affect a bat or its place of rest can only be conducted under a licence required in advance from Natural England.

- 1.7 Birds are present on the site which are protected under the Wildlife and Countryside Act 1981. It is illegal to kill, injure or 'take' any wild bird, take or damage the nest of any wild bird whilst in use or being built. All tree works shall be undertaken outside the bird nesting season (mid February to mid September inclusive). Works outside this period shall only be completed with the express permission of the CA and only then following a visual inspection of the affected vegetation.
- 1.8 Slow-worm (*Anguis fragilis*) and grass snake (*Natrix natrix*) have been found on the site and are protected by the Wildlife and Countryside Act 1981. This means that they are protected against intentional or reckless killing and injuring (but not 'taking') and against sale and transporting for sale.
- 1.9 Those existing areas of vegetation on the site that have been identified as being rich in ecological value such as the existing culvert retained on site require careful management in consultation with an ecologist to ensure the protection and long term establishment of important species.
- 1.10 At this stage it is difficult to fully predict how the various planting and seeding areas will establish and develop. The regular maintenance tasks described in this report are designed to assist with the full establishment of the soft landscape areas and, where appropriate, to commence the regular works necessary to maintain these in a neat and tidy condition. However, monitoring of the effectiveness or otherwise of the various maintenance tasks is an essential element of any management plan. It is therefore proposed that the effectiveness or otherwise of the various maintenance works are inspected at least twice per annum as described in Section 5 and the works adjusted as necessary to suit the establishment and changing circumstances of the various management zones.
- 1.11 The following broad objectives for the soft landscape works have been identified:
- **Landscape Integration:** to provide an appropriate setting for the proposals, responding to existing adjacent vegetation and landscape types and to further integrate the site into the local landscape with particular respect to the parkland trees within Aldermaston Court;
 - **Landscape Amenity:** to respond to the scale and character of the site, to enhance the visitor experience and to mitigate the visual effects of the development;
 - **Biodiversity:** to enhance the nature conservation value of the site where possible.

2 Zoning

2.1 The Application Master Plan for the site is included in Appendix 1. This shows both areas of proposed new planting/ seeding and existing landscape features included in this management report. For maintenance purposes, the site can be divided into six broad zones (see Appendix 2). These are described below.

2.2 Woodland copses

A number of new native woodland copses will be provided to create landscape features of amenity value and to punctuate the proposed low earth mounds. They will also provide visual enclosure and partial concealment to both the Operations and the Support buildings. The copses will also promote biodiversity interest and compliment existing woodland areas within close proximity of the site.

2.3 Hedgerows

Single species semi-mature hedging is proposed to provide both a formal landscape element and visual enclosure to the Operations and Support building. A number of the hedge lines will be positioned on low bunds to provide an interpretation of a traditional hedge bank feature.

2.4 Parkland trees

Existing specimen trees (broadleaved) within grass will be retained (including a single example which qualifies as a “veteran tree” (i.e. a tree in the ancient stage of its life, see Natural England guidance’ Veteran Trees; A guide to good management’). In addition, specimen tree planting is proposed in response to the existing historic parkland landscape character of Aldermaston Court and to provide an attractive parkland setting to the site. Occasional intermittent trees and small tree groupings will also provide shade and nesting opportunities for birds.

2.5 Grasslands

The majority of the site will be maintained as amenity grassland requiring regular cutting. However an area of acid heath grassland is proposed to compliment existing locally occurring grassland of similar habitat type within and adjoining AWE Aldermaston. Existing rough grassland within the existing woodland copse is to be retained to promote habitat diversity.

2.6 **Wetland habitats**

A number of swales and a single detention basin are proposed. These are likely to form areas of damp grassland due to seasonal drainage requirements rather than permanently wet areas. It is thus proposed that these are seeded with an appropriate wet grassland seed mix and left to establish. This will enable the habitat to develop in response to the prevailing ground conditions.

2.7 **Green Roof**

An extensive green roof system is proposed to the Support Building and Substation which will consist of sedum planting. The roof will help to enhance the landscape setting of the development and provide environmental benefits associated with green roofs.

2.8 **Hard landscape areas**

These comprise bitumen macadam surfacings for vehicular and pedestrian paving only.

3 Landscape Elements

- 3.1 The landscape zones described in Section 2 include the landscape elements listed below. Each requires its own specific maintenance regimes as described in Appendix 3.
- 3.2 **Woodland copses**
- Existing woodland copse
 - Proposed native woodland planting
 - Temporary post and wire fencing
- 3.3 **Hedgerows**
- Semi mature hedgerow planting
- 3.4 **Parkland trees**
- Informal existing specimen trees (including an existing Veteran tree)
 - Informal parkland tree planting (including multi-stemmed trees)
 - Informal multi-stem tree planting
 - Protective fencing
- 3.5 **Wetland habitats**
- Seasonally wet or damp swales and a detention basin
- 3.6 **Grasslands**
- Amenity grass
 - Acid heath grassland
 - Rough grassland
 - Wet grassland (see 3.5 above)
- 3.7 **Green Roof**
- Extensive sedum roof
- 3.8 **Hard landscape areas**
- Pedestrian/ vehicular bitmac pavings
 - Gabion walling
- 3.9 In addition, a number of wildlife hibernacular are also proposed comprising refuges and/or 'ecopiles'. It is intended that these will be placed at discrete locations within the existing and/or new woodland copses. These will be formed using existing timber present on site as well as limbs, branches and/or the trunks of any trees removed or felled as part of the regular maintenance tasks. Appropriate locations will be determined for these features during the course of the 5 year management period.

- 3.10 The frequency of maintenance tasks for each of these landscape elements during the 5 year maintenance period is shown on the timetable included in Appendix 4. The need and frequency of these regular tasks will be reviewed during the course of the aftercare period (as described in Section 5) in response to establishment of the soft landscape elements or other currently unforeseen circumstances. This may require a regular maintenance activity to be increased or decreased in its frequency, or to be ended altogether. The need or otherwise to change the regular maintenance tasks listed will be reported to the Client following the inspections undertaken as described in Section 5.

4 Workmanship

4.1 Where and to the extent that materials and workmanship are not fully specified they are to be:

- (a) Suitable for the purposes of the stated objectives;
- (b) In accordance with good horticultural practice or the current British Standard with particular reference to:
 - BS 3936: Nursery stock
 - BS 4428: Code of practice for general landscape operations
 - BS 7370: Grounds maintenance

Part 1: Recommendations for establishing and managing grounds maintenance organisations and for design considerations related to maintenance.

Part 2: Maintenance of hard areas.

Part 4: Maintenance of soft landscape (other than amenity turf).
- (c) In accordance with current and best arboricultural practices and current British Standards, in particular:
 - BS 3998: Recommendations for Tree Work
 - BS:5837:2005 Trees in relation to Construction

5 Responsibilities for Management

- 5.1 The maintenance and management of soft landscape areas will be undertaken by a suitably qualified landscape contractor on behalf of the Client. The maintenance period is over 5 years, during this time monitoring and inspections shall be periodically completed by a suitably qualified and experienced person. The purpose of this review will be to assess the effectiveness or otherwise of the maintenance tasks as implemented and to identify the need or otherwise to change or modify the maintenance works. It is anticipated that all landscape areas will be inspected at least twice per annum during May and September and at other times at the discretion of the Client.
- 5.2 The exact requirements of the maintenance and management operations will be carried out in consultation with a suitably qualified Ecologist due to the known presence of protected species on the site which are protected by law.

Appendices

Appendix 1

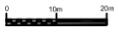
Application Masterplan



- LEGEND**
- EXISTING**
- Site boundary
 - Existing contours
 - Existing specimen tree to be retained
 - Existing veteran tree to be retained
 - Existing vegetation to be retained
- PROPOSED**
- Building
 - Sedum Green roof
 - LPS Mast
 - Safety Fence with matching gates where shown
 - Contour
 - Cycle shelter
 - Pedestrian bitmac paths
 - Vehicular access in bitmac
 - Native tree planting
 - Multi stem tree planting
 - Grassland
 - Acidic heathland/grassland maintained at approx. 150mm
 - Grass mounds
 - Swale to engineers detail
 - Extent of 100 year storm water level
 - Instant hedging 1.8m high
 - Spot heights
 - Lighting columns by others

Note:

1. To be read in conjunction with RPS Tree Constraints Plan JLS1692002 and Tree Removal and Protection Plan JSL1692003 for details of all existing vegetation retention.
2. Refer to RPS Planting Proposals JSL1664500-501 for all planting proposals.
3. Refer engineers details for all drainage proposals including Swales and Detention Pond and lighting.



I	19/05/10	Final revision	SH	NJ
H	29/04/10	New roof layouts added	SH	NJ
G	14/04/10	Topo removed Op Building	NJ	KR
F	14/04/10	Revised roof details	NJ	KR
E	26/01/10	Revised title	NJ	KR
D	19/01/10	Rev red line	SH	NJ
C	14/01/10	Rev substations/swales	SH	NJ
B	08/01/10	Revised detention basin	NJ	KR
A	14/12/09	OS grid added	SH	NJ
Rev:	Date:	Amendment:	Name:	Checked:

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Notes: Contractors are not to scale from this drawing. All dimensions to be checked on site and any discrepancies, ambiguities and/or omissions between this drawing and information given elsewhere must be reported to this office. If in doubt, ask.



Client: AWE

Project: Hydrus Aldermaston

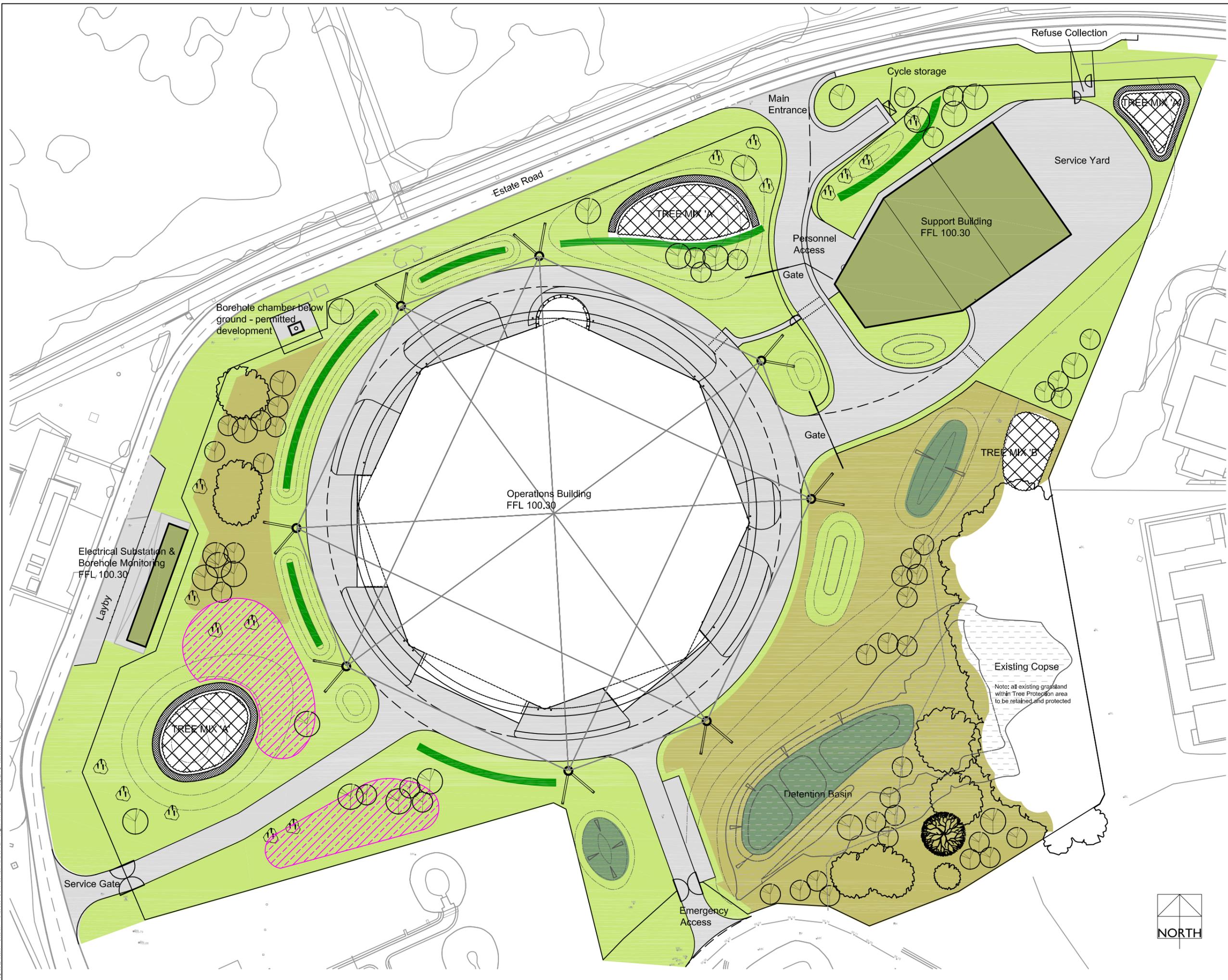
Title: Application Master Plan
A+Hydrus-SCT-00-00DRW-AL-000-110-0000000

Date: 10/09 **Scale:** 1:500 **Paper Size:** A0

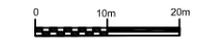
Drawn: SH **Checked:** NJ **Job Ref:** JSL1664

Drawing Number: 100 **Rev:** FINAL

Landscape Management Zone Plan



- LEGEND**
- WOODLAND COPSE**
 - Existing Woodland Copse
 - New Woodland Copse (Mixes A and B)
 - New Woodland Copse Edge Mix C
 - HEDGEROWS**
 - Semi mature hedgerows
 - PARKLAND TREES**
 - Existing specimen trees
 - Informal standard parkland trees
 - Informal multistem trees
 - Veteran Oak tree
 - WETLAND HABITATS**
 - Swale and detention basin
 - GRASSLANDS**
 - Short grassland
 - Rough grassland
 - Acid heath grassland
 - GREEN ROOF**
 - Sedum mix
 - HARD LANDSCAPE**
 - Pedestrian / vehicular bitmac paving



Existing Copse
 Note: all existing grassland within Tree Protection area to be retained and protected

Rev:	Date:	Amendment:	Name:	Checked:	
Drawing Based Upon: RPS JSL 1664-100					
Status: FOR PLANNING					
Notes: Contractors are not to scale from this drawing. All dimensions to be checked on site and any discrepancies, ambiguities and/or omissions between this drawing and information given elsewhere must be reported to this office. If in doubt, ask.					
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Client: AWE					
Project: Hydrus Aldermaston					
Title: Landscape Management Zone Plan MER-110-011952					
Date:	10/09	Scale:	1:500	Paper Size:	A1
Drawn:	SH	Checked:	PH	Job Ref:	JSL 1664
Drawing Number: 600 Rev: FINAL					
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Landscape Maintenance and Biodiversity Schedule

To be read in conjunction with Landscape Management Plan Zones JSL1664-600

	Management Zone	Landscape Objectives	Maintenance Requirements	Reference
01	Woodland Copses Including new plantings and existing woodland copse	<ul style="list-style-type: none"> ▪ Enhance visual amenity ▪ Increase biodiversity and provide wildlife habitat, in particular providing habitat for bats, birds, reptiles, invertebrates, etc ▪ Integrate with existing landscape character ▪ Emphasise proposed low mounds ▪ Visual enclosure and partial concealment to both the Operations and the Support building 	<p>Existing woodland copse:</p> <ul style="list-style-type: none"> ▪ Remove any dead, dying and damaged branches from established trees or remove individual specimens with similar characteristics if such features constitute a health and safety hazard. If not, leave the existing tree in its given state to develop as standing deadwood. Obtain advice from an ecologist regarding possible presence of protected species, in particular bats and birds prior to undertaking any work to remove trees or tree limbs. Undertake removal of trees or tree limbs during October. Leave the branches or trunk of the tree on site within the woodland, to provide dead wood habitat of benefit to wildlife ('ecopiles'). ▪ No specific maintenance works are proposed for grasslands within the existing copse. The established canopy to this woodland area will naturally control grassland establishment. <p>New woodland copse plantings:</p> <p>General</p> <ul style="list-style-type: none"> ▪ Replace failed plants annually. ▪ Check condition of stakes and shelters and replace broken or missing items until such a time as they become redundant. It is anticipated that all shelters will be removed after 3-5 years of plant establishment. ▪ Re-firm any plants that have been disturbed by adverse weather or interference. ▪ Cut grass within woodland plantings twice per annum and remove arisings. 	<p>BS 3998: Recommendations for tree work</p> <p>BS 7370-4: Grounds maintenance</p> <p>Recommendations for maintenance of soft landscape</p> <p>The Arboricultural Association Standard Conditions of Contract and Specification for Tree Works Sept.</p> <p>Wildlife and Countryside Act 1981</p> <p>Birds Directive</p> <p>Conservation Regulations, 1994, (Regulation 38) and on Annexes II and IV of the EC Habitats Directive.</p>

	Management Zone	Landscape Objectives	Maintenance Requirements	Reference
		<p>Woodland Mix A: Establish an Oak/ Ash woodland with very occasional Birch and Cherry</p>	<ul style="list-style-type: none"> ▪ Maintain a weed free area at the base of all new tree and shrub planting only using an approved systemic herbicide such as Glyphosate. Weed free areas to be 1m diameter in grass areas. Bark mulch to be maintained within edge mix C to ensure continued weed suppression. No vegetation clearance or mulching to be carried out in the existing copse. ▪ Undertake thinning of new woodland plantings as necessary to encourage the establishment of the climax species and to maintain the dense character of the understory planting. Thinning should be commenced when the outermost leaves of crowns are competing for light with leaves of neighbouring trees. Leave all arisings on site in the woodland, to provide dead wood habitat of benefit to wildlife. ▪ All thinning and coppicing works to be undertaken between November and February to avoid impacts on woodland-nesting birds. However, when carrying out works, avoid compacting ground during autumn/winter. ▪ Check condition of temporary protective fencing. Remove at Year 5 after planting or later depending on status of plant establishment. ▪ Leave fallen leaves in planting areas where they will form a natural mulch and humus layer. Only remove if they are likely to smother smaller plants. ▪ Potential works in the longer-term include selective removal of Birch and Cherry as appropriate as planting becomes established to develop a canopy comprising approximately 45% Oak, 45% Ash and 5% Birch and Cherry. 	

	Management Zone	Landscape Objectives	Maintenance Requirements	Reference
		<p>Woodland Mix B: Establish Oak/ Ash woodland with some selected Birch and Cherry and a mixed understorey, including Hazel, thorn and Maple.</p>	<ul style="list-style-type: none"> ▪ Potential works in the longer-term include selective removal of Birch and Cherry as appropriate as planting becomes established to develop a canopy comprising approximately 45% Oak, 25% Ash, 15% Birch and Cherry, and coppicing of Hazel, Thorn and Maple on rotation as follows: 	
		<p>Edge Mix C: Dense shrub edge to woodland copses</p>	<ul style="list-style-type: none"> - Approximately 50% in Year 7 after planting (or later dependant upon plant establishment) and remainder at Year 11. Thereafter, maintain each coppice area on a 7 year cycle. Select occasional specimens of each species for exclusion from coppice cycle to diversify woodland structure. ▪ Maintain as a dense shrub edge which is clipped to a square profile to a maximum height of 2m annually. Do not coppice. 	
02	Hedgerows	<ul style="list-style-type: none"> ▪ Enhance visual amenity ▪ Visual containment and enclosure to the Operations building. 	<ul style="list-style-type: none"> ▪ Replace failed sections of hedging. ▪ Re-firm any sections of hedging that have been disturbed by adverse weather or interference. ▪ Maintain bark mulches to ensure continued weed suppression. ▪ Maintain the hedging at a height no greater than 3.0m and clipped to a square profile (annually during October). Hedgerow to be clipped outside the bird breeding season (February to September inclusive) to a neat and consistent finish. Arisings to be removed to tip. 	<p>BS 4428: Code of practice for general landscape operations BS 7370-4: Grounds maintenance Recommendations for maintenance of soft landscape Wildlife and Countryside Act 1981 Birds Directive</p>

	Management Zone	Landscape Objectives	Maintenance Requirements	Reference
03	Parkland trees (including multi-stemmed trees)	<ul style="list-style-type: none"> ▪ Enhance visual amenity ▪ Enhancement of the site's microclimate ▪ Increase biodiversity and wildlife habitat (e.g. for bat roosts, nesting birds, invertebrates, prey for birds) ▪ Landscape integration and to compliment the parkland trees within Aldermaston Court. <p>Existing "veteran" tree</p> <ul style="list-style-type: none"> ▪ To prolong its longevity and thus its landscape and biodiversity value but otherwise not to interrupt its natural deterioration. 	<p>Informal existing specimen trees and established parkland tree planting:</p> <ul style="list-style-type: none"> ▪ Remove any dead, dying and damaged branches from established trees or remove individual specimens with similar characteristics if such features constitute a health and safety hazard. If not, leave the existing tree in its given state to develop as standing deadwood. Obtain advice from an ecologist regarding possible presence of birds nests and/or bat roosts prior to undertaking any work to remove trees or tree limbs. Undertake outside of the bird nesting season (February to September inclusive). Leave the branches or trunk of the tree on site and place within the existing or new woodland copses, to provide deadwood habitat of benefit to wildlife ('ecopiles'). <p>New specimen tree planting:</p> <ul style="list-style-type: none"> ▪ Replace any failures annually. ▪ Check condition of stakes, ties and protective fencing and replace broken or missing items until such a time as they become redundant. Adjust ties if necessary to allow for growth and prevent damage to bark. ▪ Maintain a weed free area at the base of all trees, 1m diameter bark mulch area for trees in grass. ▪ Water during growing season as necessary to sustain growth of specimen trees (using irrigation tubes). ▪ Rabbit-proof fencing is proposed outside the root protection area for the tree in order to prevent further deterioration of the tree's rooting zone due to burrowing rabbits and prevent mowing operations beneath the tree thus soil compaction within the root protection area. Annual cutting of grassland within the fenced area may be required. Otherwise the tree is to be left to further deteriorate naturally. Under no circumstances is the tree to be lit. 	<p>BS 3998: Recommendations for tree work</p> <p>The Arboriculture Association Standard Conditions of Contract and Specification for Tree Works Sept.</p> <p>Wildlife and Countryside Act 1981</p> <p>Birds Directive</p>

	Management Zone	Landscape Objectives	Maintenance Requirements	Reference
04	Wetland habitats	<ul style="list-style-type: none"> ▪ Increase biodiversity and wildlife habitat (e.g. by providing bird feeding areas, invertebrate habitat and sources of nectar) ▪ Detention Basins and Swales to serve primarily as surface and storm water drainage features. 	<ul style="list-style-type: none"> ▪ Reinstate any failed areas of seeding. ▪ Wet grassland areas to be subject to an annual cut to 50mm height during October and remove arisings. Further cutting to be undertaken as necessary to improve or to ensure surface drainage and storm water treatment capability of swales or detention basin is not compromised. ▪ Any invasive broadleaved weeds to be removed by hand or treated with weed wipe if plant is in its basal state. ▪ If required, detention basins and swales should be cleared on a rotational basis with only a third or half of the system disturbed at any one time. Where silt removal is undertaken the area may require re-seeding. 	Wildlife and Countryside Act 1981
05	Grasslands	<p>Amenity Grass Areas:</p> <ul style="list-style-type: none"> ▪ Enhance visual amenity ▪ Integrate with surrounding landscape character 	<ul style="list-style-type: none"> ▪ Reinstate any failed areas of seeding. ▪ Remove litter, rubbish and other debris from grassed areas prior to cutting. ▪ Maintain all amenity grass areas only (see Wetland habitats for grasslands within swales/ detention basins) to a maximum height of 3cm during period March/April to September/October, remove arisings. ▪ Remove fallen leaves from amenity grassland areas annually during October/November. ▪ Cut to a neat and consistent finish including edges, without rutting or scalping, ensuring adjacent areas of hard standing are kept free of arisings. New areas of amenity grass shall be graded to merge into existing grass areas where they meet. ▪ Exercise extreme care when working in close proximity to existing/new trees and prevent damage to stems/trunks. 	<p>BS 7370-1: Grounds maintenance</p> <p>Recommendations for establishing and managing grounds maintenance organisations and for design considerations related to maintenance.</p> <p>Wildlife and Countryside Act 1981</p> <p>Conservation Regulations, 1994, (Regulation 38) and on Annexes II and IV of the EC Habitats Directive.</p>

	Management Zone	Landscape Objectives	Maintenance Requirements	Reference
		<p>Acid/ Heath Grassland:</p> <ul style="list-style-type: none"> ▪ As above except to increase biodiversity and wildlife habitat, (e.g. by providing bird feeding areas, invertebrate habitat and sources of nectar) <p>Rough Grassland:</p> <ul style="list-style-type: none"> ▪ As above except to increase biodiversity and wildlife habitat 	<p>No management of the developing sward is anticipated during Year 1 of this management plan other than hand pulling of broadleaved herbaceous weeds or careful use of a weed-wipe to treat weed growth in its basal stage. Generally, thereafter, annual management will be confined to mowing during October or after seed dispersal) and removal of the arisings together with the removal of fallen leaves during Autumn depending on establishment. The developing sward will, however, be monitored to determine the most appropriate future management for the acid heath grassland to maximise its biodiversity value.</p> <p>Works may include the following:</p> <ul style="list-style-type: none"> ▪ Creation of small areas of bare soil to create different microclimatic conditions and to encourage colonisation; ▪ Removal of leaf litter to minimise nutrient build-up within the developing sward; ▪ Winter mowing to reduce grass dominance in the sward; ▪ Removal of rabbit-proof fencing once grass/ heath fully established; ▪ Collection and spreading of supplementary seed/ cuttings from other areas of acid heath grassland elsewhere on the AWE Aldermaston site or other local sources, to introduce locally appropriate species to the grassland. Alternatively, appropriate seed may be obtained from a reputable supplier of native British seeds, such as Emorsgate. ▪ Reinstate any failed areas of seeding ▪ Grassland edge to existing woodland copse to receive an annual cut during late September and arising to be removed. Area to be defined with timber pegs for ease of demarcation on-site. 	

	Management Zone	Landscape Objectives	Maintenance Requirements	Reference
08	Wildlife hibernacula and 'ecopiles'	<ul style="list-style-type: none"> • Create refuges in suitable locations to increase habitat suitability for a range of wildlife, in particular, amphibians, reptiles and hedgehogs. 	<ul style="list-style-type: none"> ▪ A portion of the cut timber from felling/maintenance activities should be retained on site to create refuges for wildlife, where this does not constitute a health and safety or security hazard. ▪ Locations of all refuges to be agreed in advance in consultation with an ecologist. ▪ Log piles can be created using timber in varying lengths. These should be laid/piled within or on the periphery of wooded areas. ▪ Loggeries can be created within woodland areas by digging half of the timber length into the ground (this promotes rotting and speeds up the process of decay) to provide valuable habitat for invertebrates. 	<p>Wildlife and Countryside Act 1981</p> <p>Conservation Regulations, 1994, (Regulation 38) and on Annexes II and IV of the EC Habitats Directive.</p>

Note: Management operations associated with the copse, veteran tree and areas of rough grass should be carried out in consultation with a suitability qualified ecologist due to the presence of protected species on the site, in particular Great Crested Newts.

Appendix 4

Regular Maintenance Tasks

REGULAR MAINTENANCE TASKS

	Management Zone/Landscape Element	Activity	Year 1 to 5												Notes			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
01	Woodland Copses Existing Woodland Copses	Remove any dead, dying or diseased limbs or individual specimens.																Only remove if limbs or specimen trees constitute a safety hazard. Otherwise leave as standing deadwood (Monthly) It is anticipated that all shelters will be removed between Year 3 and 5. (Monthly) Cut grass and remove arisings Maintain bark mulches Trim to 2m height (square profile)
		New Woodland Copses	Replacement planting															
		Check condition of stakes, ties, shelters and temporary protective fencing (replace as necessary)																
		Re-firm plants as necessary																
	Woodland Mix A and B (Specific works)	Maintain weed-free area at each planting station																
		Cut grass and remove arisings																
	Edge Mix C (Specific Works)	Maintain bark mulches																
	Trim to 2m height (square profile)																	
02	Hedgerows Semi-mature hedgerows	Replace failed sections of hedgeline															(Monthly) It is not anticipated that hedgelines will require trimming until Year 3	
		Re-firm any disturbed sections of hedgeline																
		Trim to a square profile at 3m height																
		Maintain bark mulches																
03	Parkland Trees (including multi-stem trees). Existing and established specimen trees	Remove any dead, dying or diseased limbs or individual specimens															Only remove if limbs or specimen trees constitute a safety hazard. Otherwise leave as standing deadwood (Monthly) Water as necessary to sustain plant growth Cut grass beneath tree using hand-held strimmers and remove arisings during September. No lighting is to be provided to the tree	
		New specimen tree planting	Replace any failed specimen trees															
		Check condition of stakes, ties and protective fencing (adjust/replace if necessary)																
		Maintain bark mulch at base of tree																
	Existing Veteran Tree	Watering																
	Check condition of rabbit-proof fencing (replace/repair as necessary). Ensure rabbits continue to be excluded from within fenced area.																	
04	Wetland Habitats Seasonally wet or damp swales and detention basin	Reinstate any failed areas of seeding															Swales and detention basins to be cleared on a rotational basis to ensure their continuing function as surface and stormwater drainage features	
		Cut to 50mm height and remove arisings																
		Remove invasive broadleaved weeds by hand or use weed wipe																
05	Grasslands Amenity Grasslands	Reinstate any failed areas of seeding															Additional cut to be undertaken as necessary to ensure grassland does not exceed 5cm height. Cutting of Acid Heath Grassland is not anticipated during Year 1. Developing sward to be monitored annually and further maintenance works to be identified to suit.	
		Cut as necessary to maintain amenity grasslands at 3cm height (maximum) removing litter and debris before cutting.																
	Remove fallen leaves																	
	Acid Heath Grassland	Remove broadleaved herbaceous weeds by hand or careful use of a weed wipe.																
		Cut annually during October or after seed dispersal and remove arisings																
Rough Grassland	Reinstate any failed areas of seeding																	
	Cut annually and remove arisings																	
06	Green Roof	Remove broad leaved weeds and self seed saplings by hand or careful use of a weed wipe.																
		Reinstate any failed areas of planting																
07	Hard Landscape Pedestrian/vehicular bitmac	Sweep areas to prevent of build-up of grit and debris																
		Clear all hard surfacings of fallen leaves																
		Remove litter																

Notes:

Special Operations:
New Woodland Copses: (Mix A and B) Individual guards and shelters to be removed at 3-5 years (April/May in any given year). Undertake thinning as necessary to encourage climax species (November - February).
Remove temporary protective fencing after 5 years

Wetland Habitats: To be cleared of silt on a rotational basis to ensure its continued effectiveness as a surface and stormwater drainage facility.

Acid Heath Grassland: Removal of rabbit-proof fencing once sward successfully established.

Rough Grasslands: Extent of rough grasslands to be defined on-site using timber pegs.

Pedestrian/vehicular bitmac surfacings: Remove any persistent weed growth using Glyphosate.