LIZARD
Landscape Design and Ecology

ECOLOGICAL & LANDSCAPE MANAGEMENT PLAN

Ruislip High School, Sidmouth Drive, Ruislip

On Behalf of: London Borough of Hillingdon

Prepared by	CO
Checked by	JJ
Date	06th March 2019
Document Reference	LLD1650-ECO-REP-001-00
Revision	00
Reason for Issue	Planning

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LIZARD
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1.0 INTRODUCTION

1.1 Lizard Landscape Design and Ecology has been commissioned by Farrans to provide a Landscape and Ecological Management Plan (LEMP) for the proposed development of Ruislip High School, Sidmouth Drive, Ruislip, HA4 0BY.

1.2 This LEMP has been prepared based upon the following information:

- *Ecological Appraisal (EPR, 2017);*
- *Hard and Soft Landscape General Arrangement Drawing (Lizard Landscape Design & Ecology, 2019);*
- *Detailed Plant Schedule and Specification (Lizard Landscape Design & Ecology, 2019).*

1.3 This report has been based on data from these previous surveys and reports and should be read in conjunction with the 'Hard and Soft Landscape GA'. This report has been undertaken and prepared by Catherine O'Reilly (*MCIEEM, Senior Ecologist, Lizard Landscape Design & Ecology*).

1.4 Maintenance prescriptions have been formulated to maximise the value of the site, ensure healthy plant growth, keep areas free of litter / weeds and ensure the species on-site remain free of pest, disease or other defects. It is anticipated that the initial landscape contractor as appointed by the main contractor will be responsible for any defects identified within 12 months of implementation. After this 12-month period all management as detailed within this report will be undertaken by a suitable management company as appointed by the school.

1.5 This plan covers the first 5 years of maintenance only, after this period the plan should be reviewed and amended as appropriate.

2.0 SITE CONTEXT

Site Description

2.1 The site is located to the south of Sidmouth Drive and is bounded by greenspace to the south and east with commercial and residential properties to the west. The site as a whole covers c. 1.9Ha, however the construction zone encompasses only 0.4Ha. The proposed construction zone comprises amenity grassland, scattered trees, hedging and hard standing.

Surrounding Landscape

2.2 The site is within the suburban edge of greater London. Extensive areas of residential properties extend for a minimum of 2.0km to all directions however these are interspersed with large areas of green space including playing fields, recreation grounds, parks and agricultural fields.

Development Proposals

2.3 The development proposals include the construction of a new three-storey teaching block, a single-storey extension to the existing changing rooms, and enhancement of the central courtyard area.

3.0 BASELINE ECOLOGICAL CONDITIONS

3.1 The proposed construction zone comprises amenity grassland, scattered trees, hedging and hard standing. Flora on site was formed of common and widespread species with no rare or notable species assemblage recorded; the habitats to be directly impact by the proposals are of very limited ecological value.

3.2 A small pond lies to the south of the site, beyond the construction zone. This is to be retained and protected within the scheme. There is no potential for any protected species to be present within the construction boundary; no further phase 2 survey work or mitigation measures are required.

4.0 AIMS AND OBJECTIVES

4.1 The aim of the LEMP has been to;

- *To provide a long-term management plan of the site;*
- *To maximise biodiversity on site.*

4.3 Objectives of the Proposals

4.3.1 The main aims and objectives of the proposed landscape scheme are detailed below:

Amenity Lawn

4.3.2 310m^2 of amenity lawn is proposed to the south-eastern corner of the site. The aim is to establish permanent areas of low maintenance grassland which provide amenity space. The sward shall be of even grade, uniformly coloured and contain a maximum of 10% herb species and no scrub.

Wildflower Grassland

4.3.3 The north-eastern corner will form the new 'habitat area' of the site, to be seeded with a suitable wildflower mix such as Emorsgate EM2 – Standard General Purpose Meadow Mixture (*or equal and approved*). The aim is to establish permanent areas of grass and herb species with a species composition and diversity capable of being maintained by an average of one cut per year, and that through appropriate management will be encouraged to naturally develop biodiversity interest over time, including valuable habitat for invertebrates.

Ornamental Shrubs

4.3.4 Areas of ornamental shrub planting are proposed to the south of the artificial grass pitch and along the northern boundary. The aim is to establish dense, weed free areas of ornamental shrubs which are maintained to remove any dying or dead material and to enhance key features such as leaf colour, flowers or fruits. Ornamental planting areas are to be mulched to help suppress weed growth and help retain moisture in the soil. Species chosen will be predominantly as listed on RHS Perfect for Pollinators to maximise the invertebrate resource within the site.

Native Hedgerow

4.3.5 A new Hornbeam hedgerow is proposed to the eastern boundary of the habitat area, and the southern boundary of the artificial grass pitch. Hedgerows will be trimmed and shaped to a constant height and width appropriate for future growth, and which maximise foraging and breeding resources for birds, bats and invertebrates.

Native Trees

4.3.6 The aim is to establish individual trees appropriate to their location. Individual feature trees should be maintained to ensure regular form and formal appearance and to enhance key features such as leaf colour, flowers or fruits. Varieties proposed include:

- Field Maple (*Acer campestre 'Streetwise'*);
- Apple (Bramley Seedling and Worcester Pearmain)
- Plum (Marjorie Seeding);
- Pear (Williams Bon Chretien);

4.3.7 Existing trees which are to be retained within the scheme shall be managed in such a way to maximise health, ensure strong growth and minimise any risks resulting from the falling of limbs.

Green Roof

4.3.8 An area of extensive green roof is proposed to the southern section of the proposed building. This will be managed in such a way to ensure its visual amenity throughout the year, while also providing additional biodiversity value.

Log Piles

4.3.9 Log piles will provide a source of decaying material to provide an important foraging and breeding resource for invertebrates such as stag beetles. These areas will also provide hibernation opportunities for reptiles and amphibians.

Compost Piles

4.3.10 Decaying material on site will provide good breeding opportunity for reptiles such as slow worm, and an additional habitat for invertebrates. The piles will be maintained at a constant level and topped-up as appropriate.

Bat Boxes

4.3.11 2no. Improved Crevice Bat Box (*as produced by The Nestbox Co*.) will be installed to the southern aspect of the existing mature London Plane tree to the northern boundary of the site. These areas will provide additional roosting opportunity for bat species and will be kept well-maintained and securely affixed.

Bird Boxes

4.3.12 Bird boxes suitable for swifts and house sparrows will be integrated into the northern and eastern aspects of the new building. 2no. Vivara Pro Seville 32mm Woodstone Nest boxes will be installed to the northern aspect of mature poplar trees within the western treeline, with 1no. Vivara Pro Barcelona Open Nest Box installed within the northern hedge line. These areas will provide additional nesting opportunity for bird species and will be kept well-maintained and securely affixed.

5.0 MANAGEMENT PRESCRIPTIONS

5.1 In order to ensure the long-term viability of the scheme as outlined above, detailed prescriptions for initial maintenance requirements and long-term management are provided within this section.

5.2 Amenity Lawn

Sowing

5.2.1 Areas of bare earth are to be sown with a suitable grass mix or laid with appropriate turf. Turf is to be established to a minimum of 35mm before its first cut.

Cutting

5.2.2 All debris, litter and large stones over 25mm diameter to be removed prior to cutting. Grass shall be cut during the growing season (generally April-October) using a suitable mover to a height of 25mm-50mm. Grass will be cut at intervals of not more than 10-14 days depending on growing conditions. Arisings shall be collected and removed from the area.

Weed Removal

5.2.3 The sward shall be maintained weed free by an annual application of a suitable herbicide.

Fertiliser and Spiking

5.2.4 A propriety granular slow-release fertiliser shall be applied twice yearly, in the spring and autumn. Areas should be scarified in autumn to remove thatch and dead grass. The area is to be spiked annually in October.

Strimming

5.2.5 Grassed edges to planted areas to be trimmed to maintain a clear smooth edge to planted beds; strim edges elsewhere but not within 100mm of trees.

Rectification of Defects

5.2.6 Should bare patches of grass develop, area is to be cultivated to 150mm and then seeded with amenity grass seed. To be cross-sown in two directions at right angles to each other, (half the seed being used in each direction) at the rate of 35 gm per square meter and the ground lightly raked over on a still, dry day when the top 25mm of soil is dry

5.3 Wildflower Meadows

5.3.1 For the most successful results, careful implementation will be required (*as described in the following sections*). The first and second year's management is critical to the success of these meadows.

Sowing – Year 1

5.3.2 Wildflower grass requires nutrient-poor soil and should ideally be sown directly onto sub-soil or poor-quality topsoil. The ground shall be cleared of all weeds and vegetation and cultivated to a fine tilth prior to sowing.

5.3.3 Seeds require warmth and moisture in order to germinate and therefore late August – October and March – April are generally the best times to sow. The seed shall be sown at a rate of 2 – 4 grams / m^2 (as specified by the manufacturer). Seeds should be rolled into the soil and the seed bed kept moist at all times.

Cutting – Year 1

5.3.4 The sward should be cut to 100mm in mid-June and late-August during the first season to develop a dense sward. A final cut should take place at the end of the season. All arisings to be collected and removed. Weeds are to be controlled by pulling or spot spraying.

Cutting – Year 2 Onwards

5.3.5 Wildflower meadow areas shall be cut at the end of the season once the flowers have dropped seed and the arisings collected and removed after any cut to avoid nutrient enrichment. An early-spring cut should be implemented if the sward begins to appear 'leggy'. Sward to be cut to 100mm. Any bare patches to be reseeded as and when needed.

Weeding – Year 2 onwards

5.3.6 Undesirable weeds to be pulled by hand or spot sprayed with a selective herbicide. Fertiliser use is to be avoided.

Additional Yellow Rattle

5.3.7 Yellow rattle (*Rhinanthus minor)* is a root hemiparasite which parasitises the roots of meadows plants such as grasses and legumes, thereby impeding their growth. The additional sowing of yellow rattle can be used after the final cut to suppress any vigorous grass growth.

Fertiliser

5.3.8 No fertilisers to be used within the wildflower areas. Nutrient enrichment will cause the dominance of undesirable grass species.

5.4 Ornamental Shrubs / Herbaceous Planting

Planting

5.4.1 Planting pits shall be excavated to a depth and size that contains the plant's root system and allows the collar of the plant (*the mark on the tree where it has been growing above ground*) to be level with the top of the soil. The soil shall be carefully backfilled in layers, ensuring the plant is held upright, and each layer should be carefully firmed down.

Watering

5.4.2 All plants shall be watered as may be required to maintain healthy growth following planting, during the maintenance period and subsequently in cases of extreme drought (Trees – 5Ltr's per tree, Shrubs 1Ltr each, Grass 5Ltr's/m2). Watering to commence following 10 consecutive days of no rainfall, during the months of June to August. Any failures due to drought shall be replaced.

Top Dressing

5.4.3 All planted areas shall be given an application of an approved top dressing at the rate of 40 gm per sq. metre in May. This should be in slow release form. This should be worked lightly into the soil, without disturbing the roots, before the bark mulch is re-spread. Unless specific nutritional deficiencies are identified, no fertilizer shall be applied to newly planted areas in the first season. If visual inspection points to nutrient deficiency further investigation of causes will be necessary. Remedial action may, in addition to fertilizer application, include pH testing, assessment of organic content and levels of compaction.

Pruning

5.4.4 Trees and shrubs should be checked bi-annually for shape, form and size, and pruned accordingly whilst they are still in leaf. Once established, any support canes shall be removed from the shrubs. Trailing and climbing material shall be assisted in its growth by securing growing leaders where necessary.

Mulch

5.4.5 The bark mulch should be maintained at an even spread, 75mm deep, of consistent thickness, to ensure that it is effective as a weed suppressant and moisture conserver. Following any maintenance operations and on a bi-annual basis, the mulch shall be supplemented to allow for any material which may have been lost

5.5 Native Trees, Shrubs and Hedges

Planting and Establishment

5.5.1 Planting pits shall be excavated to a depth and size that contains the plant's root system and allows the collar of the plant (*the mark on the tree where it has been growing above ground*) to be level with the top of the soil. The soil shall be carefully backfilled in layers, ensuring the plant is held upright. Plants are to be supported by stakes and ties as appropriate. All tree ties are to be checked twice yearly or following bad weather for their soundness and effectiveness. Any defective ties or stakes are to be removed and replaced as appropriate.

Watering

5.5.2 All plants shall be watered as may be required to maintain healthy growth following planting, during the maintenance period and subsequently in cases of extreme drought (Trees – 5Ltr's per tree, Shrubs 1Ltr each, Grass 5Ltr's/m2). Watering to commence following 10 consecutive days of no rainfall, during the months of June to August.

Pruning / Trimming – Ongoing

5.5.3 Pruning and trimming of trees, shrubs and hedgerows should be carried out outside of the bird breeding season (*nesting season: March – August inclusive).* Trees and shrubs should be checked bi-annually for shape, form and size, and pruned accordingly whilst they are still in leaf. Hedges should be cut in alternate years if possible to allow species to flower and fruit on the previous year's growth. Pruning of hedgerows should be carried out in such a way to achieve a dense hedgerow.

Weeding

5.5.4 Areas around the new plants should be kept clear of weeds to allow the plants to establish by weeding twice a year in the Spring and Autumn. Any litter or debris should be removed as soon as it is found.

Fertiliser

5.5.5 Slow-release 11:22:9 NPK fertiliser at a rate of 50g / tree to be applied annually to the base of each tree. Fertiliser is to be applied in spring.

Existing Trees

5.5.6 Existing mature trees are to be inspected annually, or following periods of high winds, for signs of poor health or defects; remedial action will be taken where required. All work is to be undertaken by a suitably qualified tree surgeon.

5.6 Green Roof

Establishment

5.6.1 The roof will be seeded at an appropriate time of year or installed with a pre-grown mat if immediate impact is required. Establishment watering is required for 6-8 weeks following installation (dependant upon local levels of rainfall). Post establishment maintenance will be the responsibility of the installer, for a period agreed between the client and installer.

General Checks

5.6.2 Annually, the integrity of the green roof system is to be checked. Checks to include ensuring rainwater outlets are free of debris, removal of unwanted leaf litter and ensuring all metal flashings, termination bars, mortar and mastic sealant are in good condition.

Cutting

5.6.3 In the late autumn the vegetation is to be strimmed back to a 50-70mm height and the unwanted waste matter removed and lowered to ground level for composting/disposal.

Weed Removal

5.6.4 With the exception of saplings, which should always be removed, weeds in a biodiverse green roof should be considered as a problem only of aesthetics, unless they are particularly invasive. If considered undesirable, they can be removed.

Fertiliser

5.6.5 Advice to be sought from the supplier / installer and any fertiliser required is to be applied according to their specific recommendations.

Irrigation

5.6.6 The need for irrigation in a biodiverse green roof system is dependent upon the client requirement for the visual appearance of the vegetation. If it is intended that the roof should have colour and interest for the longest period through the growing season, then irrigation will significantly aid in achieving this. Should the requirement be only to deliver biodiversity, then the provision of sufficient watering points at roof level to allow for only occasional watering in periods of prolonged drought can be considered sufficient.

Plant encroachment

5.6.7 Any plants which encroach into drainage channels, walkways or vegetation barriers should be removed as required.

5.7 Compost Heaps and Log Piles

Creation and Maintenance

5.7.1 A log pile can be of any size and constructed from piling logs up horizontally. Log piles can be created using any type of wood, although it would be advantageous to utilise any pruning matter on an ongoing basis. Compost heaps can also be of any size and constructed from organic matter including grass cuttings. Once established, these can be maintained using cuttings from wildflower areas.

5.8 Bat Boxes

Specification

5.8.1 Bat boxes suitable for urban, crevice dwelling species such as common pipistrelle will be installed to the southern aspect of existing mature trees. Bat boxes are to be installed at a height of 3 – 6m in a location with a clear flight path to the entrance.

Maintenance

5.8.2 The bat boxes specified above do not require any cleaning. A visual inspection should be carried out annually to ensure the boxes remain in good condition.

5.9 Bird Boxes

Specification

5.9.1 Bird boxes suitable for urban bird species such as house sparrow and swift will be installed to the northern aspect of mature trees on site, and to the north-eastern aspect of the new building. Boxes will be installed at a height of 2 – 3 meters (minimum of 5m for swift boxes), in a position protected from prevailing wind and prolonged direct sunlight.

Maintenance

5.9.2 No maintenance necessary. A visual inspection should be carried out annually to ensure the boxes remain in good condition.

6.0 IMPLEMENTATION SCHEDULE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
AMENITY GRASS												
Mowing				X	X	X	X	X	X	X		
Strimming												
Weed Control					X					X		
Top Dressing				X								
Scarifying and Spiking										X		
WILDFLOWER MEADOW												
Mowing (Year 1)						X		X			X	
Weed Control			X			X			X			
Moving (Year 2+)			X							X		
ORNAMENTAL SHRUBS												
Watering (as required)				X	X	X	X	X	X	X		
Top Dressing					X							
Replace Losses											X	
Mulching										X		
Pruning (varies according to flowering time)			X							X		
NATIVE TREES, SHRUBS & HEDGING												
Watering (as required)				X	X	X	X	X	X	X		
Pruning		X										
Check Ties / Stakes (1st yr.)				X						X		
Replace Losses											X	
Maintain 500mm dia. clear base				X		X		X				
Weeding					X				X			
BIRD AND BAT BOXES												
Cleaning (bird boxes)										X		
Check condition											X	
LOG PILES												
Check Integrity			X							X		
Re-stock if needed			X							X		
COMPOST												
Check Integrity			X							X		
GREEN ROOF												
Cutting										X		
Weed Control (if required)					X					X		
Fertiliser	Refer to manufacturer specifications											
Watering (in drought)				X	X	X	X	X	X	X		
General Checks			X							X		