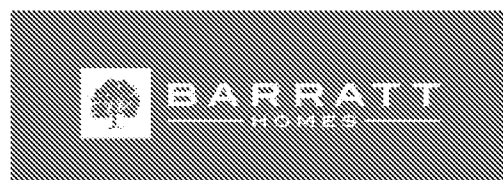


CHANGING FACILITY ZONE E STANHORN GROVE FELPHAM

LANDSCAPE ECOLOGICAL MANAGEMENT PLAN



Written by:	LS
Checked by:	DKM
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1.0 Introduction

- 1.1 The Landscape and Ecological Management Plan (LEMP) for the proposed development at Stanhorn Grove, Felpham has been prepared for planning permission and to provide a comprehensive long-term strategy for the upkeep of all landscape areas.
- 1.2 This report sets out the requirements for the Landscape Environmental Management Plan and should be read in conjunction with the Ecological Survey and Ecological Mitigation Strategy by Aluco Ecology and Site Inspection Report by Tetra Tech.
- 1.3 The LEMP has been undertaken on behalf of Barratt Homes by ACD Environmental. The document relates to all landscaped areas.
- 1.4 The LEMP shall be read in conjunction with the following plans:
- Hard and Soft Landscape Proposals
 - Soft Landscape Specification
 - Landscape management and maintenance plan
 - Ecological Survey by Aluco Ecology
 - Ecological Mitigation Strategy by Aluco Ecology
 - Site Inspection Report by Tetra Tech

2.0 Objectives

- 2.1. The LEMP contains information on the management and maintenance of the landscape areas including open spaces and existing landscape features to be retained within the development, such as trees together with the proposed landscape structure and habitats. A number of management regimes are described in order to fulfil the long-term objectives for the resource.

The objectives of the Landscape, Open Space and Ecological Management Plan will seek to:

- secure the long-term maintenance of the existing landscape features and to ensure the successful planting operations, establishment and continued healthy growth through to maturity of the proposed landscape features
- conserve and enhance the natural landscape beauty
- maintain, manage and enhance the network of new and existing green infrastructure
- maintain, enhance and protect biodiversity
- ensure wildlife enhancements are incorporated into the design to achieve a net gain in biodiversity
- protect and strengthen populations of protected species
- provide an attractive, green environment for the new development
- to achieve a clean, tidy condition and appearance of all external areas.

3.0 Background Information

3.1 ACD Environmental were commissioned in 2021 to prepare the following documentation:

- Hard and Soft landscape proposals
- Landscape specification
- Landscape management and maintenance plan

This Landscape and Ecological Management and Maintenance Plan (LEMP) was prepared to accompany the detailed proposals. Reference should be made to ACD drawing BDWS23254 11C for the Landscape proposals.

3.2 The controlling authority are Arun District Council, who should be consulted on any matters relating to existing trees and the approved ACD detailed landscape proposals for the project.

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The site is located at Stanhorn Grove, Felpham with a proposal for the construction of leisure facilities in the form of playing fields. The site is to the north of Felpham with the A259 to the east and Bognor Regis golf course to the west.

- 3.3 For this development and the associated residential development, Aluco Ecology undertook a suite of ecological survey work at the site in 2008 including bat activity survey, badger survey, bird survey, reptile survey, otter and water vole survey. A site walkover survey was then conducted by Tetra Tech in December 2021.
- 3.4 Within this report are details for enhancing the overall biodiversity of the site by creating and managing specific habitats in such a way that it will benefit a wide variety of species groups including birds, reptiles, badger and bats.
- 3.5 The work programme sets out the schedule of management and monitoring activities over the first five years of the plan, this will be reviewed and updated at the end of this period for the remaining five years of the plan, then subject to periodic review it will be implemented in perpetuity.

4.0 Ecological recommendations

- 4.1 The development for Stanhorn Grove, Felpham will comprise of playing fields, grassland to be retained, parking, proposed trees, turf, ornamental shrubs and wildflower.
- 4.2 The landscape design has been informed by the need to protect and support existing and new habitats on site. Section 4 and 5 of The Ecological Mitigation Strategy, produced by Aluco Ecology sets out in detail the specific enhancement measures, including measures relating to landscaping and planting, which will provide opportunities to enhance the nature conservation of the site. The landscape enhancement features are summarised below.
- 4.3 The landscape design includes new trees, shrubs and wildflower planting. The tree planting includes the use of native species or species of benefit to wildlife. The development will include additional enhancement measures, specifically for bat and birds, as detailed below.
- 4.4 An assessment of the habitats along Northern Relief Road was found to have very little habitat or conservation value. The most important habitats were considered to be;
- The Lidsey Rife and other watercourses
 - Larger mature hedgerows across the site
 - Grazing marsh off site.
- 4.5 The Ecological survey by Aluco Ecology found populations of birds and bats. Low numbers of common newt were also found. No evidence of otter was recorded from the Rife watercourse. The habitat is suitable for potential future use by the species.

- 4.6 The Site Inspection Report by Tetra Tech in December 2021 found the site mainly comprised of poor semi-improved grassland, an existing tarmac access road, a line of trees, dense scrub and standing water. No evidence of protected or notable species were found when the site was inspected and that no specific habitat mitigation would be required.

5.0 Delivery

- 6.1 Any removal of hedgerow scrub, trees and vegetations which could affect nesting birds should take place outside the bird nesting season (March to August). Further details of bird mitigation are outlined on page 14 of the Ecological Mitigation Strategy.
- 6.2 Where reptiles or amphibians are present or considered likely, they will need to be translocated and work carried out sensitively to allow mobile species like grass snakes to retreat into suitable retained habitat. For further reptile mitigation details, refer to page 15 of the Ecological Mitigation Strategy.
- 6.3 Trees and hedgerows with bat roost potential are to be protected. If any bats are found on site, all works must stop, and Natural England contacted. Further information can be found on page 13 of the Ecological Mitigation Strategy.
- 6.4 Any stretched of watercourse affected by construction, are to be cut in August and checked for signs of water vole such as burrows. Further details of this are outlined on page 10 of the Ecological Mitigation Strategy.
- 6.5 Landscaping around playing fields (in line with ACD Landscape plan and planting schedule) to be implemented, at the latest, in the first planting season after practical completion of the development.

6.0 Preliminaries

- 7.1 Failures of Plants (Pre-practical Completion): the Contractor, entirely at his own cost, shall replace any trees, shrubs or other plants other than those found to be missing or maliciously damaged.
- 7.2 Malicious Damage or Theft prior to Practical Completion: the Contractor at his own expense shall make all loss or damage arising from theft or malicious damage prior to practical completion of the entire project.
- 7.3 Post Practical Completion: the Contractor will carry out the maintenance of trees, shrubs and grasslands after the date of practical completion until the responsibility is transferred to the new owners or to the appointed Management Company.
- 7.4 Replacement of plants shall take place as often as required within the first 5 years in order to maintain a complete cover of plants and to maintain the scheme as designed by the Architect, and within the correct season for the type of plant, tree, shrub and grassland mix.

All management and maintenance measures are to be undertaken following consultation with a suitably qualified and experienced ecologist in line with current wildlife legislation.

7.0 General Maintenance

- 8.1 The Developers shall ensure that any landscape contractor employed by them shall carry out the periodic maintenance of all planted areas, other than any areas for which the appointed Management body becomes responsible during the said Maintenance Period. Inspection checks shall be carried out at monthly intervals and the appropriate work carried out.
- 8.2 The Developer shall ensure that any landscape contractor employed by the developer shall carry out in all areas any shrub, tree, grass and other plant replacements that may be necessary until transfer of responsibility to the Management body.
- 8.3 The Management body shall be responsible for all periodic maintenance and replacement thereafter for all planted areas to which its management agreement relates, and shall ensure that any landscape contractor employed by it carries out periodic maintenance of all such areas in accordance with the general horticultural schedules below. Either inspection checks shall be carried out by a competent person, a member of British Association of Landscape Industries (BALI) or the Landscape Institute (LI), acting for the Management body, at minimum monthly intervals and the appropriate work carried out.
- 8.4 No existing trees and shrubs shall be removed or cut without specific instructions from the Contract Administrator and written agreement of the Local Planning Authority Tree Officer. Existing trees are to be retained, protected and undisturbed throughout the contract.
- 8.5 All operations shall be carried out with due regard for any protected species that may be present within the vicinity of the works (i.e. reptiles, birds and bats).

8.0 Existing Trees and Vegetation

- 9.1 All works should be undertaken in accordance with the British Standard BS3998:2010 Tree Work Recommendations, by recognised tree contracting companies from the Arboricultural Association's list of registered contractors. Proof of experience and insurance provision will be required. All work shall be undertaken at the appropriate time and with the consent of the Management body.
- 9.2 Mature and veteran trees shall be managed in accordance with the guidance published by Natural England entitled '*Veteran Trees: A Guide to Good Management (IN13)*'. For details refer to Appendix C and F. The Tree Protection Plan should be read in conjunction with Appendix 2 of the Arboriculture Assessment and Method Statement by Ian Keen Limited.
- 9.3 All operations shall be carefully carried out to avoid damage to the trees being treated, or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.
- 9.4 The trees should be checked annually for signs of deterioration or distress and the appropriate actions taken, where a potential safety hazard is identified.
- 9.5 Unless required to remove or avoid an immediate risk of serious harm, all tree works shall be carried out outside normal bird breeding season (i.e. not between the beginning of March and end of August) and all trees where works are required are to be inspected visually for bird nests prior to any works being undertaken.
- 9.6 Prior to any pruning or felling works of larger trees (typically with a diameter at chest height in excess of 300mm), the tree should be assessed for its potential to support roosting bats. If any features such as rot holes, split limbs or loose bark, which could support roosting bats are found, further advice should be sought from a suitably qualified ecologist.
- 9.7 The under storey should remain undisturbed with little pro-active management required other than the severing of Ivy stems where crown infestation of the larger

trees is evident. Where there is a need for surface treatment refer to ACD Landscape Proposal Plan for details.

- 9.8 All diseased wood, prunings and rubbish should be removed from site and the site left clean and tidy. Disease free standing deadwood shall be retained to create wildlife habitat within woodland areas as specified in Section 5.5.3 of the Ecological Mitigation Plan.
- 9.9 Heavy branches should be removed in sections and undercut to avoid tearing the bark, thereafter to be lowered by slings. No branch stumps should be left and no cuts should be sealed with fungicidal sealant. No cuts should be capable of holding water.
- 9.10 Heavy Ivy infestation is not recommended in development situations, where wind risk may be a concern. The form of the tree can also be affected and it is therefore proposed to remove any dense infestation of Ivy if evident on site or during the maintenance period.
- 9.11 When a tree has been felled (because it has died, is diseased or has become unsafe) it should be replaced with the same species, or an appropriate alternative species, where relevant. Normally the tree should be planted in the immediate vicinity of the felled tree. If the tree was felled because it was dangerous by virtue of its location, a replacement should be planted at an acceptable location nearby. This clause does not apply if a tree has been removed/died for the benefit of others (e.g. woodland management, see section 8.0).
- 9.12 Trees and vegetation within falling distance of the path to be managed for safe access.
- 9.13 All operations shall be carried out with due regard for any protected species that may be present within the vicinity of the works (i.e. reptiles, birds and bats). Monitoring and management of invasive species and ruderal vegetation to encourage a successional habitat is details in Section 6.2.3 of the EIA report.

9.0 Wildflower Meadow

- 10.1 New wildflower grassland is to be created within new areas of open space.
- 10.2 The ground should be prepared by clearing any existing vegetation through cutting or application of a suitable herbicide. The area to be sown should be left for one season.
- 10.3 First year management
- Following the autumn or spring sowing, the wildflower meadow/ grassland areas are to be mowed to a height of 100-150mm, if there is sufficient material. It is then to be mowed to a height of 50mm throughout the first year of establishment to help maintain balance between faster growing grasses and slower developing wild flowers.
- 10.4 Management of established meadow
- 10.5 The EM2 General Meadow Mix and EM8 Wetland Meadow mix are best sown in spring or autumn. They can be sown by hand or by machine.
- 10.6 During the following years, the EM2 and EM8 wildflower grasslands are to be cut to 4-7cm in June (to remove excess grass) and to 4cm in September (following flowering).
- 10.7 In the interest of wildlife this cutting is best done on a rotational basis so that no more than half the area is cut in any one year leaving part as an undisturbed refuge.
- 10.8 The cuttings should be removed and placed on log piles or used to create a compost heap along the boundaries of the site.
- 10.9 Perennial weeds in grassland may be kept in check if they are cut or treated at the right time, and if the grassland is well managed. Most grassland weeds such as docks and thistles are suppressed by the cut and will gradually decline with good management. Low level weed populations to be pulled out at flowering, followed by

digging any recovering re-growth. Fertilisers should not be used. Selective herbicides are to be used as a last resort for serious infestations as they will result in the loss of many wildflower species.

- 10.10 The wildflower grassland at the base of field hedgerows to be left unmaintained within a margin of 1m either side to provide a habitat for small mammals.

10.0 Proposed Shrub and Tree Planting

- 10.1 The Management body will maintain all shrubs and trees beyond the boundaries of domestic ownership in perpetuity.
- 10.2 All tree works are to be undertaken by an Arboricultural Association approved contractor to British Standard BS3998:2010 Tree Work Recommendations.
- 10.3 Formative tree pruning is to be undertaken until a permanent structurally sound scaffold system of branches typical of the species and appropriate to the site circumstances is produced.
- 10.4 Post-planting management and maintenance of trees shall be in accordance with BS8545:2014 section 11 Trees: from nursery to independence in the landscape-recommendations.
- 10.5 A formal assessment of young tree health and development shall be undertaken annually. This assessment shall include foliar appearance, leaf size and leaf canopy density, extension growth and incremental girth development. Trees shall also be assessed continually throughout the year on an ad hoc basis. Wherever practicable the performance of young trees shall be assessed by testing leaf fluorescence and leaf chlorophyll content.
- 10.6 The density of planting will require that all weeding is carried out by hand, using the appropriate tools. All resultant material should be removed from site.
- 10.7 The management body is responsible for litter picking in those areas that it manages.
- 10.8 All plants shall be inspected monthly for wind firmness and firmed as necessary at the same time. Stakes shall likewise be checked for firmness and all tree and plant ties inspected and made good if required.
- 10.9 All stakes and ties shall be removed as soon as the developing root system is strong enough to support the tree, this is usually after two full growing seasons.

- 10.10 All grilles, grids, guards and other protective furniture shall be inspected annually and removed as soon as it is no longer needed to protect the tree or where it is causing damage to the tree.
- 10.11 The soil around newly planted trees shall be regularly inspected for soil capping or compaction and remedial action taken if needed.
- 10.12 All trees shall be checked regularly for mammal, human or other external damage and remedial action taken where necessary.
- 10.13 Minor pruning of dead or damaged wood shall be carried out annually. All wounds must not be treated with a sealant as per BS3998:2010 Tree Works Recommendations. On substantial trees, the Local Planning Authorities Tree Officer must be consulted for any necessary approvals.
- 10.14 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. The Management body are to provide a bowser for watering.

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. Following Bowser watering a weekly visit should be carried out until the onset of natural rainfall.

Any failures due to drought shall be replaced by the Management body at their own cost.

- 10.15 All planted areas shall be given an application of an approved top dressing at the rate of 40g/m² in May. This should be in slow release form e.g. Enmag or similar. 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 fertiliser shall be applied to newly planted trees in the first season. If visual inspection points to nutrient deficiency further investigation of causes will be necessary. Remedial action may include addition fertiliser application, pH testing, assessment of organic content and levels of compaction.
- 10.16 Shrubs shall be maintained in a balanced shape and shall be annually pruned to allow for this. Any growth which will obscure windows, signs or sight-lines shall be removed. 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.
- 10.17 Groundcover planting species have been specified so as not to exceed 600mm in height. However, should planting exceed expectations, this should be carefully cut down to below 600mm in height to avoid interference with visibility.
- 10.18 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.
- 10.19 No plant substitutions to be made without the prior written agreement of the Local Authority Landscape Section.
- 10.20 Native scrub planting will include *Cornus sanguinea*, *Crataegus monogyna*, *Ligustrum vulgare*, *Malus sylvestris*, *Sambucus nigra*, *Sorbus aucuparia*, *Prunus spinosa*, *Viburnum lantana*, *Viburnum opulus* and *Ilex aquifolium*. This will be planted by experienced contractors in accordance with the landscape specifications.
- 10.21 Native planting will be allowed to grow to a dense and bushy structure. Once established the shrub planting will be cut over winter (October to February) to avoid the nesting bird period.

11.0 Hard Landscape

- 13.1 The Management body will maintain all areas of hard landscape in perpetuity. This will include fences, gates, benches and bins within and adjacent to landscaped public open spaces.
- 13.2 Management objectives will seek to:
- Ensure regular safety checks and maintenance of street furniture and footpaths so that they remain in a safe and useable condition, fit for purpose.
 - To achieve a clean, tidy condition and appearance of all external areas
- 13.3 Inspection and removal of any objects which do not belong in or on the hard surfacing or street furniture is to be undertaken. This is to include cleaning of the surface and removal of objects and weeds and is to be carried out monthly.
- 13.4 Inspect painted wood components, plywood and metal parts and apply a new finish in line with manufacturers recommendations where necessary annually.
- 13.5 Stain removal to hard surface is to be in accordance with BS7370-2.
- 13.6 Dog waste bins and waste bins are initially to be emptied on a weekly basis by the management body. The volume of waste should be continually reviewed in relation to the capacity of the bins, and if more frequent collections or additional bins are required, for example during a period of fine weather, this should be arranged within 2-3 days of the review.
- 13.7 Weeds are to be removed from gravel.

12.0 Attenuation Basin

- 14.1 A new basin will be constructed in the south of the site which will be predominantly dry with water during heavy rainfall.
- 14.2 The seasonally wet basin will be sown with EM8 wet meadow seed mixture from Emorsgate or similar.
- 14.3 The basin within the site will be subject to a minimal management regime, with management activities limited to clearance of debris, including litter.
- 14.4 Annual monitoring will be undertaken to assess the water quality and ecological conditions of the basin and an audit undertaken to make any adjustments.

13.0 Maintenance Schedules

Weekly

- All plants shall be watered following 10 days without rain. Then weekly until natural rainfall during June – August.

Fortnightly

- Amenity Grass to be cut every 10-14 days
- There should be a minimum fortnightly litter pick over the entire site within areas covered by the Management body.

Monthly

- Weed control shall take place at monthly intervals. All areas to be weeded by hand.
- All plants shall be inspected monthly for wind firmness and firmed as necessary at the same time. Stakes shall likewise be checked for firmness and tree ties checked.
- Footpaths swept to prevent build-up of rubbish and leaves. Weeds removed from gravel.
- Visual inspection of hoggin footpaths, repaired if required.

Bi-Annual/ Annual

- The bark mulch should be topped up bi-annually
- Grass cutting to Wildflower Grassland areas – maintained in line with guidance given in section 10.0.
- Hedges to be managed – cut in line with guidance given in section 12.0
- After two years tree stakes and ties are usually ready to be removed.
- Dog fouling will be monitored every six months so that it is maintained within acceptable and normal parameters.

Annual

- Replacement of any failed trees or shrubs will be allowed for annually to ensure that the planting areas are fully stocked at all times.
- Minor pruning of dead or damaged wood shall be allowed for annually.
- All planted areas and trees shall be given an application of an approved top dressing in May. Not in Wildflower areas.
- Shrubs shall be maintained in a balanced shape and prevented from obscuring signs, windows and encroaching on paths.
- Check for invasive species and remove from site.
- Undertake a formal assessment of young tree health and development.
- Tree grilles, grids and guards shall be inspected and if necessary, removed.

Every 5 Years

- A suitably qualified person employed by the Management body to undertake a review of the condition, success and long-term maintenance of the planting.

Every 10 Years

- Immature trees can be cut back every 10 years to keep an early successional strip adjacent to the woodland.

Any amendments to the landscape management plan required to ensure a good planting scheme, should be submitted to the LPA for approval.

14.0 Conclusion

This report has demonstrated how the existing and proposed landscape and ecological features at Stanhorn Grove, Felpham will be delivered and implemented throughout the development. Opportunities will be taken to enhance the nature conservation of the development through the provision of ecological enhancements, so that the proposals will eventually result in a net gain for biodiversity.

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APPENDIX A – Management Schedule for LEMP

Years 1-5 Landscape Maintenance Matrix		When activity needs to be carried out											
Item	Activity and minimum frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Amenity grass areas	Grass cut (every 10-14 days)												
Wildflower grass areas	Mown once in March and then left until after seed has set, then should be mown fortnightly until end of season												
All planting areas	All amenity planting areas given an application of top dressing (annually)												
	Top dressing any hollows due to settlement (annually)												
	Inspection and replacement of all failed stock in adoptable areas (annually)												
	Bark mulch topped up (bi-annually)												
	All plants to be watered during summer months (weekly until rainfall, or as required)												
	Replacement planting of tree, shrub and grassland mixes in spring or autumn when required												
Decorative shrubs	Hand weeding (monthly)												
	All plants inspected for wind firmness and firmed as necessary (monthly)												
	Shrubs maintained in a balanced shape and prevented from obscuring signs/windows/paths (twice a year)												
Hedges	Hedge clipping and trimming of planting in visibility splays to 600mm in height (annually)												
	Decorative hedges to be trimmed after flowering and outside of nesting season (annually)												
Specimen trees	Checking of specimen trees for stakes, ties and guying (annually)												
	Prune to maintain shape and remove crossing or diseased branches as required when tree is dormant (check annually)												
Litter and debris removal	Clear litter and debris (fortnightly)												
Hard landscaping features	Paths swept and treated for weeds and moss, damage, chewing gum and litter (monthly)												
	Inspection and cleaning of hard landscaping including railings, bollards, benches, bins (weekly)												



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ECOLOGICAL SURVEYS * PROTECTED SPECIES LICENSING * MITIGATION * IMPACT ASSESSMENT
ARBORICULTURAL SITE MONITORING AND SUPERVISION * ARCHAEOLOGY
LANDSCAPE & VISUAL IMPACT ASSESSMENT * LANDSCAPE AUDIT * PROJECT MANAGEMENT
EXPERT WITNESS* LANDSCAPE DESIGN & PLANNING LANDSCAPE MANAGEMENT