



The Bridge Care Home Ltd.

Plot 16a, The Bridge, Dartford

LANDSCAPE & ECOLOGICAL

MANAGEMENT PLAN

July 2020

FPCR Environment and Design Ltd

Registered Office: Lockington Hall, Lockington, Derby DE74 2RH

Company No. 07128076. [T] 01509 672772 [F] 01509 674565 [E] mail@fpcr.co.uk [W] www.fpcr.co.uk

This report is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without the written consent of FPCR Environment and Design Ltd. Ordnance Survey material is used with permission of The Controller of HMSO, Crown copyright 100018896.

Rev	Issue Status	Prepared / Date	Approved/Date
-	Draft 1	PJP / 15.07.20	DAH / 23.07.20
	Rev A	PJP / 05.01.21	

CONTENTS

1.0 INTRODUCTION 2

2.0 VISION, AIMS & OBJECTIVES 2

3.0 HABITATS & PROTECTED SPECIES TO BE RETAINED & PROTECTED 4

4.0 LANDSCAPE & ECOLOGICAL SPECIFICATION..... 5

5.0 LANDSCAPE & ECOLOGICAL MANAGEMENT 14

6.0 MONITOR THE SITE AND REVIEW THE PLAN 19

FIGURES

Figure 1: Log Pile Detail

Figure 2: Standing Dead Wood Detail

TABLES

Table 1: Ten Year Management Works Programme

APPENDICES

Appendix A: Landscape Proposals Plans (125-18-03C) – including Figure A.1: Protected Species Enhancements Location Plan

1.0 INTRODUCTION

- 1.1 The following Landscape & Ecological Management Plan has been prepared by FPCR Environment & Design Ltd. on behalf of The Bridge Care Home Ltd. This document sets out the habitat protection, creation, and management approaches for the landscape proposals within site name, site location.
- 1.2 This document should be read in conjunction with the landscape proposals plan (125-18-03C). For reference, these are shown in **Appendix A**.

Background

- 1.3 This document has been prepared as part of Condition 4 reference of Planning Permission reference code of application. This states:

“Within 3 months of construction commencing the applicant shall submit a bio-diversity management plan to the LPA for written approval. The plan shall detail how the site will be enhanced and managed to benefit biodiversity. The measures agreed shall be provided prior to occupation of the development, and thereafter maintained at all times”

Legislation & Policy

- 1.4 All relevant EU and UK nature conservation law will be adhered to in relation to the protection of ecological features and ecological enhancement. This includes the protection afforded to nesting birds under the Wildlife and Countryside Act 1981 (as amended) and with reference to the protection of great crested newts, and bats and their roosts, under the Conservation of Habitats and Species Regulations 2019 (Amendment) (EU Exit). Regard has also been given to the Local Biodiversity Action Plan (LBAP) and Habitats of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

2.0 VISION, AIMS & OBJECTIVES

Vision

- 2.1 The design strategy has been prepared in the context of a thorough and detailed understanding of the site landscape and its context and within the framework of relevant policy and design guidance. The landscape design embraces broader Green Infrastructure (GI) and sustainable development principles and seeks to maximise these multifunctional benefits wherever practicable. Green and blue infrastructure has been devised to integrate the urban area with the landscape and ecology elements and connect the Site to the wider landscape.
- 2.2 The design of the scheme is based around the tree provisions within the site, where health specimens have been retained and integrated within the design principles required for the care home. There is a requirement to provide open accessible spaces for residents to safely navigate and enjoy; and this will combine biodiversity enhancements through a sensitive planting regime with native species of interest for fauna, particularly pollinators.

The **Vision** for the landscape design strategy is to:

Increase the biodiversity and recreational value of the site in the long-term**Objectives**

- 2.3 The main objectives for the site are to maintain, protect and enhance the nature conservation value of the retained habitats and to mitigate for the loss of semi-improved grassland and scrub, which are of low ecological value; whilst contributing to the habitats / species of principal importance as listed on the NERC Act (2006). New and retained habitat corridors and sympathetic management will aim to encourage the natural colonisation of the site, which will also aid in the dispersal of wildlife further into the surrounding areas.
- 2.4 Existing mature trees and woodland habitat will be retained where possible, with new stands of trees, wildflower planting, and shrub beds to be created that will provide opportunities for increased biodiversity, by enhancing the value of the site for pollinators. Areas of retained dead wood will be distributed along edge habitats for the benefit of wood boring insects and other invertebrates. Amenity grassland and wildflower planting features will also allow recreational use and enjoyment by the residents of the care home.
- 2.5 The Vision consists of four Objectives, these are detailed on the following pages.

Objective 1:

Maintain, protect, strengthen, and enhance existing landscape/ecological features within the development, with particular reference to the conservation, and ecological enhancement, of the existing woodland and associated habitats and species.

Objective 2:

Create and maintain new habitats, including wildflower planting beds, amenity grassland, and new standard trees, to compensate for the loss of and impacts to existing habitats, enhance biodiversity in the local area, and maximise ecological value through appropriate management, ensuring significant green links across the Bridge Estate are maintained and created.

Objective 3:

Create and maintain new landscape features to provide a range of recreational benefits for the residents of the care home, as well as enhanced ecological opportunities for a range of species, including birds and invertebrate pollinators. Appropriate design and management will ensure a balance is sustained between these requirements, but interactions are encouraged, promoting engagement and improvements to the health and well-being of the residents living at the care home, as well as their visitors.

Objective 4:

To monitor and manage both retained and created landscape features/habitats throughout the management period, ensuring that continued increases in ecological diversity are maintained in the long term.

3.0 **OBJECTIVE 1 - MAINTAIN, PROTECT, STRENGTHEN AND ENHANCE THE EXISTING NATURE CONSERVATION VALUE OF RETAINED FEATURES**

- 3.1 Existing habitats will be retained where feasible within the development and will be protected through the enabling and construction phases.

Pre-construction Mitigation Measures

- 3.2 The following outlines the ecological mitigation measures to be undertaken ahead of work commencing on site to minimise impact from construction works.

Existing Trees

- 3.3 Most of the existing trees are to be retained within the proposed scheme. Retained trees will be left unmanaged unless otherwise dictated for reasons of public safety or to benefit the woodland structure, which have been assessed by a qualified arboriculturist. These retained trees will maintain the functionality of the habitats for protected and notable species.
- 3.4 During construction, retained trees will be protected from damage and from soil compaction during construction via the erection of fenced root protection area (RPA) of at least 4m in width which is in accordance with guidance in *British Standard 5837 (2012) – Trees in Relation to Construction – Recommendations*.
- 3.5 Trees will be inspected for signs of stress, disease or damage and appropriate remedial action taken. Arisings from any tree management activity will, where appropriate, and where it accords with health and safety inspection, be retained on site in piles to create dead wood habitat to maximise invertebrate and bryophyte biodiversity.

Fauna

Bats

- 3.6 Any pre-existing bat boxes present on mature trees within the site boundaries should be retained wherever possible. In cases where these are located on trees scheduled for removal, or that are likely to be disturbed, then each should be inspected by a licenced ecologist and then moved to alternative tree nearby.

Birds

- 3.7 The dense patches of scrub and mature trees both provide suitable habitat for nesting birds. As such, no removal of woody vegetation will take place during the bird nesting season (**March to September** inclusive), unless a thorough survey by an appropriately experienced ecologist first confirms that no active nests are present. Any work will accord with the Wildlife and Countryside Act 1981 (as amended).

4.0 OBJECTIVE 2 – CREATE AND MANAGE NEW HABITATS TO ENHANCE BIODIVERSITY

- 4.1 The Plan will create a matrix of new and existing habitats and corridors around the site to encourage the establishment and movement of wildlife. This will pertain to the management and enhancement of existing trees and woodland habitat. New habitats will include standard trees and woodland seed mixes, and the creation of new area of shrub planting, native species hedgerows, scrub thickets, and amenity grassland.
- 4.2 The following section outlines the specification and implementation, with **Section 5** outlining the works programme and management regime.

General

- 4.3 Shrub, tree and hedgerow planting are to be delivered and planted in accordance with HTA Standard 'Handling and establishing landscape plants' (obtainable from the Horticultural Trades Association) Part III, paragraphs 6.2 to 6.6 and should also accord with the planting plans. All plants should be stored only when necessary in accordance with the HTA's 'Handling and establishing landscape plants' (obtainable from the Horticultural Trades Association) Part I, Part II and Part III, paragraphs 1.3.3 to 1.3.6, 3.0, and 4.0.
- 4.4 Planting is to remain materially undamaged, sturdy, healthy and vigorous, planted upright or well balanced with best side to front. Trees and shrubs are to be of good shape and without elongated shoots, grown in a suitable environment and hardened off before being delivered to the site. All planting is to be true to name and free from pests, diseases, discoloration, weeds, fungus, and physiological disorders.
- 4.5 All works are to be undertaken with due diligence being sure to leave the works in a clean and tidy condition at completion and after any maintenance operations. Protect areas affected by planting operations using boards/ tarpaulins and do not place excavated or imported material directly on adjacent grassed areas.
- 4.6 Bare root deciduous planting shall be carried out from late October to late March; conifers and evergreens either September/October or April/May, herbaceous plants [including aquatic and marginal] September/October or March/April. Container grown plants at any time of year if ground and weather conditions are favourable. Bare root deciduous planting to be carried out only during suitable ground and weather conditions. Planting shall not be carried out in waterlogged or frozen ground.

Tree Planting

- 4.7 New trees will be planted between October and March, avoiding periods of inundation or prolonged ground frost. This will accord with BS 8545:2014. Trees are to be mulched using wood chippings or bark to establish a 1m diameter around the tree stem.
- 4.8 All tree planting will take into consideration the recommended minimum distances to foundations as set out in Chapter 4.2 of the NHBC Standards. Planting should accord with these standards unless checked and verified by the project engineer. For further species calculations refer to Chapter 4.2 of the NHBC Standards, and for species not included use a mature height of 2/3 the specified height in A. Mitchell's 'Trees of Britain and Northern Europe'.

4.9 New tree planting species will comprise the following species:

Species	Stem	Size (Height)	Root
<i>Acer campestre</i>	Clear stem	4.5-5m	RB
<i>Acer rubrum</i>	Clear stem	4.5-5m	RB
<i>Betula utilis</i> 'Jermyns'	Multi stem	3.5-4m	RB
<i>Carpinus betulus</i>	Clear stem	4.5-5m	RB
<i>Malus trilobata</i>	Clear stem	4.5-5m	RB
<i>Platanus x hispanica</i>	Clear stem	4.5-5m	RB
<i>Prunus avium</i>	Clear stem	4.5-5m	RB
<i>Cedrus libani</i>	Clear stem	2.5-3m	RB
<i>Pinus sylvestris</i>	Clear stem	2.5-3m	RB

4.10 Detailed descriptions of management operations for trees are set out below:

- During the first 5 years following planting, trees will be watered during periods of extreme drought (2 or more weeks without substantial rainfall). Water in the morning or in the evening to restrict water evaporation. After establishment continue to water only if deemed to be required.
- Top up mulch levels where necessary.
- Fertilise new areas of tree planting using an approved liquid feed at a rate of 60g/ m² during early May and late September.
- Prune back any diseased or rotten wood (including the removal of main stems and limbs) back to sound wood. A suitably skilled and qualified arboriculturalist shall carry out such pruning. All cut material will be used on the site for hibernaculum.
- Examine tree stakes and ties for their effectiveness and requirement. If the tree has yet to establish, replace or adjust ties, spacers, and tree tubes as appropriate. If the tree has established well, then remove all stakes, ties, spacers, tubes etc. and make good surfaces disturbed, filling any holes with suitable topsoil.
- Any tree that dies or is necessarily felled as a result of storm damage, vandalism, mechanical damage, fungal decay or other such cause, shall be replaced like for like. Such replacement shall be with a tree of either the same species or similar species as those existing. This is to allow some flexibility and to avoid problems encountered with 'Same Tree Disease'; and
- Trees shall be planted in anticipation of future tree loss in order to ensure a broader age band in the interest of long-term sustainability of tree cover.

Native Species Hedgerow Planting

- 4.11 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.
- 4.12 New hedgerows will be created as part of the development, infilling areas to connect existing hedgerows and along sections of the site perimeter and access roads.
- 4.13 New hedgerows will be planted during the planting season (October to March inclusive) and will comprise mixed, native species planted at 450mm centres in a double staggered row. Rows to be 500mm apart. Dominant species to be planted along back row of hedge, with other species in a random mix along the front row.

4.14 All new hedgerow planting will be provided with a 300mm depth of topsoil and 75mm bark mulch. Individual spiral guards and bamboo canes will be required to prevent damage to saplings by browsing rabbits. All stock to be well watered when planted, with 20L of water per m², and kept well-watered during periods of dry weather or drought.

4.15 The hedgerow planting will comprise the following species:

Species	Age	Size	Root	%
<i>Acer campestre</i>	1 + 1	400-600mm	OG	5
<i>Corylus avellana</i>	1 u 1	400-600mm	OG	10
<i>Crataegus monogyna</i>	1 + 1	400-600mm	OG	50
<i>Ligustrum vulgare</i>	1 + 1	400-600mm	OG	10
<i>Prunus spinosa</i>	1 + 1	400-600mm	OG	15
<i>Malus sylvestris</i>	1 + 1	400-600mm	OG	10

Single Species Hedgerow Planting

4.16 New hedgerows will be created as part of the development, providing structure to the landscape framework.

4.17 The hedgerow planting will comprise the following species:

Species	Age	Size	Root	%
<i>Carpinus betulus</i>	1 + 1	400-600mm	OG	100

4.18 Plants must be set in the holes at the same depth at which they have previously been growing with planting holes excavated approximately 150mm larger than the root balls and backfilled with a mixture of topsoil. Planted at 450mm centres in a double staggered row, with the rows 500mm apart, in 300mm of topsoil.

4.19 Plants to be a minimum of 300mm from any adjacent hard surface. All stock to be well watered when planted, with 20L of water per m², and kept well-watered during periods of dry weather or drought. Following planting and watering operations, all beds are to be mulched with 75mm of mulch (5-75mm particle size, British origin, FSC certified).

Thicket Planting

4.20 Transplants of various native scrub forming species, as listed below, planted in random groups of the same species on a 1.0m grid, and provided with 300mm depth of topsoil and 75mm of bark mulch. All stock to be well watered when planted, with 20L of water per m², and kept well-watered during periods of dry weather or drought.

Species		Age	Size	Root	%
<i>Cornus sanguinea</i>	Dogwood	1 + 1	400-600mm	OG	20
<i>Corylus avellana</i>	Hazel	1 u 1	400-600mm	OG	30
<i>Crataegus monogyna</i>	Hawthorn	1 + 1	400-600mm	OG	16
<i>Prunus spinosa</i>	Blackthorn	1 + 1	400-600mm	OG	10
<i>Rosa canina</i>	Dog Rose	1 + 1	400-600mm	OG	6
<i>Rosa eleantheria</i>	Sweet briar	1 + 1	400-600mm	OG	6
<i>Sambucus nigra</i>	Elder	1 + 1	400-600mm	OG	6
<i>Viburnum opulus</i>	Guelder rose	1 + 1	400-600mm	OG	6

Ornamental Feature Shrub Planting and Low Groundcover Planting

4.21 The feature specimen shrub planting will comprise the following species:

Species	Supply Size	Pot Size	Root
<i>Amelanchier canadensis</i>	900-1200mm	15L	C
<i>Buxus sempervirens</i> (topiary)	400-500mm	15L	C
<i>Cornus alba</i> 'Elegantissima'	900-1200mm	15L	C
<i>Mahonia x media</i> 'Winter Sun'	900-1200mm	15L	C
<i>Viburnum x Burkwoodii</i>	900-1200mm	15L	C

4.22 The proposed ornamental shrub planting will comprise the following species:

Species	Supply Size	Pot Size	Pot Spacing
<i>Cornus alba</i> 'Elegantissima'	400-600mm	3L	600mm C/S
<i>Cornus alba</i> 'Ivory Halo'	400-600mm	3L	600mm C/S
<i>Cornus alba</i> 'Sibirica'	400-600mm	3L	600mm C/S
<i>Cornus stolonifera</i> 'Flaviramea'	600-800mm	3L	600mm C/S
<i>Corylus avellane</i>	600-800mm	3L	750mm C/S
<i>Ilex aquifolium</i>	400-600mm	3L	750mm C/S
<i>Mahonia x media</i> 'Winter Sun'	300-400mm	3L	600mm C/S
<i>Photinia fraseri</i> 'Red Robin'	300-400mm	3L	750mm C/S
<i>Prunus laurocerasus</i> 'Rotundifolia'	600-800mm	3L	750mm C/S
<i>Pyracantha</i> 'Saphyr Red'	400-600mm	3L	600mm C/S
<i>Spiraea nipponica</i> 'Snowmound'	400-600mm	3L	600mm C/S
<i>Spiraea x arguta</i>	300-400mm	3L	600mm C/S
<i>Viburnum tinus</i>	300-400mm	3L	600mm C/S
<i>Viburnum x Burkwoodii</i>	300-400mm	3L	600mm C/S

4.23 The low groundcover varieties proposed for inclusion in formal planting beds will comprise the following species:

Species	Supply Size	Pot Size	Pot Spacing
<i>Berberis frikartii</i> 'Amstelveen'	250-300mm	3L	500mm C/S
<i>Buxus sempervirens</i> 'Suffruticosa'	100-150mm	2L	350mm C/S
<i>Cornus stolonifera</i> 'Kelseyii'	300-400mm	2L	450mm C/S
<i>Escallonia</i> 'Apple Blossom'	400-600mm	3L	500mm C/S
<i>Hedera helix</i> 'Hibernica'	400-600mm	2L	400mm C/S
<i>Lonicera nitida</i> 'Maygreen'	300-400mm	2L	600mm C/S
<i>Pachysandra terminalis</i>	150-200mm	2L	400mm C/S
<i>Persicaria affinis</i> 'Darjeeling red'	Clump	2L	450mm C/S
<i>Potentilla fruticosa</i> 'Primrose beauty'	200-300mm	3L	500mm C/S
<i>Prunus laurocerasus</i> 'Cherry brandy'	300-400mm	3L	500mm C/S
<i>Pyracantha coccinea</i> 'Red cushion'	300-400mm	3L	500mm C/S
<i>Rosa</i> 'Kent'	300-400mm	3L	450mm C/S
<i>Spiraea japonica</i> 'Candlelight'	400-600mm	3L	500mm C/S
<i>Stephanandra incisa</i> 'Crispa'	300-400mm	2L	500mm C/S
<i>Symphoricarpos x c.</i> 'Hancock'	400-600mm	3L	500mm C/S
<i>Weigela florida</i> 'Folius purpureis'	400-600mm	3L	600mm C/S

- 4.24 Plants must be set in the holes at the same depth at which they have previously been growing with planting holes excavated approximately 150mm larger than the root balls and backfilled with a mixture of topsoil (at least 300mm depth).
- 4.25 Plants to be a minimum of 300mm from any adjacent hard surface. All stock to be well watered when planted with 20L of water per m². Following planting and watering operations, all beds are to be mulched with 75mm of mulch (5-75mm particle size, British origin, FSC certified)

Amenity Grassland

- 4.26 New short sward amenity grassland areas will be established using a suitable native flowering grassland mix, such as **DLF Promaster 120 Slowgrowth Seed mix**, at a rate of 35-50g/m² in 150mm topsoil, sown as per the manufacturer's instructions. Composition is as per the following product specifications below:

Species	Common Name	Cultivar	%
<i>Lolium perenne</i>	Perennial ryegrass	CLAUDINE	60
<i>Festuca rubra litoralis</i>	(Slender creeping) Red fescue	ARCHIBAL	20
<i>Festuca rubra litoralis</i>	(Slender creeping) Red fescue	SAMANTA	15
<i>Agrostis capillaris</i>	Browntop (common) bent	HIGHLAND	5

- 4.27 Only areas disturbed through landscape works will be seeded. This will include areas either side of the new footpath links.
- 4.28 Areas to be sown will be first rotovated and raked, or harrowed, to produce a medium fine, firm tilth. Seed will be sown in the autumn or spring, selecting a time when the soil is moist and can be worked.
- 4.29 Once seedling grasses are established, lightly roll or tread to firm and level the soil around the grass roots ready for the first cut. After a few days, when the grass has picked up again, the lawn will be ready for its first cut, with the mower set at 50mm or higher, to trim the grass to a third of its height and cut back weeds.
- 4.30 Thereafter mow the lawn regularly as needed, progressively reducing the mowing height over its first spring/summer to desired height.
- 4.31 A new lawn will take a full year or more to reach full strength and ground cover and knit together as turf. Avoid heavy use during this period to prevent wear and tear to developing sward. Following establishment, lawn can be mown regularly as required through the growing season (March – October).
- 4.32 White clover *Trifolium repens* can be sown into this grass mix, at a density of 0.2-1g/m², to produce a sward which is more tolerant of wear and stays green without the need for feeding and watering. A relaxed mowing regime during the summer will allow the clover to produce flowerheads of benefit to bees. Small-leaved white clover is a small leaved variety which is very long lasting under a tight mowing.

Woodland Wildflower Mix

- 4.33 Areas beneath existing trees to be sown with **Emorsgate Seeds EW1 Woodland Mixture** (at a rate of 4g/m²), to provide wildflowers and grasses that bloom in spring and early summer, with a composition as follows:

Species	Common Name	%
Wildflowers		
<i>Alliaria petiolata</i>	Garlic mustard	3
<i>Allium ursinum</i>	Ramsons	0.8
<i>Betonica officinalis</i>	Betony	1.6
<i>Chaerophyllum temulum</i>	Rough chervil	1
<i>Digitalis purpurea</i>	Foxglove	0.2
<i>Filipendula ulmaria</i>	Meadowsweet	2
<i>Galium album</i>	Hedge bedstraw	1
<i>Geum rivale</i>	Water avens	1
<i>Geum urbanum</i>	Wood avens	0.2
<i>Hyacinthoides non-scripta</i>	Bluebell	2.8
<i>Hypericum hirsutum</i>	Hairy St. John's wort	0.8
<i>Primula vulgaris</i>	Primrose	0.2
<i>Prunella vulgaris</i>	Selfheal	1.5
<i>Silene dioica</i>	Red campion	2.7
<i>Silene flos-cuculi</i>	Ragged robin	0.2
<i>Tuecrium scorodonia</i>	Wood sage	1
		20
Grasses		
<i>Agrostis capillaris</i>	Common bent	10
<i>Anthoxanthum odoratum</i>	Sweet vernal grass	2
<i>Brachypodium sylvaticum</i>	False brome	7
<i>Cynosurus cristatus</i>	Crested dog's-tail	28
<i>Deschampsia cespitosa</i>	Tufted hair grass	1
<i>Festuca rubra</i> (slender creeping)	Red fescue	20
<i>Poa nemoralis</i>	Wood meadow grass	12
		80

- 4.34 Before sowing, select ground that is not highly fertile, and which does not have a problem with perennial weeds. Clear any unwanted vegetation from areas to be sown. Cultivation near to established trees and shrubs can be damaging to root systems, so care must be taken to not dig too deep, keeping disturbance to a minimum.
- 4.35 Seed is best sown in early spring or autumn and with an even coverage of the ground surface and at a density of 40kg/ha. A sympathetic mowing regime will be adopted that will manage the grass species and allow the herb species to establish and flourish. Grasses growing in shade are not very tolerant of hard mowing, so should never be mowed shorter than 30mm and avoided during cold weather or dry spells.
- 4.36 Where the mix is sown around the bases of younger trees, with sparser canopies that allow more light through, an annual cut in mid-summer is recommended to manage grass growth and keep brambles and nettles in check. In areas of deep shade, such as under existing mature trees, ground cover can be slow to establish, with lower light levels naturally limiting the growth of grasses.
- 4.37 Flowering bulb species, including bluebell and ramsons, are to be included as part of the woodland wildflower mix that will be sown around existing trees. Planting will take place from late summer through to autumn. Top size bulbs should be planted 300mm apart, planted in random swathes in the areas shown, at three times their depth.

Bird and Bat Boxes

- 4.38 Bat boxes will be erected on suitable retained semi-mature / mature trees within the retained wooded areas and positioned out of reach of opportunistic predators such as cats. The bat boxes will be installed in accordance with standard best practice, such that the boxes are positioned at least 4m above the ground, with the entrances to the boxes facing south-west to south-east. The entrances to the boxes are to be free of obstacles such that there is a clean and clear flight path to the new potential roost sites. This measure will provide increased roosting opportunities across the site over the existing situation.
- 4.39 The following boxes will be installed within the Green Infrastructure (see Appendix A - *Figure A.1* for indicative locations):
- Schwegler 2F Bat Box; and / or
 - Schwegler 2FN Bat Box
- 4.40 Bird boxes will also be erected on retained semi-mature / mature trees within, and on the edges of the retained wooded areas. Using a variety of nest box types will provide new suitable nesting opportunities for a range of birds and potentially encourage new bird species into the site. The bird boxes will be installed in accordance with standard best practice, such that the boxes are positioned generally around 1-3m above the ground, with the entrances to the boxes facing between north and east. The entrances to the boxes are to be free of obstacles such that there is a clean and clear flight path to the new potential nesting sites.
- 4.41 The following boxes will be installed within the Green Infrastructure (see Appendix A - *Figure A.1* for indicative locations):
- 2H Schwegler Robin Box
 - 1SP Schwegler Sparrow Terrace
 - 32mm diameter hole Standard Boxes
 - 25mm diameter hole Standard Boxes

Invertebrates

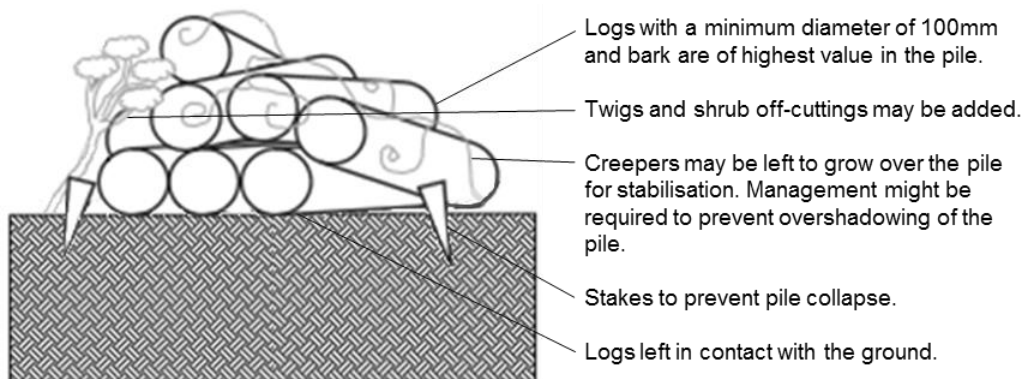
- 4.42 Artificial refuge sites composed of dead wood and cuttings will be created throughout the development to provide opportunities for enhancing and diversifying the invertebrate assemblage on-site. These can occur along hedgerow boundaries, the edges of wooded scrub, or within the areas sown with woodland flower mix, and ideally away from public footpaths.

Log Pile

- 4.43 Log piles will ideally be created from arisings left after completion of tree work on site and placed at the interface between wooded / scrub and grassland habitats, avoiding north facing areas. The logs should be left in contact with the ground in dappled shade and built into a compact pile to maintain humidity. Stakes should be driven into the ground either side of the log pile to prevent the pile from collapsing.

- 4.44 Larger diameter logs (at least 100mm thick) with bark are of most value, particularly hard woods like ash, oak, and beech, whereas freshly cut willow and poplar may re-sprout. Twigs, stems, and shrub off-cuttings may also be added. Climbers may be allowed to grow thinly over the dead wood pile for stabilisation and moisture. Full sun will dry and heat the wood, supporting little life, whereas dense shade will promote the growth of fungi, but may be too cool for insects.

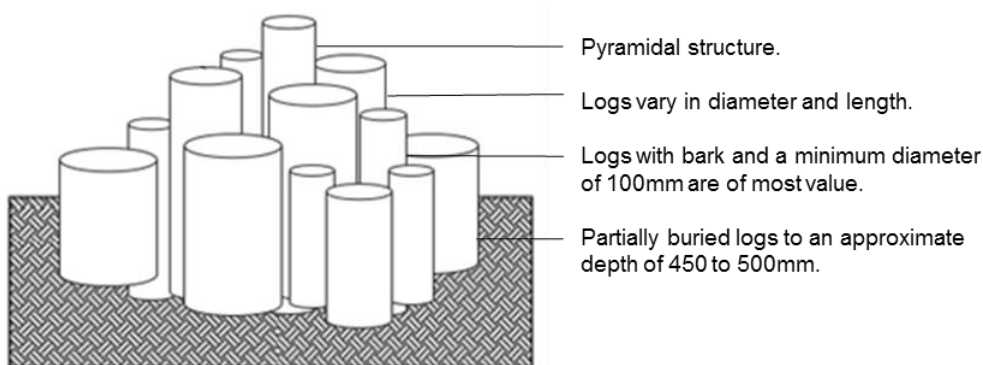
Figure 1: Log Pile Detail



Standing Dead Wood

- 4.45 Standing dead wood habitat will be created by partially burying logs vertically side by side in the ground to an approximate depth of 450 to 500mm, to form a pyramidal structure. Logs should vary in diameter and length.

Figure 2: Standing Dead Wood Detail



5.0 OBJECTIVE 3: PROVIDE A SAFE AND INSPIRING RECREATIONAL AND LEISURE RESOURCE.

- 5.1 The scheme will incorporate areas of visually attractive, short sward / amenity grassland, ornamental shrub planting, standard trees, hedgerows, and ground flora comprised of woodland wildflowers and groundcover shrubs. The site will incorporate several relatively open informal amenity zones, with small tree groups and planting beds that will provide structural and aesthetic interest, will break up hard landscaping areas and which can be enjoyed by the residents of the care home, as well as their visitors.
- 5.2 Access for residents and visitors to the care home will be encouraged through most of the green space onsite. Appropriate pathways and pavilions will be created to provide well-defined access routes across the site, reducing the potential for the creation of unauthorised desire lines across more sensitive habitats. These will be one level, or no more than a gradually sloping, gradient to ensure they are safely accessible for wheelchair users and elderly residents who may have limited mobility to enjoy.
- 5.3 Litter bins will be provided at appropriate locations throughout the site and litter will be regularly collected and removed to avoid harm to wildlife or encouraging establishment of pests.

Fencing and Gates

- 5.4 Fencing will consist of the following types:
- Fence as per architects' specifications
- 5.5 Set out and erect fencing following straight lines or smoothly flowing curves. The tops of posts are to follow the profile of the ground. Posts are to be erected and set rigid, plumb and to specified depth, or greater where necessary to ensure adequate support. All components are to be securely fixed.
- 5.6 Ensure all fencing and gates are secure, undamaged and in a good state of repair. Should any part of a fence or gate be deemed below standard obtain guidance and/ or repair or replace as required.
- 5.7 Set out and erect gates to ensure that they are erected and set rigid, plumb and to specified depth, or greater where necessary to ensure adequate support. Tighten all fixings before handover and ensure that all hinges, latches, and closers are suitably adjusted so as to provide smooth operation. Lubricate where necessary.

6.0 LANDSCAPE & ECOLOGICAL MANAGEMENT

OBJECTIVE 4: ENSURE THE MATRIX OF NEW AND EXISTING HABITATS ESTABLISH AND ARE SUITABLY MAINTAINED TO ENSURE LONG-TERM BIODIVERSITY GAIN.

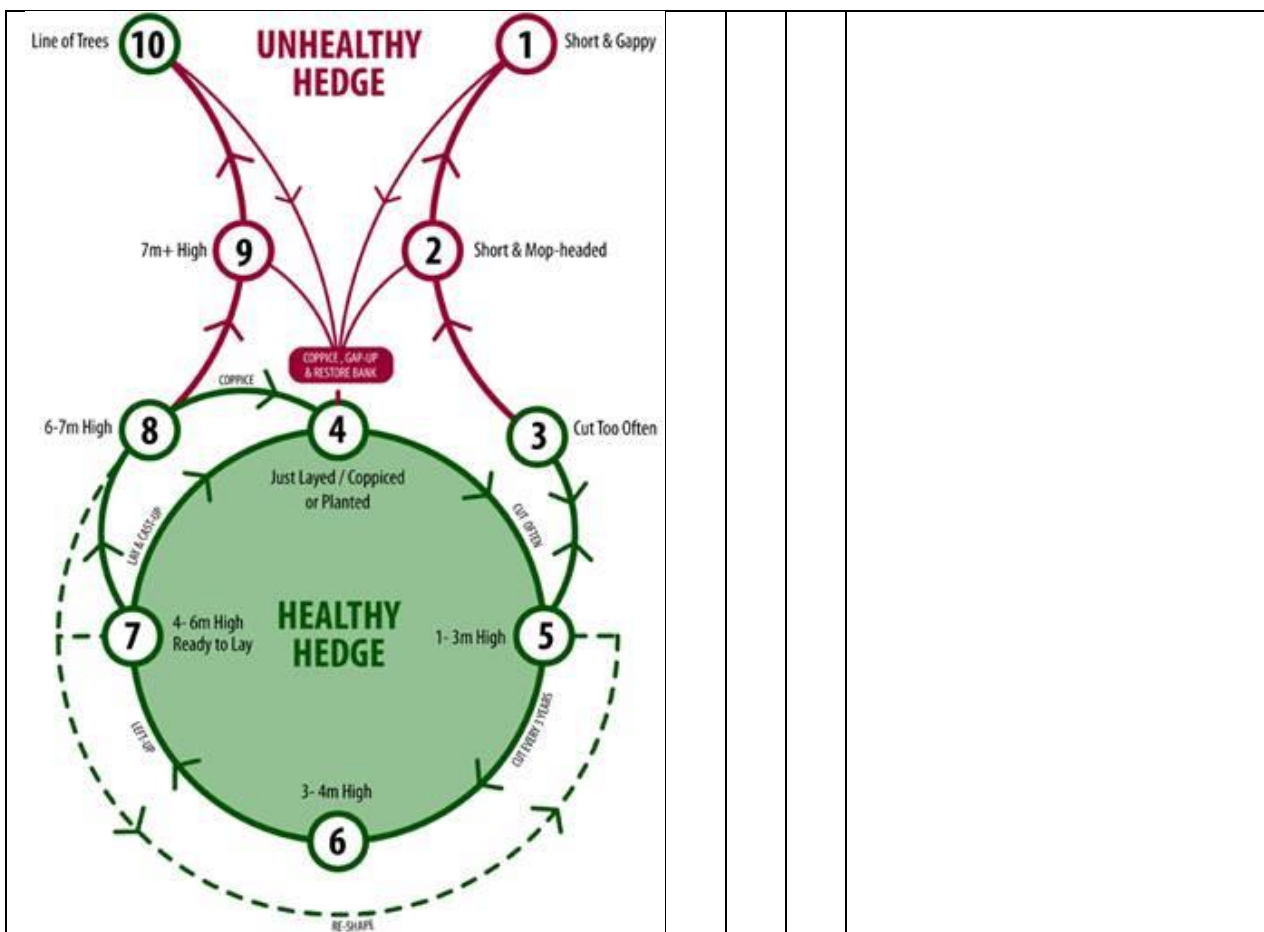
6.1 The following section outlines the works programme and management regime, with **Section 5** outlining the specification and implementation.

Table 1: Ten Year Management Works Programme

Prescriptions	Years with Priority									
	1	2	3	4	5	6	7	8	9	10+
Existing Retained Trees										
Trees will be assessed by an experienced arboriculturalist or tree surgeon prior to works including tree removal necessary to permit creation of access paths and structures / bridges. Tree works will follow best practice procedures as set out in BS 3998:2010. No removal of woody vegetation will take place during the bird nesting season unless checked by a qualified Ecologist. Existing retained trees will be left unmanaged unless otherwise dictated for reasons of public safety.	✓									
Retained trees will be protected from damage and from soil compaction during construction using fenced Root Protection Areas (RPAs) where construction works are to be undertaken in the vicinity, in accordance with guidance in British Standard 5837:2012 – Trees in Relation to Design, Demolition and Construction – Recommendations.	✓									
Arisings from any woodland management activity will, where possible will be used to provide opportunities for invertebrates and bryophytes by forming micro-habitats from piles of dead wood or recumbent dead logs away from publicly accessible areas. Woodpiles will be created at the woodland edge and within the woodland interior. Where practical, piles will be situated in partial sunlight with some shade.	As required									
Standard Tree Planting										
A weed-free mulched 1m diameter circle around the tree stem to a minimum depth of 75mm. When trees have reached independence, the sward can be allowed to grow up to the trunk, although tall weeds, bramble and ivy will be removed from around the trees. Care will be taken when using trimmers or mowers to avoid damaging trees. Weeds and grass within 100mm of the trunks will be removed by hand.	✓	✓	✓	✓	✓					
Examine all tree stakes and ties, replace, or adjust as appropriate. If the tree has yet to establish, replace or adjust ties, spacers, and tree tubes as appropriate.	✓	✓	✓	✓	✓					

If the tree has established well, then remove all stakes, ties, spacers, tubes etc. and make good surfaces disturbed – filling any holes with suitable topsoil.										
Replace failed specimens on a like-for-like basis. Top up mulch to a depth of 75mm where necessary.	✓	✓	✓	✓	✓					
Where periods of extreme drought occur, trees that have not yet established (not healthy, not in full leaf, suppressed growth) need to be watered where their tolerance to drought is deemed to be insufficient.	✓	✓	✓	✓	✓					
Thicket Planting										
Prune back scrub planting (no more than one third of woody growth) during October to March. Trim woody scrub back from paths etc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mixed Native Species Hedgerow Planting										
Following planting, water hedgerows in periods of extreme drought (2 or more weeks without substantial rainfall) (new and translocated hedgerow planting).	✓	✓	✓	✓	✓					
Replace failed specimens on a like-for-like basis.	✓	✓	✓	✓	✓					
Examine all guards and replace or adjust as appropriate. Remove guards once hedgerows established	✓	✓	✓	✓	✓					
Spraying or strimming of weeds to reduce competition and aid establishment. Not required if weed suppression matting used.	✓	✓	✓	✓	✓					
Side trimming of hedgerows in an 'A' profile to promote healthy hedgerow base. Starting in year 4 after planting new hedgerows will be cut along one side annually, alternating between the two sides of the hedgerow each year. Top up mulch as required.				✓	✓	✓	✓	✓	✓	✓
Prune any diseased or rotten wood back to sound wood. Remove all cut material from site.				As required						
In the long term, hedgerows will be taken through a Hedgerow Management Cycle (HMC) ² . The ten steps of the HMC are shown below. The cycle shows a healthy green core and two unhealthy red offshoots. The aim should be to keep the hedge in the green part (steps 3 to 8), periodically laying or coppicing it, with trimming at appropriate intervals in between. If the hedge is not permitted to go through this cycle, it will either, if cut too often, become short and gappy (steps 1 – 3) or, if neglected, develop into a line of trees (steps 8 to 10).				As required						

² The Hedge Management Cycle (HMC). Artwork by Will Field. Management Cycle concept developed by Nigel Adams. Hedgelink UK



Single Native Species Hedgerow Planting

Following planting, water shrubs in periods of extreme drought (2 or more weeks without substantial rainfall).	✓	✓	✓	✓	✓					
Replace failed specimens on a like-for-like basis.	✓	✓	✓	✓	✓					
Remove weed growth by hand and top up mulch levels, as necessary. Dead-head after flowering.	✓	✓	✓	✓	✓					
Prune hedgerows to a square cross-section during October to March.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Ornamental Feature Shrub and Low Groundcover Planting

Following planting, water shrubs in periods of extreme drought (2 or more weeks without substantial rainfall).	✓	✓	✓	✓	✓					
Replace failed specimens on a like-for-like basis.	✓	✓	✓							
Remove weed growth by hand and top up mulch levels, as necessary. Dead-head after flowering.	✓	✓	✓	✓	✓					
Prune back shrubs (no more than one third of woody growth) during October to March. Trim shrubs back from paths etc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Low Groundcover Planting

Remove weed growth by hand and top up mulch levels, as necessary. Dead-head after flowering.	✓	✓	✓	✓	✓					
Prune back shrubs (no more than one third of woody growth) during October to March. Trim shrubs back from paths etc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Amenity Grassland										
During initial establishment of new grassland, it will be mown to a height of 50mm 6-8 weeks after germination and subsequently to a height of 35-40mm as required, but not more regularly than once every 4 weeks until such a time as a knitted turf is established.	✓									
Once established, amenity grassland will be cut 16 times per year between March and October. Strimming should not occur with 100mm of tree stems.		✓	✓	✓	✓	✓	✓	✓	✓	✓
Mowing will be reduced during prolonged dry periods and the mowing height increased to 50mm at such times. Similarly, in very wet conditions all grass cutting operations will cease until conditions allow for grass cutting to take place.	As required									
Spot treat persistent pernicious weeds using herbicide following the first season's growth and/or manual hand strimming of target areas either in late summer when adjacent grassland is mown or in early spring. Care will be taken when using herbicide adjacent to riparian and aquatic habitats to prevent pollution of such habitats.	As required									
Woodland Wildflower and Grassland Mix										
During initial establishment of new woodland grassland habitat, mow all plant growth regularly to 40-60mm throughout the first growing season to prevent weeds smothering the slower growing grasses.	✓									
Mowing in subsequent years should never be cut shorter than 30mm and never mowed during cold weather or dry spells, which would adversely affect the growth of the grassland.		✓	✓	✓	✓	✓	✓	✓	✓	✓
Once established, woodland grassland will be mown annually in mid-summer to facilitate establishment of the wildflower assemblage and prevent growth of nettle and bramble growth		✓	✓	✓	✓	✓	✓	✓	✓	✓
Mowing will be reduced during prolonged dry periods and the mowing height increased to 50mm at such times. Similarly, in very wet conditions all grass cutting operations will cease until conditions allow for grass cutting to take place.	As required									
Spot treat persistent pernicious weeds using herbicide following the first season's growth and/or manual hand strimming of target areas either in late summer when adjacent grassland is mown or in early spring. Care will be taken when using herbicide adjacent to riparian and aquatic habitats to prevent pollution of such habitats.	As required									
Following establishment, areas which include bulb planting will be not be mown until after a 6-week period following flowering to allow the plants to feed the bulbs for the subsequent year.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Replace failed bulb specimens on a like-for-like basis.	✓	✓	✓		✓		✓		✓	

Bird and Bat Boxes										
Bird boxes will have a non-invasive inspection in autumn or winter to check for damage. Replace lost or damaged boxes.		✓		✓		✓		✓		✓
Bat boxes will have a non-invasive visual inspection in autumn or winter to check for damage unless a separate agreement has been agreed with Natural England. Replace lost or damaged boxes. Any work required to the bat boxes will be carried out by a licenced bat worker.		✓		✓		✓		✓		✓
General										
Ecological visual inspection by a qualified ecologist for the first year to provide baseline data for future surveys to be monitored against.					✓					✓

7.0 MONITOR THE SITE AND REVIEW THE PLAN

OBJECTIVE 5: PROVIDE A FRAMEWORK OF MONITORING AND REVIEW PERIODS.

- 7.1 In order to ensure that the habitats created within the site reach and maintain their maximum value to nature conservation, all habitats will be monitored.
- 7.2 Results of this monitoring will be used to inform changes to the management plan and ten- year work programme. The prescriptions provided here will not be set in stone and will be altered if required in agreement with the Local Planning Authority (LPA). The management plan will run for a period of ten years, with the work programme fully reviewed at the end of the initial five year period by those members of staff involved in site management, and the LEMP updated accordingly, to be updated for the life of the development.
- Ecological inspection by a qualified ecologist in years 5 and 10 to provide baseline data for future surveys to be monitored against.
 - Annual arboricultural visual inspection, as part of the tree safety risk assessment for the development.



The Bridge Care Home Ltd.

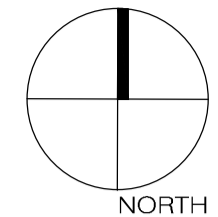
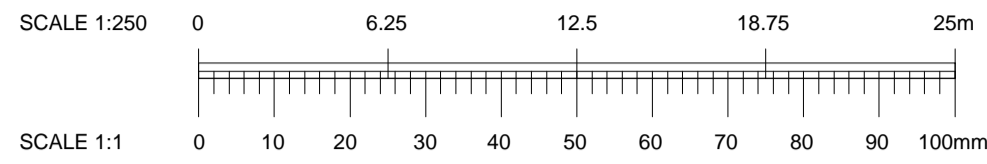
Plot 16a, The Bridge, Dartford

Landscape Proposals Plan 1925-18-03C and Indicative

Protected Species Enhancement Locations

Appendix A

July 2020



SOFT LANDSCAPE KEY

EXISTING TREES TO BE RETAINED
(Refer to Ben Bennett Tree & Woodland Consultancy Arboricultural Impact Assessment. Red circles indicate trees 'RPZ')

EXTRA HEAVY STANDARD TREES
(Tree pit size: 1500x1500x900mm backfilled with topsoil)
18-20cm stem girth
4.5-5.0m height
1.8-2.1m clear stem
Rootballed

TREE SPECIES:
Acer campestre
Acer rubrum
Carpinus betulus
Malus trilobata
Platanus x hispanica
Prunus avium

PROPOSED MULTI-STEM TREES
(Tree pit size: 1000x1000x750mm backfilled with topsoil)
3.5-4.0m height
5x transplanted
Rootballed

BETULA UTILIS 'JERMYS'

PROPOSED CONIFEROUS TREES
(Tree pit size: 1000x1000x750mm backfilled with topsoil)
2.5-3.0m height
Rootballed

CEDRUS LIBANI
PINUS SYLVESTRIS

PROPOSED SPECIMEN SHRUBS
(300mm depth of topsoil)

SPECIES **SUPPLY SIZE** **POT SIZE**

Amelanchier canadensis 900-1200mm 15L
Buxus sempervirens (topiary) 400-500mm 15L
Cornus alba 'Elegantissima' 900-1200mm 15L
Mahonia x media 'Winter Sun' 900-1200mm 15L
Viburnum x burkwoodii 900-1200mm 15L

PROPOSED ORNAMENTAL SHRUB PLANTING
(300mm depth of topsoil)
Ultimate plant height is above 1m.

SPECIES **SUPPLY SIZE** **SIZE** **POT**

Cornus alba 'Elegantissima' 400-600mm 3L 600mm c/s
Cornus alba 'Ivory Halo' 400-600mm 3L 600mm c/s
Cornus alba 'Sibirica' 400-600mm 3L 600mm c/s
Cornus stolonifera 'Flaviramea' 600-800mm 3L 600mm c/s
Corylus avellana 600-800mm 3L 750mm c/s
Ilex aquifolium 400-600mm 2L 750mm c/s
Mahonia x 'Winter Sun' 300-400mm 3L 600mm c/s
Photinia fraseri 'Red Robin' 300-400mm 3L 750mm c/s
Prunus laurocerasus 'Rotundifolia' 600-800mm 3L 750mm c/s
Pyracantha 'Saphyr Red' 400-600mm 3L 600mm c/s
Spiraea nipponica 'Snowmound' 400-600mm 3L 600mm c/s
Spiraea x arguta 300-400mm 3L 600mm c/s
Viburnum tinus 300-400mm 3L 600mm c/s
Viburnum x burkwoodii 300-400mm 3L 600mm c/s

PROPOSED LOW GROUND COVER PLANTING
(300mm depth of topsoil)
Ultimate plant height is below 1m.

Species	Supply Size	Pot Size	Spacing
Berberis frikartii 'Amstelveen'	250-300mm	3L	500mm c/s
Buxus sempervirens 'Suffruticosa'	100-150mm	2L	350mm c/s
Cornus stolonifera 'Kelseyii'	300-400mm	2L	450mm c/s
Escallonia 'Apple Blossom'	400-600mm	3L	500mm c/s
Hedera helix 'Hibernica'	400-600mm	2L	400mm c/s
Lonicera nitida 'Maygreen'	300-400mm	3L	600mm c/s
Pachysandra terminalis	150-200mm	2L	400mm c/s
Pericaria affinis 'Darjeeling Red'	Clump	2L	450mm c/s
Potentilla fruticosa 'Primrose Beauty'	200-300mm	3L	500mm c/s
Prunus laurocerasus 'Cherry Brandy'	300-400mm	3L	500mm c/s
Pyracantha coccinea 'Red Cushion'	300-400mm	3L	500mm c/s
Rosa 'Kent'	300-400mm	3L	450mm c/s
Spiraea japonica 'Candlelight'	400-600mm	3L	500mm c/s
Stephanandra incisa 'Crispa'	300-400mm	2L	500mm c/s
Symphoricarpos x c. 'Hancock'	400-600mm	3L	500mm c/s
Weigela florida 'Folius Purpureis'	400-600mm	3L	600mm c/s

PROPOSED THICKET MIX PLANTING
(300mm depth of topsoil)
Transplants planted random groups of the same species on a 1.0m grid.

%	Species	Common Name	Size	Age	Root
20	Cornus sanguinea	Dogwood	400-600mm	1+1	OG
30	Corylus avellana	Hazel	400-600mm	1u1	OG
16	Crataegus monogyna	Hawthorn	400-600mm	1+1	OG
10	Prunus spinosa	Blackthorn	400-600mm	1+1	OG
6	Rosa canina	Dog Rose	400-600mm	1+1	OG
6	Rosa elegantaria	Sweet Briar	400-600mm	1+1	OG
6	Sambucus nigra	Elder	400-600mm	1+1	OG
6	Viburnum opulus	Guelder Rose	400-600mm	1+1	OG

PROPOSED INDIGENOUS HEDGEROW
(300mm depth of topsoil)
Planted at 450mm centres in a double staggered row. Rows to be 500mm apart. Dominant species to be planted along back row of hedge, with other species random mix along front row.

%	Species	Common Name	Size	Age	Root
5	Acer campestre	Field Maple	400-600mm	1+1	OG
10	Corylus avellana	Hazel	400-600mm	1u1	OG
50	Crataegus monogyna	Hawthorn	400-600mm	1+1	OG
10	Ligustrum vulgare	Privet	400-600mm	1+1	OG
15	Prunus spinosa	Blackthorn	400-600mm	1+1	OG
10	Malus sylvestris	Crab Apple	400-600mm	1+1	OG

PROPOSED SINGLE SPECIES FORMAL HEDGE
(300mm depth of topsoil)
Planted at 450mm centres in a double staggered row. Rows to be 500mm apart.

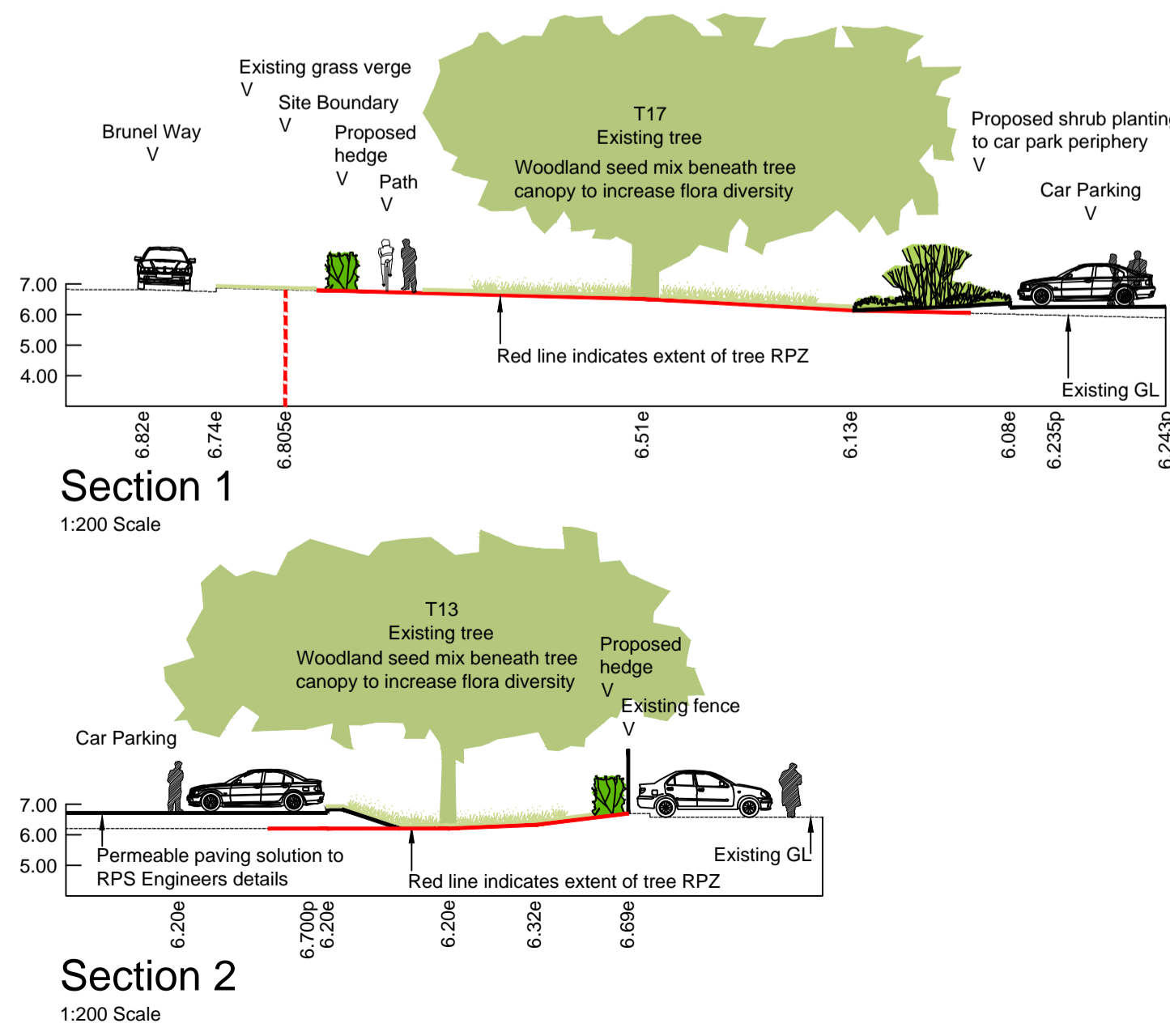
Species	Size	Root
Carpinus betulus	400-600mm	1+1 OG

PROPOSED LAWN/ GRASS AREAS (150mm depth of topsoil)
General areas; Seed mix DLF Trifolium Promaster 120 Slowgrowth at a rate of 35-50g/m² to general Lawn areas. Areas beneath existing trees to be sown with Emorsgate Seeds EW1 Woodland Mixture (at a rate of 4g/m²) to provide wildflowers and grasses that bloom in spring and early summer.

PROPOSED FENCE TO ARCHITECTS SPECIFICATION

EXISTING LEVELS
PROPOSED LEVELS (To RPS Engineers Details)

SITE BOUNDARY



Emorsgate Seeds EW1 Woodland Mixture
(300mm depth of topsoil)

%	Latin name	Common name
3	Alliaria petiolata	Garlic Mustard
0.8	Allium ursinum	Ramsons
1.6	Betonica officinalis - (Stachys officinalis)	Betony
1	Chierophyllum tenuatum	Rough Chervil
0.2	Digitalis purpurea	Foxglove
2	Filipendula ulmaria	Meadowsweet
1	Galium album - (Galium mollugo)	Hedge Bedstraw
1	Geum rivale	Water Avenis
0.2	Geum urbanum	Wood Avenis
2.8	Hyacinthoides non-scripta	Bluebell
0.8	Hypericum tetrum	Hairy St John's-wort
0.2	Primula vulgaris	Primrose
1.5	Prunella vulgaris	Selfheal
2.7	Silene dioica	Red Campion
0.2	Silene flou-cuculi - (Lychinis flou-cuculi)	Ragged Robin
1	Teucrium scorodonia	Wood Sage
20		
10	Agrostis capillaris	Common Bent
2	Anthoxanthum odoratum	Sweet Vernal-grass (w)
7	Brachypodium sylvaticum	False Brome (w)
28	Cynosurus cristatus	Crested Dogtail
1	Deschampsia cespitosa	Tufted Hair-grass (w)
20	Festuca rubra	Slender-creeping Red-fescue
12	Poa nemoralis	Wood Meadow-grass

NOTES:

- Proposed levels, drainage, hard surface details to RPS Engineers Specification.
- The Crown of trees T2 and T13 will be reduced ahead of construction in accordance with Ben Bennett Trees & Woodland Consultancy Arboricultural Impact Assessment.
- Trees T3, T10, T12 & T17 will receive selective pruning in accordance with Ben Bennett Trees & Woodland Consultancy Arboricultural Impact Assessment prior to construction.

REV C: Amended in accordance with DWA Architects' Proposed Site Plan dng no 04101/901. 2020/03/05 MGO

REV B: Lebanese Cedar spp. added to conifer trees at LPA request. 2019/04/29 MG

REV A: Issued for Planning Submission Purposes. 2019/03/05 MG

REV NOTE: DATE AUTH



Ben Bennett
Tree and Woodland Consultancy

CLIENT
Montpelier Estates

PROJECT
Proposed Care Home
Plot 16a The Bridge, Dartford

DRAWING
Landscape Proposals Plan

CONTRACT	1925/18	DRG NO.
DATE	14/02/2019	DRAWN MG
ISSUE	Planning	CHECKED MG
SCALE	1:250	ORIG SHEET A1
CAD FILE	1925-18-01-03C-iscp-proposals.dwg	REV C



Key

Protected Species Enhancements -Indicative Locations

- Log Pile - Reptile Refugia
- Schwegler 2H Robin Box
- Schwegler 2F Bat Box
(Check for Pre-existing and Re-instate)
- Schwegler 1SP Sparrow Terrace
- Schwegler 1B Nest Box

The Bridge Care Home Ltd.
Plot 16a The Bridge,
Dartford

fpcr PROTECTED SPECIES ENHANCEMENTS
LOCATION PLAN

scale 1:510 drawn PJP issue 5/1/2021
drawing / figure number **Figure A.1** rev **1731-E-01**