



Proposed Development at Hollingworth Road, Littleborough

Landscape and Biodiversity Management Strategy (LBMS)

On behalf of **Bloor Homes North West**



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1 INTRODUCTION

- 1.1.1 Stantec UK is commissioned by Bloor Homes to undertake a Landscape and Biodiversity Management Strategy (LBMS) to support a hybrid planning application, with full permission sought for the development of 312 residential units and associated infrastructure and outline planning permission sought for the development of a primary school ('the Proposed Development') at Hollingworth Road, Littleborough ('the Site').
- 1.1.2 The LBMS is intended to satisfy Regulation 37 of the Conservation of Habitats and Species Regulations 2017 (as amended), which seeks the implementation of planning policies that encourage landscape management.
- 1.1.3 In the production of this holistic strategy, reference is made to the *Arboricultural Impact Assessment (AIA) produced by Tyler Grange¹* and *Detailed Surveys and Ecology ES Chapter produced by Tyler Grange* to ensure appropriate reference to existing species, habitats and their management, as outlined by suitably qualified professionals.
- 1.1.4 In addition, reference has been made to the Natural Environment and Rural Communities (NERC) Act 2006, Section 41 Species and Habitats of Principal Importance. UK BAP priority habitats and species are no longer in place following publication of the Natural Environment White Paper in 2011. However, the Biodiversity 2020 strategy (which succeeds the UK BAP in England) aims to achieve protection and enhancement of priority species and habitats (now referred to as species and habitats of principal importance) listed under Section 41 of the NERC Act.

¹ Littleborough Mixed Use Development – Arboricultural Impact Assessment by Tyler Grange (January 2023)

2 SCOPE

2.1 Overview

- 2.1.1 The overall aim of the LBMS is to promote a sensitive management approach, which protects, manages, and enhances the Site for the benefit of its landscape assets and their intrinsic biodiversity value including those that interact with it whilst achieving the Biodiversity Net Gain (BNG).
- 2.1.2 This document provides a strategy for the overall management and maintenance of the landscape features of the Proposed Development, including existing features, hard and soft landscape proposals and newly created habitats including ornamental planting, native trees, native shrubs, amenity and wildflower grassland and attenuation basins with marginal planting.
- 2.1.3 The scope includes infrastructure landscape, roads, open space, and associated landscape, but excludes the private demise residential gardens.
- 2.1.4 The LBMS has been prepared to provide an integrated approach to the management of the landscape, ecology and amenities associated with the Proposed Development. It is a dynamic document that should be renewed on a regular basis, every 5 years (or sooner if required), and amended should circumstances change within the Site or its immediate surroundings.
- 2.1.5 This LBMS has been produced to guide the management of landscape components based on a series of Landscape and Biodiversity Management Zones. **Figure 1: Landscape and Biodiversity Management Strategy Plan** illustrates these zones in the context of the Land Use Parameter Plan layout of the Proposed Development.
- 2.1.6 Three management zones have been identified and each incorporates some or all of nine different landscape maintenance components, which are explained in detail at Section 5.0. The management zones are as follows:
- Zone 1 – Residential Development;
 - Zone 2 – Meadow Walk; and
 - Zone 3 – School.

2.2 Document Structure

- 2.2.1 Section 3.0 describes the existing fauna and flora present in and around the Site, including key species. Section 4.0 sets out the vision, aims and objectives for the LBMS, and Section 5.0 describes the Landscape Management Components and their associated maintenance tasks. Sections 6.0 and 7.0 describe the general maintenance and management tasks and set these tasks out in an annual maintenance schedule. Finally, Section 8.0 outlines the recommendations for the monitoring and review of the LBMS.

3 EXISTING LANDSCAPE

3.1 Overview

- 3.1.1 The Site comprises 19.2 hectares (ha) of land to the immediate west of Hollingworth Road, to the north-east of Smithy Bridge and south of Littleborough, in the north-eastern part of Rochdale, Greater Manchester. The Site is centred approximately at National Grid Reference SD 93341 15448.
- 3.1.2 The Site is bounded to the north by the Rochdale Canal and the former Akzo Nobel site. The latter is now controlled by Vistry Partnerships and is the subject of a recently approved planning application for the development of up to 127 dwellings. To the east is Hollingworth Road / B6225, with agricultural land beyond. To the south is Lake Bank (road) which borders Hollingworth Lake and a number of residential dwellings. The south-eastern part of the site comprises a public car park for visitors to Hollingworth Lake. To the west are residential dwellings associated with the settlement of Smithy Bridge.
- 3.1.3 The Site predominantly comprises 8 agricultural fields that are currently used for grazing of horses and cattle. The field boundaries are defined by dry stone walls, hedgerows and to the west by the rears and side boundaries of existing residential development at Smithy Bridge. Lower Cleggswood Farm is located within the centre of the Site and is accessed via Heald Lane, which heads south from the farm to Lake Bank.
- 3.1.4 The Site boundaries, for the most part include notable groups of trees around the existing car park within the south-eastern corner of the Site thus providing a mature feature within the Site and verdant street scene to Hollingworth Road and Lake Bank. Linear blocks of woodland are located within the lowering lying landform along lanes and watercourses with the surrounding low lying hills.
- 3.1.5 Also mentioned in the Ecology ES Chapter, *“the Hollingworth Road land parcel comprises predominantly sheep grazed pasture associated with a farm complex located within the centre of the land parcel. There are defunct hedgerows forming old field boundaries with scattered trees and a woodland block within the southeast of the land parcel.”*

3.2 Ecological Designations

- 3.2.1 As confirmed in Tyler Grange's Ecology ES Chapter, which forms part the planning application, there are two Internationally designated sites with 10km of the Hollingworth Road land parcel:
- Rochdale Canal Special Area of Conservation (SAC)² and Site of Special Scientific Interest (SSSI)³ immediately adjacent to the north; and,
 - South Pennine Moors SAC/SSSI and South Pennine Moors Phase 2 Special Protection Area (SPA) are located approximately 1km to the east.

² <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?eucode=UK0030266>

³ <https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s2000430>

- 3.2.2 SAC / SPA designations are of **international ecological importance**, and SSSIs are of **national ecological importance**. A summary of the designated sites is below:
- 3.2.3 Rochdale Canal SAC / SSSI contains *“important habitats for submerged aquatic plants and emergent vegetation, including extensive colonies of nationally scarce SAC species of floating water-plantain *Luronium natans*”, as well as pondweeds *Potamogeton* spp.*
- 3.2.4 The South Pennine Moors SAC / SSSI / SPA contains *“the largest area of unenclosed moorland within West Yorkshire and contains the most diverse and extensive examples of upland plant communities in the country”*. Three habitat types are listed on Annex 1 of the EC Habitats and Species Directive (92/43) EEC: ‘European dry heaths’, ‘blanket bogs’ and ‘old sessile oak woods with *Ilex* and *Blechnum* in the British Isles’.
- 3.2.5 This Hollingworth Road land parcel has SPA designations through supporting a moorland breeding bird assemblage of national importance, including (inter)nationally important breeding populations of merlin *Falco columbarius*, curlew *Numenius arquata*, golden plover *Pluvialis aprcaria* and twite *Carduelis flavirostris*.
- 3.2.6 The Hollingworth Road land parcel falls within SSSI risk zones of the aforementioned designated sites and requires consultation with Natural England for applications for residential development of 50 or more houses.
- 3.2.7 Also noted in the Ecology ES Chapter, there are four non-statutory sites, of which are entitled Sites of Biological Importance (SBI). They are:
- Rochdale Canal (Scowcroft to Warland) SBI, immediately north.
 - Hollingworth Lake SBI, 20m to the south; South Pennine Moors (north) SBI 1.4km east; and,
 - Slopes by River Beal, Fir Grove Farm SBI, 1.9km south-west.

3.3 Habitats and Flora

- 3.3.1 Tyler Grange recorded the following habitat types within the Site:
- Amenity grassland;
 - Broadleaved woodland;
 - Built form and hardstanding;
 - Improved grassland;
 - Marshy grassland;
 - Native hedgerow with Trees;
 - Scattered broad-leaved trees;
 - Semi-improved grassland (poor);

- Species-poor defunct native hedgerow; and
- Tall ruderal vegetation

- 3.3.1 Information relating to the characteristics and habitat value of features within the Site and the locations of recorded habitats are discussed in Tyler Grange's Ecology documents - **Volume 3: Appendix 1.4** and are shown on the Habitat Features Plan (**Figure 1.4.1** of **Appendix 1.4**).
- 3.3.2 Habitats adjacent to the Hollingworth Road land parcel are described, as are invasive plants identified during the surveys.

3.4 Invasive Plant Species

- 3.4.1 The Hollingworth Road land parcel was checked for Himalayan balsam *Impatiens glandulifera*, Japanese Knotweed *Reynoutria japonica* and other such invasive plant species; Himalayan balsam was present around outbuildings of the farm complex only. A detailed search along Rochdale Canal was undertaken but no invasive plants were recorded. Mentioned in Tyler Grange's Ecology report - an invasive species management plan shall be drawn-up through an appropriately worded planning condition.

3.5 Fauna

- 3.5.1 The following species/faunal groups have been identified in Tyler Grange's Ecology Chapter in relation to the Site after a range of faunal surveys were undertaken at the Site:
- **Badger –**
 - “GMRC returned seven records of badger setts within 1km of the Hollingworth Road land parcel. Four of those records relate to badger setts within adjacent land to the north.”
 - **Bats –**
 - “GMRC returned records of seven bat species or groups within 2km of the Hollingworth Road land parcel in the last 20 years”.
 - “The majority of the trees on-site were assessed as providing negligible bat roosting potential, as many of the ‘internal’ trees were hawthorn and goat willow, providing unsuitable roosting opportunities. There is a mature ash south of B1, which was assessed as having moderate bat roosting potential. The woodland block to the south-east of the Hollingworth Road land parcel (surrounding the car park) comprised predominantly young/ early mature plantation, with no suitable roosting opportunities.”
 - **Breeding Birds –**
 - “GMRC returned 21 Section 41 bird records within 1km of the Hollingworth Road land parcel. Of those 21 species, the following were considered to be potentially present at the land parcel due to the habitats present:
 - Bullfinch *Pyrrhula pyrrhula*;
 - Curlew *Numenius arquata*;

- *Dunnock Prunella modularis;*
- *House Sparrow Passer domesticus;*
- *Lapwing Vanellus vanellus;*
- *Linnet Linaria cannabina;*
- *Reed Bunting Emberiza schoeniclus*
- *Skylark Alauda arvensis;*
- *Song Thrush Turdus philomelos;*
- *Starling Sturnus vulgaris.*
- **Great Crested Newt –**
 - “GMRC returned three records of great crested newt (GCN, *Triturus cristatus*) within 2km of the Hollingworth Road land parcel, with the nearest being 1.8km to the south-west in 2017. Records also returned six other amphibians within a 2km radius, all of which were common toad (*Bufo bufo*).”
 - “GCN has been surveyed extensively at the pond to the northeast of the Hollingworth Road land parcel (P1) – returned absence of GCN within P1”.
- **Reptiles –**
 - “GMRC returned no records for reptiles within 2km of the Hollingworth Road land parcel. The habitats on-site represent unsuitable habitat for reptiles due to the large expanses of heavily grazed grassland.”
- **Otter and Water Vole –**
 - “GMRC returned three records of water vole within 2km of the Hollingworth Road land parcel; the nearest being 0.55km to the north-east along the Rochdale Canal. Both records were from 2007. GMRC returned 17 records of otter within 2km of the land parcel; all records relate to the River Roch, which is located 1.2km to the north, with no records being attributed to the Canal.”
- **Other Mammals including Hedgehog and Brown Hare –**
 - “GMRC returned seven hedgehog *Erinaceus europaeus* records within 2km of the Hollingworth Road land parcel, the nearest being 0.8km to the north-west.”
 - “GMRC returned five records of brown hare *Lepus europaeus* within 2km of the Hollingworth Road land parcel, all of which coming from the moorland habitat to the south-east. “

4 VISION, AIMS AND OBJECTIVES

4.1 Vision

- 4.1.1 The landscape strategy seeks to provide an appropriate landscape setting for the Development that offers the opportunity to retain, enhance and create a variety of landscape features in association with the proposed built elements. The landscape strategy additionally seeks to provide an open space journey through a sequential series of spaces that transition between developed and natural areas. The landscape features will promote accessibility, legibility and a strong setting and sense of place for the Proposed Development as well as complementing local landscape character and providing biodiversity enhancement opportunities.

4.2 Aims and Objectives

- 4.2.1 To achieve the vision, the key overarching aims and objectives of the LBMS are set out below:

Aim 1: To retain and enhance existing features.

Objectives:

- Secure the current value of existing landscape features to be retained, including tree belts and any woodland; and
- Enhance those features that have potential for improvement.

Aim 2: To create a high-quality landscape setting to the Proposed Development.

Objectives:

- Ensure all new planting is healthy and of good form;
- Ensure pedestrian routes are clear and accessible;
- Provide safe and legible channels for cycle and vehicle movement;
- Maintain high quality surfacing for all new pedestrian, cycle, and vehicle surfaces; and
- Create a seamless transition between the development parcels and their associated open spaces, with the more informal open space distributed within the Site with its semi-natural and natural character.

Aim 3: To enhance biodiversity and ecological value.

Objectives:

- Ensure that the development of the Site results in a substantial net gain in its biodiversity and ecological value;
- Secure a healthy structure for existing and proposed habitats;

- Create links with the offsite habitat areas adjoining the Site through introduction of new green infrastructure;
- Create connectivity of habitats across the areas of open space and through the development parcel;
- Create a species diverse mix of wetland planting in association with proposed waterbodies and sustainable drainage features; and
- Provide additional foraging and shelter for local wildlife.

Aim 4: To enhance the attractiveness and sense of place of the landscape setting to the Proposed Development.

Objectives:

- Enhance species composition with appropriate habitats including wildflower, grassland, hedgerows, shrub planting and waterbodies;
- Create and maintain robust structural elements creating enclosure, including any woodland and trees;
- Provide transitional habitat from formal areas of open space to informal semi-natural and natural spaces through an integration of planting types – such as mown grassland to meadow, ornamental shrub and wildflower planting and trees;
- Enhance visual amenity by providing more diversity in terms of the type and structure of vegetation;
- Specify locally characteristic species of local provenance (where available);
- Reintroduce positive landscape features of the area; and
- Create a legible landscape structure.

Aim 5: To soften and integrate the Proposed Development within the surrounding landscape.

Objectives:

- Maintain and enhance the healthy growth and the landscape and visual amenity value of trees, shrubs, and grassland;
- Enhance and reinforce structural landscape features and habitats which contribute towards a larger framework of Green Infrastructure throughout the Proposed Development; and
- Provide connectivity with the existing and enhanced habitats on Site and those within the wider landscape.

Aim 6: To carefully balance the amenity needs of future residents with management objectives for existing and proposed habitats.

Objectives:

- Manage the existing vegetation to improve the overall biodiversity, species and their age diversity;
- Facilitate opportunities for public access and informal recreation within the areas of semi-natural and natural landscape, in a controlled manner;
- Ensure there is a satisfactory relationship between the areas of semi-natural and natural landscape and the Proposed Development, avoiding adverse impact on existing habitat areas; and
- Ensure that any members of the public using the open space are not exposed to unreasonable levels of risk.

5 LANDSCAPE MAINTENANCE COMPONENTS

5.1 Landscape Maintenance Component Definition

- 5.1.1 Critical to the management process is the identification of Landscape Maintenance Components. These are habitat and vegetative features with defined characteristics and qualities for which there are related user expectations, and which require distinct maintenance guidance.
- 5.1.2 The landscape features of the Proposed Development have been divided into a number of different Landscape Maintenance Components, with their distribution within the Landscape Management Zones illustrated on **Figure 1: Landscape and Biodiversity Management Strategy Plan**. To achieve the overarching objectives for the LBMS, maintenance recommendations and tasks have been identified for each Landscape Maintenance Component.

5.2 Landscape Maintenance Component

- 5.2.1 The Landscape Maintenance Components relevant to the Site in line with the NBS Specifications are outlined as follows:
- Component 1: Native and Ornamental Trees;
 - Component 2: Native Shrub, Scrub and Understorey Planting;
 - Component 3: Native Hedgerows;
 - Component 4: Ornamental Shrubs and Hedges;
 - Component 5: Amenity Grassland;
 - Component 6: Native Wildflower Meadow and Tussock Grassland;
 - Component 7: Waterbodies and Marginal Planting;
 - Component 8: Woodland; and
 - Component 9: Hard Surfaces and External Furniture.

5.3 Component 1: Native and Ornamental Trees

- 5.3.1 Good quality trees within the Site will be retained and managed as part of a network of structural vegetation connecting into wider green infrastructure to retain and enhance the important softening and screening function and deliver enhancements to bird and bat habitats. Works will ensure reasonable safety precautions are taken to provide an acceptable level of risk to people or property. Some tree loss will be required within the Development footprint for safety reasons or to allow for realignment of the road. However, good quality trees should be retained, especially those assigned BS Categories A, B and C with long life spans as surveyed within Tyler Grange's AIA report and Tree Survey Schedule (Jan 2023), and replacement tree planting undertaken following works or within alternative areas of green infrastructure.

- 5.3.2 New tree planting is proposed throughout the development, including planting of street trees, specimen trees in open spaces, and reinforced structured boundary planting. Existing retained and proposed trees enhance biodiversity opportunities as part of a mosaic of habitats and provide structural diversity, complementing the existing pattern of structural vegetation surrounding the Site. They will contribute to the visual amenity of the landscape by defining street patterns and hierarchy, by providing a vertical landscape structure to the development and by softening views towards proposed built form. It is also anticipated that they will also provide bats and birds with additional foraging and movement opportunities across the Site.

Maintenance Recommendations

- 5.3.3 All tree works and their management are to be agreed with the Local Authority. Any specified tree surgery works will be carried out in accordance with BS 3998: 2010 'Tree Work – Recommendations', Health & Safety legislation, and relevant best practice. Prior to the commencement of works the Contractor shall provide valid proof of the required Public Liability Insurance and a full working method statement and risk assessment.
- 5.3.4 Existing trees and vegetation to be retained shall be protected by fencing as set out in BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations⁴. Fencing shall be erected prior to commencement of construction works and maintained during building operations. Protective fencing shall be removed once construction has been completed.
- 5.3.5 The retention of mature trees will be secured by the continued application of “**minimal safety management**” rules. If possible, works should be undertaken outside the birds nesting season (nesting season – March to August inclusive). If this is not possible, appropriate checks by a qualified ecologist should be undertaken and, if occupied nests are identified or suspected, works will need to be delayed until nestlings have fledged. If necessary, further surveys should be carried out and appropriate licenses obtained to ensure legal compliance and/or secure appropriate or necessary mitigation.
- 5.3.6 New planting is to be in accordance with BS 4428:1989 and BS 8545:2014. Tree pits typically 1000 mm x 1000 mm x 600 mm deep, over 300mm depth soak-way layer. Tree pit size will increase for specific large tree locations typically 1500x1500mm square, sufficient to accommodate larger root ball. All trees up to and including selected standards are to be supported with single 75mm diameter stake. All trees heavy standard size and over shall be double staked with 100mm diameter stakes and a half-round timber cross-brace fitted to the windward side of the tree within 25mm of the top of the stakes ensuring that the tree is vertical and straight. Stakes are to be securely driven into the ground prior to planting to a height above ground that is one third of the height above ground of the tree when planted to allow free movement of the crown. Secure street trees to cross-brace with an adjustable plastic / rubber tie with spacer and buckle (buckle end to be nailed to stake).
- 5.3.7 All whips and transplants to be installed with rabbit protection: spiral HDPE (Acorn Planting Products or similar approved) 0.6m high x 50mm diameter or greater to suit girth of tree, supported by 900mm bamboo cane inserted 300mm below ground level and ensure protection methods do not impede natural movement of trees or restrict growth.

⁴ BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations by BSI (2012)
Available at: <https://knowledge.bsigroup.com/products/trees-in-relation-to-design-demolition-and-construction-recommendations/standard>

- 5.3.8 Each tree should be fitted with a tree irrigation/aeration system unit fitted to fully surround the root ball in accordance with the details.
- 5.3.9 All staked trees shall be inspected on each maintenance visit, and any trees which have died or have suffered physical damage, such that they no longer provide any useful landscape function, shall be removed from site, complete with the stake, and the ground reinstated.
- 5.3.10 Any trees which have died because of the Contractor's operations or omissions shall be replaced by the Contractor at his own expense during the next planting season. Where the Operations Manager has agreed that plant deaths have arisen due to circumstances out of the control of the Contractor, replacement planting shall be instructed by the Operations Manager and paid for at an agreed rate.
- 5.3.11 Any dead, diseased, or damaged branches shall be pruned back to the main stem or suitable side shoot and removed.
- 5.3.12 Mulched areas around trees shall be maintained.
- 5.3.13 At the beginning and end of each growing season all stakes' ties and guying systems shall be inspected. Any looseness, constriction or abrasion shall be corrected by adjustment or replacement as required. Where the support of a stake is no longer required the stake shall be removed from site.
- 5.3.14 Watering is to be undertaken with the instalment Treegator watering bags as necessary to allow healthy establishment of plants.
- 5.3.15 A visual inspection of retained individual trees shall be carried out at every visit. Any damaged, diseased, or dangerous timber shall be reported to the Operations Manager, for an application to be made to the Local Planning Authority under the Town & Country Planning (Trees) Regulations 1999 if it is considered hazardous to public use of the area.
- 5.3.16 Specific management is required for street trees to maintain a clear stem to the minimum height of 2m and prevent the canopies from causing an obstruction to properties, pedestrians, or vehicles.

Table 5.1: Summary of Maintenance Tasks – Existing Trees

Task:	Frequency/ Timing
Safety inspections and report on condition of trees by arboriculture advisor.	Once a year
Works recommended following inspection. Typically include the removal of fallen, diseased, dead, dying or dangerous trees and damaged or crossing branches.	As recommended by annual inspection
Remove timber and arisings from safety and regenerative work and use to create deadwood habitat and refugia in local areas.	Immediately following works

Table 5.2: Summary of Maintenance Tasks – Proposed Trees

Tasks:	Frequency/ Timing
Maintenance of a 1m 80% weed-free area to the base of each tree for five years – this can be achieved through the application of a 5-7.5 cm mulch in this area.	Once or twice a year and as required
Maintenance of rabbit guards and other forms of protection.	As required, following monthly inspection
Maintenance of stakes and ties, including loosening as necessary.	As required, following monthly inspection
Maintenance of good levels of soil fertility and moisture. Irrigation may be required during dry periods. A 5-7.5 cm mulch for 1m around the base of each tree will increase retention of soil moisture.	Watering (to field capacity) min. 8 times during dry months
Treatment of pests and diseases and repair of any damage from vandalism.	As required, following monthly inspection
Check for root firmness and upright alignment of tree after high winds, frost heave and in spring and autumn until trees are considered to be wind firm.	Twice annually and as required
Formative pruning to avoid future structural problems and to remedy disease and vandalism problems.	As required following maintenance visits
Removal of guards, stakes and ties.	After 2 years, subject to inspection
Following the maintenance period, trees are to be inspected by a qualified arboriculturist who will provide a time-bound schedule of tree works to be undertaken. Recommendations will be based upon satisfying the objectives of this management plan and ensuring no hazards are present on site.	Annually

Table 5.3: Summary of Maintenance Tasks – Street Trees

Tasks:	Frequency/ Timing
Create clear stem to street trees, removing epicormic growth and suckers.	As required
Lift tree canopies to minimum height of 2m, maintaining balanced canopy as tree matures.	Annually
Reduce crown to maintain canopies clear of buildings and lighting, maintaining a balanced form.	As required

5.4 Component 2: Native Shrubs, Scrub and Understorey Planting

- 5.4.1 Locally sourced native plant species should be used to enhance the existing areas of scrub and establish new areas of native scrub, understory planting and naturalistic transitional habitat between existing tree belts and areas of wildflower grassland, and within wetland areas associated with surface water attenuation.
- 5.4.2 New planting is to be in accordance with BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces)⁵

Maintenance Recommendations

- 5.4.3 To protect new planting from damage, Recycled HDPE mesh guards (height 60cm, diameter 150-180mm) shall be fitted around each new plant and secured to a single softwood stake of at least 25mmx25mmx900mm length, which is to be driven into the ground to a depth of 300mm.
- 5.4.4 Chipped conifer bark, size range 25-75mm, maximum 15% fines, composted for a minimum of six weeks prior to delivery, is to be used as a mulch. The organic mulch shall be spread evenly within a 1m diameter circle around each plant, to a depth of 75mm after settlement.
- 5.4.5 Management operations will ensure that vegetation is cut back from pathways and fences.
- 5.4.6 Planting beds should be kept clear of litter. In the interests of wildlife, weed control should be undertaken by hand weeding, with the use of herbicides avoided wherever possible. However, in certain instances, herbicide may be the most effective measure to take against unwanted species. Where herbicide application is needed this should be spot treatment of a non-residual herbicide. Herbicides must comply with the Plant Protection Products Regulations 2011 and Plant Protection Products (Sustainable Use) Regulations 2012 and be on the current HSE Pesticides Register of UK Authorised Products.
- 5.4.7 Over time, selective thinning of plants should be undertaken to encourage natural regeneration. Where possible, over-developed individuals should be removed. New structurally diverse habitat edges should be created by selective pruning and coppicing of shrub species to favour foraging by invertebrates, bats, and other fauna.

5.5 Component 3: Native Hedgerows

- 5.5.1 Hedgerows are national (Section 41, NERC Act 2006) Habitats of Principal Importance. They provide benefits based on their intrinsic landscape and biodiversity value and as part of an extended Green Infrastructure and habitat corridor network.
- 5.5.2 In order to address the loss of any hedgerows and to enhance the habitat connectivity and for screening purposes from the surroundings, species-rich native hedgerows are proposed around the LEAP, LAP and near the proposed attenuation basins.
- 5.5.3 Any existing and proposed native hedgerows should be positively managed to maximise landscape and wildlife value, favouring hedge-laying for restoration of hedgerow structure and an alternating management cycle of cutting one side of the hedgerow every 2 or 3 years.

⁵ BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces) by BSI (1989) Available at: <https://knowledge.bsigroup.com/products/code-of-practice-for-general-landscape-operations-excluding-hard-surfaces/standard>.

Proposed hedgerow will comprise native, biodiverse hedgerows and will contribute to the mosaic of habitats within the Site and provide enhanced habitat connectivity. Both existing and proposed hedgerow will also contribute to the wider landscape setting of the Proposed Development.

- 5.5.4 To fulfil the management objectives, each hedgerow should be managed as appropriate, i.e., by trimming, laying, coppicing, bulking up, etc. Specific management tasks and their frequencies for the native hedgerows are therefore set out below.
- 5.5.5 For the management regime of the existing hedgerows, The Hedgerow Management Cycle⁶ by Hedgelink UK needs to be referred and followed as necessary. The hedgerow management cycle is a 10-stage cycle that responds to the physical condition of the hedgerow and provides targeted management actions for each stage.

Maintenance Recommendations

- 5.5.6 Prepare a 1.5m-wide weed-free strip and cultivate by hand only in proximity to existing trees/hedgerow. No herbicide. Plant bare root transplants and container-grown shrubs at 0.5m centres in double staggered rows. Hand dig with care in proximity to existing hedgerows and do not sever any roots larger than 2.5cm in diameter. Transplants to be notch planted and container-grown shrubs to be pit planted (in pits 150mm wider than root spread) ensuring the original root collar is at ground level after backfilling and firming in.
- 5.5.7 Hedgerow plants to be installed with rabbit protection, as follows:
- Transplants, cuttings and seedlings: PP photodegradable tube guards 0.6m high x 50mm diameter or greater to suit girth of shrub/tree, supported by 900mm bamboo cane inserted 300mm below ground level.
 - Container-grown shrubs: recycled HDPE photodegradable mesh guards 0.6m high x 150-180mm diameter or greater to suit diameter of shrub, supported by 900mm timber stake inserted 300mm below ground level.
 - Ensure protection methods do not restrict natural movement or growth.
- 5.5.8 Best practice horticultural techniques should be used in the planting of native hedgerow vegetation to ensure rapid early growth. Rapid attainment of effective physical enclosure would be achieved through the autumn planting of both hedgerows and hedgerows with trees, including a mix of 40-60cm and 60-80cm transplants drawn from the species recommended above. The ground below planting will be maintained as bare ground in the first 2 to 3 years after establishment. The ground flora should be maintained through annual cutting and manual removal of vigorous weed species.
- 5.5.9 Hedgerows shall be pruned on one side per year alternating on a 2 or 3 year rotation in February, aiming to maintain hedgerows between 1.2 to 3 metres in height, depending on the locations, to promote bushy growth while providing continued habitat and foraging opportunities for wildlife.

⁶ https://www.hedgelink.org.uk/cms/cms_content/files/78_hedgelink_a5_12pp_leaflet_7.pdf

- 5.5.10 A minimum 1m width shall be maintained, gap between ground and base under 0.5m, 1m width of long grassland from outer edge of hedgerow shall be maintained.

Table 5.4: Summary of Maintenance Tasks – Existing and Proposed Hedgerow

Task:	Frequency / Timing
Marker tags to be removed after 3 years once infill planting established and planting can be maintained with existing hedgerow.	Year 3
Coppicing or hard pruning of adjacent existing hedgerow plants to prevent over-shadowing of new infill plants until well established. Where large hedgerow trees cause overshadowing remove lower branches to encourage light exposure.	Yearly
Examine rabbit guards and where necessary remove guards on newly established hedgerow species to prevent spindly hedgerow growth.	
Inspect plant marker tags to ensure infill sections still adequately demarked and replace where necessary.	
Undertake routine maintenance visits identifying the existence and location of any hedgerow plants which are suffering from visible defects.	
Non-desirable species should be removed during management operations and at other times as necessary, where this does not prejudice screening requirements.	
Trim hedge sensitively but regularly to encourage dense, species rich hedgerow growth.	Hand weeding: As required by maintenance visits. Herbicide application: July - August
In the interests of wildlife, hand weeding, where feasible, should take precedence over the use of herbicides in hedgerows. However, in certain instances, herbicide may be the most effective measure to take against unwanted species. Where herbicide application is needed this should be in small, controlled areas around the tree base. Herbicides must be listed on the HSE Pesticides Register of UK Authorised Products, and herbicide application must conform to the 'Pesticides: Code of Practice for Using Plant Protection Products' (DEFRA, January 2006).	

5.6 Component 4: Ornamental Shrub and Hedges

- 5.6.1 Ornamental shrub planting areas are set within the residential development providing seasonal interest and colour to the streetscape, softening of the streetscape and definition of the public realm - to fulfil the same, different species has been proposed along different streets, in the public realm and the verges.
- 5.6.2 Biodiversity will be incorporated through the planting of native, wildlife-friendly species on buildings and boundaries where appropriate. Ornamental hedges contribute to the visual amenity of the streetscape and definition and legibility of the public and private realm. Ornamental hedges must be formally pruned to provide screening and spatial enclosure. The majority of the ornamental shrub and hedge planting comprises frontage within the private

domain of homeowners and as such will therefore be maintained in the long term by individual homeowners. However, there are areas of ornamental planting that form part of the streetscape, including verges, and local greens, which will be managed and maintained in terms of this LBMS.

Maintenance Recommendations

- 5.6.3 The topsoil should be cultivated and shrubs, ground cover and perennial plants should be pit planted. Pits should be 150mm wider and deeper than root spread and backfilled with excavated material.
- 5.6.4 The growth cycle of planting may require varying maintenance involvement at different stages and management operations should be adapted as the planting matures and conditions dictate. In subsequent years, management may not need to be as intensive, but it will be necessary to periodically rejuvenate or redevelop planting due to ageing and decline or disease in the plants.
- 5.6.5 After watering, weed control is the most important activity during the establishment stage of planted shrubs and regenerating species/seedlings. Weeds, particularly grasses, compete aggressively with young shrubs for water and nutrients, and may also compete for light. Hand weeding, where appropriate, should take precedence over the use of herbicides. However, herbicide use may be the most effective measure to take against unwanted species. Where herbicide application is needed, it is recommended that an appropriate herbicide is applied in July - August in small, controlled areas around the shrub base.
- 5.6.6 Herbicides must be listed on the HSE Pesticides Register of UK Authorised Products, and herbicide application must conform to the 'Pesticides: Code of Practice for Using Plant Protection Products' (DEFRA, January 2006).
- 5.6.7 Weed growth within planting areas shall be eliminated during the summer visits with a suitable translocated herbicide, in line with the manufacturer's instructions. Tree and/or shrub shelters, if fitted, shall be lifted as necessary to achieve weed control, and re-firmed in the ground after completion of the work. Dead weed material shall be removed during the following visit to site.
- 5.6.8 All the herbaceous plants and grasses shall be retained over winter season to benefit wildlife and winter interest. Those plants shall be cut back at the beginning of March. Arisings shall be removed from the site, particularly care at the bottom of swales to maintain the water flow.
- 5.6.9 Planting shelters (if fitted) shall be checked at each visit, stakes firmed up as necessary, and ties adjusted. Any missing or vandalised shelters or ties shall be replaced, and lopsided shelters straightened.
- 5.6.10 Any dead trees and shrubs shall be removed and the resulting hole to be filled. Replacement planting to be carried out during the winter visit.
- 5.6.11 Any damaged shoots or branches shall be pruned off plants using secateurs, cutting back to above a live, outward facing bud or shoot.
- 5.6.12 A summary of maintenance tasks and their frequency is set out below:

Table 5.5: Summary of Maintenance Tasks – Ornamental Shrubs and Hedges

Tasks:	Frequency/ Timing
Where appropriate clear weeds by hand and cut back herbaceous vegetation and grasses. Remove arisings.	Spring
Continue hand weeding, where appropriate, until canopy of shrubs is closed (first 3 years). Inspect every 8 weeks and remove weeds. Prune back any badly damaged shrubs to sound growth. Water as necessary, allowing 10L/m ² for planting beds.	Summer Growing Season
Prune out dead wood, cut leggy shrub growth hard back to promote bushy growth. Remove all arisings from site. Ensure that all shrubs are firmly bedded in the ground after strong winds, frost heave and other disturbance.	Autumn/Winter
Where herbicide application is needed, it is recommended that an appropriate herbicide is applied in small, controlled areas around the shrub base. Herbicides must be listed on the HSE Pesticides Register of UK Authorised Products, and herbicide application must conform to the 'Pesticides: Code of Practice for Using Plant Protection Products' (DEFRA).	July - August

5.7 Component 5: Amenity Grassland

- 5.7.1 Amenity grassland provides areas for movement and relaxation. The open spaces will be managed as permanent grassland and, together with new planting, will provide a high-quality landscape setting to the Proposed Development. Amenity grassland to private gardens will be maintained by the homeowners.

Maintenance Recommendations

- 5.7.2 The performance requirement is to maintain a short, dense, vigorous swards free from disease, weeds and pests and free from significant variations in ground level (grooves/divots/mounds etc). Sward is to cover at least 95% of the relevant area and contain a maximum of 10% herb species.
- 5.7.3 The management regime of these areas will minimise the use of herbicides and fertilisers to encourage species diversity. The use of fertilisers and herbicides on amenity grass areas will be limited to the spot control of invasive weeds once the grass has established.
- 5.7.4 Prior to cutting, all areas shall be cleared of litter and debris.
- 5.7.5 All operations shall be carried out using machinery appropriate to the task, cylinder, rotary, or mulch mowers and when weather and ground conditions are suitable.
- 5.7.6 Operations shall be suspended where ground conditions prevent the use of machinery without damage to the ground surface. Where operations are suspended due to unsuitable conditions,

additional maintenance visits may be required to maintain the sward within acceptable growth limits.

- 5.7.7 During each maintenance visit the Contractor shall cut adjacent to fences, walls, kerbs, paths, trees and other boundaries or obstacles using equipment suitable to the task. Strimmer shall not be used around the base of trees. The frequency of cuts shall remain flexible to accommodate growth rates and weather conditions. As a general guide cutting is likely to be required every two weeks on high maintenance areas, ensuring that the sward height does not exceed 75mm and that the presence of flowering weed species is avoided. The height of cut shall be 30mm. The Contractor is required to assess growing conditions and adjust maintenance schedules as necessary, considering bulb planting where appropriate.
- 5.7.8 Following cutting, all grass clippings and other debris shall be swept from adjacent hard standing areas and removed from site to an authorised tip.

Table 5.6: Summary of Maintenance Tasks – Amenity Grassland

Tasks:	Frequency/ Timing
Remove any litter or debris.	Weekly, and as required
Grass should be mown to a height of 30mm whenever the sward reaches a height of 100mm (strimming to be carried out where grass abuts fences, walls and around other obstacles). Cleaning of paths after grass cutting.	Allow for 16 cuts per season.
Monitor grass erosion and regularly reinstate damaged or worn areas as required, including re-turfing of failed areas of grass.	As required following inspection.

5.8 Component 6: Native Wildflower Meadow and Tussock Grassland

- 5.8.1 Native wildflower meadow and water meadow planting will provide filtration of particulates in run-off and erosion controls as well enhanced visual amenity for residents. The meadow planting will be managed to maintain its botanical/nature conservation interest and amenity value.
- 5.8.2 The tussock grassland mixture proposed (Emorsgate EM10) in Zone 2: Meadow Walk comprises of varied forms of the grasses for visual and botanical interest and the tussock forming grasses are combined with wildflowers which can cope with competition from taller vegetation. This helps create areas of tussocky grassland that, once established, require little or no maintenance. This grassland type can form a good habitat for insects, small mammals, birds, amphibians, and reptiles, providing nesting sites during spring, food during summer and autumn, and shelter during winter.

Maintenance Recommendations

- 5.8.3 The areas of native wildflower meadow and water meadow will include a mown strip along the edges of paths and carriageways where appropriate.
- 5.8.4 Undesirable herbaceous (ruderal) and woody stemmed species will need to be controlled. These species include those which legally need to be controlled and those which suppress or

otherwise inhibit the development of a species-rich sward. Undesirable plant species will be removed by hand pulling and mechanical removal only.

- 5.8.5 Where the meadow sward fails to establish or dies out, or where the level and range of species is poor, measures will be undertaken to resolve any underlying problems. Areas will be re-sown following implementation of other remedial works. It is expected that following establishment, species diversity will naturally increase with time.
- 5.8.6 Following establishment, the grassland habitat would be managed as a hay meadow. Such management would also serve to maintain suitable habitat for reptiles.

Table 5.7: Summary of Maintenance Tasks – Native Wildflower Meadow

Tasks:	Frequency/ Timing
Remove any litter or debris.	Weekly, and as required
In the first year after planting, meadow will be cut regularly to a height of 50mm, stopping in June-August and a final cut in September/October. Following establishment, the meadow grassland would be cut (to 75mm) no earlier than late July once flowers have set seed. Arisings would be left for 1 week and removed. A further cut could be performed in the Autumn. Such management would also serve to maintain suitable habitat for reptiles. Arisings will be left in situ for 2 to 3 days before removing and disposing off site. Remove any woody species and weeds	Frequent cuts during first year, thereafter once or twice annually in late summer and autumn if required.
0.5m wide margins alongside pathways and roadways will be mowed to a height of 35mm with the first spring cut and all cuts thereafter whenever the sward reaches a height of 100mm.	Allow up to 16 cuts per season

Table 5.8: Summary of Maintenance Tasks – Tussock Grassland

Tasks:	Frequency/ Timing
Remove any litter or debris.	Weekly, and as required
In the first year after planting, meadow will be cut regularly to a height of 50mm, stopping in June-August and a final cut in September/October. Following establishment, tussocky grassland requires minimal maintenance. Unwanted perennial weeds (docks, thistles) may need control by selective scything before seeding. To control scrub and bramble development, tussocky areas may need cutting every 2-3 years between October and February. For 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. Arisings will be left in situ for 2 to 3 days before removing and disposing off site. Remove any woody species and weeds	Frequent cuts during first year, thereafter once or twice bi-annually between October- February as per requirement on a rotational basis.

5.9 Component 7: Waterbodies and Marginal Planting

- 5.9.1 Ponds and Reedbeds are national (Section 41, NERC Act 2006) Habitats of Principal Importance. Native planting will be planted along the margins of water bodies to help protect water quality and to provide habitat and biodiversity enhancement and increased amenity value.
- 5.9.2 New ponds proposed in the south-east and the north of the Site form part of the sustainable urban drainage systems. These will include seeding with Emorsgate EM8 meadow mix for wetlands, and planting of native marginal species to enhance their visual and biodiversity interest, including a mixture of open deep water and shallow and steep vegetation banks. They will provide a habitat corridor network within the Development and its amenity green spaces, and natural / semi-natural greenspaces.

Maintenance Recommendations

- 5.9.3 Confine movement channels for maintenance to the minimum number of routes to avoid excessive trampling of habitat.
- 5.9.4 Remove any invasive or exotic species, annually in autumn or winter, ideally by hand, to ensure growth of other species is not suppressed. Herbicides shall not be used unless prior agreement has been obtained from the Environment Agency.
- 5.9.5 Monitor need for de-silting and clearance of leaf-fall on a 4-year basis and undertake as required. Remove deep bottom muck, silt or dense stands of dominant vegetation to diversify habitat and prevent ecological succession.
- 5.9.6 Cut back one third of marginal herbaceous plants and grasses to 75mm annually on a 4-year rotation (no cut in the fourth year) in late summer, before they set seed, to promote diverse, tussocky growth and maintain extent of open water. Clear overgrown aquatic planting by hand and leave on the bank for 2 days.

- 5.9.7 Clear overgrown aquatic planting by hand, as required, to avoid nutrient build-up causing an imbalance of vegetation and loss of habitat. Aim to create 75% open water. Leave arisings on the bank overnight, to allow invertebrates and reptiles to return to aquatic habitat. Remove arisings to a dedicated composting area set apart from ponds, dikes, drains and species-rich vegetation, to avoid nutrient return during decomposition. Excess arisings should be removed to a licensed composting or green waste disposal facility.
- 5.9.8 Assess extent of shading from trees and shrubs, especially to the south and east side of the waterbody. Consider cutting back or pruning to reduce shading where required, in late winter to avoid disturbance to nesting birds.
- 5.9.9 Works will be carried out during late autumn or winter months (ideally late September to October). Works to be carried out in line with Ecologist recommendations.
- 5.9.10 A summary of maintenance tasks and their frequency is set out below:

Table 5.9: Summary of Maintenance Tasks – Waterbodies

Task:	Frequency / Timing
Remove any litter and debris	Weekly, and as required
Monitor water quality and take appropriate preventative/remedial action	Annually, and as necessary
Manual removal of invasive/exotic species	Yearly, in autumn or winter
Manual removal of overgrown aquatic planting	Yearly, in autumn or winter
Cut back one third of marginal herbaceous planting to 75mm	Yearly, in late summer, on a 4-year rotation (no cut in year 4)
De-silting and clearance of leaf-fall. Remove no more than 50% of bottom muck, silt or dense strands of dominant vegetation within any calendar year.	Every 4 years, as required, December to January
Assess extent of shading from trees and shrubs. Prune as necessary.	Every 4 years in late winter, as required
Nesting bird check and Water Vole Survey	As required, if works cannot be carried out during late autumn or winter months

5.10 Component 8: Woodland

- 5.10.1 Area of broadleaved woodland is present to the south-east of the Site, which comprises both mature species and early mature plantation species and is retained as part of the embedded mitigation and enhance and conserve the habitat and biodiversity.

Maintenance Recommendations

- 5.10.2 All the construction activities around existing woodland shall be referred to applicable pollution prevention regulations and root protection zones.

- 5.10.3 The retention of mature trees will be secured by the continued application of “minimal safety management” rules. If possible, works should be undertaken outside the birds nesting season (nesting season – late February to end of August). If this is not possible, appropriate checks by a qualified ecologist should be undertaken and, if active nests are identified or suspected, works will need to be delayed until nestlings have fledged, or the nesting attempt has been confirmed as failed. If necessary, further surveys should be carried out and appropriate licenses obtained to ensure legal compliance and/or secure appropriate or necessary mitigation.
- 5.10.4 Remove any non-native species that establish, leave standing and fallen dead wood in situ, allow a diverse age and structure of trees to develop over the long term.
- 5.10.5 Over time, selective thinning of existing woodland tree species shall be conducted to achieve age and species diversity.
- 5.10.6 A summary of maintenance tasks and their frequency is set out below:

Table 5.10: Summary of Maintenance Tasks – Woodland

Task:	Frequency / Timing
Maintenance of a 1m 80% weed-free area to the base of each tree for five years – this can be achieved through the application of a 5-7.5 cm mulch in this area.	Once or twice a year and as required
Maintenance of rabbit guards and other forms of protection.	As required, following monthly inspection
Maintenance of stakes and ties, including loosening, as necessary.	As required, following monthly inspection
Maintenance of good levels of soil fertility and moisture. Irrigation may be required during dry periods. A 5-7.5 cm mulch for 1m around the base of each tree will increase retention of soil moisture.	Watering (to field capacity) min. 8 times during dry months
Treatment of pests and diseases and repair of any damage from vandalism.	As required, following monthly inspection
Check for root firmness and upright alignment of tree after high winds, frost heave and in spring and autumn until trees are considered to be wind firm.	Twice annually and as required
Formative pruning to avoid future structural problems and to remedy disease and vandalism problems.	As required following maintenance visits
Removal of guards, stakes and ties.	After 2 years, subject to inspection
Following the maintenance period, trees are to be inspected by a qualified arboriculturist who will provide a time-bound schedule of tree works to be undertaken. Recommendations will be based upon satisfying the objectives of this management plan and ensuring no hazards are present on site.	Annually

5.11 Component 9: External Hard Surfaces and Furniture

5.11.1 The circulation areas and public open spaces include a range of hard surfaces and street furniture, that articulate and animate the public realm, define the hierarchy of routes and spaces, and provide recreational opportunities.

Maintenance Recommendations

5.11.2 To achieve these objectives, the following measures will be undertaken:

Table 5.11: Summary of Maintenance Tasks – External Hard Surfaces and Furniture

Task:	Frequency / Timing
Removal of litter and dog excrement.	Weekly, and as required
Removal of grit, mud, leaf litter and plant debris by sweeping.	Monthly
Remove any stains, marks or discolouration of surface materials by jet spraying.	Twice annually, and as required
Cut back undergrowth, overgrowing or overhanging shrubs, hedges and minor tree branches from pathways through the Proposed Development to maintain an unobstructed width of at least 2m or the existing width of the pathway, whichever is the greater.	
Removal of weeds by hoeing, pulling or (as a last resort) use of approved herbicide.	
Inspection of any defects and potential dangers in surfacing and signage and undertake remedial works at the earliest opportunity.	
Keep all hard surfaces safe to walk on during prolonged freezing conditions, using grit rather than salt to achieve this objective.	As required in winter conditions

6 GENERAL MAINTENANCE AND MANAGEMENT TASKS

6.1 Overview

- 6.1.1 During years 1-5 or until canopy closure, planting shall be maintained by annual visits.
- 6.1.2 All plants shall be checked and if necessary, firmed up in the ground.
- 6.1.3 Any damaged shoots or branches shall be pruned off using secateurs.
- 6.1.4 All bird nesting and bat roosting boxes on suitable trees will be checked for any damage on an annual basis and replaced where required.
- 6.1.5 The Contractor shall ensure that all shrubs are maintained free of weed growth. This shall normally be achieved by the application of appropriate contact or residual herbicides, although it remains the responsibility of the Contractor to adopt other methods where herbicide application is unsuccessful or impractical.
- 6.1.6 The Contractor shall remove any dead, dying or diseased plants, which are evident during any maintenance visit. The Operations Manager shall be informed of the location, number and species of all material that has been removed. Any plants that have died as a result of the Contractor's operations or omissions shall be replaced by the Contractor at his own expense during the next planting season.
- 6.1.7 Where the Operations Manager has agreed that plant deaths have arisen due to circumstances out of the control of the Contractor, replacement planting shall be instructed by the Operations Manager and paid for at an agreed rate.
- 6.1.8 All replacement planting shall be with like for like species unless otherwise agreed with the Operations Manager.
- 6.1.9 The Contractor shall clean all hard standings, gullies, gratings and grassed areas of soil spillage, bark mulch, leaves etc. which emanate from adjacent shrub beds.

6.2 Planting Season and Landscape Implementation Programme

- 6.2.1 All landscape implementation work, including any remedial maintenance operations will take place within the appropriate planting season as follows:
 - Deciduous trees and shrubs: Late October to late March (outside periods of frosty or waterlogged conditions).
 - Conifers and evergreens: September/ October or April/ May;
 - Herbaceous plants (including marginal): September/ October or March/ April;
 - Container grown plants: At any time if ground and weather conditions are favourable;
 - Dried bulbs, corms, and tubers: September/ October;

- Green bulbs: After flowering in spring;
- Grass seed generally: April to October; and
- Wildflower seed generally: March/April or August/September.

6.2.2 Landscape implementations work along roads will take place in the first planting season after the first occupation of the adjacent residential parcel.

6.2.3 Open space areas will be implemented in the first planting season after the first occupation of the adjacent residential parcels.

6.3 The Use of Pesticides & Other Hazardous Substances

6.3.1 The Contractor's attention is drawn to the following statutes and regulations:

- The Food and Environment Protection Act 1985;
- Plant Protection Products Regulations 2011;
- Plant Protection Products (Sustainable Use) Regulations 2012;
- The Control of Substances Hazardous to Health Regulations 1988; and
- The Environment Protection Act 1990.

6.3.2 It is the Contractor's responsibility to ensure that he is fully conversant with the requirements of the foregoing legislation and other relevant Codes of Practice, British Standards, rules, guidelines, or directives that relate to the use of hazardous materials.

6.3.3 All manufacturers' recommendations relating to application, storage, mixing and other safety precautions must be strictly adhered to, in the interests of health and safety.

6.4 Litter Removal

6.4.1 The Contractor shall ensure that all the site is kept free of litter and other debris through a regular programme of monitoring, collection, and disposal, coinciding with visits to maintain grassed areas and planting.

6.4.2 Particular care shall be taken to remove all broken bottles, glass, tins, sharp objects and other items likely to constitute a hazard to the public.

6.4.3 The Contractor shall take particular care when carrying out litter collection to ensure that any discarded needles or syringes are removed as soon as they are discovered. Such items must be packaged separately from other litter, and be contained within appropriately labelled, puncture-proof sharps containers supplied by the Contractor.

6.4.4 All litter and debris shall be removed off site to an authorised tip.

6.4.5 Frequency of litter control works to be programmed fortnightly and adjusted as required subject to litter levels occurring on site, with the scope to increase regularity in high litter areas and decrease in low litter areas.

- 6.4.6 This shall be carried out in accordance with the Code of Practice on Litter and Refuse issued under Section 89 of the Environment Protection Act (1990).

7 ANNUAL MAINTENANCE SCHEDULE

Table 5.12: Annual Maintenance Schedule

	J	F	M	A	M	J	J	A	S	O	N	D
Component 1 – Native and Ornamental Trees												
Check/adjust/repair/replace tree ties/stakes/guying/fencing (during establishment period, until removed)												
Maintain 1m diameter 80% weed free circle												
Top up mulch. Check/repair tree grilles.												
Water during prolonged dry spells (first 2 years)												
Inspect annually and prune to ensure appropriate habit and form and remove dead, dying or diseased wood												
Carry out any works required to remove immediate hazards to public safety as soon as identified												
Remove stakes when no longer required												
Replace dead/damaged trees (first 5 years)												
Remove litter at each visit												
Component 2 – Native Shrubs, Scrub and Understorey Planting												
Weed control												
Selective pruning												
Water during dry spells												
Cut back along the edges of paths and carriageways where appropriate (0.5m wide margins)												
Replace dead/damaged plants (first 2 years)												
Remove litter at each visit												
Component 3 – Native Hedgerows												
Prune hedge to maintain height and shape - once or twice yearly depending on type												
Check and adjust stakes and guards (until removed)												
Maintain mulched surround												
Weed control												

	J	F	M	A	M	J	J	A	S	O	N	D
Maintain inside of guard in weed free condition (until removed)												
Replace dead/damaged plants (first 2 years)												
Remove stakes/guards when no longer required												
Remove litter at each visit												
Component 4 – Ornamental Shrub and Hedge Planting												
Maintain mulch until canopies close												
Weed control												
Selective pruning												
Water during dry spells												
Replace dead/damaged plants (first 2 years)												
Cut back herbaceous marginal vegetation and remove exotic invasive species												
Remove litter at each visit												
Component 5 – Amenity Grassland												
Mow grass												
Relaxed mowing regime to edges/verges/trees etc												
Reinstate damaged or worn areas												
Carry out operations to prevent more than 10% weed cover												
Maintain weed free area around newly planted trees												
Edge grass annually												
Remove litter at each visit												
Component 6 - Native Wildflower Meadow and Tussock Grassland												
1st year - maintain at no more than 100mm												
Manage weeds to ensure no more than 10% area												
Summer hay cut												
1st year - cut regrowth in late Autumn												
Spring cut if required												
Cut back along the edges of paths and carriageways where appropriate (0.5m wide margins)												

	J	F	M	A	M	J	J	A	S	O	N	D
Remove litter or debris at each visit												
Component 7 – Waterbodies and Marginal Planting												
Monitor water quality and take appropriate preventative/remedial action												
Manual removal of invasive/exotic species												
Manual removal of overgrown aquatic planting												
Cut back one third of marginal herbaceous planting to 75mm (Yearly, on a 4-year rotation - no cut in year 4)												
De-silting and clearance of leaf-fall. Remove no more than 50% of bottom muck, silt or dense strands of dominant vegetation within any calendar year. (Every 4 years, as required)												
Assess extent of shading from trees and shrubs. Prune as necessary.												
Remove litter or debris at each visit												
Component 9 – External Hard Surfaces and Furniture												
Keep surfaces weed and moss free												
Removal of grit, mud, leaf litter and plant debris by sweeping.												
Sweep blacktop/macadam regularly (min. 4 times a year)												
Inspect and repair bound gravel paths (annual check – as required)												
Cut back undergrowth, overgrowing or overhanging shrubs, hedges and minor tree branches from pathways through the Proposed Development to maintain an unobstructed width of at least 2m or the existing width of the pathway, whichever is the greater.												
Inspect and repair fencing												
Remove litter and dog excrement at each visit												
Visually inspect at all routine visits												
Undertake remedial works as required												
Keep all hard surfaces safe to walk on during prolonged freezing conditions, using grit rather than salt to achieve this objective as required per month												

	J	F	M	A	M	J	J	A	S	O	N	D
Undertake regular maintenance operations as per supplier's instructions												
Miscellaneous – Litter Removal												
Collect and remove litter from site, including emptying bins												
<i>Shaded boxes = Window in which operations should take place</i>												

8 IMPLEMENTATION AND MANAGEMENT STRUCTURE

- 8.1.1 This LBMS incorporates the objectives and prescriptions for the suggested approach to be adopted in the maintenance and management of the landscape features which are to be incorporated into the Proposed Development.
- 8.1.2 The aim is to promote a sensitive management approach, which protects and improves the landscape and visual amenity value interests of the Site and is compatible with the proposed uses of the Site.
- 8.1.3 It would be appropriate that a management body be appointed under the terms of a planning obligation to take forward the relevant landscape and ecological components of this LBMS as construction is implemented.
- 8.1.4 It is recommended that where landscape components occur on adopted highways, the management of these components according to the prescriptions above should be taken up by the relevant agency.
- 8.1.5 It is recommended that this LBMS should be reviewed every five years to appraise the effectiveness of the maintenance regimes, and to establish any changes in the landscape and biodiversity conditions. Monitoring requires that some record should be made of the condition of the landscape and biodiversity components at the start of the period, the work carried out, and how well the habitats and landscape respond. This review should assess the extent to which the measures undertaken have achieved the objectives and vision of the LBMS and should identify whether the same measures should continue, or different methods be introduced, in order to achieve the objectives.

Figure 1: Landscape and Biodiversity Management Strategy Plan



The scaling of this drawing cannot be assured

Revision	Date	Drn	Ckd
-	-	-	-

LEGEND

 Site Boundary

Landscape and Biodiversity Management Zones & Constituent Landscape Components

 **Zone 1 - Residential Development:**

1. Native and Ornamental Trees
2. Native Shrub, Scrub and Understorey Planting
3. Native Hedgerows
4. Ornamental Shrubs and Hedges
5. Amenity Grassland
9. Hard Surfaces and External Furniture

 **Zone 2 - Meadow Walk (Public Open Space)**

1. Native and Ornamental Trees
2. Native Shrub, Scrub and Understorey Planting
3. Native Hedgerows
4. Ornamental Shrubs and Hedges
5. Amenity Grassland
6. Native Wildflower Meadow and Tussock Grassland
7. Waterbodies and Marginal Planting
8. Woodland
9. Hard Surfaces and External Furniture

 **Zone 3 - School**

1. Native and Ornamental Trees
2. Native Shrub, Scrub and Understorey Planting
5. Amenity Grassland
8. Woodland
9. Hard Surfaces and External Furniture

FIGURE 1

Project
Proposed Development at
Hollingworth Road, Littleborough

Drawing Title
Landscape and Biodiversity
Management Plan (LBMS)

Date	Scale	Drawn by	Check by
06.06.2024	1:2,500 @A3	AK	MF
Project No	Drawing No	Revision	
35478	LN-LP-08	-	

0 20 40 60 80 100m

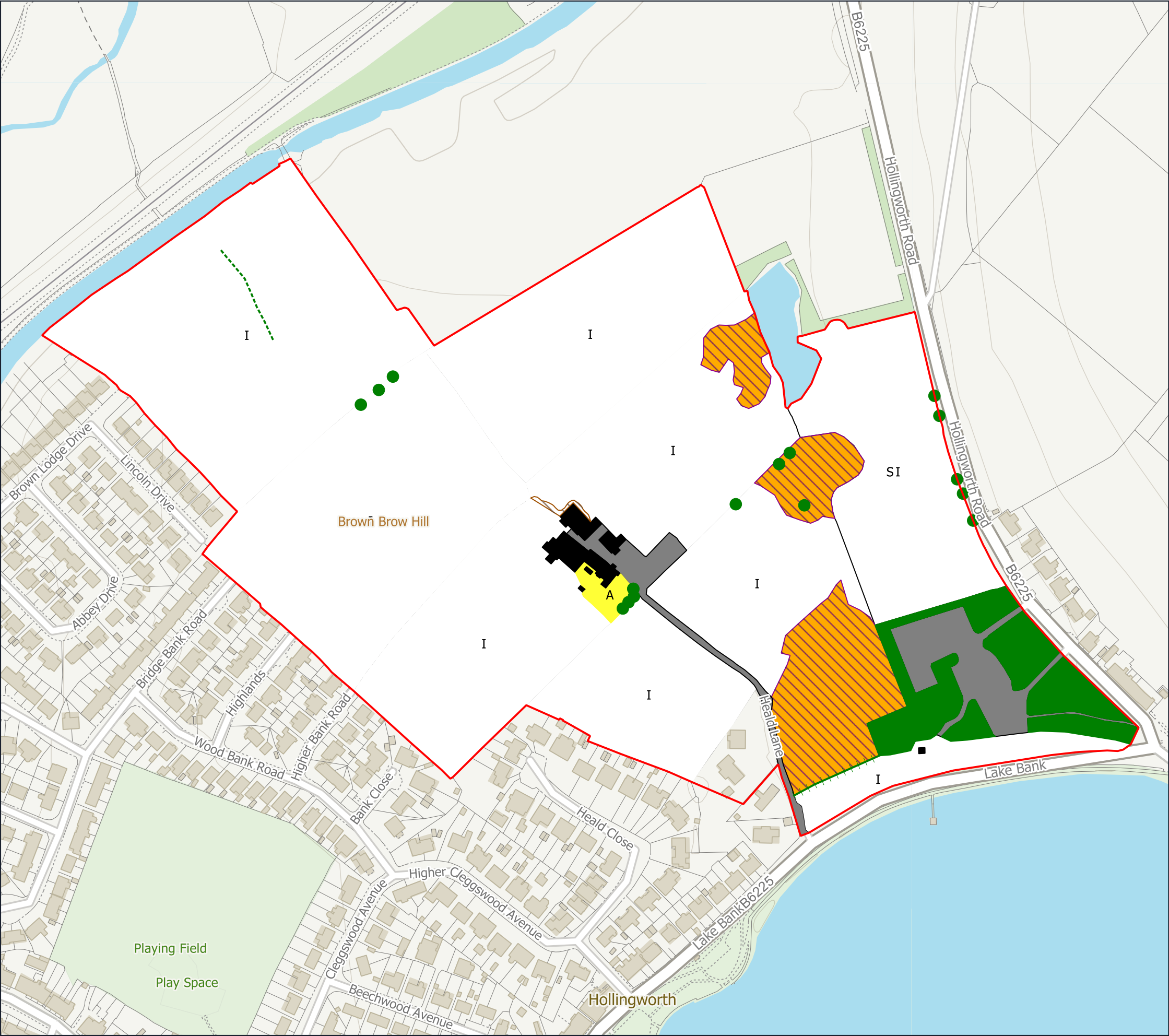
 **Stantec**

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Appendix A: Habitat Features Plan by Tyler Grange (Feb 2024)



- Redline Boundary
- A Amenity grassland
- Broadleaved woodland
- Buildings
- Hardstanding
- I Improved grassland
- Marshy grassland
- Other tall herb and fern - ruderal
- SI Poor semi-improved grassland
- Scattered tree
- Hedgerow - Defunt
- Hedgerow - Native Species with Tree



Project	Littleborough Mixed Use Development
Drawing Title	Habitat Features Plan
Scale	As Shown (Approximate)
Drawing No.	11833 Figure 7.4.1
Date	February 2024
Checked	NB/JM



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Appendix B: Tree Constraints Plan by Tyler Grange (Jan 2023)

