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Highgate Cemetery Landscape Masterplan

Maintenance & Management Plan

November 2024

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1.1 Purpose of This Document

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General purpose of this document

This document sets out the maintenance regimes and procedures required for Highgate Cemetery.

This preliminary document will be further developed during RIBA Stage 4.

The work required for Highgate Cemetery will involve regular maintenance and monitoring visits to ensure the landscape on this site is maintained to the standards identified in this document. The landscape on this site will encompass the following categories of maintenance work:

- Maintenance requirements of site furnishings
- Maintenance requirements for drainage
- Maintenance requirements for hard landscape areas
- Maintenance requirements for trees and planting
- General landscape and ecological management requirements

Landscape management and maintenance is vital to the success and longevity of the scheme to allow for continued use and enjoyment of the Cemetery, as well as to prevent the further deterioration of the landscape and its heritage assets.

The following key factors are to be addressed in order to sustain a high-quality landscape:

- Cleanliness
- Safety & Security
- Repair & Replacement
- Horticultural Health
- Nesting Season & Wildlife habitats

Cleanliness

Cleanliness is a key indicator of the quality of maintenance in landscaped areas. Consequently, the perceived success of the project will largely depend on the procedures established for regular cleaning. This strategy should be applied to all aspects of the project, including paved areas, furniture, drains, and planting beds.

Safety & Security

A safe environment is one that is accessible to everyone. Therefore, implementing a long-term maintenance strategy is a key factor to create and sustain accessibility will be necessary.

Repair & Replacement

Using appropriate and durable materials will reduce the need for repairs and replacements of surface finishes. However, some maintenance and replacement will be inevitable over time. To ensure all landscape spaces remain safe and in good condition, any worn-out, damaged, or broken elements should be promptly repaired or replaced with like-for-like items, subject to approval. In the short term, these tasks will be performed within the clearly defined defects liability or rectification periods of the various contractors who installed the work. The long-term solution will be part of the maintenance plan. Vigilant and regular monitoring of every aspect of the scheme will ensure that all remedial work is carried out promptly and thoroughly.

Horticultural Health

The health and overall condition of planted areas, including trees, shrubs, and perennial plants, clearly reflect the level of care and attention a place receives. Planting, along with any replacements for dead or dying material, should be maintained according to the guidelines specified in this document.

Nesting Season

Any vegetation clearance/coppicing/pollarding/pruning/hedge trimming should be undertaken outside of the nesting bird season (March to early September inclusive).

If clearance cannot be avoided within this period, it must only take place after the absence of nesting birds is confirmed by an Ecologist.

This Plan makes reference and should be read in conjunction with the following documents:

-Landscape Stage 3 Report and Drawings (Gustafson Porter & Bowman)

-Architects drawings and Stage 3 Report (Hopkins Architects)

-Landscape Soil Management strategy report (TOHA Document Ref: TOHA/24/8209/MH)

-Drainage details and report for Stage 3 (Max Fordham)

-Conservation Architect drawings (West Scott Architects)

-Ecologists report and Biodiversity Net Gain Report for Stage 3(Ashgrove Ecology)

-Sustainability Statement (Useful Projects)

-Consultation report and Statement of Community Involvement (Steve McAdam)

Factors Informing Maintenance Strategy

• The Site (Location, Boundaries, History, Topography, Ash dieback, Species distribution, Soils, Rainfall, Microclimate, Hydrology and Drainage, Access)
• Site surveys of the Cemetery during the different seasons
•Site surveys including trees, ecology, soils, etc.
• Previous Management and Maintenance reports and contracts
• Current Management and Maintenance of the Cemetery
• Available staff and volunteers
• Ecological Baseline Report
• Highgate Cemetery Conservation Plan, February 2019
• BS 7370-4:1993 Grounds maintenance – Recommendations for maintenance of planted landscape
• Consultation with James Hitchmough (Emeritus Professor of Horticultural Ecology) and the current maintenance team

Surveys

The existing baseline site information provided at the competition stage has been evaluated and analysed, including:
-West Monument Scoping Study - Oct 2010
-East Monument Scoping Study - Sep 2014
-Highgate Cemetery Tree Health Review - Oct 2020
-Highgate Cemetery Conservation Plan 2019

Additional information provided by Highgate Cemetery at stage 1 was evaluated and analysed, including:
-Existing Services Report Nov 2021
-Access Audit Report Jun 2021
-Boundary Wall Condition Survey Report 2014

Surveys carried out at RIBA Stage 1:
-Tree Hazard Survey - Dec 2021
-Important Tree Survey (covering grade A and B trees) - Dec 2021
-Trees vs. Listed Monuments - Jan 2022
-Ecological Baseline Survey, including information sourced from Green Infrastructure for Greater London (GIGL) data. - March 2022

Surveys carried out at RIBA Stage 2:
-Ash Dieback Survey - Jul 2022
-Ecological Survey - Sept 2022
-Soil Survey - Sept 2022
-Trees vs Important Monuments - March 2023
-Trees vs Boundaries - March 2023
-Trees with a Future - March 2023
-3D Topographic Survey & 3DMonuments Survey - May 2023

Surveys carried out at RIBA Stage 3:
-Bat surveys - Oct 2023
-Drainage Survey - March 2024
-Soil infiltration tests - June 2024

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Location

The site consists of two distinct parcels of land located on the east and west sides of Swain's Lane in Highgate, London N6 6PJ, within the London Borough of Camden.

History - West side

The area included fields and orchards situated below St Michael's Church, which was constructed in 1830 on the former site of Ashurst Manor. The London Cemetery Company, founded by Stephen Geary, inaugurated Highgate Cemetery in 1839. The initial design was by architect and entrepreneur Stephen Geary. The London Cemetery Company's landscape architect, David Ramsey, converted the south-facing fields, once home to orchards, into a semi-terraced space with winding paths and formal plantings of trees and shrubs.

History - East side

In 1854 the eastern part of the cemetery was opened, across Swains Lane from the original. The eastern part of Highgate was designed to allow for a higher density of burials. Additional historical information can be found in the Landscape Design and Acccess Statement or the Landscape Stage 3 Report

Planning Designations/Status

The site is subject to a significant number of heritage designations

The landscape of Highgate Cemetery is a Site of Metropolitan Importance for Nature Conservation.

The Cemetery is designated as a Metropolitan Open Land (MOL) and Open Space in the Local Plan.

The Site is designated as a Grade I Registered Park and Garden.

• The West Side contains 38 listed buildings

• The Western Side is located within the Highgate Conservation Area

• The East Side is a grade I listed Registered Park and Garden

• The East Side contains eight listed buildings

Highgate Cemetery is also located within the setting of a number of listed buildings and conservation areas.

For further explanation of the Planning designation refer to the Statement of Significance prepared (May 2024) by Montagu Evans.

Soils

Principles

- Use the existing soils on-site.
- Import only if necessary, for the larger sized proposed trees, and SuDS.
- During the establishment period, pot plants may require imported composted green waste and woodchip mulches for nutrients, moisture, and weed supression.

There is insufficient space on site to store soils The Soil scientist (Tim O'Hare Associates) stated that excavated soils from the creation of under-path drainage and tree pits can be tested for recycling suitability through a waste processing company.

According to the Soil Strategy management report, options are being sought to maximise retention of surplus topsoil on site. However, it is anticipated that some degree of surplus soil will remain that cannot be re-used within the scheme. As such, appropriate disposal of this material could be necessary. The least sustainable means of managing surplus soils will be disposal to landfill. If the material is to be sent as waste to landfill, it will be subject to appropriate Waste Acceptance Criteria testing (The Landfill (England and Wales) Regulations 2002) as amended by further legislation, including the Environmental Permitting (England and Wales) Regulations 2010.

A more sustainable approach to managing surplus soils would be to re-use off-site or to recycle via a licenced processor. In these instances reference should be made to the CL:AIRE Definition of Waste: Development Industry Code of Practice for guidance on requirements for soils transferred to other sites.

The use of existing drainage on primary paths help reduce the amount of excavated soil.

Hydrology

Highgate Cemetery West is predominantly covered with freely draining soils while the East side is predominantly covered with poorly draining soils. There is a natural spring in the West side which may be the source of one of the minor tributaries of the River Fleet, but will need further investigation to confirm its source. The poor condition of the existing surface water drainage has resulted in significant path erosion and flooding of various parts of the cemeteries after heavy rainfall. Strategies have been developed to significantly improve the surface water drainage to protect graves, facilitate maintenance and reduce the run off rates from the site over historical levels.

Drainage

Most of the major paths and the buildings have been drained to the main public sewers in the past. The buildings and central hardstanding areas are still connected to functional piped drainage systems. A large proportion of the surface water drainage to paths and the catacombs has become severely blocked. Recent attempts to clean and survey this drainage have been largely unsuccessful and so strategies have been developed to facilitate their refurbishment or replacement during the contract works.

For drainage details refer to The Landscape Design and Access Statement, and Max Fordham's Drainage Report

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Site Access

The main pedestrian and vehicular entrance to the cemetery is located on Swain's Lane, Highgate. The forecourt on the West side, fronts the Chapel buildings and has six parking bays placed symmetrically to either side of the pedestrian route that connects both sides of the cemetery, Large vehicles can arrange to use the forecourt as a drop off location, or enter the west side of the cemetery through double gates placed adjacent to the north end of the chapel.

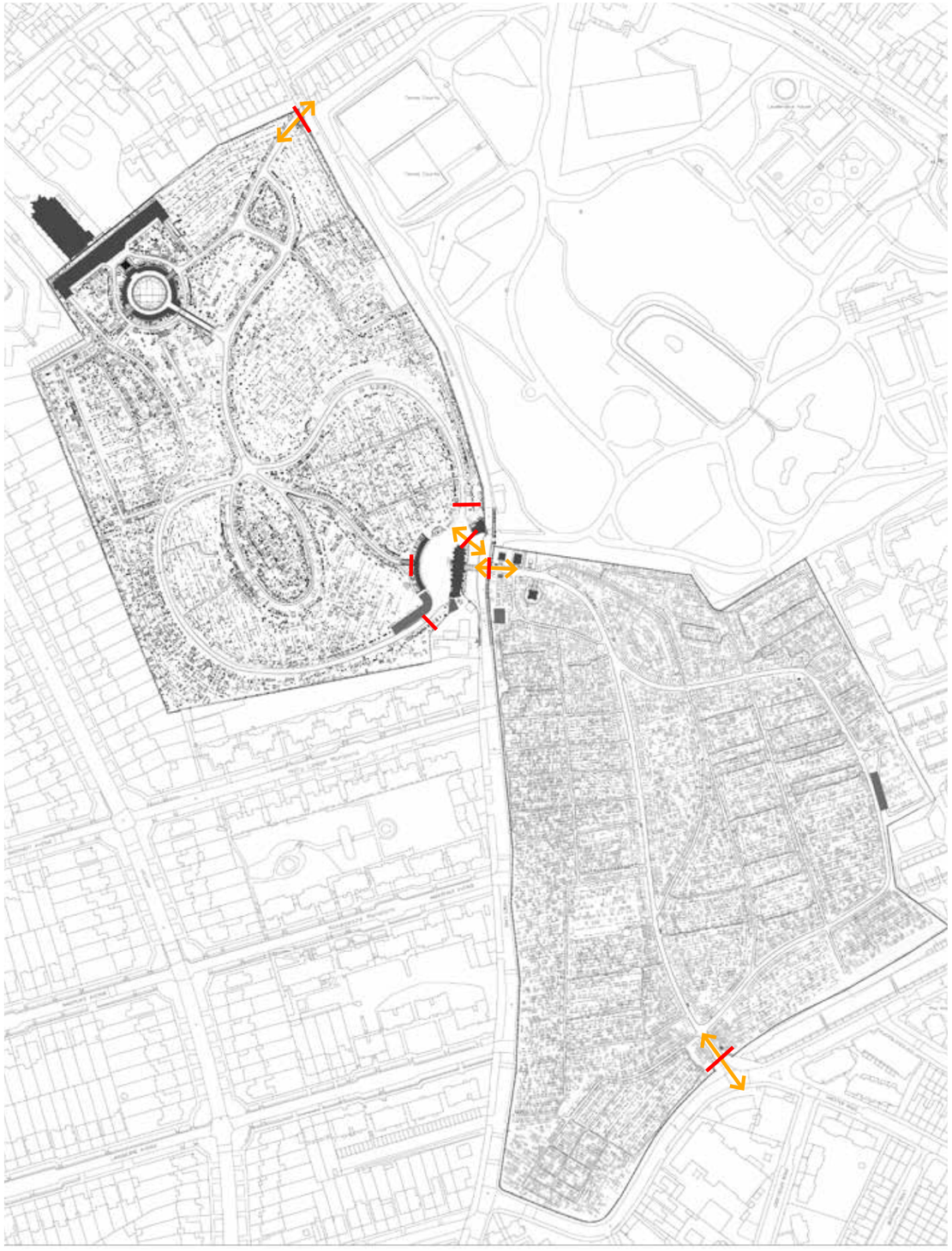
Vehicles entering the East side can use the main entrance, shared with pedestrians off Swain's Lane or the Chester Road Gate at its southern boundary. The only other entrance to the West side is located at the North Lodge at the very top of Swain's Lane. Due to the narrow width of the road and passing traffic this is not seen as a viable entrance at this time.

Vehicles used by the Cemetery's maintenance team will be housed in the new Gardener's Building located at the mound on the East side. These will regularly use the primary drives and paths and cross the Swain's Lane forecourt to access the West side.

Skip locations requiring hard-standings and access for large vehicles are proposed on both sides of the Cemetery. On the West side this is located on the West Carriage Drive. On the East side this is located at the southern end of the East Loop Path adjacent to a large storage area adjacent to the southern boundary and in close proximity to both the Chester Road Gate and the Gardeners Building.

Visitors to the Cemetery should only be on site during Cemetery opening hours - currently 10am to 5pm from March-October and 10am to 4pm from November to February. Access control will be enforced with a gates system as indicated in the Landscape DAS. Staff and volunteers are permitted on site for Cemetery needs outside of these hours as and when approved by the Cemetery. Access may be restricted during funerals and inclement weather.

For more information on pedestrian access, inclusive accessibility proposals, and access control, refer to the Landscape Design and Access Statement



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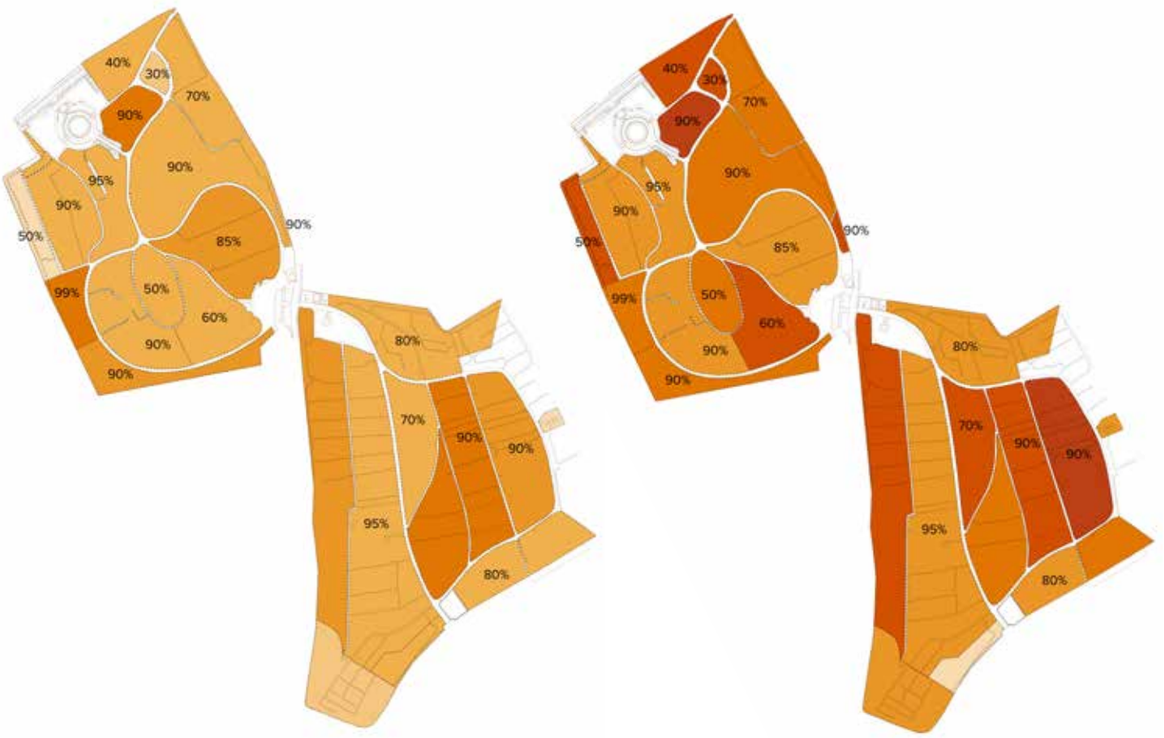
Ash dieback

A survey in 2019 confirmed the presence of ash dieback on site and several compartments in the east side of the cemetery were identified as high priority for felling and replanting. It recommended clear felling of ash across both sides over a period of ten years, which could be shortened or extended depending on the rate of spread of the disease.
A follow-up survey in 2022 confirmed that the disease had spread rapidly in the cemetery. The plans below show the rapid progress of the disease between the two surveys. Since then, the wet and warm conditions during the winters of 2022/23 and 2023/24 have significantly accelerated its spread.

The removal of ash trees from the site poses significant challenges due to their proximity to thousands of structures. Early detection, monitoring, and early removal will be critical to preventing damage and injury. helps prevent laborious and costly techniques that involves hiring costly MEWPs and climbing the trees and chopping them down in sections. This approach ensures the safety of surrounding structures during the removal process.
However, the removal of the trees is not the only concern. Once the trees are removed, there is still the issue of dealing with the tree stumps.
In most cases, grinding the stumps is not a viable option due to the lack of accessibility to these areas. Therefore, the use of ecoplugs is necessary to prevent regrowth; their use will be further discussed with the Arboriculturist.

Refer to Section 211 notice of works to trees in a Conservation Area Ref: 2024/2878/T and implementation of the Highgate Cemetery Ash Dieback Management Plan dated 10th July, expiring 10th July 2034.

Ash affected by the disease



2020 Survey

2022 Survey

Key

% - percentage of infected Ash trees within each compartment

Ash Dieback rating

no signs of A/D

death caused by A/D

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The site is part of a 25-year master plan that involves renovating existing and proposing new buildings as well as implementing a management strategy for the graves and habitats. This plan aims to prevent further deterioration, increase biodiversity, and establish new habitats that can withstand future pressures, including climate change.

This report covers the maintenance works during and post establishment.

The landscape maintenance and management plan has a duration of 5 years commencing on the practical completion of each phase of the project.

The duration of the defects and maintenance period (period after the practical completion) will need to be discussed and agreed with the Client.

A highly qualified contractor will need to complete all the major landscape works while parts could be completed by the in-house team.

The distribution of tasks and scope of works between the Contractor and the in-house team will need to be discussed and agreed with the Client

Graves and Memorials management

It is out of the scope of this document

Existing trees

Work on existing trees, clearance and removal will be conducted under guidance from an Arboriculturalist. Refer to the Arboriculturist's reports and drawings including the Tree surveys, Arboricultural Impact Assessment and Method Statements, and Tree Protection Plan.

For guidance on pests and diseases, refer to the Arboriculturist's scope of services (arboricultural method statement and impact assessment) and the Forestry Commission's recommendations. The inspection process includes implementing biosecurity measures and understanding the key pests and diseases affecting the woodland in the Cemetery.

Health and Safety

Management of all areas will be undertaken in accordance with current Health and Safety regulations and Safety, Health and Welfare at Work Acts 2005 and 2010.

Before beginning any landscape maintenance and management activities, all involved parties must ensure that all health and safety implications are identified, necessary risk assessments are conducted, a safe system of work is established, and operatives are properly trained and equipped with appropriate personal protective equipment (PPE).

Highgate Cemetery Stage 2 Conservation Plan Audit: Summary table of policies		
Policy identifier	Policy text	Notes on compliance/impact
6.1 Management of designed landscape	The landscape will be managed so as to sustain its special interest as a designed landscape, having regard to the distinct characters of the West and East sides.	The distinctive character of Highgate Cemetery West and East and an appropriate management of the secondary woodland was carefully considered during the definition of the objectives /principles for stage 3 which are listed below Highgate Cemetery West Side Design Objectives: • To use the picturesque principles in the design of the West side as set out in the DAS. • Consider and respect the Historic Planting of the Cemetery. • To frame internal and external views to 'eye-catcher' monuments and memorials. • To use planting to give a sense of enclosure and expansion. Highgate Cemetery East Side Design Objectives: • To emphasize the grid-like layout of the East side with the soft landscape arrangement as set out in the DAS. • To explore the options to repair the single species tree avenues in the East side, or consider mixed species avenues. • To respond to the character areas formed by different generations of graves in the East Side. • To manage hedges bordering Swain's Lane and Chester Road to balance the sense of enclosure with views in and out, creating a sense of discovery. • To provide contrast in the soft landscape through the creation of areas of meadow, responding to the grid like layout of the East Side. Please refer to chapter 2 of the stage 1 report for further information. Various aspects that will be further developed in the next stages of the design aim to enhance the character of each side and increase the variety of landscape experiences. This can be achieved by: • reinforcing the distinctive topography of Highgate Cemetery West and East; • giving continuity to the historic planting structure; • emphasizing the contrast of open/ close and dark/light spaces; • reinforcing the planting seasonality and character; Please refer to stages 2 and 3 workshops presentations for more information regarding the distinct historic evolution of both sides of the cemetery.
6.2 Structural planting	Historic structural planting will be conserved, reinstated or supplemented to sustain the Cemetery's historic and aesthetic interest.	During RIBA srages 1 and 2, tree surveys and site analysis identified the main planting structure of the cemetery that needs to be preserved and enhanced (trees of importance and trees with a future). This structure forms part of the different character areas of the cemetery and it is now less visible due to the past uncontrolled growth of vegetation and lack of maintenance. The retained trees will be supplemented by additional trees positioned in historically appropriate locations as set out in the DAS and will be selected for their resilience to disease and climate change.

6.3 Restoration of vistas	Key views within and from the Cemetery will be maintained or where necessary re-opened.	In the West side the aim is to restore the historical views towards the City of London, the Terrace Catacombs. This was one of the Cemetery's highlights when it opened in 1839 but had been in existence since at least the sixteenth century. These views are framed by vegetation and give a glimpse of what is ahead contributing to the sense of discovery. Another category of views are the views to the eye catchers that draw the viewer's eye across the landscape and help with orientation. The view towards St Michaels church from Comforts Corner was aslo a highlight as one ascended the hill. In Highgate Cemetery East the main views are aligned with the North-South foot paths.
6.4 Management of historic trees	The lifespan of historic trees will be extended by careful management.	The survey of important trees covers all the trees (historical and non-historical) that are considered significant and should be preserved. Grade A1 and B1 trees are considered to be specimen trees, as they are not connected to the canopies of other trees. In addition, A2 and B2 trees are connected to other canopies and therefore have landscape value. More information about this survey can be found in the Appendix 5.3- Tree Survey & Tree Constraints Plan Report. Further surveys (trees with a future) were conducted during stage 2 to assess the existing young trees on site that potentially have a good future and might develop larger canopies. An approximate tree age survey was also completed based on the annual girth growth per tree species, known as 'Mitchell's Rule' and can be found in the Landscape Design and Access Statement
6.5 New planting	Secondary woodland will be cleared in phases to make way for planned replanting programme.	The phased removal of ash trees will open-up large areas of the site to sunlight. In the following design stages the Planting strategies will define those areas that are to be enhanced; those areas where the existing mosaic of planted habitats are to be preserved and those areas where it is advantageous to use alternative low maintenance planting solutions. The aim will be to develop a mix of habitats that will extend the range and complexity of existing habitats to increase biodiversity. Where it is advantageous to change the sites of existing woodland character and re-interpret its historic landscape structure through the introduction of new meadows and woodland glades, the choice and placement of plants must acknowledge the site's existing topography, soils and hydrology, with the ambition to create a naturally dynamic, biodiverse and resilient landscape that acknowledges future climate change conditions. Please refer to the phasing diagram.
6.6 Increased variety of trees and shrubs	The variety of forest and ornamental trees and large flowering shrubs will be increased.	In the most southerly section of the East side, the existing lime woodland is complemented with moisture loving species such as *Tilia cordata, Quercus bicolor* and *Prunus avium*. In the central sections, the existing woodland of *Quercus robur, Fraxinus excelsior,* and *Acer pseudoplatanus* will be complemented with ornamental species to add autumn color, with pockets of field meadows with grasses and flowering plants. In the northern section, a woodland of cherries, *Ulmus "New Horizon"* and *Arbutus unedo* will form a link with the West side, and ornamental species extend the season of spring blossom. In the southern section of the west side, species make a link between the east and west. Dutch Elm Disease resistant elm trees (e.g., *Ulmus 'New Horizon',* etc.) will restore the native woodland tree diversity. As you walk up the hill, the wood becomes denser, with ferns, *viburnum spp*. and *Galium odoratum* (sweet woodruff). As the gradient increases, larger trees with striking flowers will frame views. At the peak of the West side and around the Circle of Lebanon will be the most exotic and unusual species, such as *Malus sylvestris 'Louisa'* and *Carpinus betulus 'pendula'* which have also been chosen for their 'weeping' character. Please refer to the tree planting plan for the full tree planting scheme.

6.7 Managing the under-storey	The woodland under-storey will be actively managed.	The following principles/objectives define the preliminary approach to the different types of under-storey and on how to manage them. Design Objectives: To deliver a 'topographic experience' of contrasting planting character, from mainly native in the south, to a mix of native and exotic species associated with resilience to climate change and Victorian tastes in the north. To evaluate existing ecological surveys, and carry out further surveys as required, to identify key species to be protected. To increase structural and species diversity through targeted woodland management and the planting of new tree, shrub, and under-storey species. To introduce woodland glades and meadows with nectar rich planting to support a greater diversity of invertebrates. Where appropriate, to retain deadwood for the benefit of wildlife. To limit the spread of dominant species such as ivy and bramble To monitor and manage invasive species such as Japanese knotweed, in line with current best practice. To take into account the nesting and habitat needs of bats, birds, invertebrates, and hedgehogs. To take into account the habitat needs of reptiles, and to encourage their presence, for example by increasing basking locations. To sustain and enhance existing populations of notable plants. To sustain and enhance existing populations of notable lichens on monuments, where it is practicable to do so. To explore the possibility of enhancing existing watercourses to provide opportunities for wildlife whilst attenuating surface water runoff.
6.8 Plant health and climate change	The tree population will be managed so that it is less prone to pests, disease and climate change.	A number of trees across the site are potential hosts to pests and diseases. Dutch Elm Disease is the most impactful, being fatal to most *Ulmus spp.* (Elm) trees at maturity. Ash dieback is of particular concern, as it is the most dominant tree species in the cemetery. Over the coming decade, it should be expected that the majority of ash trees will succumb to the disease. The most mature specimens tend to have the best resilience. Oak Processionary Moth targets *Quercus* (Oak) species, and is considered a public health issue, as it can cause skin irritation. *Aesculus hippocastanum* (Horse Chestnut) suffers from a couple of pests and diseases, which can cause them to be less vigorous and become unsightly in late summer, which can be managed. Plane trees at the cemetery suffer from both *Anthracnose* and *Massaria*. The former reduces vigour, and the latter causes dead stems which may fall, presenting a hazard. In order to future proof the new and retained Highgate Cemetery tree population, it will be necessary to replant with appropriate tree species, abiding by the principle of 'the right tree, in the right place, for the right reason'. Species selection will be determined by several crucial factors, inclusive of local soil types, identified physical constraints, accounting for both above and below ground hydrology, as well as fitting into the Highgate Cemetery Landscape Vision. The ever-changing climatic extremes being experienced as a result of global warming will also be considered, ensuring where necessary trees are drought resistant and tolerant to waterlogging where drainage issues are encountered seasonally. Pest and disease resistant tree species will also be a significant factor in species selection. In a bid to limit the transmission of known pests and diseases, several tree species shall be excluded from any future planting program, these include *Fraxinus excelsior* (Common Ash), *Platanus × hispanica* (London Plane), *Ulmus procera (*English Elm) and *Castanea sativa* (Sweet Chestnut) to name a few. This strategy ensures that each planted tree has the potential to reach maturity. There is also the need to acknowledge the sites current ecological status, the importance of encouraging tree and plant diversity to create habitats for wildlife and a resilient landscape that can tolerate climate change.
6.9 Ash die-back	The potential impact of ash die-back will be minimised through careful monitoring and planning.	As the woodland of Highgate Cemetery is dominated by self-sown ash trees, ash dieback is of particular concern. Ash dieback should be regularly surveyed to understand the ongoing spread and severity of the disease across the cemetery. The design proposals should allow for the felling of *Fraxinus* (ash) trees over time, with a view to protecting people from the danger of falling trees, limiting the diseases spread, and where possible protecting the more resistant mature ash specimens. Such works should be phased, to prioritise areas with high proportions of young trees. Please refer to Ash Dieback survey's of 2022 and understand how the disease is progressing.

6.10 Biodiversity	The biodiversity interest of the site is important and will be taken into account when managing the Cemetery.	Please refer to Ecological Baseline Report
6.11 Invasive species	Space will be created for native plant species of higher diversity value.	Please refer to Ecological Baseline Report
6.12 Deadwood	The deadwood habitat will be retained and improved.	Please refer to Ecological Baseline Report
6.13 Diversity of Planting	Highgate Cemetery will be managed to encourage a diversity of flora which will benefit wildlife and maintain its ecological interest.	Please refer to Ecological Baseline Report
6.14 Protected species	The habitats of protected and notable species will be maintained.	Please refer to Ecological Baseline Report
6.15 Paths and drainage	Historic roads and paths will be repaired or reconstructed.	Please refer to the Stage 3 DAS
6.30 The Landscape Plan	A Landscape Plan will guide a design for the cemetery including the proposed planting, structures or buildings, or changes to the landscape.	Refer to the RIBA stage 3 landscape drawings
6.31 The Implementation Plan	An Implementation Plan will set out how the policies in the Conservation Plan and the design in the Landscape Plan will be put into practice.	The maintenance and management plan will be further developed during RIBA Stage 4.

6.32 The Maintenance Plan	A Maintenance Plan will set out a specific schedule of maintenance work required for the continuous care of the landscape and built structures.	Refer to the current document.
6.33 Environmental Impact	Negative environmental impacts will be reduced in ways that will minimise harm to significance.	Useful Project have prepared a Sustainability Statement with clear targets to make the cemetery's future more sustainable and resilient.
6.35 Operational Facilities	There will be a presumption against locating new operational facilities in locations which will harm significance.	Hopkins Architects to integrate the new buildings into the landscape, minimizing the impact on the historical significance of the cemetery.

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SITE DESIGNATION

Highgate Cemetery is classed as a Site of Metropolitan Importance for Nature Conservation (SMINC). SMINCs are those sites which contain the best examples of London's habitats; sites which contain particularly rare species; or sites which are of particular significance within the otherwise heavily built-up areas of London. They are the highest priority for protection.

NOTABLE SPECIES

Highgate Cemetery supports a rich array of plants and animals, including a population of the nationally rare orb-weaving cave spider *Meta bourneti,* which inhabits the vaults in the Egyptian Avenue.

The woodland supports a diverse range of plants, including rare and notable species. The stonework also supports a diverse range of lichens, ferns and mosses.

HABITATS

Both sides of the cemetery support broadleaved woodland comprising several mature trees, with an under-storey of secondary woodland comprising ash (*Fraxinus excelsior*) and sycamore (*Acer pseudoplatanus)*, which has been established between the graves. The shrub layer contain bramble (*Rubus fruticosus*), butterfly bush (*Budleia davidii*), and holly (*Ilex aquifolium*). The field layer is dominated by ivy (*Hedera helix*), which has also encroached on many of the trees.

Due to the recent origin of the woodland, there are relatively few native woodland species in the field layer. The dominant species are bluebells (*Hyacinthoides non-scripta*), and wild garlic (*Allium ursinium*). Where there are gaps in the canopy, rank grassland, horsetails, ferns, and ruderal species have established.

There are some introduced non-native trees and shrubs such as spotted laurel (*Aucuba japonica 'Crotonifolia'*) and *pyracantha sp*., which may be remnants of the original planting palette.

A small, man-made lined pond is present in the West Cemetery, which is the only open water on site. Aquatic vegetation includes yellow flag iris (*Iris pseudoacorus*).

The East Side habitats are more open than the West Side, with wide paths and mown grass verges. The amenity grassland supports common broadleaved species such as daisy (*Bellis perennis*), dandelion (*Taraxacum officinale*), and white clover (*Trifolium repens*), which can tolerate trampling and mowing. The Mound supports some native meadow species including yarrow (*Achillea millefolium*), tufted vetch (*Vicia cracca*) and oxeye daisy (*Leucanthemum vulgare*).

CURRENT MANAGEMENT

A key threat to the cemetery is a lack of habitat management. Unmanaged areas have become encroached by ash trees and ivy which can undermine the graves and restrict access by visitors.

Furthermore, a lack of tree thinning has led to tall, thin specimens which are prone to windthrow or stem failure, posing a risk to people working in, or visiting the cemetery, as well as to the graves themselves. The unmanaged development of secondary woodland also impacts on the historic trees by restricting light to the side branches of the older trees, causing the death of these limbs.

The landscape of Highgate Cemetery is managed with due consideration of its designation as a SMINC. Bird and bat nesting boxes, deadwood piles, and informal ponds contribute to its ecological value.

On both sides ivy severance on trees and ground clearance have been carried out to control the spread of ivy. A cautious approach should be taken around memorials where it adds aesthetic value.

For more information on ecology, please refer to the Ecological Baseline Report.

Orb weaving cave spider (*Meta bourneti*)

Soprano pipistrelle (*Pipistrellus pygmaeus*)

Mature pedunculate oak tree (*Quercus robur*)

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BNG
The baseline value of the habitats on the site was calculated using DEFRA's Biodiversity Metric 4.0 calculator. The metric calculations were undertaken by Dr Rachel Holmes C.Env, who is an experienced ecologist and environmental impact assessment practitioner.

The metric compares the biodiversity value of the habitats on the site before and after the developement. A biodiversity net gain of 10% is mandatory for planning applications to be consented. A gain in biodiversity on this site will be achieved through a combination of habitat enhancement and habitat creation. The removal of INNS (Invasive Non-native Species) will enhance existing habitats and the planting of native grassland, woodland and hedgerows will create new habitats of high biodiversity value.

The site is currently providing a 10.7% Biodiversity Net Gain. It is concluded that, subject to an appropriate 30 year management regime being implemented, it is feasible for the project to proceed whist meeting the legislation with regards to BNG. For further details refer to Biodiversity Net Gain Report by Ashgrove Ecology Limited.

Bird, Bat Boxes and Bug Hotels
The value of the site to faunal species in the locality will be enhanced by the provision of bat, bird and inverebrate boxes to target London Priority Species. These will be sited away from the main paths to reduce disturbance. Bat and bird boxes require regular maintenance to keep them in good condition and prevent the build up of pests and diseases.

1.8 Identifying and Manageing Invasive Species

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A biosecurity management plan will be put in place to prevent the spread of Schedule 9 species and other non-native species will be controlled where it is beneficial to the biodiversity of the site.

All operatives, contractors and site visitors should be made aware of the presence of invasive species within the Site and wider Highgate Cemetery.

There are some invasive plants associated with plant choices made during the Victorian era. Whether to retain them or not will depend on the ecological report, and the LISI species of concern list. Each plant will need to be considered case by case ensuring they will not spread and dominate other areas.

For instance, there are locations in the cemetery where the cherry laurel can be retained. On the other hand, the species will need to be removed from areas where its roots create damage to monuments and graves.

Approach to monitoring and removal of vegetation from Funerary structures to be co-ordinated with the Conservation Architect.

For further details and explanation refer to the Ecological Baseline Report 2022 and Ecological Impact Assessment Report 2024.


Allium triquetrum


Buddleja davidii


Cotoneaster horizontalis


Cotoneaster salicifolia


Hyacinthoides hispanica


Hyacinthoides x. massartiana


Parthenocissus quinquefolia


Pentaglottis semper-virens


Prunus laurocerasus


Pteridium aquilinum


Quercus ilex


Rhododendron ponticum


Smyrnium olusatrum


Symphoricarpos albus

West Cemetery Common Name	Scientific Name	Notes	Priority categories INNS (LISI species of concern)	Ecological Baseline Report Comments
Three-cornered Garlic	Allium triquetrum	INNS (LISI Species of Concern Cat. 4)	Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	A non-native invasive species which should be removed.
Wall Cotoneaster	Cotoneaster horizontalis	INNS, WCA Schedule 9 (LISI Species of Concern Cat. 2)	Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	It is recommended that this species is removed before it spreads further within the cemetery
Willow-leaved Cotoneaster	Cotoneaster salicifolia	INNS (LISI Species of Concern Cat. 2 BUT doesn't specify species)	Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	
Spanish Bluebell	Hyacinthoides hispanica	INNS (LISI Cat 4), maybe present but the pure species is rare	Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	
Hybrid Bluebell	Hyacinthoides x. massartiana	INNS (LISI Cat 4), majority of bluebells present here are hybrid	Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	
Green Alkanet	Pentaglottis sempervirens	Non-native introduction (LISI Species of Concern Cat 6)	Species that were not currently considered to pose a threat or have the potential to cause problems in London.	
Cherry Laurel	Prunus laurocerasus	INNS (LISI Species of Concern Cat. 3)	Species of high impact or concern which are widespread in London and require concerted, coordinated and extensive action to control/eradicate.	It should be managed and removed where possible within the site and appropriate biosecurity measures employed.
Hol/evergreen oak	Quercus ilex	INNS (LISI Species of Concern Cat. 5)	Species for which insufficient data or evidence was available from those present to be able to prioritise.	
Rhododendron	Rhododendron ponticum	INNS (LISI Species of Concern Cat. 2)	Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	
Alexanders	Smyrnium olusatrum	Non-native can be invasive (Small patch)		It can be invasive, should be removed
Snowberry	Symphoricarpos albus	INNS (LISI Species of Concern Cat. 2)	Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	It should be managed and removed where possible within the site and appropriate biosecurity measures employed.
Bracken	Pteridium aquilinum			It is a native fern, but it can smother other vegetation and it is recommended that these patches are monitored and controlled if needed.

East Cemetery Common Name	Scientific Name	Notes	Priority categories LISI	Ecological Baseline Report Comments
Three-cornered Garlic	Allium triquetrum	INNS (LISI Species of Concern Cat. 4)	Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	A non-native invasive species which should be removed.
Butterfly-bush	Buddleja davidii	INNS (LISI Species of Concern Cat. 3)	Species of high impact or concern which are widespread in London and require concerted, coordinated and extensive action to control/eradicate.	Butterfly-bush Buddleja davidii is a non-native invasive species, which should be removed.
Wall Cotoneaster	Cotoneaster horizontalis	INNS, WCA Schedule 9 (LISI Species of Concern Cat.2)	Species of high impact or concern present at specific sites that require attention (control, management, eradication etc).	It is recommended that this species is removed before it spreads further within the cemetery
Spanish Bluebell	Hyacinthoides hispanica	INNS (LISI Cat 4), maybe present but the pure species is rare	Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	
Hybrid Bluebell	Hyacinthoides x.massartiana	INNS (LISI Cat 4), majority of bluebells present here are hybrid	Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.	
Virginia Creeper	Parthenocissus quinquefolia	INNS, WCA Schedule 9	Species that were not currently considered to pose a threat or have the potential to cause problems in London.	It can spread rapidly and smother trees and could pose a risk to monuments, so it is recommended that it is removed.
Green Alkanet	Pentaglottis sempervirens	Non-native introduction (LISI Species of Concern Cat 6)	Species that were not currently considered to pose a threat or have the potential to cause problems in London.	

Invasive species identified in the cemetery - Ecological Baseline Report 2022

1.9 Woodland Management

1.0 GENERAL INFORMATION

Gustafson Porter + Bowman

The English woodland faces a myriad of threats, today and in the coming years. The movement of plant material across national borders facilitates the spread of pests and diseases, and the effects of climate change will prolong summer droughts and the frequency and severity of storm events. Any tree species selected for planting should be adapted to both the current conditions of the cemetery, but also the potential future conditions over the coming years and decades.

Increasingly severe storm events will damage the existing stock of trees, potentially harming members of the public and damaging important monuments. This is of particular concern at the cemetery, as many of the self-seeded trees have shallow roots, and are in close proximity to other trees and monuments. Any trees which are likely to cause a future hazard should be surveyed, and these trees should be pro-actively managed in line with current best practice. Any future tree plantings should be appropriately located and spaced to allow healthy growth.

As the woodland of Highgate Cemetery is dominated by self-seeded ash trees, ash dieback is of particular concern. The design proposals allow for the felling of ash trees over time, with a view to protecting people from the danger of falling trees, limiting the diseases spread, and where possible protecting the more resistant mature ash specimens. LB Camden issued decision notice Ref 2024/2878/T with no objection to implementation of the Highgate Cemetery Ash Dieback Management Plan dated 10th July, expiring 10th July 2034. The Trust will proactively manage diseased ash trees in accordance with this plan.

Such works will be phased based on the criteria and priorities described in the plan.

Additional pests and diseases are present in the cemetery, such as oak processionary moth, Dutch elm disease, horse chestnut bleeding canker and leaf miner, sooty bark in sycamore trees, and plane tree anthracnose and massaria. These pests and diseases should be managed in line with best practice, and the design proposals will consider avoiding the planting of potential host species. For guidance on pests and diseases, refer to the Arboriculturist's scope of services and the Forestry Commission's recommendations. The inspection process includes implementing strong biosecurity measures and understanding the key pests and diseases affecting the woodland. Please consult the previously completed tree health surveys for further reference.

The cemetery also contains a number of higher quality trees and trees with the potential to develop into the mature specimens of the future. These trees have been surveyed, and future planting proposals should retain these trees as part of the landscape design.

Design Objectives:

- To develop a phased management plan for the removal of trees affected by ash dieback.
- To retain more resistant mature ash trees where possible.
- To reduce the proportion of ash trees in the woodland canopy.
- To pro-actively monitor and manage all other pests and diseases affecting trees on site, in line with current best practice.
- To limit or avoid planting of potential host species, in line with current best practice.
- To continue to monitor and manage hazardous trees.
- To carry out remedial works to all trees hazardous to people, structures, or important monuments.
- To retain the majority of high quality trees on site, in line with the landscape design.
- To halo existing trees of good quality, to allow them to develop into mature specimens.
- To halo young trees with a future, to provide the next generation of woodland.
- To plant trees in suitable locations, in line with the landscape design.

Trees with a future

High quality trees to be retained

Oak processionary moth

Ash dieback

Large area of self-sown young ash woodland in the East Cemetery

2.1 Landscape Compartments

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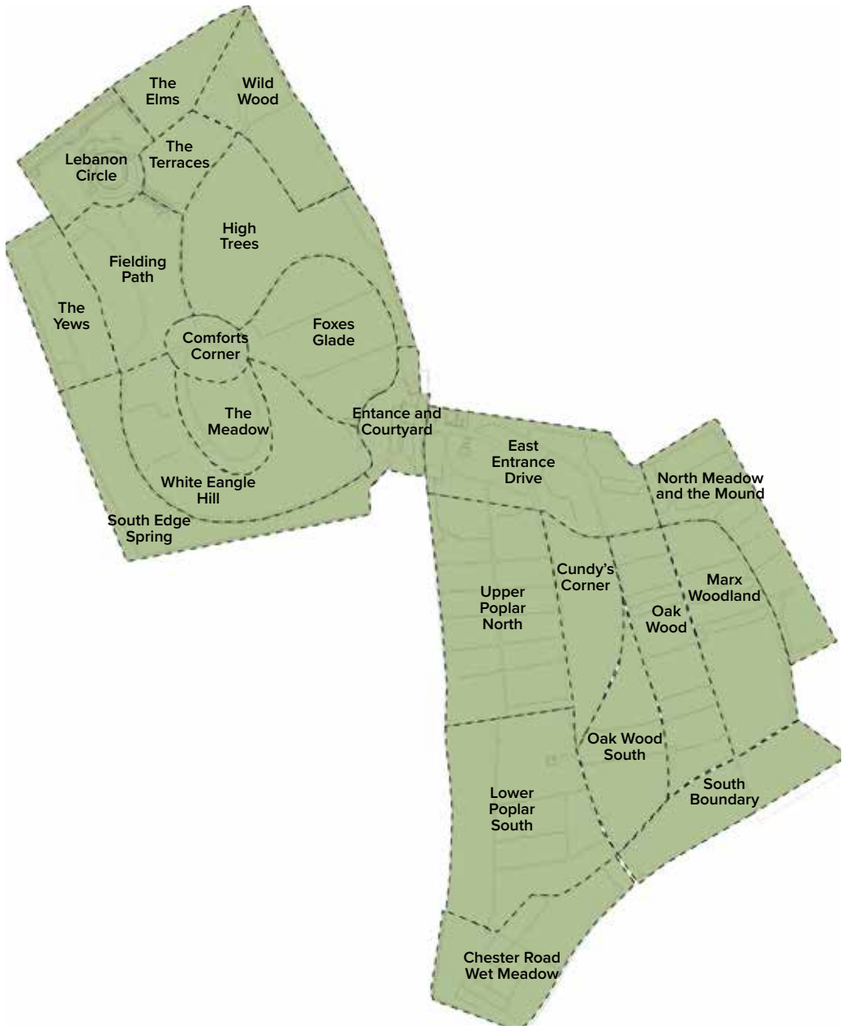
The diagram with the Landscape Compartments is a further development of the Alan Baxter Conservation Plan that breaks the site into character areas based a defining characteristic of the area. For example, 'The Yews' is an area in the West side that is dominated by Yew trees, 'Comfort's Corner' is a historic name of the middle intersection of the paths, and 'Oak wood' in the East side is named after the clusters of oak trees in this area.

The maintenance proposal has been simplified in the diagram to the right to clarify that the intensity of maintenance is a hierarchy relating to the layout of paths and the visitor experience. The highest level of maintenance will occur around primary paths, entrances, and at the top of the West side around the Circle of Lebanon. Around seconary paths, the maintenance strategy is classified as medium, while as one moves further into the site away from primary paths the strategy reduces further to the lowest intensity.



Landscape Compartments

Maintenance Zones

Higher Maintenance Along Primary Routes

Medium Maintenance Requirements

Lower Maintenance Ecological Strategy

Gustafson Porter + Bowman

Ecological Baseline Report 2022
(Ashgrove Ecology)

The two diagrams on the right side of the page illustrate the existing key habitats and plants according to the Ecological Baseline Report in 2022.

Locations of Key Habitats and Plants - Ecological Baseline Report - West side

Locations of Key Habitats and Plants - Ecological Baseline Report - East side

Gustafson Porter + Bowman

West side

Highgate West's original landscape was designed to offer picturesque views, especially from the cemetery's summit, which once attracted visitors with vistas of London. As part of the landscape masterplan, two key views were selected, showcasing St Michael's Church, the Chapel Entrance, central London, and St Paul's Cathedral. Restoring these views involves careful vegetation management, including selective tree removal and replacement with smaller species

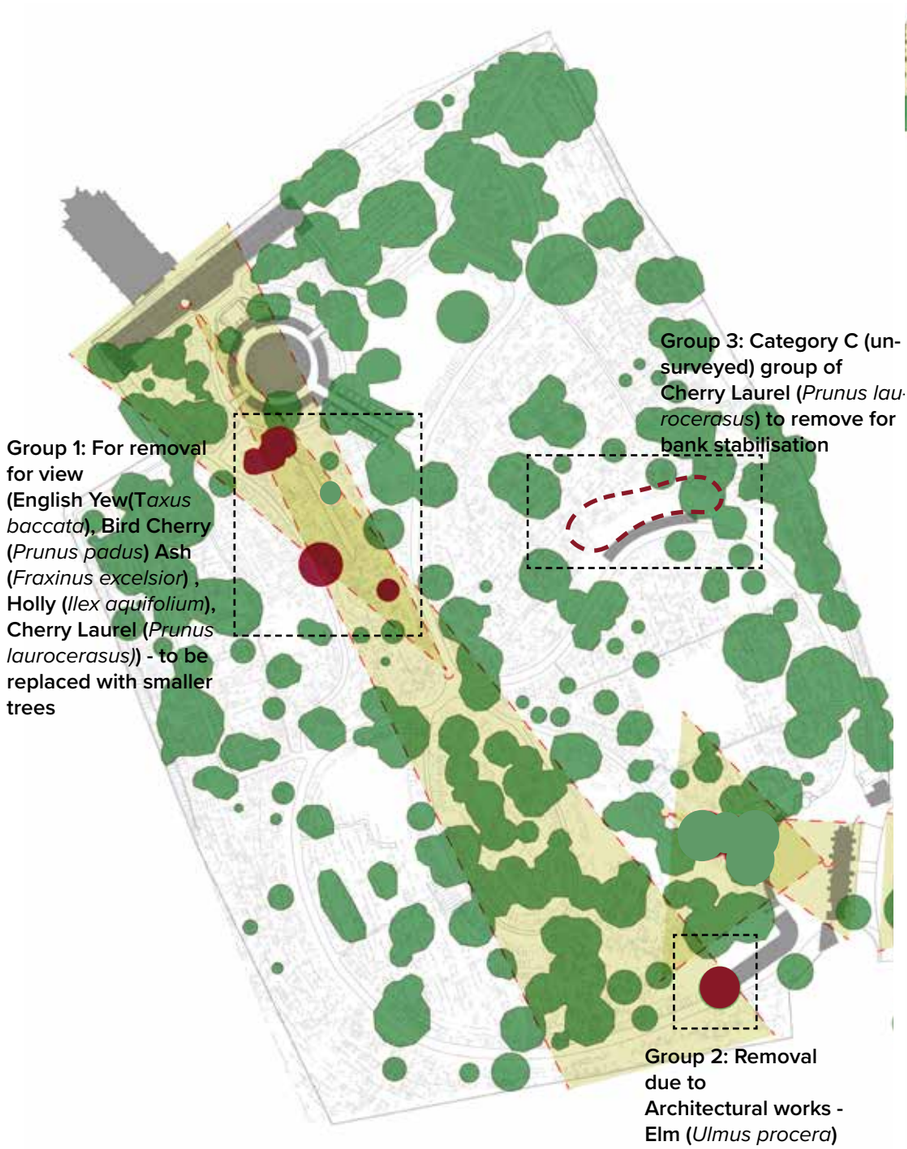
East side

The East side offers views from higher ground looking south, west, and along the paths, with views across the northern ground to the West side, as seen in illustrations before and after 1854. Key views will be restored in order to preserve sightlines towards the Entrance Chapel and through the East Side, keeping single trees as long as they last. To protect these views, some trees encroaching on these sightlines will not be replaced.

For more information on historic views and tree planting, please refer to the Landscape Design and Access Statement

Key

- Existing trees (Category A and B, and Trees with future) to be retained
- Existing trees (Cat A & B) to be removed
- Major views
- St Michael's church
- Chapel



Major views and Existing trees (Category A and B and Trees with Future) - West side

Major views and Existing trees (Category A and B and Trees with Future) - East side

How to read the following planting typologies

The maintenance plan is divided as per below:

1) Tree planting – general maintenance guidelines

2) Understorey planting - general maintenance guidelines

3) Understorey planting – detailed maintenance guidelines for each planting typology/habitat

a) establishment period

b) once established

The Habitats/planting typologies covered in the following pages

- High profile areas with wild/three cornered garlic
- High profile areas without wild/three cornered garlic
- Embankments
- Sustainable Urban Drainage Systems (SuDS)
- Woodland species (1a, 1b)
- Woodland species (1c)
- Grasslands/Meadows
- Species rich lawn
- Hedgerow
- Spring area

Ash removal and planting strategy

The canopy and subcanopy void that will be created by the ash felling is a major risk to the woodland ecology. A replanting strategy to re-establish a more open tall canopy and more complex undercanopy needs to go hand in hand with ash clearance. There is likely to be a surge of weedy ground level plants when ash are removed, just as there is in a coppice woodland. Unlike a rural coppice woodland, it is likely to be dominated by weedy species which will be more labour intensive to manage and which may make access difficult. Part of the strategy is to plant and sow immediately after Ash removal to compete with more aggressive species such as docks and nettles. New young trees and shrubs will need to be added immediately post cutting to restore the semi-shade environment that helps with the management of the under-storey and which will help create a new structure for birds and other species

Vegetation Clearance

Overgrown and unmanaged vegetation in Highgate Cemetery has caused damage to graves and listed assets. Vegetation and planting are to be managed regularly to protect from further damage. Vegetation clearance will be initially prioritised for the first phase of works (refer to RIBA Stage 3 Report). Areas requiring vegetation removal are shown in the planting proposals and have been developed following site visits.

Vegetation clearance objectives:

- Remove and manage any vegetation that threatens heritage assets, while keeping some overgrown areas that do not cause harm to maintain the sense of romantic decay. Reduce damage to heritage assets by removal of overgrowing vegetation
- Open up historic views in and around the Cemetery by managing and removal of vegetation
- Management of invasive species, including ongoing monitoring of locations and specialist removal
- Management of planting in line with the planting proposal for the West and East Side

Trees

Areas of scrub and woodland planting provide habitat and food sources for birds, insects and other animals.
Any vegetation overhanging pathways is to be cut back throughout the growing season to maintain clear routes through the park.

Older trees should be retained or otherwise managed for public safety.

Trees, particularly those with features that may be exploited by bats (e.g. loose bark, knot holes, crevices) should be retained where possible.

The Maintenance team will be responsible for inspecting the trees:

- Basal and epicormic growth removal
- Inspection of stakes, tree ties and guards for all new and young tree planting, including replacement if required
- Crown lifting and formative pruning as required to maintain clearances and views around the park
- Weed and mulch tree bases
- Establishment maintenance for new tree planting – ensuring adequate watering and formative pruning to achieve canopy level where required
- Monitor and record condition of trees

Mulch will be topped up as required in Spring (when annual weeds have not yet germinated) or/and Autumn as trees moving towards the dormant season). They can be applied around new plantings or to established beds and specimen plants.

Pruning will be carried out as directed by the Trust.

Scrub and woodland habitat will be maintained clean and litter free.

This work should be monitored by an experienced and qualified horticulturalist appointed by the Trust, to review and provide monthly inspection reports.

Understory Planting

Pruning and maintenance regimes are to promote healthy form and habit to planting. Key tasks to be undertaken as part of regular maintenance include:

- Fork shrub beds and borders
- Mulch shrub beds and borders
- Weed shrub beds and borders
- Prune shrubs and herbaceous planting.
- Maintain all shrub and herbaceous planting areas in line with Trust's guidance and by appropriately trained and skilled personnel

This work should be monitored by an experienced and qualified horticulturalist appointed by the Trust, to review and provide monthly inspection reports.

High profile areas
These are the areas adjacent to the main paths on the West and East sides of the cemetery. Currently, the edges of the paths are dominated by deciduous plants, including plants such as Three-Cornered Garlic (*Allium triquetrum*), which die back to the ground in Winter.

The aim is to achieve long-lived evergreen and semi-evergreen ground layer edges and emergent species for seasonality.

A higher maintenance regime will be required for the high profile areas to maintain a tidy vegetation layout.

Embankments
For the proposed planting on the slopes, a diverse selection of hardy, deep-rooted plants will be used to stabilize the soil and prevent erosion. Evergreen and semi-evergreen species will provide year-round coverage, while a mix of native and non-native shrubs, grasses, and groundcovers will enhance biodiversity and visual appeal.

SuDS
The proposed sustainable drainage systems (SuDS) planting will incorporate a variety of drought-tolerant plants that can endure both wet and dry conditions, improving on-site drainage and reducing surface runoff.

By choosing species that are well-adapted to fluctuating moisture levels, the planting will support ecological health and create a functional, attractive landscape that effectively manages water and supports local wildlife.

Woodland species (1a and 1b)
The proposed woodland planting will include a diverse range of tree species to establish a robust and ecologically balanced forest. Bramble (*Rubus fruticosus*) will be encouraged to thrive in specific areas within the woodland, enhancing habitat complexity and offering vital food and shelter for various wildlife species. This approach will support increased biodiversity and contribute to a natural, self-sustaining environment. The integration of bramble with the diverse tree canopy will create a rich, multi-layered landscape that benefits both plants and animals, fostering a vibrant and resilient woodland ecosystem.

Woodland species(1c)
These are areas adjacent to secondary and tertiary paths. The proposed planting plan will focus on establishing a diverse and robust plant layer, aiming to minimize the growth of bramble, ivy and other dominant plants and to ensure a well-structured and resilient ground cover. By carefully selecting a variety of species, the goal is to create a stable, multi-layered planting community that supports a range of wildlife.

Grasslands/Meadows
Different type of grasslands depending on the soil and moisture conditions are proposed on the East side. For frequency of cuts refer to the following pages.

- Cutting to be carried out prior to the germination of yellow rattle (*Rhinanthus minor*) (semi-parasitic grassland annual) in mid to end of February.
- During the first years of establishment more than two cuts might be required to reduce the fertility of the soil and undesirable species.
- Grassland to be cut back to 50cm
- Where bulbs are planted in grass areas, allow to them to die down naturally before mowing.
- Allow the ‘hay’ to dry and shed seed for 1-7 days then remove from site.
- Once mown all areas are to be thoroughly raked and all litter removed and arisings composted on-site.
- Allow for 1m wide mown strip along footpaths, walls and boundaries.

Species rich lawn
The proposed species-rich lawn will feature a diverse mix of grasses and flowering plants designed to create a vibrant and ecologically beneficial ground cover.

The species-rich lawn can handle both frequent foot traffic and regular mowing. It will add a valuable source of pollen and nectar, supporting local wildlife.

Hedgerow
The maintenance objectives for the hedges on-site:

- Informal and formal hedge cutting
- Hedge base maintenance
- Mulching hedge bases

Hedge maintenance will be avoided during bird breeding season where possible. The maintenance team are to check for bird nests prior to any hedge maintenance being carried out. Clippings and arisings will be removed and disposed of in line with the waste management strategy.

Spring area
The small spring area in the west bottom corner of the West Side will be retained and enhanced with a selection of moisture loving and marginal plants.

The spring area can serve as an educational tool, offering children a hands-on opportunity to explore a wet habitat and gain insights into environmental stewardship.

2.5 Proposed Habitats and Ecological Aims

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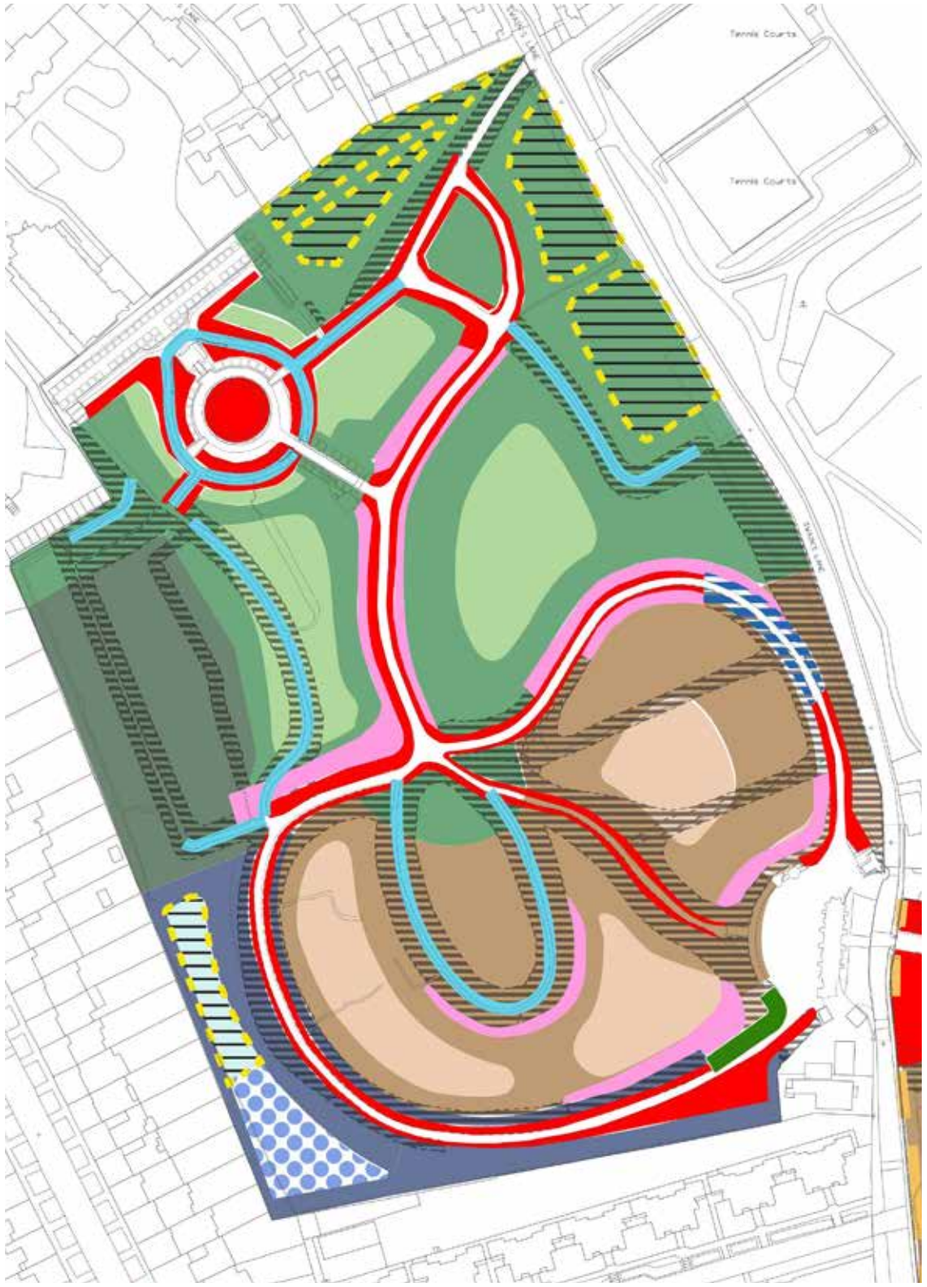
West Side

To accentuate the sites topography The site has been seperated into three major territories;

- Wet woodland in the south-west corner of the west side, where water naturally gathers behind the boundary wall.
- Broadleaved woodland in the bottom half and at the top of the west side.
- Yew woodland in the north-west corner of the west side.

Planting choices will be a mix of native and non-native species especially those adapted to climate change, however to accentuate the 19th century character of the central processional route from the Chapel to the Terrace Catacombs, ornamental plants with historical significance will be introduced.

Refer to section 2.9 for plant sizes and densities per planting typology.



West Side - Proposed habitats

1b - Decreases structural complexity of brambles/higher frequency cutting

- YW1 - Yew woodland with shade on light soils
- BW1 - Broadleaved woodland with shade on light soils
- BW2 - Broadleaved woodland with sun on light soils
- BW3 - Broadleaved woodland with shade on medium to heavy soils
- BW4 - Broadleaved woodland with sun on medium to heavy soils
- WW1 - Wet woodland with shade on heavy soils
- WW2 - Wet woodland with sun on heavy soils

- HP1 - High profile areas-edge of paths (sunny and shaded areas)
- EM1 - Embankments/Slopes (sunny and shaded areas)
- SP1 - Species rich lawn with sun on heavy soils

- SA1 - ‘Spring’ area with sun on heavy soils
- SU1 - SuDS

- GR1 - Shaded Green Roof (Cafe Building)

1a - Brambles for structural complexity/lower frequency cutting

1c - Eliminate bramble and ivy

Note : the habitat types (YM1, BW1, BW2, BW3, BW4, BW5, BW6, WW1 and WW2) have either the 1a, 1b or 1c maintenance process

2.5 Proposed Habitats and Ecological Aims

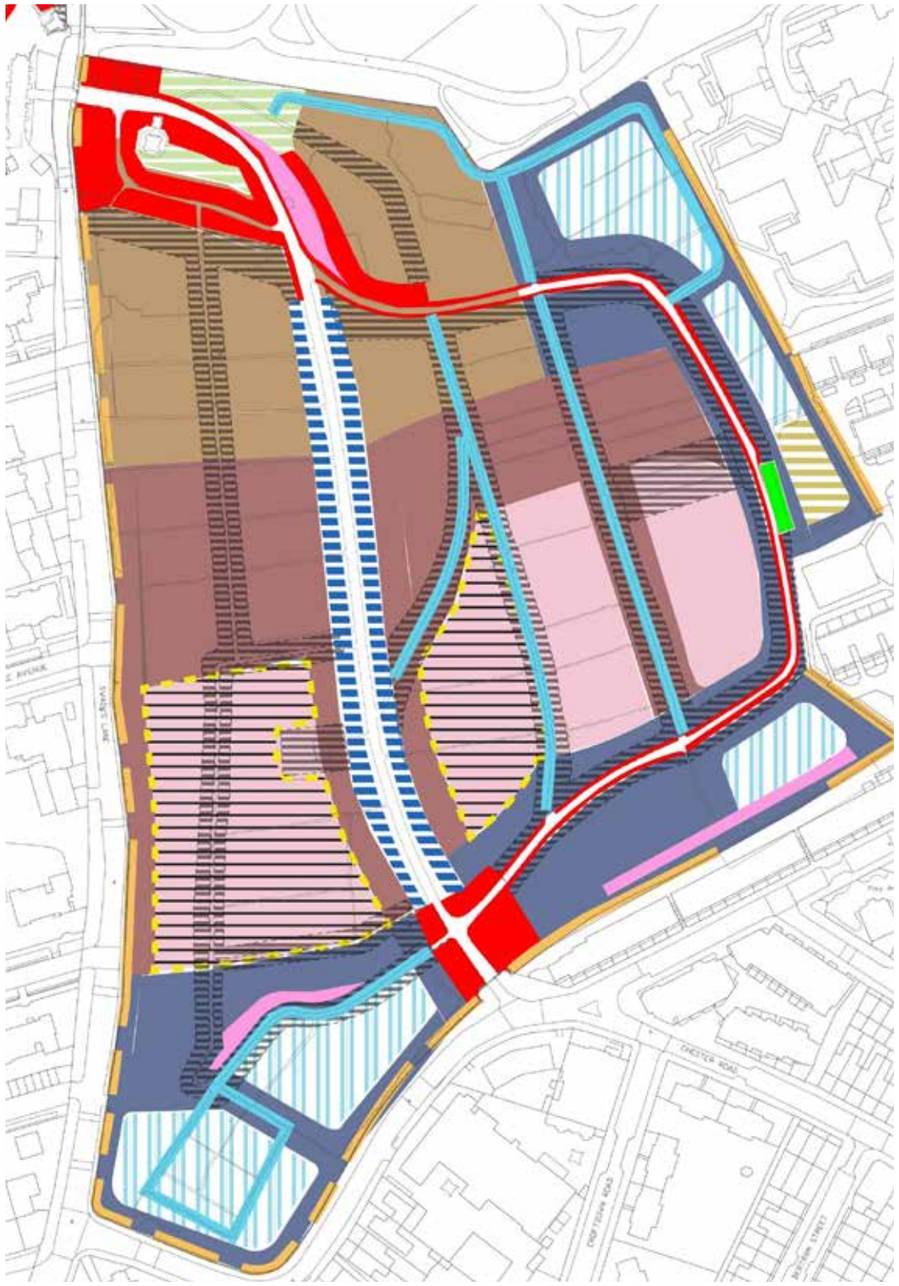
Gustafson Porter + Bowman

East Side

In the East side a very different planting strategy will be followed using the 1871 1st edition O.S. Plan as a guide to help accentuate its more utilitarian character. Trees will be planted alongside the major paths and around its perimeter accentuating movement and views from north to south, however large areas of territory between the paths will be returned to their original open grassland character. Rather than manicured lawns these will be developed as wild flower meadows with shrubs planted at the edge of the woodland to reduce maintenance and increase the sites bio-diversity.

Surveyed Significant Trees and Future Trees will be retained. The species of existing trees will influence the choice of new trees and plants that will be introduced around them.

Refer to section 2.9 for plant sizes and densities per planting typology.



East Side - Proposed habitats

1b - Decreases structural complexity of brambles/higher frequency cutting

- BW3 - Broadleaved woodland with shade on medium to heavy soils
- BW4 - Broadleaved woodland with sun on medium to heavy soils
- BW5 - Broadleaved woodland with shade on heavy soils
- BW6 - Broadleaved woodland with sun on heavy soils
- WW1 - Wet woodland with shade on heavy soils
- WW2 - Wet woodland with sun on heavy soils

- HP1 - High profile areas-edge of paths (sunny and shaded areas)
- EM1 - Embankments/Slopes (sunny and shaded areas)
- SP1 - Species rich lawn with sun on heavy soils

- GD1 - Dry grassland/meadow with sun on medium soils
- GW1 - Wet grassland/meadow with sun on heavy soils
- GG1 - Grassland/meadow with sun on heavy soils

- HR1 - Hedgerows
- SU1 - SuDS
- GR2 - Green Roof with PV (Gardener's Building)

1a - Brambles for structural complexity/lower frequency cutting

1c - Eliminate bramble and ivy

Note : the habitat types (YM1, BW1, BW2, BW3, BW4, BW5, BW6, WW1 and WW2) have either the 1a, 1b or 1c maintenance process

Gustafson Porter + Bowman

New Tree Planting						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guid-ance
Tree stabilisation	Re-firming rootball after heavy frost or wind.	Year 1-2: As required and additionally after strong winds or strong frost.	As required and after strong wings/frost	As required and after strong winds/ frost	As required	As required
	Check tree stakes and ties. (retain for 1-3 years depending on the species and rootgrowth).	Year 1-3: As required and additionally after strong storms.	As required and after strong storms	As required and after strong storms	Retain for up to 3 years and then remove.	
Mulching	Top up mulch around trees.	Top up mulch as required to maintain day one levels (once per year and as required)	As required (once per year and as required)	As required (once per year and as required)	As required	As required
Vegetation removal around trees	Remove all vegetation growing in mulch surrounds of trees using hand tools. The bark mulch surround has to be kept free from vegetation so that the trees do not get damaged when the adjacent vegetation is being cut. Avoid using strimmers around the tree trunks.	As required	As required	As required	As required	As required
Watering	Water as necessary during establishment period and during dry spells, with e.g. slow release tree watering bags. Water points have been provided within the cemetery for hose connections. Operatives to familiarise themselves with locations of these to make sure adequate length hoses are available to reach all planted areas. For all the accessible areas, a plant watering bowser is to be used if the hose pipes cannot reach the 'target'. For all the areas that a water bowser or hose pipe is unable to access, a backpack water dispenser (10-20L) is to be used instead. Supply: clean water to potable standards Quantity: Wet full depth of topsoil Application: Do not damage or loosen plants.	Year 1-2: as necessary to ensure successful establishment After year 2: As necessary	As necessary to ensure successful establishment	As necessary to ensure successful establishment	As necessary	As necessary

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guid-ance
Inspection of water monitoring pipes	Any tree pit where the gravel layer (and overlying topsoil and subsoil) is full of water shall have all water pumped out immediately after detection. It is usually required for at least the first 3 years (establish-ment phase). Extracted water shall be discharged into surface water drainage system (and not into any adjacent tree pits).	On a quarterly basis and particularly at the end of the winter period and well before the start of the growing season to enable any waterlogged pits to be de-watered.	As required	As required	As required for at least the first three years	As required
Pruning	Pruning is considered necessary for improving the structure of the tree, removing dangerous or defective branches, reducing shading, etc. Any pruning to trees, shrubs and hedges to be avoided during nesting season.	As necessary in a manner appropriate to the individual species.	As necessary	As necessary	As necessary	As necessary
	Pollarding of the plane trees (during their dormant period), is necessary once they are established and have grown for a few years. Pollarding for the plane trees every 2 to 3 years to control the size and shape of the tree (For the proposed plane trees only).	For pruning and maintenance tree service refer to a qualified Arboricultural Contractor/ Consultant.				

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guidance
Tree works	Maintain clear stem height: min 2400mm, except for multi-stem trees, weeping trees, feathered trees and orchard trees.	Once a year and as required	Once a year and as required	Once a year and as required	Once a year and as required	Once a year and as required
	Removing basal and epicormic growth and dead wood	Once a year and as required	Once a year and as required	Once a year and as required	Once a year and as required	Once a year and as required
	Crown corrections	Once a year and as required, in a manner appropriate to the individual species.	Once a year and as required	Once a year and as required	Once a year and as required	Once a year and as required
	Tree safety check procedures/ inspection	As necessary and after severe weather	As necessary and after severe weather	As necessary and after severe weather	As necessary and after severe weather	As necessary and after severe weather
	Take measures to avoid any damage to graves and monuments	Always during tree works	Always during tree works	Always during tree works	Always during tree works	Always during tree works
Decayed wood	Where safe and species appropriate, standing decaying stems should be retained where possible • any felled tree should be left in situ or moved to appropriate location • areas of minimal disturbance to decay naturally • selected felled timber can be dug into the ground to provide suitable underground decay conditions For management of Ash arisings refer to the guidance from the Forestry Commission.	As required	As required	As required	As required	As required
Overhanging vegetation	Remove overhanging vegetation or vegetation growing through the perimeter boundary including tree and shrub branches, and climbing plants.	As necessary in a manner appropriate to the individual species, and to avoid nuisance and damage to adjacent properties or highway	As necessary	As necessary	As necessary	As necessary

General operations soft landscape						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guid-ance
Remove defective plants and replant	Remove defective plants and replant. Timed to allow replacement within appropriate planting season. For establishment period (defects period) refer to the contract documents If any species fail to establish or show signs of decline, replacement with other species that are performing well is required	As necessary in a manner appropriate to the individual species.	As required	As required	As required	As required
Corrective measures:	i.e. thinning out, dividing, relocating individual plants to accommodate growth, adding plants if required	Once or twice per year and as required to avoid bare areas of planting.	As required	As required	As required	As required
Clearance	For the required clearance of existing vegetation to enable planting/sowing of new species refer to the next pages.	As required per planting habitat	As required	As required	As required	As required
Pest and disease control	All the materials to be organic. Pesticides are not permitted unless otherwise instructed in writing by the Client's Representative	As required and agreed by the Client's representative	As required	As required	As required	As required
Litter removal	Pick litter from all planting areas	As required to ensure cleaned spaces	As required	As required	As required	As required
Leaf removal	Remove leaves and compost on site or use to create habitat in the designated areas. For management of Ash leaves refer to the guidance from the Forestry Commission. Cherry laurel leaves (*Prunus laurocerasus*) shall not be composted, due to their high cyanide content, but disposed off site.	Weekly/As necessary	As required	As required	As required	As required

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guid-ance
Special requirements for groundcover plants	Allow ground cover plants to overhang paths and lawns	Refer to the pruning guidelines for shrubs and herbaceous plants in the following pages	As required	As required	As required	As required
Invasive species control	Location of invasive species to be reported to Client's Representative and removed safely before they are allowed to sread. All operatives, contractors, and site visitors should be made aware of the presence of invasive species within the Site when identified. Control and eradication of invasive species identified within the works area in line with the guidance of a specialist contractor.	As necessary and according to current legislation	As required	As required	As required	As required
Weed control	Thoroughly weed all planting areas. Remove self-seeded undesirable species. Remove invasive and undesirable plants. Control undesirable species: creeping thistle, spear thistle, curled dock, broad leaved dock, common ragwort, common nettle, bind weed, couch grass and other problematic/ invasive species. Do not try to eliminate horsetail but control their dominance by cutting them off at ground level post their spring emergence. For areas dominated with common hogweed (*Heracleum sphondyllum*) species (e.g. Sweet Vernal Grass (*Anthoxanthum odoratum*), Red campion (*Silene dioica*) and Foxgloves (*Digitalis*) that can compete with *Heracleum* to be planted. Refer to each planting typology for more details (in the following pages)	As necessary to ensure prevention or control of unwanted and invasive plants As required to keep beds clear of weeds	As required	As required	As required	As required

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Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guid-ance
Watering	Water as necessary during establishment period and during dry spells. Water points have been provided within the cemetery for hose connections. Operatives to familiarise themselves with locations of these to make sure adequate length hoses are available to reach all planted areas. For all the accessible areas, a plant watering bowser is to be used if the hose pipes cannot reach the 'target'. For all the non-accessible areas to water bowser or hose pipe, a backpack water dispenser (10-20L) is to be used in-stead. Supply: clean water to potable standards Quantity: Wet full depth of topsoil Application: Do not damage or loosen plants.	Water as necessary during establishment period and during dry spells.	As required	As required	As required	As required
Mulching	Top up mulch in shrub and herbaceous planting	As required to maintain day one levels (once per year and as required)	As required (once per year and as required)	As required (once per year and as required)	As required	As required
Mulch spill on adjacent areas:	Remove weeds and rubbish and return mulch to planted area at every visit. Sweep/rake spill.	As required	As required	As required	As required	As required
Fertilising	Refer to the landscape soil management strategy report Fertilising shrubs and herbaceous planting: Apply an approved organic natural fertiliser (compost). The compost should be incorporated into the topsoil surface rather than just left as a layer on the top. Chemical fertilisers to be avoided No compost or fertiliser applications are recommended for areas of species-rich grassland seeding.	As necessary to provide sufficient nutrients for each individual species.	As required	As required	As required	As required

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guid-ance
Pruning - avoid projecting sharp points	When pruning plants ensure that this does not result in projecting sharp points close to paths.	As applicable	As required	As required	As required	As required
Pruning - general (new trees)	Maintenance visits shall be carried out at a suitable frequency in order to ensure the standards are maintained throughout the growing season. The Contractor/Gardener should note that methods of pruning will differ across species and varieties within Genera. For existing trees refer to an Arboriculturist.	As necessary in a manner appropriate to the individual species.	As required	As required	As required	As required
Pruning shrubs	All shrubs shall be pruned in a manner appropriate to the individual species. The minimum standards shall be as described in the RHS Pruning Guidance https://www.rhs.org.uk/pruning/rhs-pruning-groups. Encourage healthy and bushy growth and desirable ornamen-tal features, e.g. flowers, fruit, autumn colour, stem colour. At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, diseased material, and broken or damaged branches and stems.	As necessary in a manner appropriate to the individual species.	As required	As required	As required	As required

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guidance
Pruning herbaceous	Allow herbaceous plants to grow tall, flower and seed. Allow autumn and winter seedheads. Once the planting has moved beyond the establishment phase follow the listed steps below: <u>February to early March</u> • Cut back deciduous herbaceous plants (before new growth). • For evergreen herbaceous plants do not cut back. Remove leaves with signs of decay or fungal growth and remove any dead foliage during spring and summer. Remove deadheads at the end of February/early March (before new growth). <u>Early March to mid-April</u> • Perform weeding, if necessary. • Thin out and divide plants, if necessary • Top up mulch to maintain day one levels. <u>Mid-April to October</u> • Conduct spot weeding, if necessary mid Spring to beginning of Summer • Minimal maintenance is required between mid June to October. <u>November to February/early March</u> • The goal is to retain seed heads and dead stems as long as possible and until the final cut (end of February-early March) • Sequential removal of dead stems and seed heads only if they collapse, become untidy, or detract from the visual effect. Leave all others in place to promote biodiversity. • Deadhead only plants where this practice would lead to a second flush later in the year (eg. roses)	Annually	Cut at the end of February/early March (before new growth)	Cut at the end of February/early March (before new growth)	Cut at the end of February/early March (before new growth)	As required

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guidance
Pruning ornamental grasses	Retain dead grass seed heads during autumn/ winter and remove in early spring. Deciduous grasses need cutting down to just above ground level in February (before new growth). Evergreens grasses such as sedges (*Carex* and *Luzula*) should not be cut back but should be divided every few years. Spent flowering stalks can be cut off, and any unsightly scorched or diseased leaves can be removed individually.	Once a year and as required when seed heads or stems flop.	As required	As required	As required	As required
Dividing herbaceous and grasses (that applies only to the high profile areas and adjacent to primary and secondary paths)	Dividing all clump-forming herbaceous perennials including evergreen grasses	After the establishment period (end of the defects period) herbaceous to be divided every two to three years to maintain health and vigour.	As required	As required	As required	As required
Soil decompaction and aeration	Refer to the landscape soil management strategy report Spike/prick soil using a hand fork to aerate the soil and break surface crust. Reduce to crumb and level off. Do not damage plants and their roots.	As needed to avoid any damage to the plants. Avoid decompaction when the soil is wet, as this can cause further damage to the soil structure.	As required	As required	As required	As required
Geophytes	For true bulbs such as daffodils (*Narcissus*) cut off the dead leaves six weeks after flowering finishes. Deadhead tubers such as cyclamen to encourage further flowering. All the hardy bulbs can be left in the ground all year round.	As required for each individual geophyte	As required	As required	As required	As required
Dividing geophytes	Dividing perennial bulbs (e.g. daffodils,etc).	Divide any big clumps into smaller groups when the plants are dormant Divide the clumps every few years to keep them vigorous	As required	As required	As required	As required
Snow removal	Remove snow from establishing shrubs and hedges	As required after heavy snow fall.	As required	As required	As required	As required

2.8 High Profile Planting with Garlic

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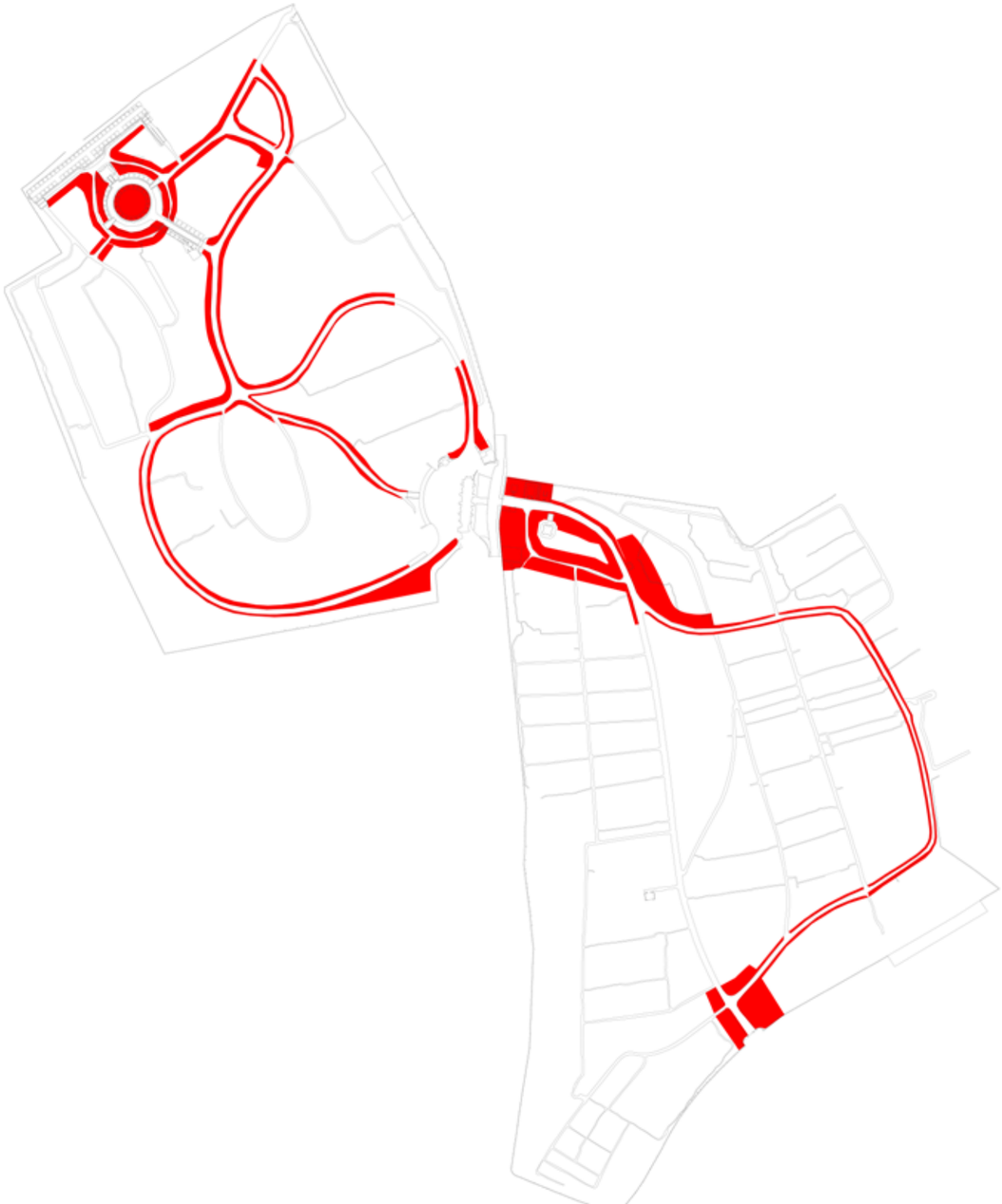
High profile areas with wild/three cornered garlic

•Achieve a long lived evergreen, semi-evergreen ground layer edges plus emergent species for spring-autumn flowers.

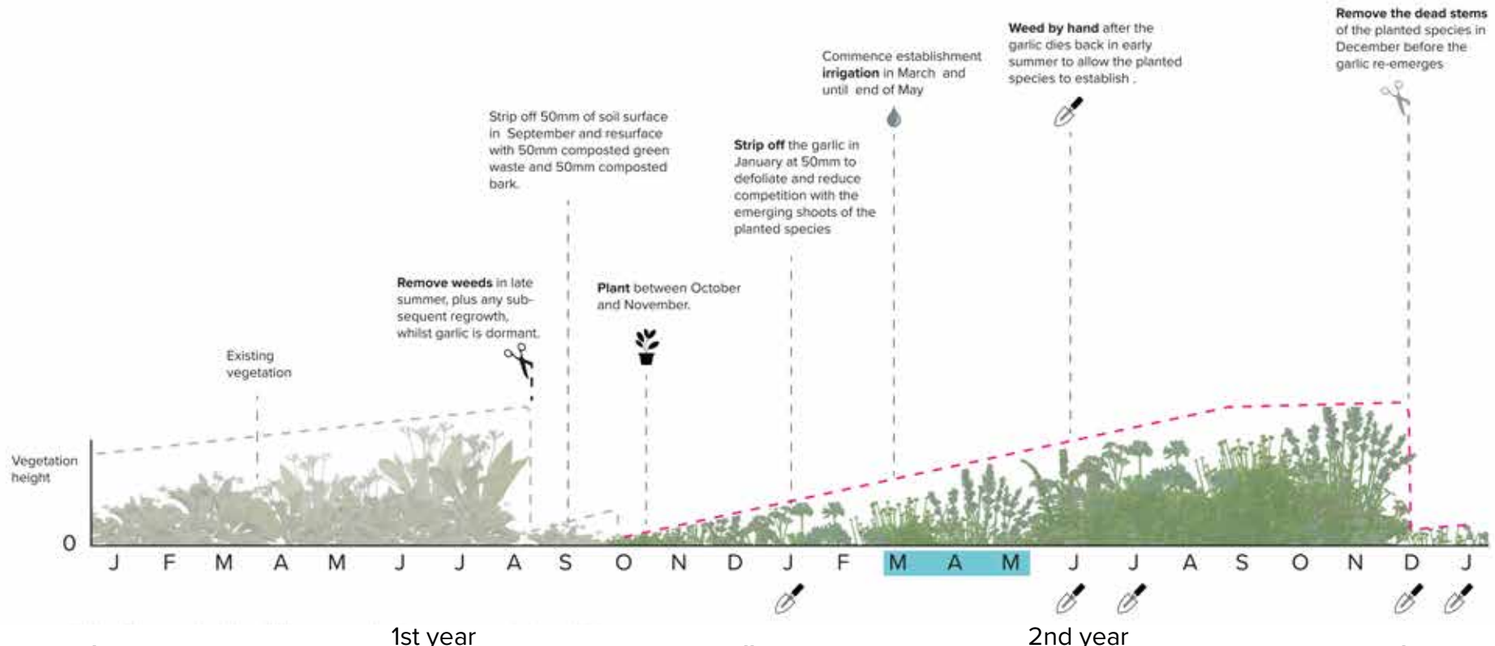
•Control invasive species like the three cornered garlic (*Allium triquetrum*) and wild garlic (*Allium ursinum*)



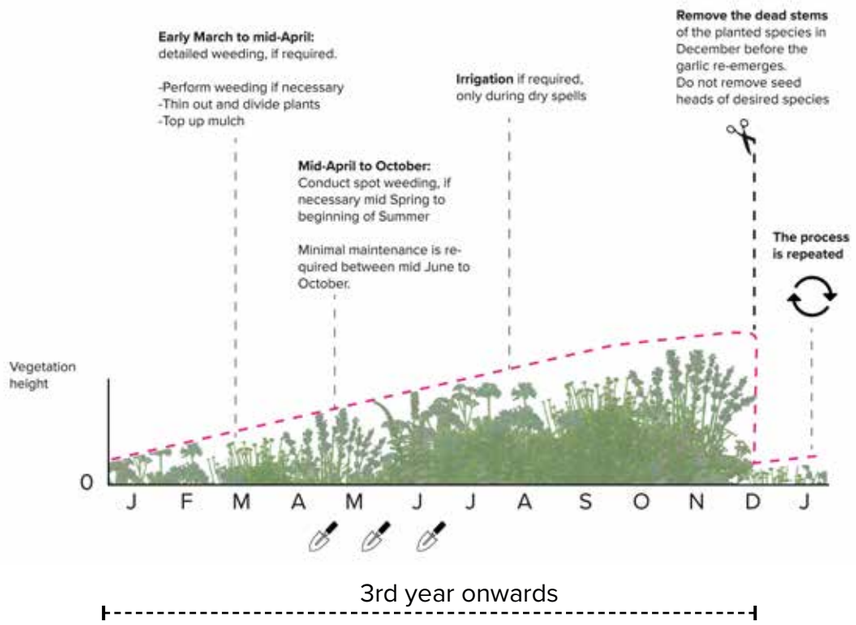
HP1 - High profile areas - edge of paths (sunny and shaded areas)

2.8 High Profile Planting with Garlic

Gustafson Porter + Bowman



High profile areas with wild/three cornered garlic - management during establishment - first and second year



High profile areas with wild/three cornered garlic - management once establishment - third year and onwards

High Profile areas with wild/three cornered garlic - HP1						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guid-ance
Vegetation clearance *(establishment period)*	Remove weeds in late summer, plus any subsequent regrowth, whilst garlic is dormant.	As many as needed to ensure a weed free surface by early autumn	From February /March to Autumn(before planting)	N/A	N/A	N/A
Mulching *(establishment period)*	Adjacent to paths that will have their height increased by 50mm, strip off 50mm of soil surface in September. Resurface with 50mm compressed depth of PAS100 composted green waste and 50mm of 10-20mm screen composted bark.	Once	In September	N/A	N/A	N/A
Planting *(establishment period)*	Plant between October and November randomly **(using 1L pot grown plants)** at 400mmn centres **(6 plants/sqm)** from the detailed planting mixes.	Once	In October-November.	N/A	N/A	N/A
Weeding *(establishment period)*	Strim or remove using hand tools the *allium sp.* in January at 50mm to defoliate and reduce competition with the emerging shoots of the planted species	Once	In January	N/A	N/A	N/A
Irrigation *(establishment period)*	Commence establishment irrigation in March using tripods with impact drive heads and moved as necessary to keep the green waste compost moist till June. In the absence of significant rain (>8mm) irrigate **x 1 per week**. Provide sufficient irrigation at each event to re-wet the top 150mm mm of the mulch and soil. This typically requires approximately **20mm of water.** Cease irrigation in May.	Absence of significant rain (>8mm) irrigate x 1 per week. Approximately 20 mm of water.	March to May (using tripods)	N/A	N/A	N/A
Weeding *(establishment period)*	Weed by hand after the garlic dies back in early summer to allow the planted species to establish. Remove the dead stems of the planted species in December before the *allium* re-emerges, leave as late as possible for species such as the *Selinum* to provide seed heads for finches. Weed in summer in subsequent years to allow the planted species to expand	As many as needed to ensure a weed free surface	Early summer and in December	N/A	N/A	N/A

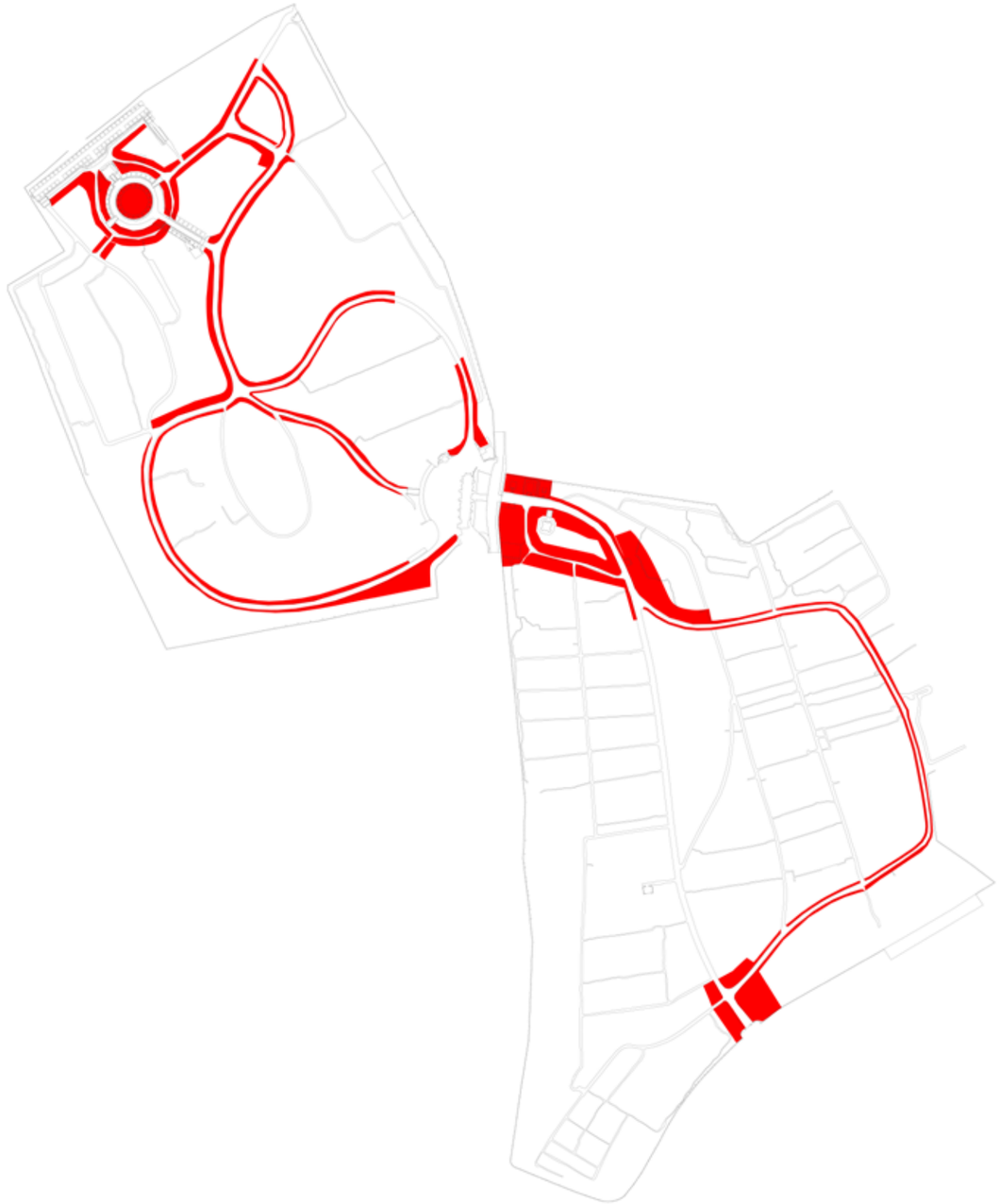
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Cutting/pruning herbaceous *(once established)*	End of February/early March Cut back deciduous herbaceous plants (before new growth).	Annually	N/A	End of February- early March (before new growth).	End of February- early March (before new growth).	End of February- early March (before new growth).
Weeding *(once established)*	Detailed weeding early March to mid April Conduct spot weeding, if necessary mid Spring to beginning of Summer Minimal maintenance is required between mid June to October. Strip off the garlic in January at 50mm to defoliate and reduce competition with the emerging shoots of the planted species	Annually	N/A	Summer to to allow the planted species to expand	Summer to to allow the planted species to expand	As necessary
Mulching *(once established)*	Top up mulch early March to mid April (site compost)	Annually in Spring	N/A	In Spring	In Spring	
Irrigation *(once established)*	Only during dry spells	Only when necessary	N/A	Only when necessary	Only when necessary	Only when necessary
Retain seed heads *(once established)*	The goal is to retain seed heads and dead stems as long as possible and until the final cut (before new growth) Sequential removal of dead stems and seed heads only if they collapse, become untidy, or detract from the visual effect. Leave all others in place.	Annually	N/A	Retain seed heads and dead stems as long as possible	Retain seed heads and dead stems as long as possible	Retain seed heads and dead stems as long as possible

2.9 High Profile Planting without Garlic

Gustafson Porter + Bowman

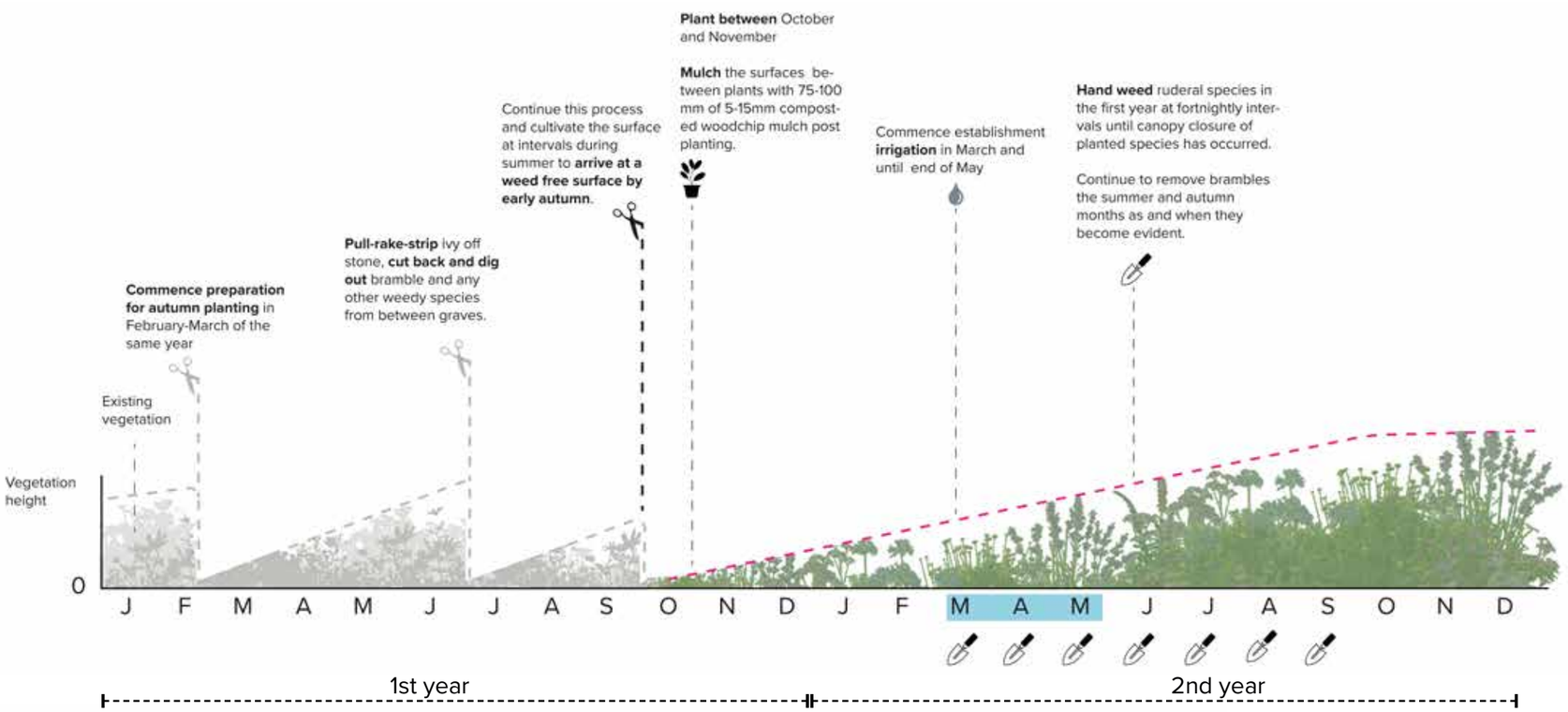
High profile areas without wild/three cornered garlic

- The aim is to achieve a long lived evergreen, semi-evergreen ground layer edges plus emergent species for spring-autumn flowers.

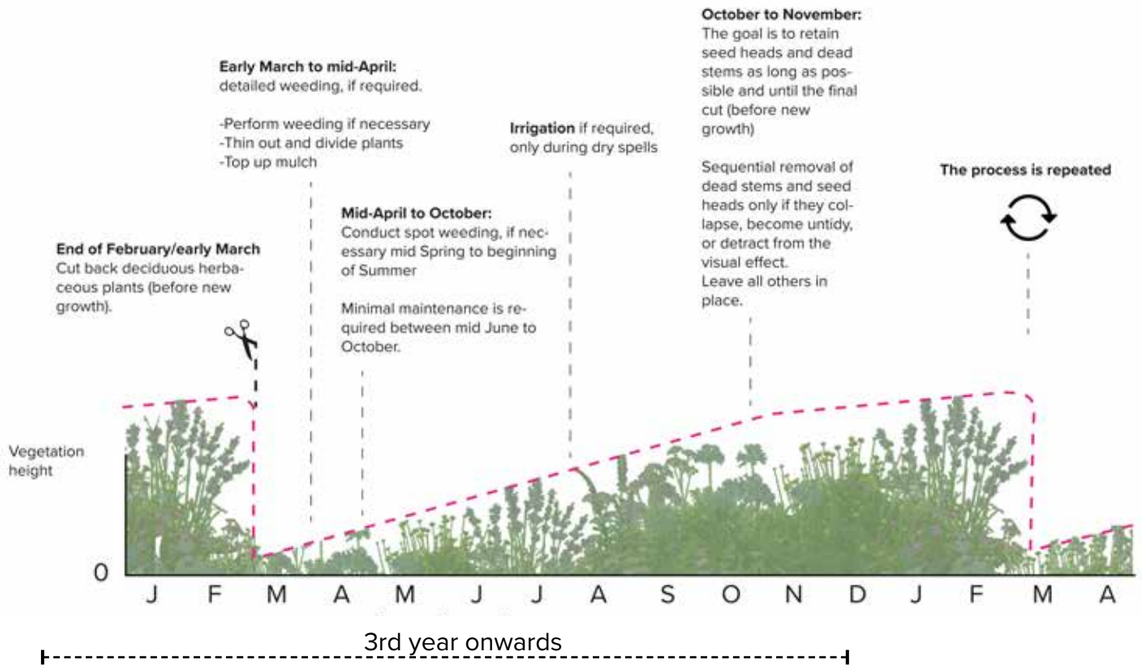


HP1 - High profile areas - edge of paths (sunny and shaded areas)

Gustafson Porter + Bowman



High profile areas without wild/three cornered garlic - management during establishment - first and second year



High profile areas without wild/three cornered garlic - management once establishment - third year and onwards

High Profile areas without wild/three cornered garlic - HP1						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / On-going guid-ance
Vegetation clearance *(establishment period)*	Commence preparation for autumn planting in February-March of the same year. Pull-rake-strip ivy off stone, cut back and dig out bramble and any other weedy species from between graves. Continue this process and cultivate the surface at intervals during summer to arrive at a weed free surface by early autumn. Where mechanical removal of bramble shoots-stems, and other problematic weeds proves impossible due to no access for excavation or very deep roots (for example bindweeds), consider painting the basal regrowth with a translocated herbicide in exceptional uses only as explained below: Harmful vegetation should be removed manually, with use of herbicide in exceptional circumstances only, and when sanctioned by Conservation Architect and Head Gardener. Method of application by injecting, touch spot, or spraying using a spray cone/drift shield to be agreed in advance.	As many as needed to ensure a weed free surface by early autumn.	From February /March to Autumn(before planting)	N/A	N/A	N/A
Planting *(establishment period)*	Plant between October and November randomly **(using 1L pot grown plants)** into the compost at approximately **350mm centres (8 plants/sqm).**	Once	From October to November	N/A	N/A	N/A
Mulching *(establishment period)*	Base of the rootball should be in contact with the underlying soil. Mulch the surfaces between plants with 75-100 mm of 5-15mm composted woodchip mulch post planting.	As necessary	Post planting	N/A	N/A	N/A
Irrigation *(establishment period)*	Commence establishment irrigation in March using tripods with impact drive heads and moved as necessary to keep the green waste compost moist till June. In the absence of significant rain (>8mm) irrigate **x 1 per week**. Provide sufficient irrigation at each event to re-wet the top 150mm mm of the mulch and soil. This typically requires approximately **20 mm of water**. Cease irrigation in May.	Absence of significant rain (>8mm) irrigate x 1 per week. Approximately 20 mm of water.	March to May (using tripods)	N/A	N/A	N/A

Weeding *(establishment period)*	Hand weed ruderal species in the first year at fortnightly intervals until canopy closure of planted species has occurred. Continue to remove brambles the summer and autumn months as and when they become evident.	In the first year at fortnightly intervals The aim is to maintain less than 5% weed cover within planted areas Continue weeding for 2-3 years	Hand weed ruderal species until canopy closure of planted species has occurred. In Summer and Autumn months as and when they become evident.	Hand weed ruderal species until canopy closure of planted species has occurred. In Summer and Autumn months as and when they become evident.	Follow the same principles of weeding until the third year	N/A
Tasks/Features	Description of Task	Frequency	First Year	Second year	Third to Fifth year	Notes / On-going guid-ance
Cutting/pruning herbaceous *(once established)*	End of February/early March Cut back deciduous herbaceous plants (before new growth).	Annually	N/A	End of February-early March (before new growth).	End of February-early March (before new growth).	End of February- early March (before new growth).
Weeding *(once established)*	Detailed weeding early March to mid April Conduct spot weeding, if necessary mid Spring to beginning of Summer Minimal maintenance is required between mid June to October.	Annually for the first 2 to 3 years	N/A	Annually.	Annually until the third year.	As necessary
Mulching *(once established)*	Top up mulch November-December before active growth starts (with site compost, if feasible). Mulching should be done at frequencies (generally between 1 and 2 Years) that prevent the establishment of weed seeds within planted areas. where there are primula in the base layer, early mulching ie October -November will help the *Primula spp*. push through the new mulch. Depth of mulch for top up to be generally 50mm, less than the first application.	Annually	Annually	Annually	As necessary	As necessary
Irrigation *(once established)*	Only during dry spells	Only if required	N/A	Only when necessary	Only when necessary	Only when necessary

2.10 Embankment Planting

Gustafson Porter + Bowman

Embankments

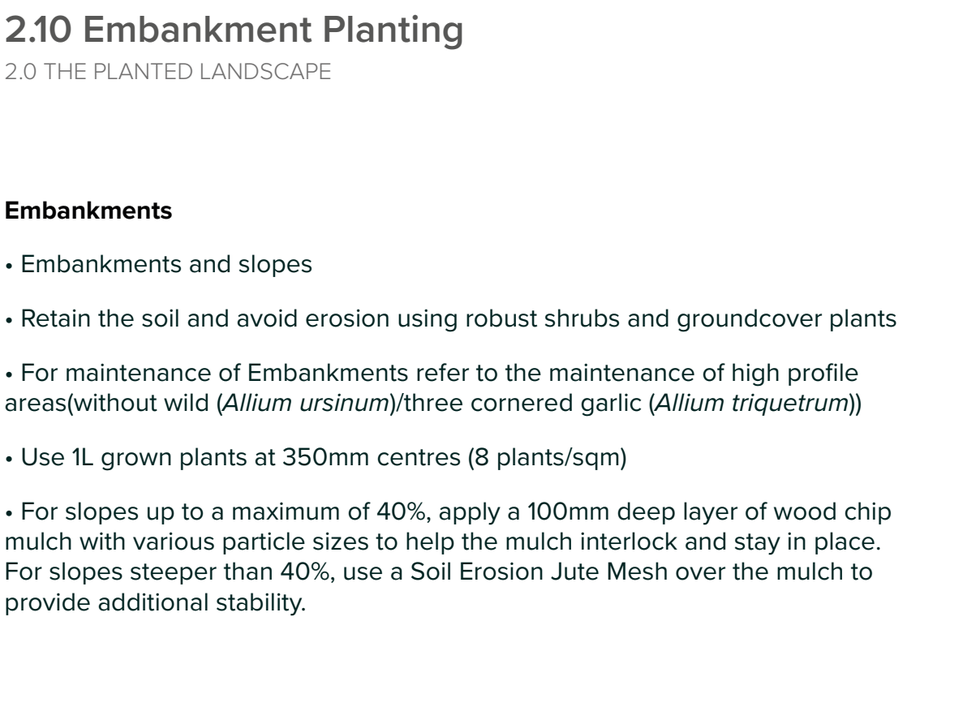
• Embankments and slopes

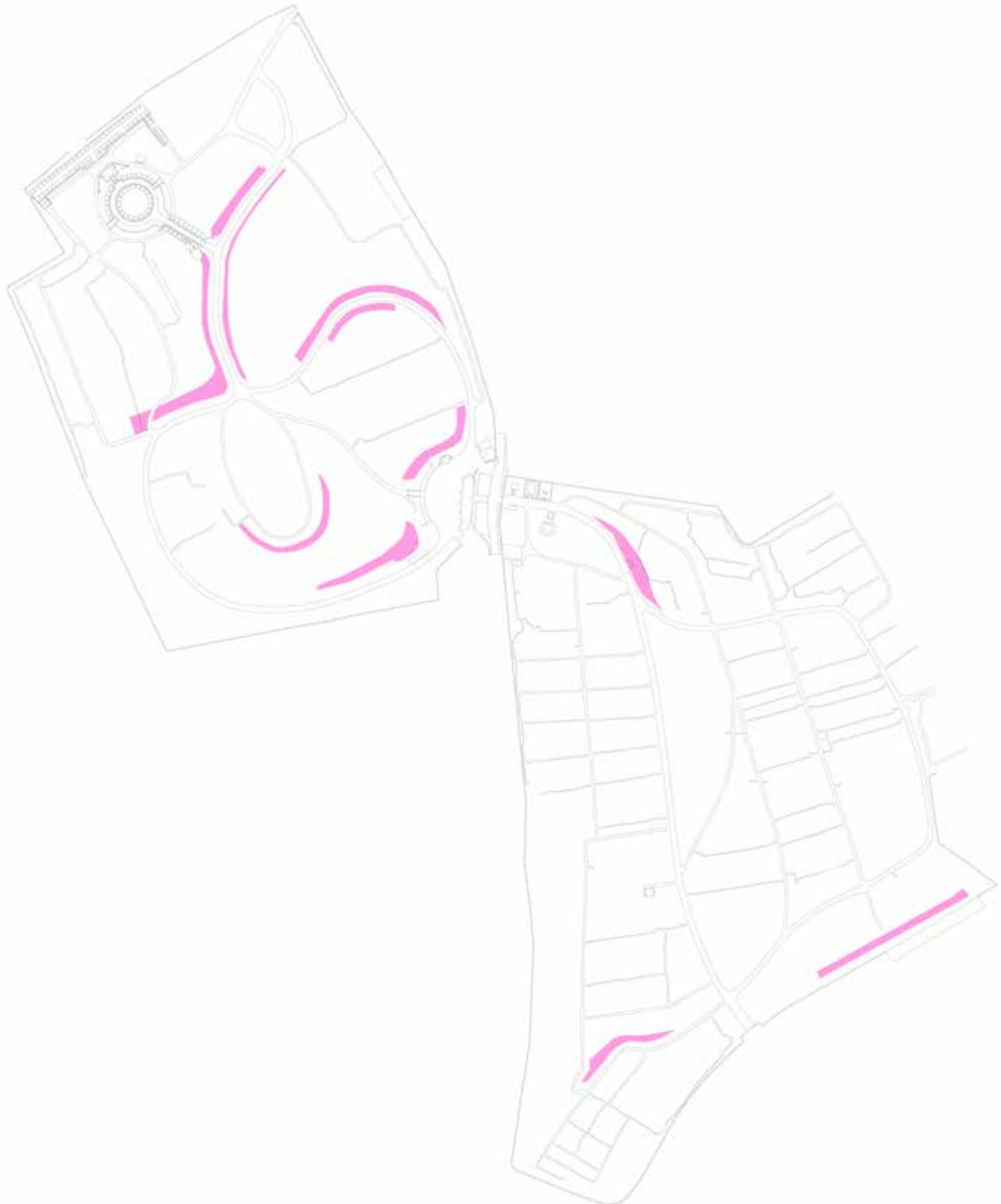
• Retain the soil and avoid erosion using robust shrubs and groundcover plants

• For maintenance of Embankments refer to the maintenance of high profile areas(without wild (*Allium ursinum*)/three cornered garlic (*Allium triquetrum*))

• Use 1L grown plants at 350mm centres (8 plants/sqm)

• For slopes up to a maximum of 40%, apply a 100mm deep layer of wood chip mulch with various particle sizes to help the mulch interlock and stay in place. For slopes steeper than 40%, use a Soil Erosion Jute Mesh over the mulch to provide additional stability.





EM1 - Embankments/Slopes (sunny and shaded areas)

Gustafson Porter + Bowman

SuDS

•Manage water run-off from hard and soft areas. The selected plants will need to be able to tolerate the dry conditions from the highly porous soils.

• This mix has similarities to the high profile areas but there may be a need to remove senescent or dead foliage in summer if there is no rain. These areas may need to be weeded more frequently than in mulched garden beds

• Surfacing with 100mm of fines free aggregate gravel greatly reduces weed seed germination .

• For graph diagrams showing the management of the SuDS refer to the high profile areas graphs

• Using 1L pot grown plants at approximately 350mm centres (8 plants/sqm).

SU1 - SuDS

SuDS - SU1						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Vegetation clearance *(establishment period)*	Commence preparation for autumn planting in February-March of the same year. Pull-rake-strip ivy off stone, cut back and dig out bramble and any other weedy species from between graves. Continue this process and cultivate the surface at intervals during summer to arrive at a weed free surface by early autumn. Where mechanical removal of bramble shoots-stems, and other problematic weeds proves impossible due to no access for excavation or very deep roots) for example bindweeds), consider painting the basal regrowth with a translocated herbicide in exceptional uses only as explained below: Harmful vegetation should be removed manually, with use of herbicide in exceptional circumstances only, and when sanctioned by Conservation Architect and Head Gardener. Method of application by injecting, touch spot, or spraying using a spray cone/drift shield to be agreed in advance.	As many as needed to ensure a weed free surface by early autumn.	From February /March to Autumn(before planting)	N/A	N/A	N/A
Planting *(establishment period)*	Plant between October and November randomly **(using 1L pot grown plants)** at approximately **350mm centres (8 plants/sqm).**	Once	From October to November	N/A	N/A	N/A
Mulching *(establishment period)*	Base of plant rootball should be in contact with the underlying soil. Surfacing with 100mm of fines free aggregate greatly to reduce weed seed germination.	Once	Post planting	N/A	N/A	N/A

Irrigation *(establishment period)*	Commence establishment irrigation in March using tripods with impact drive heads and moved as necessary to keep the green waste compost moist till June. In the absence of significant rain (>8mm) **irrigate x 1 per week**. Provide sufficient irrigation at each event to re-wet the top 150mm mm of the mulch and soil. This typically requires approximately **20 mm of water.** Cease irrigation in May	Absence of significant rain (>8mm) irrigate x 1 per week. **Approximately 20 mm of water.**	March to May (using tripods)	N/A	N/A	N/A
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Weeding *(establishment period)*	Hand weed ruderal species in the first year at fortnightly intervals until canopy closure of planted species has occurred. Continue to remove brambles the summer and autumn months as and when they become evident.	In the first year at fortnightly intervals for 2-3 years to maintain less than 5% weed cover within planted areas	Hand weed ruderal species until canopy closure of planted species has occurred summer and autumn months as and when they become evident.	Hand weed ruderal species until canopy closure of planted species has occurred summer and autumn months as and when they become evident.	follow the same principles of weeding until the third year	N/A
Cutting/pruning herbaceous *(once established)*	End of February/early March Cut back deciduous herbaceous plants (before new growth).	Annually	N/A	End of February-early March (before new growth).	End of February-early March (before new growth).	End of February- early March (before new growth).
Weeding *(once established)*	Detailed weeding early March to mid April Conduct spot weeding, if necessary mid Spring to beginning of Summer Minimal maintenance is required between mid June to October. There may be a need to remove senescent or dead foliage in summer if there is no rain, also because these systems are very open when dry weed invasion can be much more substantial than in mulched “garden beds”.	Annually for the first 2 to 3 years	N/A	As per the first year	For the first two to three years follow the same guidelines as per weeding the first year.	As necessary
Mulching *(once established)*	Top up mulch November-December before active growth starts. Depth of mulch for top up to be 50mm, less than the first application.	Annually	Annually	Annually	As necessary	As necessary
Irrigation *(once established)*	It is not required. Only in very dry years and long drought periods	Only when necessary	N/A	Only when necessary	Only when necessary	Only when necessary

Gustafson Porter + Bowman

Woodland species

All the habitat types have either the 1a or 1b maintenance process.

1a

•This type of management increases structural complexity of brambles, which is valuable for wildlife but messier for people

• Lower frequency cutting of bramble (*Rubus fruticosus*)and Ivy (*Hedera helix*) biomass

1b

•This type of management decreases structural complexity of brambles etc, less valuable for wildlife, less messy-improved access for people

•Supress significant bramble and Ivy biomass and sow to increase diversity of low species

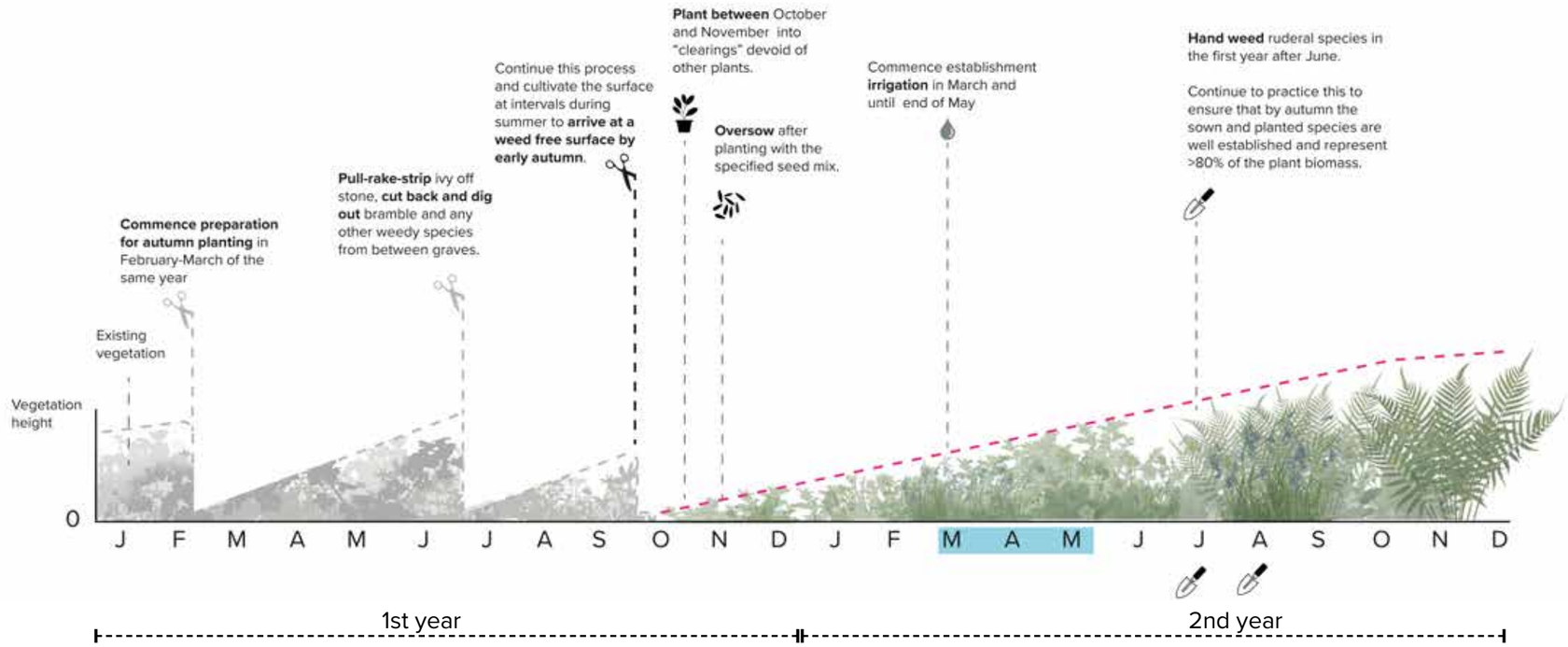
•To create low winter green basal layer with some autumn and spring flowers.

•Higher frequency cutting

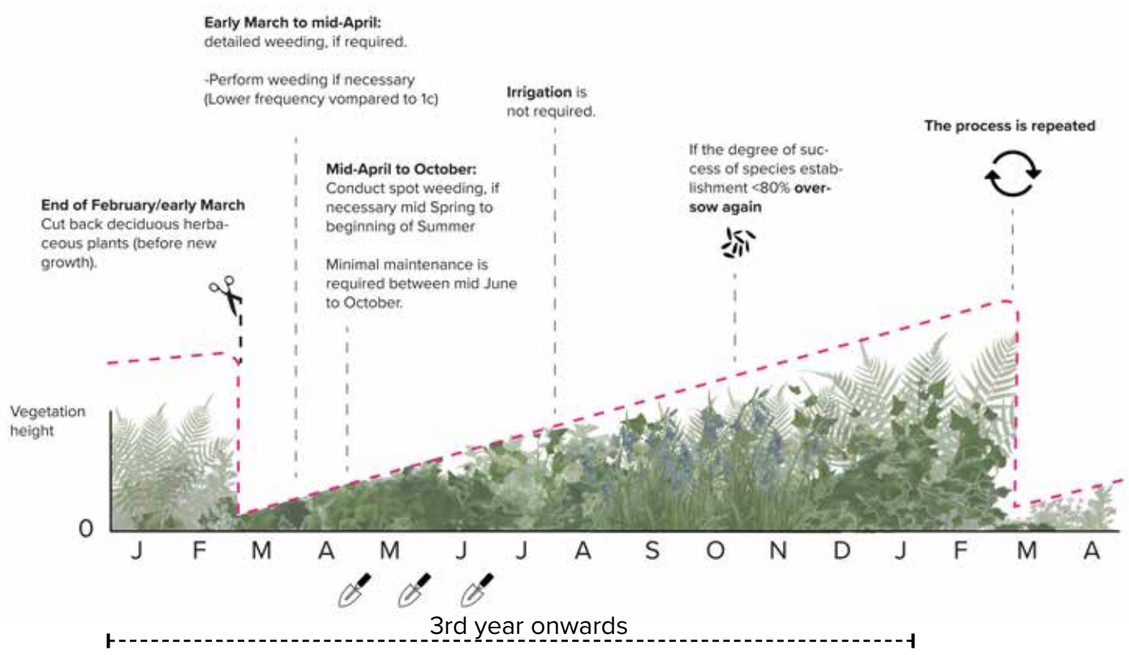
1a - Brambles for structural complexity/lower frequency cutting

1b - Decreases structural complexity of brambles/higher frequency cutting

- YW1-Yew woodland with shade on light soils
- BW1-Broadleaved woodland with shade on light soils
- BW2-Broadleaved woodland with sun on light soils
- BW3-Broadleaved woodland with shade on medium to heavy soils
- BW4-Broadleaved woodland with sun on medium to heavy soils
- BW5-Broadleaved woodland with shade on heavy soils
- BW6-Broadleaved woodland with sun on heavy soils
- WW1-Wet woodland with shade on heavy soils
- WW2-Wet woodland with sun on heavy soils



Woodland species 1a - management during establishment - first and second year



Woodland species 1b - management once establishment - third year and onwards

Woodland Species - BW1, BW6, WW2 - YM1, BW1, BW2, BW3, BW4, BW5, BW6, WW1, WW2 - (1a and 1b)						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Vegetation clearance *(establishment period)*	1a Commence preparation for autumn planting-sowing in February-March of the same year. Pull-rake-strip ivy off stone, cut back and dig out bramble and any other large weedy species from between graves. Rake and remove leaf litter fall from areas to be planted 1b As above but higher frequency cutting of brambles (*Rubus fruticosus*) and Ivy (*Hedera helix*) biomass	1a Lower frequency cutting (allow structural complexity of brambles, which is valuable for wildlife) 1b higher frequency cutting than 1a	As required for each planting typology 1a and 1b	N/A	N/A	N/A
Planting *(establishment period)*	Plant in November to provide access to mineral soil or well decomposed leaf litter. Plant randomly (using **P9 grown plants**) from the into the soil at approximately 500mm centres (**4plants/sqm**) into “clearings” devoid of other plants.	Once	October-November	N/A	N/A	N/A
Sowing *(establishment period)*	Oversow after planting with the specified seed mix. Raking in is helpful where this can be undertaken.	Once	After planting	N/A	N/A	N/A
Mulching *(establishment period)*	No mulching	Not required	Not required	N/A	N/A	N/A
Irrigation *(establishment period)*	Where possible, commence establishment irrigation in March using tripods with impact drive heads and moved as necessary to keep the soil moist till June. This significantly increases conversion of seed sown to seedlings. In the absence of significant rain (>8mm) this typically needs to be done **x2 per week**. Provide sufficient irrigation at each event to re-wet the top 50mm of the Composed Green Waste. This typically requires approximately **8-12mm of water**. Sow 1 x 100mm pot containing seed sowing compost with 100 seeds of each species sown; irrigate from March on as per the landscape sowings to provide seedings for ID purposes. Cease irrigation in June; irrigation should not be required in subsequent years.	In the absence of significant rain (>8mm) this typically needs to be done x2 per week	Early March to end of May	N/A	N/A	N/A

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Weeding *(establishment period)*	Hand weed large growing ruderal species in the first year after June by which point planted and sown species should be well rooted enough not to be killed by removal of adjacent weed species. Continue to practice this to ensure that by autumn the sown and planted species are well established and represent >80% of the plant biomass. Continue to pull-cut brambles (*Rubus fruticosus*) at intervals throughout the summer months.	After June in the first year(after plant/sown species are well rooted)	After June, as necessary.	N/A	N/A	N/A
Over-sowing *(establishment period)*	Monitor degree of success of species establishment; where this is judged insufficient repeat the process in the following year. Continue to resow until acceptable densities of all sown species have been achieved. An acceptable density per m2 in this context would be at least 3 plants of each species/ m2	If necessary, annually (in Autumn) for 2-3 consecutive years	N/A	Only if the sown and planted species represent <80% of the plant biomass	Only if the sown and planted species represent <80% of the plant biomass	Not required
Cutting/pruning herbaceous *(once established)*	End of February/early March Cut back deciduous herbaceous plants (before new growth).	Annually (End of February/ early March)	N/A	End of February/ early March(before new growth)	End of February/ early March(before new growth)	End of February/early March(before new growth)
Mulching *(once established)*	Not necessary	Not necessary	N/A	Not necessary	Not necessary	Not necessary
Irrigation *(once established)*	Not required	Only if over-sowing of seeds is required (March to May)	N/A	Not required. Water only if over-sowing of seeds is required	Not required	Not required
Seed heads *(once established)*	October to November The goal is to retain seed heads and dead stems as long as possible and until the final cut (before new growth) Sequential removal of dead stems and seed heads only if they collapse, become untidy, or detract from the visual effect. Leave all others in place.	Do not cut until end of February/early March. Only ,if necessary.	N/A	As necessary	As necessary	As necessary

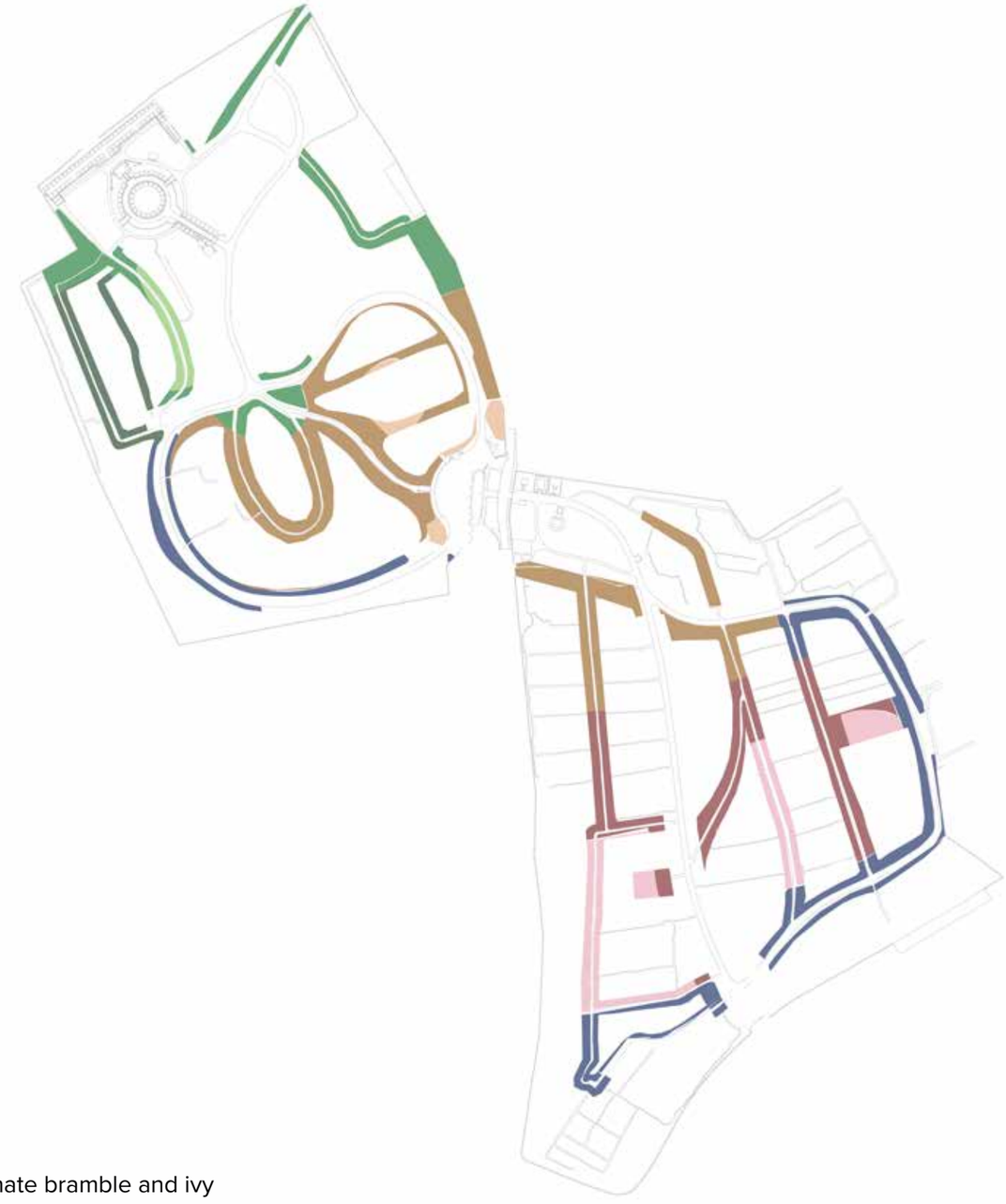
Gustafson Porter + Bowman

Woodland species - 1c

All the habitat types have the 1c maintenance process.

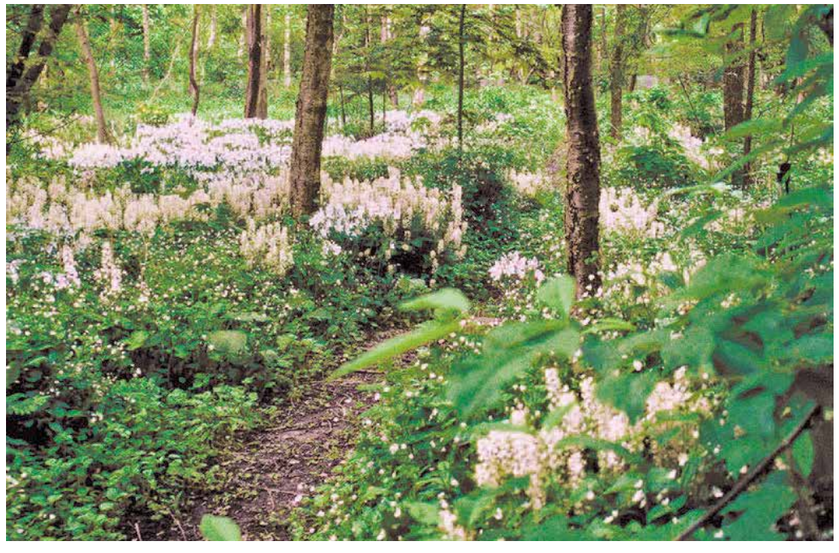
•Eliminate bramble (*Rubus fruticosus*) and Ivy (*Hedera helix*) to allow detail and seasonal interest-diversity

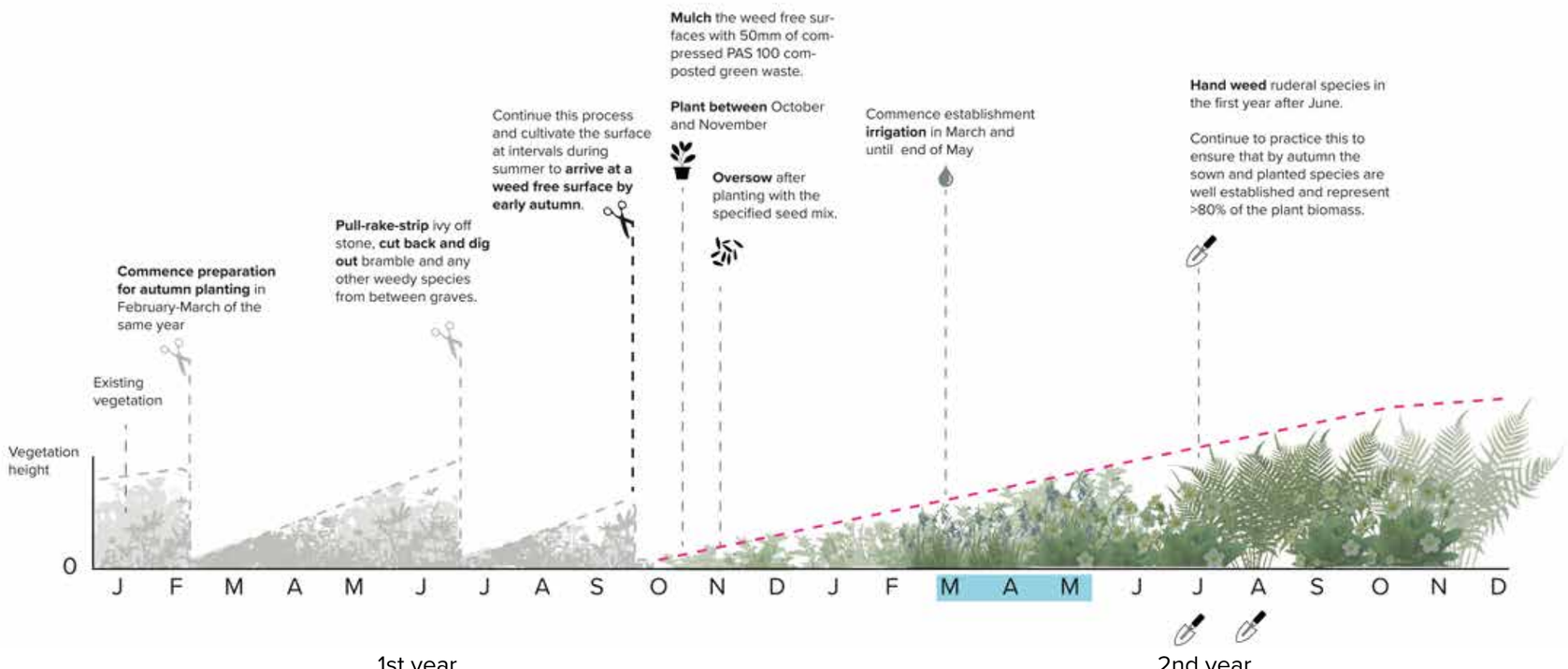
•Skinny strips (sometimes only a few cms wide) between grave stones on edges of woodland-carriage drives in West Side, and more extensive in the East Side.



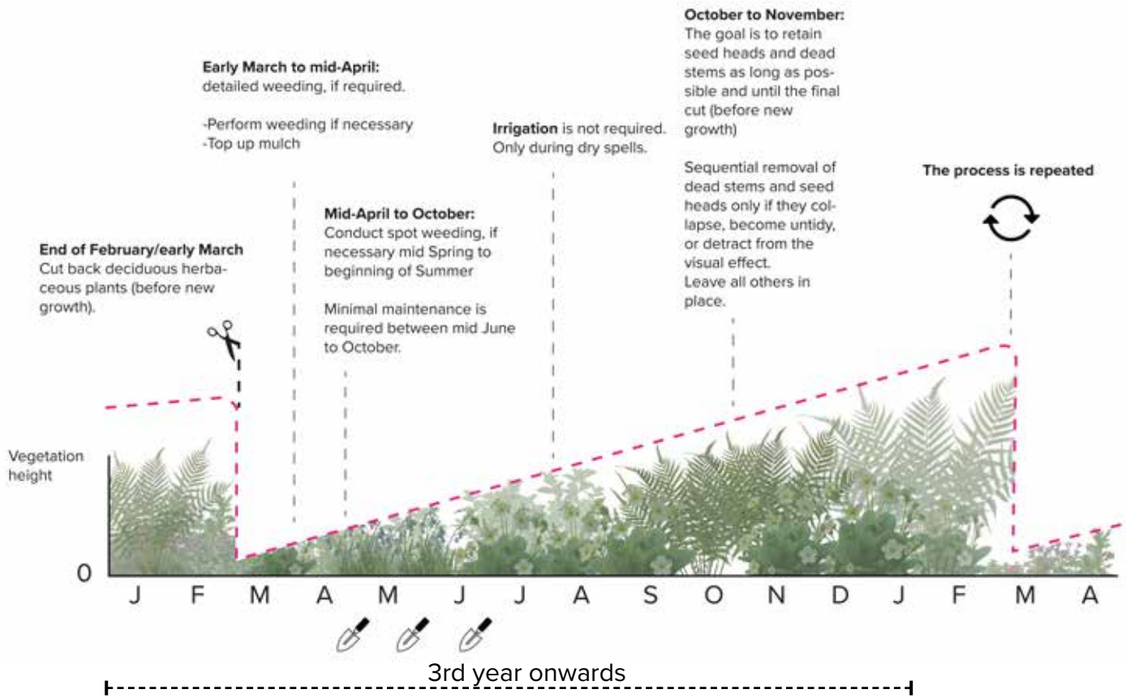
1C - Eliminate bramble and ivy

- YW1-Yew woodland with shade on light soils
- BW1-Broadleaved woodland with shade on light soils
- BW2-Broadleaved woodland with sun on light soils
- BW3-Broadleaved woodland with shade on medium to heavy soils
- BW4-Broadleaved woodland with sun on medium to heavy soils
- BW5-Broadleaved woodland with shade on heavy soils
- BW6-Broadleaved woodland with sun on heavy soils
- WW1-Wet woodland with shade on heavy soils
- WW2-Wet woodland with sun on heavy soils





Woodland species 1c - management during establishment - first and second year



Woodland species 1c - management once establishment - third year and onwards

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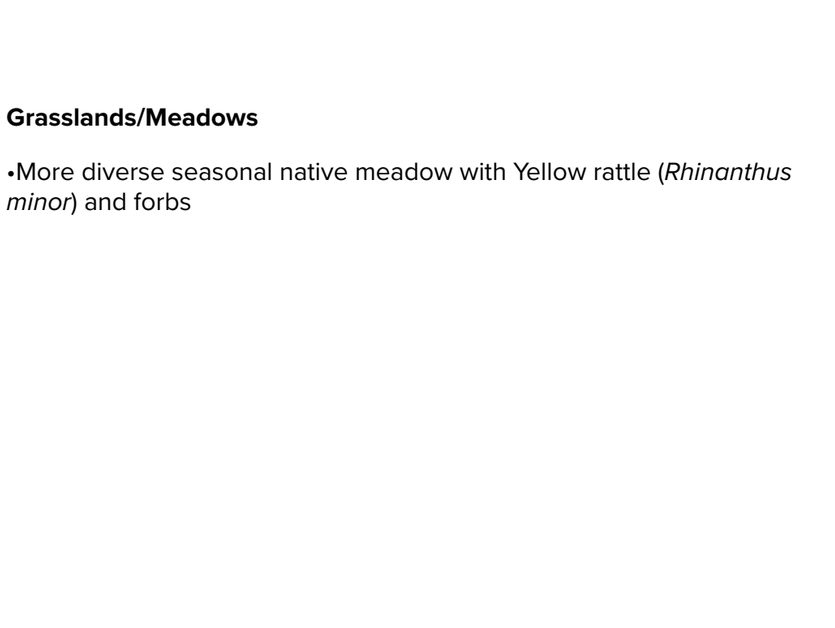
Woodland Species - YM1, BW1, BW2, BW3, BW4, BW5, BW6, WW1, WW2 - 1C						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Vegetation clearance *(establishment period)*	Commence preparation for autumn planting-sowing in February-March of the same year. Pull-rake-strip ivy off stone, cut back and dig out bramble and any other weedy species from between graves. Cultivate the surface at intervals during summer to arrive at a weed free surface by early autumn. Where mechanical removal of bramble shoots-stems proves impossible due to no access for excavation, consider painting the basal regrowth with a translocated herbicide in exceptional uses only as explained below: Harmful vegetation should be removed manually, with use of herbicide in exceptional circumstances only, and when sanctioned by Conservation Architect and Head Gardener. Method of application by injecting, touch spot, or spraying using a spray cone/drift shield to be agreed in advance.	As necessary to ensure a weed free surface by early autumn	From February /March to Autumn(before planting)	N/A	N/A	N/A
Mulching *(establishment period)*	Remove leaf litter fall from areas to be planted in November and mulch the weed free surfaces with 50mm of compressed PAS 100 composted green waste (no need to incorporate in the top layer of topsoil, its just an initially weed seed free layer to aid establishment).	Once	October-November	N/A	N/A	N/A
Planting *(establishment period)*	Plant randomly (using **P9 grown plants**) from the specified planting mixes for this type into this compost at approximately 350mm centres (**8 plants/sqm**).	Once	October-November	N/A	N/A	N/A
Sowing *(establishment period)*	Oversow after planting with the specified seed mix. Raking in is helpful but in many cases the gaps beween graves will be too small to allow this. Sow 1 x 100mm pot containing seed sowing compost with 100 seeds of each species sown.	Once	October-November)after planting)	N/A	N/A	N/A
Irrigation *(establishment period)*	Commence establishment irrigation in March using tripods with impact drive heads and moved as necessary to keep the green waste compost moist till June. In the absence of significant rain (>8mm) this typically needs to be done **x2 per week**. Provide sufficient irrigation at each event to re-wet the top 50mm of the CGW. This typically requires approximately **8-12mm of water.** Cease irrigation in June; irrigation should not be required in subsequent years.	In the absence of significant rain (>8mm) this typically needs to be done x2 per week.	March to May	N/A	N/A	N/A

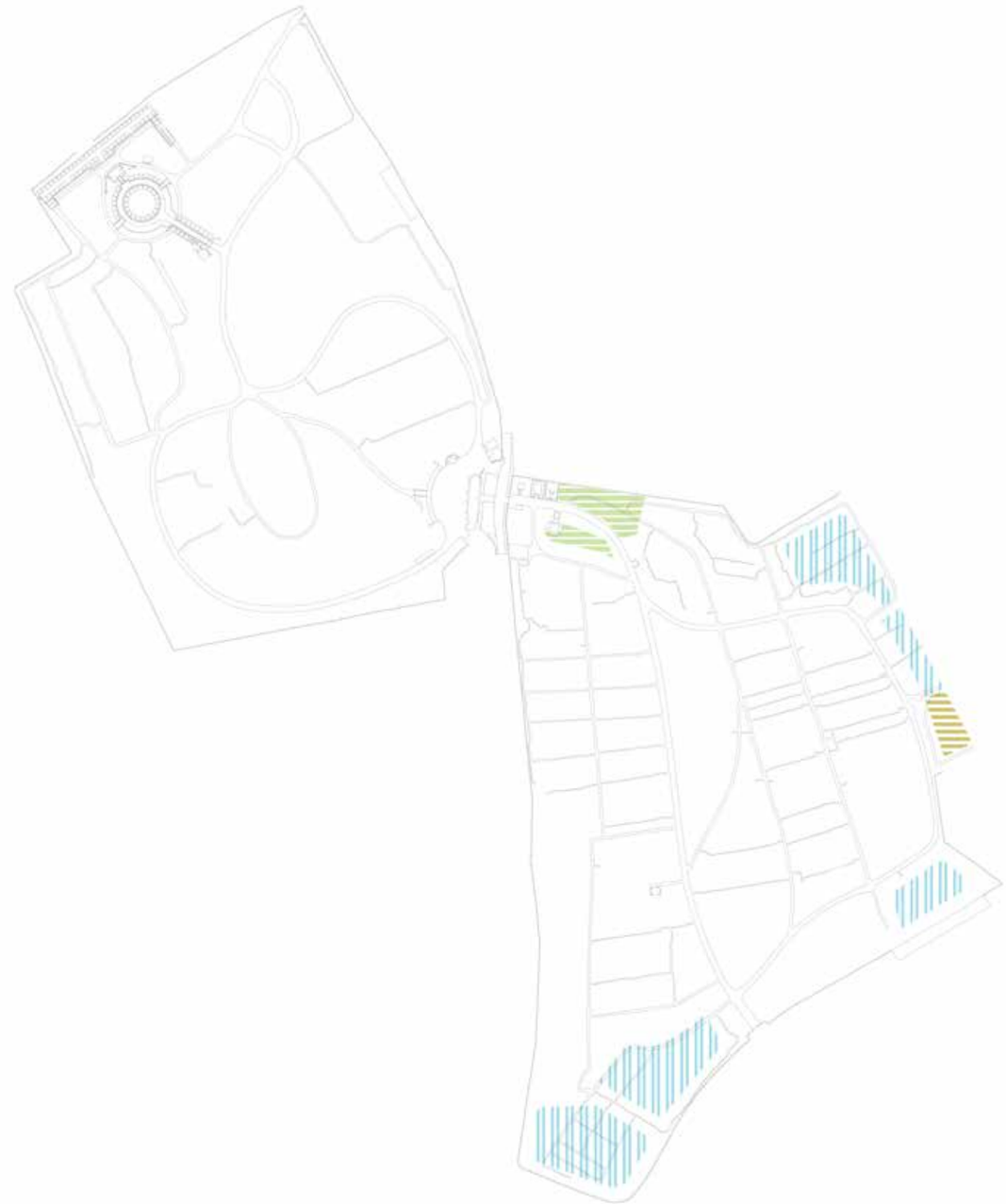
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Weeding *(establishment period)*	Hand weed ruderal species in the first year after June by which point planted and sown species should be well rooted enough not to be killed by removal of adjacent weed species Continue to practice this to ensure that by autumn the sown and planted species are well established and represent >80% of the plant biomass. Continue to pull-cut brambles (*Rubus fruticosus*) at intervals throughout the summer months.					
Cutting/pruning herbaceous *(once established)*	End of February/early March Cut back deciduous herbaceous plants (before new growth).	Annually (End of February/ early March)	N/A	End of February/ early March(before new growth)	End of February/ early March(before new growth)	End of February/early March(before new growth)
Irrigation *(once established)*	Not required	only if over-sowing of seeds is required (March to May)	N/A	Not required. Water only if over-sowing of seeds is required	Not required	Not required
Mulching *(once established)*	Top up mulch early March to mid April	If posssible, annually, using compost from the site	N/A	Top up mulch as required to maintain day one levels	Top up mulch as required to maintain day one levels	As necessary
Seed heads *(once established)*	October to November The goal is to retain seed heads and dead stems as long as possible and until the final cut (before new growth) Sequential removal of dead stems and seed heads only if they collapse, become untidy, or detract from the visual effect. Leave all others in place.	Do not cut until end of February/early March. Only if necessary.	N/A	As necessary	As necessary	As necessary

Gustafson Porter + Bowman

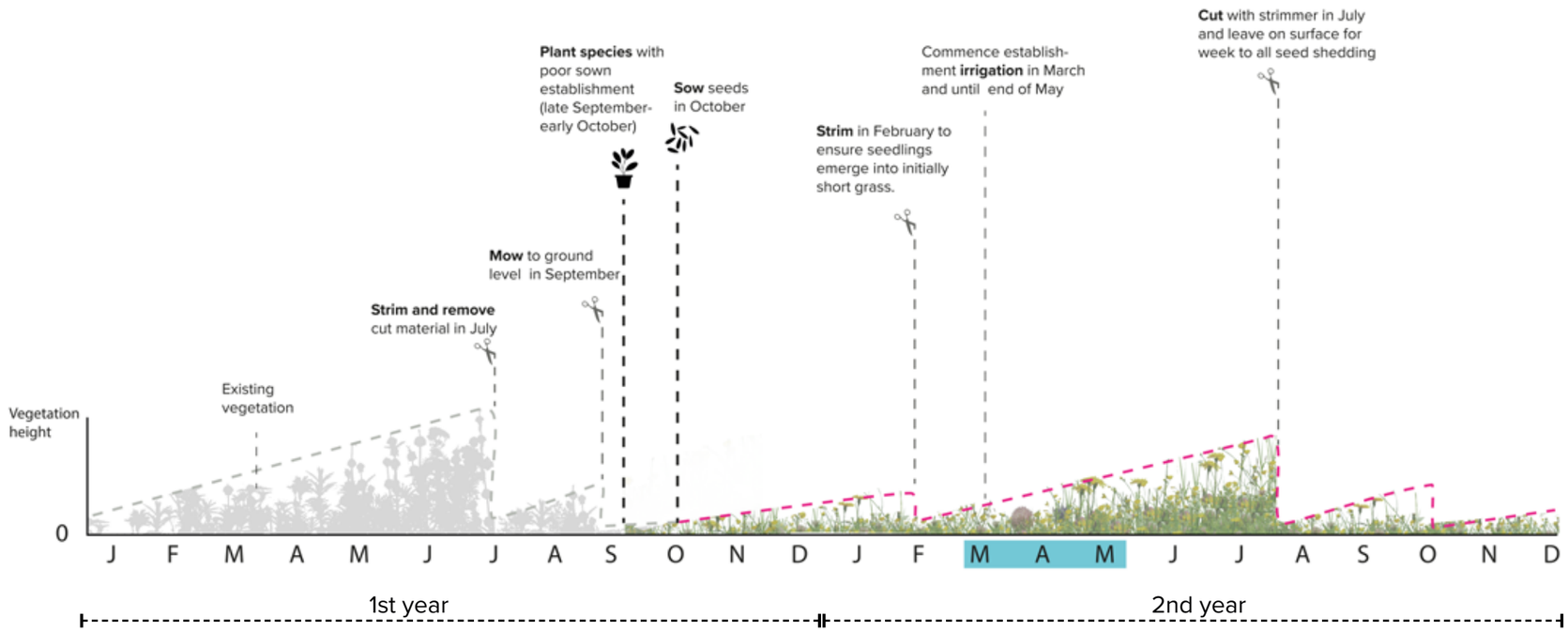
Grasslands/Meadows

•More diverse seasonal native meadow with Yellow rattle (*Rhinanthus minor*) and forbs

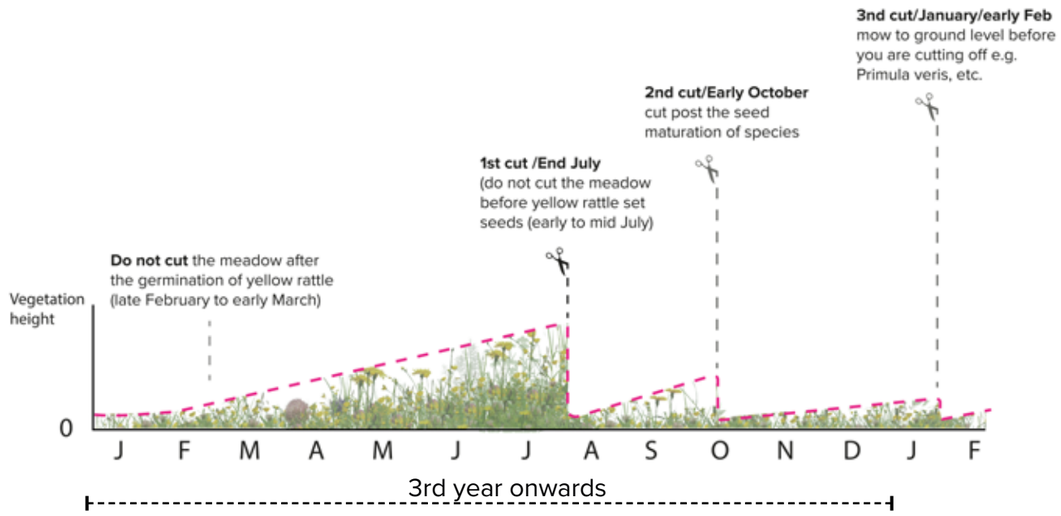




GD1-Dry grassland/meadow with sun on medium soils
GW1-Wet grassland/meadow with sun on heavy soils
GG1-Grassland/meadow with sun on heavy soils



Grasslands - management during establishment



Grasslands - management once established

Grasslands/Meadow - (GD1, GW1, GG1)						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Vegetation clearance *(establishment period)*	Strim and remove cut material in July using a heavy-duty cord strimmer on brushcutter frame, rake up and remove cut material. Use hand tools if necessary, to avoid damage to monuments and graves. Mow to ground level (strimmer or rotary mower) in September, and then scarify by heavy surface raking.	Twice	In July and September	N/A	N/A	N/A
Planting species with poor sown establishment *(establishment period)*	Plant **P7 containers** of species at 600mm centres (**4 plants/sqm**) as per the detailed planting mix in late September-early October, using a short kneeling spade to create a notch. Flatten root ball of plant and insert, compress the sides inwards to create good contact with the rootball.	Once	Late September-early October	N/A	N/A	N/A
Sowing *(establishment period)*	Oversow in October to ensure the winter chilling that is a pre-requisite for the germination of many species is experienced.		October	N/A	N/A	N/A
Cutting - 1st cut *(establishment period)*	Strim in February to ensure seedlings emerge into initially short grass. Allow vegetation to grow till seed of yellow rattle (*Rhinanthus minor*) is ready to be shed (generally late June).		February			
Irrigation *(establishment period)*	Commence establishment irrigation in March using tripods with impact drive heads and moved as necessary to keep the green waste compost moist till June. In the absence of significant rain (>8mm) this typically needs to be done **x2 per week**. Provide sufficient irrigation at each event to re-wet the top 50mm of the soil surface. This typically requires approximately **8-12mm of water**. Cease irrigation in June; irrigation should not be required in subsequent years.	In the absence of significant rain (>8mm) this typically needs to be done x2 per week.	Early March- End of May	N/A	N/A	N/A
Cutting - 2nd cut *(establishment period)*	Cut with strimmer in July and leave on surface for 1 week to all seed shedding, rake up and remove to the compost heap.		July	N/A	N/A	N/A

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Meadow - Undesirable species control/succession control *(once established)*	Control undesirable species: creeping thistle (*Cirsium arvense*), spear thistle (*Cirsium vulgare*), curled dock (*Rumex crispus*), broad leaved dock (*Rumex obtusifolius*), common ragwort (*Jacobaea vulgaris*), common nettle (*Urtica dioica*), bind weed (*Convolvulus*), couch grass (*Elymus repens*) and other problematic/invasive species at <5%.	As required	N/A	As required	As required	As required
Cutting *(once established)*	Manage meadow by allowing grasses and wildflowers to grow tall, flower and seed -1st cut /End of July (do not cut the meadow before yellow rattle (*Rhinanthus minor*) set seeds (early to mid July) -2nd cut/Early October cut post the seed maturation of *Succisa*, generally in early October -3nd cut/January/early Feb mow to ground level before you are cutting off *Primula veris*, etc. Do not cut the meadow after the germination of yellow rattle (late February to early March) Remove the “hay” to composting facility 1 week after cutting (to allow seed fall) in summer and October cut. The winter mow does not require rake up, unless it is very long Cutting the meadow as required to decrease the fertility of the soil, increase the flower species and control encroaching scrub.	Two to three times per year and according to the dominance of undesired species	N/A	Two to three times per year and according to the dominance of undesired species	Two to three times per year and according to the dominance of undesired species	As required
Irrigation *(once established)*	Not required	Only if over-sowing of seeds is required (March to May)	N/A	Not required. Water only if over-sowing of seeds is required	Not required	Not required

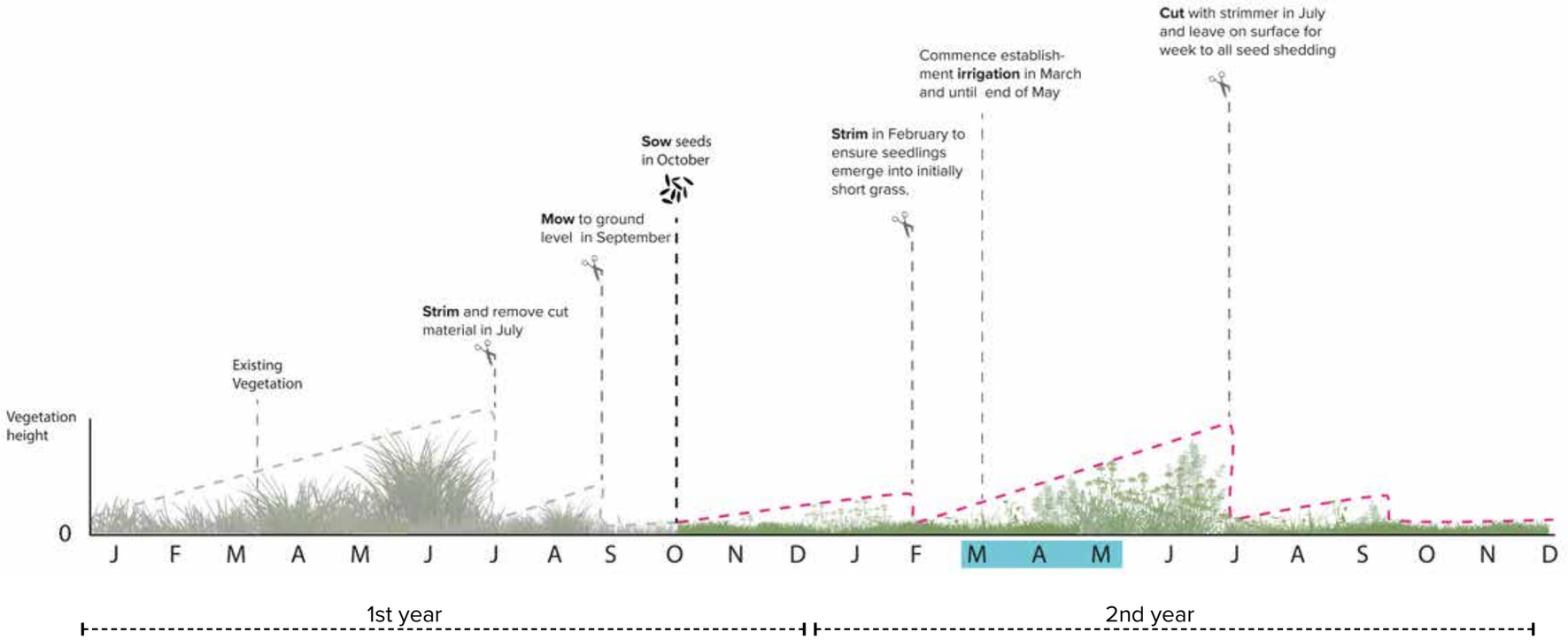
Gustafson Porter + Bowman

Species rich lawn

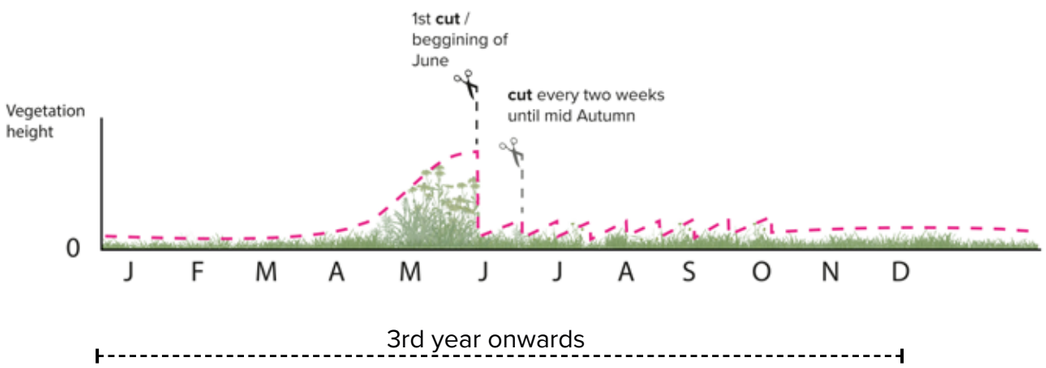
•It will a valuable source of pollen and nectar, whilst still being able to be regularly mown and will tolerate wear.

•For areas adjacent to new/recent graves (West Side) and main paths (East side).

SP1 - Species rich lawn with sun on heavy soils



Species rich lawn - management during establishment



Species rich lawn - management once established

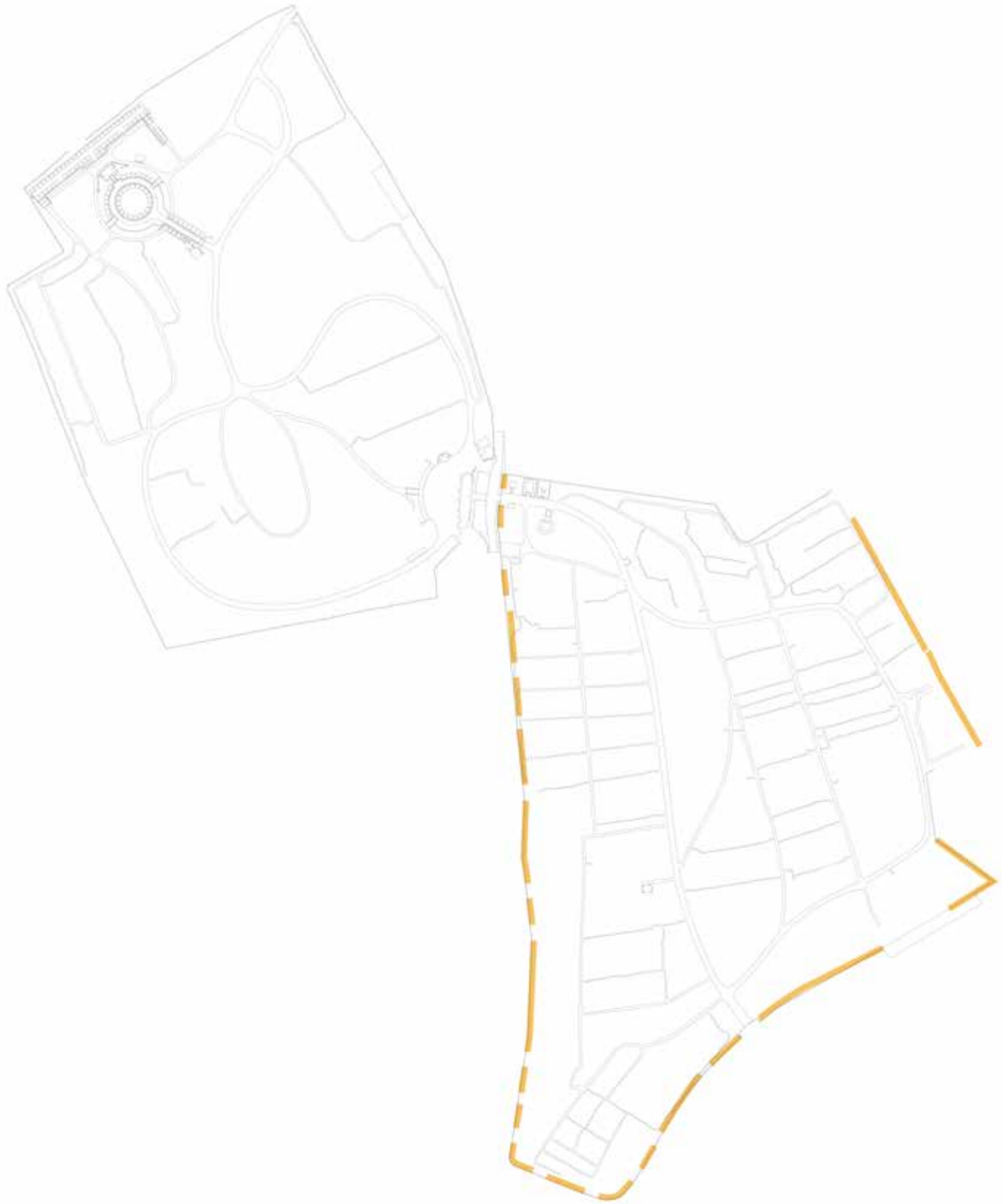
Species rich lawn - SP1						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Vegetation clearance *(establishment period)*	Strim and remove cut material in July using a heavy-duty cord strimmer on brushcutter frame, rake up and remove cut material. Use hand tools if necessary, to avoid damage to monuments and graves. Mow to ground level (strimmer or rotary mower) in September, and then scarify by heavy surface raking.	Twice	In July and September	N/A	N/A	N/A
Planting species with poor sown establishment *(establishment period)*	**Plant P7** containers of species at 600mm centres **(4 plants/sqm)** as per the detailed planting mix in late September-early October, using a short kneeling spade to create a notch. Flatten root ball of plant and insert, compress the sides inwards to create good contact with the rootball.	Once	Late September-early October	N/A	N/A	N/A
Sowing *(establishment period)*	**Oversow in October** to ensure the winter chilling that is a pre-requisite for the germination of many species is experienced. (70% of the seeds sown are wildflowers and only 30% fine leave grasses to maximise densities of the former).		October	N/A	N/A	N/A
Cutting - 1st cut *(establishment period)*	Strim in February to ensure seedlings emerge into initially short grass. Allow vegetation to grow till seed of yellow rattle (*Rhinanthus minor*) is ready to be shed (generally late June).		February			
Irrigation *(establishment period)*	Commence establishment irrigation in March using tripods with impact drive heads and moved as necessary to keep the green waste compost moist till June. In the absence of significant rain (>8mm) this typically needs to be done **x2 per week**. Provide sufficient irrigation at each event to re-wet the top 50mm of the soil surface. This typically requires approximately **8-12mm of water.** Cease irrigation in June; irrigation should not be required in subsequent years.	In the absence of significant rain (>8mm) this typically needs to be done x2 per week.	Early March- End of May	N/A	N/A	N/A
Cutting - 2nd cut *(establishment period)*	Cut with strimmer in July and leave on surface for 1 week to all seed shedding, rake up and remove to the compost heap. Use hand tools if necessary, to avoid damage to monuments and graves.		July	N/A	N/A	N/A

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Meadow - Undesirable species control/succession control *(once established)*	Control undesirable species: creeping thistle (*Cirsium arvense*), spear thistle (*Cirsium vulgare*), curled dock (*Rumex crispus*), broad leaved dock (*Rumex obtusifolius*), common ragwort (*Jacobaea vulgaris*), common nettle (*Urtica dioica*), bind weed (*Convolvulus*), couch grass (*Elymus repens*) and other problematic/invasive species at <5%.	As required	N/A	As required	As required	As required
Cutting *(once established)*	1st cut /Early June Continue cutting the species rich lawn **every two weeks** from Early June to mid Autumn. The cutting regime should be driven by the ground condition. Cutting should be delayed by a couple of weeks if the sward is very short and there are many flowers as a result of a dry year.	Fortnight intervals from early June to mid Autumn	N/A	Fortnight intervals from early June to mid Autumn	Fortnight intervals from early June to mid Autumn	As required
Irrigation *(once established)*	Not required	only if over-sowing of seeds is required (March to May)	N/A	Not required. Water only if over-sowing of seeds is required	Not required	Not required

Gustafson Porter + Bowman

Hedgerow

• A hybrid approach to cutting management is proposed. The hegderow will be cut twice annually on the railing side to address issues of growth interfering with pedestrians walking down the external side of the boundary wall. It will be cut once annually on the internal side in order to maintain nature conservation value



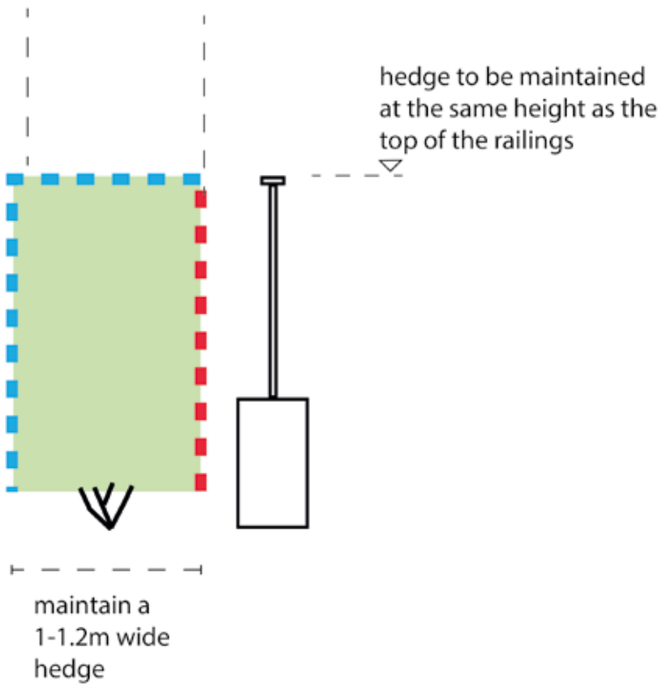
HR1 - Hedgerows

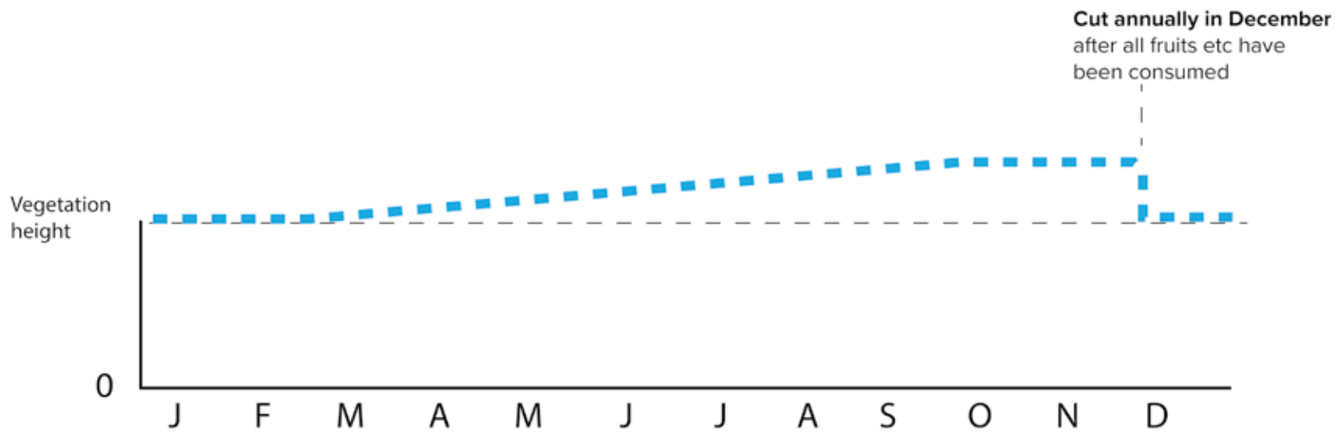
Internal side and top of hedge management

Cut annually in December after all fruits etc have been consumed, to maintain a 1-1.2 m wide hedge.

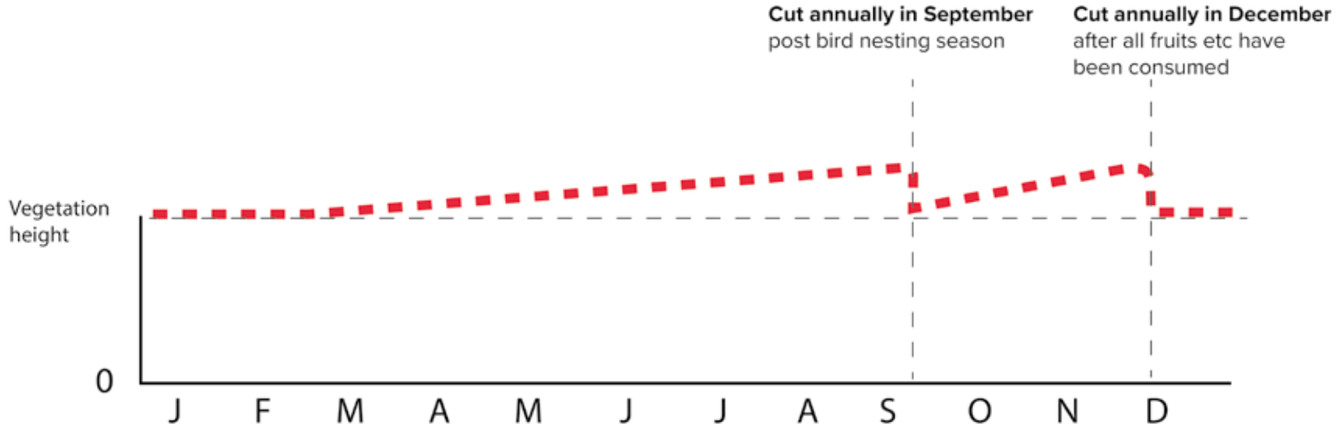
External side management

Cut annually in September post bird nesting season, then again in December after all fruits etc have been consumed, to maintain a 1-1.2 m wide hedge.





Internal side and top of hedge management - annual maintenance schedule



External side management - annual maintenance schedule

Hedgerow - HR1						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Vegetation clearance *(establishment period)*	Commence preparation for autumn planting in February-March of the same year if cultivation is to be used for weed control. Cultivate a 1m wide strip, using a commercial/hand rotavator or garden forks, and continue to remove re-sprouting species across the summer; the aim by autumn is to have a substantially weed free strip to plant in to. Where root accumulations of trees make rotavation impossible, dig out weeds by hand and then cover with **150mm deep wood chip mulch** to smother regrowth during the summer months. This will reduced but not completely eliminate weed presence; a final weed will be required prior to planting.	As necessary to ensure a substantially weed free strip by Autumn	From February/ March until Autumn (before planting)	N/A	N/A	N/A
Planting *(establishment period)*	Plant (min 600mm height cell grown with rabbit protection) in early October as a **double row 300mm apart with 450mm between plants** within the row. Prune back all major shoots **by 25%** prior to planting to ensure plants that are dense with multiple branches at the base of the hedge.	Once	Early October	N/A	N/A	N/A
Mulching *(establishment period)*	Mulch with 100mm of composted wood chips post planting.	Once	Post planting	N/A	N/A	N/A
Irrigation *(establishment period)*	In the absence of significant heavy rain (>20mm) irrigate at monthly intervals **(25mm of water monthly) from Late March to end of June** to ensure rapid establishment. Better growth will be achieved with irrigation 2x per month.	Monthly intervals from Late March to end of June	Late March to end of June	N/A	N/A	N/A

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Pruning *(once established)*	To address issues of growth interfering with pedestrians walking down the external side of the boundary wall, whilst maintaining nature conservation value a hybrid approach to cutting management is proposed. These two-treatments will result in a more formal garden like character on the external side and a more relaxed and more resource rich character on the internal side Once established the hedge is to be maintained at the height of the adjacent railings.					
	Internal side and top of hedge management Cut annually in December after all fruits etc have been consumed, to maintain a 1-1.2m wide hedge. Remove cuttings from the site	Internal side Cut Annually in December	N/A	Internal side Cut Annually in December	Internal side Cut Annually in December	
	External side management Cut annually in September post bird nesting season, then again in December after all fruits etc have been consumed, to maintain a 1-1.2 m wide hedge. Remove cuttings from the site.	External side Cut Annually in September and then again in December	N/A	External side Cut Annually in September and then again in December	External side Cut Annually in September and then again in December	
Weeding *(once established)*	Around the base of the hedgerow in the summer	As required	N/A	As required	As required	As necessary
Mulching *(once established)*	Top up mulch early March to mid April	Annually using compost from the site	N/A	Top up mulch as required to maintain day one levels	Top up mulch as required to maintain day one levels	As necessary
Irrigation *(once established)*	Not required	Not required	N/A	Not required	Not required	Not required

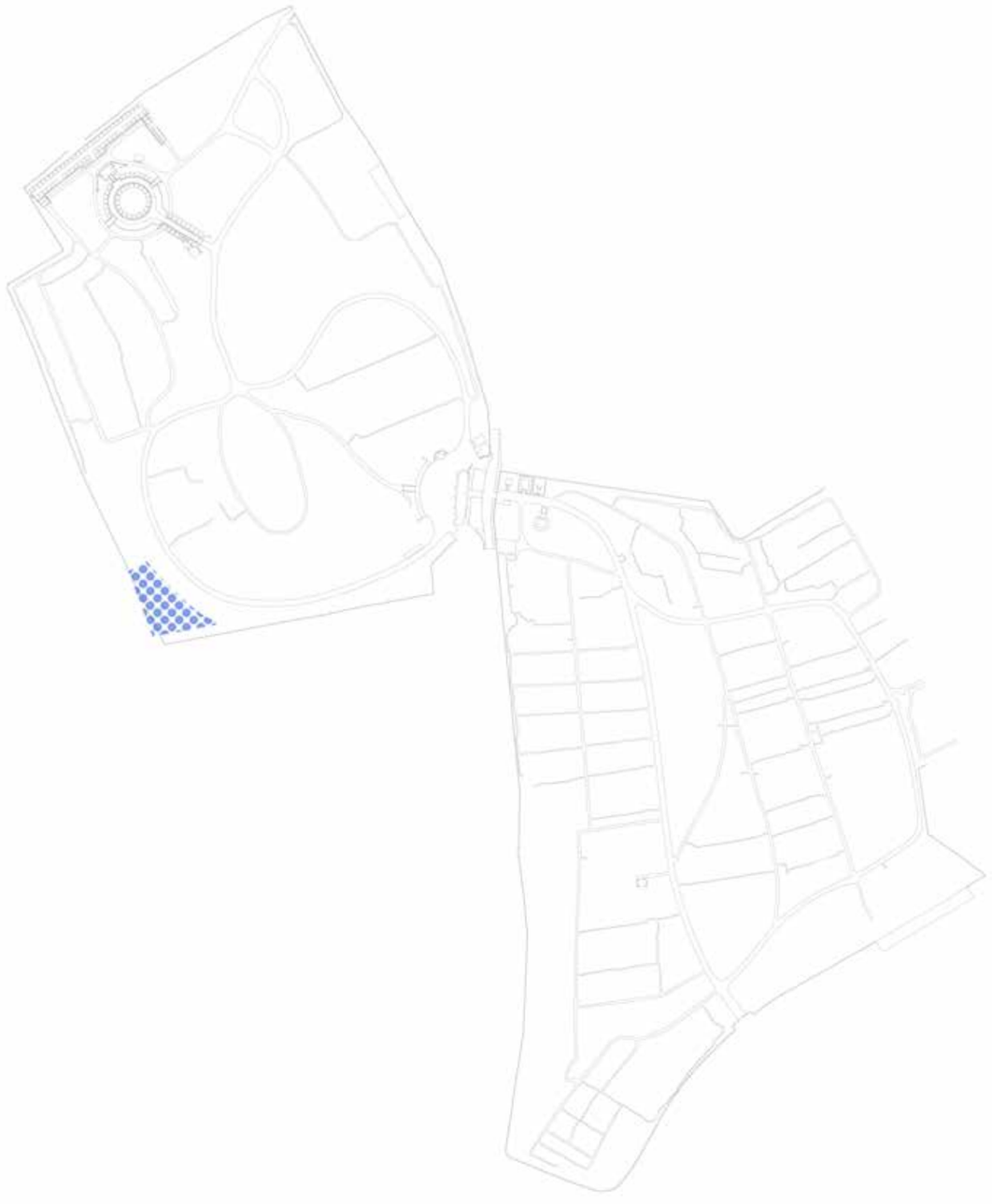
Gustafson Porter + Bowman

‘Spring’ area

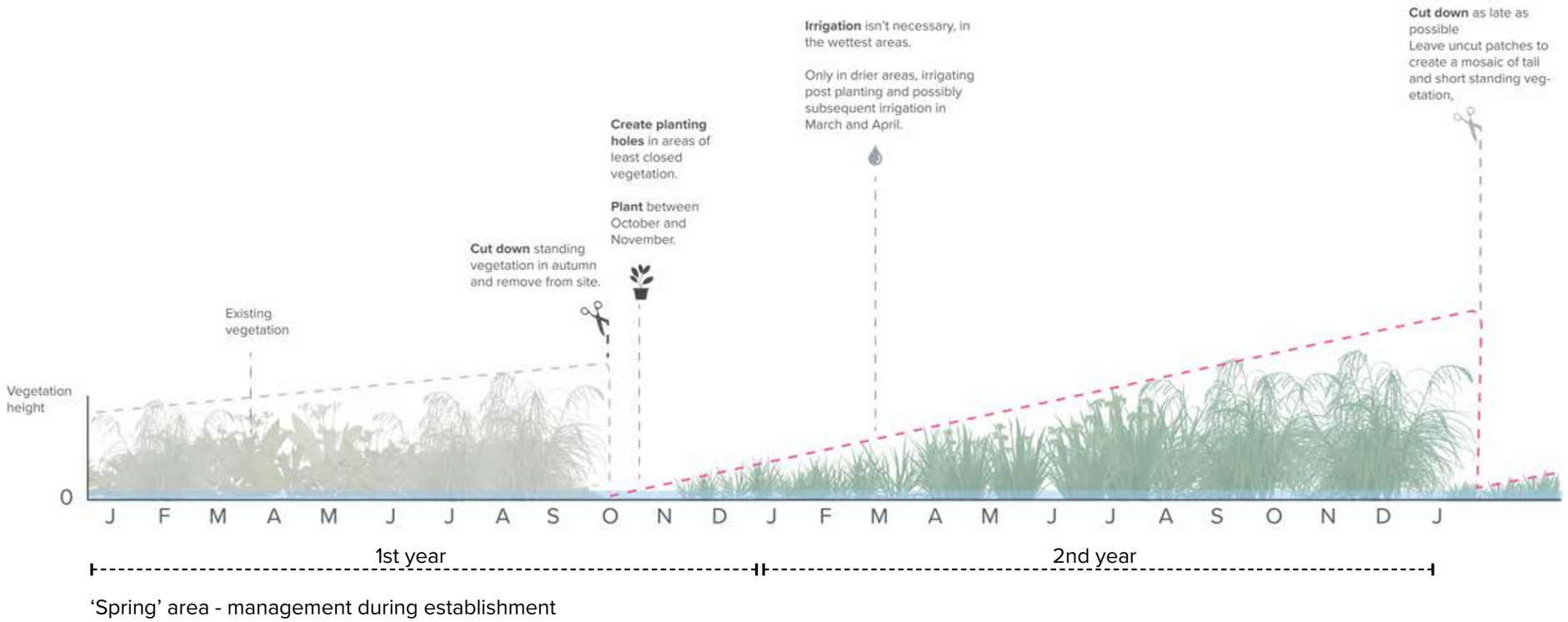
• Restricted to springs - drainage lines

• Retain the existing vegetation and plant in selected locations only to increase species diversity.

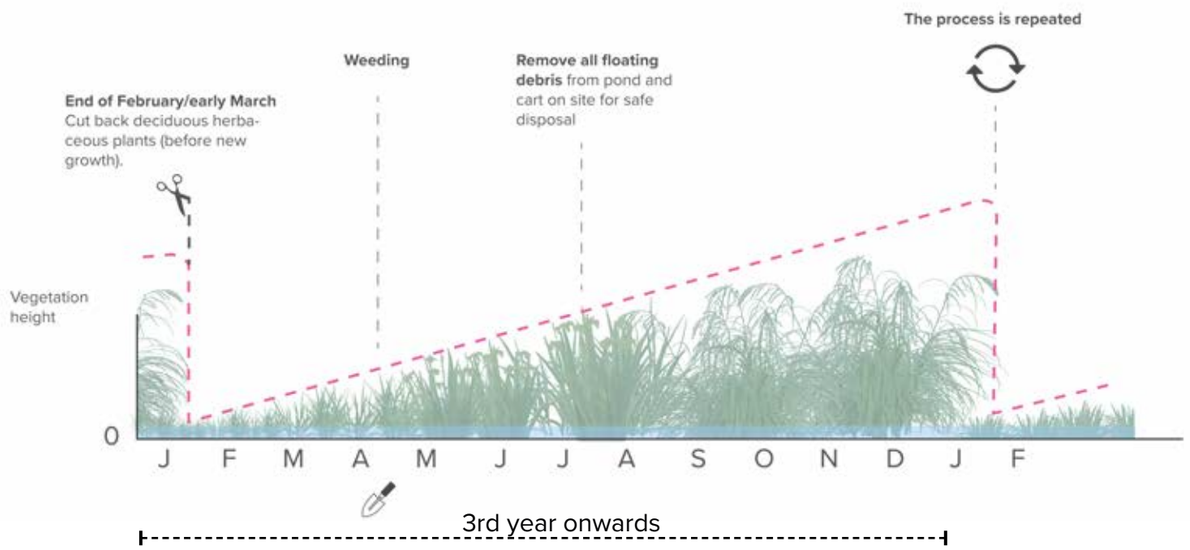
• Create planting holes in areas of least closed vegetation.



SA1 - ‘Spring’ area with sun on heavy soils



‘Spring’ area - management during establishment



‘Spring’ area - management once established

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‘Spring’ area - SA1						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Vegetation clearance *(establishment period)*	Cut down standing vegetation in autumn and remove from site.	Annually	In Autumn	N/A	N/A	N/A
Planting *(establishment period)*	Create planting holes in areas of least closed vegetation. Add species as **1L pots**, at random at 700mm spacings (**3 plants/sqm**).	Once	In Autumn	N/A	N/A	N/A
Irrigation *(establishment period)*	Irrigation isn’t necessary, in the wettest areas. In drier areas around the margins of the very wet, irrigating post planting if soil appears dry is required, and possibly subsequent irrigation in March and April.	Only in drier areas	March to April	N/A	N/A	N/A
Cutting *(once established)*	Cut down as late as possible Leave uncut patches to create a mosaic of tall and short standing vegetation, so they rotate through the wet patches, no patch is left uncut for more than one year, but every year a different patch is treated in this way. Arisings to be left on the ground for 2-3 days to allow seed to drop. Remove after this period and compost on site.	Once a year (Autumn) and as needed	In Autumn	Once a year and as needed	Once a year and as needed	
Duckweed control *(once established)*	Net duckweed (*Lemnoideae*) as and when required if surface water coverage exceeds 50% Leave near the pond initially for 1-2 days to allow inverts to leave, then remove off site.	As required	N/A	As required	As required	

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Undesirable species control – succession control *(once established)*	Control undesirable species: creeping thistle (*Cirsium arvense*), spear thistle (*Cirsium vulgare*), curled dock (*Rumex crispus*), broad leaved dock (*Rumex obtusifolius*), common ragwort (*Jacobaea vulgaris*), common nettle (*Urtica dioica*), bind weed (*Convolvulus*), couch grass (*Elymus repens*) and other problematic/invasive species at <5%.	As required	N/A	As required	As required	
Cleaning *(once established)*	Remove all floating debris from pond and cart on site for safe disposal	Fortnightly and as needed	N/A	Fortnightly and as needed	Fortnightly and as needed	As necessary
Weeding *(once established)*	Retain but control the area the wild garlic (*Allium ursinum*), three cornered garlic (*Allium triquetrum*), and horsetail occupy (\). Weed during Spring and Summer	During Spring and Summer when required	N/A	As required	As required	As required

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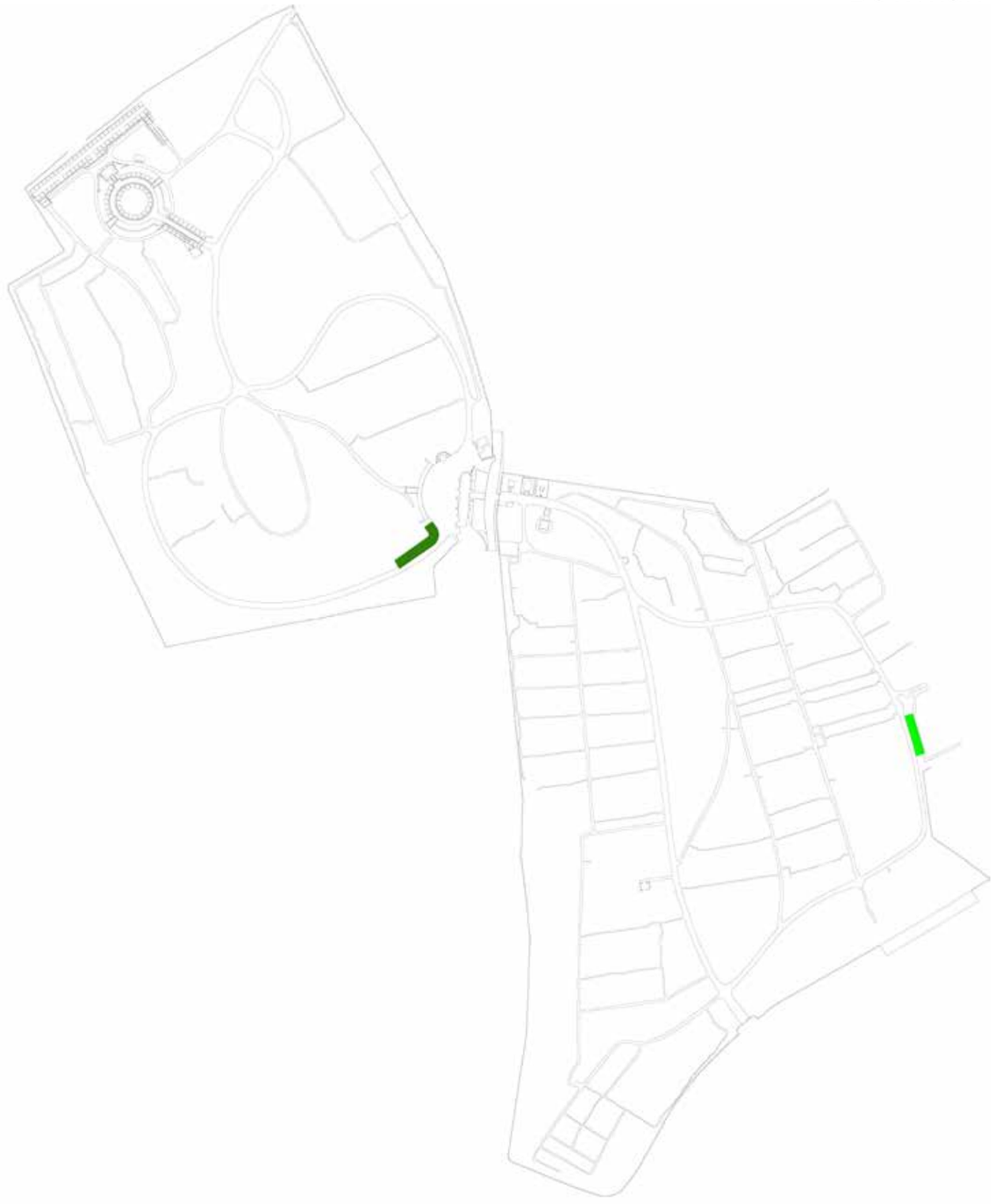
Green Roof

- Located on the West side Cafe and Operations Building and the East side Gardener's building
- The Gardener's building roof is also proposed to house PV (Photovoltaic) Solar Panels due to its sunnier condition. Refer to supplier recommendations for maintenance of solar panels.

GR1 - Woodland Green Roof (Cafe Building)

GR2 - Green Roof with PV (Gardener's Building)



GR1 - Shaded Woodland Green Roof (Cafe Building)

GR2 - Green Roof with PV (Gardener's Building)

Biodiverse Green Roof - wildflower blanket						
Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Biodiverse Green Roof *(*Plant Related Maintenance Tasks*)*	Plant Related Maintenance Tasks Plant encroachment Any vegetation which has invaded into drainage outlets, inspection chambers, walkways and the vegetation barriers (pebbles) should be removed. Additional washed stone pebbles, similar to existing, can be added if movement or settlement of the pebble vegetation barrier has occurred. Maintenance of Planting In the late autumn the wildflower vegetation should be strimmed back to a height of 50-70mm and unwanted waste matter raked up and removed. To promote growth, an application of 80mg/m2 of slow release organic fertiliser to the vegetation may be required. The woodland roof on the Cafe should be maintained in line with high profile planting Weeding -In a biodiverse green roof, with the exception of tree saplings which should always be removed, weeds are only considered as an aesthetic problem. If weeds become invasive, they can be manually removed. Irrigation -The need for irrigation in a biodiverse green roof system is determined through a client's visual requirements of the vegetation. -If it is intended that the roof should have colour and interest for the longest period through the growing season, then irrigation will significantly aid in achieving this. Should the requirement be only to deliver biodiversity, then the provision of sufficient watering points at roof level to allow for only occasional watering in periods of prolonged drought can be considered sufficient.	Annually	As required	As required	As required	As required

Tasks/Features	Description of Task	Frequency of Task	First Year	Second year	Third to Fifth year	Notes / Ongoing guidance
Biodiverse Green Roof *(*Plant Related Maintenance Tasks*)*	-Roof evaluation - a comprehensive review of the green roof to determine what remedial work, if any, needs to be completed. -Removal of weeds and unwanted items - over time a green roof can become congested with leaves, debris andother unwanted vegetation, which should be removed. -Inspection - examination of roof outlets and removal of any encroaching vegetation to enable water to flow freelyto rainwater pipes. -Application of fertiliser - to help restore a green roof to its best, an organic slow release granular fertiliser willencourage growth. -Testing - after all work has been performed, the irrigation system will be examined to ensure it works as expected. For maintenance of the hardscape parts of the green roof refer to the Hard landscape maintenance and management guidelines in the following pages of this document.	Annually	As required	As required	As required	As required

2.18 Planting Densities

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HP1 - High profile areas-edge of paths (sunny and shaded areas)
EM1 - Embankments/Slopes (sunny and shaded areas)
SP1 - Species rich lawn with sun on heavy soils

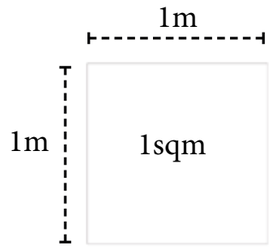
SA1 - Spring area with sun on heavy soils
SU1 - SuDS

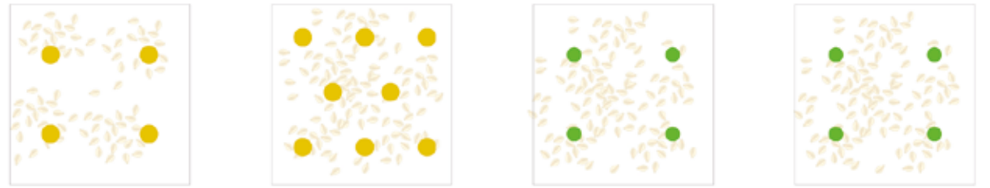
YW1 - Yew woodland with shade on light soils
BW1 - Broadleaved woodland with shade on light soils
BW2 - Broadleaved woodland with sun on light soils
BW3 - Broadleaved woodland with shade on medium to heavy soils
BW4 - Broadleaved woodland with sun on medium to heavy soils
BW5 - Broadleaved woodland with shade on heavy soils
BW6 - Broadleaved woodland with sun on heavy soils
WW1 - Wet woodland with shade on heavy soils
WW2 - Wet woodland with sun on heavy soils

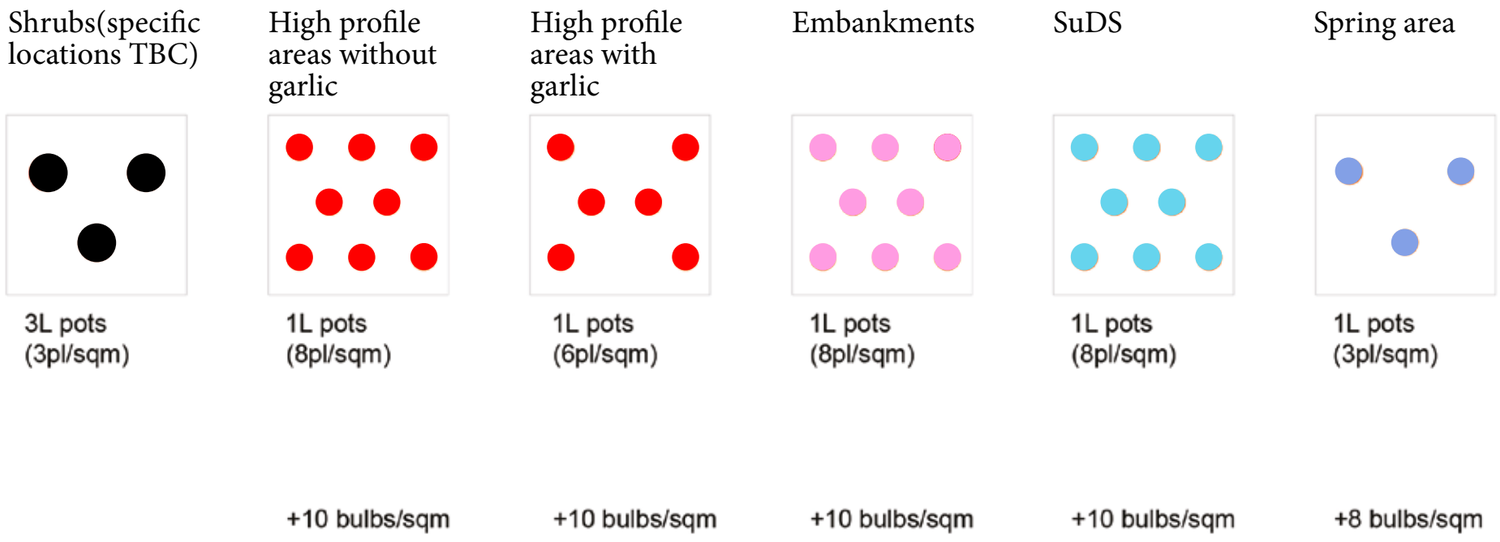
GD1 - Dry grassland/meadow with sun on medium soils
GW1 - Wet grassland/meadow with sun on heavy soils
GG1 - Grassland/meadow with sun on heavy soils

HR1 - Hedgerows
GR1 - Shade Green Roof (Cafe)
GR2 - Green Roof with PV (Gardeners)

1a - Brambles for structural complexity/lower frequency cutting
1b - Decreases structural complexity of brambles/higher frequency







2.19 Irrigation and Rainwater

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Rainwater Harvesting

Rainwater will be captured from the following locations:

Terrace Catacombs - West Side

Courtyard side of the Chapel Roof - West Side

Community & Education Building - East Side

Landscape Paths where feasible - East Side

Rainwater will not be actively harvested from the Cafe & Operations building, and the Gardener's Building, due to the proposed green roofs.

These rainwater tanks will then be used for irrigation, cleaning and washing down, visitor use for watering graves (not potable), and WC flushing, near the entrances, courtyard, and the Circle of Lebanon. Taps further from these tanks will be connected to the water mains, with sustainable usage of water being promoted.

For further information on the harvesting tanks, refer to Max Fordham's strategy.

Irrigation

Irrigation is crucial for the successful establishment of the new plant species, and water points will be strategically placed at frequent intervals throughout the cemetery to facilitate this process. Existing watering points will be restored and replaced, with new watering taps proposed to regularise the frequency and provide ease of access to visitors and staff.

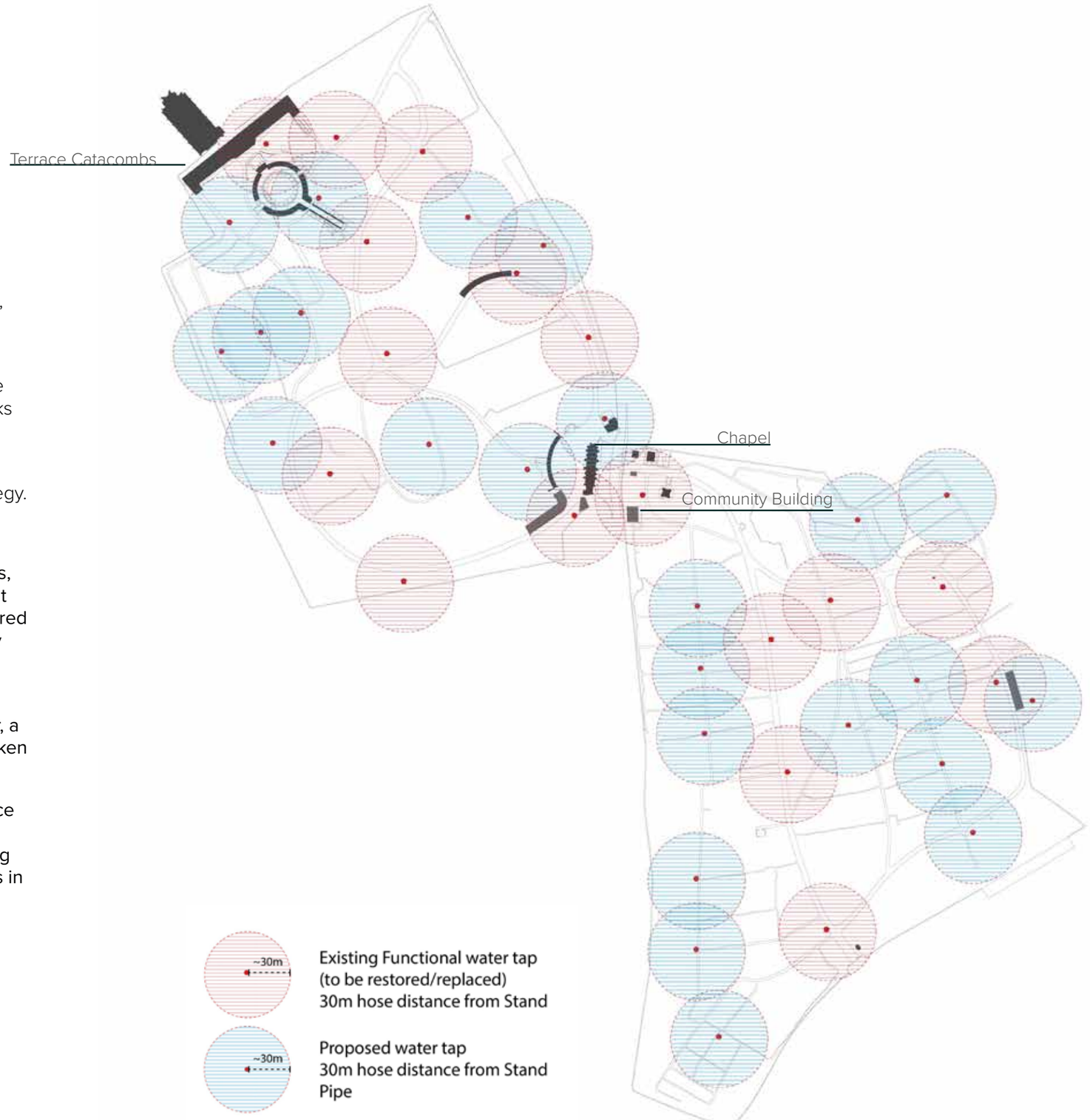
In locations where a hose from a tap cannot reach, a water bowser can be used. For areas that cannot be reached by a hose or plant watering bowser, a backpack water dispenser (10-20L) will be filled at an irrigation point and taken to unreachable areas in need of irrigation.

Due to the proposed strategy of planting more drought resistant plants, once the plants are established harvested water will only be used during severe drought. The tank sizes, irrigation strategy, and frequency of watering during drought periods will be further developed along with the planting proposals in the following stage

-For the irrigation of trees refer to section 2.7

-For the irrigation of under-storey planting refer to section 2.8

-For the irrigation of the biodiverse green roof planting refer to section 2.9



2.20 Maintenance Zones

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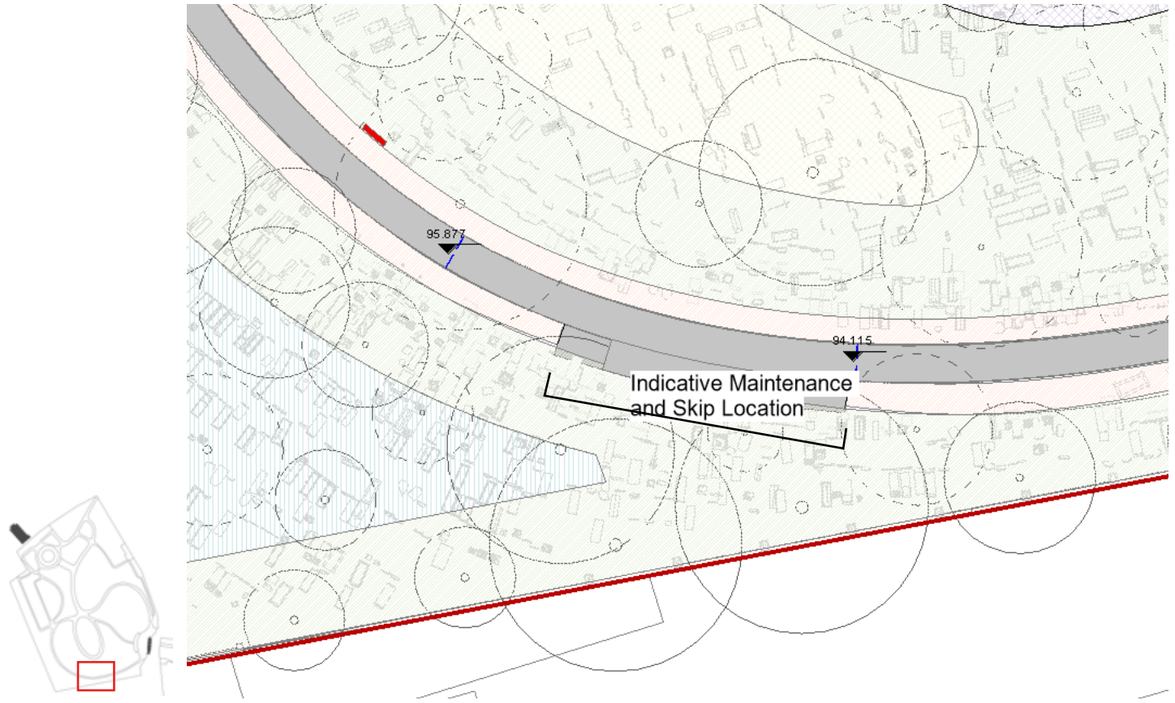
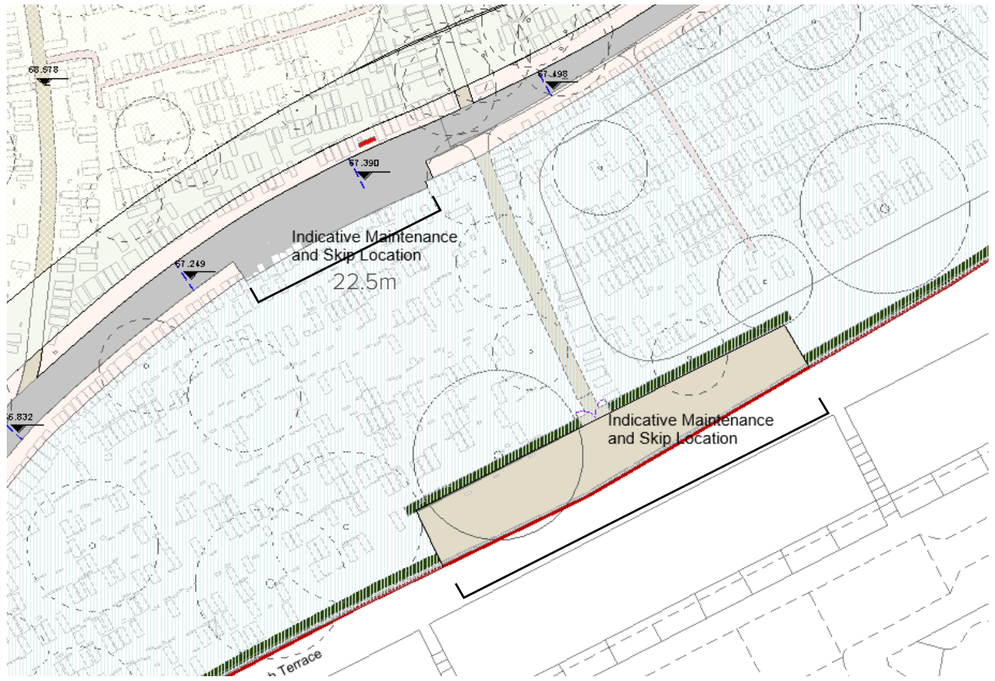
Highgate Cemetery's maintenance team currently use a 3.5 x 45 metre set down area for skips, green waste bags and chipping along the southern edge of the West Carriage Drive. This very necessary activity is the reason for the drive and the south-west corner of the Cemetery being closed to visitors. As previously mentioned, the drive is also the most accessible of the three paths that lead up the hillside from the forecourt, with an average slope of around 6% on average. It has thus been proposed to re-open the West Carriage Drive and place set down areas for a skip in both the east and west sides of the Cemetery.

The provision of a space on each side of the Cemetery will help reduce traffic movements between the two and in order to minimise the need for green waste bags, a mobile chipper will bring ready chipped green waste from the location of the maintenance works and place them directly into the skip, avoiding the need for bags to store green waste in the vicinity of each skip. The new skip locations require a locally widened path of 3.5m for vehicle access and a set down area to pick up and deliver the skips of 3.5 x 22.5m.

The hardstanding in the west side is located on the West Carriage Drive as close to the Swain's Lane entrance as is feasible without the need to disturb any burial locations. A similar location has been found on the east side on the south east drive, between the new Gardeners building and the Chester Road gate. The east side hardstanding is located adjacent to the south extension to the Lime tree path, a cul-de-sac route to the only burial free area of the Cemetery adjacent to Stoneleigh Terrace. This 5 x 45m area is to be screened off by a gated fence native species hedge and used for the storage of burial and landscaping materials that are currently located sporadically between burials along the edge of the West Carriage Drive.



Outdoor maintenance & Skip location - West side



Outdoor maintenance & Skip location - East side

Hedge along outdoor maintenance area - East side

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West Side - Paving and Edges

The cemetery's paving materials blend traditional choices, like gravel for paths and grass for walks, with innovative options such as R.T. Claridge's Seyssel asphalt, used on the Terrace Catacombs. To address the steep terrain, self-binding gravel is preferred for secondary paths, but due to slope challenges, granite strips will be added for stability. Primary paths will use fine aggregate concrete resembling gravel but more durable for heavy traffic. Tertiary paths will feature varied finishes like bark mulch or grass, depending on use and sunlight. Standardizing path widths will enhance the site's layout and reduce inconsistencies.

For more detailed explanation refer to the Landscape Design and Access Statement

Path materials

Edging materials

Key - Paving

Primary Paths - Exposed Aggregate Concrete

Frequent use by landscape maintenance vehicles

Weekly use by hearse for funerals

Regular use by pedestrians

Secondary Paths - Self Binding Gravel

Occasional use by most landscape maintenance vehicles

Regular use by pedestrians

Tertiary Paths - Soil, Grass, Mulch

Occasional use by some landscape maintenance vehicles

Occasional use by pedestrians based on recent burials or significant monuments

Tertiary - new boardwalk path - metal boardwalk with wood edging

Granite setts - entrance and Swain's lane

Yorkstone setts - entrance, Swain's lane, & Courtyard

Stone setts/ cobbles,flush

'L' profile heavy duty steel edge with concrete haunch, flush

Timber edge, flush

Key - Edges

Standardising Path Widths - West Side

3m wide

2m wide

As existing

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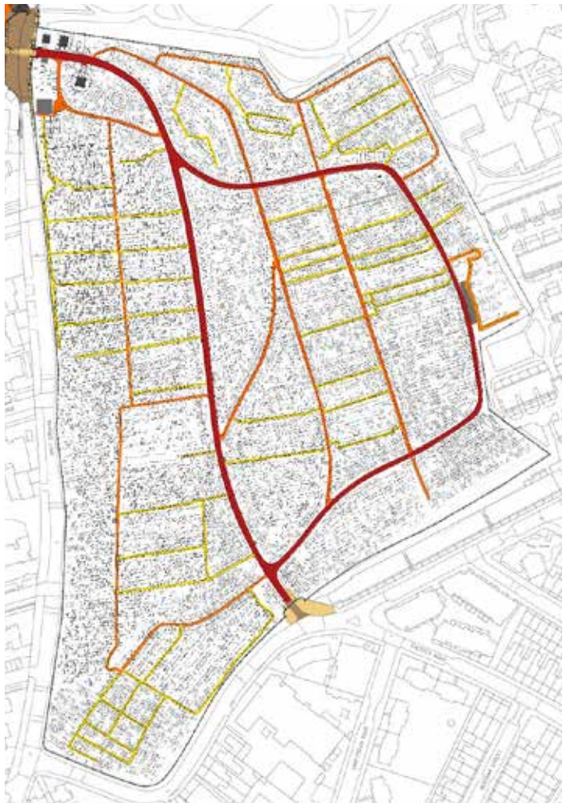
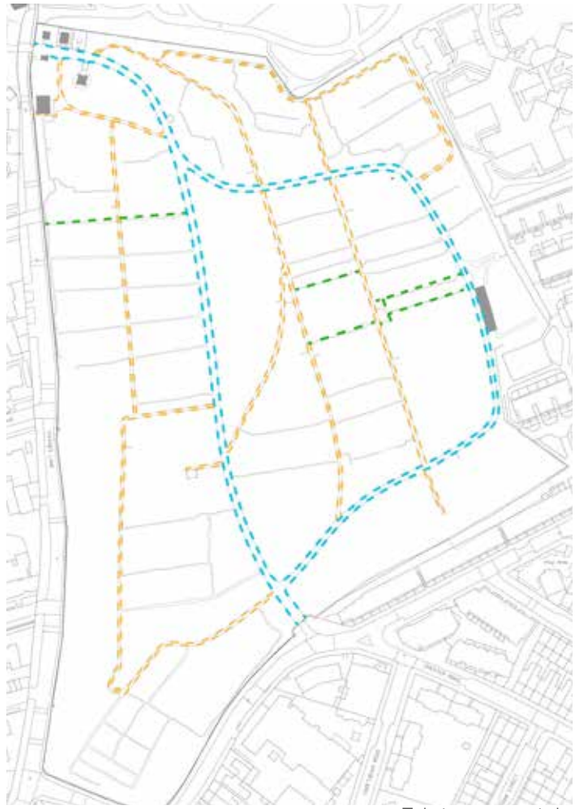
East Side - Paving and Edges

The masterplan for the cemetery maintains the wider primary and secondary paths on the east side, aligning their hardscape material hierarchy with the west side. Primary paths, used by all vehicles, will have granite set edges on a concrete base for durability. Secondary paths, narrower for lighter vehicles, will feature heavy-duty steel edges on concrete to withstand impact. Tertiary paths, the narrowest and primarily for pedestrian use, will have timber edging that blends with the surrounding soil over time.

For more detailed explanation refer to the DAS document.



Path materials



Edging materials

Key - Paving

Primary Paths - Exposed Aggregate Concrete

Frequent use by landscape maintenance vehicles

Weekly use by hearse for funerals

Regular use by pedestrians

Secondary Paths - Self Binding Gravel

Occasional use by most landscape maintenance vehicles

Regular use by pedestrians

Tertiary Paths - Soil, Grass, Mulch

Occasional use by some landscape maintenance vehicles

Occasional use by pedestrians based on recent burials or significant monuments

Tertiary - new boardwalk path - metal boardwalk with wood edging

Granite setts - entrance and Swain's lane

Yorkstone setts - entrance, Swain's lane, & Courtyard

Standardising Path Widths - East Side

3-3.5m wide

1.5-2m wide

As existing

Key - Edges

Stone setts/cobbles,flush

'L' profile heavy duty steel edge with concrete haunch, flush

Timber edge, flush

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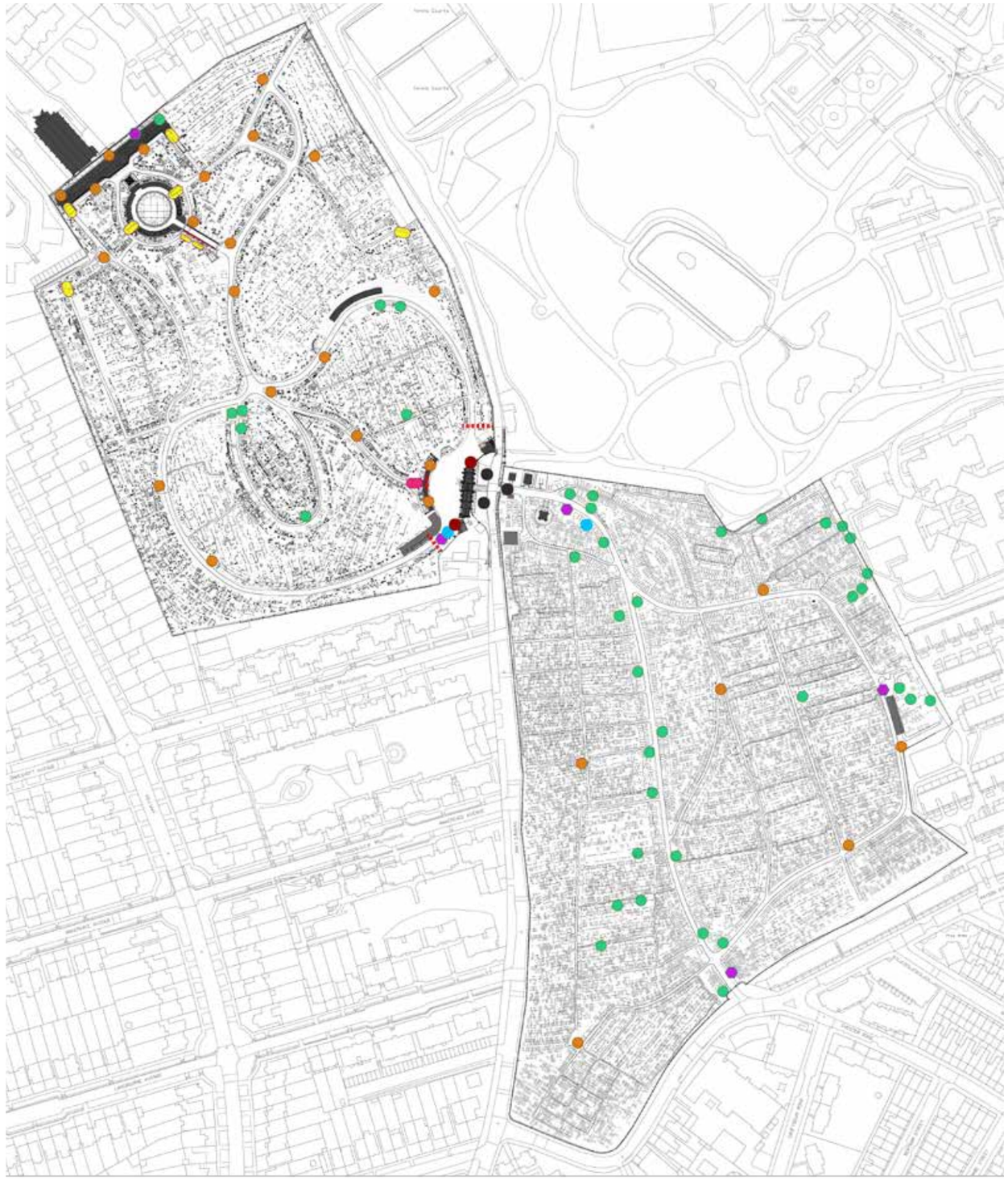
Furniture
To enhance accessibility and provide resting spots on the steep cemetery hillside, benches will be placed along main paths and drives, carefully positioned in recesses between graves to avoid obstructing views. Benches will support a site interpretation strategy, aiding self-guided tours, and will be vintage or vintage-style cast-iron to match the cemetery's early 19th-century character.

Steel handrails in the West Scott design will be added to steps at the Lebanon Circle and Terrace Catacombs, with matching balustrades on other paths. Discreet bike racks, a water fountain, and recycling, green waste, and waste bins will also be added.



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Hard Landscape			
Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Access Covers	Clear away litter, rubbish, leaves, and other debris using a leaf blower. Hand-pull weeds, ensuring that the full root of the weed is extracted. Pressure wash to remove algae and moss build-up.	Weekly	
	Inspect for any signs of degradation, such as cracking, delamination, moss or algae buildup, structural integrity issues, stability concerns, or damage to the product or surface finish. If any form of degradation is found treat/remedy it according to the manufacturer's recommendations or replace with like for like products. Clean with a cloth and mild detergent to remove any dirt or stains, following the supplier's recommendations for the unit.	Monthly	
Bat Boxes	Inspect bat boxes from a distance to ensure they are intact, avoiding any disturbance to the bats. To determine if the box is currently in use without disturbing the occupants, look for droppings and urine stains below the access point. If it is necessary to open the box for inspection, a suitably licensed bat worker must be present. Bat boxes require regular maintenance to keep them in good condition and prevent the build up of pests and diseases.	As required	
Benches - (Cast iron with coating)	Swept clean of dirt and dust. Clean with a cloth and mild detergent to remove any dirt or stains, as recommended by the supplier. Wash it with hot soapy water and a cloth or sponge. Use a nylon brush to get into all the crevices. Rinse the furniture with clean water and dry off with a fresh cloth to bring out the shine of the paintwork.	Twice a month	
	Inspect for any signs of degradation, such as rust, rotting, cracking, delamination, moss or algae build-up, structural integrity issues, stability concerns, or damage to the product or surface finish. If any degradation is found, treat or remedy it according to the manufacturer's recommendations or replace it with identical products.	Monthly	
	If the cast iron garden furniture has flaky paint or rust spots, these will need to be addressed through sanding and repainting.	Annually	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Bins	Empty waste and recycle bins as/when necessary.	As required	
	Clean away vegetation and debris.	Weekly	
	Inspect for degradation, such as rust, cracking, delamination, moss or algae buildup, structural integrity issues, stability concerns, or damage to the product or surface finish. If any degradation is found, treat or remedy it according to the manufacturer's recommendations, or replace with identical products. Use a cloth with mild detergent to remove any dirt or stains, as recommended by the supplier. Eco-Friendly solutions are recommended for cleaning materials. The use of chemicals should be considered only as a last resort when all other methods have proven ineffective. Chemicals are not permitted unless otherwise instructed in writing by the Client's Representative.	Monthly	
Bird Boxes	Check bird boxes are intact, maintained and inspected for signs of occupancy. Bird boxes require regular maintenance to keep them in good condition and prevent the build up of pests and diseases.	Installation in autumn. If required, cleaned in October or November, when there is no chance of disturbing the previous occupants.	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Biodiverse Green roof (Bauder or similar approved)	Preliminary Maintenance Procedures The following procedures should be carried out in order to ensure the roof is maintained in good condition and to protect the validity of the waterproofing system guarantee: -Ensure that relevant health and safety procedures are followed when working at roof level, this includes making sure that safe access can be gained to the roof. It is advised that the contractor should always seek proof of current maintenance for any man-safe roof access systems prior to proceeding with the work on site. -Ensure all dead vegetation is removed and provision made for the debris to be safely lowered to the ground and disposed of -Remove unwanted leaf litter that has fallen onto the roof surface from overhanging trees both in the spring and autumn, to ensure that this does not smother the vegetation beneath or clog the system -Remove the lids of all inspection chambers, ensure that all rainwater outlets and downpipes are free from blockages and that water can flow freely away. -Ensure that any protective metal flashings and termination bars remain securely fixed in place. Renew or repair as necessary. -Examine all mastic sealant and mortar pointing for signs of degradation. Repair or replace as necessary. -Inspect soil substrate for evidence of erosion channels - replace with substrate like the original materials and identify sources or erosion and damage -Ensure that any new items of plant/equipment that may have been introduced to the roof are mounted on suitable, isolated slabs and that any fixings used to secure the plant/equipment in place do not penetrate the waterproofing. If in doubt, please contact the manufacturer for further advice. -The client's representative should keep a record of all inspections and maintenance carried out on the roof. Any signs of damage, contamination or degradation to the waterproofing should be reported to Bauder immediately, in order for arrangements to be made to carry out remedial work if necessary. -When carrying out any maintenance to adjoining roof areas, care must be taken not to damage either the green roof landscaping or the waterproofing system. If considered that either element has been effected, the manufacturer should be contacted for advice. Any waterproofing damage caused after completion of the original installation may invalidate the guarantee. -Any unauthorised alterations to the waterproofing system will invalidate the guarantee. If such a situation should arise, the manufacturer should be contacted to advise on the alteration and how it should be incorporated without effecting the guarantee.	Annually	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Drainage	Pick litter/ remove rubbish, leaves and debris to ensure the grilles are not clogged or obstructed.	Weekly	
	Inspect for degradation (rust, cracking, delamination, moss/algae build-up, structural integrity, stability, damage of the product or surface finish etc.). If any form of degradation is found treat/remedy as per the manufacturer's recommendations or replace with like for like products.	Monthly	
	Wash grills/channels and sump to remove mud and silts.	Three times a year	
Drinking Fountains	Clean water fountains including the interior to prevent limescale build-up and any build-ups of harmful bacteria such a legionella. Drain down drinking fountain in the winter and recommission in the spring, ensuring a deep clean prior to operation.	As required/to manufacturer's recommendations	
	Inspect for any signs of degradation, including rust, cracking, delamination, moss or algae buildup, structural integrity issues, stability concerns, or damage to the product or surface finish. If any degradation is found, treat or remedy it according to the manufacturer's recommendations, or replace with identical products. Use a cloth with mild detergent to remove any dirt or stains, following the supplier's recommendations for the unit.	Monthly	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Edging (general comments)	Check for signs of deterioration such as rust, cracking, delamination, moss or algae accumulation, structural integrity issues, stability concerns, or damage to the product's surface finish. If any form of degradation is found treat/remedy as per the manufacturer's recommendations or replace with like for like products. Clean with a cloth with mild detergent to remove any dirt or stains, as recommended by the supplier of the unit.	Monthly	
Edgings and kerbs	Inspect kerbs and edgings to ensure they are level, true not warped or distorted and fixed well in place. Check for signs of degradation such as rust, cracking, delamination, moss or algae build-up, and assess the structural integrity, stability, and surface finish for any damage. If they are not securely fixed, are wobbly, or out of position, they will need to be re-laid. If any form of degradation is found treat/remedy as per the manufacturer's recommendations or replace with like for like products.	Every three months	
Edging (Timber edges)	Wash regularly and treat with an oil-based wood stain or paint. The oil-based solution will prevent water, dirt and sunlight from ruining its integrity (and lasting longer). Any surface debris or mould that builds up from being outside can easily be removed with a stiff brush and washed off with a solution mixture of warm water and washing up liquid.	As required	
Edging (Steel edges)	Stainless steel edgings should require minimal maintenance, but occasional cleaning is still recommended. The important thing with stainless steel is to simply clean the metal when it is dirty. Washing with soap or a mild detergent is recommended and this should be followed by a clean water rinse. Sponges or cloths should be used for general cleaning. A fibre brush can be used for more stubborn stains. Eco-Friendly solutions are recommended for cleaning materials. The use of chemicals should be considered only as a last resort when all other methods have proven ineffective. Chemicals are not permitted unless otherwise instructed in writing by the Client's Representative.	Occasionally and after 'stubborn' stains.	
Fencing, railings, gates, bollards and general metalwork	Inspect for any signs of degradation, including rust, cracking, delamination, moss or algae buildup, structural integrity issues, stability concerns, or damage to the product or surface finish. If any degradation is found, treat or remedy it according to the manufacturer's recommendations, or replace with identical products. Use a cloth with mild detergent to remove any dirt or stains, following the supplier's recommendations for the unit.	Monthly	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Graffiti Removal - General	In the unlikely chance that graffiti is present : Any Contractor undertaking graffiti removal should adhere to Client's requirements. The Contractor will arrange for the removal of the graffiti in a time scale determined by the content, with the highest priority to be given to graffiti which is racist or offensive in some other way. The Contractor should aim to remove "offensive" graffiti within 1 working day and inoffensive within 2 working days. Removal of chewing gum to be included in cleaning process. Product: Contractors charged with the physical removal of graffiti should adhere to the following: High pressure hoses are the preferred option in removing graffiti as this is the least damaging method from an environmental perspective, wire brushes can sometimes be effective in removing small amounts of graffiti from walls, Graffiti removing fluid can sometimes be effective on difficult to move graffiti. This should only be used as a last resort and upon advice sought from the manufacturer of the item that has been defaced. Certain surfaces/materials should not be treated with fluid as this may damage or discolour the item. For treatment of graves and monuments refer to the Conservation Architects' recommendations.	Daily	
Handrails and railings	Inspect railings and handrails for any signs of degradation, including rust, cracking, delamination, moss or algae buildup, structural integrity issues, stability concerns, or damage to the product or surface finish. If any degradation is found, treat or remedy it according to the manufacturer's recommendations, or replace with identical products. Use a cloth with mild detergent to remove any dirt or stains, following the supplier's recommendations for the unit.	Monthly	
Insect hotels and log piles	Inspect hotels and log piles for rot. Annually, excavate to check if the posts have rotted or degraded. If any posts are found to be compromised, they will need to be replaced with identical posts.	Twice a year in September and December	
	Re-fill material with non rotted timber.	As required, every four to five years	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Lighting	There is no proposed new lighting in the landscape Follow Manufacturer and Electrical Engineer's recommendations for any existing lighting For lighting associated with buildings, refer to Hopkins Architect's Buildings Management and Maintenance Manual	As per Hopkin's Building Management and Maintenance Manual	
Paving	Inspect for degradation (cracks, fissures, delamination, moss/algae build-up, structural integrity, stability, damage of the product or surface finish, wobbly or sunken stones, lime blooming, etc.). If any form of degradation is found treat/remedy as per the manufacturer's recommendations or replace with like for like products. For wobbly or sunken stones, the build-up or mortar bedding may need re-instating with like for like products prior to reinstalling paving. In the unlikely chance that chewing gum or graffiti is present clean as per the manufacturer's recommendations in line with Client's requirements.	As required	
	Sweep, litter pick/remove rubbish, leaves and other debris from the surface of paving and jointing. Inspect jointing for cracking or sinking and top up or replace as required in line with manufacturer's recommendations.	Weekly	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Paving (snow or ice events)	During snow or ice events do not use salt as this can be detrimental to the surface finish of the paving, as well as plant and aquatic environments. Instead use urea granules to provide a non slip finish and melt ice and snow.	As required	
Paving and wall jointing	Inspect for breakages and cracking of jointing or of stone caused by movement of pavers. Replace jointing if required with like for like products. If stone cracking occurs consult the landscape architect prior to re-jointing. A mastic movement joint may be required to prevent further cracking associated with movement or differential settlement. If pavers are cracked or damage replace with like for like products.	Every three months	
Paving (Yorkstone)	Initial maintenance Maintenance requirements are minimal under normal service conditions. If necessary, surfaces may be washed with brush and water or using high pressure hoses. If the latter, care should be taken not to blast away sand in joints. Note: Do NOT use high pressure jets or suction cleaners for at least 3 months to allow normal detritus build up (considerably longer for paved areas under cover). Alternatively, joint sealants may be considered. Cleaning of paving Natural stone paving is very low maintenance once laid. The pointing is the weakest element and may need to be replaced after a number of years. Sweep regularly with a stiff brush to remove dust and detritus. There is a tendency for algae, lichens and mosses to colonise stone paving that is permanently shaded and/or damp. This can be safely removed by a pressure washer. Winter maintenance The only product recommended for de-icing purposes is the use of regular sand as it is safe and effective and will not affect the integrity of the paving stone.	As required	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Paving maintenance cleaning (Granite)	General Dirt and Detritus To remove general dirt and detritus a cyclic maintenance regime is required. If detritus dulls the colour of the paving, it can be re-established by pressure washing or scrubbing with proprietary solutions following the manufacturers guidelines. This can be carried out by hand or by using industrial cleaning equipment. Ensure all soap has been thoroughly washed from the surface on completion of the cleaning. Moss, Lichen and Algae If such growths do occur, the areas should be treated with an appropriate proprietary weed killer, used in accordance with the manufacturers instructions. Such products are most effective when applied during a spell of dry weather. Rust Stains To remove rust stains, the surface should be wetted and the affected area treated with a prop solution. After cleaning, the paving should be well washed down to remove all traces of the acid. Oil Stains Oil does not penetrate readily into the body of granite paving, but if oil is spilt on the paving the spillage should be removed promptly with an absorbent material. After soaking up the majority of small spills, prompt washing with a prop solution should remove the stain. Steam cleaning can be used on paving to remove more extensive or stubborn stains, but if this is unsuccessful, an emulsifying degreasing agent should be employed. Brush the cleaner onto the affected area and then wash the emulsified oil away with plenty of water. Neither hot water, steam cleaning nor emulsifying agents will affect the colour of the paving. Bitumen Stains Bitumen does not penetrate readily into granite. Leave the bitumen until it has cooled and remove it with a paint scraper or similar mechanical device. If it is particularly resistant, the use of ice to make the bitumen even more brittle may be required prior to scraping it from the paving. Any residue should be removed with an abrasive powder and finally the whole area rinsed with clean water. Certain proprietary cleaning agents are available to remove bitumen, but these should be tested on an inconspicuous area of paving first. Paint and Graffiti Wet paint should be soaked up with an absorbent material. The area should not be wiped, as this will spread the paint. The spillage should then be treated with a suitable solvent, such as white spirit and the area washed with a strong detergent and hot water solution. Steam cleaning can also be employed. When paint has dried, it should be scraped off as far as possible and an appropriate paint stripper applied. This should be used in accordance with the manufacturers instructions. Once the paint has been removed by the chemical, the area again should be washed with a strong detergent and hot water solution. Paint manufactures may often be able to give more detailed advice on the removal of their own products. There are companies specialising in the removal of graffiti and it may be necessary to consult them if there are large areas affected by the accident or as a result of vandalism.	As required	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Paving maintenance cleaning (Granite)	Epoxy and Polyester Stains Can be removed by carefully burning the spillage with a blow torch or other heat source. Care must be taken not to inhale the fumes given off during the process. If after burning, a black stain remains on the paving, this can normally be removed by scrubbing the paving with a strong detergent and hot water solution. A small area should be tested before any large scale cleaning is undertaken. Smoke and Fire Stains Normally these stains can be removed by scrubbing with a strong detergent and hot water solution. Where the stains persist, a mixture of scouring powder and household bleach can be used. Beverage Stains These can normally be removed by scrubbing with a strong detergent and hot water solution. If the stain is persistent, apply a bleach solution and then rinse the area well with clean water. Chewing Gum Newly discarded gum can be scraped off using a scraper, but hardened gum can only be removed by either freezing the gum and chiselling it from the surface of the paving, or by using a high pressure water jet. Scuff Marks These can normally be removed by steam cleaning, or by scrubbing the area with a strong detergent and hot water solution. Winter Maintenance Granite paved areas may be treated with de-icing materials. Normal de-icing salts can be applied without any risk of damage to the pavement. Eco-Friendly solutions are recommended for cleaning materials. The use of chemicals should be considered only as a last resort when all other methods have proven ineffective. Chemicals are not permitted unless otherwise instructed in writing by the Client's Representative.	As required	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Paving maintenance cleaning (Concrete with exposed aggregates)	Broom the surface frequently. This will help to prevent dirt and debris from becoming embedded in the concrete and causing stains. Use a hose with a spray nozzle to remove any dirt or debris in the concrete. Use a light touch when cleaning concrete so as not to harm it. Use a power washer (Once or twice a year) to give the exposed aggregate concrete a good cleaning. Make sure to use a low-pressure setting to avoid damaging the concrete. Repair any cracks or damages as soon as possible. This can assist prevent additional damage and maintain the exposed aggregate concrete looking good. Eco-Friendly solutions are recommended for cleaning materials. The use of chemicals should be considered only as a last resort when all other methods have proven ineffective. Chemicals are not permitted unless otherwise instructed in writing by the Client's Representative.	As frequently recommended in the description of tasks for each different treatment.	
Paving (Self Binding Gravel)	Litter picking/remove rubbish, leaves and other debris.	Twice a week	
Paving (Self Binding Gravel and paths with mulch)	Inspect self binding gravel surfaces for holes, divots, dropping of surface and ponding. If present fill holes/divots with like for like material, for ponding inspect sub base for permeability. As required top up the levels and compact surface to ensure an even, consistent and non loose surface finish.	Monthly	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Paving (Self Binding Gravel) Breedon Golden Amber Gravel	Potholes There are two basic reasons why potholes may occur - it is either due to surface damage or where surface water cannot drain away caused by lack of cambers or cross falls. (Wacker) Repairs should be carried out as soon as a pothole appears. Cut out a neat square around the pothole and remove all material within the square down to the Type 1 sub-base. Fill the area with new Breedon Golden Amber Gravel and compact using a wacker plate or roller in accordance with the manufacturer's laying instructions, following the entire water rolling process. Re-surfacing In the event of resurfacing at a later date, use a rake to scarify the top surface down to an approximate depth of between 35-45mm, whilst taking care to protect the integrity of the type 1 sub-base layer beneath. This may need some effort if the material has been down for a long period of time. Once the surface has been loosened, discard the loose debris. It is advisable that the existing laid Breedon Gravel is sprayed with water using a hose with a fine mist to improve its moisture content. Then a new layer of Breedon Golden Amber Gravel laid on to it, rolled and water rolled in accordance with supplier laying instructions. Weed Growth Should any weed growth occur, spray the area with a water-based weed killer and allow the vegetation to die back before lightly sweeping away. Never pull the weeds up through the gravel, this will loosen the bonded surface and allow pooling water to soften the material in these areas. Areas constantly shaded or only ever lightly used may be susceptible to moss growth. For these areas apply a water-based weed killer or moss remover and cover the affected area when dry (and with no rain expected for a few days). This will take a few days to take effect. Once the moss has died back use a light rake to loosen and sweep away. Do take care not to put too much pressure on the surface and disturb the Breedon Gravel itself. Drainage Always ensure that drains and gullies are kept free of debris to allow surface water to drain away easily. Winter Maintenance For best results, ensure that any leaves are removed from the surface by using a blower or a vacuum. Alternatively, a very soft broom can be used. Surface Appearance Breedon Golden Amber Gravel scarifies with use to leave a dressing of chippings over its surface, however as a matter of personal choice, they can be swept away using a very soft broom to leave a smoother finish. This process would however need to be repeated as the surface will naturally scarify with use. Please also be advised that this will also affect the wearing course and longevity of the product. Eco-Friendly solutions are recommended for cleaning materials. The use of chemicals should be considered only as a last resort when all other methods have proven ineffective. Chemicals are not permitted unless otherwise instructed in writing by the Client's Representative.	As required	

Tasks/Features	Description of task	Frequency	Notes / Ongoing guidance
Rainwater harvesting system (regular maintenance)	Inspection of the tank for debris and sediment build-up, inlets/outlets/withdrawal devices, overflow areas, pumps, filters	Annually (and following poor performance)	
	Cleaning of tank inlets, outlets, gutters, withdrawal devices and roof drain filters of silts and other debris. Regular cleaning and disinfection of the system will help prevent the growth and spread of Legionella bacteria.	Annually (and following poor performance)	
Rainwater harvesting system (occasional maintenance)	Cleaning and/or replacement of any filters	Three monthly (or as required)	
Rainwater harvesting system (remedial actions)	Repair of overflow erosion damage or damage to tank	As required	
	Pump repairs	As required	
'Spring' area	Litter picking/remove rubbish, leaves and other debris.	Weekly	
Watering Points	Inspect for degradation (rust, cracking, delamination, moss/algae build-up, structural integrity, stability, damage of the product or surface finish etc.). If any form of degradation is found treat/remedy as per the manufacturer's recommendations or replace with like for like products. Clean with a cloth with mild detergent to remove any dirt or stains, as recommended by the supplier of the unit. Clean water point including the interior to prevent limescale build-up and any build-ups of harmful bacteria such a legionella.	Monthly	

4.1 Management Implementation and Monitoring

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Management Implementaion
The Friends of Highgate Cemetery Trust are responsible for the management and maintenance of the Cemetery.

The Maintenance Schedule incorporates the management objectives and broad prescriptions set out in this Landscape Maintenance Plan and gives performance guidelines.

Successful implementation requires strong coordination and communication among all involved parties, including cemetery staff, landscape contractors, and volunteers. Training sessions should be conducted to ensure all personnel understand the specific needs and best practices for maintaining Highgate Cemetery.

All materials, workmanship, quality, and operations will be in accordance with current British Standards, Codes of Practice and legislation.

Monitoring and Remedial Measures
The Trust is responsible for the performance of the Maintenance and Management Works through the appointment of the appropriate personnel to review operational records and performance reports.

This plan should be reviewed and, if necessary, updated annually to make sure vision and objectives are still relevant.

At year 4 of this 5-year plan work should commence on assessing the effectiveness of this plan and completing a new maintenance and management plan.

Recommendations for additional ongoing monitoring and management:

- Regular vegetation clearance works around monuments and graves
- Continue with tree surveys and remedial works across the cemetery
- Annual inspections to wildlife and habitat mitigation proposals by suitably qualified Ecologist
- Annual water quality testing of water bodies

- Retain the ‘topographic experience’ of contrasting planting character, from native in the south, a mix of native and non-native in the north, reflecting the range of plants selected during the Victorian period.
- Maintain the habitats of protected and notable species for the different landscape compartments.
- To increase structural and species diversity through targeted woodland management and the planting of new trees, shrubs, and under-storey species.
- Selective thinning and pruning to increase the light reaching the ground.
- Remove self-seeded trees that might damage graves and monuments.
- Limit the spread of dominant species such as ivy *(Hedera helix)* and bramble *(Rubus fruticosus)*.
- Remove vegetation that damages and screens graves and monuments.
- To maintain a high standard of sustainable management, keeping all landscape areas neat, tidy, and largely free of invasive weeds.
- Take protective measures and avoid any damage to the listed monuments and graves.
- To monitor and manage invasive species such as Japanese knotweed (*Reynoutria japonica)*, in line with current best practice.
- To take into account the nesting and habitat needs of bats, birds, invertebrates, and hedgehogs.
- To take into account the habitat needs of reptiles, and to encourage their presence, for example by increasing basking locations.
- To sustain and enhance populations of notable plants.
- To sustain and enhance populations of notable lichens on monuments, where it is practicable to do so.
- Maintain watercourses and provide new opportunities for wildlife while attenuating surface water runoff.
- Provide a diversity of native and non-native flora suited to future climate change predictions
- Enhance and increase the planting habitats.
- Select the location and choice of tree species to maintain key views and views towards listed monuments.
- Monitor diseases and pests and take measures, if necessary.
- Achieve year round interest in the choice of plants.
- Achieve vegetation coverage during winter and spring (balance between evergreens and deciduous).
- Where appropriate, to retain deadwood for the benefit of wildlife.
- To ensure health and safety to minimise risk of injury and damage to people and property.
- Review annually the outcome of the management works and provide guidelines
- Update the maintenance and management plans on a 5 yearly basis

5.1 Landscape General Arrangement

5.0 APPENDICES

Gustafson Porter + Bowman


Terrace Catacombs
Lebanon Circle
College Catacombs
Obelisk Mausoleum
Square Lodge
Colonnade
Chapel
Pass Via Crossing to Old Cemetery & Egyptian Avenue
Sentry Kiosk
Oratory Mausoleum
Refreshment Kiosk
Education and Community Building
Indicative Maintenance and Skip Location
Holly Lodge Estate
Cherwell Avenue
Millingford Avenue
Lower Drive
Tolerance fence removed and boundary wall to be reinstated to match existing stone wall
N
NOTE :
-Refer to Hopkins Architects' Drawings for Architectural Works. For all architectural elements and related details, please consult the architectural drawings series below prepared by Hopkins Architects.
Project 1 - Community + Education Community Building (CB) - HGC-HAL-CB-ZZ-DR-A series
Project 2 - Visitor & Operations Building (VB) - HGC-HAL-VB-ZZ-DR-A series
Project 3 - Dissenters' Chapel (DC) - HGC-HAL-DC-ZZ-DR-A series
Project 4 - Refreshment Kiosk (RK) - HGC-HAL-RK-ZZ-DR-A series
Project 5 - East Side Sentry (ES)- HGC-HAL-ES-ZZ-DR-A series
Project 6 - East Side Mound - Gardeners' Storage (GB) - HGC-HAL-GB-ZZ-DR-A series
Project 9 - South Lodge (SL) - HGC-HAL-SL-ZZ-DR-A series
-Refer to West Scott Architects for Conservation Works. For all architectural conservation aspects, please consult the relevant documentation and drawings provided by West Scott Architects.
-The planting schedule can be found in document GPB-HIG-SCH-0001.
This schedule includes detailed information on plant species and mixes.
-Tree Locations: The tree locations indicated in the current plans are provisional and may be subject to adjustment based on the availability of space during the final design and construction phases.
Flexibility in placement should be anticipated to accommodate site-specific conditions.
KEY
Site Boundary
HARDSCAPE
PAVO1 Primary Path -Exposed Aggregate Concrete -Cast In Place Kerb -Upgrade Existing Drainage
PAVO2 Secondary Path -Self Binding Gravel -Metal Edging -SUDs Drainage -Horizontal Stone Sleepers as retaining structure for gravel every 5m on paths above 5%
PAVO3 Tertiary Path -Mulch as appropriate -Timber Edge -French Drains
PAVO4 Entrance Granite Setts
PAVO5 Entrance Yorkstone Setts
PAVO6 Entrance Self Binding Gravel
PAVO7 Metal Boardwalk
PAVO8 Loose Gravel
Proposed Slot Drain
Proposed Bench
Proposed Gate and Fence
Hardcore sub-base underlining a fine gravel layer to support passing vehicles and aid drainage
SOFTSCAPE
Existing Trees
Proposed Trees
Removed Trees
Entrance Planting
Native Hedgerow
HABITAT TYPE
High Profile Planting
Shaded Woodland
Open Woodland
Wet Woodland
Grassland
Embankments/Slopes
0 5 10 15 20 30 50
WEST
EAST
R2 11/10/2024 ACAB MP NP For Planning
R1 16/08/24 ACAB MP NP Planning Application Draft Issue
R0 19/07/24 ACAB MP NP Masterplan Stage 3 Draft Issue
Revision Date By Chkd Appr Description
Project
389 - HIG - Highgate Cemetery
Drawing Title
GA Plan - West
Drawing Number
HIG-GPB-ZZ-ZZ-L-DR-1001
Scale (@ A0) 1:500
Date 11/10/2024
Revision R2
Drawn by ACAB
Checked by MP
Approved by NP
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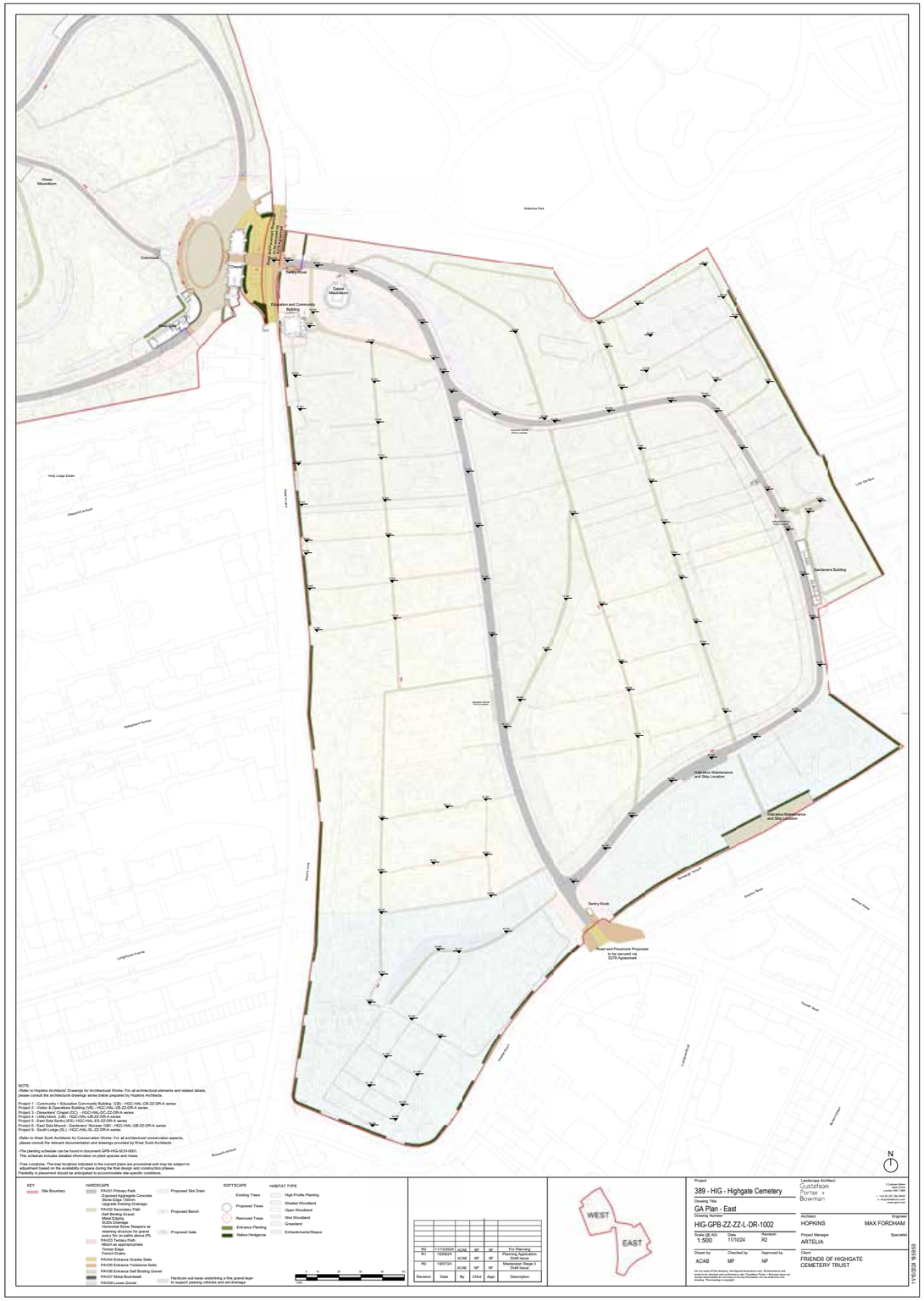
S1/2024 WORKS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Pass Via Crossing to Old Cemetery & Egyptian Avenue
Sentry Kiosk
Oratory Mausoleum
Refreshment Kiosk
Education and Community Building
Waterlow Park
Holly Lodge Estate
Cherwell Avenue
Millingford Avenue
Lower Drive
Gardeners Building
Indicative Maintenance and Skip Location
Indicative Maintenance and Skip Location
Sentry Kiosk
Road and Pavement Proposals to be secured via S278 Agreement
Highgate Avenue
Hillcrest Road
Cypress Road
Cedars Road
Chestnut Road
Beech Avenue
N
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