Persephone Gardens

Proposed
10 Year Management Plan
2019-28

Produced by
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1. Introduction

N.B. *This Management Plan has been written prior to the proposed development of Persephone Gardens being submitted as a planning application. It is based upon the designs identified in the Draft Landscape Report July 2017 (document 525-RP-170508 –V1) produced by Andy Sturgeon Landscape and Garden Design. It has been written as though the development within this document currently exists (in current tense). Detailed planting plans were not made available for this plan so specific management proposals regarding specific species were not compiled. However, all proposals are based on generic best practice nature conservation and horticultural management techniques.*

This document will need to be updated and modified if planning permission is granted so as to ensure it is an operational Management Plan once development works commence.

1.1 General Information

1.1.1 Details

Name:	Persephone Gardens a.k.a. Gondar Gardens
Location:	Entrance on Gondar Gardens in West Hampstead, and surrounded by residential units and gardens of Gondar Gardens, Agamemnon Road and Hillfield Road, London NW6.
Area:	1.2 hectares
Grid reference:	TQ 24769 85260 (centre of site).
Access:	Pedestrian and vehicular access is on Gondar Gardens.
Planning Status:	Local planning authority is London Borough of Camden; Site is designated as a Site of Borough (Grade II) Importance for Nature Conservation (CaBII10 *Gondar Gardens Covered Reservoir*); Trees at the eastern end of site are covered by a (group) Tree Preservation Order (TPO).
Land Tenure:	Freehold by LifeCare Residences Plc

1.2 Description

1.2.1 Physical

Topography

Persephone Gardens (see map in appendices) sits within an undulating landscape of mostly residential units. On site the buildings and associated features (Entrance and Courtyard Gardens) sit on three levels divided by steps and ramps. The three levels are 00, which is equal to the Gondar Gardens road level at around 77m above sea level, -01, and -02, the lowest point at approximately 72m above sea level.

The Open 'wild' Space area consist of a horseshoe shaped mound with slopes of all four directional point facings. They are variably in height from 72m to 79 m above sea level.

Geology and soils

The site sits on artificial soils[1] overlaying Eocene London Clay Formation, itself a collection of clays, silts and sands laid down in deep seas from shallow water sediments in graded layers.

Hydrology

The site is generally free draining although it is prone to localised water collection. Due to landscaping this is now largely contained within the retention pond.

1.2.2 Biological

Vegetation

All of the vegetation located within the footprint of the building and the Courtyard Gardens and that immediately surrounding, and within the Retention pond is entirely of planted origin (except a few natural self-set species which are largely treated as 'weeds'). The diversity of plants here is a mix of native and non-native species and were planted for their aesthetic and biodiversity interest.

Within the Open 'Wild' Space the grasslands consists of a mix of self-propagated and actively sown species of native or naturalised species. They include a variety of grasses, sedges and wildflower species that benefit wildlife. They include: common bird's-foot-trefoil, common sorrel, selfheal, black medick, meadow buttercup, common knapweed, yarrow, red and white clover, common bent, crested dog's-tail, sheep's and red fescue, and sweet vernal-grass. The rarer and locally important spiked sedge is also present.

Trees and scrub species present on site includes sycamore, ash, hawthorn, wild plum, wild cherry and bramble, plus some taller herbs such as common nettle, creeping thistle and docks.

Fauna

The site supports a population of slow-worms which live within the site and the neighbouring gardens. This is the only known site in the London Borough of Camden that has slow-worms recorded being present and is a key reason for the site being designated as a Site of Importance for Nature Conservation (SINC). The slow-worm, a legless lizard, predominantly thrives in the south-east corner on the south facing slope where the soils warm up more readily.

[1] These are soils that have been highly disturbed by human intervention and have significant importation of soils from other areas. These are very abundant in developed areas.

In addition to the slow-worms, a wide range of invertebrate species common to gardens and urban grasslands can be found. These include butterflies like common blue and meadow brown, and bees. Birds that frequent the site include blue tit, great tit, robin, dunnock, wren, woodpigeon and others including migrant species such as blackcap and chiffchaff which summer here in Britain. Red fox and grey squirrel are also present.

1.2.3 Landscape areas

For the purposes of this Management Plan the site has been divided into four broad landscape areas: Street frontage and entrances, Courtyard Garden, Buildings, terraces and roofs and Open 'wild' Space (see map in appendices) to differentiate management requirements. These four landscape areas are then subdivided into broad habitats (detailed in chapter 2). Each of the four landscape areas are detailed below.

Street frontage and entrances

The frontage along Gondar Gardens is defined by a low perimeter wall with railings. An evergreen hedge buffers between the public realm and the private amenity space. Several trees and shrubs planted in pots complement the hedges. A break in the building blocks creates a vista through the site looking east towards the Open 'wild' Space. A small entrance courtyard with a single tree defines the space with a gated private entrance. The main entrance for vehicles and pedestrian leads to a courtyard with access to the vehicle lift, cycle parking and ground level parking. This entrance is framed by planting in large pots and hedge planting along the southern boundary with the neighbouring South Mansions.

Courtyard Garden

The Courtyard Garden functions as an organisational space for pedestrian movement across the site and into the different building blocks, as well as providing amenity space for the residents. The gardens are on three levels and are designed to be reminiscent of private gardens incorporating screening, enclosure and security, while functioning as great visual amenities. Seats and benches are scattered throughout. The gardens themselves are ornamental in design but incorporate biodiverse species of both native and non-native origin.

Buildings, terraces and roofs

The building blocks themselves incorporate a number of buildings with private terraces and green (vegetated) and brown (rubble-based) roofs. This Management Plan does not cover the general management of the private buildings or the private terraces. With regards to the green roofs there are approximately 1000m^2 of sown vegetated biodiverse green roofs and 700m^2 of un-vegetated brown roof that will become vegetated through natural self-sown seed over time.

Open 'wild' Space

The Open 'Wild' Space is the eastern portion of the site, and will have no general access to residents or the public except through a series of controlled 'open' days and for management and monitoring purposes. This is to ensure the wildlife of the site is free from continued disturbance. The space is mostly composed of semi-improved neutral grassland with areas of scrub, and scattered trees around the boundaries to the north, east and south. A retention pond with associated wetland vegetation and scrub is located at the western end adjacent to the building blocks, and the Courtyard Gardens.

1.3 Influencing features

1.3.1 Financial resources and labour

LifeCare Residences ensures a skilled maintenance team maintains the landscape of the site in consultation with James Blake Associates and, where appropriate, London Wildlife Trust in accordance with this plan where possible. LifeCare Residences is responsible for ensuring sufficient resources and labour are provided to deliver the work plan. On occasion there may be a requirement for a third party contractor to undertake works such as if a large tree has fallen. LifeCare Residences will be responsible for managing any third party contractor requiring access to the site.

1.3.2 Access restrictions

Management of the site is constrained to some extent by access arrangements for machinery. However, most management works are undertaken using hand tools (including powered tools as necessary) so vehicular access is rarely required. A gated entrance to the Open 'wild' Space is available for emergency access and if larger machinery is required to manage the area.

1.3.3 Natural trends

Without long term management, natural successional processes will take place throughout the site. These will largely consist of (the list is not exhaustive):

- An increase of 'weed' species in Courtyard Gardens making them potentially less aesthetically appealing;
- An increase of unwanted 'damaging' species on green and brown roofs such as butterfly-bush that may cause structural damage;
- An increase of rank grasses and a subsequent decline in wildflower diversity of the grasslands. This in turn would reduce overall invertebrate populations and threaten the slow-worm population;
- An increase in scrub and tree encroachment into the grassland threatening the slow-worm population but changing overall invertebrate and bird diversity in favour of tree and shrub species. Wildflower diversity likely to decline; and
- An increase in siltation of pond reducing its biodiversity value and potentially increasing flood risk.

1.3.4 Invasive species

On occasion invasive species may become present on site. The London Invasive Species Initiative (LISI) list all the known and potential invasive species that occur or may occur in Greater London and their current status. They include all known Wildlife and Countryside Act 1981 (as amended) Schedule 9 species (in London) which are subject to legal requirements to prevent their spread into the wild.

The most likely invasive/problematic species to occur on site are:

- butterfly-bush *Buddleja davidii*: can cause structural damage of roofs and walls;
- Japanese knotweed *Fallopia japonica*: previously recorded on site and in neighbouring gardens;
- Russian vine: *Fallopia baldschuanica*: garden escape
- Virginia creeper *Parthenocissus quinquefolia*: garden escape and present in neighbouring gardens

Further information on LISI and invasive species can be found here:

London Invasive Species Initiative: http://www.londonisi.org.uk/

1.3.5 Impact of visitors

The site is not heavily used and most visitors keep to the established footpaths and do not access the Open 'wild' Space which is more sensitive than the rest of the site. The Open 'Wild' Space will be subject to impact during 'open' days as well as during management works and monitoring. The most likely visitor impacts upon the Courtyard Gardens will be to breeding birds through disturbance and to accidental impacts upon invertebrates through general usage. These impacts are likely to be very minimal and are highly unlikely to have a detrimental impact upon the overall site biodiversity.

1.3.6 Impact of management work

Although the management work identified in this plan is essential to maintain the biodiversity value of the site, the undertaking of said work will impact upon that biodiversity. Direct impacts like the removal of vegetation and accidental killing, and indirect impacts such as species displacement and disturbance will occur. By following procedures set out in this plan adverse impacts on the overall biodiversity should be kept to a minimum and should be easily recoverable. With good management practice, biodiversity values of the overall site could increase. The Monitoring Plan (Chapter 3) should identify if losses to overall biodiversity value are occurring and appropriate action can be taken to reverse any negative trend before they have a significant detrimental effect.

1.3.7 Legislation and policy

Management and use of the site will need to take account of species protected under the Wildlife and Countryside Act 1981 (as amended). These include:

- slow-worm - it is illegal to intentionally kill or injure them;
- birds - all (and their nests, nestlings and eggs) are protected from deliberate killing or damage.

Besides legislation and policy that governs the buildings, people and accessible space which are not covered by this plan, a series of other policies have been adopted by LifeCare Residences with regards to the site management. These are as follows:

- Biosecurity: - ensuring invasive species and or pathogens do not spread into other areas;
- Dogs on Open 'wild' Space: - ensuring dogs and other pets (belonging to residents or their visitors) do not access the Open 'wild' Space;
- Herbicides and Pesticides: - use is restricted to when absolutely necessary and when alternative treatments are not effective.

Health and safety is a highly influential factor when managing sites, and there is a need to comply with all relevant legislation. A site-based risk assessment for the site, highlighting all the risks relevant to the site and its management is available. These risks are highlighted on a map based risk assessment. To further comply with the relevant Health and Safety at Work Act 1974, risk assessments for all works undertaken by staff and contractors on site must also be made available.

1.4 Biodiversity and horticulture objectives

1.4.1 Vision

Lifecare Residences Vision for the landscape of the site is:

> *"Manage and enhance the amenity and semi-natural 'wild' spaces on site so that residents can be enriched by nature while ensuring sensitive biodiversity thrives, and the site's nature conservation designations are maintained."*

1.4.2 Performance objectives

LifeCare Residences aims to achieve the following objectives for the management of the site:

1. Maintain the SINC status designation across the entire site.
2. Maintain existing important species populations including priority species like the slow-worm.
3. Enhance existing habitats to increase overall biodiversity value.
4. Create new habitats to attract a wider variety of species.
5. Create gardens and other green infrastructure features that incorporate measures to attract biodiversity.
6. Manage the entire site's soft landscape with a holistic approach that benefits wildlife and ensures the biodiversity value is maintained for the future.

1.4.3 Staffing requirements

For LifeCare Residences to deliver on the management of the horticulture and biodiversity of the site, it is expected that a full time gardener is employed all year around. The gardener needs to have an understanding of conservation management of wildlife sensitive areas and be skilled, trained and licenced for the use of:

- brushcutters (strimmers with blade usage)
- pesticides and herbicides

2. Management Plan

Management of Persephone Gardens is essential to ensure that the site remains accessible and usable by the residents that live there and any visitors, and also to maintain the biodiversity of the site. The general management requirements and those required in each of the four landscape areas and their specific habitats and features are covered below.

2.1 General management

2.1.1 Watering

Much of the planted areas within the street frontage and entrances, Courtyard Garden and the green and brown roofs are fed by an efficient perforated-pipe irrigation system forgoing the need for manual watering. However, some areas are not covered by this irrigation system and manual watering will be required. Concealed /recessed water points have been installed in strategic points to facilitate this need. The Open 'wild' Space will have no need for watering.

Manual watering will be undertaken as required.

2.1.2 Invasive or problematic species removal

Invasive and problematic species will become identified during the monitoring process and plans for their removal should be implemented as soon as possible to reduce their spread. Invasive species are all those that are listed on the LISI list (see above).

Problematic species are those species that are causing specific problems to that habitat and may have a detrimental effect if they persist. This includes common nettle, docks, thistles, ragwort, certain grasses, bramble, roses as well as some trees and shrubs and could include garden plants like bamboos, cyclamen and some climber and bulb species. 'Weed' species in the amenity spaces (Entrance and Courtyard Garden) are not covered under this (see weeding below).

Invasive and problematic species removal will be undertaken as required.

2.1.3 Pesticide and herbicide usage

Pesticide and herbicide usage will be kept to a minimum and alternative methods of control or removal will be sought before usage. This is to ensure that the biodiversity value of the site does not decline due to toxic residues in the environment from their application.

Pesticide and/or herbicide application will be undertake (if necessary) as required under suitable strict conditions.

2.1.4 Weeding

'Weeds' are generally considered as 'plants in the wrong place'; in these circumstances they are species with good colonising ability and can rapidly occupy areas of disturbed and bare soils (often known as ruderal species). In most cases these will be annual self-set plants that have arrived from elsewhere, and will appear in the amenity areas, although perennials may also occur. They will include species such as annual mercury, dandelion, mouse-eared chickweed, and scarlet pimpernel.

These species are likely to be controlled by hand removal (pulling) as part of everyday management of the perennial flower beds and tubs as well as any that appear between cracks

in the hard surfaces. However, they should not be removed from the brown or green roofs or any area within the Open 'wild' Space as they form the fabric of the biodiversity of the site and their removal will lower the site's overall biodiversity value.

Weeding will be undertaken as required (likely to be a daily occurrence) and collected material should be composted.

2.1.5 Cleanliness

The amenity areas will be kept clean and free of debris to ensure that they appear in a state of care at all times. This will be a daily or near daily occurrence. Non-organic litter will be removed daily. Organic matter can be composted if it is appropriate.

The removal of non-organic litter from the Open 'wild' Space should be undertaken weekly or as found.

Organic and no-organic garden waste from neighbouring gardens should be removed when it is identified and the appropriate facilities for its removal are made available. This practice should be strongly discouraged through discussions with neighbouring residents as it accentuates the spread of invasive and problematic species.

2.2 Street frontage and entrances

2.2.1 *Hedge*

The hedge is composed of an evergreen shrub and requires the following management:

- To be checked monthly during the months of September-February and cut using a hedge trimmer as required to maintain its shape and required look. Cuttings to be collected, removed and composted. Some cuttings can be left underneath the hedge and allowed to rot naturally to help maintain soil quality and provide wildlife habitat for invertebrates where this does not detract from the required look.

2.2.2 Street tree

The street tree is a common lime *TIlia X europea* 'Greenspire'. It should be checked in September of each year to ensure it is healthy and does not require pruning. If pruning is required it should take place during the months of October-February only. It should not be cut during the summer months. Pruned material should be placed onto the wood piles in the Open 'wild' Space.

2.2.3 Pot planting

The pot plants will be a mix of trees and shrubs and will be of a type that requires minimal management. They may require:

- To be checked monthly during the months of September-February and pruned as required to maintain their shape and required look. They should not be cut during the summer months. Cuttings to be collected, removed and composted or placed onto the wood piles in the Open 'wild' Space. Some cuttings can be left underneath the shrubs and allowed to rot naturally to help maintain soil quality and provide wildlife habitat for invertebrates, where this does not detract from the required appearance.

2.2.4 Cycle storage green roofs

The cycle stores have shallow soil green roofs on top of them. These are planted with biodiverse short turf species like sedums but also other species. They should largely require minimal management except those activities covered under general management.

2.2.5 Hard surfaces and furniture

Hard surfaces are to be kept clear and clean of debris and free from weeds as required, to ensure the pathways and furniture are accessible and usable.

2.3 Courtyard Garden

2.3.1 Hedging

The hedges are composed of different species and will require the following management:

- To be checked monthly during the months of September-February and cut using a hedge trimmer as required to maintain their shape and required look. They should not be cut during the summer months. Cuttings to be collected, removed and composted. Some cuttings can be left underneath the hedges and allowed to rot naturally to help maintain soil quality and provide wildlife habitat for invertebrates where this does not detract from the required appearance.

2.3.2 Planted borders and lawns

The planted borders and small lawns will be composed of a wide variety of native and non-native perennials. They will require the following management.

- Lawns will need to be mown weekly between the months of March - October. However, they should not be cut during periods of frost, drought, when wet as this causes damage to the grass. They should avoided to be cut when flowers like clover, daisies and dandelions (if present) are in full bloom as these add to the biodiversity value. Once flowered the lawns can then be mown.
- Kept clear from leaf fall and dead plant materials as required: some of this material can be allowed to rot and decay in areas of the beds where it is out of view (underneath shrubs etc.) providing homes for various invertebrates and maintaining biodiversity. The use of leaf blowers can cause significant damage to invertebrate life in flower beds reducing biodiversity values. Leaf fall can be collected using this method but some areas (particularly those around flowers and shrubs) are best removed by rake and hand so as to minimise harm to biodiversity.
- Shrubs that require pruning are to be checked monthly during the months of September-February and pruned as required to maintain their shape and required look. They should not be cut during the summer months. Cuttings to be collected, removed and composted or placed onto the wood piles in the Open 'wild' Space. Some cuttings can be left underneath the shrubs and allowed to rot naturally to help maintain soil quality and provide wildlife habitat for invertebrates, where this does not detract from the required look.

2.3.3 Trees

Trees in the Courtyard gardens consist of three types; standards, box-headed topiary trees, and multi-stem trees. They will require management as follows:

- The box–headed topiary trees are be checked in September of each year and cut using a hedge trimmer as required to maintain their shape and required look. They should not be cut during the summer months. Cuttings to be collected, removed and composted. This will require stable scaffolding to undertake.
- All trees should be checked in September of each year to ensure they are healthy and do not require pruning. If pruning is required it should take place during the months of October-February only. They should not be cut during the summer months. Pruned material should be placed onto the wood piles in the Open 'wild' Space.

2.3.4 Water features

There are several water features present within the Courtyard Gardens. These will require:

- Monthly maintenance checks (or as advised) of pumps and other working parts ensuring they are clear of debris.
- Daily clearance of water features of leaves, algal blooms etc. to prevent damage to pumps etc. and increased siltation.
- Any water plants present may require thinning if they become dominant in the water bodies. This should be done with hand during the months of September-March to reduce impact on biodiversity.

2.3.5 Hard surfaces

Hard surfaces are to be kept clear and clean of debris and free from weeds as required, to ensure the pathways and furniture are accessible and usable.

2.4 Buildings, terraces and roofs

2.4.1 Bird and bat boxes

The bird and bat boxes on the buildings should not require any maintenance requirements.

2.4.2 Private terraces

The private terraces management will be the responsibility of the individual residents.

2.4.3 Green and brown roofs

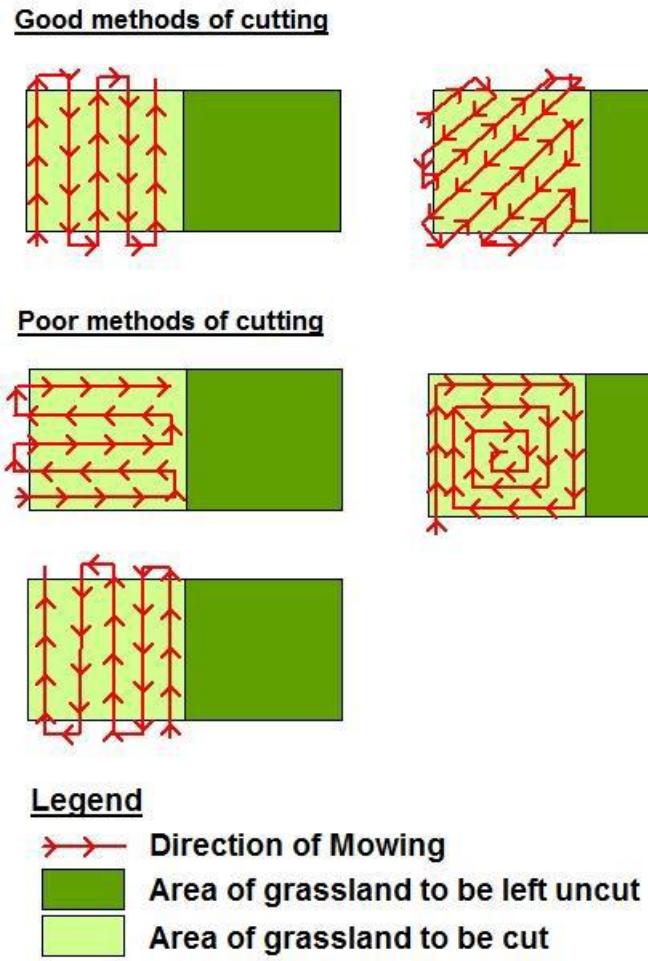
The green and brown roofs once established should largely require minimal management except those relevant activities covered under general management.

2.4.4 Semi-improved neutral grassland

The grassland is one of the most important habitats on site for biodiversity. To maintain that biodiversity value the following management is required:

- Cut using a brush-cutter once in March and again in October (cuts should not take place during frosty or wet conditions) every year ensuring that the vegetation is cut no lower than 5cm in height. Cutting should be undertaken in a way that any slow-worms or small mammals present in the grassland can escape into adjacent habitat such as uncut grassland or scrub, without them having to cross areas already cut or them being exposed to predation (See figure 1.). Cut material should be left in-situ for 2 days (allowing invertebrates to leave) before being collected and composted. A third cut in December/January may be undertaken if monitoring of vegetation determines that this is required.
- Additional cuts may be required to be undertaken along the access route from the Courtyard Garden to the steps for open days to allow public access. In addition, a circular operating space can be cut at the top of the steps for use on open days. The methods of cutting should follow standard procedure (as above) so will require cutting at least 2 days prior to the open day events.

Fig. 1. Methods of cutting grass to ensure minimal impact on wildlife (dark green areas are synonymous to the scrub and the Ecotone zone)



2.4.5 Retention pond

The newly created pond will take time to become established and during this time of establishment will require minimal management however some things that may be required in its establishment or over the longer period are:

- Removal of blanket weed (an algae), other algae or duckweed. These species can quickly block out the light entering a pond and will reduce biodiversity. Although once present they are unlikely to be eradicated completely, their control to ensure they do not become dominant is essential for the health of the pond. Generally the water's surface should not be covered by more than 20% of these species. This should be checked monthly, more regularly if possible between April and August.
- Vegetation clogging of the pond should be avoided. A healthy pond should have at least 30% of its surface area free from vegetation cover. Ideally the amount of surface water area should be between 40-70%. In addition no one given species should dominate the pond by more than 50%.
- In removing any pond vegetation (blanket weed, duckweed or other species). This should be done with hand (or net) and should be left on the banks for two days before being removed. This is to ensure any aquatic invertebrates on the vegetation can return to the pond. Pond vegetation clearance work should only be undertaken during the months of September-March to reduce impact on pond biodiversity. If duckweed or

blanket weed has become a problem early on in the months of April or May then it should be removed immediately and not be left until September.

- Ponds over time become subject to siltation. This gradually lowers the water depth and encourages quicker colonisation of vegetation. The rate varies according to the pond and its immediate surroundings but generally those near trees or shrubs that drop their leaves in winter will silt up faster than those in the open. Generally most ponds need de-silting every 10-20 years. De-silting a pond is a complex and difficult task and should be undertaken during the months of October-December. The silt will need to be removed from site and it is likely a mini-digger with bucket will be required to dig it out. Prior to de-silting aquatic vegetation can be removed and placed into temporary bucket ponds to keep it alive and thriving while the pond is de-silted. Once done it can then be re-introduced. De-silting has a significant impact on the wildlife of a pond and cannot be totally avoided but if a pond is not de-silted the wildlife value will decline anyway. Once re-established a pond will recover well if de-silted properly and the wildlife value will soon return to its previous levels.
- The shrub planting habitat around the pond needs to ensure that it provides an access route to the pond for management purposes and ensure that there is an access path from the Courtyard Garden to the base of the steps in the grasslands again for management purposes. The shrubs here should be native and may require annual or biennial pruning to prevent encroachment into the pond edge and the grasslands and provide a vista from the Courtyard Garden into and over the pond. Otherwise they should be allowed to provide a natural barrier to prevent public access into the Open 'wild' Space area. If pruning is required it should take place during the months of October-February only. They should not be cut during the summer months. Pruned material should be placed onto the wood piles in the Open 'wild' Space.

2.4.6 Scrub and trees

The scrub and tree habitat skirting the north, east and south boundaries of the site should largely be managed by non-intervention. However some management may be required:

- Occasional pruning of trees and shrubs as required (broken and fallen limbs) presenting a risk to neighbouring infrastructure and fencelines. If pruning is required it should take place during the months of October-February only. They should not be cut during the summer months. Pruned material should be placed onto the wood piles in the Open 'wild' Space.
- Occasional pruning of trees and shrubs as required to ensure encroachment onto grassland does not occur (this should largely be controlled through the ecotone management (see below). If pruning is required it should take place during the months of October-February only. They should not be cut during the summer months. Pruned material should be placed onto the wood piles in the Open 'wild' Space.

2.4.7 Ecotone zone

The ecotone zone is a 1-2 metre variable width strip of vegetation that delineates where the grassland and scrub/tree habitat meet around the north, east and south boundaries. It should exist along the entire length of where these habitats meet. Its management is vital to ensure that the scrub habitat does not over time encroach upon the grassland habitat. It is sometimes valuable to delineate the scrub-side edge of this habitat using permanent marker posts or points fixed into the ground to ensure this habitat doesn't move as the scrub encroaches. The Ecotone is to be managed as follows:

- Cut using a brushcutter once in October (cuts should not take place during frosty or wet conditions) **once every 3 years** ensuring that the vegetation is cut no lower than 5cm in height. Cutting should be undertaken in a way that any slow-worms or small

mammals present in the grassland can escape into adjacent habitat (scrub) without them having to cross areas already cut or them being exposed to predation (See methods of cutting table). Cut material should be left in-situ for 2 days (allowing invertebrates to leave) before being collected and composted. A second cut in March may be undertaken if monitoring of vegetation determines this is required.

2.4.8 Biodiversity enhancement features

There are a number of biodiversity enhancement features to be placed within this area. They include bird and bat boxes, reptile hibernacula, stag beetle loggeries. The management of these features is as follows:

- The bat boxes should be left and not interfered with unless necessary and then they should be handled with a specialist bat ecologist.
- The bird boxes should equally be left but could (although not necessary) be cleaned out every year in October).
- The reptile hibernacula should not be interfered at any time of the year especially during the winter months (October-March). Should there be a need to move them then this should be undertaken by a qualified ecologist. They should be allowed to become vegetated and overgrown.
- The stag beetle loggeries should not be touched or removed but additional fallen and cut wood materials can be added to them as long as they do not get too big (unsightly).

2.4.9 Steps and access features

The steps in the grassland and the access gates leading from the car park entrance and the Courtyard Gardens should be maintained in good working order and remain locked at all time until access is required for management or monitoring works, on an open day or during emergencies. The steps may occasionally require repair work as the wooden boarding rots. This can be undertaken at any time of year.

3. Monitoring

Monitoring is essential if the performance objectives are to be met. To ensure that they are met, several monitoring programmes will be run over the course of this ten year plan. These would need to be undertaken by a qualified ecologist. These are detailed below.

3.1 A walkover biodiversity assessment

The walkover biodiversity assessment will comprise of an Extended Phase I survey across the entire site (including roofs but not private terraces) which will be undertaken in year 1 (2019) forming the baseline data and again in years 3 (2021), 5 (2023) and 10 (2028) during the months of May or June. This assessment will identify existing habitats and species composition and additionally include a brief fauna survey. The site will be evaluated against the following criteria.

- The overall habitat mix of semi-improved grassland, trees/scrub, ecotone, brown and green roofs and planted shrubberies remains fairly stable. i.e. the natural trends, invasive species, impacts of visitors and management addressed in section 1.3 are not evident.
- The gardens are suitably biodiverse and remain a mix of native and non-native species
- The green roofs are well vegetated (sward density is greater than 70%) and they have a stable or increasing faunal usage;
- The brown roofs have increasing vegetation and a stable or increasing faunal usage.

3.2 Vegetation transects

Vegetation transects will be undertaken in the semi-improved grasslands in year 1 (2019) forming the baseline data and again in years 3 (2021), 5 (2023) and 10 (2028) during the months of June or July. These are set location transects 1 metre in width that will be plotted across the semi-improved grasslands taking in areas of grassland that were restored and areas that were existing prior to the development. It is suggested that two transects are required each running from the Retention Pond scrub edge towards the boundary scrub and trees; one in a north easterly direction and one in a south easterly direction. A series of fixed points along the transect routes will be monitored in years 1, 3, 5 and 10 using a 1x1m quadrat. Vegetation composition will be recorded in each quadrat in each year using the DOMIN scale. These transects will help to identify any specific changes that are occurring to the vegetation composition and characteristics like sward density and sward height over time

In addition a series of vegetation transects should also be set up upon the green and brown roofs to monitor the vegetation change occurring here.

These transects will be evaluated against the following criteria:

- The species composition remains relatively stable or is becoming enhanced and the ratio of grasses to wildflowers remains around 4:1 (+- 10% variation). Wildflowers on the roofs can be higher than this ratio but should not get lower than this;
- The amount of scrub coverage remains less than 10%;
- The amount of thatch (loose dead vegetation) coverage remains less than 10%;
- The amount of bare soil coverage remains less than 10%;
- Average sward height remains less than 50cm.

3.3 Reptile surveys

A continuing programme of reptile surveys should be undertaken on the grasslands in years 1, 3, 5 and 10 in the months of April - May and August-September to ensure that the development pressures and the management practices are maintaining the population of slow-worms. The reptile survey methodology adopted in year 1 (forming a baseline) should be repeated exactly (and within two weeks of the baseline date) in subsequent years to ensure that there is consistency and minimal bias created from the results. Results should also consider survey data collected from previous surveys in 2010, 2013 and 2016 with understanding that the methodologies for these surveys may have variability

The slow-worm populations will be evaluated against the following criteria:

- Slow-worm captures should not decline more than 10% from the baseline;
- There should be evidence of young individuals in the late surveys.

3.4 Other evaluation

In addition to the surveys mentioned above, there is a requirement in each of the years 1, 3, 5 and 10 that the site overall is evaluated to ensure it is maintaining the SINC status. The criteria (all of which need to be met) to be evaluated are:

- Presence of slow-worms and population appears at least stable;
- Green and brown roofs are biodiverse and are supporting a variety of invertebrate life;
- Gardens are well maintained are biodiverse and are supporting a variety of invertebrate life;
- Grasslands and habitat structure supports a wide variety of species including some species of borough importance (yellow meadow ant, spiked sedge, breeding migrant birds).

3.5 Action

The results from the monitoring if not of a desirable requirement will need to be evaluated to attempt to understand why the undesirable results are being recorded. This may be obvious in some examples (increase in scrub in grassland = lack of management) but less so in others. Either way a decision to change management practices to rectify the undesirable results will be required. These new management practices may themselves require additional more scrutinised monitoring to identify whether they are the appropriate change to rectify the undesirable outcome towards a more positive one.

4. Work Plan

Green boxes show when tasks are generally to be undertaken and blank spaces when work should not be undertaken (unless species circumstances dictate a need and impacts on biodiversity have been considered including need for licences to undertake works.

N.B.

Lawns cut during the summer months should consider flowering pants and drought like conditions. In the latter cutting grass during dry conditions can seriously cause it damage and reduce its growth and could lead to bare soil patches developing.

An additional semi-improved grassland cut could be required in December or January as determined by the monitoring programme. This must not be undertaken during frosty conditions.

Landscape area	Management tasks	Work months												Frequency
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
All Areas	Infrastructure repairs													As required
	Watering of vegetation													As required (not in Open 'wild' Space)
	Invasive and problematic species removal													As required.
	Removal of non-organic litter													Daily (weekly in (Open 'wild' Space area)
	Walkover Biodiversity Assessment													Once in years 1 (2019) 3 (2021), 5 (2023) and 10 (2028)
Street frontage and entrances	Cut evergreen hedge using hedge trimmer													To check monthly and cut if required
	Pruning of street tree									Check				Check once in October and prune if required
	Weed pot plants													As required
	Prune pot plants													As required
	Clear hard surfaces of debris													Check and clear weekly or as required
	Clear hard surfaces of 'weeds'													Check weekly and weed if required

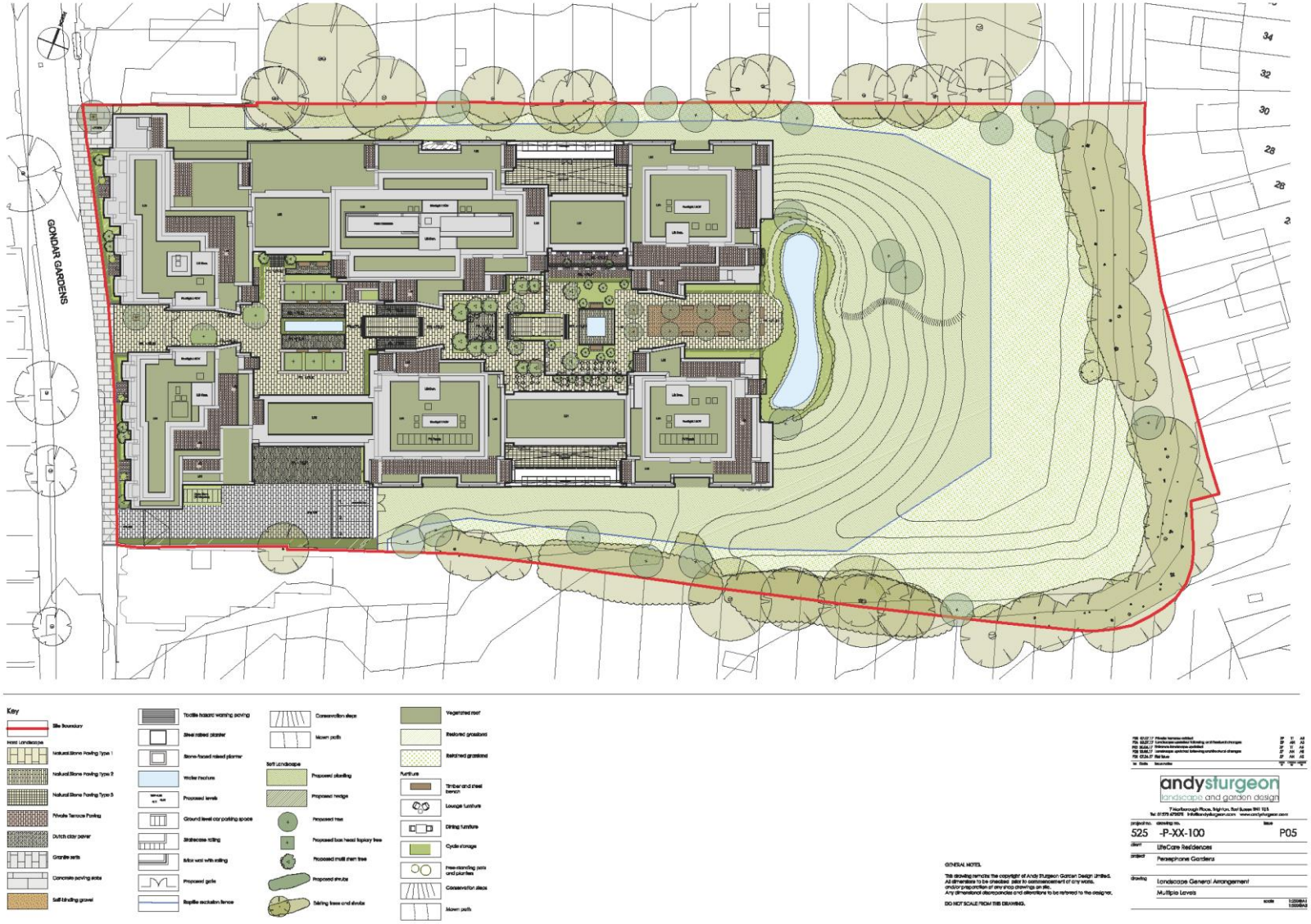
Landscape area	Management tasks	Work months												Frequency
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Courtyard garden	Cut hedges using hedge trimmer													To check monthly and cut if required
	Mow lawns					See N.B.	See N.B.	See N.B.	See N.B.					Weekly
	Weed planted borders													Check weekly and weed if required
	Remove debris, leaf fall and dead plant materials from planted borders													Check weekly and weed if required
	Prune shrubs in planted borders													Check monthly and prune if required
	Prune and shape box-headed topiary trees using hedge trimmer									Check				Check once in September and prune if required
	Prune trees									Check				Check once in September and prune if required
	Water feature checks (pumps, pipes etc.)													Monthly
	Clearance of debris, algae, leaves etc. from water features													Daily

Landscape area	Management tasks	Work months												Frequency
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Courtyard gardens continued	Clear hard surfaces of debris													Check and clear weekly or as required
	Clear hard surfaces of 'weeds'													Check weekly and weed if required
Building, terraces and roofs	Weeding of green and brown roofs													As proposed by monitoring checks
Open 'wild' Space	Cut grasslands with brushcutter, leave cuttings 1-2 days and then remove	See N.B											See N.B	Once in each month
	Ecotone cutting using brushcutter leave cuttings 1-2 days and then remove													Once every 3 years in Year 1 (2019) , 4 (2022), 7 (2025) and 10 (2028)
	Pond vegetation checks													Monthly
	Removal of blanket weed and other vegetation from retention pond													As required
	Pond de-silting													As required and informed by monitoring
	Pond shrub cutting													As required informed by monitoring

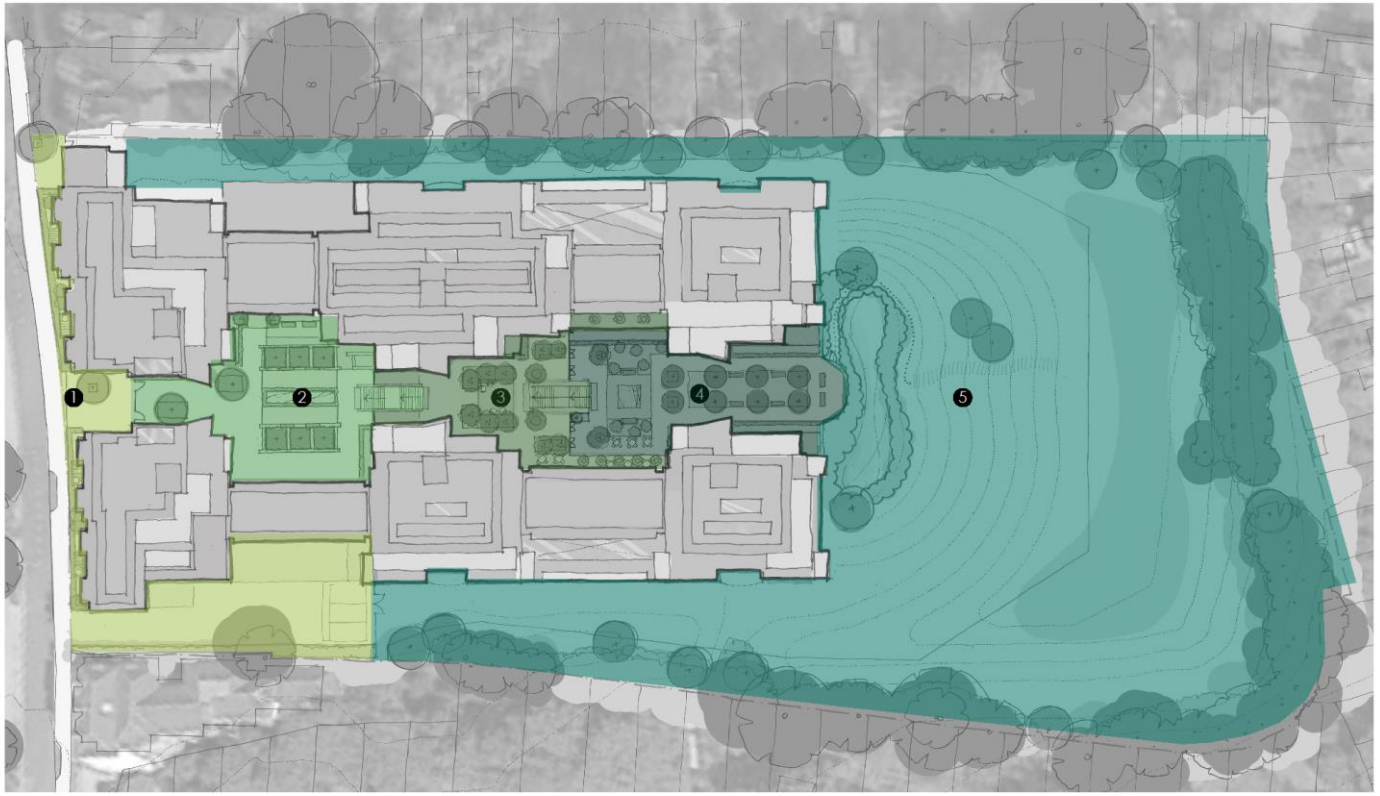
Landscape area	Management tasks	Work months												Frequency
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Open 'wild' Space continued	Pruning of trees and shrubs around boundaries													As required informed by monitoring
	Bird boxes cleaning													If required but not necessary
	Grassland vegetation transects													Once in years 1 (2019), 3 (2021), 5 (2023) and 10 (2028)
	Reptile surveys													In years 1 (2019), 3 (2021), 5 (2023) and 10 (2028)

5. Appendices

Map of site


GONDAR GARDENS
34
32
30
28
26
24
Key
Site Boundary
Hard Landscape
Natural Stone Paving Type 1
Natural Stone Paving Type 2
Natural Stone Paving Type 3
Private Terrace Paving
Dutch clay paver
Granite setts
Concrete paving slabs
Self binding gravel
Tactile historic warning paving
Steel rolled planter
Stone-faced raised planter
Timber Feature
Proposed levels
Ground level car parking spaces
Staircase railing
Brick wall with railing
Proposed gate
Reptile exclusion fence
Conservation steps
Mown path
Soft Landscape
Proposed planting
Proposed hedge
Proposed tree
Proposed box head topiary tree
Proposed multi stem tree
Proposed shrubs
Retaining trees and shrubs
Vegetated roof
Restored grassland
Retained grassland
Furniture
Timber and steel bench
Lounge furniture
Dining furniture
Cycle storage
Free-standing pots and planters
Conservation steps
Mown path
andysturgeon
landscape and garden design
project no. 525
drawing no. -P-XX-100
issue P05
client LifeCare Residences
project Persephone Gardens
drawing Landscape General Arrangement
Multiple Levels
GENERAL NOTES.
DO NOT SCALE FROM THIS DRAWING.

Landscape areas

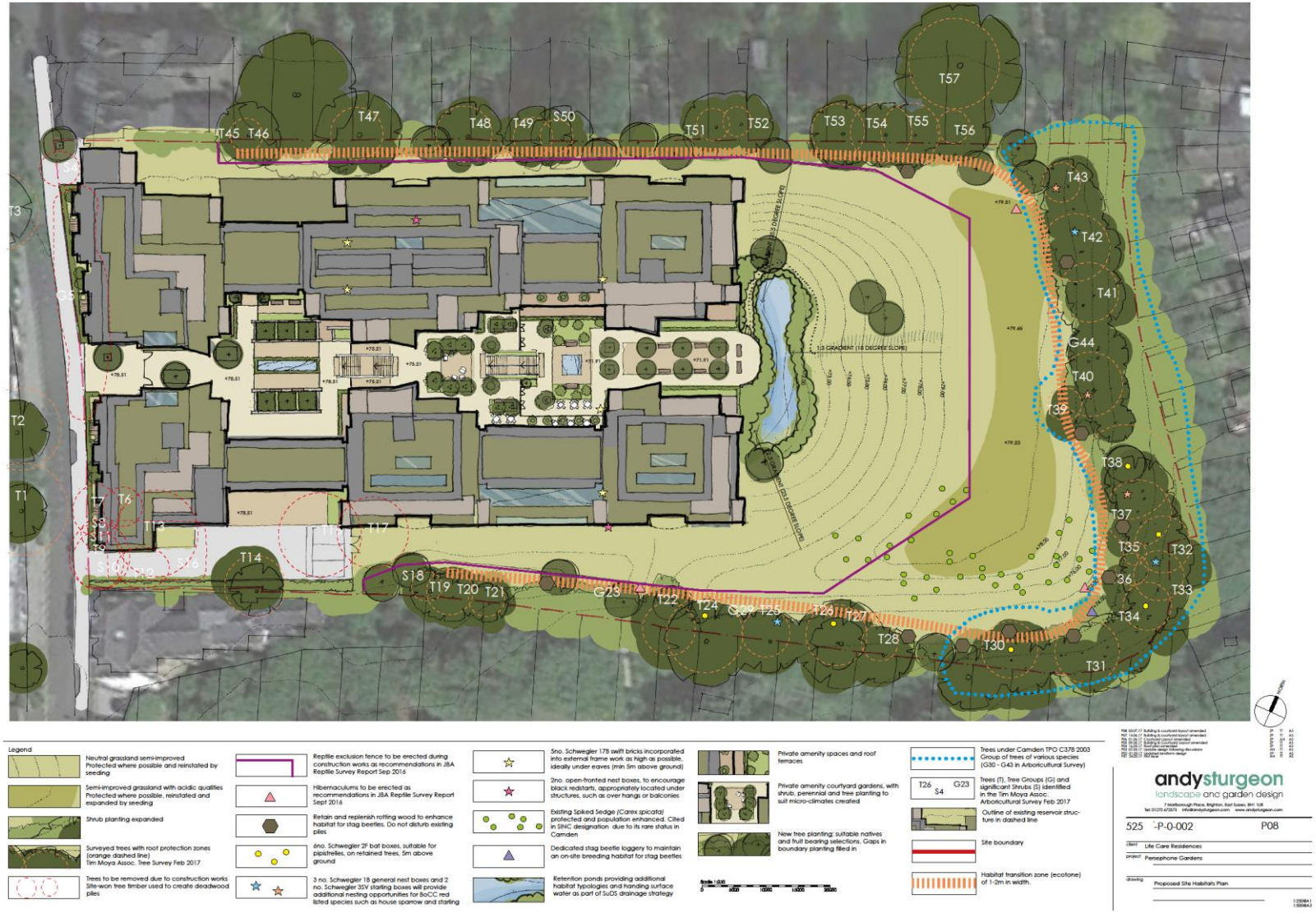


1 Street frontage and entrances
2 Courtyard Garden Level 00
3 Courtyard Garden Level -01
4 Courtyard Garden Level -02
5 Open 'wild' Space

andysturgeon
landscape and garden design

project no. 525 drawing no. -P-0-003 issue P01
client Life Care Residences
project Persephone Gardens
drawing Key areas overview

Map showing biodiversity features



6. About London Wildlife Trust

6.1 Vision and Mission

A London alive with nature, where everyone can experience and enjoy wildlife.

To stand up for London's wildlife by:

- Protecting, Restoring and Creating wild places for nature
- Engaging, Inspiring and Enabling people to connect with nature
- Championing, Challenging and Influencing people to stand up for nature

6.2 Charity information

Charity name	London Wildlife Trust
Address	Dean Bradley House, 52 Horseferry Road, London SW1P 2AF
Company number	1600379
VAT number	202410283
Date of Registration	26 November 1981
Charity Commission Number	283895

6.3 Insurance

London Wildlife Trust's insurance policies cover

- Professional Indemnity £2 million
- Employer's Liability £10 million
- Public Liability £10 million

6.4 Quality assurance

London Wildlife Trust has a number of policies in place that are adhered to and that contribute to monitoring the quality standards of work that is undertaken. The Trust's suite of policies includes the following:
Health & Safety policy
Environmental policy
• Equal Opportunities policy
• Lone working policy

The Trust's ecological staff are members of the Chartered Institute of Ecology & Environmental Management (CIEEM) and have several years of experience in carrying out ecological survey, policy and campaign work.