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Biodiversity Management and Monitoring Plan

Fallowfield Campus Redevelopment Project

For

John Graham Construction Ltd

Project No.: GRA001-013-001/002/001

February 2024

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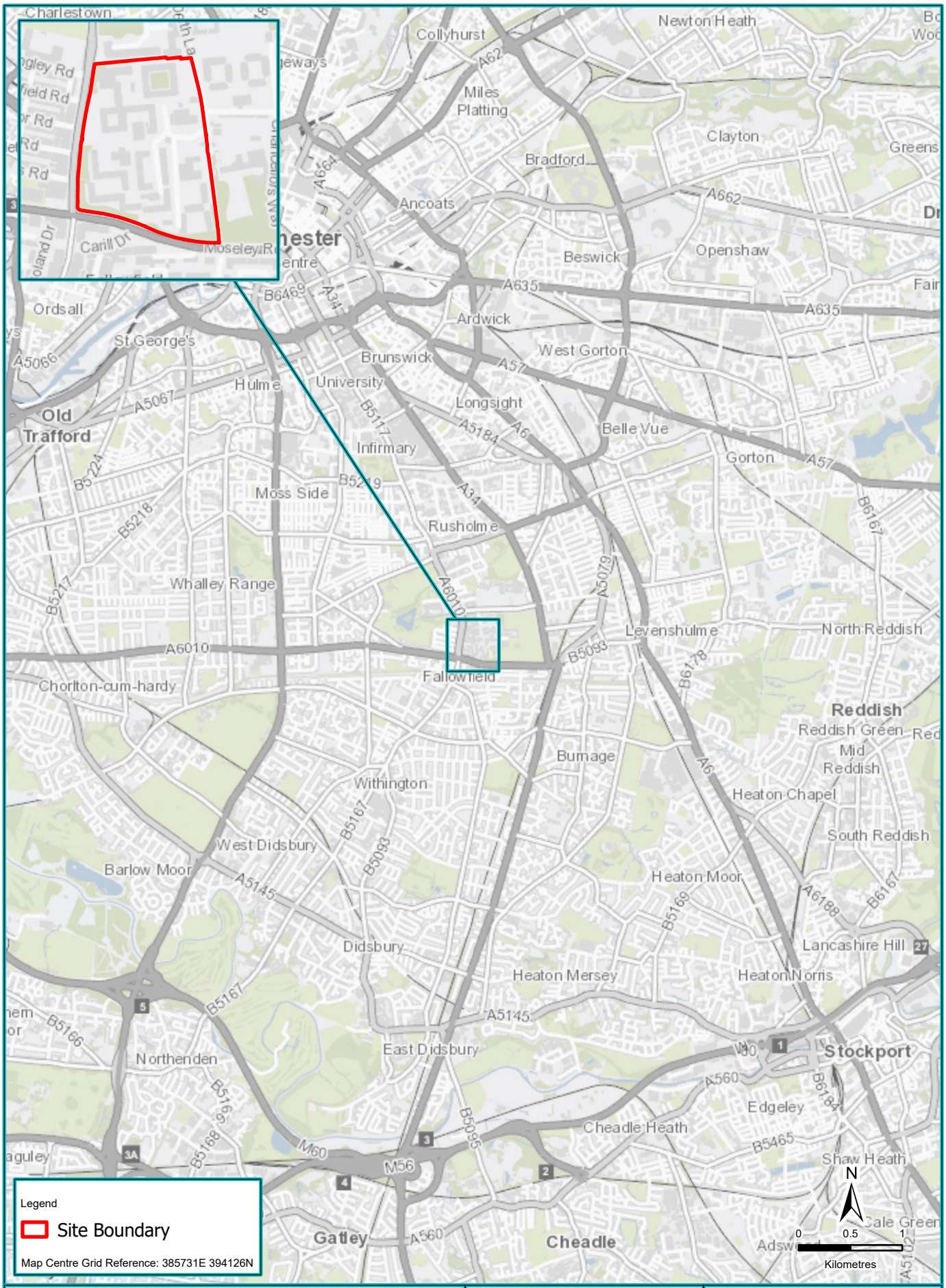
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Figure Number: 1		Scale at A4: 1:50,000	
Figure Title: Site Location	Drawn: KC Date: 17/02/2025	Checked: AS Date: 17/02/2025	

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Legend

- Scattered Broadleaved Tree
- Fence
- h2a6 - Other Native Hedgerow
- h2b - Non-native and Ornamental Hedgerow
- Wall
- g3c - Other Neutral Grassland
- u1 (847) - Introduced Shrub
- u1(845) - Built up areas and Gardens (Ground Level Planters)
- u1b - Developed Land, Sealed Surface
- u1b5 - Building
- w1g - Other Broadleaved Woodland
- Construction Phase Boundary
- Survey Extent

Map Centre Grid Reference: 385727E 394125N

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Figure Number	2
Figure Title	BNG Baseline



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Legend

- Retained Tree
- h2b - Non-Native and Ornamental Hedgerow
- h2a6 - Other Native Hedgerow (Retained)
- g3c - Other Neutral Grassland (Good)
- u1 (847) - Built Up Areaas and Gardens (Introduced Shrub, Retained)
- w1g - Other Broadleaved Woodland (Enhanced from Moderate to Good)
- Construction Phase Boundary

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Figure Number	3

Figure Title

Post Development Plan (Habitats Retained and Enhanced)

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Legend

- Proposed Urban Tree
- Proposed Urban Tree (Medium)
- h2a5 - Native Species-Rich Hedgerow
- h2a6 - Other Native Hedgerow (Created)
- g3c (27) - Other Neutral Grassland - Traditional Orchard
- g3c - Other Neutral Grassland
- h3h - Mixed Scrub
- h3h - Mixed Scrub (To be Created not Enhanced)
- r1g (41) - Other Standing Water (non-priority)
- u1 (847) - Built Up Areas and Gardens (Introduced Shrub)
- u1 (89) - Biodiverse Green Roof
- u1b - Developed Land, Sealed Surface
- u1b5 - Developed Land, Sealed Surface (Buildings)
- w1g - Other Broadleaved Woodland
- Construction Phase Boundary

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Figure Title

Post Development Plan (Habitats Created)

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Legend

Bat Boxes Installed in 2023

- 1FF Schwegler bat box for maternity roosts
- 2FN Schwegler bat box, for day, night, transitional and feeding roosts
- 1FF and 2N Schwegler bat box

Proposed Enhancements

- Proposed Location for External Bat Box
- Proposed Location for Swift Box Installation
- Proposed Location for Sparrow Terrace Installation
- Proposed Location for Bat Box Installation
- Proposed Location for Bird Box Installation
- Proposed Locations for Invertebrate Hotels
- Integrated Replacement Roost Feature
- Site Boundary

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Client	John Graham Construction Ltd
Figure Number	5
Figure Title	Biodiversity Management and Monitoring Plan

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1. Introduction

1.1 Development Background

1.1.1 This report has been prepared on behalf of John Graham Construction Limited to inform the reserved matters planning application for the Fallowfield Campus Redevelopment Project.

1.1.2 Fallowfield University Campus Student Accommodation (hereafter referred to as 'the site') is an approximately 8 hectares (ha) area of land (central OS grid reference SJ 85722 94149) used to house approximately 4000 students during their time in university.

1.1.3 Outline planning permission for the redevelopment of The University of Manchester Fallowfield Campus was granted by Manchester City Council in January 2024 (ref. 138126/OO/2023). The 'proposed development' entails the demolition of existing buildings and the construction of up to 3,300 purpose-built student accommodation units, with associated infrastructure and facilities, including waste storage, laundry, and cycle storage hall and the Limes).

1.1.4 The proposed development has an urban setting and is situated south of the city of Manchester in Lancashire. Although the site is within an urban setting there are a number of large parks situated to the north, east and west of the site including Birchfield's Park, Unsworth Park and Platt Fields Park, respectively. The site comprises the university campus, with associated road networks, landscaping and infrastructure split into three smaller campuses, Owens Park, Oak House, Woolton Hall. Habitats present on site comprise buildings, hard standing, ornamental planting, grassland, woodland and individual trees. The site is bordered by main roads on the south and west sides of the site (Wilmslow and Wilbraham). Residential estates and commercial buildings are located on the other side of the main roads and similar development also envelope the parkland areas further afield. To the north of the site is Ashburne Hall, another university campus. There is a large variety of sporting facilities surrounding the site such as Armitage Sports centre to the east of the site, Platt Lane sports complex north-west BMX tracks to the west, and artificial playing fields to the east.

1.1.5 The location of the site is shown on Figure 1.

1.2 Ecology Background

1.2.1 A Preliminary Ecological Appraisal (PEA) for the site was undertaken in 2022 (Buro Happold, 2023b). In addition, a habitat condition assessment was carried out in 2023 to inform a biodiversity net gain assessment (Buro Happold, 2023a). this appraisal was then updated in 2024 to include updated condition assessments. This PEA found that no statutory designated sites are located within 2km the boundary of the Site, with one non-statutory sites (Fallowfield Loop Regionally Important Geographical Site) located 154m to the south of the site boundary. Figure 2 shows the habitats recorded on the site during the UKHab survey in 2022 undertaken as a part of the PEA. Six parcels of the Habitat of Principal Importance (HPI) deciduous woodland were identified on site.

1.2.2 The PEA survey undertaken by Buro Happold (2023b) included a Preliminary Roost Assessment (PRA) of the buildings on site. This survey was done using the now outdated best practice guidelines (Collins, 2016 (ed) (3rd Edition), and recorded fourteen high potential buildings, two moderate and six low. The report also references six low potential trees for roosting bats.

1.2.3 Breeding birds are likely to utilise the buildings, hedgerows, broadleaved woodland and line of trees, and the site offers connectivity to the wider landscape providing foraging opportunities.

1.2.4 The habitats onsite could provide opportunities for hedgehog, which are better adapted as a species to urban environments. Surveyors during the 2023 and 2024 bat emergence/re-entry surveys observed hedgehogs utilising the site.

1.2.5 Furthermore, a small amount of deadwood was recorded within the woodland that would provide opportunities for saproxylic invertebrates. No records of protected invertebrates were found within 2km of the site.

1.2.6 The 2023 bat dusk and dawn surveys confirmed the presence of 13 common pipistrelle (*Pipistrellus pipistrellus*) within three buildings at Owen's Park, one roost within a building at Oak House and one roost within a building at Woolton Hall. In addition, one soprano pipistrelle (*Pipistrellus pygmaeus*) roost was identified at Owen's Park (Thomson, 2023).

1.2.7 Update emergence surveys in 2024 identified one additional pipistrelle bat roost a building at Oak House (Thomson, 2024c). Internal inspections of all buildings within Oak House and Woolton hall were completed in October 2024, with no additional roosts identified or no signs of bats observed. Updated ground level tree assessments were completed following best practice guidelines (Collins, 2023 (ed) (4th Edition), identifying three trees within Oak House and Woolton Hall to have potential roosting features (PRF). An updated PRA was completed on the Limes building which remained as negligible potential for roosting bats (Thomson 2024a).

1.2.8 An invasive non-native species (INNS) walkover was carried out on site, where one stand of Japanese knotweed, one stand of montbretia and multiple rhododendron stands were identified with a Method Statement prepared for their eradication and removal (Thomson 2024d).

1.2.9 In addition, a Biodiversity Net Gain (BNG) assessment was carried out for the site which comprised a condition assessment and use of the statutory biodiversity metric to determine the biodiversity value of the site pre and post-development (Thomson 2025). The outcome of the assessment was a +11.47% change in habitat units and a +135.20% change in hedgerow units.

1.3 Brief and Objectives

1.3.1 Thomson Environmental Consultants was commissioned by John Graham Construction Ltd, on behalf of University of Manchester (UoM), on the 12th September 2024 to provide a Biodiversity Management and Monitoring Plan (BMMP) that details the best practice methodologies to manage, protect and enhance the condition of habitats on site.

1.3.2 In line with the Reserved Matter, prior to any phase of the development including demolition and vegetation clearance commencing (excluding Phase 1a as identified on drawing reference Phase One A Owens Park Planned Demolition Figure 2) a biodiversity mitigation and management plan for all phases shall be submitted to and agreed in writing by the City Council as local planning authority.

1.3.3 The submitted strategy shall include:

- Habitat creation an management covering a 30 year period from the implementation of each phase;
- Bird nesting proposals based on species likely to colonise the site;
- Bat mitigation and enhancement strategy, and;
- Other wildlife.

1.3.4 The BNG Strategy and this implementation/management plan will be needed to support the bat EPSL application and will need to show consideration for GCN if they are present.

1.3.5 The approved BMMP shall be adhered to and implemented throughout the operational period strictly in accordance with the approved details, unless otherwise agreed in writing by the Local Planning Authority.

1.3.6 Condition 12 and 13 of the outline matters requires: *A strategy outlining the approach to biodiversity net gain assessment across all phases of development. This should indicate the approach to assessment across the site, how this is to be assessed per phase and how any shortfall in a minimum of 10% Biodiversity Net Gain across the site would be mitigated. The Biodiversity Mitigation and Enhancement Implementation and Management Strategy shall detail: habitat creation and management covering a 30-year period from the implementation of each phase; bird nesting proposals based on species likely to colonise the site; a bat mitigation and enhancement strategy and; strategy as to other forms of wildlife*.

2. Approach to Management and Monitoring

2.1 Background

2.1.1 The report is based on the development boundary and landscape plan provided to Thomson Environmental Consultants titled 'URMF-LAP-XX-DR-L-00012-P1 BNG Area Plan' (see Appendix 12). Subsequent changes to this document may result in a requirement to update this plan.

2.1.2 A planting schedule has also been provided to Thomson Environmental Consultants, which details those species that will be planted during the creation and/or enhancement of habitats across the site (see Appendix 14). These have been assessed by an experienced ecologist to ensure that the planting schedule reflects the habitat types chosen for creation or enhancement.

2.2 Approach to Management and Monitoring

2.2.1 The aim of this BMMP is to ensure that the habitats and features of ecological enhancement are established and sustained in perpetuity on the site and to ensure that the condition of the habitats remains in high quality. The site has the following protected species of which management has been tailored for:

- Birds;
- Bats;
- Hedgehogs; and
- Invertebrates.

2.2.2 As part of the outline planning application for Fallowfield Campus Redevelopment Project, a Bat mitigation Licence Application (ref:2024-67005-EPS-MIT) has been produced. These documents should be referred to and adhered to throughout the operational phase of the development as enhancements will need to be maintained and licence conditions complied with.

2.2.3 Local organisations and appropriate stakeholders should be engaged and an appropriate steering group or organisation(s) should be appointed to carry out the site management and monitoring. The aim will be to ensure the site is in a better condition than it was pre-development. Considerations will include:

- To meet the habitat creation, enhancement and retention targets set out in the BNG report (Thomson, 2024);
- To establish the condition of created and enhanced habitats on site with time to target condition set out in the BNG report; and
- To maintain the natural landscape of the Fallowfield University Campus.

2.2.4 It is recommended that a suitable person (a 'Biodiversity Champion') is appointed to take key responsibility for implementing the management plan. A suitable candidate would be the person(s) in charge of taking care of the grounds. The Biodiversity Champion should have the authority to influence site activities and ensure that detrimental impacts on site biodiversity are minimised in line with the recommendations of this ecological management plan.

2.2.5 Monitoring is integral to the success of the site. Surveys will involve site visits by a suitably qualified ecologist to assess the vegetation communities and species present. It is recommended that a brief annual report is compiled to record results.

2.2.6 The management plan will be a dynamic document, which should be continually updated and improved. Any concerning developments, such as coarse grass/scrub encroachment or invasive species will be reported and the management plan updated to instigate action, if required.

2.2.7 A pre-development assessment of the condition of each habitat has been made in accordance with the Statutory Biodiversity Metric habitat condition assessment sheets (Defra, 2023). These sheets provide a series of condition assessment criteria, specific to each habitat type. A condition score of 'good' is awarded to a habitat that passes the majority of the criteria (the number of which varies between habitat types). This was carried out by Buro Happold in 2023 (Buro Happold, 2023a)

2.2.8 Where monitoring is specified in the following sections of this BMMP, the appropriate condition assessment sheet should be used to record the condition of the habitat type and the monitoring should be measured against these condition criteria. Following the monitoring, recommendations will be specified as to how the habitats on site can be enhanced to 'good' or 'moderate' condition, where appropriate.

2.2.9 Monitoring should continue for a period that follows Natural England's standing advice at the time. The current advice is for 30 years, however this may be subject to change in future years and if this is the case, this BMMP should be updated accordingly. A summary of the management and monitoring for the first five years is detailed in subsequent sections of this report and in Appendix 1. This is expected to be reviewed and improved upon by the stakeholder group every five years over the 30 year period.

2.2.10 The layout of retained, enhanced and created habitats is visualised in Figure 3 and Figure 4.

3. Created Habitats

3.1 Background

3.1.1 The proposals include the creation of a number of habitats including grassland, broadleaved woodland, shrub/perennials, hedgerows, a pond, individual trees, traditional orchards and green roofs.

3.1.2 The habitat creation and management guidance detailed below is indicative of the habitat type it describes. Although every reasonable effort has been made to tailor the recommendations to the site, there are many factors which will require adaptations to be made. A suitably experienced contractor, such as the Thomson Environmental Consultants Habitat Team, should be used to conduct the work.

3.2 Other Neutral Grassland Planting

3.2.1 The proposed development includes the creation other neutral grassland to include areas of tall lawn and areas of short lawn, totalling an approximate 1.14ha. This will create a species-rich neutral grassland habitat across the site. The areas of tall lawn will mainly be located adjacent to retained and proposed habitats including woodland, trees, pond, bioswale and scrub. Areas of shorter lawn totalling approximately are distributed across the site, adjacent to pathways and buildings.

3.2.2 It is reasonably likely that, should the recommendations set out below for the creation, management and monitoring of new grassland habitat on site be followed, a moderate condition can be achieved for the created grassland (see Appendix 1 for Management and Monitoring timetable; see Appendix 2 for condition assessment).

Creation

3.2.3 Ideally, topsoil should not be highly fertile and should be raked or harrowed to a medium tilth. See Appendix 14 for the planting schedule for neutral grassland.

3.2.4 Seed sowing should take place either over springtime (ideally), or September-October. These time periods reduce the risk of seedling loss due to drought. Ideally, the seeds should be sown by drilling the seed. This negates the need for rolling and also helps mitigate bird eating the seed.

3.2.5 Alternatively, grassland or wildflower turf can be bought, although usually this is more expensive and requires substantially more watering.

Management

3.2.6 Although regular watering is desirable, at least until wildflowers and grasses have established (<six weeks), it is often impractical and is not common practice. In the first summer, seed

mixtures sown on to bare soil may become dominated by annual weeds from the existing seed bank. Control may be required, ideally without the use of chemicals. If there is a large area to cover it may be more cost effective to use spot application of herbicide twice a year.

3.2.7 Mowing should be done as infrequently as is feasible, ideally once per year in mid to late summer. The arisings will ideally be removed after 1-7 days, but no longer, which allows time for the seeds to shed. Arisings could be used to make compost heaps elsewhere.

3.2.8 If possible, cuttings should be removed, since any dead vegetation (or 'thatch') will smother seeds trying to germinate and will also allow nutrients to build up on site. Fertilisers should not be added.

3.2.9 If it is practical to do so, cutting different parts of the grassland at different times of the year will create a more diverse habitat.

Monitoring

3.2.10 Following the creation of the grassland habitat, the development of the sward should be monitored using fixed quadrats or a rapid assessment method on a biannual basis for the first five years, in years 1, 3 and 5, and every five years thereafter.

3.2.11 As detailed in Section 2, during each monitoring survey a condition assessment of the habitat will be undertaken in line with the Statutory Biodiversity Metric (Defra, 2023a). The condition assessment criteria for grassland habitats that will be used is provided in Appendix 2.

3.2.12 If the monitoring shows that some species have not established, additional sowing may be required after suitable establishment gaps have been created in the existing sward, until the target community has been created. Should pernicious weeds become an issue, mechanical solutions such as hand pulling should be favoured. No fertiliser will be applied to any of the grasslands managed for conservation. Supplementary watering may also be required during dry periods to ensure the grassland's establishment.

3.3 Woodland

3.3.1 The design of the proposed development has prevented any major loss of woodland habitat on site, and as such the majority of woodland around the periphery of the site will be retained in situ throughout the construction to maintain the characteristics of the existing site.

3.3.2 As part of the development, the further planting of additional woodland native species through the site along the perimeter will expand the woodland cover on the site. Under the proposed layout a total of an additional 0.29 ha of Other broadleaved woodland will be created post-development.

3.3.3 It is reasonably likely that, should the recommendations set out below for the creation, management and monitoring of new woodland habitat on site be followed, a moderate condition can be achieved (see Appendix 1 for Management and Monitoring Timetable; see Appendix 3 for condition assessment).

Creation

3.3.4 Woodland should not be planted on land that is already of high quality and distinctiveness for wildlife e.g. wildflower meadows. Planting should be avoided in areas close to services, such as gas and electricity. Wide rooting trees such as willow and poplars should not be planted near buildings.

3.3.5 See Appendix 14 for the planting schedule for tree species that will be planted in new areas of woodland.

3.3.6 All new tree planting should be planned and implemented in accordance with BS8545: 2014 'Trees: from nursery to independence in the landscape – recommendations'.

3.3.7 Planting woodland wildflowers, as seeds or plug plants, can be used to enhance woodland biodiversity. Native wildflowers which are ideally already present in the surrounding area and nearby woodlands should be used. Additionally, soil composition should be considered when determining which wildflowers to plant. See Appendix13 for planting schedule.

3.3.8 Deadwood should be introduced to the woodland. Log piles are ideal and will appeal to invertebrates, amphibians, reptiles and mammals.

3.3.9 The woodland should be managed to reduce browsing damage by herbivores (ie rabbits) which may include the use of tree guards.

Management

3.3.10 All planted trees will be checked annually, and any failed stock replaced in the first and second winters after planting. Any damaged or dying trees/branches which pose health and safety concerns will be removed using standard methods. Others will be left in situ to create standing deadwood.

3.3.11 Weeding around new trees and shrubs will be implemented to stop competition for food, water and light from brambles and grasses. Mulching around the newly planted trees with bark chippings can also be used.

3.3.12 Newly planted woodlands may require thinning. This involves the removal of poor, weak, diseased or overcrowded trees and shrubs, to give the more successful trees a chance to survive.

3.3.13 Open spaces such as ridges and clearings will be maintained to provide sheltered sunny areas. If possible, the open areas should include bare ground and low and high vegetation.

3.3.14 A range of dead wood will be maintained, particularly for saproxylic invertebrates, in both shady and sunny situations. This will also encourage fungi which provide food for invertebrates and birds. The woodland will be monitored for presence of invasive and non-native species, which will be removed when identified as per relevant guidance.

3.3.15 Woodland will be monitored for adverse impacts to tree health by anthropogenic activities such as vandalism or herbicide use. Limited spraying around newly planted trees is unlikely to have an adverse effect on the woodland – unless incorrectly applied.

3.3.16 Tree management will be undertaken by suitably qualified personnel only, Thomson have an in-house arboricultural team who are aware of the legal protection of species which may utilise trees for nesting, including birds and bats.

Monitoring

3.3.17 The woodland will be monitored on a biannual basis in the first five years following creation, in years 1, 3 and 5. A monitoring inspection will then be carried out every five years in late spring or summer, in combination with the monitoring of the hedgerow. This monitoring inspection would ensure that the woodland is maintained in a good condition for biodiversity.

3.3.18 As detailed in Section 2, during each monitoring survey a condition assessment of the habitat will be undertaken in line with the Statutory Biodiversity Metric (Defra, 2023a). The condition assessment criteria for woodland habitats that will be used is provided in Appendix 3.

3.4 Hedgerow Planting

3.4.1 Proposed native hedgerow (approximately 470 m) will be planted across the campus, adjacent to the proposed buildings and walkways.

3.4.2 It is reasonably likely that, should the recommendations set out below for the creation, management and monitoring of new hedgerow habitat on site be followed, a moderate condition can be achieved (see Appendix 1 for Management and Monitoring Timetable; see Appendix 4 for condition assessment).

Creation

3.4.3 Species will consist of native species or species which provide fruit flowers, seeds and nectar, that will benefit a variety of wildlife. See Appendix 14 for the planting schedule for created hedgerows.

3.4.4 Whips should be planted at a rate of approximately seven plants per linear metre, in a double staggered row with plants 50 cm apart transversally and 30-40 cm apart longitudinally. This will ensure the hedgerow is dense and large enough to maximise biodiversity benefits. Bare root planting during the winter season when the trees are dormant (mid-November to mid-March) is recommended for cost and success rate reasons.

3.4.5 Newly planted trees and shrubs will be protected using tree guards during the first years of growth, which will be removed when the trees have developed sufficiently. A permeable membrane or bark chip around the base will control growth of competitive grass in the first few years after plantation.

3.4.6 Newly planted hedge species will be monitored, if specimens are in poor health or die, then these will be replaced with similar species.

3.4.7 Along new hedges, grass margins will be provided which will be left to naturally establish, where possible, or where grassland habitats are required for landscaping, this will consist of species-rich grassland (unimproved neutral herb rich). These margins will provide further habitat of benefit to biodiversity including reptiles, small mammals, invertebrates and birds. The hedges and associated grassland margins will provide pathways for ecological connectivity through and around the site.

Management

3.4.8 To ensure the hedgerows are bushy at the base, they should be trimmed back in the first three years to encourage low lateral growth of branches. Just after planting, each plant should be trimmed back to about a third of its height.

3.4.9 In the following years, management of the hedgerows on site should ensure that the hedgerow is not too 'tidy' or uniform. The hedgerow should have a thicker base than top to allow light into the hedgerow. By using a varied cutting regime, this will allow different parts of the hedgerow to mature at different stages, optimising the habitat for nesting birds invertebrates and small mammals. Ideally, about one third of hedgerows should be left to grow for 7 to 10 years.

3.4.10 Except where road safety or access preclude it, hedgerows should be trimmed only every 3 years (or less frequently if possible) and maintained at a height of at least 3m, and preferably 4m.

3.4.11 All management operations (planting, trimming, rejuvenation) will be undertaken outside of the bird breeding season, from September to February inclusive, and preferably from December to February to maintain as much winter food as possible for birds and invertebrates. During periods of drought, the native hedgerow will be watered appropriately.

Monitoring

3.4.12 Bi-annual checks will be undertaken of the newly planted hedgerows during the first two years of establishment to replace dead or diseased specimens. If specimens are in poor health or die, then these will be replaced with the same species.

3.4.13 The hedgerow should be monitored on a biannual basis in the first five years following creation, in years 1, 3 and 5. A monitoring inspection should then be carried out every five years in late spring or summer, in combination with the monitoring of the woodland. This monitoring inspection would ensure that the hedgerow is maintained in a good condition for biodiversity. If gaps have formed in the hedgerow, additional planting with native species will be used to connect the hedgerow.

3.4.14 As detailed in Section 2, during each monitoring survey a condition assessment of the habitat will be undertaken in line with the Statutory Biodiversity Metric (Defra, 2023a). The condition assessment criteria for hedgerow habitats that will be used is provided in Appendix 4.

3.5 Individual Trees

3.5.1 The proposed development includes the planting of 233 small and 36 medium trees that will be scattered across the site. A large proportion of the trees will be planted within the ground level planters containing non-native shrub planting, which can be found adjacent to the proposed buildings across the site. Others will be planted within the areas of grassland that are proposed and some will be planted within hardstanding.

3.5.2 It is reasonably likely that, should the recommendations set out below for the creation, management and monitoring of created individual trees on site be followed, a moderate condition can be achieved (see Appendix 1 for Management and Monitoring Timetable; see Appendix 5 for condition assessment).

Creation

3.5.3 A mixture of native species, fruiting species and ornamental trees (native and non-native) will be planted, as per Appendix 14.

3.5.4 All new tree planting should be planned and implemented in accordance with BS8545: 2014 ' Trees: from nursery to independence in the landscape – recommendations'.

3.5.5 To ensure each tree has the best chance of reaching maturity the following guidance should be followed:

- The overall health of a tree should be checked prior to planting. If any formative pruning for a tree is required to remove damaged, broken or rubbing branches, this should be done before setting the tree in place;
- If planting root-balled trees, holes dug for any new tree should be no deeper than the root ball or container but should be approximatively twice its size in width. Holes should be square. The depth of the hole must be measured against the depth of the root ball before any container or hessian is removed. The hessian can be left in place as it will rot away. It is important to ensure that the final ground level around the stem matches the nursery line of the tree – this is where the soil mark of above-ground and below-ground bark meets;
- Once a tree is in place, the hole should be backfilled with a mix of previously excavated soil/material and compost and slow release fertiliser and firmed in gradually as the hole is filled. Ensure that the tree remains straight during this process;
- A 1m wide circle of bark mulch, 5-10cm deep, should be added as surface material around any newly planted tree. This will suppress growth of competing vegetation, retain moisture, and degrade over time to enrich the soil. Do not apply mulch directly up against the tree stem, but ensure that mulch levels around the tree are kept topped up.

Maintenance

3.5.6 The need for watering will be dependent on the size of the tree, the time of planting and the weather conditions.

3.5.7 All trees should be checked annually and any failed stock replaced November-March (weather dependent). Any damaged or dying branches can be removed. Weeds around the base should be removed by hand, ideally without the use of chemicals, and the mulch levels topped up.

3.5.8 If any stakes, ties, or guards are used to protect a young tree, they should be regularly checked. Tree stakes, guards and ties should be removed when the company responsible for the landscaping is satisfied with their establishment.

3.5.9 Tree management should be undertaken by suitably qualified personnel, who are aware of the legal protection of species which may utilise trees for nesting, including birds and bats.

Monitoring

3.5.10 The trees will be monitored on a biannual basis in the first five years following creation, in years 1, 3 and 5. A monitoring inspection will then be carried out every five years in late spring or summer, in combination with the monitoring of the hedgerow and woodland. This monitoring inspection would ensure that the woodland is maintained in a good condition for biodiversity.

3.5.11 As detailed in Section 2, during each monitoring survey a condition assessment of the habitat will be undertaken in line with the Statutory Biodiversity Metric (Defra, 2023a). The condition assessment criteria for woodland habitats that will be used is provided in Appendix 5.

3.6 Mixed Scrub

3.6.1 The proposed development includes the planting native scrub throughout the site of approximately 0.99 ha. These species will have a known benefit to wildlife.

3.6.2 It is reasonably likely that, should the recommendations set out below for the creation, management and monitoring of new native scrub habitat on site be followed, a moderate condition can be achieved (see Appendix 1 for Management and Monitoring Timetable; see Appendix 6 for condition assessment).

Creation

3.6.3 Native scrub species will be planted as per the planting schedule (Appendix 14)

3.6.4 Species should be informed by geographic location and soil conditions (indicated by other species naturally occurring on site).

3.6.5 To maximise benefits to wildlife, created scrub should aim to provide the following:

- A variety of native shrub species;
- A range of shrub heights, ages and structures;
- Scrub edges that flow naturally into surrounding vegetation;
- Scrub and other vegetation, like grasses and herbs, that flower and set seed; and
- Occasional open grown trees developing through thorny scrub and bramble.

- Planting should take place between November and March. Planting in rows should be avoided as this creates wind tunnels and gaps should be left unplanted to naturally infill.
- Woodchip/mulch about a metre around each plant will suppress weeds and help to retain soil moisture. Otherwise weeding will be required when seedlings and whips are establishing to remove competing vegetation.

3.6.6 Other options to control weeds include weed mats or using spot application of herbicide 2-3 times a year.

3.6.7 Tubes and spiral guards (preferably biodegradable) can be used to protect the scrub species from browsing rabbit and deer.

3.6.8 All new tree planting should be planned and implemented in accordance with BS8545: 2014 'Trees: from nursery to independence in the landscape – recommendations'.

Management

3.6.9 Scrub needs coppicing to increase structural diversity and to prevent succession to woodland. Cutting should be done in a rotation, aiming to retain all age classes.

3.6.10 If berries are present within the scrub, cutting will be left until after December, so birds such as blackbird and thrushes, and animals can use the berries as a food source.

3.6.11 Mowing of any grassland on the scrub edges should be done once annually in late summer/ autumn, and this will encourage flowering herbs.

3.6.12 Where possible, the following should be avoided:

- Use of pesticides and herbicides except to spot-treat or weed-wipe to control nettles, bracken, injurious weeds or invasive non-native species.
- Cutting more than one-third of shrub growth in any one calendar year.
- Cutting during the bird breeding season (March to August inclusive).
- Application of artificial fertilisers.

Monitoring

3.6.13 Within the first two years, all plants that have died naturally, or as a result of pests should be replaced on a like for like basis with similar species.

3.6.14 The scrub will be monitored on a biannual basis in the first five years following creation, in years 1, 3 and 5. A monitoring inspection will then be carried out every five years in late spring or summer, in combination with the monitoring of the hedgerow and woodland. This monitoring inspection would ensure that the woodland is maintained in a good condition for biodiversity.

3.6.15 As detailed in Section 3, during each monitoring survey a condition assessment of the habitat will be undertaken in line with the Statutory Biodiversity Metric (Defra, 2023a). The condition assessment criteria for scrub habitats that will be used is provided in Appendix 6.

3.7 Ground Level Planters

3.7.1 The proposed development includes the planting of approximately 0.22 ha of non-native ornamental planting within the ground level planters throughout the site. As non-native shrub is considered to be of a low distinctiveness in the statutory biodiversity metric, no condition assessment is required. See Appendix 1 for Management and Monitoring Timetable.

Creation

3.7.2 All planting areas will be dug thoroughly to a depth of at least 30 cm and mixed with large quantities of compost, such as locally recycled plant waste. This will aerate the soil, help with drainage and add vital nutrients to the soil to aid the rapid establishment of herbaceous plants.

3.7.3 A permeable ground covering membrane will be laid over the planting areas, such as coir matting. Once firmly pegged down, holes will be cut through the membrane to allow the planting of the herbaceous species. The planting hole must be the dimensions of the pot or bare root area and be backfilled with topsoil mixed with compost, such as locally recycled plant waste and fertiliser after removing all non-biodegradable packing.

3.7.4 All planting will be undertaken during the winter in the usual winter dormancy period for plants.

Management

3.7.5 Allowing plants to flower will be of benefit to pollinating invertebrates. It is likely that trimming and removing weeds on a twice-yearly basis will be sufficient. It is advised that mulch in the form of chipped bark is applied on a yearly basis whilst allowing the natural spread of these plants to cover the grounds surface.

3.7.6 The management regime of shrubs designed to improve biodiversity can be relatively low maintenance. Shrubs should not be cut on an annual basis as this will hinder the production of fruits and seeds which are beneficial to a variety of animals. Trimming may be required from time to time in order to stop the shrubs from becoming too tall or wide. Trimming should be undertaken on a rotational, biennial (or longer) basis for the reasons outlined above.

3.7.7 Trimming or pruning of shrub plants should be timed to occur outside of the breeding bird season to avoid the potential of damage to active bird nests. Trimming and pruning should therefore only be carried out in the period 1st September to 28th February, inclusive. Should trimming or pruning be required within the breeding bird season (1st March to 31st August), then a check by an ecologist should be carried out beforehand to confirm no nests will be affected.

3.7.8 During periods of drought, shrubs and perennials on Site will be watered appropriately.

Monitoring

3.7.9 Within the first two years, all plants that have died naturally, or as a result of pests should be replaced on a like for like basis with similar species.

3.7.10 There will be no defined monitoring of the shrub and aesthetic planting habitats, however, the objective should be to maintain the shrubs in a good condition, check for any signs of disease during the summer and replace dead or dying individual plants like for like, or with an appropriate native species.

3.8 Traditional Orchards

3.8.1 One area of priority habitat traditional orchard is proposed, which will total approximately 0.03ha. This will be located towards the southwest of the site, adjacent to a proposed building.

3.8.2 The traditional orchards habitat that is proposed will comprise eight small fruiting orchard trees set over other neutral grassland. These eight trees are additional to those discussed in section 3.5.

3.8.3 It is reasonably likely that, should the recommendations set out below for the creation, management and monitoring of new traditional orchards on site be followed, a moderate condition can be achieved (see Appendix 1 for Management and Monitoring Timetable; see Appendix 7 for condition assessment).

Creation

3.8.4 A range of fruiting orchard trees will be used, as per Appendix 14.

3.8.5 All new tree planting should be planned and implemented in accordance with BS8545: 2014 ' Trees: from nursery to independence in the landscape – recommendations'. To ensure each tree has the best chance of reaching maturity, the guidance set out in paragraph 3.5.6 should be followed.

3.8.6 The neutral grassland that will be created underneath the trees will be done so as per the measures detailed in section 3.2. This will include either sowing a general meadow soil mix or purchasing grassland or wildflower turf. See Appendix 14 for planting schedule.

Maintenance

3.8.7 The created orchard trees will be maintained as per the details set out in section 3.5, and the neutral grassland will be maintained as per the details set out in section 3.2.

3.8.8 Trees should also be subject to formative and restorative pruning. Deciduous trees are often best pruned in winter, although stone fruit trees are best pruned in spring when risk of frost has passed. In the first year, all side branches should be removed from the lower third of the stem. All sideshoots from the middle third of the stem should be shortened by half and the sideshoots on the top third should be left unpruned, apart from the removal of dead, diseased or damaged growth. Cuts should be made to outward facing buds, so resulting growth extends outward.

3.8.9 In years two and three, all branches shortened to half the previous year (which should now be in the lower third) should be completely removed. Branches in the middle third of the tree should

be shortened by half and any crossing or misplaced branches in the upper third of the tree should be removed.

3.8.10 In years four and five, side branches should be removed to the desired height and any crossing, dead, diseased or misplaced branches should be removed from the canopy.

Monitoring

3.8.11 The created orchard trees will be monitored as per section 3.5, and the neutral grassland will be monitored as per section 3.3.

3.8.12 As detailed in Section 2, during each monitoring survey a condition assessment of the habitat will be undertaken in line with the Statutory Biodiversity Metric (Defra, 2023a). The condition assessment criteria for traditional orchard habitat that will be used is provided in Appendix 7.

3.9 Green Roofs

3.9.1 The proposed development includes the installation of biodiverse green roofs on new buildings across the site. This totals approximately 1.26 ha.

3.9.2 The final details of green roof/sedum roof installation and management should be approved by a green roof manufacturer and structural engineers to ensure that the buildings can support the weight of the green roofs and the habitat will be sustainable. Alumasc Roofing have been appointed to install and maintain the green roofs for this project, and their Proposed Specification (Alumsac Roofing, 2024) document should be referred to alongside this report.

3.9.3 It is reasonably likely that, should the recommendations set out below for the creation, management and monitoring of new biodiverse green and brown roof habitat on site be followed, a moderate condition can be achieved (see Appendix 1 for Management and Monitoring Timetable; see Appendix 8 for condition assessment).

Biodiverse Green Roof Creation

3.9.4 The initial layers of the green roof should consist of protection to the proposed structure, including a waterproof membrane and drainage mitigation.

3.9.5 Biodiverse green roofs should include areas of bare substrate including substrate with a range of particle sizes from sand to stones and rocks. Substrate from the site can be used on the green roof, as studies have shown that local substrate has a positive influence on the diversity of beetles and spiders that colonise green roofs (Buglife, 2019b). It is important that no seeds or vegetation, such as butterfly-bush (*Buddleja davidii*), are within the site substrate to be used on the green roof, as it can cause structural damage.

3.9.6 Substrate depth should be variable, ranging between 150mm and 80mm (with at least 50% being at a depth of 150mm), creating undulations that will create micro-climates within the green roof space. Log piles should also be added with different sizes and heights, in different locations

across the roof along with other habitat features e.g. for solitary nesting bees or rooftop nesting birds (e.g. black redstart (*Phoenicurus ochruros*)).

3.9.7 The green roof should be planted and seeded with a wide range of dry grassland wildflowers and sedum species (40+ ideally). Plant species that were already present on the site, and which are native, should be used on the green roof wherever possible.

3.9.8 Wildflower seeds should be sown to increase diversity, these could include species such as:

- Ox-eye daisy (*Leucanthemum vulgare*)
- Yarrow (*Achillea millefolium*)
- Hawkbits (*Leontodon/Scorzoneroides spp.*)
- White dead-nettle (*Lamium album*)
- Red clover (*Trifolium pratense*)
- Bird's-foot trefoil (*Lotus corniculatus*)
- White campion (*Silene latifolia*)

Biodiverse Green Roof Management

3.9.9 Regular monitoring of the green roof will be undertaken by a suitably qualified and experienced professional, to ensure adequate water supply, drainage, and establishment of plant species. Upkeep of the green roof will be undertaken at least twice a year between March and October for the first three years, then once a year thereafter. Weeding will be done by hand by a specially qualified landscape contractor, and no chemicals will be used.

3.9.10 Biodiverse green roofs will be maintained so that there remains a mosaic of bare ground and that successional plant species are kept under control. If butterfly bush or any Invasive Non-Native Species (INNS) are found these will be removed and disposed of. Identification, treatment and disposal of INNS guidance can be found on the government website..

3.9.11 The green roofs should be thoroughly watered immediately following installation, after which irrigation should not be required. However, if any elongated periods of drought occur (6-8 weeks), specialist advice should be sought.

3.9.12 The first three years of roof maintenance will be the responsibility of the green roof manufacturer (English Nature, 2003).

Monitoring

3.9.13 During annual maintenance, the roofs should be assessed for significant damage, signs of drought and failure of the wildflower blanket to establish or persist. Specialist advice should be sought in any of these scenarios.

3.9.14 As detailed in Section 2, during each monitoring survey a condition assessment of the habitat will be undertaken in line with the Statutory Biodiversity Metric (Defra, 2023a). The condition assessment criteria for green roof habitats that will be used is provided in Appendix 8.

3.10 Non-priority Ponds

3.10.1 The proposed development includes the creation of one non-priority pond of approximately 0.013ha towards the south of the site, adjacent to the retained woodland that runs along the southern boundary.

3.10.2 It is reasonably likely that, should the recommendations set out below for the creation, management and monitoring of new pond habitat on site be followed, a moderate condition can be achieved (see Appendix 1 for Management and Monitoring Timetable; see Appendix 9 for condition assessment).

Creation

3.10.3 To maximise the wildlife value of the created pond:

- Pond should be designed to have multiple different depths: the shallows approximately 0-10cm in depth, mid-depth which is 10-30cm and deeper water areas of over 30cm. The shallows are the richest part of the pond, with the majority of the animal species living within the marginal and submerged vegetation at the pond edge.
- Make sure that most pond slopes are shallow (less than 1:5 (12°) and preferably less than 1:20 (3°)).
- Create underwater bars and shoals to benefit aquatic plants.

3.10.4 As the pond is in a managed habitat with trees on its east and south sides, it should not become fully shaded by trees. It also shouldn't be connected to any other waterbodies, whether natural or artificial, such as ditches and drainage.

3.10.5 If being created in an area unsuitable for an unlined pond, the pond should be lined with a strong bentonite clay or a thick butyl rubber lining. There should be a level shelf around 80% of the perimeter and 20% of the perimeter should contain a ramp so any wildlife can easily exit the pond.

3.10.6 If the pond is required to be fenced off for health and safety reasons, the fencing should still allow access for hedgehogs, either between the fencing or underneath it (with a gap of at least 13cm by 13cm).

3.10.7 It is preferable that newly created ponds which are managed for wildlife should be left to be colonised by plant and animals naturally, with 'planting up' avoided. However, if ornamental ponds, or ponds within more developed areas are to be created, planting may be required. Thomson's inhouse specialists can help with this.

3.10.8 Marginal Aquatic planting on the shelf can consist of species such as:

- Marsh Marigold (*Caltha palustris*)
- Water forget-me-not (*Myosotis scorpioides*)

- Sedge species (*Carex* spp.)
- Water mint (*Mentha aquatica*)

3.10.9 Aquatic planting can include species such as:

- Common water starwart (*Calltriche stagnalis*)
- Spiked water-milfoil (*Myriophyllum spicatum*)
- Common hornwort (*Ceratophyllum demersum*)
- White water lily (*Nymphaea alba*)
- Bogbean (*Menyanthes trifoliata*)

3.10.10 Surrounding most of the periphery of the pond, a rockery could be planted. This should ideally include plant species which benefit pollinators with different feeding requirements, such as:

- Water mint
- Spearwort (Ranunculus
- Foxglove (*Digitalis purpurea*) flammula)
- Purple loosestrife (*Lythrum salicaria*)
- Flag iris (*Iris pseudacorus*)
- Field Scabious (*Knautia arvensis*)
- Bird's-foot trefoil (*Loyus corniculatus*)

3.10.11 Furthermore, night-scented flowers that will attract night-flying invertebrates, which would benefit foraging bats, could also be planted. These includes:

- Evening primrose (*Oenothera biennis*)
- Honeysuckle (*Lonicera periclymenum*)
- Sweet rocket (*Hesperis matronalis*)
- White Jasmine (*Jaminum officinale*)

Maintenance

3.10.12 An experienced contractor can advise on required maintenance sessions. Maintenance can involve watering in the first year, as well as general maintenance such as mulching, dead heading, pruning, weeding and possibly mowing of marginal species. Additionally, sediment accumulation within inlets, culverts and outlets will need to be managed to ensure infiltration and run-off can occur.

3.10.13 Generally, after the first year, maintenance sessions will only be required at the beginning (April) and end (October) of the growing season. However, if there are any storms or extreme heat additional maintenance checks may be required.

3.10.14 The pond should not be stocked with fish as this can facilitate the introduction of disease and invasive plant species as well as decreasing native biodiversity through competition and predation.

Monitoring

3.10.15 The pond should be managed to prevent pollution and nutrient enrichment in order to create and maintain high water quality. Monitoring should be undertaken to check for pollution, fish, and water level changes. Once colonised with plants, approximately 50% plant cover will be maintained, with excessive plant matter, such as algae, removed.

3.10.16 The pond must also be monitored for the presence of invasive non-native plant and animal species that could quickly colonise and out-compete native species. Should any be identified, such as New Zealand pigmyweed (*Crassula helmsii*), Parrot's-feather (*Myriophyllum aquaticum*), floating pennywort (*Hydrocotyle ranunculoides*), or water primrose (*Ludwigia peploides*), they should be removed and immediately to prevent colonisation

4. Retained Habitats

4.1 Background

4.1.1 Several habitats on site will be retained during the proposed development, including grassland, woodland and individual trees. Further details of the protection measures during the construction phase will be provided in a Construction Environment Management Plan (CEMP). As part of the Biodiversity Net Gain agreement, the aim will be to improve the condition of retained habitats on the site, where possible. Management measures are summarised below with reference to the relevant condition assessment given in Appendix 2-9.

4.2 Retained Grassland

4.2.1 The proposed development includes the retention of 0.66ha of neutral grassland which is proposed to be enhanced to moderate condition, as outlined in the Biodiversity Net Gain report (Thomson, 2025). As a part of the Biodiversity Net Gain Assessment Report (Burro Happold, 2023a) Other neutral grassland was assessed to be in poor condition across the site. In order for the grassland to achieve moderate condition, it must pass at least five of the condition criteria as outlined in Appendix 10. See Appendix 1 for Management and Monitoring Timetable.

Management and Enhancement

4.2.2 Ideally, topsoil should not be highly fertile and should be raked or harrowed to a medium tilth. See Appendix 14 for the planting schedule for retained neutral grassland.

4.2.3 Reseeding should take place either over springtime (ideally) or September-October. These time periods reduce the risk of seeding loss due to drought. Ideally, the seeds should be sown by drilling the seed. This negated the need for rolling also helps mitigate birds predating on the seed.

4.2.4 Scrub should be managed to prevent encroachment above 5% and 20% of the total grassland area respectively. This can be managed through cutting which should be undertaken outside of the breeding bird season (March to September, inclusive) and using hand tools only. Management should also include the monitoring of species of sub-optimal condition, which should be removed by hand. Any invasive species should also be removed (see section 5.6). Cuttings should be removed from the grassland as decaying material can lead to nutrient enrichment, however piles of cuttings could be placed elsewhere on the site to create habitat piles.

4.2.5 A rotational cutting regime (as outlined in 3.2.9 for grassland planting) should also be used to enhance the grassland so that it more closely matches the UKHab definition of Other neutral grassland.

Monitoring

4.2.6 During the operational phase of the proposed development, the retained grassland will be managed and monitored as per the measures detailed in Section 3.2.

4.3 Retained Woodland

4.3.1 The proposed development includes the retention of 0.64ha of Other broadleaved woodland as outlined in the Biodiversity Metrics Report (Thomson 2025). The woodland was assessed to be of moderate condition across the site, as a part of the Biodiversity Net Gain Assessment Report (Burro Happold, 2023a). In order to achieve good condition, it must score a minimum of 33 points as is outlined in Appendix 11. See Appendix 1 for Management and Monitoring Timetable.

4.3.2 The presence of common rhododendron (*Rhododendron ponticum*), a Schedule 9 invasive species, was identified within the existing woodland on site (Thomson, 2024d). This should be removed from the site as early as possible in the construction phase following best practice guidelines, as is discussed below in section 5.6. Non-native Franchest's cotoneaster (*Cotoneaster franchettis*) was also recorded within the existing woodland. It is also recommended that this is removed during the construction phase (Thomson, 2024f).

Management and Enhancement

4.3.3 Invasive and non-native species including common rhododendron and Franchet's cotoneaster should be removed as per section 5.6.

4.3.4 Any invasive or non-native species removed during woodland management should be replaced with native shrub species as per Appendix 14.

4.3.5 New saplings will be planted within the existing woodland between existing mature and semi-mature trees. This will ensure a range of age classes exist. Trees will be planted as per the recommendations within section 3.3.

4.3.6 All planted trees will be checked annually, and any failed stock replaced in the first and second winters after planting. Any damaged or dying trees/branches which pose health and safety concerns will be removed using standard methods. Others will be left in situ to create standing deadwood.

4.3.7 Weeding around new trees and shrubs will be implemented to stop competition for food, water and light from brambles and grasses. Mulching around the newly planted trees with bark chippings can also be used.

4.3.8 Open spaces such as ridges and clearings will be maintained to provide sheltered sunny areas. If possible, the open areas should include bare ground and low and high vegetation.

4.3.9 A range of dead wood will be maintained, particularly for saproxylic invertebrates, in both shady and sunny situations. This will also encourage fungi which provide food for invertebrates and birds.

4.3.10 Woodland will be monitored for adverse impacts to tree health by anthropogenic activities such as vandalism or herbicide use. Limited spraying around newly planted trees is unlikely to have an adverse effect on the woodland – unless incorrectly applied.

4.3.11 Planting woodland wildflowers, as seeds or plug plants, can be used to enhance woodland biodiversity. Native wildflowers which are ideally already present in the surrounding area and nearby woodlands should be used. Additionally, soil composition should be considered when determining which wildflowers to plant. Example species suitable for this site include:

- Bluebell (*Hyacinthoides non-scripta)*
- Wild garlic (*Alium ursinum*)
- Dog violet (*Viola riviniana)*
- Primrose (*Primula vulgaris)*
- Wood anemone (*Anemone nemorosa)*
- Greater stitchwort (*Stellaria holostea)*
- Yellow pimpernel (*Lysimachia nemorum)*

4.3.12 Tree management will be undertaken by suitably qualified personnel only.

Monitoring

4.3.13 During the operational phase of the proposed development, the retained woodland will be managed and monitored as per the measures detailed in section 3.3.

4.4 Retained Hedgerows

4.4.1 The proposed development includes the retention of the Native hedgerows and Non-native and ornamental hedgerows (of approximately 230.00m) towards the east of the site. The hedgerows were assessed to be in poor condition in the Biodiversity Net Gain Assessment Report (Burro Happold, 2023a).

4.4.2 The hedgerows will not be enhanced under the proposals, therefore management activities have been given to maintain their condition and to benefit wildlife. See Appendix 1 for Management and Monitoring Timetable.

Management

4.4.3 Hedgerows will only be cut once when leaves start to drop in autumn and over winter and no cutting should take place once new leaves start to grow. No cutting will take place during the breeding bird season (March – September). To improve the structure of the hedgerow and increase the number of berries available for wildlife:

- Cut in increments, by increasing the height and width of each cut by at least 10cm, and ensuring the hedgerow remains in exceedance of 1.5m in width and height;
- Cut every other year, or better still one year in three;

- Leave any hedge trimming until late winter, to allow birds to feed on berries over the winter; and
- All hedgerows on site should not be cut in the same year.

4.4.4 Undesirable perennial vegetation associated with nutrient enriched soils, such as nettles, cleavers (*Galium aparine*) and docks will be controlled, ideally by hand pulling.

4.4.5 Any gaps which appear within the hedgerow will be replanted with native species (eg. elder, hawthorn, ash).

4.4.6 A grass margin will be left unmanaged at the base of the hedgerow of at least 1m in width to provide further micro habitats for reptiles, invertebrates and birds and increase connectivity across the site.

Monitoring

4.4.7 During the operational phase of the proposed development, the retained hedgerows on site will be managed and monitored as per the measures detailed in Section 3.4.

4.5 Retained Individual Trees

4.5.1 The proposed development includes the retention of 76 individual trees. The trees were assessed as being of poor, moderate and good condition. It is not possible to enhance those of good condition any higher, and it is also not thought to be achievable to enhance the remaining trees to a higher condition. Therefore, management activities are given to maintain their condition and benefit wildlife. See Appendix 1 for Management and Monitoring Timetable.

Management and Monitoring

4.5.2 During the operational phase of the proposed development, the retained trees on site will be managed and monitored as per the measures detailed in Section 3.5.

5. Protected and Priority Species Features

5.1 Background

5.1.1 The incorporation of features beneficial to species groups such as bats, birds and terrestrial invertebrates have been recommended within the ecological reports issued for the proposed development.

5.2 Bird Boxes

5.2.1 It has been recommended that at least 18 bird boxes or bricks are integrated into the buildings and surrounding trees, designs of which focus on providing for priority species, species of conservation concern and Manchester Biodiversity Action Plan (BAP) species such as swift (*Apus apus*) and house sparrow (*Passer domesticus*).

5.2.2 It is recommended that 3 larger hole-fronted boxes and 3 smaller hole-fronted boxes are installed on mature trees that have been retained during the proposed pevelopment. Also, that hole-fronted boxes are protected with metal plates to limit predation by grey squirrels, woodpeckers and other larger birds.

5.2.3 Bird boxes are available in a variety of materials, however boxes made of woodcrete are considered to be more durable than other materials. It is recommended a mix of sizes of hole-fronted boxes are used to maximise the number of bird species that could use the boxes. Smaller holes will suit species such as tits and wren (*Troglodytes troglodytes*) whilst larger holes suit species such as starling (*Sturnus vulgaris*). Guides to nest box opening sizes are as follows:

- Larger woodcrete boxes with a larger hole entrance (around 45mm in diameter) suitable for species such as starlings; and
- Small woodcrete boxes with a small hole entrance (around 25 to 32mm in diameter) suitable for smaller bird species such as blue tit (*Cyanistes caeruleus*) and great tit (*Parus major*).

5.2.4 Schwegler 17 or 17A (or similar model) swift bricks/boxes should also be installed on suitable buildings on the site. Swifts are semi-colonial species which travel and nest together as a group, therefore, at least 8 should be used to increase the likelihood of the enhancement being successful.

5.2.5 It is also recommended that Schwegler 1SP sparrow terraces are installed on suitable buildings on the site. House sparrows are also colonial nesters, therefore, at least 4 terraces that support multiple sparrow families should be used.

5.2.6 See Appendix 1 for Management and Monitoring Timetable.

Installation

5.2.7 Bird boxes will be installed in positions where they are out of reach from the ground (so as to limit interference) and high enough to deter cats and other predators. It is best not to place them too high as this makes maintenance more difficult and can leave the boxes exposed to weather, particularly strong winds. In practice, placing bird boxes between 2-4 m from the ground on trees should give an optimal height. They should be installed on retained mature trees where possible or once created trees have reached a suitable diameter to remain stable.

5.2.8 Fixing the nest box with nails may damage the tree. It is better to attach it either with a nylon bolt or with wire around the trunk or branch. A piece of hose or section of car tyre around the wire will prevent damage to the tree. Trees will grow in girth as well as height, so the fixing should be checked when the box is monitored.

5.2.9 It is useful to place different boxes in a range of locations at slightly different heights and facing in slightly different directions to give a choice of nest or roost site options. The direction should be chosen to avoid facing boxes into the prevailing weather. An orientation from north through east to south-east usually provides suitable conditions for bird boxes. Open-fronted boxes for robins and wrens need to be low down, below 2 m, well hidden in vegetation. In addition to direction, smaller boxes are best placed leaning slightly forwards to ensure any rain will not run into the entrance.

5.2.10 The swift bricks/nest boxes and sparrow terraces should be installed at least 5 m above the ground on a suitable location of the selected buildings. Swift nest bricks are and sparrow terraces are similar in that they hollow blocks designed to hold a nest. They will be fitted on to buildings that get shade, under an overhang or under eaves with a clear flight path. Swift boxes also require a drop space of 1.5-2m. The selection and installation of integral swift bricks and sparrow terraces should follow British Standard BS 42021:2022.

Management

5.2.11 Bird boxes will be cleaned out once a year and put back in place ready for the following nesting season. Hole-fronted boxes are best cleaned out in October. Open-fronted boxes are best cleaned out in late winter (i.e. February). It should be noted that bats can colonise bird boxes. Should a bat be found during routine maintenance, the box should be left in situ and not disturbed unless by a licenced ecologist.

5.2.12 Any old nests will be removed entirely, and the box should preferably be cleaned with boiling water to kill-off any remaining parasites and left open to dry. Any damaged boxes should be repaired or replaced as necessary. The boxes should then be replaced in their original positions.

5.2.13 Integrated swift bricks and sparrow terraces will not require any management.

Monitoring

5.2.14 Monitoring of the bird boxes in the spring and summer (without causing disturbance) is a worthwhile exercise and nest records may be sent to the local biodiversity record centre, Greater Manchester Ecology Unit (GMEU).

5.2.15 If a bird box remains unused for three consecutive years, it may be located in an unsuitable position. If this occurs, the box should be moved to a new suitable location in order to encourage birds to utilise the box for breeding.

5.2.16 Fixings should be checked every two to three years and repaired or replaced as appropriate.

5.3 Bat Boxes

5.3.1 It has been recommended that at least thirteen replacement roost features are installed on the proposed buildings. This includes eight replacement roost features at Oak House and Woolton Hall, which should comprise two integrated replacement roost features and six external bat boxes, as detailed within the EPSL (2024-67055-EPS-MIT). There should also be a total of five replacement roost features at Owen's Park comprising two integrated roost features and three external bat boxes. In addition to the 11 interim boxes that have already been installed at Owen's Park, it is recommended that 12 interim bat boxes are installed in mature trees on the site (Thomson, 2024a). These interim boxes are to include six maternity roost boxes and six smaller roost (day/transitional/night/feeding roost) and should remain after the proposed works where possible. The locations and specifications for the installation of bat boxes and integrated roost replacement features will be detailed within the EPSL and associated documents.

5.3.2 See Appendix 1 for Management and Monitoring Timetable.

Installation

5.3.3 Bat boxes will be attached around the key foraging areas in the site, placed at least 3-6 m above ground and away from artificial light sources and in a southeast, south or southwest direction. Common and soprano pipistrelle bats and Myotis bats typically like to roost in buildings, whereas noctules, Nathusius' pipistrelle and brown long-eared bats tend to prefer tree holes and crevices, so bat boxes that can replicate these conditions are ideal.

5.3.4 Recommended bat box types for the species found on site may include the following: the Schwegler range has a variety of designs to suit different species and situations:

- Schwegler Bat Box 1FF which can be used as a nursery by bats, and can be sited on trees or buildings;
- Schwegler Bat Box 2F is designed for smaller bats such as pipistrelle species, brown long-eared and Myotis, and is designed to be a summer roost space which can be sited on trees or buildings;
- Schwegler Bat Box 1FD would also suit smaller bat species and is designed to be a summer roost space to be sited on trees.
- Schwegler Bat Box 2FN is designed for larger bat species such as noctule as a summer roost including for maternity colonies and can be sited on trees;
- Schwegler 1FW Bat Hibernation Box has been designed to be used as both a hibernation roost and a large summer roost space and can be sited on trees and buildings.

Management

5.3.5 Bat boxes will not require any maintenance other than replacement or repair if damaged. Roosting bats are protected from disturbance under UK legislation, therefore, if any of the boxes need to be removed, this must be undertaken by a licensed bat worker if there is a possibility of bats being present.

Monitoring

5.3.6 The bat boxes should only be checked and monitored by a suitably qualified ecologist who holds a Natural England Survey Class Licence. The bat boxes should be monitored annually for the first five years and the results submitted to the local records centre. The exact monitoring required for the bat boxes and integrated features will be detailed within the EPSL and associated documents.

5.3.7 If a bat box remains unused for five years, it may be located in an unsuitable position. If this occurs, the box should be moved to a new suitable location in order to encourage bats to utilise the box.

5.4 Hedgehog

5.4.1 To improve connectivity of the proposed development for hedgehog a number of features should be used to avoid creating barriers to movement. This includes hedgehog holes, brick spaces at the bottom of brick walls and sufficiently large gaps beneath any gates.

5.4.2 It is also recommended that landscaping should ensure sloped access or escape routes for hedgehogs where changes in ground level (kerbs, gullies, drains) may create barriers to movement.

5.4.3 Refugia piles should also be created within the retained woodland along the peripheries of the site.

Installation

5.4.4 Hedgehog holes should be 13 x 13 cm and installed at ground level along fences across the site. Fence plates with hedgehog holes, such as the Eco Hedgehog Hole Fence Plate, can be purchased. Similarly, brick gaps in walls should be a minimum of 13 x 13 cm and gaps beneath gates should be a minimum of 13 cm high. Any hedgehog features should be strategically placed to ensure connectivity within the site and with the surrounding habitats.

5.4.5 Logs and brash created through tree removal required as a part of the proposed development should be retained and stacked to create refugia piles. These should be situated within the retained woodland to the south and west of the site. This will provide suitable refuge for hedgehogs, other small mammals, amphibians, reptiles and invertebrates.

Management and Monitoring

5.4.6 Hedgehog holes will not require any maintenance other than replacement or repair if damaged. Refugia piles can be added to with any brash that results from management of the created and retained habitats.

5.5 Invertebrate Features

5.5.1 To enhance the site for a range of invertebrate species, it is recommended that at least three invertebrate hotels are installed across the site. Proposed locations can be seen on Figure 5. It is also recommended that refugia piles are created within the woodland.

Installation

5.5.2 Refugia piles can be created as per the recommendations set out in paragraph 5.4.5.Recycled material such as rocks, bricks, rubble and pallets could be used. Material should be piled high, and partially filled with substrate, then affixed down, using roofing felt or wire mesh, to support the structure and prevent members of the public from disturbing it.

5.5.3 Invertebrate hotels are easily constructed (Buglife, 2019a). It is recommended that invertebrate hotels are situated to provide shelter from wind, rain and strong sunlight with an orientation from south to southeast. Hotels can be placed near vegetation, but their entrances should not be obscured or shaded. They should also be installed in a stable, fixed position at least 1m above ground level that will not sway in the wind or be easily knocked or dislodged. If secured to a tree, strapping should be used to avoid damage to the tree.

5.5.4 Refugia piles should be created as per the recommendations set out in paragraph 5.4.5.

Management

5.5.5 Invertebrate hotels will not require any maintenance other than replacement or repair if damaged. Refugia piles can be added to with any brash that results from management of the created and retained habitats.

5.6 Invasive Plant Species Removal

5.6.1 Japanese knotweed (*Reynoutria japonica*), rhododendron (*Rhododendron ponticum*) and montbretia (*Crocosmia x crocosmiiflora*) have been recorded on the site (Thomson, 2024e) during the ecological surveys undertaken to date, and these species should be removed from the site as early as possible in the construction phase following best practice guidelines. This should be done by an experienced contractor following biosecurity measures to prevent spread.

5.6.2 If invasive non-native plant species are identified within the monitoring of retained and created habitats detailed above, this information will be fed back to the steering group or relevant stakeholders and measures will be implemented to remove the species from the site.

6. References

6.1.1 Alumsac Roofing (2024) Proposed Specification, UoM Residencies DBFO.

6.1.2 British Standards Institution (2012) BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations. BSI, London.

6.1.3 British Standards Institution (2014) BS8545:2014 Trees: from nursery to independence in the landscape - Recommendations. BSI, London.

6.1.4 Buglife (2019a) Build a Bug Hotel. [PDF]. Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://cdn.buglife.org.uk/2019/07/Build-a-bug-hotel.pdf [Accessed 22 October 2024]

6.1.5 Buglife (2019b) Creating Green Roofs for Invertebrates: A Best Practice Guide [PDF]. Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://cdn.buglife.org.uk/2019/07/Creating-Green-Roofs-for-Invertebrates_Best-practice-guidance.pdf [Accessed 22 October 2024]

6.1.6 Buro Happold (2023a) Fallowfield Campus Redevelopment Project. Biodiversity Net Gain Assessment Report

6.1.7 Buro Happold (2023b) Fallowfield Campus Redevelopment Project. Environmental Statement: Volume 1 – Main Report.

6.1.8 English Nature (2003) Green Roofs; their existing status and potential for conserving biodiversity in urban areas. English Nature Research Reports – 498

6.1.9 Department for Environment Food & Rural Affairs (Defra, 2023a) Statutory biodiversity metric: calculation tool.

6.1.10 Department for Environment Food & Rural Affairs (Defra, 2023b) Statutory biodiversity metric: user guide. February 2024.

6.1.11 Department for Environment Food & Rural Affairs (Defra, 2023c) Statutory biodiversity metric condition assessments.

6.1.12 Thomson Environmental Consultants (2023) 230926 RID002-001-001 Fallowfield Bat Survey Report Final

6.1.13 Thomson Environmental Consultants (2024a) 241007 RID002-002-003 Bat Survey Report Final

6.1.14 Thomson Environmental Consultants (2024b) 241007 RID002-002-003 eDNA Report Final

6.1.15 Thomson Environmental Consultants (2024c) 241025 GRA001-013-001 Further Bat Survey Report Final

6.1.16 Thomson Environmental Consultants (2024d) 241025 GRA001-013-001 INNS Walkover and Method Statement

6.1.17 Thomson Environmental Consultants (2025) 250218 GRA001-013-001 Biodiversity Net Gain Final

Appendix 1 – Management and Monitoring Timetable

Table 6-1: Management and Monitoring Years 1 - 5

Year Feature	Year 1	Year 2	Year 3	Year 4	Year 5
Other neutral grassland planting	No cutting whilst grassland establishes. Water as required after 6 weeks. Remove annual weeds without use of chemicals (herbicide spot application if necessary) Monitoring survey and remedial action if required.	Cut mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts.	Cut mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts. Monitoring survey and remedial action if required.	Cut mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts.	Cut mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts. Monitoring survey and remedial action if required.
Woodland creation	All trees to be monitored. Any failed stock to be replaced in first or second winter after planting. Woodland and trees to be monitored for invasive species and	All trees to be monitored. Any failed stock to be replaced in first or second winter after planting. Woodland and trees to be monitored for invasive species and	All trees to be monitored. Woodland and trees to be monitored for invasive species and anthropogenic impacts. Selective thinning to be	All trees to be monitored. Woodland and trees to be monitored for invasive species and anthropogenic impacts. Selective thinning to be	All trees to be monitored. Woodland and trees to be monitored for invasive species and anthropogenic impacts. Selective thinning to be

Year Feature	Year 1	Year 2	Year 3	Year 4	Year 5
	anthropogenic impacts. Selective thinning to be implemented where necessary and open spaces/clearings will be maintained. Damaged or dying trees/branches to be removed if unsafe, or left as standing deadwood if not. Any removed deadwood to be kept in situ to create refugia. Weeding and mulching around trees. Monitoring survey and remedial action if required.	anthropogenic impacts. Selective thinning to be implemented where necessary and open spaces/clearings will be maintained. Damaged or dying trees/branches to be removed if unsafe, or left as standing deadwood if not. Any removed deadwood to be kept in situ to create refugia. Weeding and mulching around trees.	implemented where necessary and open spaces/clearings will be maintained. Damaged or dying trees/branches to be removed if unsafe, or left as standing deadwood if not. Any removed deadwood to be kept in situ to create refugia. Weeding and mulching around trees. Monitoring survey and remedial action if required.	implemented where necessary and open spaces/clearings will be maintained. Damaged or dying trees/branches to be removed if unsafe, or left as standing deadwood if not. Any removed deadwood to be kept in situ to create refugia. Weeding and mulching around trees.	implemented where necessary and open spaces/clearings will be maintained. Damaged or dying trees/branches to be removed if unsafe, or left as standing deadwood if not. Any removed deadwood to be kept in situ to create refugia. Weeding and mulching around trees. Monitoring survey and remedial action if required.
Hedgerow planting	Twice yearly checks. Replace dead or disease specimens as required. Trimming to encourage lateral growth.	Twice yearly checks. Replace dead or disease specimens as required. Trimming to encourage lateral growth.	Trimming to encourage lateral growth. Monitoring and remedial action if required.	Monitoring and remedial action if required. Start of rotational cutting regime. December to February.	Monitoring and remedial action if required. Rotational cutting regime. December to February.

Year Feature	Year 1	Year 2	Year 3	Year 4	Year 5
	Monitoring and remedial action if required.				
Tree planting	Annual check and replacement of failed stock where required, from November-March. Damaged/dying branches removed. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established. Monitoring in late summer and remedial action where required.	Annual check and replacement of failed stock where required, from November-March. Damaged/dying branches removed. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established.	Annual check and replacement of failed stock where required, from November-March. Damaged/dying branches removed. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established. Monitoring in late summer and remedial action where required.	Annual check and replacement of failed stock where required, from November-March. Damaged/dying branches removed. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established.	Annual check and replacement of failed stock where required, from November-March. Damaged/dying branches removed. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established. Monitoring in late summer and remedial action where required.
Shrub and perennial planting	Trimming as required and in rotation (one-third per year). Cut berry-bearing species after Christmas. Replace failed plants.	Trimming as required and in rotation (one-third per year). Cut berry-bearing species after Christmas. Replace failed plants.	Trimming as required and in rotation (one-third per year). Cut berry-bearing species after Christmas. Monitoring inspection and remedial action	Trimming as required and in rotation (one-third per year). Cut berry-bearing species after Christmas.	Trimming as required and in rotation (one-third per year). Cut berry-bearing species after Christmas. Replace failed plants.

Year Feature	Year 1	Year 2	Year 3	Year 4	Year 5
	Monitoring inspection and remedial action where required.		where required.		Monitoring inspection and remedial action where required.
Traditional orchards	*Grassland* No cutting whilst grassland establishes. Water as required after 6 weeks. Remove annual weeds without use of chemicals (herbicide spot application if necessary) *Trees* Annual check and replacement of failed trees where required, from November-March. Weeding by hand at base of tree and mulch topped up. Bottom third of side branches removed and middle third shortened by half. Removal of dead/diseased/damage	*Grassland* Cut mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts. *Trees* Annual check and replacement of failed trees where required, from November-March. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established. Bottom third of side branches removed and middle third shortened	*Grassland* Cut mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts. Monitoring survey and remedial action if required. *Trees* Annual check and replacement of failed trees where required, from November-March. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established.	*Grassland* Cut mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts. *Trees* Annual check and replacement of failed trees where required, from November-March. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established. Clear trunk of side branches to the desired height. Remove	*Grassland* Cut mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts. Monitoring survey and remedial action if required. *Trees* Annual check and replacement of failed trees where required, from November-March. Damaged/dying branches removed. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and

Year Feature	Year 1	Year 2	Year 3	Year 4	Year 5
	d/crossing/misplaced branches in top third. Stakes/ties/guards checked annually and removed when suitably established. Monitoring survey and remedial action where required.	by half. Removal of dead/diseased/damaged/crossing/misplaced branches in top third.	Monitoring survey and remedial action where required. Bottom third of side branches removed and middle third shortened by half. Removal of dead/diseased/damaged/crossing/misplaced branches in top third.	dead/diseased/damaged/crossing/misplaced branches from the canopy.	removed when suitably established. Monitoring survey and remedial action where required. Clear trunk of side branches to the desired height. Remove dead/diseased/damaged/crossing/misplaced branches from the canopy.
Green roofs	Maintenance by green roof manufacturer at least twice a year between March and October. Check for damage, drought and failure of plants. Maintained to upkeep mosaic and remove INNS. Monitoring and remedial action where required.	Maintenance by green roof manufacturer at least twice a year between March and October. Check for damage, drought and failure of plants. Maintained to upkeep mosaic and remove INNS. Monitoring and remedial action where required.	Maintenance by green roof manufacturer at least twice a year between March and October. Check for damage, drought and failure of plants. Maintained to upkeep mosaic and remove INNS. Monitoring and remedial action where required.	Maintenance by green roof manufacturer between March and October. Check for damage, drought and failure of plants. Maintained to upkeep mosaic and remove INNS. Monitoring and remedial action where required.	Maintenance by green roof manufacturer between March and October. Check for damage, drought and failure of plants. Maintained to upkeep mosaic and remove INNS. Monitoring and remedial action where required.
Pond creation	Maintenance to be detailed by	Maintenance to be detailed by experienced	Maintenance to be detailed by	Maintenance to be detailed by experienced	Maintenance to be detailed by experienced

Year Feature	Year 1	Year 2	Year 3	Year 4	Year 5
	experienced contractor. Maintenance to take place at beginning (April) and end (October) of growing season, or following storms or extreme heat. Ponds should be managed to prevent pollution and maintain water quality. Also, to monitor for presence of fish, INNS and excessive plant matter, removing as required. Monitoring and remedial action where required.	contractor. Maintenance to take place at beginning (April) and end (October) of growing season, or following storms or extreme heat. Ponds should be managed to prevent pollution and maintain water quality. Also, to monitor for presence of fish, INNS and excessive plant matter, removing as required. Monitoring and remedial action where required.	experienced contractor. Maintenance to take place at beginning (April) and end (October) of growing season, or following storms or extreme heat. Ponds should be managed to prevent pollution and maintain water quality. Also, to monitor for presence of fish, INNS and excessive plant matter, removing as required. Monitoring and remedial action where required.	contractor. Maintenance to take place at beginning (April) and end (October) of growing season, or following storms or extreme heat. Ponds should be managed to prevent pollution and maintain water quality. Also, to monitor for presence of fish, INNS and excessive plant matter, removing as required. Monitoring and remedial action where required.	contractor. Maintenance to take place at beginning (April) and end (October) of growing season, or following storms or extreme heat. Ponds should be managed to prevent pollution and maintain water quality. Also, to monitor for presence of fish, INNS and excessive plant matter, removing as required. Monitoring and remedial action where required.
Retained grassland	Scrub management in autumn. Rotational cutting regime and removal of INNS and arisings. Monitoring survey and remedial action if required.	Scrub management in autumn. Rotational cutting regime and removal of INNS and arisings.	Scrub management in autumn. Rotational cutting regime and removal of INNS and arisings. Monitoring survey and remedial action if required.	Scrub management in autumn. Rotational cutting regime and removal of INNS and arisings.	Scrub management in autumn. Rotational cutting regime and removal of INNS and arisings. Monitoring survey and remedial action if required.
Retained hedgerow	Trimming only once	Trimming only once	Trimming only once	Trimming only once	Trimming only once

Year Feature	Year 1	Year 2	Year 3	Year 4	Year 5
	leaves begin to drop in autumn and over winter. No trimming to take place once new leaves begin to grow. Incremental and rotational cutting, with each hedgerow being trimmed one year in three. Hand-pulling undesirable vegetation. Replanting gaps with native species. Maintaining unmanaged margin of grassland either side. Monitoring and remedial action where required.	leaves begin to drop in autumn and over winter. No trimming to take place once new leaves begin to grow. Incremental and rotational cutting, with each hedgerow being trimmed one year in three. Hand-pulling undesirable vegetation. Replanting gaps with native species. Maintaining unmanaged margin of grassland either side. Monitoring and remedial action where required.	leaves begin to drop in autumn and over winter. No trimming to take place once new leaves begin to grow. Incremental and rotational cutting, with each hedgerow being trimmed one year in three. Hand-pulling undesirable vegetation. Replanting gaps with native species. Maintaining unmanaged margin of grassland either side. Monitoring and remedial action where required.	leaves begin to drop in autumn and over winter. No trimming to take place once new leaves begin to grow. Incremental and rotational cutting, with each hedgerow being trimmed one year in three. Hand-pulling undesirable vegetation. Replanting gaps with native species. Maintaining unmanaged margin of grassland either side. Monitoring and remedial action where required.	leaves begin to drop in autumn and over winter. No trimming to take place once new leaves begin to grow. Incremental and rotational cutting, with each hedgerow being trimmed one year in three. Hand-pulling undesirable vegetation. Replanting gaps with native species. Maintaining unmanaged margin of grassland either side. Monitoring and remedial action where required.

Year Feature	Year 1	Year 2	Year 3	Year 4	Year 5
Retained individual trees	Monitoring and remediation where required.				
Bird boxes	Yearly cleaning (October for hole fronted boxes, February for open fronted boxes). Damaged boxes repaired or replaced as necessary in original position.	Yearly cleaning (October for hole fronted boxes, February for open fronted boxes). Damaged boxes repaired or replaced as necessary in original position.	Yearly cleaning (October for hole fronted boxes, February for open fronted boxes). Damaged boxes repaired or replaced as necessary in original position.	Yearly cleaning (October for hole fronted boxes, February for open fronted boxes). Damaged boxes repaired or replaced as necessary in original position. Check and repair fixings as necessary.	Yearly cleaning (October for hole fronted boxes, February for open fronted boxes). Damaged boxes repaired or replaced as necessary in original position.
Bat boxes	Annual monitoring by licensed ecologist.				Annual monitoring by licensed ecologist. Relocate unused boxes as necessary.
Invertebrate features	N/A				Monitoring to ensure features are still in

Year Feature	Year 1	Year 2	Year 3	Year 4	Year 5
					place and functioning. Replace as necessary.
Hedgehog features	N/A				Monitoring to ensure features are still in place and functioning. Replace as necessary.
Invasive species	Removal of existing INNS (please refer to INNS Survey Report (Thomson, 2024d))	Monitor for presence of INNS and remove if present. Please refer to the INNS Survey Report and Method Statement (Thomson, 2024d) for reference.			

Table 6-2: Management and Monitoring Years 10 - 30

Year[1] / Feature	Year 10	Year 15	Year 20	Year 25	Year 30
Grassland planting	Monitoring to be carried out every five years. Cut mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts. Monitoring survey and remedial action if required.				
Woodland creation	All trees to be monitored every five years. Woodland and trees to be monitored for invasive species and anthropogenic impacts. Selective thinning to be implemented where necessary and open spaces/clearings will be maintained. Damaged or dying trees/branches to be removed if unsafe, or left as standing deadwood if not. Any removed deadwood to be kept in situ to create refugia. Weeding and mulching around trees. Monitoring survey and remedial action if required.				

[1] To be carried out every 5 years unless otherwise stated.

Year Feature	Year 10	Year 15	Year 20	Year 25	Year 30
Hedgerow planting	Monitoring inspection in late summer and remedial action if required, every five years. Additional planting with native species where gaps have formed. Rotational cutting regime every 3 years, ensuring one-third of hedgerows should be left to grow for 7-10 years.				
Tree planting	Check and replacement of failed stock where required, every five years. From November-March. Damaged/dying branches removed. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established. Monitoring in late summer and remedial action where required.				

Year Feature	Year 10	Year 15	Year 20	Year 25	Year 30
Shrub and perennial planting	Trimming as required and in rotation (one-third per year). Cut berry-bearing species after Christmas. Monitoring inspection and remedial action where required, every five years.				
Traditional orchards	Monitoring to be carried out every five years. *Grassland* Cut grass mid to late summer. Maintain varied sward height using rotational cutting regime. Remove clippings after cuts. *Trees* Check and replacement of failed trees where required, every five years. Damaged/dying branches removed in spring. Weeding by hand at base of tree and mulch topped up. Stakes/ties/guards checked annually and removed when suitably established. Monitoring survey and remedial action if required.				
Green roofs	Annual Maintenance by green roof manufacturer between March and October. Check for damage, drought and failure of plants.				

Year Feature	Year 10	Year 15	Year 20	Year 25	Year 30
	Maintained to upkeep mosaic and remove INNS. Monitoring and remedial action where required.				
Bioswale creation	Annual maintenance to be detailed by experienced contractor. Maintenance to take place at beginning (April) and end (October) of growing season, or following storms or extreme heat. Monitoring and remedial action where required.				
Pond creation	Annual maintenance to be detailed by experienced contractor. Maintenance to take place at beginning (April) and end (October) of growing season, or following storms or extreme heat. Ponds should be managed to prevent pollution and maintain water quality. Also, to monitor for presence of fish, INNS and excessive plant matter, removing as required. Monitoring and remedial action where required.				

Year Feature	Year 10	Year 15	Year 20	Year 25	Year 30
Retained grassland	Scrub management in autumn. Rotational cutting regime and removal of INNS and arisings. Monitoring survey and remedial action if required. To be carried out every five years.				
Retained hedgerow	Trimming only once leaves begin to drop in autumn and over winter. No trimming to take place once new leaves begin to grow. Incremental and rotational cutting, with each hedgerow being trimmed one year in three. Every five years: Hand-pulling undesirable vegetation. Replanting gaps with native species. Maintaining unmanaged margin of grassland either side. Monitoring and remedial action where required.				

Year Feature	Year 10	Year 15	Year 20	Year 25	Year 30
Retained individual trees	Monitoring and remediation where required, every five years. .				
Bird boxes	Yearly cleaning (October for hole fronted boxes, February for open fronted boxes). Damaged boxes repaired or replaced as necessary in original position. Monitor use in spring and summer.				
Bat boxes	Annual monitoring by licensed ecologist. Relocate unused boxes as necessary every five years.				
Invertebrate features	Monitoring to ensure features are still in place and functioning. Replace as necessary.				
Hedgehog features	Monitoring to ensure features are still in place and functioning. Replace as necessary.				

Year Feature	Year 10	Year 15	Year 20	Year 25	Year 30
Invasive species	Monitor for presence of INNS and remove if present. Please refer to the INNS Survey Report and Method Statement (Thomson, 2024e) for reference.				

Appendix 2 – Created Grassland Condition Assessment Criteria

Medium, High and Very High Distinctiveness Grassland

		Habitat parcel reference	
		Lawn	Tall grassland
Condition Assessment Criteria		Criterion passed (Yes or No)	
A	The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present. **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	Yes	Yes
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	No	Yes
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens[1].	Yes	Yes
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Yes	No
E	Combined cover of species indicative of sub-optimal condition[2] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]) are present, this criterion is automatically failed.	No	Yes
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 2 and 4 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	No	Yes
Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		No	Yes
Number of criteria passed		3	5

Condition Assessment Result		Condition Assessment Score	Score Achieved ×/✓	
Acid Grassland Types (Result out of 5 criteria)				
Passes 5 criteria		Good (3)		
Passes 3 or 4 criteria		Moderate (2)		
Passes 2 or fewer criteria		Poor (1)		
Non-acid grassland Types (Result out of 6 criteria)				
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.		Good (3)		
Passes 3 - 5 criteria,		Moderate (2)	✓	✓

including essential criterion A.			
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)		

Appendix 3 – Created Woodland Condition Assessment Criteria

Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
A	**Age distribution of trees**	Three age-classes[1] present.	Two age-classes[1] present.	One age-class[1] present.	1
B	**Wild, domestic and feral herbivore damage**	No significant browsing damage evident in woodland[2].	Evidence of significant browsing pressure is present in 40% or less of whole woodland[2].	Evidence of significant browsing pressure is present in 40% or more of whole woodland[2].	3
C	**Invasive plant species**	No invasive species[3] present in woodland.	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, other invasive species[3] <10% cover.	Rhododendron or cherry laurel present, or other invasive species[3] >10% cover.	3
D	**Number of native tree species**	Five or more native tree or shrub species[4] found across woodland parcel.	Three to four native tree or shrub species[4] found across woodland parcel.	Two or less native tree or shrub species[4] across woodland parcel.	3
E	**Cover of native tree and shrub species**	>80% of canopy trees and >80% of understory shrubs are native[5].	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native[5].	<50% of canopy trees and <50% of understory shrubs are native[5].	3
F	**Open space within woodland**	10 - 20% of woodland has areas of temporary open space[6]. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted[7].	21 - 40% of woodland has areas of temporary open space[6].	<10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category[7].	3
G	**Woodland regeneration**	All three classes present in woodland[8]; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland[8].	No classes or coppice regrowth present in woodland[8].	2

Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
H	**Tree health**	Tree mortality less than 10%, no pests or diseases and no crown dieback[9].	11% to 25% mortality and/or crown dieback or low-risk pest or disease present[9].	Greater than 25% tree mortality and or any high-risk pest or disease present[9].	3
I	**Vegetation and ground flora**	Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community[10] at ground layer present.	No recognisable woodland NVC plant community[10] at ground layer present.	3
J	**Woodland vertical structure**	Three or more storeys across all survey plots or a complex woodland[11].	Two storeys across all survey plots[11].	One or less storey across all survey plots[11].	2
K	**Veteran trees**	Two or more veteran trees[12] per hectare.	One veteran tree[12] per hectare.	No veteran trees[12] present in woodland.	1
L	**Amount of deadwood**	50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities[13].	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	2
M	**Woodland disturbance**	No nutrient enrichment or damaged ground evident[14].	Less than 1 hectare in total of nutrient enrichment across woodland area and or less than 20% of woodland area has damaged ground[14].	More than 1 hectare of nutrient enrichment and or more than 20% of woodland area has damaged ground[14].	3
				Total Score (out of a possible 39)	**32**

Condition Assessment Result	Condition Assessment Score	Result Achieved
Total score >32 (33 to 39)	Good (3)	
Total score 26 to 32	Moderate (2)	✓
Total score <26 (13 to 25)	Poor (1)	

Appendix 4 – Created Hedgerow Condition Assessment Criteria

Attributes and functional groupings (A, B, C, D and E)		Criteria - the minimum requirements for 'favourable condition'	Description	Criterion passed (Yes or No)
Core groups - applicable to all hedgerow types				
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	Yes
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn *Prunus spinosa* suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	No
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	Yes
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	Yes
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow.	Yes

		· Is present on one side of the hedgerow (at least).	This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles *Urtica* spp., cleavers *Galium aparine* and docks *Rumex* spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	No
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA[3]) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website[4], as well as the BSBI website[5] where the 'Online Atlas of the British and Irish Flora'[6] contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website[7].	Yes
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).	No

Condition categories for hedgerows without trees

Category	Category Requirements	Metric Score
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 and C2 = Moderate condition).	2
Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	2

Appendix 5 – Created Individual Tree Condition Assessment Criteria

Condition Assessment Criteria		Condition Achieved (Y/N)
1	The tree is a native species (or at least 70% within the block are native species).	Yes
2	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Yes
3	The tree is mature (or more than 50% within the block are mature)[1].	No
4	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Yes
5	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	No
6	More than 20% of the tree canopy area is oversailing vegetation beneath.	Yes

Condition Assessment Result	Condition Assessment Score	Score Achieved
Passes 5 or 6 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	✓
Passes 0, 1 or 2 criteria	Poor (1)	

Appendix 6 – Created Scrub Condition Assessment Criteria

Condition Assessment Criteria		Condition Achieved (Y/N)
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	Yes
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	No
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	Yes
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Yes
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Yes

Condition Assessment Result	Condition Assessment Score	Score Achieved
Passes 5 of 5 criteria	Good (3)	
Passes 3 or 4 of 5 criteria	Moderate (2)	✓
Passes 0, 1 or 2 of 5 criteria	Poor (1)	

Appendix 7 – Created Traditional Orchard Assessment Criteria

Condition Assessment Criteria		Condition Achieved (Y/N)
A	Present of ancient[1] and or veteran[1] trees. **Note – this criterion is essential for achieving Good condition.**	No
B	Presence of deadwood in or on trees, or on the ground: at least 20% of mature trees have deadwood associated with them. Some examples of deadwood are: standing, attached and fallen trees or limbs; dead stems; branches and branch stubs greater than 10cm diameter; and internal cavities. The types and distribution of deadwood provide a range of habitats suitable to support a wide assemblage of saproxylic invertebrates. **Note – this criterion is essential for achieving Good condition.**	No
C	Less than 5% of fruit trees are smothered by scrub. Small patches of dense scrub and or scattered scrub growing between trees can be beneficial to biodiversity, however these occupy less than 10% of ground cover.	Yes
D	There is evidence of formative and or restorative pruning to maintain longevity of trees.	Yes
E	At least 95% of the trees are free from damage caused by humans or animals, for example browsing, bark stripping or rubbing on non-adjusted ties.	Yes
F	Grassland is not overgrazing, poaching is not evident around the trees, with no more than 10% of trees poached under the canopy.	Yes
G	Species richness of the grassland is equivalent to a medium, high or very high distinctiveness grassland.	Yes
H	There is an absence of invasive non-native plant species[2] (as listed in Schedule 9 of WCA[3]) and species indicative of suboptimal condition[4] make up less than 10% of ground cover.	Yes
Essential criteria achieved (required for good condition – Yes or No)		**No**
Number of criteria passed		**6**
Condition Assessment Result	**Condition Assessment Score**	**Score Achieved**
Passes 6-8 criteria, including essential criteria A and B.	Good (3)	

Passes 4 or 5 criteria; OR Passes 6 or 7 criteria but fail an essential criterion.	Moderate (2)	✓
Passes 3 or fewer criteria.	Poor (1)	

Footnote 1 - See gov.uk standing advice on ancient and veteran trees. Available from:
Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk)
and:
Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)

Footnote 2 - Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, s buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying profes

Footnote 3 - Wildlife and Countryside Act 1981 (as amended).

Footnote 4 - Species indicative of suboptimal condition for this habitat type include: creeping thistle *Cirsium arvense crispus*, broad-leaved dock *Rumex obtusifolius* and common nettle *Urtica dioica*. There may be additional relevant species local to

Appendix 8 - Created Urban Condition Assessment Criteria

Habitat Parcel		**Green roof**	**Brown roof**
Condition Assessment Criteria		**Condition Achieved (Y/N)**	
Core Criteria			
A	Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	Yes	Yes
B	There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. **NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife). Note that Biodiverse green roofs are exempt from this requirement, and can include non-native sedums, as set out in footnote 1.**	Yes	Yes
C	Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. **NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).**	Yes	Yes
Additional Criteria for Bioswales			
E1	Plant species are mostly native. If non-native species are present, they should not be detrimental to the habitat or native	N/A	N/A

	wildlife[4].		
E2	The vegetation is comprised of plant species suited to wetland or riparian situations.	N/A	N/A
Additional Criteria for Biodiverse Green Roofs			
G	The roof has a varied depth of 80 – 150 mm; at least 50% is at 150 mm and is planted and seeded with wildflowers and sedums or is pre-prepared with sedums and wildflowers. **Note – to achieve Good condition, some additional habitat, such as sand piles, stones, logs etc. are present.**	Yes	Yes
Condition Assessment Result	**Condition Assessment Score**	**Score Achieved**	
• Passes 3 of 3 core criteria; AND • Meets the requirements for good condition within criteria 2 and 3; AND • Passes additional criterion 4a or 4b	Good (3)		
• Passes 2 of 3 of 4 criteria; OR • Passes 4 of 4 criteria but does not meet the requirements for good condition within criteria 2 and 3	Moderate (2)	✓	✓
• Passes 0 or 1 of 4 criteria	Poor (1)		

Appendix 9 – Created Pond Condition Assessment Criteria

Condition Assessment Criteria		Condition Achieved (Y/N)
1	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Yes
2	There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10 m from the pond edge for its entire perimeter.	No
3	Less than 10% of the water surface is covered with duckweed *Lemna* spp. or filamentous algae.	Yes
4	The pond is not artificially connected to other waterbodies, such as agricultural ditches or artificial pipework.	No
5	Pond water levels can fluctuate naturally throughout the year. No obvious artificial dams[2], pumps or pipework.	Yes
6	There is an absence of listed non-native plant and animal species.	Yes
7	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Yes

Condition Assessment Result	Condition Assessment Score	Score Achieved
Passes 7 criteria	Good (3)	
Passes 5 to 6 criteria	Moderate (2)	✓
Passes 4 or fewer	Poor (1)	

Appendix 10 – Enhanced Grassland Condition Assessment Criteria

Medium, high and very high distinctiveness

		Habitat parcel reference
Condition Assessment Criteria		**Criterion passed (Yes or No)**
A	The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present. **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	Yes
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	No
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens[1].	Yes
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Yes
E	Combined cover of species indicative of sub-optimal condition[2] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]) are present, this criterion is automatically failed.	No
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 2 and 4 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	No
Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		No
Number of criteria passed		3

Condition Assessment Result		**Condition Assessment Score**	**Score Achieved ×/✓**
Acid Grassland Types (Result out of 5 criteria)			
Passes 5 criteria		Good (3)	
Passes 3 or 4 criteria		Moderate (2)	
Passes 2 or fewer criteria		Poor (1)	
Non-acid grassland Types (Result out of 6 criteria)			
Passes 5 or 6 criteria, including essential criterion A and		Good (3)	

additional criterion F.		
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)	✓
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)	

Appendix 11 – Enhanced Woodland Condition Assessment Criteria

Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
A	**Age distribution of trees**	Three age-classes[1] present.	Two age-classes[1] present.	One age-class[1] present.	2
B	**Wild, domestic and feral herbivore damage**	No significant browsing damage evident in woodland[2].	Evidence of significant browsing pressure is present in 40% or less of whole woodland[2].	Evidence of significant browsing pressure is present in 40% or more of whole woodland[2].	3
C	**Invasive plant species**	No invasive species[3] present in woodland.	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, other invasive species[3] <10% cover.	Rhododendron or cherry laurel present, or other invasive species[3] >10% cover.	2 -> 3
D	**Number of native tree species**	Five or more native tree or shrub species[4] found across woodland parcel.	Three to four native tree or shrub species[4] found across woodland parcel.	Two or less native tree or shrub species[4] across woodland parcel.	3
E	**Cover of native tree and shrub species**	>80% of canopy trees and >80% of understory shrubs are native[5].	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native[5].	<50% of canopy trees and <50% of understory shrubs are native[5].	2 -> 3
F	**Open space within woodland**	10 - 20% of woodland has areas of temporary open space[6]. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted[7].	21 - 40% of woodland has areas of temporary open space[6].	<10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category[7].	1 -> 3

Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
G	**Woodland regeneration**	All three classes present in woodland[8]; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland[8].	No classes or coppice regrowth present in woodland[8].	2 -> 3
H	**Tree health**	Tree mortality less than 10%, no pests or diseases and no crown dieback[9].	11% to 25% mortality and/or crown dieback or low-risk pest or disease present[9].	Greater than 25% tree mortality and or any high-risk pest or disease present[9].	3
I	**Vegetation and ground flora**	Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community[10] at ground layer present.	No recognisable woodland NVC plant community[10] at ground layer present.	1 -> 3
J	**Woodland vertical structure**	Three or more storeys across all survey plots or a complex woodland[11].	Two storeys across all survey plots[11].	One or less storey across all survey plots[11].	2
K	**Veteran trees**	Two or more veteran trees[12] per hectare.	One veteran tree[12] per hectare.	No veteran trees[12] present in woodland.	1
L	**Amount of deadwood**	50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities[13].	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	1 -> 3
M	**Woodland disturbance**	No nutrient enrichment or damaged ground evident[14].	Less than 1 hectare in total of nutrient enrichment across woodland area and or less than 20% of woodland area has damaged ground[14].	More than 1 hectare of nutrient enrichment and or more than 20% of woodland area has damaged ground[14].	2 -> 3
				Total Score (out of a possible 39)	**26 - 35**

Condition Assessment Result	Condition Assessment Score	Result Achieved
Total score >32 (33 to 39)	Good (3)	✓

Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
Total score 26 to 32			Moderate (2)		
Total score <26 (13 to 25)			Poor (1)		

Appendix 12 – Landscape Masterplan

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(1) Do not scale from this drawing - use written dimensions only. (2) All dimensions are in millimeters unless noted. (3) All dimensions shall be verified on site before proceeding with the work. (4) Contractor to report and discreoancies or errors before proceeding on site. (5)Landscape Projects shall be notified of any discrepancies. (6) Engineer to specify all sub-bases. Any below ground construction is indicative.

PHASE 1

PHASE 2

PHASE 2

PHASE 3

POND

Sheavyn House

Ashburne Hall

Shelter

Hilltop Court

Frinton House

Ladybarn House

WILMSLOW ROAD

FALLOWFIELD BROW

MOSELEY ROAD

CARILL DRIVE

WHITWORTH LANE

GUNNERY LANE

KEY

- Existing woodland to be enhanced
- Proposed woodland
- Proposed medium tree (30-35cm girth)
- Proposed small tree (8-10 - 25-30cm girth)
- Existing introduced shrub planting retained
- Proposed introduced shrub/flower bed
- Proposed mixed scrub
- Ornamental planting removed, mixed scrub added
- Proposed neutral grassland
- Existing neutral grassland enhanced
- Proposed traditional orchard
- Existing native hedging
- Proposed species rich hedging
- Propose native hedging

REV P1 RD 2025-02-10 Planning Issue

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CLIENT University of Manchester

TITLE Proposed BNG Area Plan

SCALE 1:600 @ A1 DATE 2025-01-17

STATUS S3 PURPOSE Planning

DRAWN RCD CHECKED NS

REFERENCE UMRF-LAP-XX-00-DR-L-00012 REV P1

Appendix 13 – Proposed Tree Planting

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Key

Canopy of existing trees retained. See drawing UMRF-LAP-XX-00-DR-L-00003 for tree removals
TREE - species of existing tree
M - Memorial tree

Existing areas of woodland, to be retained and enhanced through management and new planting.

Proposed new areas of woodland created from areas of existing grass and mature trees. Proposed understorey tree planting in these areas to consist of whips in addition to the trees indicated which are not included in overall replacement tree figures.

Other areas of soft landscaping

Tree Types

Woodland/native species large to medium tree

Woodland edge/native species medium to small tree

Fruit tree, as part of orchard areas

Ornamental tree, both native and non-native selected from the RHS's Plants for Pollinators List.

Medium tree, planted at 30cm+ girth - 35no.
(to replace the 33 no. medium and 2no. large trees removed as part of BNG trading summary calculations)

Small tree, planted at various sizes 14-16 cm to 20-25cm girth

TOTAL NUMBER OF REPLACEMENT TREES: 267 (ratio of 3.5 : 1 replacement)

REV P2	RD 2025-02-05	Updates to landcape GA, trees moved	
REV P1	RD 2025-01-20	First planning Issue	

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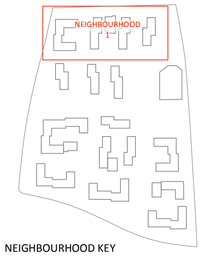
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CLIENT	University of Manchester
TITLE	Proposed Tree Planting
SCALE	1:600 @ A1
DATE	2025-01-20
STATUS	S3
PURPOSE	Planning
DRAWN	RCD
CHECKED	NS
REFERENCE	UMRF-LAP-XX-00-DR-L-00016
REV	P2

Appendix 14 – Planting Schedule

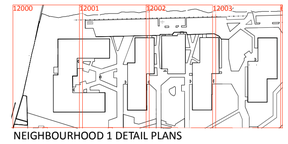


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NEIGHBOURHOOD KEY



NEIGHBOURHOOD 1 DETAIL PLANS

SOFT LANDSCAPING

TREES

EXISTING WOODLAND
Areas retained and enhanced through management and additional understorey planting of woodland edge species and groundover. Invasive species removed as per Thomson Ecology's Bodiversity Report. Some planting of successional of native woodland trees for longevity of woodland.

PROPOSED WOODLAND
New areas created where currently mature trees sit in mown grass. Understorey planting of woody species, scrub and groundcover.

With all areas of woodland, shrub clearance and new planting to take account of views in and out of the site both for aesthetic and security purposes.

PROPOSED TREES
See drawing UMRF-LAP-XX-00-DR-L-00016 for strategy and details of species. Final tree selection to be carried out with input from the UOM's Botanic Gardens Team.

All trees sitting within hard landscaping to be underground guyed in appropriate tree pits.
All semi-mature trees to be underground guyed.
All remaining trees to be double short staked or singled staked as appropriate.

MIXED SCRUB
Woody species planting with low herbaceous groundcover

GRASSLAND
Low maintenance wildflower lawns

Grassland both mown and areas with forbs

ORNAMENTAL PLANTING
Within courtyards and along the Concourse

WOODLAND
UNDERSTOREY WOODY SPECIES
Buxus sempervirens
Cornus sanguinea
Corylus avellana
Euonymus europaeus
Ligustrum vulgare
Ilex aquifolium
Prunus spinosa
Rosa canina
Viburnum opulus

HERBACEOUS
Aquilegia vulgaris
Arthyrium filix-femina
Blechnum spicant
Carex sylvatica
Dryopteris felix mas
Campanula trachelium
Digitalis purpurea
Euphorbia amygdaloides
Fragaria vesca
Galium mollugo
Galium odoratum
Galium verum
Geum urbanum
Helleborus foetidus
Luzula sylvatica
Lamium album
Lamium galeobdolon
Myosotis sylvatica
Primula vulgaris
Polygonatum odoratum
Silene dioica
Silene latifolia subsp. alba
Stachys officinalis
Stellaria holostea
Symphytum officinale
Vinca minor

BULBS
Allium ursinum
Endymion non-scripta
Ficaria verna

HEDGING
SINGLE SPECIES HEDGING
Fagus sylvatica
Fagus sylvatica purpurea
Taxus baccata

MIXED SPECIES HEDGING
Acer campestre
Crataegus monogyna
Carpinus betulus
Cornus sanguinea
Corylus avellana
Fagus sylvaticum
Ilex aquifolium
Ligustrum vulgare

MIXED SCRUB
WOODY SPECIES
Buxus sempervirens
Cornus sanguinea
Corylua avellana
Euonymus europaeus
Hypericum androesemum
Ilex aquifolium
Ligustrum vulgare
Rosa arvensis
Rosa pimpinellifolia
Vaccinium myrtillus
Viburnum opulus
Vinca minor

HERBACEOUS SPECIES
Athyrium filix-femina
Carex sylvatica
Carex pendula
Blechnum spicant
Deschampsia cespitosa
Dryopteris felix-mas
Galium odoratum
Helleborus foetidus
Luzula pilosa
Luzula sylvatica
Milium effusum
Polygonatum odoratum
Allium ursinum
Anemone nemorosa
Endymion non-scriptus
Galanthus nivalis

GRASSLAND
GRASSES
Agrostis capillaris
Alopecurus pratensis
Anthoxanthum odoratum
Bromus racemosus
Cynosaurus cristatus
Festuca rubra
Holcus lanatus
Poa pratensis

HERBACEOUS
Anthriscus sylvestris
Bellis perennis
Cardamine pratensis
Centaurea nigra
Cerastium fontanum
Conopodium majus
Crepis versicaria
Euphrasia nemerosa
Galium verum
Galium odoratum
Geranium pratense
Hypochaeris radicata
Knautia arvensis
Leontodon hispidus
Leucanthemum vulgare
Lotus corniculatus
Plantago lanceolata
Primula veris
Prunella vulgaris
Ranunculus acris
Rhinanthus minor
Rumex acetosa
Sanguisorba minor
Stellaria graminea
Trifolium dubium
Trifolium pratense

NEIGHBOURHOOD 1 ORNAMENTAL
SPECIMEN SHRUBS
Corylus maxima purpurea
Garrya elliptica
Hamamelis mollis
Juniperus c Hibernica
Nandina domestica
Taxus bacatta Standishii
Viburnum x birkwoodii

SHRUBS
Aucuba japonica Nana Rotund
Euonymus jap Silver Queen
Fagus sylvatica (hedge)
Fargesia murielli
Hebe topiaria
Lonicera pileata
Photinia Red Robin
Pieris fortunei
pittosporum tenuifolium
sarcococca h humilis
Viburnum davidii

GRASSES
Carex buchanani
Carex comans 'bronze Form'
Carex Ice Dance
Carex pendula
Deschampsia cespitosa Goldtau
Hakonechloa macra
Luzula sylvatica marginata
Melica uniflora Alba
Miscanthus Morning Light
Dryopteris felix mas
Dryopteris erythrosa

HERBACEOUS
Acanthus mollis
Alchemilla mollis
Anemone Honorine Jobert
Aster Moncke
Astrantia major
Brunnera macrophylla
Epimedium x rubrum
Euphorbia FireGlow
Euphorbia robbiae
Geranium endressii
Geranium macrorhizum white ness
Geranium nodosum "silverwood"
Helleborus foetidus
Helleborus orientalis
Heuchera X brizoides
Pachysandra terminalis
Polygonum affine
Pulmonaria saccharata
Silene dioica
Symphytum uplandicum
Tiarella cordifolia
Vinca minor

BUILBS
Allium ursinum
Anemone nemorosa
Colchicum autumnale
Crocosmia Lucifer
Crocus speciosum
Endymion non-scriptus
Galanthus nivalis
Leucojum aestivum
Leucojum nivalis
Narcissus Tete a Tete

CONCOURSE
SPECIMEN SHRUBS
Corylus avellana
Corylus maxima purpurea
Euonymus japonica microphyllus
Hamamelis mollis
Hebe topiaria
Juniperus c Hibernica
Nandina domestica
Photinia Red Robin
Pinus s. Waterii
Pieris fortunei
Pittosporum tenuifolium
Taxus bacatta Standishii
Viburnum x birkwoodii

HERBACEOUS
Epimedium x rubrum
Euphorbia FireGlow
Euphorbia robbiae
Geranium endressii
Geranium macrorhizum white ness
Geranium nodosum "silverwood"
Helleborus foetidus
Pachysandra terminalis
Polygonum affine
Pulmonaria saccharata
Symphytum uplandicum
Tiarella cordifolia
Vinca minor

GRASSES
Carex buchanani
Carex comans 'bronze Form'
Carex gracilis 'variegata'
carex morrowii
Carex morrowii Ice Dance
Deschampsia flexuosa
Hakonechloa macra
Luzula sylvatica
Milium effusum

REV P1	RD 2025-02-17 First issue

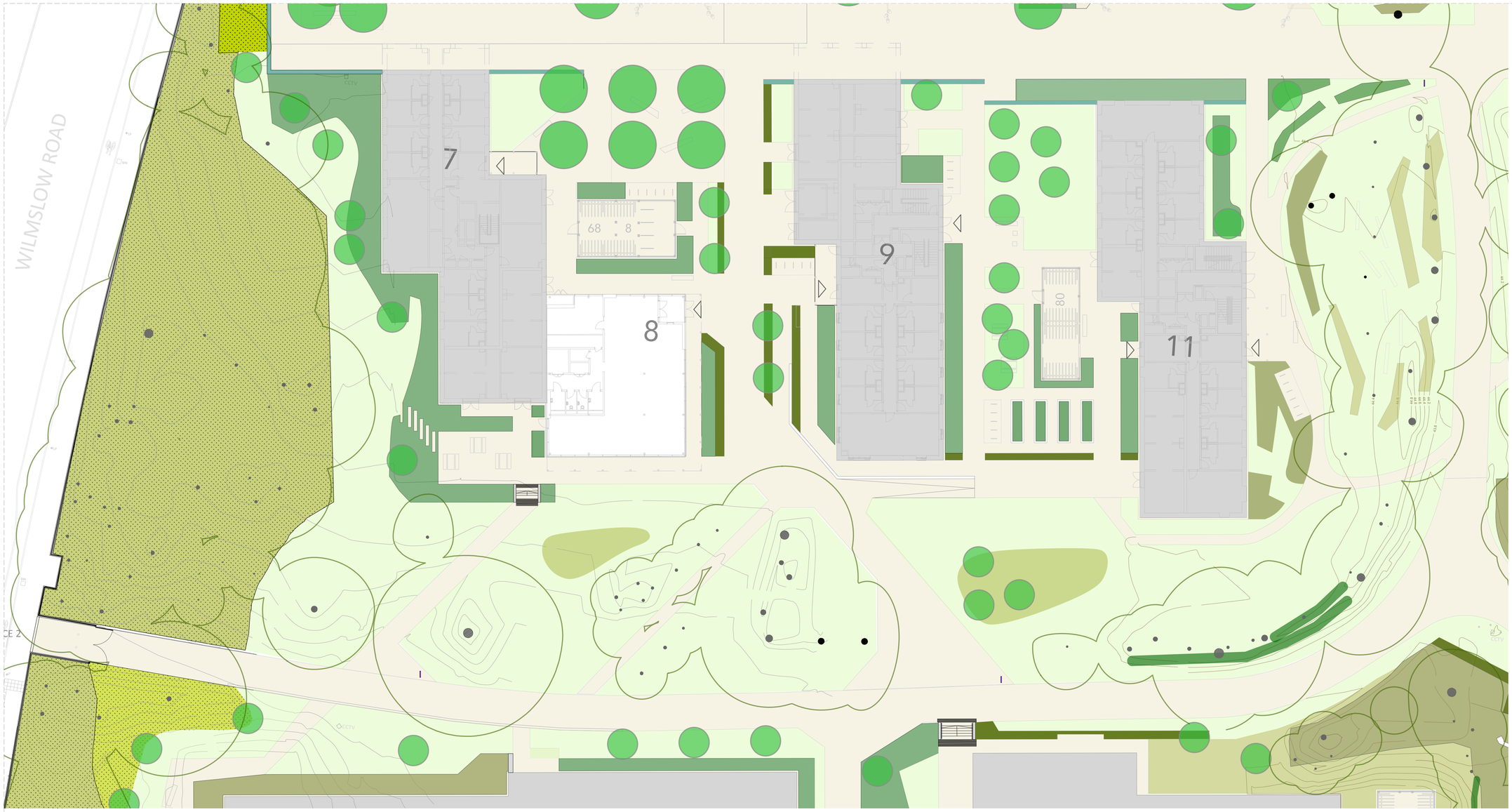
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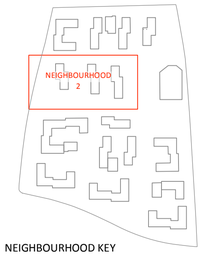
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CLIENT	University of Manchester
TITLE	Neighbourhood 1 Planting
SCALE	1:250 @ A1
DATE	2025-02-17
STATUS	S3
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CHECKED	NS
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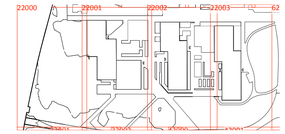


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NEIGHBOURHOOD KEY



NEIGHBOURHOOD 2

SOFT LANDSCAPING

TREES

EXISTING WOODLAND
Areas retained and enhanced through management and additional understorey planting of woodland edge species and groundover. Invasive species removed as per Thomson Ecology's Bodiversity Report. Some planting of successional of native woodland trees for longevity of woodland.

PROPOSED WOODLAND
New areas created where currently mature trees sit in mown grass. Understorey planting of woody species, scrub and groundcover.

With all areas of woodland, shrub clearance and new planting to take account of views in and out of the site both for aesthetic and security purposes.

PROPOSED TREES
See drawing UMRF-LAP-XX-00-DR-L-00016 for strategy and details of species. Final tree selection to be carried out with input from the UOM's Botanic Gardens Team.

All trees sitting within hard landscaping to be underground guyed in appropriate tree pits.
All semi-mature trees to be underground guyed.
All remaining trees to be double short staked or singled staked as appropriate.

MIXED SCRUB
Woody species planting with low herbaceous groundcover

GRASSLAND
Low maintenance wildflower lawns

Grassland both mown and areas with forbs

ORNAMENTAL PLANTING
Within courtyards and along the Concourse

WOODLAND
UNDERSTOREY WOODY SPECIES
Buxus sempervirens
Cornus sanguinea
Corylus avellana
Euonymus europaeus
Ligustrum vulgare
Ilex aquifolium
Prunus spinosa
Rosa canina
Viburnum opulus

HERBACEOUS
Aquilegia vulgaris
Arthyrium filix-femina
Blechnum spicant
Carex sylvatica
Dryopteris felix mas
Campanula trachelium
Digitalis purpurea
Euphorbia amygdaloides
Fragaria vesca
Galium mollugo
Galium odoratum
Galium verum
Geum urbanum
Helleborus foetidus
Luzula sylvatica
Lamium album
Lamium galeobdolon
Myosotis sylvatica
Primula vulgaris
Polygonatum odoratum
Silene dioica
Silene latifolia subsp. alba
Stachys officinalis
Stellaria holostea
Symphytum officinale
Vinca minor

BULBS
Allium ursinum
Endymion non-scripta
Ficaria verna

HEDGING
SINGLE SPECIES HEDGING
Fagus sylvatica
Fagus sylvatica purpurea
Taxus baccata

MIXED SPECIES HEDGING
Acer campestre
Crataegus monogyna
Carpinus betulus
Cornus sanguinea
Corylus avellana
Fagus sylvaticum
Ilex aquifolium
Ligustrum vulgare

MIXED SCRUB
WOODY SPECIES
Buxus sempervirens
Cornus sanguinea
Corylua avellana
Euonymus europaeus
Hypericum androesemum
Ilex aquifolium
Ligustrum vulgare
Rosa arvensis
Rosa pimpinellifolia
Vaccinium myrtillus
Viburnum opulus
Vinca minor

HERBACEOUS SPECIES
Athyrium filix-femina
Carex sylvatica
Carex pendula
Blechnum spicant
Deschampsia cespitosa
Dryopteris felix-mas
Galium odoratum
Helleborus foetidus
Luzula pilosa
Luzula sylvatica
Milium effusum
Polygonatum odoratum
Allium ursinum
Anemone nemorosa
Endymion non-scriptus
Galanthus nivalis

GRASSLAND
GRASSES
Agrostis capillaris
Alopecurus pratensis
Anthoxanthum odoratum
Bromus racemosus
Cynosaurus cristatus
Festuca rubra
Holcus lanatus
Poa pratensis

HERBACEOUS
Anthriscus sylvestris
Bellis perennis
Cardamine pratensis
Centaurea nigra
Cerastium fontanum
Conopodium majus
Crepis versicaria
Euphrasia nemerosa
Galium verum
Galium odoratum
Geranium pratense
Hypochaeris radicata
Knautia arvensis
Leontodon hispidus
Leucanthemum vulgare
Lotus corniculatus
Plantago lanceolata
Primula veris
Prunella vulgaris
Ranunculus acris
Rhinanthus minor
Rumex acetosa
Sanguisorba minor
Stellaria graminea
Trifolium dubium
Trifolium pratense

NEIGHBOURHOOD 2 ORNAMENTAL
SPECIMEN ACCENT SHRUBS
Corylus avellana
Cotoneaster x waterii
Hamamelis mollis
Rosmarinus off
Lavandula sp Hidcote
Laurus nobilis
Garrya elliptica
Taxus bacatta Standishii
Viburnum x birkwoodii

TALL PRIVACY SHRUBS
Choisya ternata
Euonymus f Silver Queen
Fargesia murielii
Hebe rakaensis
Hebe topiaria
Lonicera pileata
Prunus Otto Luyken
Pyracantha Orange Glow
Sarcococca h humilis
Skimmia japonica
Viburnum davidii

GRASSES AND FERNS
Carex buchanani
Carex comans 'bronze Form'
Carex Ice Dance
Carex pendula
Deschampsia cespitosa Goldtau
Hakonechloa macra
Luzula sylvatica marginata
Melica uniflora Alba
Miscanthus Morning Light
Dryopteris felix mas
Dryopteris erythrosa

HERBACEOUS
Acanthus mollis
Alchemilla mollis
Anemone Honorine Jobert
Asarum europaeum
Aster Monckе
Astrantia major
Brunnera macrophylla
Epimedium x rubrum
Euphorbia FireGlow
Euphorbia robbiae
Filipendula ulmaria
Geranium endressii
Geranium macrorhizum white ness
Geranium nodosum "silverwood"
Helleborus foetidus
Helleborus orientalis
Heuchera X brizoides
Lychnis flos-cuculi
Lythrum salicaria
Mentha rotundifolia
Pachysandra terminalis
Polygonum affine
Pulmonaria saccharata
Silene dioica
Symphytum uplandicum
Tiarella cordifolia
Vinca minor

BULBS
Allium ursinum
Anemone nemorosa
Colchicum autumnale
Crocosmia Lucifer
Crocus speciosum
Endymion non-scriptus
Galanthus nivalis
Leucojum aestivum
Leucojum nivalis
Narcissus Tete a Tete

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JOB TITLE UoM Residences DBFO

CLIENT University of Manchester

TITLE Neighbourhood 2 Planting

SCALE 1:250 @ A1 DATE 2025-02-17

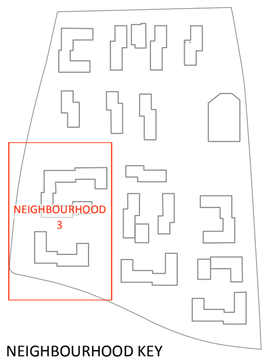
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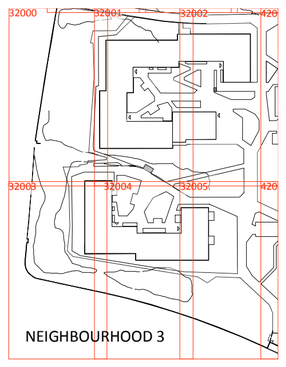
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NEIGHBOURHOOD KEY



NEIGHBOURHOOD 3

SOFT LANDSCAPING

TREES

EXISTING WOODLAND
Areas retained and enhanced through management and additional understorey planting of woodland edge species and groundover. Invasive species removed as per Thomson Ecology's Bodiversity Report. Some planting of successional of native woodland trees for longevity of woodland.

PROPOSED WOODLAND
New areas created where currently mature trees sit in mown grass. Understorey planting of woody species, scrub and groundcover.

With all areas of woodland, shrub clearance and new planting to take account of views in and out of the site both for aesthetic and security purposes.

PROPOSED TREES
See drawing UMRF-LAP-XX-00-DR-L-00016 for strategy and details of species. Final tree selection to be carried out with input from the UOM's Botanic Gardens Team.

All trees sitting within hard landscaping to be underground guyed in appropriate tree pits.
All semi-mature trees to be underground guyed.
All remaining trees to be double short staked or singled staked as appropriate.

MIXED SCRUB
Woody species planting with low herbaceous groundcover

GRASSLAND
Low maintenance wildflower lawns

Grassland both mown and areas with forbs

ORNAMENTAL PLANTING
Within courtyards and along the Concourse

HEDGING

SINGLE SPECIES HEDGING
Fagus sylvatica
Fagus sylvatica purpurea
Taxus baccata

MIXED SPECIES HEDGING
Acer campestre
Crataegus monogyna
Carpinus betulus
Cornus sanguinea
Corylus avellana
Fagus sylvaticum
Ilex aquifolium
Ligustrum vulgare

MIXED SCRUB

WOODY SPECIES
Buxus sempervirens
Cornus sanguinea
Corylua avellana
Euonymus europaeus
Hypericum androesemum
Ilex aquifolium
Ligustrum vulgare
Rosa arvensis
Rosa pimpinellifolia
Vaccinium myrtillus
Viburnum opulus
Vinca minor

HERBACEOUS SPECIES
Athyrium filix-femina
Carex sylvatica
Carex pendula
Blechnum spicant
Deschampsia cespitosa
Dryopteris felix-mas
Galium odoratum
Helleborus foetidus
Luzula pilosa
Luzula sylvatica
Milium effusum
Polygonatum odoratum
Allium ursinum
Anemone nemorosa
Endymion non-scriptus
Galanthus nivalis

GRASSLAND

GRASSES
Agrostis capillaris
Alopecurus pratensis
Anthoxanthum odoratum
Bromus racemosus
Cynosaurus cristatus
Festuca rubra
Holcus lanatus
Poa pratensis

HERBACEOUS
Anthriscus sylvestris
Bellis perennis
Cardamine pratensis
Centaurea nigra
Cerastium fontanum
Conopodium majus
Crepis versicaria
Euphrasia nemerosa
Galium verum
Galium odoratum
Geranium pratense
Hypochaeris radicata
Knautia arvensis
Leontodon hispidus
Leucanthemum vulgare
Lotus corniculatus
Plantago lanceolata
Primula veris
Prunella vulgaris
Ranunculus acris
Rhinanthus minor
Rumex acetosa
Sanguisorba minor
Stellaria graminea
Trifolium dubium
Trifolium pratense

NEIGHBOURHOOD 3 ORNAMENTAL

SPECIMEN ACCENT SHRUBS
Corylus avellana
Cotoneaster x waterii
Hamamelis mollis
Rosmarinus off
Lavandula sp Hidcote
Laurus nobilis
Garrya elliptica
Taxus bacatta Standishii
Viburnum x birkwoodii

TALL PRIVACY SHRUBS
Choisya ternata
Euonymus f Silver Queen
Fargesia murielii
Hebe rakaensis
Hebe topiaria
Lonicera pileata
Prunus Otto Luyken
Pyracantha Orange Glow
Sarcococca h humilis
Skimmia japonica
Viburnum davidii

GRASSES AND FERNS
Carex buchanani
Carex comans 'bronze Form'
Carex Ice Dance
Carex pendula
Deschampsia cespitosa Goldtau
Hakonechloa macra
Luzula sylvatica marginata
Melica uniflora Alba
Miscanthus Morning Light
Dryopteris felix mas
Dryopteris erythrosa

HERBACEOUS
Acanthus mollis
Alchemilla mollis
Anemone Honorine Jobert
Asarum europaeum
Aster Moncke
Astrantia major
Brunnera macrophylla
Epimedium x rubrum
Euphorbia FireGlow
Euphorbia robbiae
Filipendula ulmaria
Geranium endressii
Geranium macrorhizum white ness
Geranium nodosum "silverwood"
Helleborus foetidus
Helleborus orientalis
Heuchera X brizoides
Lychnis flos-cuculi
Lythrum salicaria
Mentha rotundifolia
Pachysandra terminalis
Polygonum affine
Pulmonaria saccharata
Silene dioica
Symphytum uplandicum
Tiarella cordifolia
Vinca minor

BULBS
Allium ursinum
Anemone nemorosa
Colchicum autumnale
Crocosmia Lucifer
Crocus speciosum
Endymion non-scriptus
Galanthus nivalis
Leucojum aestivum
Leucojum nivalis
Narcissus Tete a Tete

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JOB TITLE UoM Residences DBFO

CLIENT University of Manchester

TITLE Neighbourhood 3 Planting

SCALE 1:250 @ A1 DATE 2025-02-17

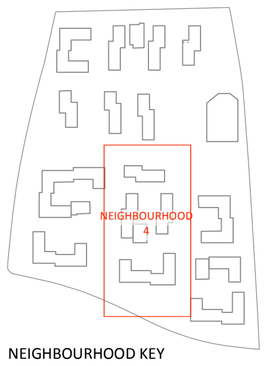
STATUS S3 PURPOSE Planning

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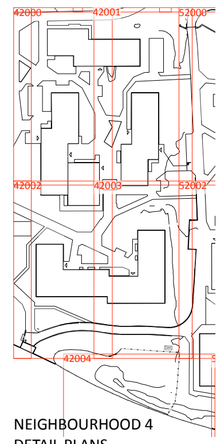
REFERENCE UMRF-LAP-XX-00-DR-L-30001 REV P1

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NEIGHBOURHOOD KEY



NEIGHBOURHOOD 4
DETAIL PLANS

SOFT LANDSCAPING

TREES

EXISTING WOODLAND
Areas retained and enhanced through management and additional understorey planting of woodland edge species and groundover. Invasive species removed as per Thomson Ecology's Bodiversity Report. Some planting of successional of native woodland trees for longevity of woodland.

PROPOSED WOODLAND
New areas created where currently mature trees sit in mown grass. Understorey planting of woody species, scrub and groundcover.

With all areas of woodland, shrub clearance and new planting to take account of views in and out of the site both for aesthetic and security purposes.

PROPOSED TREES
See drawing UMRF-LAP-XX-00-DR-L-00016 for strategy and details of species. Final tree selection to be carried out with input from the UOM's Botanic Gardens Team.

All trees sitting within hard landscaping to be underground guyed in appropriate tree pits.
All semi-mature trees to be underground guyed.
All remaining trees to be double short staked or singled staked as appropriate.

MIXED SCRUB
Woody species planting with low herbaceous groundcover

GRASSLAND
Low maintenance wildflower lawns

Grassland both mown and areas with forbs

ORNAMENTAL PLANTING
Within courtyards and along the Concourse

HEDGING

SINGLE SPECIES HEDGING
Fagus sylvatica
Fagus sylvatica purpurea
Taxus baccata

MIXED SPECIES HEDGING
Acer campestre
Crataegus monogyna
Carpinus betulus
Cornus sanguinea
Corylus avellana
Fagus sylvaticum
Ilex aquifolium
Ligustrum vulgare

MIXED SCRUB

WOODY SPECIES
Buxus sempervirens
Cornus sanguinea
Corylua avellana
Euonymus europaeus
Hypericum androesemum
Ilex aquifolium
Ligustrum vulgare
Rosa arvensis
Rosa pimpinellifolia
Vaccinium myrtillus
Viburnum opulus
Vinca minor

HERBACEOUS SPECIES
Athyrium filix-femina
Carex sylvatica
Carex pendula
Blechnum spicant
Deschampsia cespitosa
Dryopteris felix-mas
Galium odoratum
Helleborus foetidus
Luzula pilosa
Luzula sylvatica
Milium effusum
Polygonatum odoratum
Allium ursinum
Anemone nemorosa
Endymion non-scriptus
Galanthus nivalis

GRASSLAND

GRASSES
Agrostis capillaris
Alopecurus pratensis
Anthoxanthum odoratum
Bromus racemosus
Cynosaurus cristatus
Festuca rubra
Holcus lanatus
Poa pratensis

HERBACEOUS
Anthriscus sylvestris
Bellis perennis
Cardamine pratensis
Centaurea nigra
Cerastium fontanum
Conopodium majus
Crepis versicaria
Euphrasia nemerosa
Galium verum
Galium odoratum
Geranium pratense
Hypochaeris radicata
Knautia arvensis
Leontodon hispidus
Leucanthemum vulgare
Lotus corniculatus
Plantago lanceolata
Primula veris
Prunella vulgaris
Ranunculus acris
Rhinanthus minor
Rumex acetosa
Sanguisorba minor
Stellaria graminea
Trifolium dubium
Trifolium pratense

POND

TREES SHRUBS
Alnus glutinosa
Cornus sanguinea
Frangula alnus
Salix caprea
Salix viminalis

HERBACEOUS
Alisma plantago-aquatica
Butomus umbellatus
Caltha palustris
Cardamine pratensis
Cirsium dissectum
Epilobium hirsutum
Eupatorium cannabinum
Filipendula ulmaria
Galium palustre
Geum rivale
Hypericum tetrapterum
Iris pseudacorus
Lotus pedunculatus
Lychnis flos-cuculi
Lycopus europaeus
Lysimachia nummularia
Lysimachia vulgaris
Lythrum salicaria
Mentha aquatica
Menyanthes trifoliata
Myosotis scorpioides
Nasturtium officinale
Nuphar lutea
Nymphaea alba
Oenanthe crocata
Persicaria amphibia
Persicaria bistorta
Polemonium caeruleum
Pulicaria dysenterica
Ranunculus flammula
Ranunculus fluitans
Ranunculus lingua
Sagittaria sagittifolia
Sanguisorba officinalis
Scrophularia auriculata
Scutellaria galericulata
Stachys palustris
Valeriana officinalis
Veronica beccabunga

ANNUALS
Angelica sylvestris
Oenanthe aquatica
Ranunculus aquatilis
Ranunculus sceleratus

NEIGHBOURHOOD 4 ORNAMENTAL

SPECIMEN ACCENT SHRUBS
Corylus avellana
Cytisus scoparius
Erica arborea
Pinus x waterii
Hamamelis mollis
Rosmarinus off
Lavandula sp Hidcote
Juniperus communis
Taxus bacatta Standishii
Viburnum x birkwoodii

TALL PRIVACY SHRUBS
Aucuba japonica Nana Rotund
Euonymus jap microphyllus
Fagus sylvatica (hedge)
Pyracantha Orange Glow
Hebe topiaria
Lonicera pileata
Prunus Otto Luyken
Pieris fortunei
pittosporum tenuifolium
Skimmia japonica
sarcococca h humilis
Vaccinium myrtillus
Viburnum davidii

GRASSESS AND FERNS
Carex buchanani
Carex comans 'Bronze Form'
Carex Ice Dance
Carex pendula
Deschampsia cespitosa Goldtau
Hakonechloa macra
Luzula sylvatica marginata
Melica uniflora Alba
Miscanthus Morning Light
Dryopteris felix mas
Dryopteris erythrosa

HERBACEOUS
Acanthus mollis
Alchemilla mollis
Anemone Honorine Jobert
Calluna vulgaris
Astrantia major
Erica carnea
Erica tetralix
Epimedium x rubrum
Euphorbia FireGlow
Euphorbia robbiae
Geranium endressii
Geranium macrorhizum white ness
Geranium nodosum "silverwood"
Helleborus foetidus
Helleborus orientalis
Heuchera X brizoides
Polygonum affine
Pulmonaria saccharata
Symphytum uplandicum
Tiarella cordifolia
Vinca minor

BULBS
Allium ursinum
Anemone nemorosa
Colchicum autumnale
Crocosmia Lucifer
Crocus speciosum
Endymion non-scriptus
Galanthus nivalis
Leucojum aestivum
Leucojum nivalis
Narcissus Tete a Tete

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JOB TITLE UoM Residences DBFO

CLIENT University of Manchester

TITLE Neighbourhood 4 Planting

SCALE 1:250 @ A1 DATE 2025-02-17

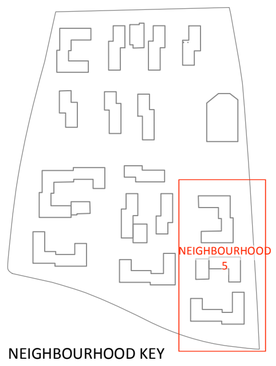
STATUS S3 PURPOSE Planning

DRAWN RCD CHECKED NS

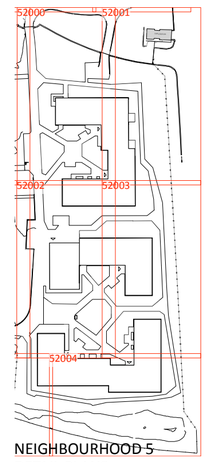
REFERENCE UMRF-LAP-XX-00-DR-L-40001 REV P1

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NEIGHBOURHOOD KEY



NEIGHBOURHOOD 5
DETAIL PLANS

SOFT LANDSCAPING

TREES

EXISTING WOODLAND
Areas retained and enhanced through management and additional understorey planting of woodland edge species and groundover. Invasive species removed as per Thomson Ecology's Bodiversity Report. Some planting of successional of native woodland trees for longevity of woodland.

PROPOSED WOODLAND
New areas created where currently mature trees sit in mown grass. Understorey planting of woody species, scrub and groundcover.

With all areas of woodland, shrub clearance and new planting to take account of views in and out of the site both for aesthetic and security purposes.

PROPOSED TREES
See drawing UMRF-LAP-XX-00-DR-L-00016 for strategy and details of species. Final tree selection to be carried out with input from the UOM's Botanic Gardens Team.

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All semi-mature trees to be underground guyed.
All remaining trees to be double short staked or singled staked as appropriate.

MIXED SCRUB
Woody species planting with low herbaceous groundcover

GRASSLAND
Low maintenance wildflower lawns

Grassland both mown and areas with forbs

ORNAMENTAL PLANTING
Within courtyards and along the Concourse

WOODLAND

UNDERSTOREY WOODY SPECIES
Buxus sempervirens
Cornus sanguinea
Corylus avellana
Euonymus europaeus
Ligustrum vulgare
Ilex aquifolium
Prunus spinosa
Rosa canina
Viburnum opulus

HERBACEOUS
Aquilegia vulgaris
Arthyrium filix-femina
Blechnum spicant
Carex sylvatica
Dryopteris felix mas
Campanula trachelium
Digitalis purpurea
Euphorbia amygdaloides
Fragaria vesca
Galium mollugo
Galium odoratum
Galium verum
Geum urbanum
Helleborus foetidus
Luzula sylvatica
Lamium album
Lamium galeobdolon
Myosotis sylvatica
Primula vulgaris
Polygonatum odoratum
Silene dioica
Silene latifolia subsp. alba
Stachys officinalis
Stellaria holostea
Symphytum officinale
Vinca minor

BULBS
Allium ursinum
Endymion non-scripta
Ficaria verna

HEDGING

SINGLE SPECIES HEDGING
Fagus sylvatica
Fagus sylvatica purpurea
Taxus baccata

MIXED SPECIES HEDGING
Acer campestre
Crataegus monogyna
Carpinus betulus
Cornus sanguinea
Corylus avellana
Fagus sylvaticum
Ilex aquifolium
Ligustrum vulgare

MIXED SCRUB

WOODY SPECIES
Buxus sempervirens
Cornus sanguinea
Corylua avellana
Euonymus europaeus
Hypericum androesemum
Ilex aquifolium
Ligustrum vulgare
Rosa arvensis
Rosa pimpinellifolia
Vaccinium myrtillus
Viburnum opulus
Vinca minor

HERBACEOUS SPECIES
Athyrium filix-femina
Carex sylvatica
Carex pendula
Blechnum spicant
Deschampsia cespitosa
Dryopteris felix-mas
Galium odoratum
Helleborus foetidus
Luzula pilosa
Luzula sylvatica
Milium effusum
Polygonatum odoratum
Allium ursinum
Anemone nemorosa
Endymion non-scriptus
Galanthus nivalis

GRASSLAND

GRASSES
Agrostis capillaris
Alopecurus pratensis
Anthoxanthum odoratum
Bromus racemosus
Cynosaurus cristatus
Festuca rubra
Holcus lanatus
Poa pratensis

HERBACEOUS
Anthriscus sylvestris
Bellis perennis
Cardamine pratensis
Centaurea nigra
Cerastium fontanum
Conopodium majus
Crepis versicaria
Euphrasia nemerosa
Galium verum
Galium odoratum
Geranium pratense
Hypochaeris radicata
Knautia arvensis
Leontodon hispidus
Leucanthemum vulgare
Lotus corniculatus
Plantago lanceolata
Primula veris
Prunella vulgaris
Ranunculus acris
Rhinanthus minor
Rumex acetosa
Sanguisorba minor
Stellaria graminea
Trifolium dubium
Trifolium pratense

NEIGHBOURHOOD 5 ORNAMENTAL

SPECIMEN ACCENT SHRUBS
Choisya ternata
Euonymus f Silver Queen
Fargesia murielii
Hebe rakaensis
Hebe topiaria
Lonicera pileata
Prunus Otto Luyken
Pyracantha Orange Glow
Sarcococca h humilis
Skimmia japonica
Viburnum davidii

TALL PRIVACY SHRUBS
Corylus avellana
Cotoneaster x waterii
Hamamelis mollis
Rosmarinus off
Lavandula sp Hidcote
Laurus nobilis
Garrya elliptica
Taxus bacatta Standishii
Viburnum x birkwoodii

EVERGREEN GROUNDCOVER
Asarum europaeum
Carex nigra
Carex sylvatica
Epimedium x rubrum
Euphorbia robbiae
Tiarella cordifolia
Geranium macrorhizum white ness
Heuchera X brizoides
Helleborus foetidus
Helleborus orientalis
Luzula campestris
Luzula pilosa
Luzula sylvatica
Pachysandra terminalis
Vinca minor

GRASSES AND FERNS
Carex Ice Dance
Carex pendula
Deschampsia cespitosa Goldtau
Hakonechloa macra
Luzula sylvatica marginata
Melica uniflora Alba
Miscanthus Morning Light
Dryopteris felix mas
Dryopteris erythrosa

HERBACEOUS
Acanthus mollis
Alchemilla mollis
Anemone Honorine Jobert
Aster Moncke
Astrantia major
Brunnera macrophylla
Euphorbia FireGlow
Filipendula ulmaria
Geranium endressii
Geranium nodosum "silverwood"
Lychnis flos-cuculi
Lythrum salicaria
Mentha rotundifolia
Polygonum affine
Pulmonaria saccharata
Silene dioica
Symphytum uplandicum

WILDFLOWER GROUNDCOVER
Ajuga reptans
Bellis perennis
Campanula rotundifolia
Hippocrepis comosa
Lotus corniculatus
Lamium album
Lamiastrum galeobdolon
Fragaria vesca
Galium mollugo
Galium odoratum
Galium verum
Potentilla anserina
Potentilla erecta
Potentilla reptans
Primula veris
Prunella vulgaris
Ranunculus repens
Sanguisorba minor
Thymus polytrichus
Thymus pulegioides
Trifolium pratense
Trifolium repens
Veronica chamaedrys

BULBS
Allium ursinum
Colchicum autumnale
Crocosmia Lucifer
Crocus speciosum
Endymion non-scriptus
Galanthus nivalis

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JOB TITLE UoM Residences DBFO

CLIENT Graham

TITLE Neighbourhood 5 Planting

SCALE 1:250 @ A1 DATE 2025-02-17

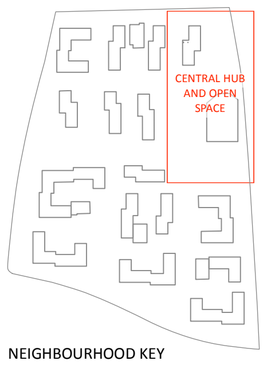
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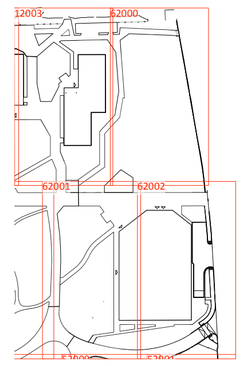
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NEIGHBOURHOOD KEY



CENTRAL HUB AND OPEN SPACE DETAIL PLANS

SOFT LANDSCAPING

TREES

EXISTING WOODLAND
Areas retained and enhanced through management and additional understorey planting of woodland edge species and groundover. Invasive species removed as per Thomson Ecology's Bodiversity Report. Some planting of successional of native woodland trees for longevity of woodland.

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Grassland both mown and areas with forbs

ORNAMENTAL PLANTING
Within courtyards and along the Concourse

HEDGING

SINGLE SPECIES HEDGING
Fagus sylvatica
Fagus sylvatica purpurea
Taxus baccata

MIXED SPECIES HEDGING
Acer campestre
Crataegus monogyna
Carpinus betulus
Cornus sanguinea
Corylus avellana
Fagus sylvaticum
Ilex aquifolium
Ligustrum vulgare

MIXED SCRUB

WOODY SPECIES
Buxus sempervirens
Cornus sanguinea
Corylua avellana
Euonymus europaeus
Hypericum androesemum
Ilex aquifolium
Ligustrum vulgare
Rosa arvensis
Rosa pimpinellifolia
Vaccinium myrtillus
Viburnum opulus
Vinca minor

HERBACEOUS SPECIES
Athyrium filix-femina
Carex sylvatica
Carex pendula
Blechnum spicant
Deschampsia cespitosa
Dryopteris felix-mas
Galium odoratum
Helleborus foetidus
Luzula pilosa
Luzula sylvatica
Milium effusum
Polygonatum odoratum
Allium ursinum
Anemone nemorosa
Endymion non-scriptus
Galanthus nivalis

GRASSLAND

GRASSES
Agrostis capillaris
Alopecurus pratensis
Anthoxanthum odoratum
Bromus racemosus
Cynosaurus cristatus
Festuca rubra
Holcus lanatus
Poa pratensis

HERBACEOUS
Anthriscus sylvestris
Bellis perennis
Cardamine pratensis
Centaurea nigra
Cerastium fontanum
Conopodium majus
Crepis versicaria
Euphrasia nemerosa
Galium verum
Galium odoratum
Geranium pratense
Hypochaeris radicata
Knautia arvensis
Leontodon hispidus
Leucanthemum vulgare
Lotus corniculatus
Plantago lanceolata
Primula veris
Prunella vulgaris
Ranunculus acris
Rhinanthus minor
Rumex acetosa
Sanguisorba minor
Stellaria graminea
Trifolium dubium
Trifolium pratense

CONCOURSE

SPECIMEN SHRUBS
Corylus avellana
Corylus maxima purpurea
Euonymus japonica microphyllus
Hamamelis mollis
Hebe topiaria
Juniperus c Hibernica
Nandina domestica
Photinia Red Robin
Pinus s. Waterii
Pieris fortunei
Pittosporum tenuifolium
Taxus bacatta Standishii
Viburnum x birkwoodii

HERBACEOUS
Epimedium x rubrum
Euphorbia FireGlow
Euphorbia robbiae
Geranium endressii
Geranium macrorhizum white ness
Geranium nodosum "silverwood"
Helleborus foetidus
Pachysandra terminalis
Polygonum affine
Pulmonaria saccharata
Symphytum uplandicum
Tiarella cordifolia
Vinca minor

GRASSES
Carex buchanani
Carex comans 'bronze Form'
Carex gracilis 'variegata'
carex morrowii
Carex morrowii Ice Dance
Deschampsia flexuosa
Hakonechloa macra
Luzula sylvatica
Milium effusum

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JOB TITLE UoM Residences DBFO

CLIENT University of Manchester

TITLE Central Hub/Open Space Planting

SCALE 1:250 @ A1 DATE 2025-02-17

STATUS S3 PURPOSE Planning

DRAWN RCD CHECKED NS

REFERENCE UMRF-LAP-XX-00-DR-L-60001 REV P1