# SOUTH HEYWOOD – COMMERCIAL

Heywood, Bury

## LANDSCAPE AND HABITAT CREATION AND MANAGEMENT PLAN

*April 2021*

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Report Control Sheet

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# 1 INTRODUCTION

## 1.0 SCOPE & PURPOSE

1.1.1. Collington Winter Environmental Ltd was commissioned by Russells South Heywood Ltd to prepare a Landscape and Habitat Creation and Management Plan (LHCMP), to support a reserved matters application relating to Unit 1 of the commercial units, internal spine road and earthworks, and specifically to discharge condition 25 pursuant to hybrid permission 16/01399/HYBR which granted mixed use development for the wider South Heywood site.

1.1.2. The author of this report is Olivia Collington BSc (Hons), MIEnvSc, CEnv, Director and Principal Ecologist at Collington Winter Environmental Ltd. Olivia is highly experienced managing complex residential schemes and has produced many Landscape and Habitat Management Plans and reports to inform planning permission. Olivia has been the lead project ecologist on the wider South Heywood project since 2013 during previous roles at REC Ltd and E3P Ltd, before starting her own company Collington Winter Environmental Ltd. Therefore, Olivia has been involved or overseen all survey work and consultation regarding the project.

## 1.2. OBJECTIVES

1.2.1. Condition 25 of the planning permission states that a Landscape and Habitat Creation and Management Plan is required to include details of enhancement measures. The report shall include:

- Description and evaluation of features to be created and/or managed.
- Ecological trends and constraints on site that might influence management.
- Aims and objectives of management.
- Appropriate management options for achieving aims and objectives.
- Prescriptions for management actions.
- Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five-year period).
- Details of the body or organization responsible for implementation of the plan
- Ongoing monitoring and remedial measures

1.2.2. TPM Landscapes have prepared a complimentary management plan to deliver the landscape and ecological aims identified in this report. The TPM Management Plan provides a very prescriptive list of actions and schedule to ensure the long-term delivery and management of landscape across the site.

1.2.3. The Management Company (The Land Trust) will read this document as whole.

## 1.3. PROPOSED DEVELOPMENT

1.3.1. The proposed development comprises a reserved matters application for Unit 1 of the western parcel of the wider South Heywood development which has been approved under hybrid permission 16/01399/ HYBR. The reserved matters application includes earthworks across the site to create new development platforms, as well as the construction of Unit 1 (commercial warehouse unit), associated car parking as well as an internal spine road to serve future development units, and soft landscaping.

1.3.2. Please refer to Drawing 3595 104J Landscape Masterplan for detailed landscaping proposals for the application. It must be acknowledged that this if the first reserved matters application, and others will follow to detail the remaining buildings and landscape across the site, to provide a comprehensive business park. This Management Plan will be updated with each Reserved Matters, to ensure it only reflects the latest agreed proposals, with input from Rochdale Borough Council, Greater Manchester Ecology Unit and other key stakeholders/ consultees.

1.3.3. Within the wider South Heywood development, ecology and nature conservation has been a key driver for master planning with the ambition to create high value habitats for wildlife across the scheme. As such, a significant linear wildlife corridor is proposed which extends from Pilsworth Road to the west along to the M60 motorway to the east of the site. This corridor will link habitats within the wider area and create high value habitats for badger, bats, birds and other terrestrial mammals. The corridor will be planted with a variety of trees, scrub and grassland mixes to create a diverse habitat. Footpaths will interest the corridor and these will be sensitively managed for wildlife.

1.3.4. Please refer to Drawing 4846_SK(90)06_O for the Landscape Framework. This plan was submitted with the approved Hybrid Application, and whilst indicative, provides a good overview of the vision. For context the linear corridor is being developed in more detail by Russells, to ensure cohesively works from this commercial area through the residential and across to Middleton Road/ J19 M62. This is being developed in line with the residential Reserved Matters applications.

## 1.4. AIMS AND OBJECTIVES OF MANAGEMENT:

1.4.1. This report has been prepared to inform management of the landscaped areas of the site through their operational phase. This management plan covers 5 years post completion of construction.

1.4.2. The aims and objectives of management specific to the site include:

- Management of landscaped areas for ecological benefit and provide a gain to biodiversity within the site and local area.
- Ensure monitoring of habitats is undertaken for a minimum period of 5 years to ensure habitat success.
- Provide details of remedial measures if required.
- Provide new habitats for species known to be present locally which include bats, birds, hedgehogs and badger.

# 2 BASELINE SURVEYS

## 2.1. EXTENDED PHASE 1 HABITAT SURVEY (REC, 2016)

2.1.1. An Extended Phase 1 Habitat Survey was undertaken by REC in 2016, which covered the wider South Heywood development, and included the proposed commercial phase. The commercial phase was referred to in the REC report as “Area 3”.

2.1.2. At the time of survey, the commercial phase was found to be comprised of bare ground, with areas of newly sown grass. The northern corner of the site was found to be re-vegetated and contain neutral semi- improved grassland sward. The site has previously been used as landfill and still has an active permit associated with the site.

2.1.3. Improved grassland fields bound by hedgerows were located to the west of the site.

2.1.4. The report interpreted that:

2.1.5. “The majority of habitats within and adjacent to the site comprised grazed fields, managed arable land (or bare ground) which was species poor, widespread in the local area and of low conservation value. None of the habitats recorded in the study area are considered to represent good examples of priority habitat types.”

2.1.6. Breeding bird surveys were undertaken on the commercial phase, with house sparrow, skylark and herring gull confirmed breeding on the site. Barn owl were also assessed as likely to forage within this area.

## 2.2. UPDATED PRELIMINARY ECOLOGICAL APPRAISAL (E3P, 2019)

2.2.1. An updated survey was undertaken by E3P in 2019 of the wider South Heywood site. For consistency, the commercial phase was also referred to as “Area 3” within this report.

2.2.2. E3P found that the previously bare ground habitats had since been colonised by grasses and herbaceous vegetation, though some areas of bare ground remained. The vegetation was found to become denser towards the north of the site.

2.2.3. The site was found to have the following value for wildlife:

- No motivation for great crested newts to colonise the site
- Common amphibians may be present on site
- The site has moderate value for foraging bats, based on the vegetation present.
- The site remained suitable for nesting birds, with ground nesting birds known to utilise the area.
- The site remained suitable to support foraging of barn owl.
- No signs of badger were identified, though the site remained suitable to support the species.
- The water features were found to have negligible value for supporting water vole, and no field signs of the species were recorded.
- The site was assessed as having negligible value to support brown hare.
- The site was assessed as having negligible value to support reptiles, though the habitats within the site were becoming more suitable.

## 2.3. UPDATED WALKOVER (Collington Winter Environmental Ltd, 2020)

2.3.1. During updated walkovers undertaken in 2020, the habitats on site were found to comprise managed improved grassland, with evidence of regular management undertaken in line with landfill operations. Some areas of the site hosted bare ground habitats. The site remains under active landfill operations with an active permit associated with the site.

2.3.2. Hedgerows and treelines were found to be in the same state as in previous assessments. Watercourses were also found to be in the same state as previous assessments, being choked with vegetation which included Himalayan balsam.

## 2.4. PROTECTED SPECIES SURVEYS (Collington Winter Environmental Ltd, 2020)

2.4.1. The following protected species surveys have been undertaken by Collington Winter Environmental Ltd in 2020:

- Bat activity and static detector surveys.
- Updated environmental DNA surveys.
- Water vole and otter surveys.
- Aquatic Invertebrate Surveys on watercourses.

2.4.2. No evidence of water vole or otter were located during the surveys. No notable aquatic invertebrates were identified during the surveys.

2.4.3. Great crested newts were confirmed to remain absent from the site and waterbodies within 250 m of the site.

2.4.4. Common bat species were found to use the site for foraging and commuting activity.

## 3 LANDSCAPE SCALE HABITAT CREATION

3.1.1. As part of the wider South Heywood development, a linear green corridor is to be delivered linking Pilsworth Road with the M60 motorway. The linear corridor includes broadleaved woodland, wildflower grassland, public footpaths and scrub and tall ruderal habitats.

3.1.2. The linear corridor will have value for a range of wildlife and provide an important new commuting resource within the wider area. The corridor will link the residential and commercial phases of the wider development and also link proposed wildlife ponds and SUDS features.

3.1.3. The proposed linear corridor will act as a connection between habitats, creating a “bridge” for wildlife commuting. It is anticipated the feature will become valuable for a variety of birds, bats, as well as terrestrial mammals such as badger and hedgehog.

3.1.4. The vision for the wider development will follow a similar narrative to this application by retaining existing key features such as hedgerows and existing grassland and further strengthening with the creation of new habitat areas. This will be complemented by planting of native original and species which will attract wildlife along the embankments of the new development plateaus, providing a naturalist green edge. This will provide visual screening and ecology benefits. There will be a requirement to bring forward Sustainable Urban Drainage Systems to serve any future buildings. These two will provide a drainage, ecology and landscape function.

3.1.5. There will be opportunities in the next Reserved Matters submission to detail and deliver the green corridor along the gas main. This will provide a east/west public footpath connection between the business park and the proposed local centre, school, sports facilities and residential area. It is intended this will be a hoggin style path running the length of the South Heywood masterplan area up to J19 of the M62.

3.1.6. Please refer to Drawing 4846 SK(90)06_O for an indicative landscape layout of the linear corridor.

# 4 HABITAT CREATION ON SITE

3.1.7. Please refer to the Planting Plan prepared by TPM Landscapes 3595 201F, 202D, 203G, 204E, 205F, 206E Planting Plan: 1 -6 for full details of species to be used. Please also refer to the Landscape Management Plan (Reference 3595 501B) which details management prescriptions for each habitat type. The habitats to be created have been summarised here, with specific management aimed at wildlife and biodiversity detailed. Collington Winter Environmental Ltd has been involved in the planting specification and recommendations for proposed habitat types to maximise biodiversity potential within the site. Both reports should be read in conjunction.

## 4.1. AMENITY HABITATS

4.1.1. Soft landscaping immediately surrounding Unit 1 and the spine road is amenity in nature and more formal. Amenity grassland is proposed in areas along with ornamental shrubs and spine road trees. In addition, areas of native shrub are proposed. Whilst these habitats will be formal in nature, they will contain fruiting and flowering species which are of value to birds and bats and attract invertebrate prey to the site.

## 4.2. SUDS FEATURES

4.2.1. To the east of Unit 1, three SUDS features are proposed. These features are to be in the form of basins, with areas which constantly hold some water. Please refer to Proposed Drainage General Arrangement P02 (WYG) for full details of SUDS feature specifications.

4.2.2. The ability of the SUDS features to have both wet and dry areas allows more varied habitats to form and different aquatic and marginal vegetation to colonise. The pond will be initially planted with some aquatic species such as yellow flag iris, water mint and cuckoo flower which all have value for amphibians. The initial planting will provide some amenity value, however, will then be allowed to further establish naturally. The pond, once established, will provide value for a range of wildlife including birds, bats, terrestrial mammals and amphibians. Great crested newts are known to be present within the wider area, and the proposed green corridor through the wider South Heywood Development will connect the site with known breeding ponds. This could encourage the species to colonise the site, and the pond will be managed for amphibians.

4.2.3. Emorsgate EM8 Meadow Mix (or similar approved) will be planted around the perimeter of each SUDS feature, providing a transitional habitat between the amenity grassland and the water. The wildflower area will be more diverse and textured and provide terrestrial habitats for species such as amphibians.

4.2.4. The close proximity of native shrub to the SUDS will allow connection to other habitats of value within the local area. Therefore, colonisation of the waterbodies by amphibians could occur in the future. In addition, the waterbodies will act as drinking resources for a range of wildlife including bats, birds and terrestrial mammals.

## 4.3. WILDLIFE HABITATS

4.3.1. Around the eastern and southern boundary of Unit 1, more native informal habitats are proposed with the main purpose of wildlife enhancement and increasing diversity on site.

4.3.2. To the east of Unit 1, native shrub planting is proposed along the west of the wet ditch along Pilsworth Road along with species rich grassland and trees. These habitats will provide terrestrial habitat for a range of wildlife, as well as create a linear habitat feature associated with the wet ditch.

4.3.3. To the south of Unit 1, the start of the significant linear corridor through the wider South Heywood development begins. The corridor follows the route of the high-pressure gas pipeline and includes the existing Public Right of Way. Habitats proposed in this area are again informal to create a natural habitat corridor of value to wildlife. Native shrub mixes, wildflower meadows and species rich grassland are proposed within this area as well as trees. The existing hedgerow in this location is to be retained, and gaps in the hedgerow filled with native species to bolster the linear feature further. This habitat corridor is anticipated to become valuable for birds, bats, badgers and other terrestrial mammals. The feature will also provide good value foraging opportunities for barn owl which are known to be present locally.

4.3.4. Along the southern watercourse of the site, additional habitats are proposed to create a higher value riparian

corridor. The watercourse in this location is currently overgrown and choked by vegetation, with little water visible. Significant enhancements to the watercourse will be provided through thinning of vegetation and management of the feature. Vegetated berms are proposed at locations along the watercourse which will be planted with aquatic and marginal vegetation (referenced in the Planting Plans). The addition of berms, along with thinning of vegetation to create a higher value watercourse is anticipated to attract further wildlife to the site. Aquatic invertebrates could colonise the watercourse as well as water vole and otter which are known to be present within the wider landscape.

### 4.4. Earthworks Area

4.4.1. No landscaping has been proposed currently for the earthwork's areas of the site. Details for these areas would be provided under separate reserved matters applications for future phases of development.

4.4.2. However, it is known that the future phases will comprise further commercial warehouse units with associated car parking. Soft landscaping will be proposed around these units, linking with the proposed habitats described above. Further SUDS features will be provided, which will also serve to offer habitats for wildlife, as well as scrub, wetland planting, wildflower areas and native shrub mixes. The same ecological and landscape principles will appear, with informal and naturalistic habitat character sought around the edge of the site along plot embankments which will consist of trees, shrubs, scrub and grasses.

4.4.3. The future phases will also link to the linear green corridor along the high-pressure gas pipeline, which will create a significant feature within the local landscape.

## 5 HABITAT MANAGEMENT ON SITE

5.1.1.The principles detailed in this table are covered in more detail in the TPM Management Plan.

| HABITAT | MANAGEMENT | FREQUENCY | REMEDIAL MEASURES |
|---|---|---|---|
| **Native Hedgerow and Native Woodland Planting** | Check for scrub cover and invasive species.<br>Scrub (such as bramble) should not occupy more than 10% of the hedgerow. As required, scrub should be thinned using hand tools. | Checked once a year. | Removal should be undertaken in Autumn or early Spring, to avoid bird nesting season and avoid impacts on any wildlife over wintering within or under the hedgerow. |
| **Proposed Trees** | Pruning/ cutting as per tree surgeon advice through lifespan of the tree. | Checked once a year to ensure trees are growing and none have failed. | Any trees that have failed should be replaced. If it is found certain species are not growing well, the management company should consult the project ecologist for an alternative species to be used. |
| **Shrub and Scrub planting** | Scrub management to ensure the species are not taking over grassland or woodland areas. Should be no more than 10% scrub cover in grassland areas, and no more than 40% in woodland areas.<br><br>Scrub management will include removal using strimmers and hand tools. Any arisings should be left as log/ brash piles to provide habitat for hedgehogs and amphibians. | Once a year scrub cover should be checked by the management company and removal undertaken as required. | Scrub thinning as required. Removal should be avoided in late Autumn and over winter, as wildlife may be using the habitats to over winter. |
| **Wildflower Grassland and Species Rich grassland** | Late summer cut between August to September, carried out once or twice a year. Ideally using strimmers and allow arisings to be left on site to dry and drop seed before being removed | Once a year minimum in late summer. Autumn cut can also be undertaken if required. | Reseeding as required by manufacturer's instructions if areas become bare. |

| | | | |
|---|---|---|---|
| **SUDS Features** | Check for invasive plant species, fish and litter will be undertaken | Once a year between May- July. | Regular litter picks should be undertaken as part of regular habitat management, and litter should not be allowed to accumulate.<br>If fish or invasive species are found to be present, they should be removed from the pond as soon as practicable using best practice methods. An ecologist should be contacted for advice. |

# 6 SPECIES ENHANCEMENTS

## *6.1. BIRDS*

6.1.1. The site was assessed as providing habitats suitable for breeding birds. The proposed works will result in a loss of breeding bird habitat.

6.1.2. To enhance the site for birds post development, a series of bird boxes will be installed on new trees.

6.1.3. A total of 15 bird boxes will be installed within the site to offer nesting opportunities for passerine species anticipated to be present within the local area. The bird boxes will be installed on aspects facing between north and east with unrestricted access to the entrance holes. The boxes will not be installed near to security lighting, and locations with the least disturbance have been selected.

6.1.4. All boxes will be installed a minimum of 2-4 m from ground level. Please refer to the Enhancements Plan at the end of this report for locations of the bird boxes.

6.1.5. The following bird box specifications are recommended:

- Five 1B Schwegler Nest Box
- Five 1SP Schwegler Sparrow Terrace
- Five Vivara Pro Cambridge Brick Faced Swift Nest Box

6.1.6. Alternative brands can be used providing specification is the same or similar.

6.1.7. The bird boxes will be inspected every two years by a qualified ecologist. Where required, they should be cleaned, and any broken boxes replaced in the same aspect. Checks should only be undertaken outside of the breeding bird season (March – September inclusive) to avoid disturbing any nesting birds.

6.1.8. The POS areas proposed within the development will have enhanced value for breeding birds, with trees and scrub providing new nesting resources for the species, as well as fruiting species to act as a foraging resource. The wildlife pond could provide some value for wetland birds such as mallard.

## *6.2. BATS*

6.2.1. To enhance the site post development for bats, fifteen bat boxes are to be installed to provide roosting provision. The recommended bat box specification is Schwegler 2F Multipurpose bat box (or similar specification/ brand) which is suitable for crevice dwelling bat species such as pipistrelle which are known to be present locally around the site.

6.2.2. The bat boxes will be inspected every two years by a qualified ecologist who holds a Level 2 Natural England Bat License. The boxes should be inspected either in Spring or Autumn to avoid disturbing hibernating bats over winter, or bats with young in the summer.

6.2.3. Any broken boxes should be replaced in the same aspect, and the boxes should be cleaned/ maintained as required. If bats are located roosting, records of these should be shared with the local bat group and local environmental records centre.

6.2.4. The proposed landscaping within the site will provide value for bats by way of new foraging resources. The significant linear green corridor, as well as bolstered riparian corridor along the southern watercourse and enhanced hedgerow will create commuting resources for bats and allow the site to be linked to the wider landscape.

6.2.5. Once established the newly planted trees will also provide some bat roosting opportunities.

### *6.3. HEDGEHOG*

6.3.1. The site was found to have low value for hedgehog. To further enhance the site for the species, five hedgehog houses are to be installed within the linear green corridor as shown on the Enhancements Plan in the Appendix.

6.3.2. The hedgehog houses should be inspected yearly to determine integrity. Additional logs or structure should be added as required to maintain a sufficient habitat. Over time, vegetation will grow over the hibernacula which should be encouraged, though over choking by scrub should be managed. Checks for invasive species should be undertaken yearly.

6.3.3. The landscaped areas once established will provide habitats for hedgehogs by way of woodland and scrub.

### *6.4. MAINTANENCE SCHEDULE*

| SPECIES ENHANCEMENT | MONTH | YEAR | COMMENTS/ NOTES |
|---|---|---|---|
| Inspect, repair/ replace bat boxes as required | April- June or September – October | 1,3 and 5 | Inspection to be undertaken by a licensed bat worker. Damaged or missing boxes to be repaired or replaced. |
| Inspect, repair, clean, replace bird boxes | September – February | 1,3 and 5 | To be conducted outside of the breeding bird season. Damaged or missing boxes to be repaired or replaced. |
| Inspect and repair/ replace hedgehog boxes | April – August | 1,3 and 5 | Damaged boxes to be repaired/ replaced. If required, some scrub thinning around boxes to enable access. Cover should still be maintained around the box. |
| *Review of Management Plans* | *December* | *5* | *Management plan to be reviewed and revised as appropriate to encompass ongoing monitoring and management based on habitats current state.* |

### *6.5.* BODY RESPONSIBLE FOR IMPLEMENTATION OF THIS PLAN

6.5.1. Russells South Heywood Ltd is the master developer and owner of the new employment site – H Park. The Land Trust will be the overall Management Company, responsible for maintaining the landscape, including Unit 1 car park and associated landscape, the streetscape (verges and tree planting), areas of Public Open Space and attenuation. They will be responsible for inspecting the site and for keeping a logged record of inspections, faults and remedial actions. Any issues noticed by users of the site are to be reported directly to The Land Trust.

6.5.2. The Management Company will not only be taking responsibility for the delivery of the employment area, but also the proposed new residential areas to the east, and thus a comprehensive management philosophy is proposed for the wider masterplan.

6.5.3. The Management Company will secure funding from residents and occupiers, under separate agreements, ensuring long term management of the area.

6.5.4. The Land Trust is a charity that is committed to the long-term sustainable management of open space for the benefit of all users, with wealth of experience of maintaining large sites. They have a passion for green spaces and acknowledge the importance that such spaces have on wildlife and people's wellbeing and education.

6.5.5. The Land Trust has ownership or long-term management responsibility for over 2,000 ha of land with more than 50 sites across England.

6.5.6. Contacts details:

The Land Trust
7 Birchwood One
Dewhurst Road
Birchwood
Warrington
WA3 7GB

Telephone : +44 (0)1925 852005
Email : enquiries@thelandtrust.org.uk

https://thelandtrust.org.uk/

# 7 SUMMARY

7.1.1. This report has provided details to discharge Condition 25, as follows:

- Provided a description and evaluation of ecological habitats to be created and managed, as well as species to be targeted by management.
- Provided aims and objectives of management.
- Provided management options for achieving aims and objectives.
- Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five-year period).
- Details of the body or organization responsible for implementation of the plan
- Ongoing monitoring and remedial measures

7.1.2. Overall, the site will provide higher value for biodiversity and wildlife post development through the provision of additional habitats such as wildflower grassland, scrub, shrubs and trees. The site currently, being an active landfill with constant vegetation management offers limited value for wildlife, and thus development provides a significant opportunity for not only enhancements and ecological betterment on site, but the creation of a significant linear corridor for wildlife which will benefit species within the wider landscape.

# 8 REFERENCES


- Bat Conservation Trust (2018). Bats and Artificial Lighting in the UK: Bats and the Built Environment series.
- Collins, J. (ed) (2016). Bat Surveys for Professional Ecologists: Good practice Guidelines, 3rd Edition. The Bat Conservation Trust.
- Institute of Lighting Engineers (2005). Guidance Notes for Reduction of Obtrusive Light.
- E3P Ltd (2019) Updated Preliminary Ecological Appraisal Report. South Heywood, Reference 80-001-R3-

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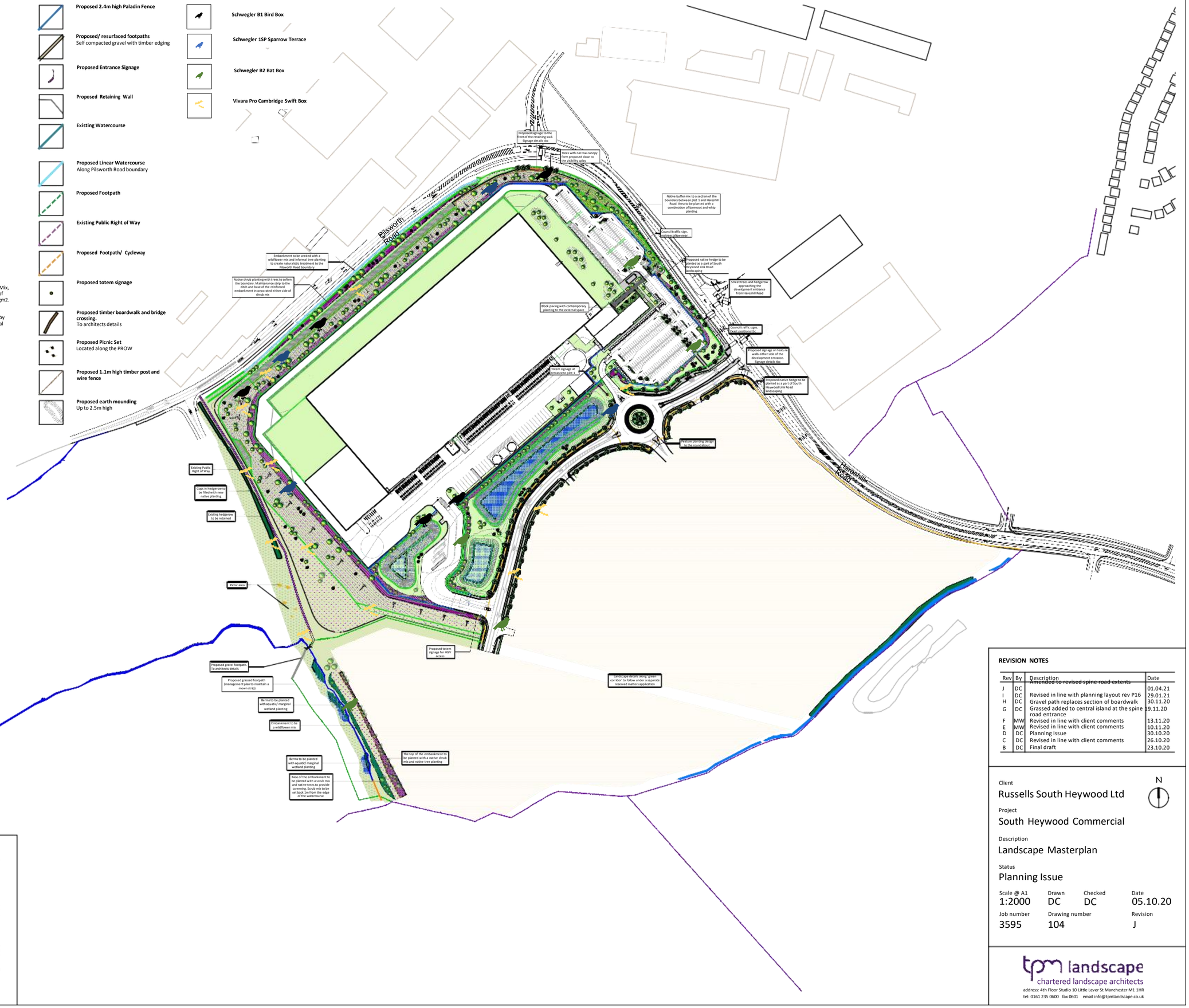
## LEGEND

- Existing hedgerows to be retained
- **Proposed Spine Road Trees** Semi- mature, 20-25cm girth, 6m high with 2m clear stem, secured with underground guys and irrigation pipe wrapped around root ball
- **Proposed Medium Size Trees** Extra heavy standards, 14-16cm, 4-5m high, secured with timber stakes
- **Proposed Small Trees** Selected Standard/ Heavy Standards, 10-12cm/12-14cm, 3-4m high, secured with single stakes
- **Proposed Box Headed Tree** To have a 2m clear stem and cube shaped crown (1.5 x 1.5 x 1.5m in size) and to be secured with underground guys and irrigation pipe around the rootball
- **Proposed Hedgerows** Native hedgerows planted to the site boundaries in a double staggered row, at 80-100cm high Evergreen hedgerows to be planted at 100-120cm high in 7.5-10L containers at a rate of 2-3 per lin. metre.
- **Proposed Shrub Planting** To be planted in 3-5L containers at a 3-4 p/m2 with feature specimens planted in 10-15L containers.
- **Proposed Woodland Mix** Bare root/ whip planting stock, of native tree species set at 1 p/m2 secured with spiral guards where necessary
- **Proposed Native Shrub Mix** To be planted at 60-80cm, bare root stock and native species at 2 p/m2 secured with spiral guards where necessary
- **Proposed Wildflower Meadow** To be Emorsgate EM2 Standard General Purpose Meadow Mix, supplied by Emorsgate or similar approved. Including 80% of ornamental grasses and 20% of wildflowers. Sowing rate 4/gm2.
- **Proposed Wildflower For Wetland Areas** To be Emorsgate EM8 SMeadow Mix for Wetland, supplied by Emorsgate or similar approved. Including 80% of ornamental grasses and 20% of wildflowers. Sowing rate 4/gm2.
- **Proposed Scrub Planting**
- **Proposed Marginal Aquatic Mix**
- **Proposed Species rich grassland**
- **Existing grassland retained and enhanced**
- **Proposed Amenity grass**

- **Proposed 2.4m high Paladin Fence**
- **Proposed/ resurfaced footpaths** Self compacted gravel with timber edging
- **Proposed Entrance Signage**
- **Proposed Retaining Wall**
- **Existing Watercourse**
- **Proposed Linear Watercourse** Along Pilsworth Road boundary
- **Proposed Footpath**
- **Existing Public Right of Way**
- **Proposed Footpath/ Cycleway**
- **Proposed totem signage**
- **Proposed timber boardwalk and bridge crossing.** To architects details
- **Proposed Picnic Set** Located along the PROW
- **Proposed 1.1m high timber post and wire fence**
- **Proposed earth mounding** Up to 2.5m high

- **Schwegler B1 Bird Box**
- **Schwegler 1SP Sparrow Terrace**
- **Schwegler B2 Bat Box**
- **Vivara Pro Cambridge Swift Box**




### GENERAL NOTES

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2. This drawing is to be read in conjunction with detail landscape drawings, details and specification.
3. This drawing is to be read in conjunction with all relevant Architects', Engineer's, Specialists, Bills of Quantities and Specifications.
4. The insertion of any firm or proprietary brand on this drawing is an indication of the class or quality required and does not exclude the use of alternative materials that are equal in performance, quality and appearance, provided that they have been approved in writing by the Landscape Architect.
5. The Contractor is responsible for accurately ascertaining the position of underground services and responding to all relevant service easement requirements.
6. All dimensions are in millimetres unless stated otherwise, for the purposes of construction this drawing must not be scaled and only written dimensions used. Written and scaled dimensions to be checked on site, any discrepancies reported prior to work commencing. IF IN DOUBT PLEASE ASK.
7. All work and materials are to be in accordance with the relevant British Standards and Code of Practice.
8. All Proprietary products are to be used strictly in accordance with the manufacturer's instructions and details.

### REVISION NOTES

| Rev | By | Description | Date |
|---|---|---|---|
| J | DC | ~~Amended to revised spine road extents~~ | 01.04.21 |
| I | DC | Revised in line with planning layout rev P16 | 29.01.21 |
| H | DC | Gravel path replaces section of boardwalk | 30.11.20 |
| G | DC | Grassed added to central island at the spine road entrance | 19.11.20 |
| F | MW | Revised in line with client comments | 13.11.20 |
| E | MW | Revised in line with client comments | 10.11.20 |
| D | DC | Planning Issue | 30.10.20 |
| C | DC | Revised in line with client comments | 26.10.20 |
| B | DC | Final draft | 23.10.20 |

N

Client
Russells South Heywood Ltd

Project
South Heywood Commercial

Description
Landscape Masterplan

Status
Planning Issue

| Scale @ A1 | Drawn | Checked | Date |
|---|---|---|---|
| 1:2000 | DC | DC | 05.10.20 |

| Job number | Drawing number | Revision |
|---|---|---|
| 3595 | 104 | J |

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# South Heywood Commercial

## (3595 501)

**Rev C (April 2021)**

## Landscape and Habitat Management Plan

**Client: Russells South Heywood Ltd**

Prepared by

Original: November 2020

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# 1.0 Introduction

## 1.1 General

TPM Landscape were commissioned by Russells South Heywood Ltd to produce a Landscape and Habitat Management Plan to discharge planning condition 25, specific to the new spine road, Distribution Centre and those areas of landscape as illustrated at Landscape Masterplan 3595 104J and 105H.

As future Reserved Matters come forward, providing new buildings and landscape, these will require this Landscape Habitat Management Plan (LHMP) to be updated with each submission, and submitted to discharge condition 25 for those specific works.

This report has been produced to ensure that the future management objectives are achieved for the longevity of the project following practical completion. Once approved, this report will provide guidance for the establishment, maintenance and future management of all external landscaped areas, planting around the site and ecological features.

## 1.2 Aims of the report

This report has been developed to establish long-term management objectives and practices for all of the private areas associated with Unit 1 car park and plot landscape, and 'public' external areas associated with the spine road, boundaries and areas detailed on the masterplan drawings. The planting along the spine road will be managed by the Management Company until the spine road is adopted. A decision will then be made if the Management Company manages this or the Council. Any variations will be updated in the Management Plan and agreed with the Council's Highways Authority.

The report presumes that all of the external elements have been built in accordance with the approved planning drawings:

- Landscape Masterplan – 3595 104J, 105H (appended to this document)
- Planting Plans – 3595 201F, 202D, 203G, 204E, 205F, 206E

The management report provides 12-month schedules, which are to be applied to 5-year guidance and actions. It is considered that these actions will continue beyond the 5-year period to a minimum of 15-year period unless identified within the text of the report.

A clear understanding of the design aims and intentions will help to ensure that the landscape reaches maturity in the form in which it has been designed.

## 1.3 Site Maintenance and Responsibility

Russells South Heywood Ltd is the master developer and owner of the new employment site - H Park. The Land Trust will be the overall Management Company, responsible for maintaining the landscape, including Unit 1 car park and associated landscape, the streetscape (verges and tree planting), areas of public open spaces, and attenuation. They will be responsible for inspecting the site and for keeping a logged record of inspections, faults and rectified works. Any issues noticed by users of the site are to be reported directly to the Land Trust. The Public Rights of Way will be maintained by the Land Trust and that will include mowing of the grass pathways and litter picking.

The Management Company will not only be taking responsibility for the delivery of the employment area, but also the proposed new residential areas to the east, and thus a comprehensive management philosophy is proposed for the wider masterplan.

The management company will secure funding from residents and occupiers, under separate agreements, ensuring long-term management of the area.

**Who are the Land Trust**

The Land Trust is a charity that is committed to the long-term sustainable management of open space for the benefit of all users, with wealth of experience of maintaining large sites. They have a passion for green spaces and acknowledge the importance that such spaces have on wildlife and people's well-being and education.

The Land Trust has ownership or long-term management responsibility for over 2,000 ha of land with more than 50 sites across England.

Contacts details:
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*7 Birchwood One*
*Dewhurst Road*
*Birchwood, Warrington*
*WA3 7GB*

*Telephone : +44 (0)1925 852005*
*Email : enquiries@thelandtrust.org.uk*
*https://thelandtrust.org.uk/*

**Objectives**

The overall objectives for the maintenance of the landscape include the following;

- Maintain all grassed areas as healthy and biodiverse grassland;
- Allow shrubs and flowers to reach their species potential to ensure that they produce flowers and seed heads and grow in their natural shape and form to provide texture and interest;
- Ensure that proposed and retained trees maintain a healthy and safe condition and are allowed to reach their potential form and characteristics;
- Maintain wildflower meadow to support establishment and allow a diverse mix of flowers and grasses to thrive;
- Keep all hard surfaced areas and paths in a good state of repair and free from any potentially dangerous arisings that could cause a slip or trip hazard or reduce visual quality;
- Ensure that all ecological enhancement features and habitats are looked after and maintained in a good condition in line with ecologist recommendation;
- Ensure that all furniture and features are looked after and maintained in a good state of repair and safe condition so that they do not fail or have the potential to cause harm to users.
- SUDs to be maintained as an attractive feature with a clean and tidy appearance.
- Ensure the site is free from litter and deleterious material to maintain a clean and tidy appearance.

# 2.0 General Description

## 2.1 Existing Context

The proposal site is on the southwestern edge of Heywood, Rochdale and is an existing area of rough grassland that has a two brooks running through the site along part of the north western boundary and the southwestern boundary.

The majority of the existing site is rough grassland. Existing trees are mainly situated along the northern boundary and surrounding area of the most northern brook. A hedgerow cuts through the site from north to south and east to west in the south of the site. Smaller hedgerows are located in the north western area of the site.

Pilsworth Road runs along the northern boundary of the development site and Hareshill Road along the eastern boundary. A commercial/ industrial area lies to the north and east of the site and fields to the west and south.

## 2.2 Site Proposals

The proposal is for the development of a distribution unit, spine road infrastructure linking off Hareshill Road and associated car park, service yard and landscaping. The principles set out in this management report are to be applied for future phases as they come forward.

**Key objectives**

The landscape associated with this development and future phases of the masterplan are to be managed in line with the following key objectives:

- Improve and promote new ecological corridors
- Retain and enhance existing hedgerows
- Incorporate new buffers to site boundaries
- Compliment and support new and existing watercourses

The private landscape associated with each individual plot will be the responsibility of the private properties and the Land Trust. All other areas will be managed and maintained by the management company. These areas are listed below with a brief description of the design rationale that should be considered through all management operations.

**Site Entrance**

The main access point to the eastern parcel of the site will be off Hareshill Road. This entrance to the development is marked by a feature wall, avenue tree planting and native hedgerows. These soft landscape features alongside a feature wall aim to provide formality to the arrival point of the development, as well as providing seasonal interest and give structure to the street scene. The access road intersects roughly through the centre of the site before curving southwards. Along its length are avenue trees, shrub planting and grass verges.

**Public Open Space**

The soft landscape features are to be maintained to provide an attractive setting to the distribution unit. Generally, the public open space will consist of retained tree and hedgerow, native tree planting, topiary, hedgerow planting, native and ornamental shrub planting, woodland planting, wildflower meadows, scrub/marginal planting, species rich grassland, retained grassland and attenuation areas. Hard landscape within the site consists of railings, fencing, footpaths, edges, signage, retaining walls and furniture.

Attenuation areas form part of the public open space through the centre and in the southwestern parcel of the site. Natural swales are located along part of Pilsworth Road in the north and within the POS towards the southern boundary. A footpath cuts through the centre of the site north to south and follows the southern boundary line to Hareshill Road in the east.

## 3.0 Health and Safety

The following potential hazards have been identified within the proposed development site that may have implications for maintenance operations:

- Contractors working on the site should make themselves aware of the location of underground services, defining the exact locations with the Statutory Authorities prior to commencing works below the surface;
- Working in areas used by general public and visitors; on foot, on bicycles, in wheelchairs and vehicles; ensuring surfaces are kept clear at all times and potentially dangerous tools or machinery are not left lying around.
- Working at elevated positions;
- Working adjacent to and on highways;
- Lifting heavy objects and working with heavy machinery;
- The use of chainsaws, working at height and with heavy objects during tree works;
- The possibility that hazardous material may be deposited in or inadvertently left in areas requiring cleaning (glass, etc.); and
- Working adjacent to or within water in and around the attenuation areas and swales.

Methods for reducing the potential site risks are well established and are common practice of competent contractors. The contractor is expected to identify the hazards associated with any maintenance operations, together with an assessment of the risks involved and methods for reducing the risks. The Risk Assessment should be recorded and retained for reference in the future if necessary.

### 3.1 Site Operations

All operations on site are to be carried out by suitably qualified operatives with appropriate safety clothing and equipment. The maintenance contractor is to adhere to the latest guidance on safe working practice, including information from the recognised industry body, the local authority and the government Health and Safety Executive. The maintenance contractor is to carry out all operations with regard to the safety and welfare of the general public, private and public property, domestic and native flora and fauna and Statutory Services.

### 3.2 Disposal of materials from site

All, rubbish, leaves, grass and general arisings removed from the site are to be deposited at a licensed tip and recycling facility in the appropriate section.

# 4.0 Hard Elements

Maintenance operations are to be carried out in order to provide a clean, inviting and safe environment for all users of the site. For the purposes of this report, it is assumed that all the works required by the planning approval have been carried out in accordance with the approved drawings.

All paving, kerbs, edges, walls and street furniture should be fit for purpose, robust and in good condition. Any damage arising from the management and maintenance works must be reinstated to the original condition and in accordance with the relevant specification of the client.

All hard works to be installed under the recommendations of the manufacturer's instructions. Hard works should not be carried out in undesirable weather conditions.

## 4.1 Pedestrian Surfaces and Roads

Maintenance objective

Pedestrian surfaces and roads are to be maintained in a safe and clean condition free from any defects, weeds or debris that could potentially cause injury, inaccessibility or damage to vehicles. Surfaces are to be level and free from trip or slip hazards.

Inspections

A formal visual inspection is to be carried out by the maintenance contractor at 6 monthly intervals or following reports from the client / public that surfaces require repairing, cleaning or clearing following inclement weather. A report of the inspections and rectified works should always be logged.

An annual inspection of the paving jointing and overall uniformity should be carried out to ensure the stability of the footways is maintained.

Contractors Maintenance Operations

Surfaces are to be kept free of litter, mud, arisings, deleterious material, algae, hazardous obstructions and fly tipping. Surfaces are to be uniform in appearance, a level surface and constructed from a homogenous material, free from ruts, grooves, cracks, hollows and potholes (holes greater than 75mm in diameter and 10mm depth).

Paved areas and rights of way including those with a self-compacted gravel surface are to be repaired within 1 week of a reported fault, unless the potential hazard is severe (trip hazard) in which case the area is to be cordoned off and repaired at the earliest available opportunity.

All surfaces and foundations are to be repaired to the original specification, unless otherwise agreed with the service provider.

One operation per month (within month / months specified) - **1**
Two operations per month (within month / months specified) - **2**
Four operation per month (within month / months specified) - **4**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Litter and Fly tipping** | | | | | | | | | | | | | |
| Visual inspection of site | | | | 1 | | | | | | 1 | | | Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required. |
| General Cleaning and clearance across site | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Keep surfaces free of litter, leaves, mud, arisings and any hazardous objects. Sweep and remove any arisings. |
| Bin Emptying | 1 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 1 | 1 | 1 | 1 | Increased emptying of bins during summer. |

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Pedestrian Surfaces and Roads** | | | | | | | | | | | | | |
| Visual inspection of footways, roadways and paving areas | | | | 1 | | | | | | 1 | | | Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required. |
| General cleaning of paving | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Keep surfaces free of litter, leaves, mud, arisings and any hazardous objects. Sweep and remove any arisings, keep all areas weed free. Any build up of moss or algae should be treated as required to ensure surfaces are not slippy or dangerous. |
| Clean paved areas annually by relevant washing techniques for varying materials e.g. granite/concrete | | | | | | 1 | | | | | | | (acid and bleach should not be used) |
| Apply sealant to paving | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | (as required after cleaning) |
| Apply herbicide | | | | | | 1 | | | | 1 | | | Apply to weeds if appear between paving, when weeds have been suppressed hand hoe out and refill mortar joints |
| Repair | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | Repair surfaces when reported or inline with faults as identified in the inspections report. Repair to original specification. Check grouting to paving and reinstate where necessary |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ensure water is drained from footways to prevent pooling | | | | 1 | | | | | | 1 | | | When specified or as necessary after prolonged periods of wet weather |
| Clear snow from pathways and roads | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | Clear snow following adverse weather (a/r) and apply suitable grit to key vehicle and pedestrian access routes (avoid plant areas). |

### 4.2 Boundaries - Gates, Fences, Railings

Maintenance objective

Gates, railings and fences are to be maintained in a secure, safe and clean condition and in good working order.

Inspections

A formal visual inspection is to be carried out at six monthly intervals or following reports from the client / users of the site that a fault or damage has occurred. A report of the inspections and rectified works should always be logged.

Maintenance Operations

Gates, railings and fences are to be kept free of litter, deleterious material and hazardous protuberances. Surfaces and finishes are to be maintained uniform in appearance and coated in a homogenous paint, stain, enamel, or plastic coating in accordance with the original specification.

All items are to be repaired within 1 month of a reported fault, unless the potential hazard is severe, in which case the area surrounding the fault should be cordoned off and the boundary made secure, the fault should be repaired at the earliest available opportunity.

Repaint/stain railings, fencing and gates as required if the paint starts to flake off and look unsightly to the same specification as the original ensuring that any rust is removed and the surface prepared and primed before the paint is applied.

These works will be the sole responsibility of the contractor and at all times the boundaries should be maintained in sound condition.

One operation per month (within month / months specified) - **1**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Boundaries – Gates, railings, Fences** | | | | | | | | | | | | | |
| Visual inspection of boundaries | | | | 1 | | | | | | 1 | | | Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required. Repair if required |
| Clean metalwork | | | | | | 1 | | | | | | | Carry out annually, removing dust and dirt being careful to not remove or damage surface finish. |
| Re-paint / Re-stain | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | As required following inspection |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Strip back and repaint metalwork to match existing | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | Every 5years or as required following inspection |

### 4.3 Edges - Kerbs, Edging and Walls

Maintenance objective
All 'Edges' should be maintained in a safe and clean condition and fit for purpose. All cladding, copings kerbs should be secure and firmly in place.

Inspections
A formal visual inspection is to be carried out at six monthly intervals or following reports from the client / users of the site that a fault or damage has occurred. A report of the inspections and rectified works should always be logged.

Maintenance Operations
All 'Edges' are to be kept free of litter, deleterious material and hazardous protuberances. Surfaces are to be maintained uniform in appearance and with seamless levels vertically and horizontally for copings and cladding. Grout mortar between kerbs, cladding and copings to be inspected and topped up where necessary with matching colour. Metal and timber edging to be neat and secured firmly in place and aligned straight, or follow smooth uniform curves. Loose edging to be reinstated and secured. Any damaged edging to be removed and replaced with same specification.

Faults are to be repaired within 1 month of a reported fault, unless the potential hazard is severe, in which case the area surrounding the fault should be cordoned off, the fault should be repaired at the earliest available opportunity.

These works will be the sole responsibility of the contractor and at all times the edges should be maintained in sound condition.

One operation per month (within month / months specified) - **1**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Edges – Kerbs, Edging & Walls** | | | | | | | | | | | | | |
| Visual inspection of edges | | | | 1 | | | | | | 1 | | | Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required. |
| Clean edges | | | | | | 1 | | | | | | | Carry out annually and remove detritus / chewing gum using a stiff brush and soapy water. |
| Apply anti-graffiti coating to raised edges if misuse becomes apparent | | | | | | 1 | | | | | | | Carry out once a year or as necessary |
| Apply non residual herbicide | | | | 1 | | | | | | 1 | | | Apply herbicide to spot treat weed problems. Hand removal after herbicide has taken effect |

### 4.4 Street Furniture – Picnic Sets, Litter Bins, Signage

Maintenance objective

All street furniture should be maintained in a safe and clean condition. Surfaces should be smooth to the touch (avoiding potential for splinters/ injury), fixings secure and flush with the finished surface. The wood structures should be sound avoiding the potential for failure due to rot.

Inspections

A visual inspection is to be carried out at six monthly intervals or following reports from the client/ users of the site that a fault/ damage has occurred. A report of the inspection should be logged.

Maintenance Operations

Any timbers that have originally been stained should have the wood stain (or similar approved) reapplied annually in the spring to rejuvenate the appearance of the wood. The wood should be pressure treated timber, however if this is not the case then the wood should be treated with a wood preserver at least once every two years (this could be combined with the wood stain application if the colour or products matches the original specification). Repainting street furniture should be done immediately following the descaling of rust.

Clean metalwork, including signage to ensure that the face can be clearly read. Remove any rust, bird droppings, graffiti, litter, debris etc.

The street furniture should be repaired within 1 month of a reported fault. If the section of wood/metal that is damaged or rotten should be replaced with a piece of timber/metal of the original specification. Where the fault may cause a risk to the user of the site the item should be cordoned off until the fault is repaired.

One operation per month (within month / months specified) - **1**
Two operations per month (within month / months specified) - **2**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Street Furniture – Picnic Sets, Litter Bins, Signage** | | | | | | | | | | | | | |
| Visual inspection of furniture | | | | 1 | | | | | | 1 | | | Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required. |
| Clean any metalwork | | | | | | 1 | | | | | | | Carry out annually and remove detritus / rust.<br><br>Remove bird droppings and graffiti. |
| Empty litter bins | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | Empty litter bins on a weekly basis. |
| Repair | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | Repair street furniture when reported or in line with faults as identified in the inspections report. Repair to original specification. |
| Re-paint/ re-stain as required | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | Repainting street furniture should be done immediately following the descaling of rust. |

# 5.0 Soft Elements

For the purposes of this report it is assumed that all planting and initial tree work has been carried out inline with the approved planning drawings and any failed plants or trees replaced by the original contractor at the end of the 12 months Rectification Period;

## 5.1 Existing Trees and Hedgerows

Objectives
Retain all existing trees and hedgerows as indicated on the approved plan to preserve their contribution to the visual amenity and enclosure of areas. Ensure that the trees continue to thrive and to provide visual amenity to the area.

Ensure that trees and hedgerows are maintained in a safe condition and do not cause any obstructions on site or pose any health and safety risk (same applies to the off-site trees overhanging into the site).

All tree works undertaken should comply with British Standard 3998 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.

Works to trees will be carried out in accordance with British Standard BS 5837: Tree Protection Measures. All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - September inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist. No ground works or storage of materials should take place within these areas.

Inspections
The existing trees and hedgerows should be inspected annually by a suitably qualified arboricultural consultant for a period of 5 years post completion to ensure that they are in good health and are not hazardous to the users. Further inspections may also be required following severe winds and storms, or following a report by a member of the public.

Maintenance Operations
Any works proposed should be solely for the purpose of ensuring the health and safety of the users of the site, staff and general public and to promote longevity of the trees and hedgerows. Any works carried out on the off-site trees overhanging into the site should be with the prior consent of the landowner. Any tree or hedgerow works should be carried out to avoid the bird-breeding season. It is the contractor's responsibility to ascertain if any trees are covered by Tree Preservation Orders, and if so to gain the appropriate consent from the local authority. Avoid carrying out any works to hedgerows when full of berries, to preserve its ecological value and valuable food source to wildlife.

**Hedgerows:** Lightly trim the tops and sides of existing hedge on an annual basis to maintain existing height and width.

Long-term Management
Routine pruning should include the following operations:

- The removal of dead, diseased, damaged or dying branches only where they pose a risk to the health and safety of the users of the site.

- The removal of vegetation where it is obscuring lighting columns or restricting access.
- Inspection and reporting of any incidence of pests and diseases which could cause trees or limbs to fail.
- Any surgery to existing trees must maintain the natural shape of the tree, after any tree works the trees should not appear to be topped or lopped.
- No tree works should be carried out on parts of the tree which are outside of the site boundary (only overhanging branches can be cut back). If a tree appears dead/ dying or dangerous then the land owner must be contacted immediately and the appropriate action taken to prevent harm or damage to people and property.

These works will be the sole responsibility of the contractor or appointed arboriculturalist.

One operation per month (within month / months specified) - **1**
Two operations per month (within month / months specified) - **2**
Four operation per month (within month / months specified) – **4**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Existing Trees and Hedgerows** | | | | | | | | | | | | | |
| Visual inspection of trees and hedgerows | | | | | | | | 1 | | | | | Inspect trees/hedgerows for signs of disease, damage or as required following adverse weather. replant if necessary |
| Remove dead, diseased or damaged limbs to promote a healthy shape to the hedge | | | | | | | | 1 | | | | | Avoid bird nesting season |
| Prune to retain shape | | | | | | | | 1 | | | | | Avoid bird nesting season |
| Remove and dispose of accumulation of winter leaves. | | | | | | | | | | | 1 | 1 | Check leaves for mammals before disposal as mammals may be in hibernation. Only to be carried out on areas that affect public access such as surfaced footpath routes, vehicle carriageways and car parks. |

## 5.2 Proposed Trees

Objectives

Trees will play an important role in providing structure to the landscape proposals and will provide a valuable asset to the site, provide screening and contribute to the visual amenity of the local area. Therefore, it is important that they are given the best chance of successful establishment.

Inspections

Inspect on an annual basis when the trees are in full leaf to ensure that the trees are thriving, and record defects requiring remedial works.

Maintenance Operations

Newly planted trees take some time to establish, and until this occurs, they are subject to competition from weeds. Any weeds should be removed by hand from the base of each tree and 75mm deep mulch maintained around the trunk. For woodland areas weed growth may be removed by applying a herbicide spray to the base of saplings during autumn or early spring before trees are in leaf.

If the trees show signs of poor growth or reduced vigour an application of the appropriate fertiliser can be applied. If the trees do not improve with the fertiliser treatment, further investigations should be carried out, including the ground conditions for signs of compaction, contamination, poor quality topsoil. Remediate any problems uncovered with the soil. Should the remediation works not resolve the problem a replacement tree may need to be planted to replace the dead/dying tree.

During establishment trees will require regular watering particularly during prolonged dry periods. Mulch should also assist in retaining moisture within the soil. Water the spine road trees a minimum of once every two weeks during periods of limited rainfall over May-September (during the first full growing season) ensuring that the soil is fully saturated. Ensure all irrigation pipes are free from debris. Water shall be applied at 40litres per individual tree. Where water restrictions apply (hosepipe bans, drought orders) an alternative supply of water shall be used if possible.

Tree ties should be inspected twice annually as part of the general maintenance visits and adjusted accordingly. Damaged ties or stakes should be replaced. When the trees are established and can support themselves the ties should be carefully removed and the stakes cut down to ground level. This operation is likely to be required after 3 to 5 years dependant on establishment rates, stability and growing conditions. Underground tree guys, tree stakes and tree ties should be inspected twice annually as part of the general maintenance visits and adjusted accordingly. Damaged guys/ties should be replaced. Guys/ties will require adjusting as it is likely to take 3 to 5 years for the trees to establish dependant on stability and growing conditions.

Pruning of young trees should not generally be required unless they have dead or diseases branches, except on topiary trees. In such cases the tree branch should be pruned back (using a sharp clean knife) to an outward facing bud whilst maintaining the natural shape of the tree.

Topiary trees located on the roundabout centre are to be maintained to the shape of which they are specified on the approved plan.

These works will be the sole responsibility of the contractor, and where required a qualified arboriculturist, and at all times trees should be maintained in good health and in a safe condition.

One operation per month - 1
Four operations every month – 4

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Trees** | | | | | | | | | | | | | |
| Visual inspection of trees | | | | | 1 | | | | | | | | Inspect trees for signs of disease, damage or as required following adverse weather. Replant if necessary. |
| Slow release fertiliser | | | | | 1 | | | | | | | | Only when necessary. |
| Weeding/ mulch | | | | 1 | 1 | 1 | 1 | 1 | 1 | | | | Remove weeds and top up mulch (mulch topped up once annually) to retain a weed free around the base of each tree. |
| Tree stakes and ties | | | | 1 | | | | | 1 | | | | Check and adjust, replace or remove as required until the tree has established. Check and re-adjust after strong winds. Remove in year 3-5 or as required. |
| Tree guying | | | | 1 | | | | | 1 | | | | Repair and adjustment. Check and re-adjust after strong winds |
| Watering (Spine Road trees only) | | | | | 2 | 2 | 2 | 2 | 2 | | | | Water once every two weeks during the growing season and as necessary in periods of drought only during the first 2 years until the trees have established. |
| Routine pruning | | | | 1 | | | | | 1 | | | | Should not be required for the first few years, except on topiary, after which pruning should only include the removal of dead or diseased branches. |
| Tree Replacements | 1 | 1 | | | | | | | | | 1 | 1 | Any trees that have failed should be replaced to the original specification and planted within the next planting season. |

## 5.3 Proposed Hedgerow Planting

Objectives

The hedgerow should be maintained to support strong early establishment and ongoing development to form a thriving hedgerow, which will provide important habitats for birds and mammals.

Inspections / Monitoring

Inspect the hedgerows twice annually when they are in full leaf to ensure that they are thriving and record gaps which need filling with additional plants or trimming to encourage growth to fill gaps. Record if there are any areas of significant failure to thrive which may require remedial works to the soil. Ensure the shelter guards are intact, installed correctly and are not restricting growth.

Short Term Management Operations (5 years)

Newly planted whips and bare rootstock take some time to establish, and until this occurs, they are subject to competition from weeds. To reduce competition, an area around the plants should be maintained with an area of bark mulch around the base and kept weed free. Herbicides should be avoided if possible unless grass and weeds are affecting the establishment of the plants. After 3-5 years or after the plants have established this should not be necessary. If they show signs of poor growth or reduced vigour an application of the appropriate fertiliser should be carried out.

Any failed shrubs should be replaced to the original specification; however, this should be carried out outside of the bird-nesting season.

During establishment, the evergreen hedgerow may require regular watering particularly during prolonged dry periods during the summer months. Watering should take place a minimum of once every two week during periods of limited rainfall over May-September (during the first full growing season) ensuring that the soil is fully saturated.

Shelter guards, canes and ties should be inspected and adjusted accordingly to ensure they are not restricting growth. Damaged guards, canes or ties should be replaced. When the plants are established and can support themselves the guards, canes and ties should be removed to avoid constricting growth. This operation is likely to be required after 3 to 5 years dependent on establishment rates, stability and growing conditions. The guards should be checked after strong winds and reaffixed where necessary.

Trimming the top of the hedgerows should be avoided until the desired height has been reached; 1.5m along site boundaries, 1.2m internally along footpaths and 0.6m within centre of roundabout to maintain visibility. The sides of the hedgerow can be trimmed to encourage dense growth. Trim on an annual basis during the spring to promote bushy growth during years 1-4.

Long Term Management Operations (5+ years)

More regular / routine pruning of the hedgerow on establishment should only be carried out on the hedgerow to retain the desired height or if branches are obstructing publicly accessible areas/ lighting and they pose a potential safety risk. These operations should include the following operations:

Remove dead, diseased, damaged or dying branches where they pose a risk to the safety of the users of the site. (Dead wood is an important habitat for wildlife within a healthy woodland ecosystem and should not be removed unnecessarily).

After the hedges have established lightly, trim annually back to the desired height.

These works will be the sole responsibility of the contractor, the hedgerows should not be allowed to exceed the height as specified above to ensure visibility and safety across the site is not compromised.

One operation per month - 1
As required - a/r

**First 5 years**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Hedgerow** | | | | | | | | | | | | | |
| Visual inspection of hedgerow | | | | 1 | | | | | 1 | | | | Inspect hedgerow for signs of disease, damage or as required following adverse weather, replant if necessary |
| Inspect hedges after strong winds (as required) | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | Repair and adjustment. Check and re-adjust after strong winds and firm ground at base |
| Slow release fertiliser | | | | | 1 | | | | | | | | Only when necessary |
| Weeding/ mulch | | | | 1 | 1 | 1 | 1 | 1 | 1 | | | | Remove weeds and top up mulch (mulch topped up once annually) to retain a weed free around the base of each tree. Report any non-native invasive species and carry out process for removal in accordance with national legislation. |
| Shelter guards, canes and ties | | | | 1 | | | | | 1 | | | | Check and adjust, replace or remove as required until the plants have established. Check and re-adjust after strong winds. Remove in year 3-5 or as required. |
| Watering | | | | | 2 | 2 | 2 | 2 | 2 | | | | Water once every two weeks during the growing season and as necessary in periods of drought only during the first growing season until the vegetation has established |
| Routine pruning/ trimming | | | | 1 | | | | | 1 | | | | Pruning/trimming should only be carried out to maintain desired height or where in close proximity to public access, or where they pose a potential safety risk |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Replacements | 1 | 1 | | | | | | | | | 1 | 1 | Any plants that have failed should be replaced to the original specification and planted within the next planting season |
| Remove and dispose of accumulations of winter leaves | | | | | | | | | | | 1 | 1 | To be carried out to reduce risk of slipping and to maintain a tidy environment |
| Weed control and tidying at base of hedgerow | | | | | 1 | | 1 | | | | | | Remove and dispose of weeds |

**5 + years**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Hedgerow** | | | | | | | | | | | | | |
| Visual | | | | 1 | | | | | 1 | | | | Inspect shrubs for signs of disease, damage or as required following adverse weather, replant if necessary |
| Weeding/ tidying at base of hedgerow | | | | 1 | | | | | 1 | | | | Remove weeds (mulch should not be required). Report any non-native invasive species and carry out process for removal in accordance with national legislation |
| Routine pruning/trimming | | | | 1 | | | | | 1 | | | | Pruning/trimming should only be carried out to maintain desired height and where in close proximity to public access, or where they pose a potential safety risk |
| Deadwood | | | | 1 | | | | | 1 | | | | Large woody material (girth of over 10cm) should be collected to create log piles within the woodland areas. Other deadwood to be retained unless cause identified as being due to disease or if the deadwood poses a risk to public safety |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Remove and dispose of accumulations of winter leaves | | | | | | | | | | | 1 | 1 | To be carried out to reduce risk of slipping and to maintain a tidy environment. To be applied to areas affecting public footpaths or roadways. |

### 5.4 Proposed Ornamental Shrub Beds

Objectives

The shrub beds should have total vegetation cover with no gaps as they establish in order to minimise maintenance requirements, and to provide a neat and tidy appearance to the proposed landscape setting. The pruning operations should be carried out under guidance of a horticulturally qualified manager, with a view to allowing the shrubs and herbaceous plants to achieve their species potential in terms of form, flower and structure.

Inspections

Inspect the shrub beds twice annually and record gaps that need filling with additional plants, areas thinned, or pruning operations to encourage growth to fill gaps. Where there has been a significant failure of plants to thrive, carry out investigations to locate the source of the problem and consult the landscape architect prior to replacement planting.

Maintenance Operations

Newly planted areas take some time to establish. Until this occurs, young plants are subject to competition in their root zone from weeds. During this time, weeds should be removed by hand and the bark mulch should be maintained to the original specified depth (75mm) until the canopies meet. After which weed growth should be more suppressed and only localised weeding should be required.

During establishment, all the plants will require regular watering particularly during prolonged dry periods. Water the shrub beds min once every two week during periods of limited rainfall over April-September (during the first full growing season) ensuring that the soil is fully saturated. Watering should be undertaken by low-pressure hose sprinkler or evenly sprayed over the whole area at a rate of 25litres/m2. Ensuring watering is not undertaken during the heat of the day to avoid scorching of the plants.

Routine annual pruning of shrubs should not be required within the first three years, although some of the herbaceous plants and flowering shrubs should be maintained in accordance with the list below to encourage new growth and longer flowering periods.

In years one to three, newly planted shrubs will be lightly trimmed to encourage dense growth. After three years, the shrubs will be maintained on a two year cycle, cutting only half of the stock within the site annually to ensure that there is a continuous supply of fruit during the winter months for birds and small mammal species.

Shrubs that grow over paths or obscure sight lines should be pruned. Should individual species grow excessively during the first five years, pruning should consist of the removal of individual branches to maintain the natural shape of the plant or selective thinning.

Herbaceous Plants General; these are the plants which generally have soft stems and will die back in the winter months. Any dead stems and leaves should be tidied up in the spring when the threat of frost has gone. Old and dead vegetation can be cut with secateurs back to the base or gently pulled by hand, to

encourage the new growth to push through, arisings should be disposed of in the green waste. Allow seed heads to remain on the plants for winter interest and insect habitats. Some herbaceous plants can be spilt and replanted if they start to become open or scruffy.

Some of the more prolific early summer flowering plants will benefit from a light prune after flowering to encourage a second flowering in early autumn, prune the plants back to young new leaf growth removing all of the old flower heads.

Grasses; Seed heads on the grasses should be allowed to remain on the plants throughout the winter for visual interest. In the spring for deciduous grasses cut back old seed heads and any dead vegetation to encourage new growth.

Specimen shrubs in planting beds; allow the shrubs to establish as individual specimens, in the case of the multi stemmed woody shrubs, clear leaves from the base to allow herbaceous vegetation and shrubs to establish underneath.

Cornus; the shrubs should be reduced in height to 300mm every three years in the spring to encourage strong stem colour and vigour

One operation per month (within month / months specified) - **1**
Two operations per month (within month / months specified) - **2**
Four operation per month (within month / months specified) - **4**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Ornamental Shrub Beds** | | | | | | | | | | | | | |
| Visual inspection of shrubs and perennials | | | | 1 | | | | | 1 | | | | Inspect Plants for signs of disease, damage or as required following adverse weather. replant if necessary |
| Hand weed | | | | 1 | 2 | 2 | 2 | 2 | 1 | | | | Hand weed beds up to once a fortnight during the summer months, remove weeds and tidy up the bark mulch surface. If necessary treat prolific weeds with a non-residual glyphosate based herbicide ensure that after the weeds have died, they are removed to prevent the bed from looking unsightly. |
| Watering | | | | | 2 | 2 | 2 | 2 | 2 | | | | Water once every two weeks during the growing season and as necessary in periods of drought only during the first two years until the shrubs have established. |
| Mulch | | | | 1 | | | | | | | | | Top up mulch in the spring once the bed has been weeded, this should not be required after year 3-5 when the planting has established. |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Plant replacement | 1 | 1 | | | | | | | | | 1 | 1 | Replace dead and dying plants to original specification during the next planting season |
| Remove dead foliage and old flower stems | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | Remove and dispose of foliage and stems. If diseased, remove as necessary as soon as possible. |
| Apply slow release fertiliser | | | | 1 | | | | | | | | | Only if plants have shown signs of poor health in the previous season. Apply a slow release fertiliser or well-rotted manure in the spring. |
| General pruning | | | | 1 | | | | | | | | | Should not be required in the first 1-3 years, however remove any branches that are obstructing paths, growing into the grassed areas or taking over other plants in the bed. |
| Selective thinning | | | | 1 | | | | | | | | | In year 5 when the plants have established, thin out plants if overcrowded in the bed. |
| Plant specific maintenance | | | | 1 | | | | | | | | | For maintenance of Cornus and Viburnum carry out specific maintenance operations as fully described in item 5.5 |
| Clear snow | a/r | a/r | a/r | a/r | | | | | | a/r | a/r | a/r | Remove snow from foliage after excessive fall if weight of accumulation may cause damage |

### 5.5 Native Shrub Mix

Objectives

The native shrubs should be maintained to ensure strong early establish and ongoing development to form a buffer. They will also provide important habitats for birds and mammals.

Inspections / Monitoring

Inspect the shrubs annually when they are in fully leaf to ensure that they are thriving and record defects requiring remedial works. Ensure the shelter guards are intact, installed correctly and are not restricting growth.

Management Operations

Newly planted bare rootstock take some time to establish, and until this occurs, they are subject to competition from weeds. To reduce competition, an area around the plants should be maintained with an area of bark mulch around the base and kept weed free. Herbicides should be avoided if possible unless grass and weeds are affecting the establishment of the plants. After 3-5 years or after the plants have established this should not be necessary. If they show signs of poor growth or reduced vigour an application of the appropriate fertiliser should be carried out.

Any failed shrubs should be replaced to the original specification; however, this should be carried outside of the bird nesting season.

During establishment, shrubs may require regular watering particularly during prolonged dry periods during the summer months. These areas should be watered if there has been a period of dry weather between May to September.

Shelter guards should be inspected and adjusted accordingly to ensure they are not restricting growth. Damaged guards should be replaced. When the plants are established and can support themselves the guards should be removed to avoid constricting growth. This operation is likely to be required after 3 to 5 years dependent on establishment rates, stability and growing conditions. The guards should be checked after strong winds and reaffixed where necessary.

One operation per month - 1
As required - a/r

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Native Shrub Mix** | | | | | | | | | | | | | |
| Visual inspection of native shrub mix | | | | 1 | | | | | 1 | | | | Inspect shrubs for signs of disease, damage or as required following adverse weather, replant if necessary |
| Slow release fertiliser | | | | | 1 | | | | | | | | Only when necessary |
| Weeding/ mulch | | | | 1 | 1 | 1 | 1 | 1 | 1 | | | | Remove weeds and top up mulch (mulch topped up once annually) to retain a weed free around the base of each tree. Report any non-native invasive species and carry out process for removal in accordance with national legislation |
| Shrub guards | | | | 1 | | | | | 1 | | | | Check and adjust, replace or remove as required until the plants have established. Check and re-adjust after strong winds. Remove in year 3-5 or as required |
| Watering | | | | | 2 | 2 | 2 | 2 | 2 | | | | Water once every two weeks during the growing season and as necessary in periods of drought only during the first growing season until the vegetation has established |
| Routine pruning | | | | 1 | | | | | 1 | | | | Pruning should only be carried out where shrubs are in close proximity to public access, or where they pose a potential safety risk. |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Replacements | 1 | 1 | | | | | | | | | 1 | 1 | Any plants that have failed should be replaced to the original specification and planted within the next planting season |

### 5.6 Proposed Woodland Mix

Objectives

The proposed woodland mix will define the edges of the site and create visual screening against unit boundaries. They will also provide important habitats for birds and mammals. The mix should be maintained to ensure strong early establish and ongoing development.

Inspections / Monitoring

Inspect the woodland mix twice annually when they are in fully leaf to ensure that they are thriving and record defects requiring remedial works. Ensure the shelter guards are intact, installed correctly and are not restricting growth.

Short Term Management Operations (5 years)

Newly planted whips and bare rootstock take some time to establish, and until this occurs, they are subject to competition from weeds. To reduce competition, an area around the plants should be maintained with an area of bark mulch around the base and kept weed free. Herbicides should be avoided if possible unless grass and weeds are affecting the establishment of the plants. After 3-5 years or after the plants have established this should not be necessary. If they show signs of poor growth or reduced vigour an application of the appropriate fertiliser should be carried out.

Any failed whips or bare rootstock should be replaced to the original specification; however, this should be carried outside of the bird-nesting season.

During establishment, the woodland mix may require regular watering particularly during prolonged dry periods during the summer months. These areas should be watered if there has been a period of dry weather between May to September.

Shelter guards, canes and ties should be inspected and adjusted accordingly to ensure they are not restricting growth. Damaged guards, canes or ties should be replaced. When the plants are established and can support themselves the guards, canes and ties should be removed to avoid constricting growth. This operation is likely to be required after 3 to 5 years dependant on establishment rates, stability and growing conditions. The guards should be checked after strong winds and reaffixed where necessary.

Long Term Management Operations (5+ years)

Once the whips have established and their canopies begin to touch, it is important to consider thinning. This is likely to be required at around 10 years of growth. The operation must be carried out by a qualified contractor with a felling licence. Ensure thinning works are carried out outside the bird-nesting season.

More regular / routine pruning of the whip planting on establishment should only be carried out on the shrubs/trees which are close to publicly accessible areas and should include the following operations:

Remove dead, diseased, damaged or dying branches only where they pose a risk to the safety of the users of the site. (Dead wood is an important habitat for wildlife within a healthy woodland ecosystem and should not be removed unnecessarily). Large woody material (girth of over 10cm) should be collected to

create log piles within the planted areas, these should be stacked neatly and safely to ensure that they do not pose a risk to the users of the site.

One operation per month (within month / months specified) - **1**
As required - **a/r**

**First 5 years**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Woodland Mix** | | | | | | | | | | | | | |
| Visual | | | | 1 | | | | | 1 | | | | Inspect woodland mix for signs of disease, damage or as required following adverse weather. Replant if necessary |
| Slow release fertiliser | | | | | 1 | | | | | | | | Only when necessary |
| Weeding/ mulch | | | | 1 | 1 | 1 | 1 | 1 | 1 | | | | Remove weeds and top up mulch (mulch topped up once annually) to retain a weed free around the base of each tree. Report any non-native invasive species and carry out process for removal in accordance with National legislation. |
| Tree stakes, ties and guards | | | | 1 | | | | | 1 | | | | Check and adjust, replace or remove as required until the tree has established. Check and re-adjust after strong winds. Remove in year 3-5 or as required. |
| Watering | | | | | 2 | 2 | 2 | 2 | 2 | | | | Water once every two weeks during the growing season and as necessary in periods of drought only during the first 2 years until the trees have established. |
| Routine pruning | | | | 1 | | | | | 1 | | | | Pruning should only be carried out where trees are in close proximity to public access, or where they pose a potential safety risk. |
| Tree Replacements | 1 | 1 | | | | | | | | | 1 | 1 | Any trees that have failed should be replaced to the original specification and planted within the next planting season. |

One operation per month (within month / months specified) - **1**
As required - **a/r**

**5+ years**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Woodland Mix** | | | | | | | | | | | | | |
| Visual | | | | 1 | | | | | 1 | | | | Inspect woodland mix for signs of disease, damage or as required following adverse weather. Replant if necessary |
| Weeding/ mulch | | | | 1 | | | | | 1 | | | | Remove weeds and top up mulch (mulch topped up once annually) to retain a weed free around the base of each tree. Report any non-native invasive species and carry out process for removal in accordance with National legislation. |
| Tree stakes, ties and guards | | | | 1 | | | | | 1 | | | | Check and adjust, replace or remove as required until the tree has established. Check and re-adjust after strong winds. Remove in year after 5 years or as required. |
| Thinning / felling trees | a/r | a/r | | | | | | | a/r | a/r | a/r | a/r | Thin out woodland trees once canopies begin to touch to allow sufficient sunlight to reach understorey planting. Felling to be carried out by a qualified contractor approximately every 10-15 years. |
| Routine pruning | | | | 1 | | | | | 1 | | | | Pruning should only be carried out where trees are in close proximity to public access, or where they pose a potential safety risk. |
| Deadwood | | | | 1 | | | | | 1 | | | | Large woody material (girth of over 10cm) should be collected to create log piles within the woodland areas. Other deadwood to be retained unless cause identified as being due to disease or if the deadwood poses a risk to public safety. |

### 5.7 Proposed Wildflower Meadow

Objectives

To create and maintain a biodiverse and balanced wildflower meadow that is free from invasive weeds for the benefit of wildlife and visual amenity. A mix will include 20% flowers and 80% grasses, as requested by Environmental Agency. The proposed mix is Emorsgate – EM2 Standard General Purpose Meadow Mix or a similar approved mix.

Management Operations

The condition of the meadow areas would be reviewed within 6 months of its original seeding and any areas that have failed to establish should be re-seeded. In order to encourage the growth of yellow rattle

and development of the meadow, the area should not be cut until after yellow rattle has finished flowering in late July. All arisings would be removed within a 48-hour period.

First Year

Most sown meadow wild flower and grass species are perennial; they will be slow to germinate and grow and will not usually flower in their first growing season. There will often be a flush of annual weeds from the soil in the first growing season which may grow up and obscure the meadow seedlings beneath. This annual weed growth is easily controlled by topping or mowing.

Mow newly sown meadows regularly throughout the first year of establishment to a height of 40-60mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wild flowers.

Avoid cutting in the spring and early summer if the mixture has been sown with a nurse cover of cornfield annuals, or is autumn sown and contains Yellow Rattle. These sown annuals should be allowed to flower, then in mid-summer cut back and the cut vegetation removed. It is important to cut back cornfield annuals before they die back, set seed or collapse: this cut will reveal the developing meadow mixture and give it the space it needs to develop.

Carefully dig out or spot treat any residual perennial weeds such as docks.

Once Established

Following the initial year of its creation, the condition of grassland would be reviewed for the first 2 years for any areas of pernicious weeds (i.e. docks Rumex spp., thistles Cirsium spp. Or ragwort Senecio spp.), which would be controlled by the application of target herbicides.

In the second year and subsequent years, management to maintain the floristic diversity of the meadow grassland would entail an annual 'hay cut' using a scythe, petrol strimmer or tractor mower to a height of c.50mm, in August or September.

Following each mechanical cut of the meadow during its establishment or longer-term management, arisings would be raked off within a 7-day period, and deposited in a designated composting area or removed from the site.

One operation per month (within month / months specified) – **1**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Wildflower Meadow** | | | | | | | | | | | | | |
| Inspection of meadow | | | | 1 | | | | | | | | | Carry out an inspection of the establishment of the sward to identify any damaged areas, excessive weed growth, poor cover etc. which may require remediation works over the coming year. |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cut year 1 | | | 1 | | | | | 1 | 1 | | | | Mow newly sown meadows regularly throughout the first year of establishment to a height of 40-60mm, removing cuttings if dense. |
| Cut once established | | | 1 | | | | | | 1 | | | | Once established. Annual cut 'hay cut' with a scythe, petrol strimmer or tractor mower to a height of *c.*50mm between August and September once yellow rattle has flowered, followed by an autumn or spring cut if required to a height of *c.*50mm. Cuttings to be deposited in a designated composting area or removed from the site following 1-7 day period. |
| Inspect for weed growth and hand weed where necessary | | | | 1 | | 1 | | 1 | | | | | Hand hoe out any weeds and remove |
| Remove fallen leaves, debris and litter | 1 | 1 | | | | | | | | | 1 | 1 | Remove prior to cutting (do not blow or sweep into adjacent planting beds) |

### 5.8 Proposed Wildflower Meadow – Wetland Areas

Objectives

Wildflower mix suitable for wetland (EM8 Meadow Mixture for Wetlands by Emorsgate or similar approved) areas has been proposed within the attenuation areas and nearby. This area will provide a valuable habitat for aquatic insects, foraging birds and small mammals. A mix will include 20% native wildflowers and 80% slow growing grasses. The attenuation area should be well maintained at all times, ensuring any standing water is visible for safety and in a clean condition.

Inspections

The wildflower mix will require a specific maintenance regime in its first year to ensure that the swathe establishes without competition, please refer to year 1 maintenance operations for further details. Meadow Areas in general can be inspected as part of the regular maintenance operations.

Management

Remove litter before cutting. On an annual basis, ensure that all dead growth is removed before the start of the growing season and any sediment are removed from inlets/ outlets if required. The attenuation area may need to be re-seeded in areas of poor growth.

Operations should be restricted to when the attenuation area is not holding any water. Care should be taken when working on embankments.

First Year

In the first year, annual weed growth shall be cut back to encourage the development of a good perennial ground cover. Establishment on site may be patchy and may take several years to fully colonise as the area is prone to flooding.

Immediate management would require the removal of aquatic vegetation to ensure at least 70% of the water is maintained as open water, free from marginal and aquatic vegetation.

Autumn Sown (First Year)

March - Cut to 40-70mm if there is sufficient material (sward above 100mm).
May - Cut to 40-70mm.
August/September - Cut to 40mm after flowering. in all cases remove clippings.

Maintenance thereafter

April - Cut to 40-70mm.
August/September - Cut to 40mm after flowering. in all cases remove clippings.

Spring Sown (First Year)

6 weeks after sowing - Cut to 40-70mm if there is sufficient material (sward above 100mm).
May - Cut to 40-70mm if there is sufficient material (sward above 100mm).
August/September - Cut to 40mm after flowering. in all cases remove clippings.

Maintenance thereafter

April - Cut to 40-70mm.
August/September - Cut to 40mm after flowering. In all cases remove clippings.

Once Established

Following this, management will focus on maximising the nature conservation interest of the attenuation areas and require that the vegetation is cut back with removal short, wedge-like sections of vegetation every 2-3 years in rotation. Any dense stands of single species (e.g. yellow iris) will require selective thinning.

Aquatic and marginal vegetation should be checked annually and where necessary cleared to maintain 70% open water. Only 1/3 or less of marginal areas should be cleared annually on a rotational basis during autumn; arisings should be left next to the attenuation area for at least 7 days before taking to a designated composting area.

Any bankside vegetation will be strimmed annually to 150mm in 1/3 sections on rotation to maintain cover and shelter for fauna. Areas of pernicious weeds should be removed by hand only, and no fertiliser is to be applied to the banks in order to minimise the risk of algae blooms and risk of deoxygenating the water. Where the meadow areas are close to the paths maintain a minimum 1m wide regularly mown strip between the path and the meadow, incorporating this area into the amenity grass areas. Should it be too steep for the mower, then alternative grass-cutting methods need to be employed on the attenuation area.

These operations are the sole responsibility of the contractor and should be restricted to when the area is not holding any water. All inspections and maintenance tasks should comply with the all relevant Health and Safety information and include the development of risk assessments when working close to water or on an embankment.

One operation per month (within month / months specified) - **1**
Two operations per month (within month / months specified) - **2**
Four operation per month (within month / months specified) - **4**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Wildflower Meadow – Suitable for Wetland** | | | | | | | | | | | | | |
| Inspection of Meadow | | | | 1 | | | | | | | | | Carry out an inspection of the establishment of the sward to identify any damaged areas, excessive weed growth, poor cover etc. which may require remediation works over the coming year. |
| In the first year, annual weed growth cut back | | | | 1 | | 1 | | 1 | | | | | Annual weed growth shall be cut back to encourage the development of a good perennial ground cover. Hand hoe out any weeds and remove. |
| Cut back vegetation | | | 1 | | | | | | 1 | | | | Vegetation is cut back and removal of short wedge-like sections of vegetation on rotation every 2-3 years in rotation with long armed exactor. |
| Thinning of dense stands from year 2 | | | | | | | | | 1 | | | | Any dense stands of single species (e.g. yellow iris) will require selective thinning from the year 2. |
| Remove fallen leaves, debris and litter | 1 | 1 | | | | | | | | | 1 | 1 | Remove prior to cutting (do not blow or sweep into adjacent planting beds) |

### 5.9 Proposed Scrub/ Marginal Planting

Objectives

Scrub and marginal vegetation has been proposed to the edge of attenuation areas and natural swales and should be maintained for establishment and ongoing longevity of the planting. This area will provide a valuable habitat for aquatic insects, foraging birds and small mammals.

Inspections / Monitoring

Inspect the scrub and marginal planting twice annually when they are in full leaf to ensure that they are thriving and record defects requiring remedial works. Assess the vegetation in terms of density, weed growth and coverage to determine maintenance requirements. Where there has been a significant failure of plants to thrive, carry out investigations to locate the source of the problem and consult the landscape architect prior to replacement planting.

Management Operations

Newly planted areas take some time to establish. Until this occurs, young plants are subject to competition in their root zone from weeds. During this time, weeds should be removed by hand and the bark mulch should be maintained to the original specified depth (75mm) until established. After which weed growth should be more suppressed and only localised weeding should be required.

During establishment, all the plants will require regular watering particularly during prolonged dry periods. Water the shrub beds a minimum of once a week during periods of limited rainfall over April-September (during the first full growing season) ensuring that the soil is fully saturated.

Routine pruning of the scrub and marginal planting should only be carried out on the plants which are close to publicly accessible areas or are causing an obstruction and pose a potential safety risk.

These operations are the sole responsibility of the contractor and should be restricted to when the area is not holding any water. All inspections and maintenance tasks should comply with the all relevant Health and Safety information and include the development of risk assessments when working close to water or on an embankment.

One operation per month (within month / months specified) - **1**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Scrub/ Marginal Planting** | | | | | | | | | | | | | |
| Visual Inspection of scrub/marginal planting | | | | 1 | | | | | 1 | | | | Inspect planting for signs of disease, damage or as required following adverse weather, replant if necessary |
| Weeding | | | | 1 | | | | | 1 | | | | Remove weeds. Report any non-native invasive species and carry out process for removal in accordance with National legislation. |
| Routine pruning | | | | 1 | | | | | 1 | | | | Pruning should only be carried out where planting is in close proximity to public access, or where they pose a potential safety risk. |
| Watering | | | | | 4 | 4 | 4 | 4 | 4 | | | | Water once a week during the growing season and as necessary in periods of drought only during the first two years until the plants have established. |
| Mulch | | | | 1 | | | | | | | | | Top up mulch in the spring once the bed has been weeded, this should not be required after year 3-5 when the planting has established. |
| Plant replacement | 1 | 1 | | | | | | | | | 1 | 1 | Replace dead and dying plants to original specification during the next planting season |

### 5.10 Proposed Species Rich Grassland

Objectives
Species rich grassland should be maintained whilst supporting a diverse range of wildflowers and wildlife.

Inspections / Monitoring
Inspect the species rich grassland annually to ensure that it is thriving and record defects requiring remedial works.

Management Operations
Remove any litter or leaves before cutting.

Management to maintain the floristic diversity of the species rich grassland will entail an annual 'hay cut' using a scythe, petrol strimmer or tractor mower to a height of c.150mm, in September, and grassland to be cut on rotation so no more than 50% of the grassland is cut in any one year.

Following each mechanical cut of the meadow during its establishment or longer-term management, arisings would be raked off within a 7-day period, and deposited in a designated composting area or removed from the site. Remove any litter or leaves before cutting.

These works should be carried out outside of the bird-nesting season. Grassland to be cut starting at one side of the cutting area and working across to the other.

One operation per month (within month / months specified) - **1**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Species Rich Grassland** | | | | | | | | | | | | | |
| Inspection of species-rich grassland | | | | 1 | | | | | | | | | Carry out an inspection of the establishment of the sward to identify any damaged areas, excessive weed growth, poor cover etc. which may require remediation works over the coming year. |
| Annual Cut | | | | | | | | | 1 | | | | Once established. Annual cut 'hay cut' with a scythe, petrol strimmer or tractor mower to a height of *c.*150mm between August and September once yellow rattle has flowered, followed by an autumn or spring cut if required to a height of *c.*150mm. Cuttings to be deposited in a designated composting area or removed from the site following 1-7 day period. |
| Inspect for weed growth and hand weed where necessary | | | | 1 | | 1 | | 1 | | | | | Hand hoe out any weeds and remove |
| Remove fallen leaves, debris and litter | 1 | 1 | | | | | | | 1 | | 1 | 1 | Remove during winter months and prior to cutting (do not blow or sweep into adjacent planting beds) |

### 5.11 Proposed Amenity Grassland

Objectives
A mixture designed to create a species rich grassland that can be kept trimmed or left longer to flower.

Grass areas should be well maintained at all times as overgrown and patchy grass can be unsightly.

Inspections
Grassed areas can be inspected as part of the regular maintenance operations, although they should be formally inspected annually to assess requirements in terms of topdressing, over seeding etc.

Maintenance Operations
Remove any litter or leaves before cutting. Arising's should be removed from site.

To provide the formal appearance desired, following the initial year of its creation, the amenity grassland would be cut regularly to a minimum height of 70mm through the growing season (up to 21 cuts a year) which may require fortnightly cuts during some months. Cutting should be suspended during April and May to allow the earlier flowing species (such as cowslip) to flower and again in late June for a 4-8 week period. All arisings would be removed within a 48-hour period.

A fertiliser application to be applied only as required, either as a spring feed for shoot growth or as an autumn feed for root growth using the appropriate feed application.

In addition, these applications should compensate for any areas of poor growth or excessive wear. An application of selective herbicide should be made during early summer to prevent any weed species from having a detrimental affect to the appearance of the sward and to prevent any infestation becoming severe.

In periods of dry weather conditions, it may be required to water the grass at a rate of 15litres/m2. Ensuring watering is not undertaken during the heat of the day to avoid scorching of the grass.

Other maintenance applications, which will be required from time to time, include the following: topdressing, overseeding, scarifying, spiking etc to alleviate common problems such as thatch, compaction, poor drainage, malnourishment etc. These items should be addressed in the annual check.

The Public Rights of Way will be maintained by the Land Trust and that will include mowing of the grass pathways and litter picking.

These works will be the sole responsibility of the contractor.

One operation per month (within month / months specified) - **1**
Two operations per month (within month / months specified) - **2**
Four operation per month (within month / months specified) - **4**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Amenity Grassland** | | | | | | | | | | | | | |
| Inspection | | | | 1 | | | | | | | | | Carry out an inspection of the establishment of the grass sward to identify any damaged areas, excessive weed growth, poor grass cover etc which may require remediation works over the coming year. |
| Cut - First Year | | | | 1 | | 1 | | 1 | | 1 | | | Mow grassland when it reaches 100mm and regularly within the first year. Cut to 70mm to encourage tillering of new plants, repeat as desired. Regular topping back will encourage vegetative growth of the perennial species but will stop the sward from flowering. Once mowing or strimming ceases the plants will grow to the point of flowering. If flowering is required in the first year then one or two strims early on will suffice, alternatively a strategy of mowing throughout the first year will produce tight sward that will be more resistant to encroachment by weed species in future years.<br>Cutting to be removed from the site following 48-hour period. |
| Cut- Once Established | | | | | | 1 | | 1 | | 1 | | | Once established, cut as required to 70mm with no cuts taken during April and May and again in late June for 4-8 weeks. Cuttings to be removed from site following 48-hour period. |
| Cut edges | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | Edges to paths and shrub beds to be cut with a neat edge avoiding damage to the shrubs and tree trunks and the arisings removed from the beds or swept off the paths and disposed of in a licensed tip. |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reform edges | | | | 1 | | | | 1 | | | | | Twice a year the soft grass edges should be redefined with a half moon spade to form neat straight edges and any grass encroaching onto footpaths taken back |
| Apply fertiliser application in year 1 -2 | | | | 1 | | | | | | 1 | | | Once in the spring and once in the summer as required |
| Topdressing, over seeding, scarifying, spiking | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | As required if identified in the annual inspection |
| Remove fallen leaves, debris and litter | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Remove prior to cutting (do not blow or sweep into adjacent planting beds) |

# 6.0 Attenuation Area

This document outlines the maintenance schedule to be carried out upon completion of construction to ensure the continued working operation of the Attenuation Area and Natural Swales. Drainage system to be maintained in line with drainage engineer guidance.

For guidance on vegetation management within the attenuation area please see section **5.7 Proposed Wildflower Meadow – Wetland Seed Mix** and for guidance on vegetation management within the natural swales area please see section **Section 5.8 Proposed Scrub and Marginal Planting.**

## 6.1 Proposed Attenuation Area

Objectives

Proposed Attenuation area is designed to assist managing water run-off on site and will have varying levels of water throughout the year, and may be dry, or boggy during the summer months. Nevertheless, they should be maintained as an attractive feature with a clean and tidy appearance. Areas with water or partial water represent a potential hazard to users of the site and should be monitored regularly to check they are performing as originally intended, are not subject to vandalism or tipping, and do not represent a hazard through lack of maintenance.

Inspections

As part of the maintenance operations, attenuation area and associated drainage system are to be formally inspected at 6-monthly intervals by the maintenance contractor (particularly during the period of vegetation establishment), following a report by users of the site or a significant storm event. A report of the inspections and rectified works should be logged.

Check for any litter, debris, deleterious or dangerous material. Inlets, outlets, culverts and control structures should be inspected to ensure the basin is in a good condition. Inspect the drainage system, including bypass separators and associated pipe work to ensure they are operating effectively and determine any remedial works that are required. Assess the vegetation in terms of density, weed growth and coverage to determine maintenance requirements. Silt levels and sediment accumulation should be monitored and managed accordingly.

Inspect area after extreme weather events. Monitor the inflow and overflow areas to make sure they are still intact and can continue to carry water into and out of the rain garden. Remove any debris or litter that may interfere with flow. Keep the inflow pipe accessible and flush out pipe if necessary. Look for areas where water may not be soaking into the ground. This may be due to fine sediment or compaction of the soil. Remove sediment that may be building up and rake the soil surface. If you suspect compaction, break up and loosen the soil when it is not saturated.

Maintenance Operations

On a monthly basis, ensure attenuation areas are cleared of debris, litter, deleterious or dangerous material. They should be free from visible or potential blockage risks to the system. Inlets, outfalls, and culverts are to be cleaned out thoroughly to maintain the free flow of water, including the removal of silt accumulation as required. Should water levels fall below 50cm, desilting may be required. This should be undertaken between November and January by a long armed excavator.

For the management of vegetation, please refer to **Section 5.7 Proposed Wildflower Meadow – Wetland Seed Mix** for mowing regimes. These operations should be restricted to when the area is not holding any water.

Any remedial works required to the infrastructure should be carried out by skilled operatives under the guidance of a qualified engineer and manufacturer of any proprietary systems. The area should be cordoned off until the problem can be resolved at the earliest opportunity.

The bypass separators and associated pipe work linking the attenuation area to the wider drainage system should be maintained by the management company in accordance with the manufacturer's recommendations.

All inspections and maintenance tasks should comply with the all relevant Health and Safety information and include the development of risk assessments when working close to water or on an embankment.

Great care should be taken if standing water is present. Clear any vegetation to prevent blockages and ensure the area is free draining. A safe and acceptable system of clearance should be developed to deal with the build-up of any litter, debris or weeds that are beginning to establish. This system should be developed and/or refined over time to ensure the screen (if applicable) does not impede flow during normal operating conditions or become a hazard in itself. Take appropriate safety measures to remove deleterious or dangerous material. Record types and amount of debris removed, frequency of cleaning and problems experienced.

One operation per month (within month / months specified) - **1**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Attenuation Area** | | | | | | | | | | | | | |
| Visual inspection and monitoring of attenuation area and drainage system. | | | | 1 | | | | | | 1 | | | Visual inspection of operating system and infrastructure etc.<br>- Identify areas of erosion, scour or gullies<br>- Identify locations of silt deposits<br>- Determine the health of the vegetation and soil<br>- Identify areas of excessive waterlogging or other damage |
| Debris removal, inlet and outlet cleaning. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Remove litter/debris/dead vegetation from attenuation area and drainage system etc. Inlet and outlet cleaning if present. |
| Inspect water flowing within the attenuation area. | | | | 1 | | | | | | 1 | | | Inspect annually and remove any built up soil, debris or leaves that is blocking the inlets or outlets. Cut back or remove any vegetation or grass that is growing into inlets. Remove sediments that build inside the inlet areas. If suspect compaction, break up and loosen the soil when it is not saturated. |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inspect attenuation area after storms. | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | After heavy storms, check the inflow and overflow areas to make sure they are still intact and can continue to carry water into and out of the attenuation area. Remove any debris or litter in the swale that may interfere with flow. Keep the inflow pipe accessible and flush out pipe if necessary. Look for areas where water may not be soaking into the ground. This may be due to fine sediment or compaction of the soil. |
| Inspect for any exposed soil or erosion within the attenuation area. | | | 1 | | | | | | | 1 | | | Look for any exposed soil or erosion caused by fast or high volume water flows.<br>Realign of rip-raps or other erosion controls. Repair or relocate of damaged barriers.<br>Reinstate the levels and turf due to erosion by rills or gullies.<br>If erosion persists, water may be flowing into the swale too rapidly, in this case, the slope of the pipe or swale directing water may need to be reduced, or the amount of water flowing into the swale may need to be decreased. |
| Removal of excess silt. | a/r | | | | | | | | | | a/r | a/r | Attenuation areas accumulate silt naturally. The accumulation of silt occurs slowly, unless there is an unforeseen incident or badly managed construction site.<br>If the silt accumulation is a problem:<br>- Should water levels fall below 50cm, desilting should be undertaken using a long armed excavator<br>- Remove (reuse or compost) turf<br>- Remove accumulated silt (subject to toxicity test) and land or dispose of to tip<br>- Cultivate remaining topsoil to levels<br>- Reuse or re-turf area to agreed levels |

## 6.2 Proposed Natural Swales

Objectives

Natural swales will have varying levels of water throughout the year, and may be dry, or boggy during the summer months. Nevertheless, they should be maintained as an attractive feature with a clean and tidy appearance. Areas with water or partial water represent a potential hazard to users of the site and should be monitored regularly to check they are performing as originally intended, are not subject to vandalism or tipping, and do not represent a hazard through lack of maintenance.

Inspections

As part of the maintenance operations, the natural swales are to be formally inspected at 6-monthly intervals by the maintenance contractor (particularly during the period of vegetation establishment), following a report by users of the site or a significant storm event. A report of the inspections and rectified works should be logged.

Check for any litter, debris, deleterious or dangerous material. Inlets, outlets, culverts and control structures should be inspected to ensure the swales are in a good condition. Inspect the drainage system, including bypass separators and associated pipe work to ensure they are operating effectively and determine any remedial works that are required. Assess the vegetation in terms of density, weed growth and coverage to determine maintenance requirements. Silt levels and sediment accumulation should be monitored and managed accordingly.

Inspect area after extreme weather events. Monitor the inflow and overflow areas to make sure they are still intact and can continue to carry water into and out of the rain garden. Remove any debris or litter from swales that may interfere with flow. Keep the inflow pipe accessible and flush out pipe if necessary. Look for areas where water may not be soaking into the ground. This may be due to fine sediment or compaction of the soil. Remove sediment that may be building up and rake the soil surface. If you suspect compaction, break up and loosen the soil when it is not saturated.

Maintenance Operations

On a monthly basis, ensure natural swales are cleared of debris, litter, deleterious or dangerous material. They should be free from visible or potential blockage risks to the system. Inlets, outfalls, and culverts are to be cleaned out thoroughly to maintain the free flow of water, including the removal of silt accumulation as required. Should water levels fall below 50cm, desilting may be required. This should be undertaken between November and January by a long armed excavator.

For the management of vegetation, please refer to **Section 5.8 Proposed Scrub and Marginal Planting** for maintenance operations. These operations should be restricted to when the area is not holding any water.

Any remedial works required to the infrastructure should be carried out by skilled operatives under the guidance of a qualified engineer and manufacturer of any proprietary systems. The area should be cordoned off until the problem can be resolved at the earliest opportunity.

The bypass separators and associated pipe work linking the swales to the wider drainage system should be maintained by the management company in accordance with the manufacturer's recommendations.

All inspections and maintenance tasks should comply with the all relevant Health and Safety information and include the development of risk assessments when working close to water or on an embankment.

Clear any vegetation to prevent blockages and ensure the area is free draining. A safe and acceptable system of clearance should be developed to deal with the build-up of any litter, debris or weeds that are beginning to establish. This system should be developed and/or refined over time to ensure the screen (if applicable) does not impede flow during normal operating conditions or become a hazard in itself. Take appropriate safety measures to remove deleterious or dangerous material. Record types and amount of debris removed, frequency of cleaning and problems experienced.

One operation per month (within month / months specified) - **1**
As required - **a/r**

| Operation | MONTHS | | | | | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| **Proposed Natural Swales** | | | | | | | | | | | | | |
| Visual inspection and monitoring of natural swales. | | | | 1 | | | | | | 1 | | | Visual inspection of operating system and infrastructure etc.<br>- Identify areas of erosion, scour or gullies<br>- Identify locations of silt deposits<br>- Determine the health of the vegetation and soil<br>- Identify areas of excessive waterlogging or other damage |
| Debris removal, inlet and outlet cleaning. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Remove litter/debris/dead vegetation from swales and drainage system etc. Inlet and outlet cleaning if present. |
| Inspect water flowing within the swales. | | | | 1 | | | | | | 1 | | | Inspect annually and remove any built up soil, debris or leaves that is blocking the inlets or outlets. Cut back or remove any vegetation or grass that is growing into inlets. Remove sediments that build inside the inlet areas. If suspect compaction, break up and loosen the soil when it is not saturated. |
| Inspect swales after storms. | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | a/r | After heavy storms, check the inflow and overflow areas to make sure they are still intact and can continue to carry water into and out of the swales. Remove any debris or litter in the swale that may interfere with flow. Keep the inflow pipe accessible and flush out pipe if necessary. Look for areas where water may not be soaking into the ground. This may be due to fine sediment or compaction of the soil. |
| Inspect for any exposed soil or erosion within the swales. | | | 1 | | | | | | | 1 | | | Look for any exposed soil or erosion caused by fast or high volume water flows.<br>Realign of rip-raps or other erosion controls. Repair or relocate of damaged barriers.<br>Reinstate the levels and turf due to erosion by rills or gullies.<br>If erosion persists, water may be flowing into the swale too rapidly, in this case, the slope of the pipe or swale directing water may need to be reduced, or the amount of water flowing into the swale may need to be decreased. |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Removal of excess silt. | a/r | | | | | | | | | | a/r | a/r | Swales accumulate silt naturally. The accumulation of silt occurs slowly, unless there is an unforeseen incident or badly managed construction site.<br>If the silt accumulation is a problem:<br>- Should water levels fall below 50cm, desilting should be undertaken using a long armed excavator<br>- Remove (reuse or compost) turf<br>- Remove accumulated silt (subject to toxicity test) and land or dispose of to tip<br>- Cultivate remaining topsoil to levels<br>- Reuse or re-turf area to agreed levels |

## 7.0 Monitoring and Review

In order to ensure that the existing and proposed landscape within the site reach and maintain their maximum value. All landscaping should be monitored every year to check establishment. It is recommended that the inspection take place in July/August. The inspection will identify any issues and future landscape management objectives.

Results of this monitoring should be used to inform annual changes to the management plan, and at the end of the five-year rolling work programme.

A programme of monitoring is to be established by appointed Maintenance Contractor that will allow the success of landscape management and maintenance operations to be assessed, and will feed into periodic reviews of this Landscape Management Strategy to ensure that management protocols remain appropriate to achieving the broad aim of conserving biodiversity on site.

If the maintenance of the approved Landscape Management Strategy is proposed to be changed, this is to be first approved in writing by the Local Authority.

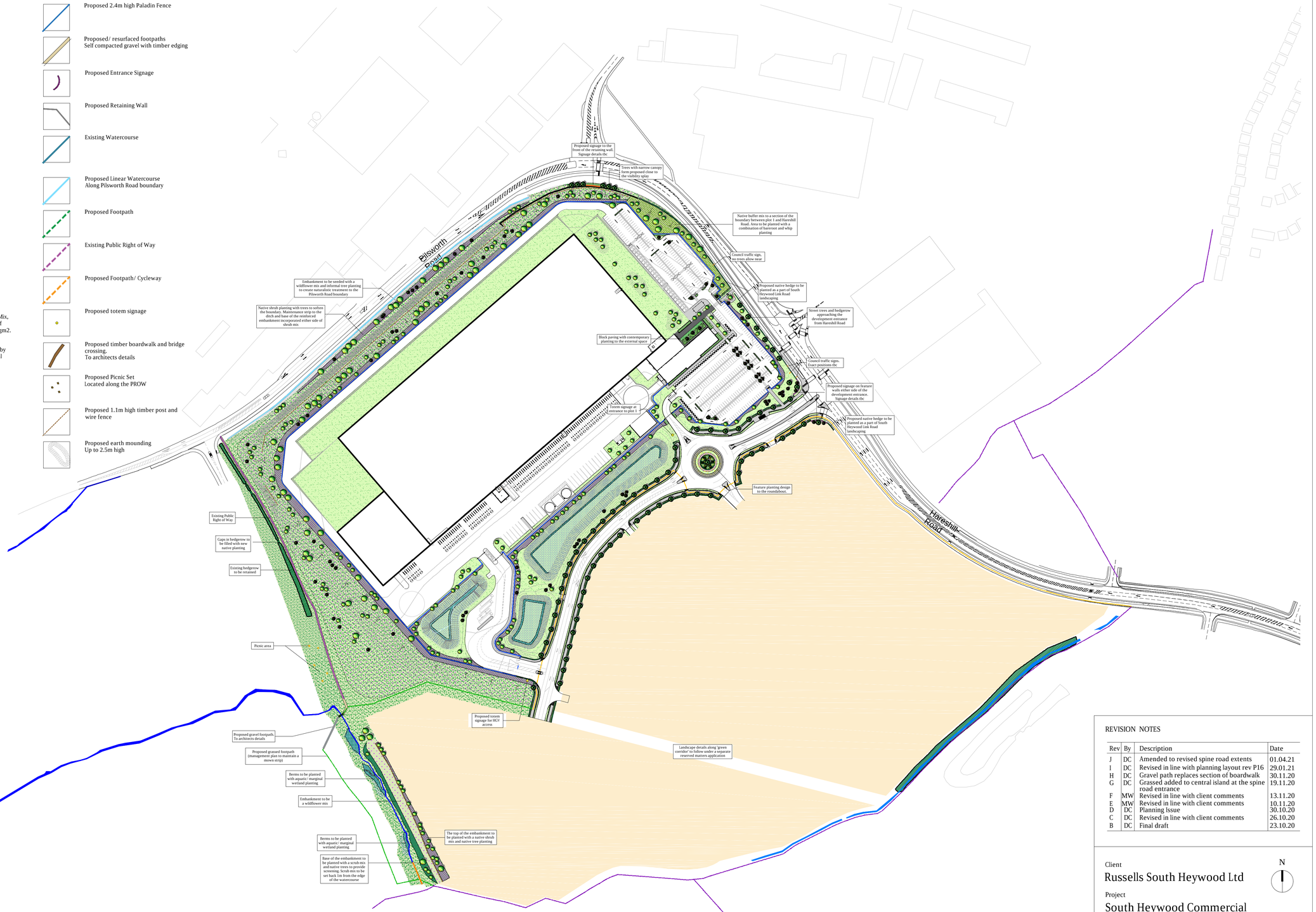
## 8.0 Handover Procedures

The maintenance period will run concurrently with the rectification period so it may be prevalent to have the same contractor for both the construction side of the operations and the Maintenance Contractor, to help avoid disputes. After the rectification period, the management and maintenance objections need to remain in place for the following operational years of the development site.

To ensure a smooth handover between management contractor companies a clear documented record of works will be required.

LEGEND

- Existing hedgerows to be retained
- Proposed Spine Road Trees — Semi- mature, 20-25cm girth, 6m high with 2m clear stem, secured with underground guys and irrigation pipe wrapped around root ball
- Proposed Medium Size Trees — Extra heavy standards, 14-16cm, 4-5m high, secured with timber stakes
- Proposed Small Trees — Selected Standard/ Heavy Standards, 10-12cm/ 12-14cm, 3-4m high, secured with single stakes
- Proposed Box Headed Tree — To have a 2m clear stem and cube shaped crown (1.5 x 1.5 x 1.5m in size) and to be secured with underground guys and irrigation pipe around the rootball
- Proposed Hedgerows — Native hedgerows planted to the site boundaries in a double staggered row, at 80-100cm high Evergreen hedgerows to be planted at 100-120cm high in 7.5-10l containers at a rate of 2-3 per lin. metre.
- Proposed Shrub Planting — To be planted in 3-5l containers at a 3-4 p/m2 with feature specimens planted in 10-15l containers.
- Proposed Woodland Mix — Bare root/ whip planting stock, of native tree species set at 1 p/m2 secured with spiral guards where necessary
- Proposed Native Shrub Mix — To be planted at 60-80cm, bare root stock and native species at 2 p/m2 secured with spiral guards where necessary
- Proposed Wildflower Meadow — To be Emorsgate EM2 Standard General Purpose Meadow Mix, supplied by Emorsgate or similar approved. Including 80% of ornamental grasses and 20% of wildflowers. Sowing rate 4/gm2.
- Proposed Wildflower For Wetland Areas — To be Emorsgate EM8 SMeadow Mix for Wetland, supplied by Emorsgate or similar approved. Including 80% of ornamental grasses and 20% of wildflowers. Sowing rate 4/gm2.
- Proposed Scrub Planting
- Proposed Marginal Aquatic Mix
- Proposed Species rich grassland
- Existing grassland retained and enhanced
- Proposed Amenity grass
- Proposed 2.4m high Paladin Fence
- Proposed/ resurfaced footpaths — Self compacted gravel with timber edging
- Proposed Entrance Signage
- Proposed Retaining Wall
- Existing Watercourse
- Proposed Linear Watercourse Along Pilsworth Road boundary
- Proposed Footpath
- Existing Public Right of Way
- Proposed Footpath/ Cycleway
- Proposed totem signage
- Proposed timber boardwalk and bridge crossing. To architects details
- Proposed Picnic Set Located along the PROW
- Proposed 1.1m high timber post and wire fence
- Proposed earth mounding Up to 2.5m high

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REVISION NOTES

| Rev | By | Description | Date |
|---|---|---|---|
| J | DC | Amended to revised spine road extents | 01.04.21 |
| I | DC | Revised in line with planning layout rev P16 | 29.01.21 |
| H | DC | Gravel path replaces section of boardwalk | 30.11.20 |
| G | DC | Grassed added to central island at the spine road entrance | 19.11.20 |
| F | MW | Revised in line with client comments | 13.11.20 |
| E | MW | Revised in line with client comments | 10.11.20 |
| D | DC | Planning Issue | 30.10.20 |
| C | DC | Revised in line with client comments | 26.10.20 |
| B | DC | Final draft | 23.10.20 |

Client
Russells South Heywood Ltd

N

Project
South Heywood Commercial

Description
Landscape Masterplan

Status
Planning Issue

| Scale @ A1 | Drawn | Checked | Date |
|---|---|---|---|
| 1:2000 | DC | DC | 05.10.20 |
| Job number | Drawing number | | Revision |
| 3595 | 104 | | J |

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LEGEND

- Existing hedgerows to be retained
- Proposed Spine Road Trees
  Semi- mature, 20-25cm girth, 6m high with 2m clear stem, secured with underground guys and irrigation pipe wrapped around root ball
- Proposed Medium Size Trees
  Extra heavy standards, 14-16cm, 4-5m high, secured with timber stakes
- Proposed Small Trees
  Selected Standard/ Heavy Standards, 10-12cm/ 12-14cm, 3-4m high, secured with single stakes
- Proposed Box Headed Tree
  To have a 2m clear stem and cube shaped crown (1.5 x 1.5 x 1.5m in size) and to be secured with underground guys and irrigation pipe around the rootball
- Proposed Hedgerows
  Native hedgerows planted to the site boundaries in a double staggered row, at 80-100cm high
  Evergreen hedgerows to be planted at 100-120cm high in 7.5-10l containers at a rate of 2-3 per lin. metre.
- Proposed Shrub Planting
  To be planted in 3-5l containers at a 3-4 p/m2 with feature specimens planted in 10-15l containers.
- Proposed Woodland Mix
  Bare root/ whip planting stock, of native tree species set at 1 p/m2 secured with spiral guards where necessary
- Proposed Native Shrub Mix
  To be planted at 60-80cm, bare root stock and native species at 2 p/m2 secured with spiral guards where necessary
- Proposed Wildflower Meadow
  To be Emorsgate EM2 Standard General Purpose Meadow Mix, supplied by Emorsgate or similar approved. Including 80% of ornamental grasses and 20% of wildflowers. Sowing rate 4/gm2.
- Proposed Wildflower For Wetland Areas
  To be Emorsgate EM8 SMeadow Mix for Wetland, supplied by Emorsgate or similar approved. Including 80% of ornamental grasses and 20% of wildflowers. Sowing rate 4/gm2.
- Proposed Scrub Planting
- Proposed Marginal Aquatic Mix
- Proposed Species rich grassland
- Existing grassland retained and enhanced
- Proposed Amenity grass
- Proposed 2.4m high Paladin Fence
- Proposed/ resurfaced footpaths
  Self compacted gravel with timber edging
- Proposed Entrance Signage
- Proposed Retaining Wall
- Existing Watercourse
- Proposed Linear Watercourse
  Along Pilsworth Road boundary
- Proposed Footpath
- Existing Public Right of Way
- Proposed Footpath/ Cycleway
- Proposed totem signage
- Proposed timber boardwalk and bridge crossing.
  To architects details
- Proposed Picnic Set
  Located along the PROW
- Proposed 1.1m high timber post and wire fence




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| C | MW | Revised in line with client comments | 13.11.20 |
| B | DC | Planning Issue | 30.10.20 |

Client
Russells South Heywood Ltd

Project
South Heywood Commercial

Description
Landscape Masterplan - Future Expansion

Status
Planning Issue

N

| Scale @ A1 | Drawn | Checked | Date |
|---|---|---|---|
| 1:2000 | DC | DC | 23.10.20 |
| Job number | Drawing number | | Revision |
| 3595 | 105 | | H |

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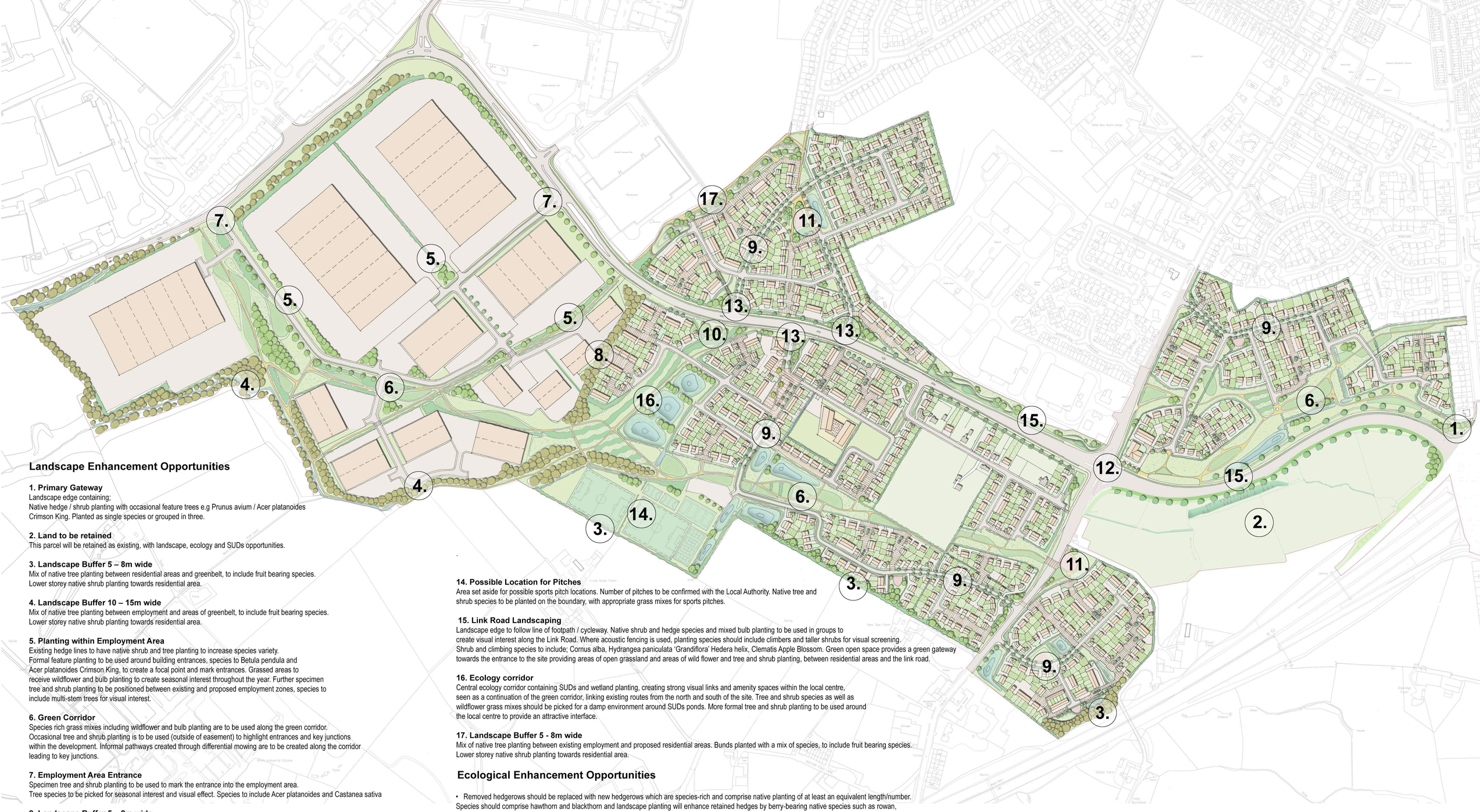


## Landscape Enhancement Opportunities

**1. Primary Gateway**
Landscape edge containing;
Native hedge / shrub planting with occasional feature trees e.g Prunus avium / Acer platanoides Crimson King. Planted as single species or grouped in three.

**2. Land to be retained**
This parcel will be retained as existing, with landscape, ecology and SUDs opportunities.

**3. Landscape Buffer 5 – 8m wide**
Mix of native tree planting between residential areas and greenbelt, to include fruit bearing species.
Lower storey native shrub planting towards residential area.

**4. Landscape Buffer 10 – 15m wide**
Mix of native tree planting between employment and areas of greenbelt, to include fruit bearing species.
Lower storey native shrub planting towards residential area.

**5. Planting within Employment Area**
Existing hedge lines to have native shrub and tree planting to increase species variety.
Formal feature planting to be used around building entrances, species to Betula pendula and Acer platanoides Crimson King, to create a focal point and mark entrances. Grassed areas to receive wildflower and bulb planting to create seasonal interest throughout the year. Further specimen tree and shrub planting to be positioned between existing and proposed employment zones, species to include multi-stem trees for visual interest.

**6. Green Corridor**
Species rich grass mixes including wildflower and bulb planting are to be used along the green corridor.
Occasional tree and shrub planting is to be used (outside of easement) to highlight entrances and key junctions within the development. Informal pathways created through differential mowing are to be created along the corridor leading to key junctions.

**7. Employment Area Entrance**
Specimen tree and shrub planting to be used to mark the entrance into the employment area.
Tree species to be picked for seasonal interest and visual effect. Species to include Acer platanoides and Castanea sativa

**8. Landscape Buffer 5 – 8m wide**
Mix of native tree planting between proposed residential and employment areas include fruit bearing species.

**9. Residential Green Spine**
Boulevard of trees to line the road long primary residential streets. Species to include Betula pendula, Acer platanoides, Sorbus aucparia and Prunus avium. Where possible bulb planting to be used along grass verges to increase seasonal interest. Larger specimen trees are to be used to mark key entrances to residential pockets.

**10. Key Green Intersection**
To provide an attractive interface with the local centre. Groups of specimen trees and shrub planting with areas of hard and soft landscaping.

**11. Key Green Space**
To provide an attractive interface to residential properties. Groups of specimen tree and shrub planting with areas of hard and soft landscaping.

**12. Link Road Junction**
Native feature trees to mark junction between Manchester Road and the new Link Road. Tree and shrub planting to residential plots creates a degree of screening from the road. Wild flower and bulb planting to create visual interest at street level.

**13. Residential Area Entrance.**
Specimen tree and shrub planting to be used to mark the entrance into the employment area. Tree species to be picked for seasonal interest and visual effect. Species to include Acer platanoides and Castanea sativa

.

**14. Possible Location for Pitches**
Area set aside for possible sports pitch locations. Number of pitches to be confirmed with the Local Authority. Native tree and shrub species to be planted on the boundary, with appropriate grass mixes for sports pitches.

**15. Link Road Landscaping**
Landscape edge to follow line of footpath / cycleway. Native shrub and hedge species and mixed bulb planting to be used in groups to create visual interest along the Link Road. Where acoustic fencing is used, planting species should include climbers and taller shrubs for visual screening. Shrub and climbing species to include; Cornus alba, Hydrangea paniculata 'Grandiflora' Hedera helix, Clematis Apple Blossom. Green open space provides a green gateway towards the entrance to the site providing areas of open grassland and areas of wild flower and tree and shrub planting, between residential areas and the link road.

**16. Ecology corridor**
Central ecology corridor containing SUDs and wetland planting, creating strong visual links and amenity spaces within the local centre, seen as a continuation of the green corridor, linking existing routes from the north and south of the site. Tree and shrub species as well as wildflower grass mixes should be picked for a damp environment around SUDs ponds. More formal tree and shrub planting to be used around the local centre to provide an attractive interface.

**17. Landscape Buffer 5 - 8m wide**
Mix of native tree planting between existing employment and proposed residential areas. Bunds planted with a mix of species, to include fruit bearing species.
Lower storey native shrub planting towards residential area.

## Ecological Enhancement Opportunities

- Removed hedgerows should be replaced with new hedgerows which are species-rich and comprise native planting of at least an equivalent length/number. Species should comprise hawthorn and blackthorn and landscape planting will enhance retained hedges by berry-bearing native species such as rowan, holly (Ilex aquifolium), whitebeam (Sorbus aria), spindle (Euonymus europaea), dog rose (Rosa canina), guelder rose (Viburnum opulus), elder, hawthorn, honeysuckle (Lonicera periclymenum) and ivy (Hedera helix).

- To compensate for the loss of existing trees, at least an equal number of native trees will be planted across the site.

- Where attenuation ponds are proposed, these should provide opportunities for a range of wetland species whilst contributing to sustainable drainage. The ponds will also provide breeding habitat for amphibians.

- Where possible areas of rough grassland should be retained (especially along field margins, hedgerows and watercourses) and creation of rough grassland (comprising species-rich grass seed mix) within undeveloped areas of the site (e.g. on margins of arable and grazed fields) and should be limited to locations adjacent to main roads, to prevent wildlife road fatalities.

- Areas of bulb and shrub planting are recommended which will provide foraging opportunities for bats within the proposed development.

- A 'green link corridor' through the centre of the proposed development is recommended which will create a linear feature for commuting and foraging bats and other wildlife.

- It is recommended that the buffer zone around the retained field margins and watercourses be sown with a species rich lawn mix to create a wildflower area which will provide opportunities for pollinating invertebrates.

- Any arisings created during site clearance should be used to create small log and brash piles within retained and new habitats such as along watercourses. This will be highly beneficial for saprophytic species and small mammals.

- Bat and bird boxes to be provided across the site at appropriate locations.

**SOUTH HEYWOOD**
LANDSCAPE AND ECOLOGY FRAMEWORK

Drawing / Rev:SK(90)06 / O
Reviewed / Drawn by: CL/RW
Scale: NTS
Job: 4846

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