

Landscape and Ecological Management Plan

Lench Road, Hareholme

Reference: 80-502-R3-1

Date: March 2024

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LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN

Lench Road, Hareholme

Prepared for: John Hardie

Report Ref: 80-502-R3-1 Date Issued: 05/03/2024

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1. INTRODUCTION

1.1. BACKGROUND

E3P were commissioned by John Hardie to produce a Landscape and Ecology Management Plan (LEMP) at Lench Road, Hareholme, hereafter referred to as "the site".

This report has been produced by Graduate Ecologist Zach Squire-Watt BSc (Hons), MSc, who holds a qualifying CIEEM membership. Zach has experience undertaking Preliminary Ecological Appraisals, protected species surveys and ecological mitigation for a wide variety of projects across the UK.

The ecological management objectives within this document are in line with recommendations set out in British Standards (2013) BS 42020:2013 Biodiversity - Code of practice for planning and development.

This report follows the Biodiversity Net Gain Assessment Report issued by Ecology Services Ltd in 2021 (Report reference: 21011).

1.2. DISCHARGE CONDITION

The Landscape and Ecological Management Plan (LEMP) has been prepared to discharge Condition 19 of the planning application 2021/0147 as follows:

19. Prior to the commencement of the development a scheme to enhance the biodiversity of the site including a timetable for the implementation shall be submitted to and approved in writing by the Local Planning Authority. The approved measures shall be implemented in accordance with the approved timescales, and thereafter satisfactorily retained at all times.

1.3. SITE LOCATION

The site comprised two buildings, a stable and tack room and a pump/storage house. Habitats within the site include poor semi-improved grassland, scattered trees, scattered scrub, tall ruderal, introduced shrubs, a stream and a dry-stone wall. The surrounding habitat to the south includes agricultural land, with industrial units to the north east. The River Irwell is located approximately 16 m north east of the site at its closest point. Figure 1.1 shows the approximate site location.



FIGURE 1.1 SITE LOCATION





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2. PROPOSED LANDSCAPING FEATURES

Proposals for the landscaping outside of residential plots within the site are outlined within the Landscape Proposals created by TBA Ltd (Drawing number: 7136.01).

The Planting Plans propose the following habitats:

- Amenity grassland.
- 🝳 Wildflower meadow.
- 🕴 Ornamental shrub.
- Native hedge.
- O Trees.

A number of trees will be retained under current proposals.

The planting will increase opportunities for local wildlife in the long term through the provision of fruitbearing trees including rowan (*Sorbus aucuparia*), which offer foraging resources for terrestrial mammals, birds and bats. Over time, species such as field maple (*Acer campestre*) may also provide opportunities for roosting bats. Native hedgerows will be beneficial for badgers (*Meles meles*) and overwintering hedgehog (*Erinaceus europaeus*) and will provide linear commuting features for bats.

The proposed habitats, where they fall outside of plot ownership, are outlined in the following sections. Please see Appendix I for the Landscape Proposals.

2.1. AMENITY GRASSLAND

An area of amenity grassland will be created in the west of the site as a buffer between the wildflower meadow and the hardstanding.

Germinal A22 seed mix will be sown at a rate of 50g/m² and comprise the following species:

- 40.0% Lolium perenne Coletta Perennial Rye Grass
- 🕴 35.0% Festuca rubra rubra Creeping Red Fescue
- 20.0% Lolium perenne Cabrio Perennial Ryegrass
- 5.0% Agrostis castellana Browntop Bentgrass

2.2. WILDFLOWER MEADOW

Areas of pre-existing poor semi-improved grassland will be enhanced to 'rank grassland' (which has been assumed to be other neutral grassland) using two wildflower seed mixes- Emorsgate EM1 'General Meadow Mixture' and EW1 'Woodland Mixture'. All areas of wildflower meadow mix will be sown at 4 g/m². EM1 is a complete mix composed of 10% wildflowers and 90% slow growing grasses, with the species composition as follows:



Wildflowers - 10%

- 0.75% Achillea millefolium Yarrow
- 0 1.50% Centurea nigra Common Knapweed
- 1.27% Leucanthemum vulgare Oxeye Daisy
- 🌼 🛛 1.80% Malva moschata Musk Mallow
- 1.80% Plantago lanceolata Ribwort Plantain
- 🕴 0.90% Poterium sanguisorba ssp sanguisorba Salad Burnet
- 0.75% Ranunculus acris Meadow Buttercup
- 🕺 0.98% Rhinanthus minor Yellow Rattle
- 🟮 0.90% Daucus carota Wild Carrot

Grasses - 90%

- 8.50% Agrostis capillaris Common Bent (w)
- 29.75% Cynosurus cristatus Crested Dogstail
- 😳 25.50% Festuca rubra Red Fescue
- 4.25% Phleum bertolonii Smaller Cat's-tail (w)
- 🕸 🛛 17.00% Poa pratensis Smooth-stalked Meadow-grass

EW1 is a complete mix composed of 20% native wildflowers and 80% slow growing grasses as follows:

Wild Flowers 20%

- 🕸 1.00% Alliaria petiolata Garlic Mustard
- 0.50% Anthriscus sylvestris Cow Parsley
- 🟮 2.00% Carex divulsa ssp divulsa Grey Sedge
- 🕺 0.10% Carex pendula Pendulous Sedge
- 4.00% Chaerophyllum temulum Rough Chervil
- 🔯 1.00% Digitalis purpurea Foxglove
- 🔯 🛛 1.10% Filipendula ulmaria Meadowsweet
- 🝳 0.50% Galium album (Galium mollugo) Hedge Bedstraw
- 2.00% Geranium pyreniacum Hedge Crane's-bill
- 0.80% Geum urbanum Wood Avens



- 1.00% Hyacinthoides non-scripta Bluebell
- 5.00% Silene dioica Red Campion
- 0 1.00% Silene flos-cuculi Ragged Robin

Grasses 80%

- 1.00% Agrostis capillaris Common Bent (w)
- 2.00% Anthoxanthum odoratum Sweet Vernal-grass (w)
- 1.00% Brachypodium sylvaticum False Brome (w)
- 50.00% Cynosurus cristatus Crested Dogstail
- 2.00% Deschampsia cespitosa Tufted Hair-grass (w)
- 20.00% Festuca rubra Red Fescue (w)
- 🕸 4.00% Poa nemoralis Wood Meadow-grass

Wildflower meadow will be sown during March and April or in September. When sowing into heavy soils, sow in March/April to avoid seeds/seedlings rotting in waterlogged soils. Prior to seeding, all areas shall be stripped of topsoil to provide a nutrient-poor subsoil for meadow establishment. Where ground requires additional soil fill to meet finished formation levels this shall be made up using site-won subsoil. Subsoil shall be cultivated to a suitable tilth and be free of weed growth at point of seeding.

2.3. ORNAMENTAL SHRUB

Ornamental shrub species will be planted throughout the site. Please see Table 2.1 for details.

SPECIES	DENSITY (M ²)	HEIGHT (CM)	POT SIZE
Berberis candidula	6	30-40	3L
Choisya ternata Sundance®	6	30-40	3L
Euonymus fortunei 'Emerald Gaiety'	6	20-30	3L
Hebe 'Autumn Glory'	6	30-40	3L
Hypericum x moserianum 'Tricolor'	6	30-40	3L
Hebe 'Mrs Winder'	6	30-40	3L
Lavandula angustifolia 'Vera'	6	30-40	3L
Potentilla fruticosa 'Elizabeth	6	30-40	3L
Potentilla fruticosa 'Katherine Dykes'	6	30-40	5L
Viburnum davidii	6	30-40	3L

TABLE 2.1 ORNAMENTAL SHRUB SPECIFICATIONS



2.4. NATIVE HEDGE

Native species-rich hedgerow will be planted throughout the site. Please see Table 2.2 for a summary of the native species-rich hedgerow.

SPECIES	SPECIFICATION	HEIGHT (CM)	POT SIZE	MIX (%)
Rosa arvensis	Transplant 1+1	60-80	В	5
Rosa canina	Transplant 1+1	60-80	В	5
llex aquifolium	Container	60-80	5L	10
Corylus avellana	Transplant 1+1	60-80	В	20
Sambucus nigra	Transplant 1+1	60-80	В	20
Crataegus monogyna	Transplant 1+1	60-80	В	40

TABLE 2.2 NATIVE HEDGEROW SPECIFICATIONS

All species will be planted in double staggered rows.

2.5. TREES

Individual trees will be planted across site, please see Table 2.3 for a summary of the tree planting schedule.

TABLE 2.3TREE PLANTING SPECIFICATIONS

SPECIES	HEIGHT (CM)	GIRTH (CM)	SPECIFICATION	POT SIZE
Acer campestre	350-425	12-14	Heavy Standard: 3x	В
Alnus glutinosa	350-425	12-14	Heavy Standard: 3x	В
Betula pendula	350-425	12-14	Heavy Standard: 3x	RB
Malus sylvestris	350-425	12-14	Heavy Standard: 3x	В
Prunus avium	350-425	12-14	Heavy Standard: 3x	В
Quercus robur	350-425	12-14	Heavy Standard: 3x	RB
Sorbus aucuparia	350-425	12-14	Heavy Standard: 3x	В
Sorbus aria	350-425	12-14	Heavy Standard: 3x	В
Tilia cordata	350-425	12-14	Heavy Standard: 3x	В

In addition, a number of fruit-bearing orchard trees will be planted within the Public Open Space of the site. Please see Table 2.4 for the orchard tree specifications.



TABLE 2.4 ORCHARD TREE SPECIFICATIONS

SPECIES	HEIGHT (CM)	GIRTH (CM)	SPECIFICATION	POT SIZE
Prunus domestica 'Opal'	N/A	N/A	Half Standard: 3x	RB
Mauls domestica 'Laxton Super'	N/A	N/A	Half Standard: 3x	RB
Malus domestica 'Keswick Codlin'	N/A	N/A	Half Standard: 3x	RB



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3. MANAGEMENT

3.1. AIMS AND OBJECTIVES

The management plan sets out how habitats will be protected and managed appropriately during the operational phase of development for the long-term benefit to local wildlife (over a 30-year period). See Appendix II for the Annual Work Plan. The aims and objectives are as follows:

- To ensure the successful establishment and long-term health of all landscape elements for the benefits of the wider community.
- To allow the residents to understand the expectations of the required management, and to give them a point of contact if required.
- o To allow the local authority satisfaction that the area will be managed appropriately.
- O To ensure best horticultural and health & safety practices at all times.
- O To ensure that methods employed enhance and encourage wildlife, wherever possible.
- To identify defects as soon as possible in order to minimise any damage and rectify at the earliest opportunity.
- To ensure access to the area by all members of the general public and for the area to remain as such permanently.

3.2. PROPOSED MANAGEMENT PRESCRIPTIONS

The following provides recommendations for how habitats will be managed to maintain an appropriate condition. See Appendix II for the Annual Work Plan.

3.2.1. **RETAINED TREES**

Temporary protective demarcation fencing will be used to protect the trees that are being retained. The fencing must extend outside the canopy of the retained trees and must remain in position until all residential plots have been developed to ensure protection is provided throughout the construction phase. The fencing will be in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations.

Following the completion of the construction phase all levels and surface finishes will be checked around the retained trees. If levels and surfaces are unsatisfactory these will need to be rectified.

The existing trees will be managed by occasional pruning only to remove damaged or defective limbs. Where pruning is carried out near the attenuation basin, any stems >100 mm and brash will be made into habitat piles (minimum 1 m long x 1 m wide x 0.3 m high) out of general public view. Management of the hedgerows and trees will avoid nesting season.



3.2.2. AMENITY GRASSLAND & WILDFLOWER MEADOW

Areas of amenity grassland, wildflower meadow and woodland wildflower meadow will be created within the site. The meadows will be managed to achieve a moderate condition and to be of maximum benefit to terrestrial mammals, birds and amphibians. To achieve this, the following will be adhered to:

- The wildflower meadows will be managed to maintain a varied sward height, with at least 20% of the sward less than 7 cm and at least 20% more than 7 cm. This will create microclimates providing opportunities for insects, birds and small mammals. Cutting will be undertaken annually.
- If bare ground develops, between 1% and 5% is acceptable. If the cover of bare ground increases to more than 5%, additional wildflower meadow mix will be sown to reduce bare ground cover back into an acceptable range.
- The wildflower meadows will be managed to ensure the cover of bracken is less than 20% and the cover of scrub (including bramble) is less than 5%. Removal will take place outside of nesting bird season (i.e. works will be completed between October – February) to avoid potential disturbance to the species.
- There will be an absence of invasive non-native species (as listed on Schedule 9 of the Wildlife and Countryside Act, 1981). The site will be monitored annually and any invasive non-native species that arise will be removed by a specialist contractor to prevent them from becoming established and spreading to the wider area. These invasive species include, but are not limited to, Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*).

Areas of amenity grassland will be managed to maximise foraging opportunities for species such as badgers and birds. A shorter sward length will be maintained with mowing taking place every two months or more frequently depending on the rate of growth of the amenity grassland. Prior to cutting all areas will be cleared of litter and debris. Cutting will only be undertaken in appropriate weather conditions avoiding sustained period of rain, heavy frost, snow and waterlogging. Strimming will be restricted around the base of trees, leaving an uncut sward at the base of no less than 500 mm from the outside of the trunk.

No pesticides or herbicides will be used in any areas of grassland, in order to protect protected species on site, invertebrate prey, and surrounding habitat, and to encourage greater species diversity within the sward. Should weed species become a problem they would be dealt with by hand if practicable. If chemical control of weeds is required, spot treatment would be allowed. Full consideration for the environment would be taken when selecting the method of control and chemical to be used. An ecologist will be consulted prior to the use of any chemicals within the area.

Areas of bare ground or worn surfaces will be re-seeded to ensure large areas of bare ground are not present. Should areas of grassland continually fail to establish, an ecologist will be consulted regarding use of alternative seed mixes.

3.2.1. ORNAMENTAL SHRUB

Ornamental shrub species will be planted throughout the site.



Weed species are to be dealt with by hand if practicable. If chemical control of weeds is required, spot treatment would be allowed. Full consideration for the environment would be taken when selecting the method of control and chemical to be used. An ecologist should be consulted prior to the use of any chemicals within the area and consulted for specific weed species that the management applies to.

Management will be scheduled outside the nesting bird season of March to September (inclusive).

3.2.2. NATIVE HEDGEROW AND TREE PLANTING

A series of native hedgerows and individual trees will be planted throughout the site to be of maximum benefit to terrestrial mammals, bats and nesting birds. Management of the hedgerows and trees will be for a period of 30 years.

Hedgerow and tree planting will be monitored monthly within the first year in which defective plants or trees will be replaced. All litter will be removed from the planting beds. Tree ties and steaks are to be checked and adjusted if too loose or tight.

Hedgerows will be maintained at an average height and width of over 1.5 m. The condition of the hedgerows will be managed to ensure there are no gaps greater than 0.5 m at the base for >90% of the length and no gaps within the canopy making up <10% of the hedgerow length. The hedgerows will have no gaps greater than 5 m. Where hedgerow planting fails, it is to be replanted to ensure no large gaps are present. There is to be >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of the length of the hedgerow.

Invasive plant species and noxious weeds are to be eradicated from the hedgerows or around the base of hedgerows and trees to ensure they do not become established.

Management and maintenance of the hedgerows and trees will take place outside the nesting bird season (March to September, inclusive) and will be managed for wildlife. The hedgerows will be cut on a rotational basis, with different sections being cut every two or three years to allow varying stages of growth and ensure flowers for pollinators and berries for birds are present in sections of hedgerow across the site.

The hedgerows will be trimmed to an 'A' shape creating a thicker base and gradually getting thinner at the top of the hedgerow to offer maximum protection for wildlife and benefit ground flora. These measures will ensure the hedgerows achieve good condition.

Planting areas are to be brought up to field capacity at each visit and each tree is to receive 20 galls of water. Dead trees as a result of disease, crown dieback, or pests are to be removed. Pruning will be undertaken only if required, to remove damaged or defective limbs. Pruning will not have a negative impact on tree health. Where pruning is carried out near the attenuation basin, any stems >100 mm and brash will be made into habitat piles (minimum 1m long x 1m wide x 0.3m high) out of general public view. This will ensure the proposed trees reach a moderate condition. Between year two and five tree and shrub planting will be attended three during the growing season (April to September) and one during the dormant season (October to March) to include the aforementioned methods which include, litter picking, pruning, weed clearance, grass control, tree stake checks and removal of dead trees and shrubs. The maintenance will be reduced after the first six years. However, over the next 24 years at least two visits will be undertaken each year, one at the start of the growing season and one at the end.



Specimen trees within the site are to be managed with the above methods for the retained trees. In addition, they are to be watered between March and September between year 1 and 5. They are to receive 5 gallons of water per tree. As a guide, a minimum of 12 watering visits is usually required between year one and year three, though this can be adjusted dependant on weather conditions. Where necessary suitable nitrogen, phosphorus and potassium fertiliser will be selected by the contractor based on the sites existing soil conditions and applied to the trees in April. Stakes will be inspected at each maintenance visit as well as in each growing season, and mulch will be applied around the base of the trees. Failing or trees that have died will be replaced by the contractor at their expense during the next planting season.

3.3. SITE REPSONSIBILITIES

It will be the responsibility of John Hardie to appoint a suitable management company for the long-term management and maintenance of public open space within the site for at least a 30-year period. This will ensure the habitats on-site achieve their target conditions in relation to Biodiversity Net Gain. Management of the newly created habitats will be maintained for the first year by the Landscape Contractor responsible for the implementation of the works. The contract will include a defects liability clause to ensure replacement planting is carried out and successful establishment achieved. Thereafter, maintenance contracts will be organised by a management company on an annual basis.

3.4. FUNDING

During the construction stage all works associated with the LEMP will be funded and delivered directly by John Hardie. Once the site is occupied and construction works are complete, the remaining estate will be transferred to the management company who will become responsible for the maintenance of the estate. Funding will be sought via estate management charges collected from individual properties and Registered Providers.



4. PROTECTED SPECIES MANAGEMENT

A number of species enhancement features are to be incorporated into the areas of Public Open Space, as well as on a number of properties. Enhancement locations are shown on the Landscape Proposal in Appendix I. Please refer to Appendix II for the Annual Work Plan.

4.1. BAT BOXES

Two bat boxes and two bat access slates are to be installed within the site. The boxes will provide opportunities for summer or nursery roosts. They require limited maintenance, due to the open bottom, allowing droppings to fall out. Bat access slates are installed within roofs to provide safe access for loft-dwelling species.

The boxes will be installed on the proposed buildings, facing south to south-east at a minimum height of 2 m. To avoid predation and vandalism, it is best for the boxes to be installed at the tallest point possible. To increase the chance of the boxes being used, two bat boxes are to be installed on a main stem per tree, facing different directions. Boxes will not be placed where the flight path could be blocked by obstructions or vegetation and will be placed in locations sheltered from high winds.

The boxes are to be checked by a qualified ecologist, to assess whether they are in use, for years, 1, 3 and 5, post development. Any damaged/missing boxes are to be replaced and relocated if necessary.

Please refer to Table 4.1 for the Bat Box Specification. Boxes of similar specification but different brands can be used. Please see Appendix I for their locations within the Landscape Proposals.

SPECIFICATIONS	NUMBER	IMAGE
<u>2F Schwegler Bat Box</u> Standard box which allows colonial bats to use as either a roost or nursery. The open bottom allows the droppings to fall out, meaning no cleaning is required. It is suitable to hang on trees and will attract crevice-dwelling species. <u>https://www.nhbs.com/2f-schwegler-bat-box- general-purpose</u>	2	
Habitat Bat Access Slate Standard sized slate that allows loft access for crevice/loft dwelling species <u>https://www.nhbs.com/habitat-bat-access-slate</u>	2	

TABLE 4.1BAT BOX SPECIFICATIONS



4.2. BIRD BOXES

Two bird boxes are to be installed within the site post development. The Schwegler Nest Box can be hung anywhere and provides habitat for a range of nesting species, while the Vivara Pro Swift Box is to be installed under the eaves of building roofs to imitate the natural nest structures of swifts.

Both boxes are to be positioned at the highest points (a minimum 2 m from ground level for the Schwegler Nest Box and 5 m for the Swift Box) and facing between north and east to avoid strong sunlight and high winds. They will not be placed where the flight path would be blocked by obstructions or vegetation.

The boxes are to be checked by a qualified ecologist, to assess whether they are in use, for years 1, 3 and 5 post-development. Any damaged/missing boxes are to be replaced and relocated if necessary.

Please refer to Table 4.2 for the Bird Box Specification. Boxes of similar specification but different brands can be used. Please see Appendix I for their locations within the Landscape Proposals.

SPECIFICATIONS	NUMBER	IMAGE
<u>1B Schwegler Nest Box</u> Nest box with a large internal cavity, providing roosting space for a range of species. Attached to a tree or wall using an aluminium nail or by hanging over a branch. <u>https://www.nhbs.com/1b-schwegler-nest-box</u> <u>terrace</u>	1	
<u>Vivara Pro Woodstone Swift Box</u> Nest box with entry hole aimed to attract swifts but deter other species such as starling. Attached underneath the eaves of the building using screws. <u>https://www.nhbs.com/woodstone-swift-nest-box</u>	1	

TABLE 4.2 BIRD BOX SPECIFICATIONS



5. FUTURE MONITORING

Monitoring of the habitats created will be undertaken annually for the first ten years, thereafter, every five years. If habitats don't establish, additional management may be required with additional visits once a year until establishment.

The management plans are to be reviewed during year 5, 10, 20 and 30. The plans are to be revised as appropriate and the frequency of visits for certain habitats may be increased or decreased depending on the progress made towards establishment.



6. REFERENCES

- British Standards Institute. (2013). Biodiversity Code of Practice for Planning and Development. BS 42020:2013.
- Ecology Services Ltd (2021). Biodiversity Net Gain Assessment Report- Crabtree Hurst Farm (Report reference: 21011).
- Natural England (2007). Hedge Cutting: Answers to 18 Common Questions.
- TBA Ltd (2024). Landscape Proposal- Crabtree Hurst Farm, Rossendale. (Drawing number: 7136.01)
- Wildlife and Countryside Act (2010) Schedule 9 of the Wildlife and Countryside Act 1981.

END OF REPORT



APPENDIX I LANDSCAPE PROPOSALS

Planting Schedule

Trees						
Abbreviation	Species	Height	Girth	Specification	Pot Size	Number of Plants
ACE	Acer campestre	350-425cm	12-14cm	Heavy Standard: 3x	В	3 -
AG	Alnus glutinosa	350-425cm	12-14cm	Heavy Standard: 3x	В	2 -
BP	Betula pendula	350-425cm	12-14cm	Heavy Standard: 3x	RB	1 -
MDL	Malus domestica 'Laxton Supurb'			Half Standard: 3x	RB	2 -
MKC	Malus domestica 'Keswick Codlin'			Half Standard: 3x	RB	4 -
MS	Malus sylvestris	350-425cm	12-14cm	Heavy Standard: 3x	В	2 -
PA	Prunus avium	350-425cm	12-14cm	Heavy Standard: 3x	В	1 -
PDO	Prunus domestica 'Opal'			Half Standard: 3x	RB	4 -
QRO	Quercus robur	350-425cm	12-14cm	Heavy Standard: 3x	RB	3 -
SA	Sorbus aucuparia	350-425cm	12-14cm	Heavy Standard: 3x	В	3 -
SAR	Sorbus aria	350-425cm	12-14cm	Heavy Standard: 3x	В	1 -
TC	Tilia cordata	350-425cm	12-14cm	Heavy Standard: 3x	В	3 -
						Total :29 -

pecification runus laurocerasus l

Specification Height Pot Size Number of Plan Phormium 'Platt's Black' Double Crown 60-80ci

Shrubs

Abbreviation	Species	Specification	Density	Height	Pot Size	Number of Plants
BC	Berberis candidula		6/m²	30-40cm	3L	46 -
CTS	Choisya ternata Sundance ®		6/m²	30-40cm	3L	20 -
EUEG	Euonymus fortunei 'Emerald Gaiety'		6/m²	20-30cm	3L	49 -
HAG	Hebe 'Autumn Glory'		6/m²	30-40cm	3L	11 -
HG	Hebe 'Green Globe'		6/m²	30-40cm	3L	22 -
HMT	Hypericum x moserianum 'Tricolor'		6/m²	30-40cm	3L	22 -
HMW	Hebe 'Mrs Winder'		6/m²	30-40cm	3L	9 -
LAV	Lavandula angustifolia 'Vera'		6/m²	30-40cm	3L	22 -
PE	Potentilla fruticosa 'Elizabeth'		6/m²	30-40cm	3L	38 -
PKD	Potentilla fruticosa 'Katherine Dykes'		6/m²	30-40cm	5L	14 -
SKJ	Skimmia japonica		6/m²	30-40cm	3L	28 -
VD	Viburnum davidii		6/m²	30-40cm	3L	44 -
						Total :325 -

Native Hedge Mix - Double Staggered row

Abbreviation	Species	Specification	Height	Pot Size	Density	Mix Species Contribution	Number
ROSAR	Rosa arvensis	Transplant 1+1	60-80cm	В	6/m	5%	52 -
ROSCA	Rosa canina	Transplant 1+1	60-80cm	В	6/m	5%	52 -
ILEA	llex aquifolium	Container	60-80cm	5L	6/m	10%	101 -
CORAV	Corylus avellana	Transplant 1+1	60-80cm	В	6/m	20%	199 -
SAMNI	Sambucus nigra	Transplant 1+1	60-80cm	В	6/m	20%	199 -
CRAMON	Crataegus monogyna	Transplant 1+1	60-80cm	В	6/m	40%	396 -
						Total :100%	Total :999 -

WILDFLOWER SEED MIXES - To be sown at a rate of 4g/M².

EM1 - Basic General Purpose Meadow Mixture.

www.wildseed.co.uk/product/mixtures/Basic-general-purpose-meadow-mixture EW1 - Woodland Mixture. www.wildseed.co.uk/product/mixtures/woodland-mixture Available from Emorsgate Seeds. Tel: 01553 829 028 or similar approved. All wildflower areas to have 1M wide close mown grass edge adjacent roads and footpaths. Seeded with grass mix A22.

AMENITY GRASS SEED MIX - To be sown at a rate of 50g/M².

A22 - Hard Wearing, Low Maintenance. www.germinalamenity.com/a22-low-maintenance

Available from Germinal GB Ltd. Tel: 01522 868714 (or similar approved)

KEY

	EXISTING TREES					
	PROPOSED TREE PLANTING					
- (A)	PROPOSED ORCHARD TREE PLANTING					
	NATIVE HEDGE PLANTING					
	HEDGE PLANTING					
	ORNAMENTAL SHRUB PLANTING					
	TURF (CLOSE MOWN)					
	A22 GRASS SEED (CLOSE MOWN)					
	WILDFLOWER SEED MIX - EM2 GENERAL MEADOW MIXTURE					
	WILDFLOWER SEED MIX - EW1 WOODLAND MIXTURE					
	GRAVEL TO PRIVATE AREAS					

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TARMAC TO ROADS

MARSHALLS SAXONS CONCRETE PAVING FLAGS BUFF, 450 X 450

TOBERMORE PERMEABLE HYDROPAVE to Driveways

TOBERMORE PERMEABLE HYDROPAVE to Shared Drive

SURESET RESIN BOUND **GRAVEL TO FOOTPATHS**



49 No. CORAV 97 No. CRAMOI 25 No. ILEA 49 No. SAMNI 13 No. ROSAR 13 No. ROSCA

Bat Access Roof Slate NHBS.com or similar. Position Habibat a minimum of 2 metres but preferably 5 to 7 metres above ground. Avoid placement above windows, position near the eaves or gable apex of the property in a sunny position (6-8 hours of direct sunlight, or in a location where it receives the morning sun if this is not possible). The location should not be disturbed by bright lights at night such as porch or security lights.



Bird boxes should ideally be sited facing north to east, to avoid exposure to direct sunlight, which may cause overheating of chicks in the nest. The boxes should be at least 4 metres from ground level. Hung so that the

Swift Box from NHBS.com or similar - Vivara Pro Woodstone Swift Box. Bird boxes should ideally be sited facing north to east, to avoid exposure to direct sunlight, which may cause overheating of chicks in the nest. The boxes should be at least 4 metres from ground level. Hung so that the

bat boxes should be positioned at a height of 3-6 metres in an open, sunny position (6-8 hours of direct sunlight, or in a location where it receives the morning sun if this is not possible). The location should not be disturbed by

Materials Pallette



Tobermore permeable paving Hydropave Tegula Blocks - Slate https://www.tobermore.co.uk/professional/products/permeable-paving/hydropave-tegula/



Tobermore permeable paving Hydropave Tegula Blocks - Heather https://www.tobermore.co.uk/professional/products/permeable-paving/hydropave-tegula/ Or similar approved.



Marshalls Saxon Paving (450mm x 450mm paving slab) https://www.marshalls.co.uk/gardens-and-driveways/product/saxon-paving



Sureset Resin Bound Gravel - Bronze https://www.sureset.co.uk/housing-development-pathways/ Or similar approved.



SPECIFICATION

GROUND PREPARATION - GENERAL

Preparing for topsoiling

Grading and cultivation shall be in accordance with BS 4428:1989 section 4. Subsoil that is to receive topsoil shall, whether obviously overcompacted or not, be thoroughly broken up by hand, by heavy rotovator, by subsoiler or tined equipment with adequate passes made to thoroughly break up the surface to a depth of 150mm, cleared of all large stones, bricks, perennial weeds, tree roots (excluding living tree roots), coarse vegetation and other extraneous matter.

Subsoil grading

Subsoil shall only be graded after loosening as above, and this shall be undertaken by the use of a tractor and blade grader on large areas and by a small mechanical grader or by hand on small areas. Ground shall at no time be traversed by heavy machinery, for grading or any other purpose after subsoiling and/or topsoiling has taken place

Making up levels

When subsoil is deposited in low lying areas to raise formation levels, it shall be lightly consolidated and left broken up ready to receive topsoil. Imported fill material shall be natural subsoil free from metal, concrete or organic material with any one dimension greater than 100mm. All imported fill material shall be approved by the Landscape Architect prior to spreading on

Supply of topsoil

Topsoil to be supplied shall be approved by the Landscape Architect and details of the source of supply shall be provided in order that inspection may be made before delivery commences. Topsoil shall conform to BS 3882: 2015, Recommendations and classification for topsoil, clause 4.1a. The soil shall be free of weeds, roots or perennial weeds, pests, diseases, debris, tree roots, sticks, subsoil and foreign matter and shall be capable of being broken down to a fine tilth.

Temporary topsoil heaps

The depositing of temporary heaps of topsoil shall be so arranged that possible damage to existing grass, plants, tarmacadam, paving etc, is avoided. Unless otherwise agreed by the Landscape Architect, temporary spoil heaps shall be on protected ground. Such protection shall take the form of tarpaulins, plastic sheets, boards or similar covering. If damage does occur, it shall be made good at the contractor's own expense. Areas excavated to receive topsoil but have not had the base loosened shall not be used as temporary off loading areas. If the bottom of the excavation has been loosened off, loading on these areas is permissible.

Spreading topsoil

Prior to topsoil replacement the formation level shall be cleared of all stones. rubbish, debris with any one dimension greater than 75mm. Areas to be seeded or turfed shall be covered by topsoil 100mm thick and areas to be planted shall be covered by topsoil 300mm thick. Topsoil shall be spread in an evenly consolidated layer and shall be left cleared of all roots, stones and debris with any one dimension greater than 50mm throughout its depth. Unless otherwise stated the finished level shall be 25mm above adjacent hard areas. No topsoil shall be spread until the subsoil grade has been inspected by a Landscape Architect

PLANTING

Cultivation Planting areas shall be rotovated to a depth of 225mm in the original ground, or where the ground is compacted, ripped and rotovated. Pick off stones. bricks, timber and all other debris arising which have any dimensions greater than 50mm and remove off site to tip. Do not cultivate across any drain where the stone is flush with the ground surface.

Soil improvers

Where directed composts, fertilisers or other additives shall be incorporated into the soil. Spent mushroom compost or similar shall be spread to the specified thickness and incorporated, by rotovating, into the top 150mm. Fertilisers, organic or inorganic, shall be raked into the top 25mm.

Rejection of plants

All plant material should comply with the minimum requirements in BS 3936-1: 1992 Specification for trees and shrubs and BS 3936-4: 2007 Specification for forest trees and BS 8545: 2014 Trees from Nurserv to Independence in the Landscape. Any plant material, which in the opinion of the Landscape Architect, does not meet the requirements of the Specification, or is unsuitable, or defective in any other way, will be rejected. The minimum specified sizes in the plant schedule will be strictly enforced. The contractor shall replace all plants rejected at his own cost.

All plant material shall generally be planted between November and March in open cool weather. Planting shall not take place in frosty, snowy or waterlogged conditions. Where approved, pot or container grown plants may be planted outside the described season, but adequate watering shall be supplied. Torn or damaged roots and branches shall be cleanly pruned prior to planting.

Planting of whips, transplants and shrubs

The nature of the material to be planted is variable and the contractor shall allow for planting to be properly carried out in all cases as described in BS 4428: 1989 section 7 Amenity tree planting, section 8 Woodland planting and section 9 Planting of shrubs, herbaceous and bulbs. All plants shall be planted at same depth, or very slightly deeper, as they were grown. Roots shall not be bent, broken or forced into inadequate pits or notches. Plants shall be upright, firmed in and wind resistant, with no air pockets around roots. All pots and root wrappings shall be carefully removed prior to planting. All pots and wrappings arising shall immediately be picked up and stored ready for removal to tip. Plants shall be planted at the specified centres. On steep slopes this shall be in the horizontal measure

Tree planting within soft landscape areas

Trees shall conform to BS: 3936-1: 1992 and be planted in tree pits of the following sizes unless directed otherwise

Feathered trees - 900 x 900 x 450 Selected standards - 1000 x 1000 x 600

Heavy standards/Extra heavy standards - 1200 x 1200 x 600 Excavated subsoil or stone shall be carted off site to tip. The bottom 250mm of the pit shall be dug and broken up. The bottom of the pit shall be backfilled with subsoil (site or imported) to comply with BS 8601: 2013. The top 300mm of the pit shall be backfilled with imported topsoil as specified unless directed otherwise.

Compost for planting pits

Compost shall be a proprietary product, bark based incorporating fertilisers and improving additives. The type of compost shall be approved before its delivery on site, and the details of the product shall be supplied. Cambark planting compost is approved. Where directed compost shall be added to and mixed with topsoil backfill at the following rates:

Feathered trees - 40 litres Selected standards - 60 litres

Heavy standards/Extra heavy standards - 80 litres

Stakes for trees

Stakes shall be peeled round softwood, pointed, minimum diameter 75mm. The stakes shall be driven into the base of the tree pit prior to placing the tree and backfilling. Stakes shall in general have a clear height above the finished ground level as follows unless directed otherwise

Feathered trees - 750mm (1 stake) Selected standards - 900mm (2 stakes)

Heavy standards/Extra heavy standards - 1200mm (2 stakes) The stake shall be long enough to drive until they hold the tree firmly without rocking

Tree ties

Ties for trees shall be the environmentally friendly 'NATURETIE' tree ties sourced through Green-tech, or other equal and approved. Ties shall not be

over tight on the tree stems. Ties available from Green-tech, Rabbit Hill Business Park, Great North Road, Arkendale, HG5 0FF. There shall be a tie per stake.

Planting of trees

The tree shall be set upright and at the same depth as grown in the nursery, the roots shall be spread out (bareroot) and the soil followed by compost topsoil mixture, backfilled, Backfilling should be done to ensure close contact between roots and by firming in layers (bareroot). The soil shall be left level and tidy, any subsoil clods, bricks or stones over 50mm arising, collected and carted off site.

Mulching A 75mm compacted layer of medium grade pulverised bark, with a particle size of not more than 100mm and containing no more than 10% fines, shall be spread to form a continuous layer covering the whole of the bed, or in the case of standard trees within grass shall be in the form of a circle of 600mm diameter around the base of the tree. Whips and transplants shall be mulched in the form of a 300mm diameter circle around the base of the tree. Where trees are planted within grass a circular hemp mulch mat is required beneath the layer of mulch at the diameters stated above, secured with fixing pegs. The tree pit surface shall be as big as possible.

Planting of Bulbs

Bulbs shall not be allowed to dry out and shall be free of pests, diseases and fungus. Bulbs should be planted immediately upon delivery to site, if stored, this shall be for the minimum period in a dark, well-ventilated, protected area at 18-21 degrees Celsius. Certificates of purchase shall be provided upon inspection. Bulbs are to be planted, according to species and in the areas shown on the soft landscape plan. Where planting is required 'in drifts', bulbs are to be scattered randomly over the allocated area and planted where they fall at the depth stated and shall be in contact with the soil at the base of the hole. The hole shall be backfilled with topsoil and lightly firmed in place. If bulbs are to be planted into existing turf areas, turf it to be neatly removed and replaced after planting and re-firmed.

TURFING

Soil preparation and cultivation All areas to be turfed shall be cultivated to a depth of at least 100mm, all weeds, stones and refuse larger than 50mm shall be removed to Contractor's tip, and shall be brought to a fine tilth. Allow for hand cultivation where machine work is not possible

Turf shall be extra-quality meadow turf and shall comply to BS 3969: 1998 +A1: 2013 and shall be laid in accordance with BS 4428: 1998, section 6, urfing. The Contractor shall supply a sample of the turf he proposed to use for approval of the Landscape Architect and shall ensure that all turves are similar to the approved sample. The Contractor shall inform the Landscape Architect of the location of the supply, so that turf can be inspected prior to

Turf shall be laid when weather and soil conditions are suitable and, where possible, preference should be given to autumn and early winter operations. No turf shall be laid in exceptionally dry or frosty weather or in other unsuitable weather conditions

Delivery and stacking For large areas, turf shall be delivered at appropriate intervals throughout the work so as to avoid stacking for long periods.

No turf shall be laid until the soil preparation has been satisfactorily completed by being brought to an even tilth and firmness. Turves from the stack shall be wheeled to turf layers on planks laid closely side by side. Adequate timber planks shall be used to support operatives and barrows, and provide access. The turves shall be laid in consecutive rows with broken joints (stretcher bond) closely butted and to the correct levels. The turf shall be laid off planks working over turves previously laid. Where necessary, the turves shall be lightly and evenly firmed with wooden beaters, the bottom of the beaters being frequently scraped clean of accumulated soil or mud. A dressing of finely sifted topsoil shall be applied and well brushed into the ioints. Any inequalities in finished levels owing to variation in turf thickness or uneven consolidation of soil shall be adjusted by raking and/or packing fine soil under the turf. A roller shall not be used. The finished levels of the turf shall conform to the levels indicated, allowing for final settlement. Turf edges and margins shall be laid with whole turves. Turves adjoining buildings, walls or fences shall be taken to the face of the structure, giving complete soil

Laying around trees

Turf shall not be laid to within 300mm of any tree trunk

The Contractor shall be responsible for the replacement of any scorched turf. All necessary watering shall be carried out with sprinklers or oscillating sprays so as not to wash soil out of joints. If shrinkage occurs and the joints open, fine topsoil shall be brushed in and well watered.

The recommendations in BS 5837: 2012, Trees in Relation to Design,

PROTECTION TO EXISTING TREES

Demolition & Construction must be complied with at all times.

MAINTENANCE

All maintenance to be carried out up to handover to the adopting authority/ householder from the date of planting and turfing to ensure successful establishment. All dead, diseased, damaged plants must be replaced during this time unless the local Planning Authority states, in writing, any variation to

All beds to be kept weed free by hand weeding. Beds to be forked over as necessary to keep soil loose to approved cambers with no hollows.

Pruning At appropriate time, prune plants to remove dead, dying or diseased wood and suckers to promote healthy growth and natural shape.

Watering The Contractor shall ensure that sufficient water is applied to maintain healthy growth.

Site to be kept free of litter.

Grass cutting

The initial cut shall be carried out when first growth is apparent, blades set 20mm above ground. The Contractor shall continue cutting at appropriate intervals during the growing season and maintain 40mm high sward until irass areas are handed over. Watering, weeding, cutting, repair of all er and settlement and re-seeding as necessary to establish a uniform and healthy stand of grass shall continue until handover to the householder.



APPENDIX II ANNUAL WORK PLAN

ANNUAL WORK PLAN								
MANAGEMENT REQUIRED	FREQUENCY OF MONITORING	REMEDIAL MEASURES	TIME OF YEAR		PRC SI CONS	DTECTED PECIES STRAINTS	ECOL	OGICAL SUPERVISION REQUIRED?
		RET	AINED TREES					
Pruning of trees	Every five years	Removal of damage and effective limbs diseased trees.	ed or Septeml	ber to Febr	bruary bruary Birds- Will avoid n bird season (Mar September, inclu where possib		nesting rch to usive) le.	No (if undertaken outside of nesting bird season)
WILDFLOWER MEADOW								
Control of Invasive Species	Ongoing	Continued control	As requi	ired		None		No
Maintain the wildflower grass at a varied height.	Meadows will be cut annually.	Encroaching scrub and noxious weeds cleared at this time.	March to O	ctober	Am R	aphibians Reptiles	Amphibians – No Reptiles - Yes when 20% of gra is cut to 7 cm (supervision required when below 150 mn	
Arisings to be left for a maximum of 1 week after cutting before being removed from site.	Annually	N/A	Each vi	sit	Am R	nphibians Reptiles	No - detail	 however measures as ed in Section 4 should be adhered to
Supply and apply selective herbicide to manufactures instructions	Annually	Continued control	Annually a	s req.	Ampl reptile should l	nibians and es – a check be completed	No - detail	 however measures as ed in Section 4 should be adhered to.



ANNUAL WORK PLAN					
MANAGEMENT REQUIRED	FREQUENCY OF MONITORING	REMEDIAL MEASURES	TIME OF YEAR	PROTECTED SPECIES CONSTRAINTS	ECOLOGICAL SUPERVISION REQUIRED?
				prior to herbicide application	
Grassland re-seeding	Ongoing	Areas of bare ground to be re-seeded as required. Discussion with ecologist may be required should seed mix continually fail to establish.	Late August to November	None	No
		ORNAMENT	AL SHRUB PLANTING		
Invasive plant species control	Ongoing	Removal and control of invasive species. Ecologist to be consulted for specific weed species that the management applies to.	As required	Birds - Will avoid nesting bird season (March to August, inclusive) where possible.	No (if undertaken outside of nesting bird season).
Shrub management	Every two years during first ten years. Subsequently every five years.	Vegetation to be removed or planted as required	September to February	Birds - Will avoid nesting bird season (March to August, inclusive) where possible.	No (if undertaken outside of nesting bird season).
		TRE	EE PLANTING		



ANNUAL WORK PLAN					
MANAGEMENT REQUIRED	FREQUENCY OF MONITORING	REMEDIAL MEASURES	TIME OF YEAR	PROTECTED SPECIES CONSTRAINTS	ECOLOGICAL SUPERVISION REQUIRED?
Check stakes and ties	During each visit	Adjust/replace if necessary	All year	N/A	No
Water availability	Each visit	Ensure sufficient water is applied to all new trees, particularly during establishment.	N/A	N/A	No
Base of trees maintained	During each visit	Maintain a grass & weed free area at the base of each tree	All year	N/A	No
Pruning	Annually	Undertake formative pruning of young trees to encourage good growth & shape.	As required	Birds - Will avoid nesting bird season (March to August, inclusive) where possible.	No (if undertaken outside of nesting bird season).
Slow-release fertiliser (if required)	Once a year	N/A	March/April	N/A	No
Check trees for signs of deterioration or distress	Ongoing	Replacement of any dead, dying, diseased or lost trees	As required	Birds - Will avoid nesting bird season (March to August, inclusive) where possible.	No (if undertaken outside of nesting bird season).
Replacement of dying trees	Annually	After 5 years, dead, dying diseased or lost trees shall be replaced	As required	Birds - Will avoid nesting bird season (March to August,	No (if undertaken outside of nesting bird season).



ANNUAL WORK PLAN					
MANAGEMENT REQUIRED	FREQUENCY OF MONITORING	REMEDIAL MEASURES	TIME OF YEAR	PROTECTED SPECIES CONSTRAINTS	ECOLOGICAL SUPERVISION REQUIRED?
		with a standard tree of the same species		inclusive) where possible.	
Tree inspections	Annually	Within areas that have public access, tree conditions will be reviewed annually to ensure no risk from public from damaged / dead trees.	Annually	N/A	No
		HEDGE	ROW PLANTING		
Hedgerow management	Every two or three years during first ten years. Subsequently every five years.	Vegetation to be removed, thinned out or planted as required. Hedgerows to be cut to an 'A' shape on a rotational basis.	September to February	Birds - Will avoid nesting bird season (March to August, inclusive) where possible. Amphibians Badgers Reptiles Hedgehogs	No (if undertaken outside of nesting bird season). For amphibians, badgers, reptiles and hedgehogs supervision is not required but measures as detailed in Section 4 should be adhered to.



ANNUAL WORK PLAN					
MANAGEMENT REQUIRED	FREQUENCY OF MONITORING	REMEDIAL MEASURES	TIME OF YEAR	PROTECTED SPECIES CONSTRAINTS	ECOLOGICAL SUPERVISION REQUIRED?
Pruning of trees (if required)	Every two years during first ten years. Subsequently every five years.	Removal of damaged and defective limbs or diseased trees.	September to February	Birds - Will avoid nesting bird season (March to August, inclusive) where possible.	No (if undertaken outside of nesting bird season).
Check, adjust, repair and remove stakes and ties	Ongoing	Ongoing monitoring of stakes and ties associated with young hedgerows and trees. Stakes and ties to be removed once mature enough.	As required.	None	No
Spraying of tree crowns	Ongoing	Spraying of tree crowns to be undertaken during prolonged periods of dry weather	As required	None	No
Invasive plant species control	Ongoing	Removal and control	As required	Birds - Will avoid nesting bird season (March to August, inclusive) where possible. Amphibians Badgers	No (if undertaken outside of nesting bird season). For amphibians, badgers, reptiles and hedgehogs supervision is not required but measures as detailed in Section 4 should be adhered to.



ANNUAL WORK PLAN					
MANAGEMENT REQUIRED	FREQUENCY OF MONITORING	REMEDIAL MEASURES	TIME OF YEAR	PROTECTED SPECIES CONSTRAINTS	ECOLOGICAL SUPERVISION REQUIRED?
				Reptiles	
				Hedgehogs	
	<u> </u>	GENERAL MAI	NTENANCE MEASURES		
Litter removal and removal of arisings	Ongoing	Regular litter picking to be undertaken and any arisings associated with vegetation management removed off-site	As required	N/A	No
Watering	Ongoing	Undertake watering as required to ensure the health of all plant stock	As required	N/A	No
Raking leaf litter	Ongoing	Raking of leaf litter in areas of public open spaces	As required	N/A	No
Fertilising of amenity grassland	Ongoing	Fertilising to be undertaken to ensure healthy growth of amenity grassland	As required	N/A	No
Control of weeds, if required	Annual	Removal by hand or spot use of herbicides	As required	N/A	No



ANNUAL WORK PLAN					
MANAGEMENT REQUIRED	FREQUENCY OF MONITORING	REMEDIAL MEASURES	TIME OF YEAR	PROTECTED SPECIES CONSTRAINTS	ECOLOGICAL SUPERVISION REQUIRED?
		if weeds become problematic.			
Bat and Bird box monitoring	Years 1, 3 and 5 post- development	Replacement if damaged	October-February to avoid nesting bird/roosting bats.	Birds - Will avoid nesting bird season (March to August, inclusive) where possible. Bats- Will avoid roosting bats season (May-September inclusive).	Yes



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