



Derbyshire Fire and Rescue Service

Glossop Fire Station

Landscape Biodiversity Enhancement and Management Plan

September 2022

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Rev	Issue Status	Prepared / Date	Approved / Date
-	Issue	ET / 09.09.22	GP / 09.09.22

CONTENTS

1.0 INTRODUCTION 3

2.0 ROLES AND RESPONSIBILITIES..... 4

3.0 GENERAL MEASURES 5

4.0 ECOLOGICAL BACKGROUND 6

5.0 HABITAT CREATION..... 6

6.0 HABITAT RETENTION AND ENHANCEMENT 8

7.0 HABITAT MANAGEMENT..... 9

8.0 MONITORING AND REVIEW 16

9.0 SCHEDULE OF WORKS 18

FIGURES

Figure 1: Location map and Site boundary

1.0 INTRODUCTION

- 1.1 This Landscape Biodiversity Enhancement and Management Plan (LBEMP) has been prepared by FPCR Environment and Design Ltd. (FPCR) for Derbyshire Fire and Rescue Service. The proposed development site is on Land at Glossop Fire Station (Grid Reference: SK 034 930), herein referred to as the Site.
- 1.2 The overall objectives of this plan are:
- to achieve a net biodiversity gain across the site that will contribute to the aims of biodiversity enhancement within the local area; and
 - to set out how biodiversity within the Site will be enhanced, restored and maintained following development.
- 1.3 This LBEMP provides the details of the overall management mechanisms and responsibilities, habitat creation methods, targeted management objectives and prescriptions, monitoring and provisional 5 year rolling work programme objectives. The timetable of implementation and management operations provided within this document are relative to the point of implementation.
- 1.4 This document should be read in conjunction with the following documents:
- Glossop Fire Station Ecological Appraisal, FPCR 2021;
 - Glossop Fire Station, Charlestown Road, Glossop, Planting Plan, FPCR 2022; and
 - Glossop Fire Station Arboricultural Method Statement, FPCR 2022.

Site Context

- 1.5 The Site comprises the existing fire station, residential units, amenity space, associated access, and secondary woodland located to the south of the town of Glossop (see Figure 1).

Planning

- 1.6 Planning permission was granted by High Peak Borough Council in May 2022 for demolition of the existing Fire Station and outbuildings, and construction of a new Fire Station, Smoke House and Tower with associated outbuildings and external works (ref HPK/2021/0663).
- 1.7 This LBEMP has been prepared to discharge Condition 18 of the granted permission, which states:

No development shall commence until a Landscape Biodiversity Enhancement and Management Plan shall be submitted to and be approved in writing by the Local Planning Authority.

The Plan shall include the following:

(a) Description and location of features to be retained, created, enhanced and managed, including new landscaping and existing habitats. This shall include the replacement of trees at a 2:1 ratio and a preference for native species.

(b) Aims and objectives of management

(c) Appropriate management methods and practices to achieve aims and objectives, including control/eradication of non-native species

(d) Prescription for management actions

(e) Preparation of work schedule (including a five-year work plan capable of being rolled forward in perpetuity)

(f) Details of the body or organisation responsible for implementation of the plan

(g) A monitoring schedule to assess the success of the enhancement measures

(h) A set of remedial measures to be applied if conservation aims and objectives of the plan are not being met.

(i) Habitat enhancements including bat boxes, bird boxes, habitat piles/deadwood

(j) Requirement for a statement of compliance upon completion of planting and enhancement works.

The LBEMP shall also include details of the legal and funding mechanism(s) by which the long-term implementation of the plan will be secured by the developer with the management body(ies) responsible for its delivery. The development shall be carried out and maintained / managed in accordance with the approved Plan

Reason: - In the interests of preserving protected species and ecological assets.

2.0 ROLES AND RESPONSIBILITIES

- 2.1 As the developer and landowner, Derbyshire Fire and Rescue Service is ultimately responsible for meeting the commitments made in this document, the implementation of which will be overseen by a suitably qualified person or persons, appointed by and Derbyshire Fire and Rescue Service.
- 2.2 All management tasks outlined within this document will either be undertaken by Derbyshire Fire and Rescue Service (DFRS), or by a nominated Management Company, with ultimate responsibility falling to undertaken by Derbyshire Fire and Rescue Service.
- 2.3 All ecological monitoring will be undertaken by a suitably qualified and experienced ecologist on behalf of DFRS or their nominated Management Company. Similarly, a suitably qualified and experienced arboriculturalist will undertake arboricultural monitoring, and specialised contractors (where necessary) will be consulted regarding invasive non-native species control.
- 2.4 As a component of this Management Plan, it is proposed that funds be made available by DFRS to implement management and enhancement works.

3.0 GENERAL MEASURES

- 3.1 Habitat creation for the onsite scheme will be in accordance with details as set out in the Planting Plan¹.
- 3.2 All new planting is to be delivered and planted in accordance with Horticultural Trades Association (HTA) Standard 'Handling and establishing landscape plants' (obtainable from the HTA).
- 3.3 Planting is to remain materially undamaged, sturdy, healthy and vigorous, planted upright or well balanced with best side to front. Trees and shrubs are to be of good shape and without elongated shoots, grown in a suitable environment and hardened off before being delivered to the site.
- 3.4 All planting is to be true to name and free from pests, diseases, discoloration, weeds, fungus and physiological disorders.
- 3.5 All works are to be undertaken with due diligence, being sure to leave the works in a clean and tidy condition at completion and after any maintenance operations. Areas affected by planting operations will be protected using boards/ tarpaulins and excavated or imported material shall not be placed directly on adjacent grassed areas.
- 3.6 All plants should be stored only when necessary, in accordance with the HTA's 'Handling and establishing landscape plants' (obtainable from the Horticultural Trades Association) Part I, Part II and Part III, paragraphs 1.3.3 to 1.3.6, 3.0, and 4.0.
- 3.7 If plants/trees are unobtainable, alternatives are to be agreed with the Ecologist/Landscape Architect in writing prior to ordering.
- 3.8 After planting water plants to ensure that the full depth of topsoil is wetted: apply water evenly and without damaging or displacing plants or soil. Continue to water as necessary to ensure the successful establishment and continued thriving of planting.
- 3.9 If water supplies are restricted or likely to become restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.
- 3.10 Bare root deciduous planting shall be carried out from late October to late March; herbaceous plants September/October or March/April; and container grown plants at any time of year if ground and weather conditions are favourable. Bare root deciduous planting to be carried out only during suitable ground and weather conditions. Planting shall not be carried out in waterlogged or frozen ground.
- 3.11 Tree and shrub planting will be protected from rabbits with spiral guards, as conditions on site require. These will be removed once plants are established.
- 3.12 Grassland seed mix is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture in the soil. Moisture may be supplied artificially by watering but must be thorough enough to penetrate at least 100mm and continued after sowing if dry weather follows.

1 (FPCR July 2022) Glossop Fire Station, Charlestown Road, Glossop. Planting Plan

- 3.13 Areas to be sown should be first ploughed or rotovated and raked or harrowed to produce a medium fine, firm tilth. Fertiliser will not be applied at any point as this will lead to dominance of nutrient loving species such as broad-leaved grasses, nettles and docks.
- 3.14 The Flowering lawn mix comprises wildflower species with a nurse crop of grass in a 20:80 ratio and includes several perennial species that can be slow to germinate and grow. Ground cover will therefore likely take longer to develop than conventional lawn sowings and may take 12-18 months to knit together as turf. Newly seeded areas will therefore be protected to prevent seedling destruction during establishment.

4.0 ECOLOGICAL BACKGROUND

- 4.1 The Ecological Appraisal² found existing habitat on site comprised of a mixture of buildings, hardstanding, neutral grassland, scattered trees and woodland. Woodland recorded on site is not representative of a priority habitat type and features a number of invasive species within the shrub and ground flora.

5.0 HABITAT CREATION

Aims and objectives of Habitat Creation

- 5.1 The aims of habitat creation within the Site are:
- to mitigate for woodland and individual tree habitat lost as a result of proposals.
 - to enhance biodiversity throughout the site and ensure an overall net biodiversity gain following development.
 - to provide diversity of structure and species richness within newly planted habitats.
- 5.2 Details of locations and species to be included can be found in the Planting Plan³.

Trees and Woodland

- 5.3 Twenty individual trees and two small groups of trees require removal in order to facilitate alignment of the proposals. Of the individual trees, species include sycamore *Acer pseudoplatanus* (12 trees), common lime *Tilia x europaea* (2 trees), wych elm *Ulmus glabra* (1 tree), holly *Ilex aquifolium* (2 trees), horse chestnut *Aesculus hippocastanum* (1 tree), ash *Fraxinus excelsior* (1 tree), and common larch *Larix decidua* (1 tree). The tree groups lost comprise one group of common larch, common lime and sycamore and a second of beech *Fagus sylvatica* and goat willow *Salix caprea*.
- 5.4 In order to compensate for the loss of trees and woodland areas and provide a net gain in biodiversity following development, it is proposed that a combination of native, free standing and open space trees and understory shrubs are planted on site. This will provide foraging opportunities for a wide range of vertebrate and invertebrate wildlife. Species chosen and

² (FPCR October 2021) Glossop Fire Station, Ecological Appraisal.

³ FPCR (n1).

ongoing management of these areas should aim to provide a diverse structure. Plants should be non-ornamental native species and of local provenance, where possible.

Individual Tree Planting

- 5.5 In total, 42 new trees are proposed. The species planted will be native species, intending to replace the non-native and *archeophyte* species lost to proposals, as well as increasing the diversity of tree species within the Site. The species mix will comprise a mixture of English oak *Quercus robur*, silver birch *Betula pendula*, wild cherry *Prunus avium* and field maple *Acer campestre*.

Scattered Scrub with Tussock Grass Mix

- 5.6 The tree groups lost to proposals cover approximately 440m². The planting of an area of 693m² with scattered scrub is proposed. Species will include native hawthorn *Crataegus monogyna*, holly, hazel *Corylus avellana* and native dogwood *Cornus sanguinea*. Small clusters of the same species should be planted together in small irregular shaped groups of 3, 5 or 7, and designed to create a naturalistic pattern. Initial planting to target 15-20% open space.
- 5.7 These areas will be under sown with a Tussock Grass Mix (Emorsgate EG10 or similar).

Native Hedgerow Planting

- 5.8 New native species hedgerow planting will be established. In total, 99m² of new native species hedge planting is proposed. The planting composition will be based on the species-mix provided in the Planting Plan⁴, and will ensure that at least five species are present within a given 30m section (i.e. native species rich hedgerow), thereby providing new habitat of principal importance under the Natural Environment and Rural Communities Act (2006).
- 5.9 Ground preparation works will include the strimming and spraying of the planting strip with herbicide at least three weeks prior to planting.
- 5.10 Hedgerow plants to be notch planted using five plants per linear metre in a double staggered row with rows 350mm apart and individually protected against rabbit damage using shrub guards or 600mm spirals and canes as appropriate. Tree guards will be removed once the hedgerow is established.
- 5.11 A mulch layer comprising 50ml of composted bark/woodchips will be applied immediately after planting but leaving 150ml clear around stems.

Flowering Lawn

- 5.12 Non- amenity areas will be seeded using a flowering lawn mix that responds well to regular mowing (Emorsgate EL1 - flowering lawn mix (or similar)). An area of 1407m² is proposed to be re-seeded.

⁴ Ibid.

6.0 HABITAT RETENTION AND ENHANCEMENT

- 6.1 The majority of existing mature individual trees within grassland to the north and areas of woodland to the south will be retained. Detailed information regarding specific trees to be impacted by proposals and tree protection measures to be implemented for can be found in the Arboricultural Method Statement⁵.
- 6.2 To enhance the structural and species diversity of retained woodland habitat, these areas will be underplanted with native understorey scrub species including alder *Alnus glutinosa*, crab apple *Malus sylvestris*, elder *Sambucus nigra* and rowan *Sorbus aucuparia* (for a full list see planting plan). This will be located in open areas within the woodland. Small clusters of the same species should be planted together in small irregular shaped groups of 3, 5 or 7, and designed to create a naturalistic pattern. Planting will be protected from rabbits with spiral guards, as conditions on site require. Initial planting to target 15-20% open space.

Enhanced Habitats for Fauna

- 6.3 The following section describes proposed enhancements for target fauna. The objective of these proposals being to maintain and enhance the existing nature conservation value of the site for local species, including bats, birds and invertebrates.

Bats

- 6.4 9 tree mounted woodcrete/woodstone bat boxes will be installed on suitable retained trees. Bat boxes will be arranged in groups of three on the same tree, located at heights of a least 4m above ground and facing different directions, ideally southeast, south-west and north. Suitable examples include - barkboxes-maternity-bat-box ⁶, Schwegler 2FN or 1FF, and the Vivaro Pro Low Profile Woodstone Batbox (or similar).
- 6.5 Any external lighting scheme will be designed to ensure that light spill onto bat boxes /woodland areas is avoided, and any lighting of habitat corridors is minimised as far as practicable. Where lighting is absolutely necessary within or adjacent to areas of woodland or tree planting this will be low wattage, directional, low level and/or shaded to minimise light spill onto potential flight lines and foraging habitat, in line with industry guidance ^{7, 8, 9}.
- 6.6 The above enhancements will ensure that the scheme continues to provide varied foraging, commuting and roosting opportunities for bats across the site in the long term.

Birds

- 6.7 The proposed landscape planting scheme will provide a more diverse range of vegetation structure than is currently present, with a greater extent of structural/woody vegetation that will offer increased nesting opportunities within the site. As the soft landscaping matures it is anticipated it will support a greater variety of urban edge and woodland bird species than currently present.
- 6.8 10 woodcrete/woodstone bird boxes will be installed on suitable retained trees within the site to further enhance nesting opportunities for birds and therefore contribute to the requirements

⁵ (FPCR July 2022) Glossop Fire Station, Arboricultural Method Statement.

⁶ <https://www.barkboxes.co.uk>

⁷ Bat Conservation Trust. 2011. Statement on the Impact and Design of Artificial Light on Bats.

⁸ Institute of Lighting Professionals. 2011. Guidance notes for the reduction of Obtrusive Light.

⁹ Bat Conservation Trust. 2018. Bats and Artificial Lighting in the UK. Bats and the Built Environment Series. Guidance Note 08/18.

of the NPPF via biodiversity enhancement. A selection of hole- and open-fronted designs will be used in order to encourage a variety of species such as, but not limited to: Schwegler 1B, 1SP, 2M, 2GR, 1CGA and 3SV nest boxes, Schwegler 2B tree creeper nest box, and Vivara Pro Seville 32mm, Seville 28mm and Barcelona (open) nest box designs (or suitable alternatives depending on availability).

Invertebrates

- 6.9 The proposed landscaping and hedgerow enhancement planting will include a range of native and ornamental species which will provide flowers (and fruits/seeds/nuts) and therefore a pollen and nectar source for invertebrates as well as diversity of vegetation structure that will create varied microhabitats suitable to support a wide range of invertebrates. Sensitive management of created habitats as prescribed in Section 7.0 will further enhance the nature conservation value of the site for fauna including invertebrates by encouraging a long flowering season and therefore a source of nectar/pollen, fruits, seeds and nuts, and creating and maintaining a variety of microhabitats suitable to provide shelter and hibernation opportunities.
- 6.10 The amount of deadwood within the woodland will be increased via retention of a select number of trunks removed to facilitate proposals.
- 6.11 It is furthermore proposed that invertebrate nesting opportunities are enhanced throughout the site via provision of three each of the following (or similar agreed) designs on retained trees in suitable south facing, sheltered locations: Schwegler Clay and Reed Insect Nest, and Schwegler Wood-concrete Insect Nesting Aid.

7.0 HABITAT MANAGEMENT

Aims and objectives of management

- 7.1 The aims of habitat management within the Site are:
- To ensure establishment of newly created habitats.
 - To continue to maintain the condition of target habitats as set out herein.
 - To implement measures for removal and control of invasive non-native species (INNS).

Trees, Woodland and Scrub

Management of new planting

- 7.2 Trees will be inspected annually in late autumn/winter by a suitably qualified arboriculturalist for signs of stress, disease or damage and appropriate remedial action taken.
- 7.3 Like-for-like replacement of failed saplings will be undertaken until the trees are established.

Management once established/ management of retained areas

- 7.4 Spiral guards will be removed after establishment.
- 7.5 Any tree works are to be undertaken only by a suitably skilled and qualified arboriculturalist. Works will be undertaken outside of the bird nesting season, (which runs March to August/early

September, inclusive), unless immediately preceded by a check by a suitably qualified ecologist and absence of breeding birds is confirmed.

- 7.6 Regular management of scrub via clearing will be undertaken as appropriate. Any diseased wood will be pruned back to sound wood, with diseased arisings removed from the site to discourage the further spread of disease. No burning will be undertaken on site. Non-diseased arisings may be placed within woodland areas to provide piles of dead wood or recumbent dead logs to maximise invertebrate and bryophyte biodiversity.
- 7.7 Yearly mowing / strimming of woodland/scrub glades and clearings in July (with late June-August acceptable) to around 50mm but once every four years, delay the cut to September to allow late flowering species to set seed. All grass arisings will be left in situ for up to 48 hours to allow for the dispersal of invertebrates and mammals into the surrounding habitat. Arisings will then be removed to prevent enrichment of the soil through decomposition. Arisings will be placed in piles to provide microhabitat for amphibians, invertebrates and small mammals, or will otherwise be removed from the Site.
- 7.8 Control of any pernicious weeds / non-native invasive species (see also section 7.22) as required through mechanical removal/ herbicide as appropriate and remove all cut material from Site. Seek advice from specialist contractor, as necessary.
- 7.9 Trimming of dense scrub edges and bramble stands will be carried out, to maintain a sinuous edge with a graded margin down to field layer (tapering edge from canopy height to 20cm). Trimming to take place as required (roughly 1/5 of the area every 5-6 years in rotation). Trimming to take place outside of bird nesting season (which runs March to August/early September, inclusive), where possible. If works are required during the bird nesting season (March to August/early September, inclusive), they should be preceded by a check by a suitably experienced ecologist.
- 7.10 Selective clearing / coppicing of scrub (roughly 1/5 every 5-6 years) down to ground to reduce dominance of species such as blackthorn and hawthorn and promote regeneration of young shrubs/herb edge.
- 7.11 Where possible, standing dead wood will be left in-situ to provide dead wood habitats.

Hedgerows

Initial management

- 7.12 Until new planting is established, formative pruning will be undertaken to keep the hedgerows tidy and encourage dense, bushy growth, with competitive species cut back using hand tools. Trees within the hedgerow will, where possible, be allowed to develop to mature standards to provide further nesting and foraging opportunities for local wildlife and a more varied habitat structure.
- 7.13 New planting will be regularly inspected to encourage healthy, vigorous condition. Whilst newly planted, hedgerow bases will be kept weed and grass free during establishment using hand/ hand tool weeding or where appropriate a herbicide up to three times per year. Once established, a buffer strip of uncut grass at least 1m wide should be allowed to develop.
- 7.14 Any diseased or rotten wood will be pruned back to sound wood. All diseased material will be removed from the site. Disease-free cut material will where possible be composted on site or

used to create dead wood piles within woodland areas or will otherwise be removed from site. None will be burned on site.

- 7.15 Like-for-like replacement of failed saplings will be undertaken until the hedgerow is mature and established.

Management once established

- 7.16 Once established, hedgerows will be managed in the long-term via initial cutting to a height of 1.5-3m to suit circumstances. The aim is to achieve a dense foliage in an 'A' shaped profile with a wide, healthy hedgerow base to maximise the extent of cover they provide and increase their capacity to support breeding birds and small mammals. Where possible potential future mature hedgerow trees should be identified and left uncut to enable their growth into mature standards.
- 7.17 Hedgerows will subsequently be part cut on rotation, with each section cut every three years in late November (after the leaves have started to drop) or early February, allowing the remaining two-thirds to flower/fruit.
- 7.18 Hedgerows should never be disturbed during the bird nesting season (March – August) unless preceded by a nesting bird check by a suitably experienced ecologist, with works then proceeding in strict accordance with any specific ecological advice provided following the check.
- 7.19 Any diseased or rotten wood will be pruned back to sound wood. All diseased material will be removed from the site. Disease-free cut material will where possible be composted on site or used to create dead wood piles within woodland areas or will otherwise be removed from site. None will be burned on site.
- 7.20 Spiral guards / spirals and canes will be removed after establishment.

Grassland

- 7.21 Regular mowing will restrict cover of scrub and undesirable species. Mowing will be relaxed for two months during May-June to allow flowering.

First year management

- Mow newly sown flowering lawns regularly (every 7 -10 days during growing season) throughout the first year of establishment.
- Cut to a height of 40-60mm, 6-8 weeks after germination and subsequently mow to this height as required, but not more regularly than once every four weeks until such a time as a knitted turf is established. This will gradually develop a good sward structure, help maintain balance between faster growing grasses and slower developing wildflowers, and control annual weeds. The arisings should be removed.
- Dig out any residual perennial weeds such as docks.

Management once established

- Once established, this grassland will be subject to a quarterly cut to 750mm, if sufficient material. This will help to reduce the vigour of the sward and facilitate the colonisation of additional plant species. Cuts in summer will aim to retain approximately 50% of the flowering grassland sward uncut. Strimming should not occur with 100mm of tree stems or

hedgerow. Instead, adjacent margins will be left unmanaged to provide a more structured habitat.

- Continue to dig out any residual perennial weeds such as docks.
- All grass cuttings will be removed after 48 hours to prevent soil enrichment detrimental to floristic diversity and to minimise thatching.
- The mowing frequency will have regard to weather conditions to ensure that there is no excessive cutting during dry periods and mowing will cease entirely during early/mid-summer to encourage flowering and the setting of seed. The timing of cuts may vary from year to year according to variations in weather. The important determinant for the summer cut will be that flowering plants have been able to set seed prior to the cut taking place. This will be evident by the presence of dried seed heads within the sward, to be confirmed by the contractor prior to commencing the cut.
- In very wet conditions, all grass cutting operations will also cease until conditions allow for grass cutting to take place without damaging the surface levels or creating 'divots' from the machinery.
- Fertiliser will not be applied to native grasslands at any point, as this will lead to dominance of nutrient loving species such as broad-leaved grasses, nettles and docks.
- Newly seeded areas should be protected from trampling or other disturbance.
- All litter, stones or other debris should be collected and removed immediately prior to grass cutting operations.
- Any areas damaged via recreation use etc. will be repaired via scarification and aeration, followed by reseedling and seedling protection.

Control and Management of INNS

- 7.22 The results of a dedicated survey to assess the status and extent of INNS on Site has informed the management provisions which will include the control of INNS for a rolling 5-year plan. Full details can be found in the Ecological Appraisal¹⁰.
- 7.23 All the below INNS are listed as a Schedule 9 species under the Wildlife and Countryside Act 1981, which states it is an offence to plant or allow to spread into the wild or otherwise cause the species to grow in the wild. Offences under the Wildlife and Countryside Act 1981 can result in possible fines and prison sentences.
- 7.24 The following INNS were identified on Site:
- Japanese knotweed was recorded in 28 locations throughout the site;
 - a stand of Himalayan balsam *Impatiens glandulifera* approximately 10x10m was identified located in the east of the Site behind the tower and garages;
 - variegated yellow archangel *Lamium galeobdolon* was found within grassland to the north of the Site; and

¹⁰ FPCR (n 2).

- rhododendron *R.ponticum* was found scattered within woodland areas.

General Good Practice Measures

- 7.25 To reduce costs and additional effort, it is important to prevent INNS from spreading around a site and contaminating unaffected areas. This is best achieved by:
- production of a detailed INNS management plan;
 - ensuring that all relevant staff are briefed and aware of INNS issues, the management plan and their responsibilities;
 - ensuring everyone working on the site is aware of and adheres to good site hygiene such as:
 - a) marking out contaminated areas;
 - b) ensuring that vehicles with caterpillar tracks do not work within contaminated areas;
 - c) treating contaminated soils carefully;
 - d) limit use of tracked machinery at infested sites;
 - e) cleaning machinery or equipment that could be contaminated before leaving site; and
 - f) encouraging native species within cleared areas.

Japanese knotweed

- 7.26 A management plan for the control and eradication of Japanese knotweed was undertaken in advance of planning submission. Works are currently ongoing.

Himalayan balsam

- 7.27 The most common ways a site can become infected are:
- importation of infected soil;
 - contamination on vehicles and equipment;
 - colonisation from upstream or adjacent areas; and/or
 - illegal dumping of contaminated soil.

Mechanical/physical control

- 7.28 Seeds are not very robust and only survive for up to 18 months, so a two-year control programme can be successful in eradicating this plant if there is not further infestation from adjacent sites. Inaccessible stands can quickly recolonise accessible cleared areas, so vigilance is needed if an area is to be effectively cleared.
- 7.29 Mechanical control, by repeated cutting or mowing, is effective for large stands, but plants can regrow if the lower parts are left intact; the plant must be cut below the lowest node to stop regeneration.

- 7.30 Small infestations (most common in gardens) can easily be controlled by hand-pulling as the species is shallow rooted. Padded gloves should be worn to avoid risk of injury to hands.
- 7.31 To avoid additional spread, do not disturb plants if seeds pods are visible (usually sometime after May).
- 7.32 Eradication programmes should be undertaken in April or early May. If hand pulling after this time, bag plant tops to prevent seed spread. However, this method takes several years to effectively exhaust the seedbank but is a useful alternative on sites where herbicides or heavy machinery cannot be used.
- 7.33 The material that has been pulled up should be incinerated, either on site or taken to licensed incinerator or buried in controlled waste registered landfill sites (as it may contain viable seeds depending on the time of year).

Chemical control

- 7.34 Himalayan balsam can also be controlled by spraying the foliage with glyphosate. The plants should be sprayed in the spring before flowering but late enough to ensure that germinating seedlings have grown up sufficiently to be adequately covered by the spray. Glyphosate is sold under a number of brand names.
- 7.35 Small infestations and individual plants can be controlled by using glyphosate in a weed wiper. This has the advantage of preserving native plants and grasses which would otherwise be killed by the glyphosate. The herbicide 2,4-D amine controls many broadleaved annual weeds and may also be used to control this species but is not recommended for use near waterbodies. This selective herbicide will not kill grasses. It may be preferable to glyphosate in situations where the weed has not reduced complete cover of the grasses. A long-lance sprayer may assist in the spraying of less accessible areas out of the reach of conventional knapsack sprayers. Always follow health and safety procedures outlined by the herbicide manufacturer and take appropriate precautions when working near water.
- 7.36 Given the location of stands identified in woodland, care may be needed in the application of herbicides to avoid potentially killing tree roots. Spraying may be more difficult and stem injections may be more practical, though more labour intensive.
- 7.37 Follow-up control work will be necessary to ensure that any regrowth and seedlings are not missed.

Control of Himalayan balsam off Site

- 7.38 It is particularly important to consider Himalayan balsam in the wider environment and on adjacent sites. If this species is growing in an adjacent site, then no matter how good on-site control is, recolonisation is likely. An understanding of the wider area is necessary to determine if eradication or control efforts are likely to be successful. In some situations, eradication of all Himalayan balsam on site might not be possible due to the likelihood of re-colonisation. Work in partnership with neighbouring landowners to tackle Himalayan balsam.

Rhododendron

- 7.39 Current methods of management and disposal for *R.ponticum* include the following:

Mechanical control:

- 7.40 Heavy machinery with long hydraulic arms are best for digging up the root material and crushing branches. Operator knowledge of the machinery and habitat is key to ensure the heavy machinery does not compact valuable flora and fauna. Mechanical clearance must be followed by repeated herbicide applications for at least two years to prevent re-sprouting and recolonisation (forestry.gov.uk, 2017).

Chemical control:

- 7.41 Spray cut stems with herbicide, although surrounding vegetation may be affected by this.

Variegated yellow archangelMechanical Control

- 7.42 The plant is shallow rooting and can be mechanically removed, although care should be taken to remove all of the plant material as the runners easily break up when disturbed and have the potential to propagate new colonies. Roots should be carefully excavated up to 0.5 – 1.0m in depth and all arisings carefully bagged and removed off-site to a licensed landfill. The plant can re-grow from a small piece of root so extra care must be taken to remove all of the plant material from the site.

Chemical Control

- 7.43 Herbicide application can successfully control the plant. Applications of herbicide should be made while the plant is actively growing to ensure maximum effectiveness care should be taken not to injure off-target plants. When treating large areas, a suitable grass and forb mix should be sown to prevent bare ground and colonisation of other unwanted species.
- 7.44 Herbicides which contain the following active ingredients are showing good control of yellow archangel: Triclopyr, Imazapyr; Metsulfuron, Dichlobenil. Products containing Glyphosate (e.g., Round Up) are less effective and will require repeated treatments.

Control of variegated yellow archangel off Site

- 7.45 Waste materials containing variegated yellow archangel are considered 'controlled' waste and must be disposed of appropriately at a licensed landfill.

General note on the use of herbicides

- 7.46 When using herbicides, always read and follow label directions for rates, spraying conditions, personal protective equipment and grazing intervals:
- do not spray when it is windy or raining, or when rain is forecast;
 - herbicides should not be sprayed within 60 feet of water bodies without further consultation with the Environment Agency;

- pay careful attention to label instructions and follow directions closely. Always read and understand the label of the herbicides you choose to use; and
- do not spray more than is necessary when using herbicides follow the recommended rates on the label. With all herbicides, when you apply them is as important as how you apply them.

8.0 MONITORING AND REVIEW

- 8.1 Relevant, appropriately timed monitoring is important to ensure that the habitats created within the site reach and maintain their maximum value to nature conservation, identify opportunities for further development of management tasks and therefore inform possible revision of this document
- 8.2 This Management Plan should run for five years, with the work programme reviewed after this period by a suitably experienced ecologist and arboriculturist to determine whether the management objectives are being met. Following the initial five years period, subsequent reviews will be completed in consultation with the LPA or appointed consultees, and the habitat management will be completed in perpetuity in accordance with the (periodically) revised Management Plan. An outline of the five-year work programme is detailed in Section 9.0.
- 8.3 The prescriptions provided within this Management Plan should not be set in stone and can be refined if required. Monitoring results will be reported following each review and will be used to inform any alterations to the management practices as appropriate and in consultation with the LPA or appointed consultees in order to improve and enhance the ecology and biodiversity of the site. This document will also be updated as necessary to bring it into line with any relevant updated legislation and/or best practice.

Monitoring

- 8.4 Areas of new planting will be monitored by an appropriately experienced ecologist / arboriculturist on an annual basis for the first five years to ensure effective establishment. Towards the end of each five-year period the management should be reviewed and amended as necessary to provide a five-year rolling programme.
- 8.5 Bat boxes should only be monitored by a suitably experience and licenced ecologist.
- 8.6 An initial monitoring visit will be undertaken upon completion of planting and enhancement works and a statement of compliance will be produced for submission to the LPA.
- 8.7 Following each subsequent site monitoring visit, a summary inspection report will be produced. This will identify suitable corrective actions for any habitat identified as not establishing appropriately.
- 8.8 Annual monitoring to year 5 will assess the following against the objectives within this management plan (or updated versions thereof):

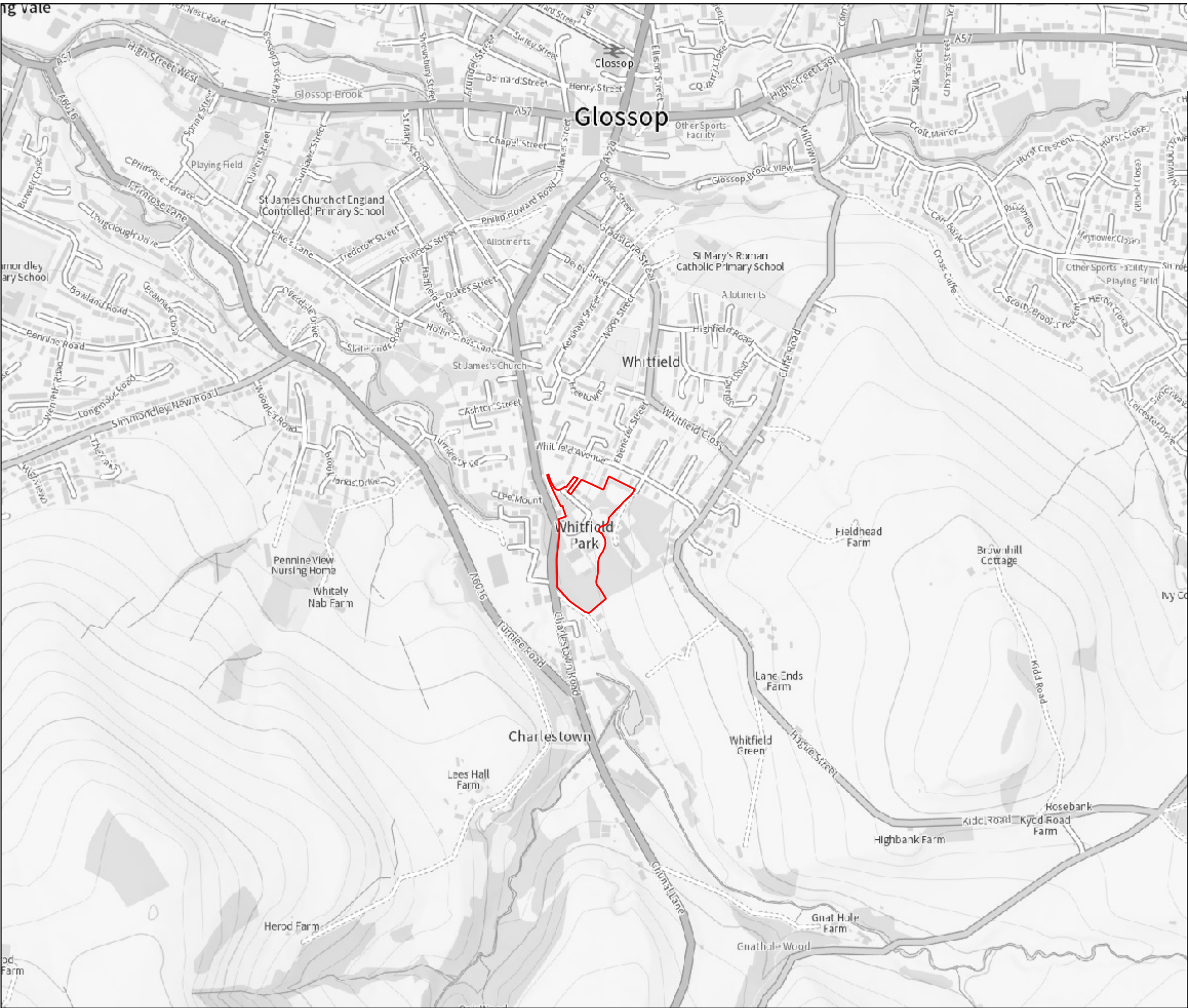
Table 1: Post Construction Monitoring Years 1-5

Feature & Location	Monitoring to Assess	Indicator that objective has been achieved by Year 5
New native hedgerow planting	Initial monitoring survey: - Whether proposed new hedgerows been planted, and the recommended planting mix used All subsequent monitoring surveys: - Whether the recommended cutting and mowing regime been implemented.	New species-diverse hedgerows developing with dense structure suitable to serve as wildlife corridors and foraging resource.
Retained trees & shrub	- Whether annual tree inspections have been undertaken by a qualified arboriculturalist, and any required remedial works undertaken. - Whether the recommended regime of annual mowing / strimming of woodland/scrub glades and clearings have been followed. - Whether the recommended regime of rotational cutting/coppicing of edge and stands of scrub roughly 1/5 every 5-6 years has been implemented.	Trees and shrubs are maintained in healthy condition and habitats are managed to create a permanent, diverse structure of canopy and understory.
New tree planting	Initial monitoring survey: - Whether the proposed new tree/woodland planting has been undertaken and the recommended planting mix used All monitoring surveys: - As for retained trees, above	Desired extent, composition and structural diversity of developing habitat, to include future mature standards.
New shrub planting	Initial monitoring survey: - Whether proposed new areas of native shrub been planted, and the recommended planting mix used All subsequent monitoring surveys: - As for retained shrub areas, above	Desired extent and composition of developing shrub habitat, providing a range of structural diversity, sheltered microhabitats and food sources.
New wildflower grassland	Initial monitoring survey: - Whether the wildflower grassland been established, and the recommended seed mix used - Whether the first-year management has been implemented All subsequent monitoring surveys: - Whether the recommended long-term management regime has been implemented	Presence of good quality native grassland with a herb component of $\geq 30\%$ and limited ruderal and developing shrub cover.
All habitats/INNS	- Assess condition to determine the need for any replacement planting/remedial measures - Note any presence of invasive species, with results to inform suitable control methods	Reduction in prevalence of INNS allowing desired habitat condition to be achieved.

9.0 SCHEDULE OF WORKS

Description of Works	Appropriate Timing											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Management / New Habitat Creation, Year 1												
Retained Trees												
Inspection by qualified arboriculturalist										✓	✓	✓
Management as required, preferably maintaining existing heights of mature individuals	✓	✓										✓
Clearing where appropriate (non-diseased arisings left within woodland)	✓	✓								✓	✓	✓
Tree / Shrub / Hedgerow Planting												
Ground preparation works prior to planting.	✓	✓							✓	✓	✓	✓
Planting between November and March.	✓	✓	✓								✓	✓
Formative pruning (hedgerows and fruit trees) to encourage desired growth form, with removal of any diseased or rotten wood.	✓	✓	✓								✓	✓
Water during periods of prolonged dry weather.				✓	✓	✓	✓	✓	✓	✓		
Wildflower Grassland												
Ground preparation works prior to planting in accordance with manufacturer's instructions.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sow in accordance with manufacturer's instructions and protect during establishment.			✓	✓	✓				✓	✓		
Cut grassland to a height of c.40-60mm 6-8 weeks after germination and subsequently to a height of 40mm. Remove arisings after 48 hours.			✓	✓	✓	✓	✓	✓	✓	✓	✓	
INNS												
Marking out contaminated areas of Himalayan balsam and variegated yellow archangel prior to works			✓	✓	✓	✓	✓	✓	✓	✓	✓	
Control of Himalayan balsam				✓	✓							
Control of rhododendron	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Control of variegated yellow archangel			✓	✓	✓	✓	✓	✓	✓	✓	✓	

Description of Works	Appropriate Timing											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Management in Year 2 - 5												
Retained Trees												
Inspection by qualified arboriculturalist										✓	✓	✓
Management as required, preferably maintaining existing heights of mature individuals	✓	✓										✓
Clearing where appropriate (non-diseased arisings left within woodland)	✓	✓								✓	✓	✓
Tree / Shrub / Hedgerow Planting												
Check and tighten tree supports. Replace dead and dying specimens on like-for-like basis.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm loose plants, check any guards/ties, treat weed growth, replace failed stock.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Prune any diseased, damaged or rotten wood back to sound wood.	✓	✓	✓								✓	✓
Water during periods of prolonged dry weather.				✓	✓	✓	✓	✓	✓	✓		
Once established cut 1/3 hedgerows annually to create an 'A' shaped profile	✓	✓	✓								✓	✓
Creation / maintenance of sheltered 'scallops' among woodland edge vegetation via selective removal of sections of shrub on a 3- 8-year rotation.	✓	✓	✓								✓	✓
Removal of tree guards year 3-5 following establishment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wildflower Grassland												
Cut grassland to a height of c.750mm quarterly if sufficient material. Arisings removed.			✓		✓			✓			✓	
INNS												
Marking out contaminated areas.			✓	✓	✓	✓	✓	✓	✓	✓	✓	
Control of Himalayan balsam				✓	✓							
Control of rhododendron (as required)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Control of variegated yellow archangel			✓	✓	✓	✓	✓	✓	✓	✓	✓	
Monitoring of bat and bird boxes	✓	✓								✓	✓	✓
Monitor and evaluate												
Assess condition of newly created habitats and amend management prescription accordingly.					✓	✓	✓	✓				

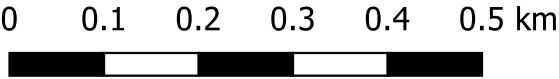


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Key

Site Boundary



client
Derbyshire Constabulary and
Derbyshire
Fire and Rescue Service

project
Glossop Fire Station

drawing title
LOCATION PLAN

scale
1:8,000
drawing / figure number

Figure 1

drawn
ET

issue date
9/9/2022

rev