



THE
ENVIRONMENT
PARTNERSHIP



LAND OFF ABBEY ROAD, WREXHAM INDUSTRIAL ESTATE

WREXHAM

LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN

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CONTENTS	PAGE
1.0 Introduction	1
2.0 Site Management Considerations.....	3
3.0 Management Intentions and Operations	7
4.0 Monitoring and Review	17

TABLES	PAGE
Table 1: Key Measures for Monitoring.....	17

APPENDICES

- APPENDIX A: Habitat Enhancement Plan (TEP ref: G7128.003F)
- APPENDIX B: Landscape Maintenance Schedules
- APPENDIX C: Legislation Context

1.0 Introduction

Purpose of the Management Plan

- 1.1 This Landscape and Ecological Management Plan has been produced by The Environment Partnership (TEP) Limited on behalf of McCarthy Haulage Ltd to provide a framework for long term landscape and habitat management and maintenance of the compensation area associated with the warehouse extension at Land off Abbey Road, Wrexham Industrial Estate (hereby referred to as the 'Site').

Scope of the Management Plan

- 1.2 This Management Plan will ensure the protection of the integrity and functionality of the compensation area.
- 1.3 The Management Plan describes the Site in terms of landscape elements and management operations and provides a framework for the long term landscape management and maintenance of the habitats, open space and landscaping associated with the Site.
- 1.4 The Management Plan should be read in conjunction with the Habitat Enhancement Plan (TEP ref: G7128.003F) and Ecological Assessment (TEP ref: 7128.002 v6).

Structure of the Management Plan

- 1.5 Chapter 2.0 provides a summary of the factors influencing management and a site analysis. Chapter 3.0 outlines the long-term aims and objectives for management and Chapter 4.0 sets out how the success of the plan will be monitored, reviewed and updated over time.
- 1.6 Appendix A is the Habitat Enhancement Plan (TEP ref: G7128.003F), Appendix B provides a table of maintenance operations and Appendix C summarises relevant legislation.

Site Location

- 1.7 The Site lies approximately 4.5km east of Wrexham city centre. The Site is bounded by small area of woodland to the north and to the east, Elm Road to the south and Abbey Road to the west.

Planning and Development Context

- 1.8 Full planning permission was granted by Wrexham Council in 11th October 2019 (planning application ref: P/2019/0593) for the extension to existing industrial warehouse (Use Class B1, B2 And B8) together with associated service yard.

Planning Condition

- 1.9 Full planning permission was granted, subject to conditions, including Condition 10 which states:

No part of the development shall commence until a scheme of long term measures to protect the extent, integrity and functionality of the compensation

area has been submitted to and approved in writing by the local planning authority. The scheme as is approved shall be fully implemented.

1.10 This Management Plan has been written to discharge Condition 10.

2.0 Site Management Considerations

Responsibility for Site Management

- 2.1 During the defects liability period, landscape maintenance and replacement of failed planting will be completed by the landscape contractor who has implemented the scheme.
- 2.2 Following the defects liability period the McCarthy Haulage Ltd will employ a managing organisation who will be responsible for operational management and maintenance of the landscape within the Site.
- 2.3 The managing organisation will require the necessary experience and certificates of competence to undertake landscape management operations on site. Where practical, contractors with experience in biodiversity management will be sought. The managing organisation will ensure that management complies with the guidelines set out in this Plan.
- 2.4 The management organisation shall be adequately trained and sufficiently competent to carry out maintenance operations without causing a Health and Safety risk to themselves or other uses of the site.
- 2.5 All works shall be undertaken in accordance to the relevant codes of practice. Appropriate machinery shall be used inclusive of adequate personal protective equipment to avoid harm to themselves or any other persons.

Biosecurity

- 2.6 The management organisation should have a sufficient awareness of new and ongoing biosecurity threats, and the necessary precautions to avoid their spread should be undertaken on sites where they are known or suspected.
- 2.7 New findings of suspected non-indigenous plant pests and diseases should be reported to the Plant Health and Seeds Inspectorate or Forestry Commission - Forest Research Tree Health Diagnostic and Advisory Service or both.

Management Objectives

- 2.8 The long term management objectives of this plan are:
 - To safeguard and enhance the biological and physical integrity of the Site;
 - Provide long-term measures to protect the extent, integrity and functionality of the Site;
 - To maintain and increase the Site's potential to support a diverse range of species in particular great crested newt (GCN), grizzled skipper and dingy skipper;
 - To ensure that the habitat enhancement works are managed to increase biodiversity and connectivity as foraging and commuting habitat for high value wildlife; and
 - To comply with legal obligations, constraints and the European Protected Species Licence for GCN (Licence No. 76782:OTH:EPS:2017).

Ecological Factors

Designations

- 2.9 There are no internationally or nationally designated sites for nature conservation with 1km. The Wrexham Industrial Estate Wildlife Site is approximately 400m south east of the Site.

Habitats and Species of Principal Importance in Wales

- 2.10 Section 7 of the Environment Act (Wales) 2016 lists of species of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.
- 2.11 The following priority species and habitats listed and will be sustained around or within the Site:
- GCN;
 - Dingy skipper; and
 - Grizzled skipper.

Ecological Surveys

- 2.12 Below is a list of the ecological surveys carried out at the Site:
- Nesting bird monitoring surveys (Marches Ecology, 2016 & 2017);
 - Bat monitoring surveys (Marches Ecology, 2016 & 2017);
 - Butterfly surveys (Marches Ecology, 2016, 2017 & 2018);
 - Great crested newt (GCN) surveys (Marches Ecology, 2016, 2017 & 2018); and
 - Site walkover and habitat survey (TEP, July 2018).

Chemical Use

- 2.13 The use of herbicide will be minimised wherever possible. Hand weeding will be utilised when feasible and the use of mulch around new planting will assist with suppressing weeds.

Habitats

Trees

- 2.14 There will be retained semi-natural broad-leaved woodland to the east of the Site. The area of trees will be managed for the benefit of birds, bats and GCN.

Pond

- 2.15 A new pond will be created to the north of the extension, in the bare ground area. The pond and surrounding area will be managed to support the GCN population.

Invasive Non-Native Species

- 2.16 There are no invasive non-native species were noted within the Site, however Marches Ecology recorded montbretia and cotoneaster within the wider site in 2017.

- 2.17 These species are listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended. Under this legislation it is an offence to plant or otherwise allow them to grow in the wild.
- 2.18 If invasive non-native species are recorded on the Site, an exclusion zone should be erected around the plant and biosecurity measures should be adhere to on the Site. Further information is provided in the Invasive Non-Native Species Method Statement (TEP ref: 7128.01.001).

Species

Amphibians

- 2.19 The habitat within the extension footprint forms part of a mitigation area that was previously established, under licence from Natural Resource Wales (NRW), to address impacts upon GCN.
- 2.20 GCN are the primary species of importance of the mitigation area and therefore the scheme will be managed in a favourable condition to maintain the GCN population, which includes habitat connectivity within the site and within the wider landscape, increase habitat diversity and maintain security of conservation management.
- 2.21 Great crested newts are protected under Schedule 5 of the Wildlife and Countryside Act (1981) as amended and the Conservation of Habitats and Species Regulations as amended (2017). Under this legislation it an offence to intentionally kill, injure or capture GCN. It is also an offence to intentionally or recklessly damage, destroy or obstruct access to places used by GCN for shelter or protection or to disturb them whilst they are occupying these habitats.
- 2.22 The Site is subject to a GCN mitigation licence (NRW licence ref: 76782:OTH:EPS:2017).

Badger

- 2.23 A badger sett located approximately 8-10m from the Site. Due to the confidential nature of this information, the location of the sett is not provided within this report.
- 2.24 Badgers and their setts are safeguarded under the Protection of Badgers Act (1991). Under this legislation it is illegal to interfere, damage or destroy a sett, obstruct access to a sett, or disturb a badger whilst it is occupying a sett.
- 2.25 The Ecological Assessment (TEP ref: 7128.003) states that there is negligible foraging habitat for badgers on Site. However there should be ongoing and additional monitoring and management of the mitigation areas for badger.

Bats

- 2.26 Long eared bat has been recorded on the Site and the Site will be managed as a corridor of suitable commuting and foraging habitat for bats. Six bat boxes were installed on the Site but were not occupied during the Marches Ecology bat surveys in 2016 and 2017.

- 2.27 Bats and their roosts are protected under Schedule 5 of the Wildlife and Countryside Act (1981) as amended and the Conservation of Habitats and Species Regulations as amended (2017).

Birds

- 2.28 There are several Schedule 1, Wildlife and Countryside Act (1981) birds identified on Site including little ring plover and woodcock. There are also five existing bird boxes which were all being used during monitoring visits by Marches Ecology in 2016 and 2017.

- 2.29 All UK wild birds are protected while at the nest under the Wildlife and Countryside Act (1981). Effectively, this means that if removal of habitats (which can include buildings, trees, hedges, scrub and grassland) cannot be timed to avoid the bird breeding season (March to August inclusive), then a survey by a suitably experienced ecologist will be required to ensure no nesting birds will be affected. There is generally no process to gain a licence to disturb nesting birds; therefore, if active nests are present works will need to avoid the area of the nest until the young have fledged.

Invertebrates

- 2.30 Grizzled skipper and dingy skipper butterfly have been identified on the Site. Grizzled skipper and dingy skipper butterfly are secondary species of importance after GCN.
- 2.31 Grizzled skipper and dingy skipper are recorded as Section 42 species of principal importance under Section 7 of the Environment Act (Wales) 2016 as a priority species.

Accessibility

- 2.32 The Site can be accessed via the main building access, off Abbey Road to the south of the Site.

Legal Factors

- 2.33 Management of the Site must be in line with all legislation relating to health and safety and the environment. A review of the relevant legislation affecting site management is at Appendix C.

3.0 Management Intentions and Operations

Landscape Elements

3.1 The Land off Abbey Road, Wrexham Industrial Estate Site will comprise the following landscape elements as shown on the Habitat Enhancement Plan (TEP ref: G7128.003F):

- Woodland;
- Hedgerow;
- Scrub;
- Wildflower and butterfly bank;
- Rough grassland;
- Pond;
- Hibernacula;
- Bird boxes; and
- Bat boxes.

Site Wide

Management Intention

3.2 The Site will be kept free from litter through regular cleansing. Regular inspections will ensure any health and safety hazards are identified and made safe.

Chemical Use

3.3 It should be recognised that plants considered as weeds can provide suitable habitat for invertebrates.

3.4 Weed control where feasible should be undertaken by hand pulling. However in certain instances, herbicide may be the most effective measure to remove unwanted species during the planting establishment period. Where herbicide application is needed this should be in small controlled areas and should only target the undesirable species. Herbicides should comply with the Control of Pesticides Regulations as amended (1997) and be on the current list of approved products.

3.5 Consideration would need to be given to the fact that chemicals can prevent growth of grasses and woody species in landscape schemes.

3.6 Where herbicides are to be used within 10m of waterbodies care must be taken to only use formulations of Glyphosate which are approved for use close to water. It is essential that Natural Resource Wales are notified and authorisation obtained¹.

3.7 Fertiliser is not to be applied to any of the meadow areas in order to conserve the development of a diverse sward.

¹ <https://naturalresources.wales/permits-and-permissions/water-discharges-and-septic-tanks/using-herbicides/?lang=en>

Maintenance Operations

Site Cleansing

- 3.8 A litter pick of the Site will be carried out monthly and will include the pond. All litter will be removed and disposed of in an authorised manner.
- 3.9 When removing material from within or near to the ponds, care must be taken to check for amphibians, which may be hiding in or under items. Any amphibians, except GCN, found will be returned to suitable cover. It is an offence to handle GCN without a specific licence from Natural Resources Wales.

Site Inspections

- 3.10 Site inspections will be undertaken monthly to identify any health and safety hazards and arrange for them to be made safe as far as is practicable.
- 3.11 Results from the monthly site inspections will be compiled and presented within the annual report which will be used in the review of the Plan as detailed in Chapter 4.0.

Woodland

Management Intention

- 3.12 There is a small area of retained semi-natural broad-leaved woodland on the eastern boundary of the Site, which is connected to a woodland beyond the boundary to the east.
- 3.13 The woodland provides wildlife corridors important for ecological connectivity and opportunities for foraging and refuge. Woodland will be managed for the benefit of small mammals, amphibians, birds and bats.
- 3.14 An arboriculturist will be consulted prior to undertaking any major tree works within the Site.
- 3.15 If invasive non-native species are encountered within the woodland, a species specific method statement will be written detailing appropriate control and treatment measures.

Maintenance Operations

Thinning and Cutting Understorey Vegetation

- 3.16 Trees for thinning will be cut to a level stump length of 150 mm for treatment with stump killer. A minimum of 50% of the stump surface will be scored over and treated to stop re-growth. Future growth of stumps will be monitored and additional cuts and applications of stump killer will be made (or an appropriate herbicide application such as eco plugs) over the following two or three years as required.
- 3.17 Thinning and cutting understorey vegetation will be undertaken on an annual cyclical programme (5 - 10 year cycle) and will be carried outside of bird nesting season. If works are required to any trees with bat roosting potential, advice must be sought from a licensed bat ecologist prior to any works commencing.

Coppicing

- 3.18 Trees for coppicing will be cut back to 50mm above ground level. Where a number of stems are coppiced on one plant, cut faces are to slope away from the centre. Care will be taken to ensure that coppicing, thinning and pruning operations do not cause damage to desirable plants, or rutting of the ground in wet conditions.
- 3.19 Wood under 250 mm diameter collected from maintenance works will, wherever possible, be chipped and used sustainably on site.
- 3.20 Wood greater than 250 mm diameter will be logged and used to create deadwood piles. Care will be taken to ensure that thinning/pruning operations do not cause damage to desirable plants, or rutting of the ground in wet conditions.
- 3.21 Coppicing will be undertaken on an annual cyclical programme (5 - 10 year cycle) and will be carried out outside of bird nesting season. If works are required to any trees with bat roosting potential, advice must be sought from a licensed bat ecologist prior to any works commencing.

Conserving Deadwood

- 3.22 Deadwood management will be low intervention, this means that any deadwood found will be left in situ. If leaving deadwood in situ represents a health and safety risk or hinders management access, it will be moved and stacked elsewhere in appropriate locations onsite to retain shelter and forage opportunities for wildlife.

Visual inspection

- 3.23 During monthly site inspections, woodland will be inspected for the presence of litter, debris and non-native invasive species.

Tree Survey

- 3.24 A trained arboriculturist will carry out an inspection of mature trees within or adjacent to areas of public access to check for damage and disease and to maintain appropriate height clearances for safe pedestrian access. The survey will be carried out every three years or following a storm.

Hedgerow

Management Intentions

- 3.25 There is a species-poor intact hedgerow to the north west of the Site, adjacent to Abbey Close and Abbey Road. The hedgerow will be maintained naturalistically for the benefit of wildlife such as birds, amphibians and small mammals.

Maintenance Operations

Hedgerow Cutting

- 3.26 Hedgerows will be cut in an 'A' shape to maintain a wide base for bird nesting and roosting. Hedgerows will be cut on a rotational basis with one third cut every three years to retain foraging and sheltering opportunities. If possible, a 1m grass strip of species rich tussock grass will be left uncut next to the hedgerow to increase habitat potential and increasing connectivity. The grass strip is to be cut simultaneously with the hedge cutting regime. Arisings will be collected and removed from Site.
- 3.27 Any hedgerow management will be carried out outside of the bird nesting season (between March and August inclusive). Should any works be required within the bird nesting season an assessment will be undertaken by a suitably qualified ecologist before any works commence.
- 3.28 Additional hedgerow cutting may be required from a health and safety perspective should there be a good growing season.

Scrub

Management Intentions

- 3.29 Scrub is adjacent to the woodland on the eastern boundary on the Site. Areas of scrub provide suitable terrestrial, foraging habitat, for birds, bats and small mammals.

Maintenance Operations

Assessment of Scrub Encroachment

- 3.30 Scrub planting provides an array of habitat opportunities and as such it may be appropriate to allow weed species to develop within the scrub. Weeds provide a vital source of food for pollinators and intern foraging opportunities for birds and mammals.
- 3.31 An annual visual inspection in September will determine whether weeds are becoming too dominant or scrub is encroaching onto neighbouring grassland.

Reduction of Scrub

- 3.32 Where reduction of coverage is required, scrub growth will be controlled along its advancing face using brush cutters, arisings will be chipped and used sustainably on site for mulching. If required dominant weed species will be hand pulled. Scrub will be cut back by 5% annually.
- 3.33 Scrub cutting will be scheduled at a time when there is no risk of disturbing breeding or nesting birds or mammals and to enable berry-bearing scrub species to fruit for the benefit of foraging wildlife (e.g. between December and early February).
- 3.34 In the long term, consideration will be given to active management, e.g. cyclical thinning and coppicing to create greater structural diversity.

Wildflower and Butterfly Bank

Management Intentions

- 3.35 An area of wildflower meadow is present to the east and south east of the Site. There are also 'butterfly banks' along the western boundary of the Site and in the south east, which should be managed for floral diversity.
- 3.36 The butterfly bank will be maintained primarily for grizzled skipper and dingy skipper butterflies.
- 3.37 The areas of wildflower and butterfly bank provide ecological diversity and valuable wildlife habitats. The timing and frequency of grass cuts will be determined by management procedures required to maximise conservation benefits of desirable flora species and maintaining grassland habitats.

Maintenance Operations

Grass Cutting

- 3.38 Two thirds of the grass will be cut in a semi-random rotational pattern (working outwards or from one side to the other). Within this area, the cut height will vary in random patches/swathes between 300mm and a minimum 150mm. Cut in 1/3 sections on a weekly rotation.
- 3.39 Arisings will be left in situ for 24 hours to allow flower seed to disperse. The arisings will then be raked and removed from the Site to prevent nutrient enrichment and to retain the desired species composition.
- 3.40 Grass cutting will be avoided between March and August (inclusive) to prevent risk of disturbance and destruction to nesting birds.

Weed Control

- 3.41 Weed control will be undertake annually between April and September and where feasible should be undertaken by hand pulling and should remove all noxious weeds such as docks, thistles, nettles, ragwort and willowherb.
- 3.42 Herbicide will not be used within 250m of the GCN pond.

Fertiliser Use

- 3.43 Fertiliser is not to be applied to any of the wildflower areas in order to conserve the development of a diverse sward.

Rough Grassland

Management Intention

- 3.44 The areas of bare ground/ ephemeral mix are considered areas of rough grassland. The areas marked on the Habitat Enhancement Plan (TEP ref: G7128.003F) as bare ground/ ephemeral mix, unimproved neutral grassland and plug planting/seeding will be managed as rough grassland.

- 3.45 The principal management requirement of these areas is to ensure ruderal species and succession of shrubs and tree saplings are not permitted to compromise the integrity of the grassland composition or habitat value.

Maintenance Operations

Grass Cutting

- 3.46 Grass cuts will be undertaken with flail cutters/mowers set to retain vegetation at a height of 150mm in September, in order to prevent any risk to amphibians that may be present within the grasslands. Arisings will be removed from site or if appropriate used on Site to increase habitat opportunities.
- 3.47 Grass cutting will be avoided between March and August (inclusive) to prevent risk of disturbance and destruction to nesting birds.

Weed Control

- 3.48 Weed control will be undertake annually between April and September and where feasible should be undertaken by hand pulling and should remove all noxious weeds such as docks, thistles, nettles, ragwort and willowherb.
- 3.49 In certain instances, herbicide maybe the most effective measure to remove unwanted species. Where herbicide application is needed this should be in small controlled areas and should only target the undesirable species. Shields should be used as appropriate to prevent drift into sensitive areas. Herbicides should comply with the Control of Pesticides Regulations as amended (1997) and be on the current list of approved products.
- 3.50 Herbicide will not be used within 250m of the GCN pond.

Fertiliser Use

- 3.51 Grassland areas will not be fertilised in order to conserve the sward diversity.

Pond

Management Intention

- 3.52 Throughout the pond the maintenance of open water and provision of dense stands of emergents, tall herbs and wet grasslands are important to support a diverse and healthy population of small mammals, amphibians, insects and waterfowl. Management should focus primarily on maximising the nature conservation potential of component features.
- 3.53 Ponds should be managed to retain at least 35-60% of the surface area as open water through the cutting back of marginal and emergent vegetation. Waterbodies will also be managed to minimise health and safety issues. Vegetation will be regularly managed to ensure the top and bottom of the bank and the water level of the waterbody is clearly visible.

Maintenance Operations

Inspections and Remedial Measures

- 3.54 A visual inspection to assess bank stability, water quality, coverage of aquatic/marginal vegetation, drainage and depths will be carried out as part of the monthly site inspection. This will include an inspection of the water quality for any signs of pollutants (e.g. scum, excessive algal growth and discolouration), extent of vegetation zones and open water, presence of invasive species (including fish) and presence of rubbish and debris.
- 3.55 If pollutants are detected, options for remedial action will be discussed with the landowner and appropriate authorities.
- 3.56 In the event invasive or harmful species are identified, a treatment plan will be drawn up; spot treatment or pulling by hand will be the preferred method. Any other remedial actions will be implemented accordingly.
- 3.57 In the event monitoring identifies the presence of fish as a concern to the viability of the pond (specifically its suitability for maintaining the GCN population), fish removal will be implemented in accordance with current best practice. At the time writing, guidance set out by Amphibian and Reptile Conservation is the most relevant (Fish Control Methods for Great Crested Newt Conservation, September 2010). The first option for fish removal will include draining down ponds in winter and leaving them to dry to remove fish. This may be combined with trapping or electrofishing, during the dormant period during late autumn or early spring.
- 3.58 It should be noted that the Natural Resource Wales no longer issue consents for Rotenone application for this type of activity.

Removal of Debris and Rubbish

- 3.59 Any debris and rubbish identified during the monthly visual inspections will be removed.
- 3.60 Any soft pliable debris noted within the pond during April up to, and including, August will be left in situ as they may support GCN eggs. A full cleanse after mid-September will be implemented once eggs are hatched and most larvae have developed.

Aquatic and Emergent Vegetation Removal

- 3.61 Maintenance of open water and provision of dense stands of emergent vegetation, tall herbs and wet grasslands are important for maximising biodiversity.
- 3.62 Regular and gentle removal of aquatic and emergent vegetation to maintain 35% to 60% open water. Cutting or pulling by hand is the preferred method to minimise disturbance and will be carried out annually between late October and mid-November. The works will be carried out on a three year rotation (i.e. a 1/3 each year) or as required according to pond condition.
- 3.63 Macrophytes should be reduced as required September to November.

- 3.64 Vegetation will be removed according to a wedge rotation and laid on terram (or similar matting) at the pond's edge for a minimum 24hrs. The vegetation and terram will then be removed from the Site.

- 3.65 Vegetation removal will, wherever possible, avoid the amphibian breeding and bird nesting season.

Marginal Vegetation Management

- 3.66 The marginal vegetation around the pond will be cut to no less than 150mm on a rotation basis. The inner fringe of vegetation immediately by the water's edge will be retained throughout the year to serve as a buffer and to maintain food and cover sources.

- 3.67 Arisings will be used sustainably elsewhere on Site.

Scrub Control

- 3.68 Encroachment of scrub, grassland and other vegetation will be monitored and reduced so that no more than 25% of the banks of the ponds will be covered by scrub.

- 3.69 Scrub to be cut back on a rotational basis between October and mid-November. All arisings will be chipped and used sustainably on the Site. Larger brash will be utilised to create deadwood features within woodland.

Fertiliser and Herbicide Use

- 3.70 No fertilisers, pesticides or herbicides will be used on or around the pond.

De-silting

- 3.71 Should the water levels within the deepest area of the pond fall below half a metre in two consecutive years, de-silting will be required. De-silting will be carried out approximately every five years depending on the condition of the pond and will be undertaken between November and January.

- 3.72 Desilting will be undertaken by a long armed excavator and entry and access to the pond will be limited to one point or section of bank. Ground protection will be utilised to reduce damage to marginal habitats.

- 3.73 The top third of a metre of silt will be temporarily placed around the margins of the excavated pond, onto protective membrane, to allow amphibians and invertebrates to return to the pond and to be used on completion of works to repopulate the invertebrate assemblage within the ponds.

- 3.74 All other materials generated will be placed on protective membrane around the pond for a minimum 48hrs to allow amphibians and invertebrates to return to the pond. After a period of 48hrs, the silt and the protective membrane will be removed from site.

Hibernacula

Management Intention

- 3.75 Hibernacula are to be maintained in a viable condition so as to function to provide shelter and winter refuge to amphibians. Hibernacula are located within rough grassland areas associated with wildlife corridors through the Site. Rough grassland provides sheltered connectivity between hibernacula and other suitable habitats.

Maintenance Operations

Inspections and Remedial Measures

- 3.76 Hibernacula features will be inspected during the annually to ensure they are in a viable condition.
- 3.77 In the event the condition of the hibernacula deteriorates to a point that maintenance cannot ensure its viability, a new hibernacula will be recreated nearby. The existing hibernacula will be maintained in situ in its existing condition; if this is not desirable, an ecologist licensed to handle GCN will be appointed to supervise the dismantling of the non-functioning hibernacula.
- 3.78 Grass or scrub atop the refuge features and within 0.5m of the hibernacula will be left uncut to avoid disturbance to the hibernacula.

Bat Boxes

Management Intention

- 3.79 There is one 2F-DFB bat box and two Schwegler 2FN bat boxes, which will be maintained in a viable condition to provide roost habitat throughout the year. Bat boxes will be of types that are generally maintenance free.

Maintenance Operations

Inspections and Remedial Measures

- 3.80 Bat boxes will be inspected from the ground to ensure they remain in viable condition. This will be undertaken annually and will be completed during the routine monthly site inspection in November.
- 3.81 Where any bat box is found to be damaged, it will be replaced a similar model before March.
- 3.82 In the event that the bat box is occupied by wasp or hornets, the box will either be relocated to a safe place away from regularly accessed public places or be removed from site, as desired, and a replacement box will be installed.

Bird Boxes

Management Intention

- 3.83 There is one Schwegler 1B bird box and one 1N - robin box, both of which will be maintained in a viable condition to provide nesting habitat throughout the year. Bird boxes will be of types that are generally maintenance free.

Maintenance Operations

Inspections and Remedial Measures

- 3.84 Bird boxes will be inspected from the ground to ensure they remain in viable condition. This will be undertaken annually and will be completed during the routine monthly site inspection in November.
- 3.85 Bird boxes will be cleaned of any residual nest material and debris. This will be done in situ without adjustment to position or orientation of the box by removal of the inspection panels. In the event the nest box is occupied (by bird, bat or other animal), the box will be closed without cleaning and cleaning will be delayed until the following year. In the event that a bird is occupying the nest box, the advice of an ecologist will be sought. In the event that the box is occupied by wasp or hornets, the box will be removed to a safe place away from regularly accessed public places and a replacement box will be installed.
- 3.86 Where any bird box is found to be damaged, it will be replaced a similar model prior to March.

4.0 Monitoring and Review

Site Monitoring

- 4.1 The key measures described in the table below will enable the landowner and/or the managing organisation to measure the appropriateness of landscape maintenance operations and whether management of the Site is meeting the long term management objectives.

Table 1: Key Measures for Monitoring

Feature	Key Measures
Site wide	Is the landscape establishing well and attractive to residents and wildlife overall? Is the Site in a clean and tidy condition? Is public access to the Site maintained? Are there any health and safety hazards / deficiencies which require rectification? Does the Site comply with the relevant environmental and health and safety legislation (as set out in Appendix D of this Plan)? Are there any instances where planting is repeatedly failing? If so, has an arboricultural consultant or landscape architect been consulted with to specify an alternative species?
Woodland	Carry out an inspection to note any deficiencies. Concerns about risks to public health and safety and tree health, should be reported and specialist input sought as necessary. Review arboriculture assessment for recommendations on thinning and tree works.
Hedgerow	Carry out an inspection to note any gaps and re-plant with suitable native species.
Scrub	Carry out an inspection to assess any encroachment of scrub.
Wildflower and butterfly bank	Inspection of the grass to ensure botanical diversity, weeds kept to a minimum, and no scrub encroachment. Re-seed as required.
Rough grassland	Inspection of the grass to ensure botanical diversity, weeds kept to a minimum, and no scrub encroachment. Re-seed as required.

Feature	Key Measures
Pond	Inspection to the banks and ensure any tree or shrub saplings within 5m are removed. Review assessments following inspections and carry out recommended works.
Hibernacula	Carry out inspection to check condition and remove blockages from access points.
Bird boxes	Inspect bird boxes to ensure they are in situ and report any missing or damaged boxes to an ecologist.
Bat boxes	Inspect bat boxes to ensure they are in situ and report any missing or damaged boxes to an ecologist.

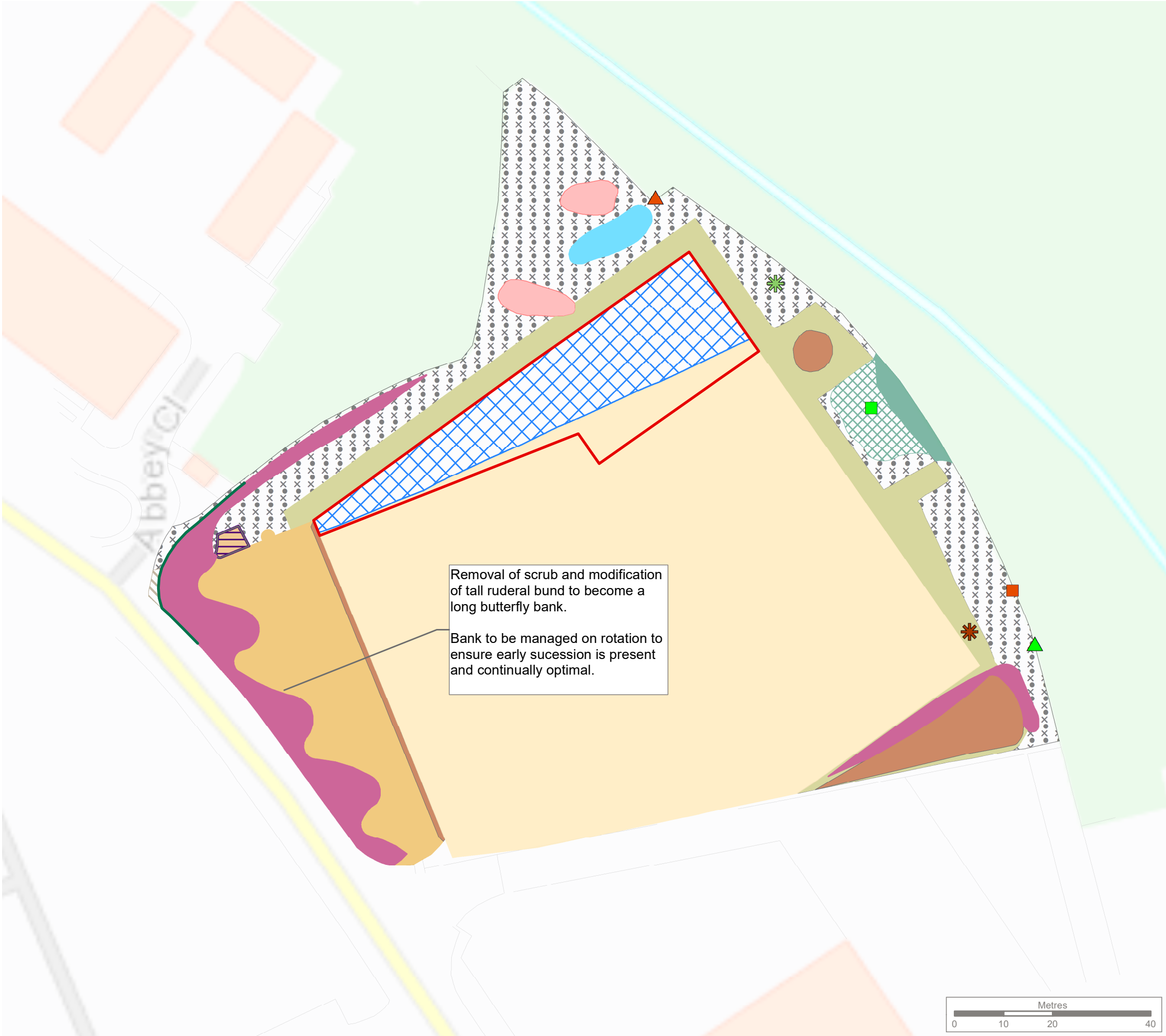
- 4.2 With respect to monitoring habitat creation, an annual habitat walkover survey by a suitably qualified ecologist will be carried out to ensure that habitats created are still viable for their intended purpose and to inform future management policies concerning potential matters such as protected species and invasive species control.

Review

- 4.3 The Management Plan will be reviewed on an annual basis by the managing organisation and other key partners to ensure that the plan is meeting the original management objectives and responding to the developing needs of the Site.
- 4.4 The annual review will identify the need for additional maintenance operations and inform future management decisions. This can be achieved by:
- Annual formal site inspections by the managing organisation to assess the appointed contractor's quality standards and deliverables in line with this management plan;
 - An annual site meeting with the managing organisation and stakeholders and the appointed contractor to assess quality standards and deliverables in line with this management plan; and
 - Ad hoc unannounced inspections by the managing organisation to review quality of maintenance work and any potential Health and Safety issues.
- 4.5 The managing organisation will produce an annual report, summarising the management of the Site over the last year. The report will include the key measures achieved, actions going forward and any updates to the maintenance operations if required, and how this information will be communicated to stakeholders and resident/friends groups.
- 4.6 It is also recommended the managing organisation produces a cash-flow forecast for the next 3-5 years but that can be flexible enough to respond to changing circumstances. This will ensure sufficient funds are in place to deliver long term management of the Site.

- 4.7 An appropriately qualified landscape consultant will formally re-assess the management plan and annual review information on a five yearly basis to ensure the habitats and landscaping associated with the Site are maintained in perpetuity.

APPENDIX A: Habitat Enhancement Plan (TEP ref: G7128.003F)



KEY

Planning Application Boundary

Current Development (P/2017/1013)

Proposed Development

Proposed Habitat Translocation

Unimproved Neutral Grassland

Wildflower Seed Mix

Proposed Habitat Enhancements

Area for Plug Planting/Seeding

New Butterfly Bank

New Pond

New GCN Hibernacula

Existing Habitats

GCN Hibernacula

Butterfly Bank Location - to be removed

Bat Box Location

1 no. 2F-DFB Box

2 Schwegler 2FN Boxes

Bird Box Location

1 Schwegler 1B Box

1 no. 1N - Robin Box

Species-poor Intact Hedge

Semi-natural Broad-leaved Woodland

Dense/Continuous Scrub

Unimproved Neutral Grassland

Tall Ruderal

Bare Ground/Ephemeral Mix

Note

The locations of habitats and habitat features are indicative

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Base mapping provided by client

1:10,000

F	Updates following comments	CR	EJS	18/01/2019
E	Updates following comments	JS	EJS	03/01/2019
Rev	Description	Drawn	Approved	Date

THE ENVIRONMENT PARTNERSHIP

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Project
Wrexham Industrial Estate

Title
Habitat Enhancement Plan

Drawing Number
G7128.003F

Drawn	Checked	Approved	Scale	Date
CR	JS	EJS	1:800 @ A3	21/01/2019

APPENDIX B: Landscape Maintenance Schedules

✓

Works not to be carried out in these months

*Bird breeding and nesting season (March to August inclusive) no works that may have an impact on nesting birds are to be undertaken

Activity	Frequency per Annum	Years	Indicative Timing of Operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Inspections, Surveys and Cleansing														
Health and Safety														
Undertake a formal inspection to review hazards identified by original assessment.	12	All years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Specialist Surveys														
Instruct a trained arboriculturist to undertake a tree hazard and condition survey of mature trees.	0.3	Every 3 years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Annual habitat walkover by a suitably qualified ecologist.	1	All years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Site Cleansing														
Cleanse the whole site monthly.	12	All years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remove fly-tipping and graffiti as soon as possible.	As required	All years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Soft Landscape Elements														
Woodland														
Undertake a cyclical programme of selective thinning, coppicing, pruning and felling. Wood under 250 mm diameter collected from thinning, pruning, brashing and scrub/vegetation clearance will, wherever possible, be chipped and used on site for mulching. Wood greater than 250 mm diameter will be logged and used to create deadwood piles to increase biodiversity.	N/A	Every 5 years	✓	✓								✓	✓	✓
Treat any stumps following felling works with stump killer.	N/A	Every 5 years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Monitor stumps and, if required, cut any re-growth and re-apply stump killer as required.	N/A	Every 2 years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hedgerow														
Cut both sides and top in a rotational basis (1/3 every three years)	1	Every 3 years	✓	✓								✓	✓	✓
Scrub														
Annual visual inspection to assess if weeds are becoming too dominant.	1	All years										✓		
Cut scrub as required to prevent encroachment onto other landscape types.	N/A	All years	✓	✓										✓
Cut 5% of the scrub back annually.	1	All years	✓	✓										✓
Wildflower and Butterfly Bank														
Cut (vary between 150mm-300mm) once a year and remove the arisings from the Site. Cut in 1/3 sections on a weekly rotation.	1	All years										✓		
Weed control.	1	All years				✓	✓	✓	✓	✓	✓			
Rough Grassland														
Cut (150mm) once a year and remove arising from the Site.	1	All years										✓		
Weed control.	1	All years				✓	✓	✓	✓	✓	✓			
Pond														
Inspect the pond annually to assess bank stability, water quality, coverage of aquatic/marginal vegetation, drainage and depths.	1	All years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1x yearly strim (150mm) to 1/3 of bankside vegetation with arisings used sustainably elsewhere on site. Strim sections on annual rotation.	1	All years									✓	✓	✓	
Reduction of macrophytes where becoming too dominant.	As required	All years									✓	✓	✓	
Removal of marginal/emergent vegetation by hand in autumn to maintain 35-60% of open water.	1	All years										✓	✓	
Removal of any dead fish.	As required	All years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cut back scrub on a rotational basis. Arisings chipped or used sustainably on site.	1	All years										✓	✓	✓
Ecological Feature														
Hibernacula														
Monthly inspection to check condition and clear any blockages from access points.	1	All years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Repairs and/or replacement as required.	As required	All years	✓	✓	✓								✓	✓

Key

☒ Works to be carried out in these months

☐ Works not to be carried out in these months

*Bird breeding and nesting season (March to August inclusive) no works that may have an impact on nesting birds are to be undertaken

Activity	Frequency per Annum	Years	Indicative Timing of Operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Bat Boxes														
Annual visual inspection from the ground to check condition.	1	All years											✓	
Internal inspection of bat boxes every two years by a licensed ecologist.	0.5	Every 2 years											✓	
Replacement, as required, before March.	As required	All years	✓	✓									✓	✓
Bird Boxes														
Annual inspection to check condition.	1	All years											✓	
Removal of nesting debris by hand and disposal.	1	All years											✓	
Replacement, as required, before March.	As required	All years	✓	✓								✓	✓	✓
Monitoring and Review														
Formal site inspections by managing organisation	1	All years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Annual site meeting with stakeholders	1	All years	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Formal review of management plan and maintenance operations.	0.5	Every 5 years									✓			

NOTE Glyphosate formulations containing the surfactant Polyethoxylated tallow amine (POEA) should not be used within close proximity to waterbodies or other wetland habitats as it can cause high amphibian larvae mortality.

APPENDIX C: Legislation Context

Summary of Relevant Legislation

The following legal obligations, among others must be considered in carrying out any management operations:

Legislation	Obligations
Health and Safety Legislation	
The Health and Safety at Work Act (1974)	All operations carried out on the Site must only be undertaken by trained personnel, using methods and equipment approved by the Health and Safety Executive (HSE).
Occupiers Liability Act (1984)	Management organisation must ensure that every reasonable care is taken to remove any risks to both legitimate visitors and to any trespassers. In compliance it will be necessary: • To make sure that all footpaths and any other structures are safe; • To remove any hazardous objects; and • To conduct an annual safety audit in order to identify any further hazards.
Environmental Legislation	
Conservation of Habitats and Species Regulations (as amended) (2017)	The Habitat Regulations assign a greater level of protection to a variety of native species of animals and plants listed, which are known as European Protected Species (EPS).
Wildlife and Countryside Act (1981)	There is an obligation to comply with legislation for UK species protected (including amphibians, reptiles and bats) under this Act.
Environmental Protection Act (1990)	There is an obligation to keep the Site free from litter and refuse.
Countryside and Rights of Way Act (2000)	Imposes a new right of access on foot to registered common land and other areas of 'open countryside' which under certain circumstances allows access without being confined to footpaths.



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