

60785

TACP

WENFFRWD POCKET PARK

*PRELIMINARY
ECOLOGICAL APPRAISAL*

DENBIGHSHIRE COUNTY COUNCIL

OCTOBER 2016



Denbighshire County Council

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**TACP
10 PARK GROVE
CARDIFF
CF10 3BN**

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CONTENTS

1	INTRODUCTION	2
2	BACKGROUND	2
2.1	SITE DESCRIPTION	2
2.2	PROPOSED DEVELOPMENT	2
3	METHODS.....	2
3.1	DESK STUDY.....	2
3.2	FIELD SURVEY.....	2
3.2.1	<i>Limitations</i>	<i>3</i>
3.3	SITE ASSESSMENT	3
4	RESULTS	5
4.1	DESKTOP STUDY	5
4.1.1	<i>Sites Designated for Nature Conservation Importance.....</i>	<i>5</i>
4.1.2	<i>Denbighshire Local Biodiversity Action Plan Species and Habitats</i>	<i>6</i>
4.2	EXTENDED PHASE 1 SURVEY.....	6
4.2.1	<i>Habitats within the Site Boundary</i>	<i>6</i>
4.2.2	<i>Flora</i>	<i>7</i>
4.2.3	<i>Fauna</i>	<i>7</i>
4.2.4	<i>Ecological Value of the Site</i>	<i>7</i>
5	POTENTIAL IMPACTS	8
5.1	HABITAT LOSS	8
5.2	IMPACTS ON BATS	8
5.3	IMPACTS ON NESTING BIRDS	9
5.4	IMPACTS ON REPTILES	9
5.5	IMPACTS ON BADGER	9
5.6	SPREAD OF INVASIVE SPECIES	10
5.7	HABITAT CREATION	10
5.8	HABITAT MANAGEMENT	10
6	RECOMMENDATIONS FOR FURTHER SURVEYS AND ASSESSMENTS.....	10
6.1	BADGER SURVEY	10
6.2	REPTILE SURVEYS	11
7	GENERAL MITIGATION RECOMMENDATIONS.....	11
7.1	HABITATS	11
7.2	BATS	11
7.3	NESTING BIRDS.....	11
7.4	REPTILES	11
7.5	BADGER	12
7.6	INVASIVE SPECIES.....	12
8	RECOMMENDATIONS FOR ENHANCEMENT	13
9	REFERENCES	13
10	FIGURES.....	14

FIGURES

Figure 4.1 **Designation Map**

Figure 4.2 **Phase 1 Map**

APPENDICES

Appendix A **Draft Proposed Site Layout**

Appendix B **Denbighshire LBAP Species**

Appendix C **Target Notes**

Appendix D **Site Species List**

SUMMARY

This report comprises a preliminary appraisal of the ecological value of a proposed development site at Wenffrwd, Llangollen, and gives a preliminary assessment of the ecological impacts of the proposed development, a new amenity park. In order to inform this appraisal, a desktop study was carried out to assess the ecological features in the wider area and an Extended Phase 1 survey was carried out at the site in September 2016.

The proposal is for a new amenity park, with open green ‘event spaces’, a natural play area, bike trails, a willow maze and a car parking area. The proposals include measures such as habitat creation and management to enhance the value of the site for wildlife.

The nearest site designated for nature conservation importance is the River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales) Special Area of Conservation (SAC), which lies approximately 55m to the south of the site, and the Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains SAC, which lies approximately 430m to the north of the site. It is not expected that the proposals would affect either of these sites.

The site is currently disused, but has been used for the disposal of garden waste in the past. Much of the site consists of a mosaic of scrub, semi-natural grassland and tall ruderal habitats, with an area of semi-natural woodland in the south of the site and an area of mixed plantation woodland in the east of the site. The habitats on site are generally considered to be of local importance for wildlife, but the semi-natural broadleaved woodland is considered to be of County Importance.

There are three stands of Japanese knotweed (*Fallopia japonica*) within the site; this is an invasive non-native species which is listed under Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended, meaning it is an offence to cause it to spread in the wild. The invasive non-native species harlequin ladybird (*Harmonia axyridis*) was also found within the site.

The potential impacts of the proposed development are loss of semi-natural habitat and disturbance of species such as breeding birds, reptiles, badgers and other mammals. The creation of habitats such as wildflower meadows, wet meadows and hazel/willow coppice are considered to be positive impacts as they would enhance the ecological value of the site.

Signs of badger activity were noted on site, and the wooded embankment to the south of the site is considered to be suitable for sett-building, but it was not possible to conduct a thorough search for badger setts as the vegetation was too dense. It is therefore recommended that a badger survey be conducted during the winter months, when vegetation has died back.

The habitats on site are suitable for reptiles, and if time allows it is recommended that a reptile survey be carried out at the site. If it is not possible to conduct a reptile survey, the presence of reptiles on site should be assumed, and an appropriate mitigation strategy prepared and implemented during site works.

A number of general mitigation and enhancement measures are proposed for the site.

1 INTRODUCTION

TACP were commissioned by Denbighshire County Council in September 2016 to undertake an Extended Phase 1 survey at Wenffrwd, a site for a proposed new park in Llangollen, and to assess the potential ecological impacts of the development using information gleaned from the habitat survey and from a desktop study.

This report, which has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM)'s guidance document '*Guidelines for Preliminary Ecological Appraisal*' (CIEEM, 2013), provides an initial ecological overview of the site, including a description of ecological receptors both within and near the site. The potential ecological impacts of the current proposals are assessed, and general mitigation measures and possible enhancement measures are proposed for the works.

2 BACKGROUND

2.1 Site Description

The site is located approximately 600m to the east of Llangollen town (Postcode LL20 7UH, Grid Reference SJ232424). Most of the site is currently disused, but has been used for the disposal of garden waste in the past. The land slopes down to the south, with a wooded embankment in the south of the site. The site is set within a rural environment.

2.2 Proposed Development

The proposal is for a new amenity park, with open green 'event spaces', a natural play area, bike trails, a willow maze and a car parking area, including the potential for future links into the wider countryside via the Llangollen Canal and former railway line.

The proposals are still under development, but a draft design plan is included as **Appendix A** to this report.

3 METHODS

3.1 Desk Study

A desk study, involving a data search for designated sites, protected species and existing habitat information within a 1 km of the site, was undertaken.

3.2 Field Survey

An extended Phase I habitat survey of the site was carried out by Jean Hamilton, BSc, MSc, MCIEEM, on the 27th September 2016. This survey was conducted following the methods outlined in the Joint Nature Conservation Committee (JNCC)'s '*Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*' (JNCC, 2010). Habitats within the site were classified and mapped, and the main species within each habitat were recorded.

Habitats on site were also evaluated for their potential to support rare and protected species. Bird species seen and heard on the day of the survey were noted.

3.2.1 Limitations

Due to dense vegetation, particularly bramble, it was not possible to survey all areas of the site in full; therefore, full species lists could not be prepared for all habitats, and some signs of protected species may have been missed.

3.3 Site Assessment

The wildlife value was assessed using the Ratcliffe Criteria¹. This assesses an ecological feature in terms of:

- Fragility
- Rarity
- Size (Area or extent)
- Diversity
- Potential Value
- Position within the Ecological/ Geographical Unit
- Typicality
- Recorded History
- Naturalness
- Intrinsic Appeal

The degree to which a feature can be substituted is also taken into consideration. Guidance suggests that the loss of a feature of national value that is irreplaceable may be considered more significant than the loss of a feature that can be replaced or substituted.

The overall ecological value of the area is considered in the context of the pattern of habitat and interdependencies between habitats, as well as the relative legislative value of any protected species, habitats or sites.

Values are given in terms of the geographical context in accordance with CIEEM (2016) guidance as shown below:

- International and European
- National
- Regional
- Metropolitan, County, vice-county or other local authority-wide area
- Local

The assessment includes direct, indirect, short-term, medium-term and long-term, secondary and cumulative impacts. Positive and negative impacts on the ecological baseline of the site are also assessed.

Magnitude of impact is assessed by the scale of loss or damage predicted to semi-natural vegetation, wildlife habitats and protected species. Significance is assigned by looking at the magnitude of change

¹ Ratcliffe, D. A. (1977). *A Nature Conservation Review*. Cambridge University Press.

to habitats and species of local and regional importance and assigning higher significance to greater loss of regionally important habitats.

The following criteria for determining the magnitude of impact are used and are based upon, or adapted from, those given in the Guidance.

Major negative - The proposal may adversely affect the integrity of the site, in terms of the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the population levels of species of interest. This includes large-scale damage or loss of a large proportion of a particular semi-natural habitat type or protected species habitats that are of regional/national importance or listed as key habitats in the UK Biodiversity Action Plan Steering Group Report Loss of Protected Species.

Moderate negative - The site's integrity will not be adversely affected but the effect on the site is likely to be significant in terms of its ecological objectives. If, in the light of full information, it cannot be clearly demonstrated that the proposal will not have an adverse effect on integrity, then the impact should be assessed as major negative. This would apply in the case of damage or loss of a small proportion of a particular semi-natural habitat type or protected species habitat that are of local importance or listed as key habitats in the UK Biodiversity Action Plan Steering Group Report.

Slight negative - Neither of the above apply, but some minor negative impact is evident. (In the case of Natura 2000 sites a further assessment may be necessary if detailed plans are not yet available). This would apply in the case of damage or loss of common semi-natural vegetation, wildlife habitats or important wildlife but not protected species. Habitats are not locally or regionally important.

Neutral - No observable impact in either direction. This would apply in the case of damage or minor losses of common types of habitats or common wildlife. Habitats are not locally or regionally important.

Slight Positive - Impacts which provide a slight net gain for biodiversity overall. This would apply in the case of an increase in the population of a species or area of habitat which is not locally or nationally important.

Moderate Positive - Impact which provide a net gain for biodiversity overall (but which will not positively affect the integrity of the site). This would include a small increase in the proportion of a semi-natural habitat or habitat of a protected species that are locally important or listed as key habitats within the UK Biodiversity Action Plan Steering Group Report.

Major Positive - Impact which provides a net gain for biodiversity overall in terms of increases in habitat diversity (and which may positively affect the integrity of the site). This would apply in the case of a large-scale increase in a protected species or habitat of a protected species that are locally important or listed as key habitats within the UK Biodiversity Action Plan Steering Group Report.

The overall significance of each impact is determined from the ecological value of the feature and the magnitude of the potential impact, as shown in **Table 3.1**.

Table 3.1: Overall Significance of Impact Assessment

Magnitude of potential impact	Nature Conservation Value of Sites Damaged or Improved				
	Very High	High	Medium	Lower	Negligible
Major negative	Very large adverse	Very large adverse	Moderate adverse	Slight adverse	Neutral
Moderate negative	Large adverse	Large adverse	Moderate adverse	Slight adverse	Neutral
Slight negative	Slight adverse	Slight adverse	Slight adverse	Slight adverse	Neutral
Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Slight Positive	Slight positive	Slight positive	Slight positive	Slight positive	Neutral
Moderate positive	Large positive	Large positive	Moderate positive	Slight positive	Neutral
Major positive	Very large positive	Very large positive	Moderate positive	Slight positive	Neutral

4 RESULTS

4.1 Desktop Study

4.1.1 Sites Designated for Nature Conservation Importance

The nearest site designated for nature conservation importance is the River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales) Special Area of Conservation (SAC)/ Site of Special Scientific Interest (SSSI), which lies approximately 55m to the south of the site, and the Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains SAC, which lies approximately 430m to the north of the site (see **Figure 4.1**). The Dinas Bran SSSI lies approximately 930m to the north west of the site, and the Caenau Pen-y-Coed SSSI lies approximately 900m to the south west.

The primary reasons for designation of the River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales) SAC are the EU Annex I habitat Water courses of the plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation and the EU Annex II species Atlantic salmon *Salmo salar* and Floating water-plantain *Luronium natans*. Other Annex II species present as a qualifying feature, but not a primary reason for selection of the site, are Sea lamprey *Petromyzon marinus*, Brook lamprey *Lampetra planeri*, River lamprey *Lampetra fluviatilis*, Bullhead *Cottus gobio* and Otter *Lutra lutra*.

The Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains has been designated as an SAC for the presence of the EU Annex I habitats Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites), Transition mires and quaking bogs, Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*) and

Calcareous rocky slopes with a chasmophytic vegetation. This site has also been designated as a Site of Special Scientific Interest (SSSI) – the Ruabon/Llantysilio Mountains and Minera SSSI.

It is not expected that the proposals would negatively impact the above nature conservation sites.

4.1.2 Denbighshire Local Biodiversity Action Plan Species and Habitats

The Denbighshire Local Biodiversity Action Plan was consulted for information on protected habitats and species in the locality, which would give an indication of the species likely to occur within the site.

Priority species under the Denbighshire LBAP are certain species of mammals (including badger, brown hare, otter and red squirrel), birds (including barn owl, song thrush and bullfinch), reptiles (adder, slow-worm, common lizard and grass snake), amphibians (great crested newt and natterjack toad), fish (including salmon, grayling and bullhead), invertebrates (including freshwater pearl mussel, pearl-bordered fritillary and square spotted clay moth), plants (including black poplar, juniper and field gentian) and fungi (various wax cap species, earth tongues and chanterelles).

A full list of Priority Species within the site is provided as **Appendix B** to this report.

4.2 Extended Phase 1 Survey

4.2.1 Habitats within the Site Boundary

The following habitats were recorded within the site:

- Semi-natural Broadleaved Woodland (A.1.1.1)
- Mixed Broadleaf/Conifer Plantation (A.1.3.2)
- Dense Scrub (A.2.1)
- Semi-improved Neutral Grassland (B.2.2)
- Tall Ruderal (C.3.1)
- Bare Ground and Hard Standing (J.4)

The distribution of these habitats within the site is shown in **Figure 4.2** and are described below. Photographs and species lists for the habitats on site are provided in **Appendix C**.

There is a wooded embankment to the south of the site. Ash (*Fraxinus excelsior*) dominates the canopy, with abundant sycamore (*Acer pseudoplatanus*) and occasional pine (*Pinus* sp.). Elder (*Sambucus nigra*) and holly (*Ilex aquifolium*) occur in the understorey and dense bramble (*Rubus fruticosus*) dominates the field layer. There are two large stands of Japanese knotweed (*Fallopia japonica*) within this woodland.

There is an area of Mixed Broadleaf/Conifer Plantation (A.1.3.2) in the east of the site. This habitat comprises a mix of native and non-native species, including birch (*Betula* spp.), ash (*Fraxinus excelsior*) and non-native conifers including Douglas fir (*Pseudotsuga menziesii*).

The majority of the site comprises a mosaic of dense scrub (A.2.1), semi-improved neutral grassland (B.2.2) and tall ruderal vegetation (C.3.1). These have been mapped according to dominance within each area on Figure 4.2. Bramble is the dominant species within the scrub areas, and is encroaching throughout the site.

Areas of tall ruderal are generally dominated by stinging nettle (*Urtica dioeca*) and rosebay Willowherb (*Chamerion angustifolium*), but there are three dense stands of Japanese knotweed within the site (marked with a pink outline on Figure 4.2).

The semi-natural grassland habitat is dominated by tall, tussocky grasses such as cock's-foot (*Dactylis glomerata*), false oat-grass (*Arrhenatherum elatius*) and common bent (*Agrostis capillaris*). There is an abundance of herbaceous species, including black knapweed (*Centaurea nigra*), perforate St. John's-wort (*Hypericum perforatum*), creeping cinquefoil (*Potentilla reptans*) and common mallow (*Malva sylvestris*).

4.2.2 Flora

No protected species of flora was recorded within site. There are three dense stands of Japanese knotweed within this site; this species is an invasive non-native species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Spanish bluebell (*Hyacinthoides hispanica*) also occurs within the site; this species is not listed under Schedule 9 of the WCA (1981) but is considered to be invasive.

4.2.3 Fauna

Some signs of badger were noted within the site: snuffle holes were noted within the semi-natural grassland (TN1) and badger scat was found on the track to the south of the woodland (TN6).

Harlequin ladybird (*Harmonia axyridis*) was found within the tall ruderal habitat in the north of the site. This is a non-native species which is known to be invasive and harmful to native ladybird species (<http://www.harlequin-survey.org/>), though it is not listed on Schedule 9 of the WCA (1981).

4.2.4 Ecological Value of the Site

The area of semi-natural broadleaved woodland corresponds to the Environment (Wales) Act 2016 Section 7 habitat Lowland Mixed Deciduous Woodland, and is therefore considered to be of **County Importance**. However, this woodland is in poor condition, with poor species diversity and stands of Japanese knotweed in the understorey.

Though much of the site consists of vegetation mosaics, it does not meet the criteria to correspond to the Section 7 habitat Open Mosaic Habitats on Previously Developed Land, as it does not have unvegetated areas or pools. The unimproved neutral grassland, tall ruderal, scrub and mixed plantation woodland habitats on site are considered to be of **Local Importance**.

Bird surveys were beyond the scope of the current project, but the woodland and scrub habitats have the potential to support breeding birds. The site is considered to be of **Local Importance** in relation to breeding birds.

The tall semi-natural grassland, tall ruderal and scrub habitats are suitable for reptiles. Reptile surveys were beyond the scope of the current project; in the absence of surveys, the site is considered to be of **Local Importance** in relation to reptiles.

Signs of badger (*Meles meles*) activity were noted on the site, and the wooded embankment to the south would be suitable for sett-building. The field layer in this woodland has very dense bramble and

so it was not possible to conduct a search for badger setts. In the absence of further information, the site is considered to be of **Local Importance** to badgers.

The woodland, scrub, grassland and tall ruderal habitats may be used by commuting and foraging bats. Bat surveys were beyond the scope of these surveys; in the absence of survey data, the site is considered to be of **Local Importance** to bats.

The site may be used by other mammal species such as hedgehog (*Erinaceus europaeus*) and brown hare (*Lepus europaeus*), which are both priority species of the Denbighshire LBAP. The woodland and scrub habitats would be suitable for dormouse, another Denbighshire LBAP species, but this species is not known to occur in the area.

Overall, the site is considered to be of **Local Importance** for wildlife.

5 POTENTIAL IMPACTS

The potential impacts of the proposed development are listed below. It is important to note that these impacts are based on the general current proposals, which are preliminary, and may be refined at a later stage when detailed proposals have been developed. Detailed impact assessment may also depend on the outcome of further surveys at the site.

5.1 Habitat Loss

The development would result in the loss of unimproved neutral grassland and tall ruderal habitats within the site, and some areas of woodland and scrub may also be affected. The semi-natural broadleaved woodland is currently in poor condition, with stands of Japanese knotweed; it is proposed to retain and enhance much of this area.

The woodland and scrub habitats may support nesting birds and may be used by bats for navigation and foraging. The scrub, tall ruderal and unimproved neutral grassland may be used by reptiles, mammals and invertebrates.

In the absence of mitigation, the magnitude of this impact is considered to be **Moderate Negative** and its significance **Slight Adverse**.

5.2 Impacts on bats

Bats are European Protected species listed on Annex IV of the Habitats Directive 1992 which is transposed into UK law by the Conservation (Natural Habitats &c) Regulations 1994 or “Habitats Regulations” and consolidated within The Conservation of Habitats and Species Regulations 2010. Certain bat species such as Lesser Horseshoe Bats are also given greater levels of protection through European Law through being listed on Annex II of the Habitats Directive. Bats are also protected through Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended). A number of species are listed as Species of Principal Importance for Conservation of Biological Diversity in Wales under Section 7 of the Environment (Wales) Act, 2016. Certain of the species are also Priority Biodiversity Action Plan (BAP) Species on the UK BAP and are included within the Denbighshire Local BAP. Bats are generally nocturnal and will rest during the day in roosts. These can be found in a variety of places depending on the species concerned including trees and old or new buildings. All species found in the UK feed on insects and generally follow linear features in the landscape for navigation and feeding.

The woodland and scrub habitats have the potential to support commuting and foraging bats, and the trees on site have the potential to support roosting bats. There are no trees or buildings on site which would be suitable for roosting bats.

Areas of woodland and scrub suitable for commuting and foraging bats to be removed under the current proposals are limited. The magnitude of this impact is therefore considered to be **Slight Negative** and its significance **Slight Adverse**.

5.3 Impacts on nesting birds

All birds, their nests and eggs are protected during the breeding season under the Wildlife and Countryside Act, 1981 (as amended). Generally, birds require a mixture of habitats for breeding, feeding, over-wintering etc making it possible that a number of bird species could be found utilising the site.

Clearance of scrub, shrub and woodland habitats within the breeding bird season may result in loss of, or damage to, birds' nests, eggs or live young, if clearance is carried out within the bird nesting season.

Areas of woodland and scrub suitable for commuting and foraging bats to be removed under the current proposals are limited. The magnitude of this impact is therefore considered to be **Slight Negative** and its significance **Slight Adverse**.

5.4 Impacts on reptiles

All reptile species are protected against killing, injuring and sale under U.K. legislation through their inclusion in Appendix III of the Bern Convention (1979), Schedule 5 of the WCA 1981 (as amended) and the NERC Act 2006. Certain species, including slow-worm, common lizard and adder, which may occur within the site, are listed under Section 7 of the Environment (Wales) Act, 2016. Reptiles require dense vegetation for cover and foraging opportunities with some more open areas where they can bask safely and can be found in a variety of habitats including meadows, woodlands, urban and sub-urban habitats.

The habitats on site are suitable for reptiles, and therefore the development has the potential to result in reptile mortalities or disturbance during the construction phase, and the proposals would result in the loss of suitable habitat in the operation phase.

In the absence of mitigation, the magnitude of this impact is considered to be **Moderate Negative** and its significance **Slight Adverse**.

5.5 Impacts on badger

Badgers are afforded full UK protection under the Protection of Badgers Act 1992 which protects both the individual animals and their setts. However, habitats used for any other purpose are not afforded any form of protection under this or other legislation. This species is also listed on Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) which outlaws certain methods of taking and killing when this is necessary. Badger is also a Denbighshire LBAP species. Badgers tend to build their setts in wooded areas but will forage in a variety of habitats including agricultural grassland and rush pastures. Badgers are generally a nocturnal species and are active to varying degrees all year round, with breeding taking place between December and June.

It was not possible to carry out a thorough search for badger setts at the site, but the wooded embankment to the south of the site would be suitable for sett-building and so the development could result in disturbance to badgers.

In the absence of mitigation, the magnitude of this impact is considered to be **Moderate Negative** and its significance **Slight Adverse**.

5.6 Spread of invasive species

The site contains some large stands of Japanese knotweed, some Spanish bluebell and harlequin ladybird, and in the absence of mitigation the development has the potential to result in the spread of these invasive non-native species.

In the absence of mitigation, the magnitude of this impact is considered to be **Moderate Negative** and its significance **Slight Adverse**.

5.7 Habitat Creation

The proposals include creation of new habitats, including a lined wet/marshy area to receive run-off, which may develop into a damp/flush meadow. This habitat would be beneficial for wildlife, particularly invertebrates and amphibians. It is also proposed to carry out grid planting of willow and hazel for coppicing in the north of the site, and to restore a remnant hedge in the north of the site, which would improve the connectivity of the site and provide bird nesting habitat. A green area in the east of the site will be developed as a meadow, with suitable management for plant species diversity. This would be especially beneficial for pollinating insects such as bumblebees.

These proposals would be beneficial for wildlife and would enhance the ecological value of the site.

The magnitude of this impact is considered to be **Moderate Positive** and its significance **Slight Positive**.

5.8 Habitat Management

It is proposed to carry out management within the existing semi-natural broadleaved woodland within the site, to enhance its value for wildlife. Measures would include removal of non-native species, planting of native species and coppicing. This would benefit a range of species, particularly nesting birds and invertebrates.

The magnitude of this impact is considered to be **Moderate Positive** and its significance **Slight Positive**.

6 RECOMMENDATIONS FOR FURTHER SURVEYS AND ASSESSMENTS

6.1 Badger Survey

A badger survey should be carried out at the site; due to the dense vegetation on site, this survey should be conducted in the winter months when vegetation has died back. The optimal time to conduct such a survey would be between January and March. A Protected Species Licence may be required from NRW if there will be any loss of or disturbance to badger-occupied setts. In order to allow time for preparation of a badger licence application (should it be required), monitoring of badger

setts should be conducted at least two months in advance of the commencement of works on site. A further pre-construction survey should also be carried out immediately prior to the commencement of works on site.

6.2 Reptile Surveys

Reptile surveys should be conducted at the site to determine its level of use by reptiles. If it is not possible to conduct reptile surveys, presence of reptiles should be assumed and an appropriate reptile mitigation strategy prepared.

7 GENERAL MITIGATION RECOMMENDATIONS

7.1 Habitats

The semi-natural broadleaved woodland on the embankment to the south of the site should be retained as far as possible.

7.2 Bats

Retention of as much woodland and scrub habitat as possible; if woodland and scrub are to be lost to the development, an appropriate planting scheme should be implemented to compensate for this loss.

7.3 Nesting Birds

Where possible, above-ground vegetation clearance should be carried out in habitats suitable for nesting birds, such as woodland and scrub, outside the bird nesting season (which runs from March to August inclusive). However, if work is to be undertaken during the breeding bird season (this will have to be considered in relation to mitigation for reptiles, because for such species it is best to carry out vegetation clearance between March and October), further survey of the tree and scrub areas to be removed will be required. If these surveys highlight the presence of breeding birds, a buffer of 10m of vegetation should be maintained around the nest location (where such vegetation exists), and an appropriate exclusion zone (to be defined by the site ecologist, depending on the disturbance sensitivity of the species) should be marked out by the on-site ecologist, where site staff and machinery may not enter. The vegetation buffer and exclusion zones should be kept in place until such time as the young have fledged. It is also recommended that provision of replacement nesting habitat is considered either as part of any landscaping or through the installation of bird boxes in suitable areas.

7.4 Reptiles

A mitigation strategy should be developed for reptiles. The mitigation strategy must ensure no injury/mortality of reptiles during the development process; no net loss of habitat capacity and maintenance of habitat links. The strategy should also secure the long-term management for and monitoring of reptiles.

Appropriate mitigation for the site should include the presence of experienced reptile ecologist during any vegetation clearance (watching briefs), especially if any scrub habitat is to be removed. The ideal time to carry out vegetation clearance to avoid impacts to reptiles is while they are active, usually

between March and October (weather dependent) to ensure reptiles are able to move away from the construction area and that no hibernating reptiles are disturbed, however the timing of clearance works should also be considered in relation to nesting birds. Additional biodiversity enhancements for reptiles, such as the creation of habitat linkages and incorporating 'reptile friendly' features into the landscape design and/or retained habitats, may also be considered.

7.5 Badger

If badger setts are found on site, a licence will have to be obtained from NRW. Part of the licence application will include a method statement on how to mitigate for impacts to badgers. Mitigation measures will depend on the sett type and size; if a main sett is found and is likely to be affected by the proposals, an artificial badger sett will be required to compensate for this loss.

7.6 Invasive Species

7.6.1 Japanese knotweed

As a minimum, the works should not cause the spread of Japanese Knotweed within or outside the site.

Japanese Knotweed is a long-lived perennial which spreads locally by root growth, but has been more widely distributed by the movement of infected soil and fill materials for earthworks. It does not reproduce by seed in Britain. The best long-term solution is to eradicate it completely and prevent further spread, in association with adjacent landowners if needed. There are three main options for its eradication:

- Spraying or injecting with herbicide (such as Glyphosate) - an effective treatment to kill Japanese knotweed but usually takes 3 years of repeated spraying to treat it successfully.
- On-site disposal by burying plant material at least 2m deep provided that complete excavation of the knotweed can be achieved. It is important to excavate 3 m deep and to 7 m from existing plants to remove all roots and fragments (root fragments as small as 0.7g have been shown to regenerate new plants). Consent from NRW may be required to bury Japanese knotweed on some land.
- Off-site disposal, provided complete excavation can be achieved (as above). Under the Environmental Protection Act, Japanese Knotweed is classed as 'Controlled Waste' and must be disposed of at a licenced premises/landfill site. The material should be removed from the site using a licenced carrier.

All footwear and construction vehicles working where Japanese knotweed is present must be cleaned before leaving the site to prevent spread to another site. Any water used for cleaning footwear and vehicles must be collected and if it is contaminated with seeds or plant material, it must not be discharged to a watercourse. The water could be treated by passing it through a settlement tank to remove any soil before passing it through a very fine mesh sieve to remove seeds or plant material (settlement alone may not be adequate because seeds float);

Contaminated soil or plant material should not be stockpiled within 10m of a watercourse and not within 7m of the site boundary.

7.6.2 Other non-native species

Though Spanish bluebell and harlequin ladybird are not listed on Schedule 9 of WCA 1981 (as amended), they are considered to be invasive and their presence should be reported to the local biological records centre (Cofnod).

8 RECOMMENDATIONS FOR ENHANCEMENT

Consideration could be given to the enhancement of the ecological value of the site, through the management of existing habitats or the creation of new ones. Measures could include the following:

- Provision of a link between the canal and the river, to improve connectivity for species such as otter.
- Full eradication of Japanese knotweed within the site.
- Adopt environmentally-friendly horticultural techniques in landscaping, such as use of peat-free materials, minimal use of herbicides and pesticides, and selection of plants that require minimal watering.
- Management of wildflower areas to enhance their biodiversity value and value for pollinators, through an annual mowing regime and reseedling if necessary. Depending on the substrates within the proposed wildflower areas, it may be beneficial to strip away the topsoil in order to create the nutrient-poor conditions in which wildflowers thrive. Further information on wildflower management for pollinators is available at: -

<https://bumblebeeconservation.org/get-involved/managing-your-land/wildflower-meadows>

- Erection of bird boxes at suitable locations around the site. These should be placed at least 2m from the ground to avoid disturbance or vandalism. Bird boxes could be made by local community groups.
- Erection of bat boxes (such as 2F Schwegler Bat Boxes or similar) around the site. These could be erected on retained trees throughout the site, and should be placed at least 2m from the ground to avoid disturbance or vandalism. Alternatively bat boxes could be made by local community groups as a part of ongoing community/volunteer led-enhancement.
- Creation of reptile hibernacula (hibernation sites) as part of a local community group project.

9 REFERENCES

CIEEM (2013). *Guidelines for Preliminary Ecological Appraisal*. (CIEEM <http://www.cieem.net/>).

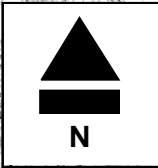
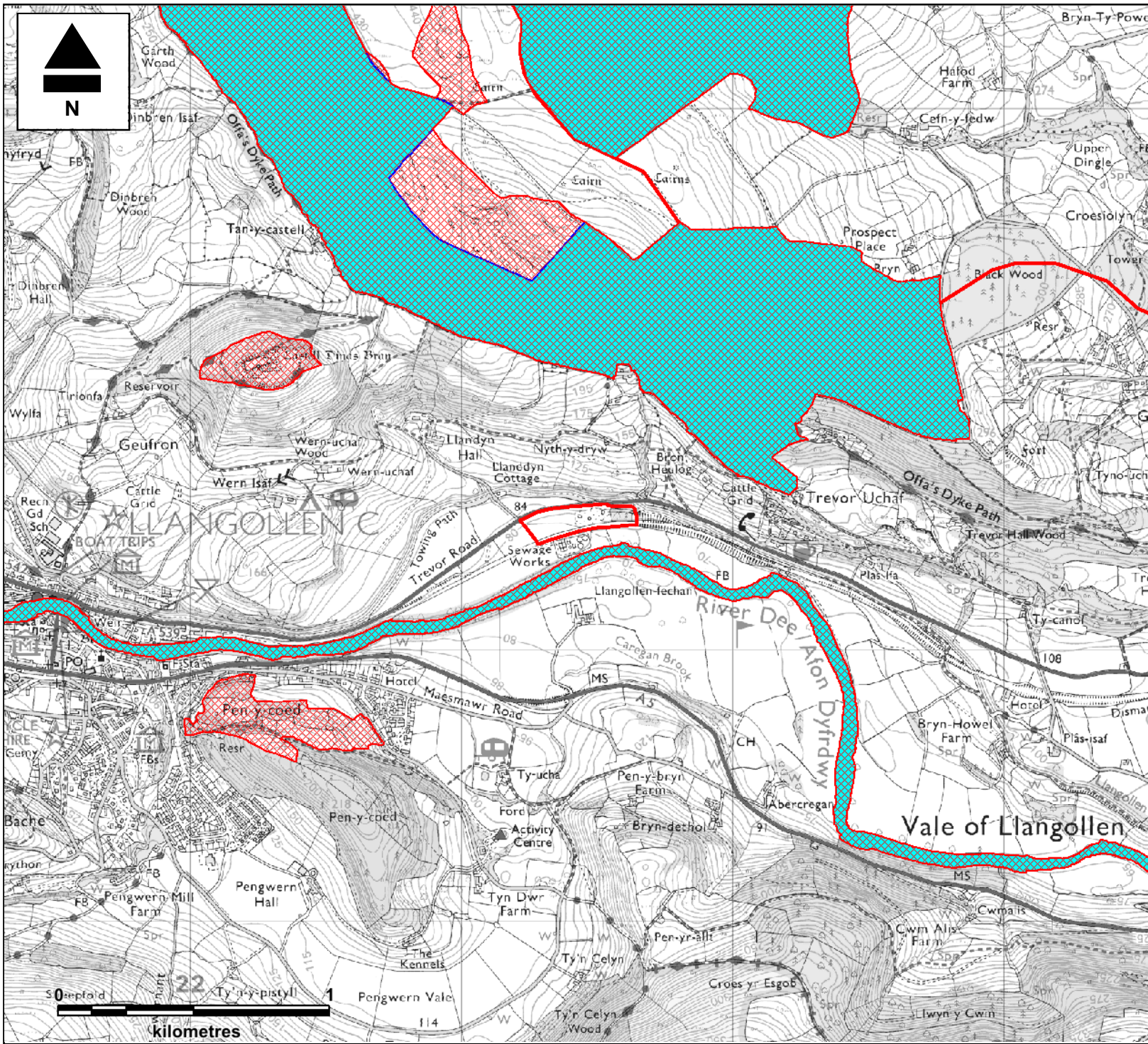
CIEEM (2016). *Guidelines for Ecological Assessment in the UK and Ireland – Terrestrial, Freshwater and Coastal 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester

RSPB (2009). *The Population Status of Birds in Wales 2*. Cardiff: RSPB.

10 FIGURES

Figure 4.1: Environmental Designations

Figure 4.2: Habitat Map



Legend

- Study area boundary
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)

Notes:

TACP
 10 Park Grove, Cardiff CF10 3BN
 Tel: 029 2022 8966
 admin@taccp.co.uk

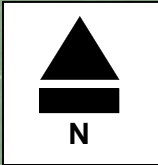
**Wenffrwd Pocket Park
 Figure 4.1
 Designation Map**

Drawn: JH Checked: LC











Not to scale Date: 28/10/2016

Figure / Drawing No. 4.2
 Rev. 0





Legend

-  Study area boundary
- Habitats**
-  Semi-natural broadleaved woodland
-  Mixed plantation woodland
-  Scrub
-  Unimproved neutral grassland
-  Tall ruderal vegetation
-  Bare ground
-  Scattered scrub
-  Hedge and trees
-  Stand of Japanese knotweed

Notes:



**Wenffrwd Pocket Park
Phase 1 Habitat Map**

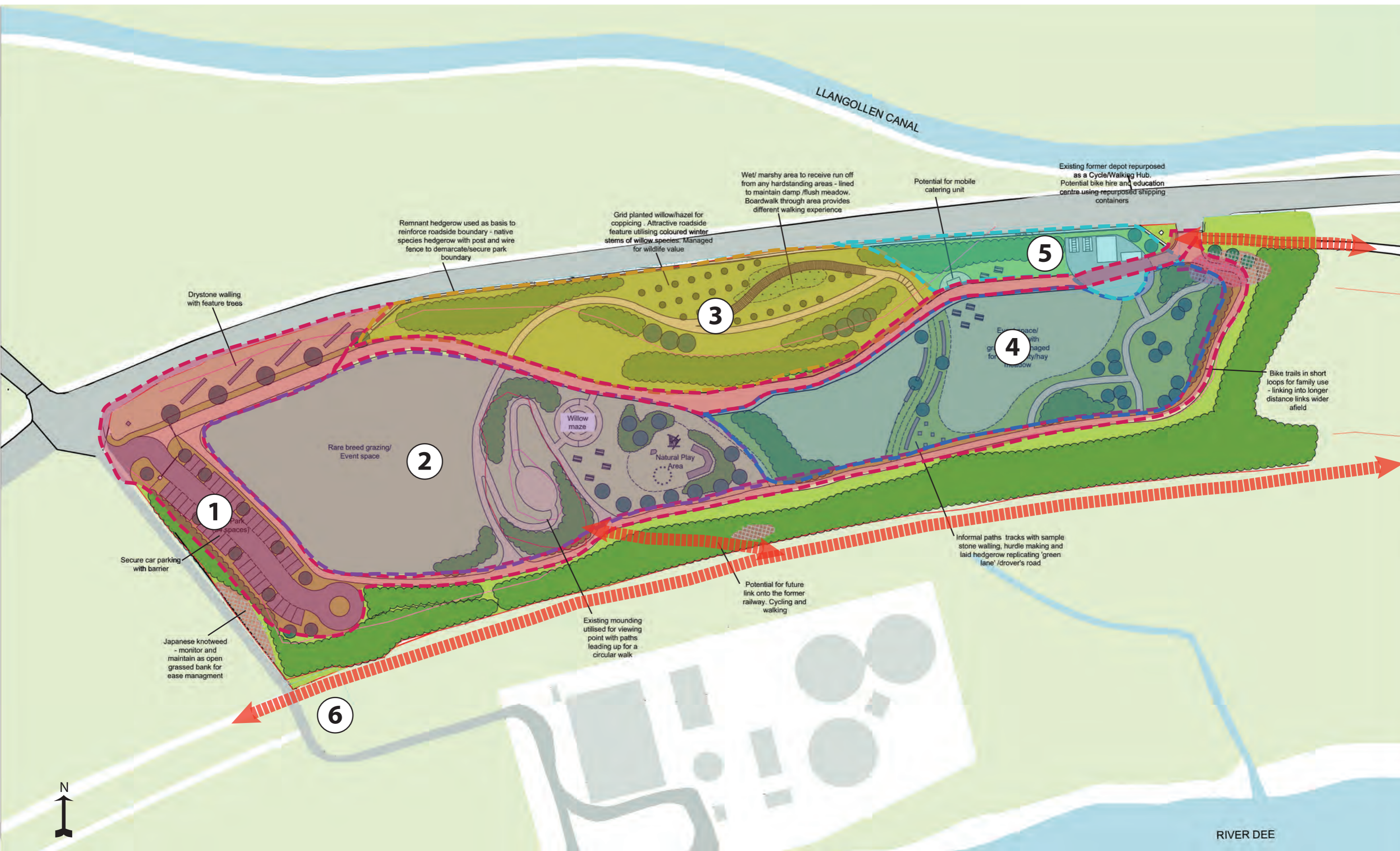
Drawn: JH Checked:KD

Not to scale Date: 28/10/2016

Figure / Drawing No. 4.2
Rev. 0

APPENDIX A

Draft Proposed Site Layout



- 1** KEY PHASES
Carpark and Circulation Route
- 2** Play Facilities and Open Space
- 3** Coppice and Marsh Educational Space

- 4** Bike Track and Event Space
- 5** The Hub
- 6** Potential future links to wider countryside

Within the key phase areas there will be community driven projects being undertaken at various times. These will be programmed to contribute to these phases but will evolve over the life of the project in various areas, not adhering to as strict a timeline.

Wenffrwd Pocket Park
Sketch Proposal
PHASING
 24.10.2016

APPENDIX B

Denbighshire LBAP Species

Priority Species in Denbighshire



Water Vole	Mammal		Pearl - bordered Fritillary Butterfly	Invertebrate	
Brown Hare	Mammal		Fresh Water Pearl Mussel	Invertebrate	
Pipistrelle Bat	Mammal		Silver Studded Blue Butterfly	Invertebrate	
Lesser Horseshoe Bat	Mammal		Large Heath Butterfly	Invertebrate	
European Otter	Mammal		Brown Argus Butterfly	Invertebrate	
Red Squirrel	Mammal		Grizzled Skipper Butterfly	Invertebrate	
Dormouse	Mammal		Square Spotted Clay Moth	Invertebrate	
Skylark	Bird		Ashworth's Rustic Moth	Invertebrate	
Bullfinch	Bird		Salmon	Fish	
Song Thrush	Bird		River Lamprey	Fish	
Black Grouse	Bird		Brook Lamprey	Fish	
Nightjar	Bird		Sea Lamprey	Fish	
Spotted Flycatcher	Bird		Grayling	Fish	
Tree Sparrow	Bird		Bullhead	Fish	
Grey Partridge	Bird		White Wax Cap	Fungus	
Linnet	Bird		Yellow Wax Cap	Fungus	
Reed Bunting	Bird		Parrot Wax Cap	Fungus	
Common Scoter	Bird		Pink Wax Cap	Fungus	
Curlew	Bird		Earth Tongues	Fungus	
Corn Bunting	Bird		Chanterelle	Fungus	
Kingfisher	Bird		Common Lizard	Reptile	
Ring Ouzel	Bird		Slow Worm	Reptile	
Hen Harrier	Bird		Adder	Reptile	
Lapwing	Bird		Grass Snake	Reptile	
Yellowhammer	Bird		Great Crested Newt	Amphibian	
Floating Water Plantain	Plant		Natterjack Toad	Amphibian	
Juniper	Plant		Black Poplar	Plant	
Field Gentian	Plant				



APPENDIX C




Target Notes

Appendix: Target Notes

Target notes list plant species with an abundance score using the DAFOR scale: Dominant, Abundant, Frequent, Occasional and Rare.

Target Note No	Habitat type	Description	Figure
1	Semi-natural grassland/tall ruderal/scrub mosaic	<p>Neutral grassland; unimproved. No management; scrub encroaching and likely to take over in a few years. Badger snuffle-holes present in this area <u>Dominant species:</u> Cock's-foot (<i>Dactylis glomerata</i>), Common bent (<i>Agrostis capillaris</i>), false oat-grass (<i>Arrhenatherum elatius</i>) <u>Abundant species:</u> Nettle (<i>Urtica dioeca</i>), hogweed (<i>Heracleum sphondylium</i>), black knapweed (<i>Centaurea nigra</i>), creeping cinquefoil (<i>Potentilla reptans</i>) <u>Frequent species:</u> Greater plantain (<i>Plantago major</i>), selfheal (<i>Prunella vulgaris</i>), red clover (<i>Trifolium pratense</i>), creeping buttercup (<i>Ranunculus repens</i>) <u>Occasional species:</u> perforate St. John's-wort (<i>Hypericum perforatum</i>), black medick (<i>Medicago lupulina</i>), common vetch (<i>Vicia sativa</i>), bristly ox-tongue (<i>Helminthotheca echioides</i>) and teasel (<i>Dipsacus fullonum</i>) <u>Rare species:</u> Common mallow (<i>Malva sylvestris</i>)</p>	
2	Semi-natural grassland	<p>Semi-natural grassland with abundant lady's mantle (<i>Alchemilla mollis</i>), dominant in places; this is probably due to the fact that the site has been used for the disposal of garden waste in the past. <u>Dominant species:</u> Lady's mantle, common bent (<i>Agrostis capillaris</i>) <u>Abundant species:</u> Creeping cinquefoil (<i>Potentilla reptans</i>)</p>	

Target Note No	Habitat type	Description	Figure
3	Mixed plantation woodland	<p>Plantation woodland with a mix of native and non-native, broadleaved and coniferous species. Quite mature and unmanaged, with very dense bramble.</p> <p><u>Dominant species:</u> Birch (<i>Betula</i> sp.), ash (<i>Fraxinus excelsior</i>), sycamore (<i>Acer pseudoplatanus</i>) and Douglas fir (<i>Pseudotsuga menziesii</i>)</p>	
4	Tall ruderal	<p>Area of tall ruderal vegetation in a depression beside the road, enclosed by a line of silver birch (<i>Betula pendula</i>). Some dumping of rubble and garden waste here. Some elder (<i>Sambucus nigra</i>) and sycamore (<i>Acer pseudoplatanus</i>) saplings.</p> <p><u>Dominant species:</u> Nettle (<i>Urtica dioica</i>), rosebay Willowherb (<i>Chamerion angustifolium</i>), great willowherb (<i>Epilobium hirsutum</i>)</p> <p><u>Abundant species:</u> Bramble (<i>Rubus fruticosus</i>), ground ivy (<i>Glechoma hederacea</i>), spear thistle (<i>Cirsium vulgare</i>)</p> <p><u>Frequent species:</u> Dove's-foot crane's bill (<i>Geranium molle</i>), broad-leaved Willowherb (<i>Epilobium montanum</i>), bracken (<i>Pteridium aquilinum</i>).</p> <p><u>Occasional species:</u> Spanish bluebell (<i>Hyacinthoides hispanica</i>), giant mullein (<i>Verbascum thapsus</i>)</p> <p><u>Rare species:</u> common figwort (<i>Scrophularia nodosa</i>), bristly ox-tongue (<i>Helminthotheca echioides</i>)</p>	

Target Note No	Habitat type	Description	Figure
5	Tall ruderal	<p>Area of recolonising ground beside road; chippings have been spread here. Broad dock (<i>Rumex acetosa</i>), nettle (<i>Urtica dioica</i>) and bramble (<i>Rubus fruticosus</i>) dominant. Harlequin ladybird was recorded in this area.</p>  <p style="text-align: center;"><i>Harlequin ladybird within tall ruderal area</i></p>	
6	Semi-natural broadleaved woodland	<p>Wooded area on slope; looks like it has developed naturally but contains non-native species, such as sycamore (<i>Acer pseudoplatanus</i>) which have probably come in from the plantation woodland in the north eastern corner of the site. Very dense field layer of bramble (<i>Rubus fruticosus</i>). Badger scat noted on track to the south of the woodland; possible that badger are using the woodland but bramble too dense to search for setts.</p> <p><u>Dominant species:</u> Ash (<i>Fraxinus excelsior</i>), sycamore (<i>Acer pseudoplatanus</i>)</p> <p><u>Occasional species:</u> Pine (<i>Pinus sp.</i>), elder (<i>Sambucus nigra</i>)</p>	

APPENDIX D

Site Plant Species List

Latin Name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Achillea millefolium</i>	Yarrow
<i>Agrostis capillaris</i>	Common Bent
<i>Alchemilla sp.</i>	Lady's Mantle
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Betula sp.</i>	Birch
<i>Betula pendula</i>	Silver Birch
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Centaurea nigra</i>	Black Knapweed
<i>Cerastium fontanum</i>	Common Mouse-ear
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Clematis vitalba</i>	Traveller's Joy
<i>Crataegus monogyna</i>	Hawthorn
<i>Dactylis glomerata</i>	Cocksfoot
<i>Digitalis purpurea</i>	Foxglove
<i>Dipsacus fullonum</i>	Teasel
<i>Epilobium hirsutum</i>	Greater Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<i>Epilobium palustre</i>	Marsh Willowherb
<i>Festuca rubra</i>	Creeping Fescue
<i>Fraxinus excelsior</i>	Ash
<i>Geranium dissectum</i>	Cut-leaved Cranesbill
<i>Geranium molle</i>	Dove's-foot Cranesbill
<i>Glechoma hederacea</i>	Ground Ivy
<i>Hedera helix</i>	Ivy
<i>Helminthotheca (Picris) echioides</i>	Bristly Oxtongue
<i>Heracleum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Hyacinthoides hispanica</i>	Spanish Bluebell
<i>Hypericum perforatum</i>	Perforate St John's-wort
<i>Juncus effusus</i>	Soft Rush
<i>Juncus inflexus</i>	Hard Rush
<i>Leontodon saxatilis</i>	Lesser Hawkbit
<i>Lotus corniculatus</i>	Bird's-foot Trefoil
<i>Malva sylvestris</i>	Common Mallow
<i>Medicago lupulina</i>	Black Medick
<i>Mycelis muralis</i>	Wall Lettuce
<i>Odontites vernus</i>	Red Bartsia
<i>Persicaria maculosa</i>	Redshank
<i>Plantago lanceolata</i>	Ribwort plantain
<i>Plantago major</i>	Greater Plantain
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla reptans</i>	Creeping Cinquefoil
<i>Prunella vulgaris</i>	Selfheal
<i>Pteridium aquilinum</i>	Bracken
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rubus fruticosus</i>	Bramble
<i>Rumex crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad Leaved Dock
<i>Sambucus nigra</i>	Elder
<i>Scrophularia nodosa</i>	Common Figwort
<i>Senecio jacobaea</i>	Common Ragwort
<i>Taraxacum sp.</i>	Dandelion
<i>Trifolium pratense</i>	Red Clover
<i>Urtica dioica</i>	Stinging Nettle

Verbascum thapsus
Veronica chamaedrys
Vicia sativa

Great Mullein
Germander Speedwell
Common Vetch