



Land off Clywedog Road South, Wrexham Industrial Estate
on behalf of Tension Control Bolts Limited

Report number: 10-C4C-002-01

Author: A Logan

Date: March 2011

Approved: S Maslen

This report has been prepared for Tension Control Bolts Ltd. in accordance with the terms and conditions of appointment. Avian Ecology Ltd. (6839201) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

**Concept Statement &
Habitat Management Plan**

Contents

1	Summary	3
2	Introduction.....	4
2.1	Background	4
3	Legislative and Planning Context	6
3.1	Planning Policy Wales	6
4	Ecological Baseline.....	9
4.1	Site Description	9
5	Concept Statement.....	11
5.1	Overview	11
5.2	Grassland Habitat	12
5.3	Aquatic Habitat.....	13
5.4	Habitat Corridors and Connectivity to the Wider Landscape	14
5.5	Soft Landscaping	15
5.6	Additional Measures	16
6	Habitat Management	17
6.1	Overview	17
6.2	Grassland Habitat	18
6.3	Aquatic Habitats.....	19
6.4	Soft Landscaping and Hedgerows	19
6.5	Monitoring	20
	Protected species	21

1 SUMMARY

- 1.1.1 Tension Control Bolts Limited propose a development comprising two industrial buildings (one unit 40,000 sq ft and a terrace consisting of five smaller units with a combined area of 19,000 sq ft) along with car parks, access tracks and service yards on land located off Clywedog Road South, Wrexham Industrial Estate.
- 1.1.2 Wrexham Industrial Estate is known to support a variety of important habitats and protected species. Development and site clearance on individual sites within the Estate can have a major impact on the survival of protected species both on the site itself and in the wider network of wildlife habitats. As a result new or proposed developments within the Estate are governed by *Local Planning Guidance Note 29 - Wrexham Industrial Estate, Employment Development and Nature Conservation*.
- 1.1.3 Local Planning Guidance Note 29 establishes an obligation for developers to adequately provide mitigation or compensation for habitats and species impacted by development. It stipulates that consideration must be given to ensure that the design, implementation, operation and maintenance of employment development sites do not prove detrimental to protected species and habitats and that corridors and habitat linkages are safeguarded.
- 1.1.4 Avian Ecology Ltd was commissioned to produce a Concept Statement and Habitat Management Plan for an area of land to be set aside for nature conservation to meet the requirements of Local Guidance Note 29.
- 1.1.5 This document explores opportunities to enhance the development site and the wider landscape by adopting three principles: protecting and enhancing ecological features where possible; provision of compensation land for habitats and species where some loss is unavoidable and enhancement by the provision of ecological features and resources that are not currently available on site.
- 1.1.6 This document also introduces habitat management practices that will need to be considered subject to any permitted development taking place.

2 INTRODUCTION

2.1 BACKGROUND

- 2.1.1 Tension Control Bolts Limited proposes a development to comprise two industrial buildings (a single unit covering an area of 40,000 sq ft and a terrace comprising five smaller units with a combined area of 19,000 sq ft), along with car parks, access tracks and service yards on land located off Clywedog Road South, Wrexham Industrial Estate.
- 2.1.2 Wrexham Industrial Estate is known to support a variety of important habitats and protected species. It is acknowledged that development and site clearance on individual plots within the Estate can have a major impact on habitats and the survival of protected species both on the site itself and in the wider network of wildlife habitats. As a result, new or proposed developments within the Estate are governed by *Local Planning Guidance Note 29 - Wrexham Industrial Estate, Employment Development and Nature Conservation*. Guidance Note 29 establishes an obligation for developers to adequately provide mitigation or compensation for habitats and species impacted by development.
- 2.1.3 In-line with *Local Planning Guidance Note 29 - Wrexham Industrial Estate, Employment Development and Nature Conservation* a section of the application site will be retained in compensation and managed principally for the purpose of nature conservation.
- 2.1.4 Local Planning Guidance Note 29 stipulates that a Method Statement / Concept Plan and Habitat Management Plan should be submitted along with the development application.
- 2.1.5 This document combining a Concept Statement and Habitat Management Plan is designed to meet the above planning requirement. This document should be read in conjunction with the Great Crested Newt Mitigation Strategy (Avian Ecology 10-C4C-002-02).
- 2.1.6 The Concept Statement aims to:
- Detail the area set aside for nature conservation and measures to protect retained habitats;
 - Demonstrate how protected species have been integrated into the project design;
 - Introduce measures to incorporate soft landscaping that support nature conservation;
 - Show how dispersal routes and wildlife corridors are maintained.
- 2.1.7 The Habitat Management Plan sets out works to be undertaken to maintain and enhance habitats within the area of land set aside as a nature conservation area and introduces management practices and regimes.

2.1.8 The overall objective of the proposed development is to link existing and newly created ecological habitats on-site with those of the wider area. In addition, further opportunities for local biodiversity will be provided through the ecologically driven landscape scheme. A preliminary plan showing the proposed site layout and with set aside nature conservation area is presented in Figure 2 Habitat Management Plan. The drawing is based on data presented by C4 Consulting LLP (drawing no. 10/036/PL/03A).

2.1.9 A walkover of the site was made on 1st November 2010 to assess current habitats and ground truth previous studies. An Ecological Appraisal of the site was previously undertaken by Marches Ecology and this is used to provide a baseline and inform ecological management and enhancement put forward in this document.

2.1.10 The aims of this document were to:

- Review all existing ecological knowledge concerning the proposed development site and that of the wider area (Wrexham Industrial Estate);
- Produce a document that proposes ecological enhancement of the site;
- Introduce habitat management methods to be incorporated post construction to further the nature conservation status of the site in the long-term.

3 LEGISLATIVE AND PLANNING CONTEXT

3.1 PLANNING POLICY WALES

Technical Advice Note 5 – Nature Conservation and Planning

- 3.1.1 Protected species are referred to in Welsh Assembly Government, Planning Policy Wales, *Technical Advice Note 5: Nature Conservation and Planning*. Section 6 of TAN5 makes general reference to particular species of flora and fauna within Wales being subject to special protection, due to their vulnerable conservation status (e.g. endangered; suffering decline in numbers or range either within a UK or European Community context, or as potential victims of persecution or cruelty). The presence of a protected species is a material consideration when a local planning authority is considering a development proposal that, if carried out, would be likely to result in disturbance or harm to the species or its habitat.
- 3.1.2 In Wales the protection of species is principally governed by the Wildlife and Countryside Act 1981 (as amended). This emphasises that, regardless of any planning policy or guidelines, certain species are legally protected and any type of development that would injure, kill, ill treat, intentionally damage or destroy any protected species or its place of shelter would be a criminal act.
- 3.1.3 The Wildlife and Countryside Act 1981 was further strengthened in 2000 by the introduction of the Countryside and Rights of Way (CRoW) Act 2000. Additional protection is granted to certain species listed in Annexes IV and V of the Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora), transposed in UK law through the Conservation of Habitats and Species Regulations 2010.
- 3.1.4 If surveys identify the presence of a protected or notable species and impact is likely, a Mitigation Scheme must be developed. This needs to minimise direct impacts on that species and compensate for any habitat loss, thereby maintaining 'favourable conservation status'.
- 3.1.5 A European Protected Species (EPS) licence issued by the Welsh Assembly Government (WAG) may be required before a Mitigation Scheme can be legally implemented. Mitigation licence applications require full Method Statements and a Reasoned Statement of Application. The Method Statement contains details of the proposed mitigation works, whilst the Reasoned Statement of Application must provide justification as to how the proposed development meets the requirements of the Conservation of Habitats and Species Regulations 2010.
- 3.1.6 An EPS license application cannot be made until planning consent is obtained. It should also be noted that surveys undertaken outside the optimum survey period may be considered by CCW as insufficient to inform an EPS license application.

Local Planning Guidance Notes

- 3.1.7 This development and the application site is subject to Local Planning Guidance Notes, principally;
- *Local Planning Guidance Note (LPGN) 29 - Wrexham Industrial Estate, Employment Development and Nature Conservation;*
 - *Local Planning Guidance Note (LPGN) 26 - Landscape and Industrial Development.*
- 3.1.8 The above Planning Guidance amplifies policies in the Wrexham Unitary Development Plan (UDP) and guidance in the Wrexham Biodiversity Action Plan (BAP) and will be a material consideration in the determination of this planning application.
- 3.1.9 LPGN 29 reflects the fact that Wrexham Industrial Estate is noted for containing important wildlife networks and a diverse range of animals and plants.
- 3.1.10 A number of species protected under UK and European legislation are known to be present within Wrexham Industrial Estate. These include;
- Great crest newt *Triturus cristatus*
 - Dingy *Erynnis tages* and grizzled *Pyrgus malvae* skipper
 - Badger *Meles meles*
 - Water vole *Arvicola terrestris*
 - Bat sp *Chiroptera* sp.
 - Otter *Lutra lutra*
 - Lapwing *Vanellus vanellus*
- 3.1.11 LPGN 29 states that in providing mitigation or compensation, an equivalent area of land (to that developed) must be provided unless it can be demonstrated that a smaller area of better quality habitat would enhance the ecology of the site or the wider area.
- 3.1.12 The LPGN 29 specifies circumstances where off-site compensation may be appropriate. This includes situations where on-site compensation is impossible (due to financial viability / decontamination requirements etc.). It also includes situations where compensation can occur within 250m of the habitat lost, where this would enhance the ecology of the area or enhance the conservation status of a species or ecological network of habitats as a whole. However, it is stipulated that off-site compensation is less favourable to on-site measures.
- 3.1.13 In circumstances where on-site or off-site provision is not appropriate, the Local Authority may agree to a payment in lieu of compensation. This is only agreed in exceptional circumstances and payment must allow the council to achieve conservation goals such as the purchase of additional land for nature conservation or aid the management of controlled local wildlife sites.

- 3.1.14 LPGN 26 sets out actions considered to minimise environmental impacts of industrial developments through appropriate landscape schemes that incorporate opportunities for planting and thoughtful use of lighting. Guidance note 26 also looks to the positive influence that open natural spaces can have on the health and well being of employees and strongly encourages the adoption of areas for recreational use.

4 ECOLOGICAL BASELINE

4.1 SITE DESCRIPTION

Application site

- 4.1.1 The application site is located along the south western boundary of Wrexham Industrial Estate. Clywedog Road South borders the site to the east and industrial developments lie to both the north and the south. Agricultural land consisting of improved pasture and arable fields adjoin the site to the west.
- 4.1.2 The site comprises unmanaged neutral grassland with tall ruderal and scrub vegetation. Young trees including grey willow *Salix cinerea* oak *Quercus robur* are scattered across the grassland area. A ditch enters the application site at the north-west corner and extends part way across the site before entering a culvert. The ditch is heavily vegetated with bank side trees and dense scrub vegetation, notably hawthorn *Crataegus monogyna*, bramble *Rubus fruticosus*, grey willow and blackthorn *Prunus spinosa*. The site boundaries are marked in most cases by post and wire or pallisade fence lines. The western boundary separating the application site and the adjacent agricultural land is marked by a strip of trees and scrub vegetation.

Pre-existing Ecological Assessments – Habitats and Flora

- 4.1.3 The site was previously subject to an ecological appraisal by Marches Ecology in 2009. The appraisal combined a desktop study with a site based assessment that was undertaken on 3rd August 2009.
- 4.1.4 The site appraisal produced by Marches Ecology describes the site as comprising of neutral grassland with tall-herb vegetation and states that '*broadly, much of the grassland resource is similar in structure and composition, being species rich and with an approximate average sward height of between 0.5m and 0.75m. It is unmanaged and could be described as rank; despite this the grassland is species rich.*' (Marches Ecology 2010).
- 4.1.5 The 2009 site survey identified seven plant species thought to be locally scarce; cherry plum *Prunus cerasifera* and adder's tongue *Ophioglossum vulgatum* (along the western boundary), prickly lettuce *Lactuca serriola*, grass vetchling *Lathyrus nissolia*, bristly ox-tongue *Picris echioides*, pepper saxifrage *Silaum silaus* and hoary ragwort *Senecio erucifolius*.
- 4.1.6 Due to its location within Wrexham Industrial Estate, the previous evaluation considered that the vegetation had likely formed on previously developed land that had been cleared within the last 20 years. Open mosaic habitats on previously developed land are listed as a priority habitat under the UK Biodiversity Action Plan (UKBAP) (the plan was amended July 2010) and as a priority habitat within Wales under Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006. The habitats present on site do not strictly match the definition and criteria for recognition as this BAP habitat.

- 4.1.7 The on-site ditch could be considered under linear aquatic habitats (rivers, streams and canals) within the Wrexham BAP.

Pre-existing Ecological Assessments – Protected Species

- 4.1.8 Further to the Extended Phase 1 habitat survey, the potential presence of protected species was considered. Where necessary Marches Ecology have undertaken more detailed surveys to identify the presence or likely absence of protected and notable species. The following species were given consideration and additional survey effort was undertaken as appropriate;

- Badgers;
- Bats;
- Otter *Lutra lutra* and water vole *Arvicola amphibius* (additional survey 2010);
- Reptile (additional survey 2010);
- Great crested newt *Triturus cristatus* (additional survey 2010).

- 4.1.9 Signs of badger activity was observed within the application site with badger paths leading across the site. No setts were discovered although it is noted that some dense scrub vegetation could potentially obscure sett entrances.

- 4.1.10 The site was considered to be of value as bat foraging habitat only; all trees within the application site were considered to be of insufficient age and structure to provide opportunities for roosting bats. No buildings are present on site.

- 4.1.11 A survey of the ditch on site found no evidence of otter or water vole and the ditch is largely considered sub-optimal with partially reinforced banks heavily shaded by bank side trees and scrub vegetation.

- 4.1.12 No reptiles were found within the application site following 10 survey visits carried out in May and June 2010, in suitable weather conditions.

- 4.1.13 The ditch on site is considered to be sub-optimal breeding habitat for great crested newts with a slow flow and being heavily shaded by bank side trees and scrub vegetation. A total of seven waterbodies (ponds and ditches) were present with 500m of the application site and were subject to survey (Marches Ecology 2010). No adult great crested newts were found during the surveys. However, great crested newt eggs were found at two of the ponds over 250m from the site boundary and a ditch approximately 80m to the north. This proves there is a breeding population, likely to be a small population, within the vicinity of the application site.

- 4.1.14 In addition to the above protected species, a single dingy skipper *Erynnis tages* was observed on two separate occasions. This species is listed as a priority species on the UK Biodiversity Action Plan (UKBAP) and as a priority species within Wales under Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006.

5 CONCEPT STATEMENT

5.1 OVERVIEW

- 5.1.1 The following strategy has been drafted with the objective of enhancing an area of land set aside specifically for nature conservation in compensation for the loss of habitat resulting from the proposed development. The concept seeks to link existing and newly created ecological habitat on-site with those of the wider landscape.
- 5.1.2 It has not been possible to provide an equivalent parcel of land (to the development footprint) as set aside land for nature conservation. Providing an equivalent parcel of land would have rendered the development financially unviable.
- 5.1.3 The ecological baseline surveys identified that across the application site the dominant habitat type is species rich grassland; however, the grassland is unmanaged and could be described as rank. Within the grassland, scrub species are becoming increasingly abundant and without management this trend would continue, resulting in a less valuable habitat resource. It is considered that by managing the grassland and bringing the grassland back into a favourable conservation status, although smaller in extent, a better quality habitat will develop that will enhance the ecology of the site and the wider area.
- 5.1.4 In addition, the development will ensure that dispersal routes and habitat corridors are protected and maintained.
- 5.1.5 Key principles behind the ecological concept include:
- The designation and protection of an area of land to be set aside for nature conservation, including the protection of notable ecological features where possible;
 - The adoption of management practices and regimes that will enhance important habitats (notably species rich grassland) retained within the area designated as compensation land;
 - Habitat creation and implementation of management practices to benefit a wide variety of wildlife (e.g. invertebrates, amphibians) both at a site level and in the wider area;
 - The adoption of an ecologically led soft landscaping scheme to benefit local biodiversity;
 - Enhancement of the site and the wider landscape through the provision of wildlife features and resources not currently available on site and the integration of wildlife friendly measures into the project design; and,
 - The maintenance of habitat corridors and dispersal routes, plus improvement of existing links to the wider network of habitats in the surrounding area.

- 5.1.6 The ecological concept also embraces the ideas established in Local Planning Guidance Note 26 *Landscape and Industrial Development* by encouraging a connection with nature by future workers and employees. The concept would see the integration of designated paths, seating areas and interpretation panels.

5.2 GRASSLAND HABITAT

- 5.2.1 An area of land, approximately 0.89 hectares (36.78% of the total application site) lying predominantly to the west of the application site has been designated as compensation land to be managed specifically for the purpose of nature conservation.
- 5.2.2 Species-rich neutral grassland is the dominant habitat across the application site. As described under the ecological baseline section; although still species rich the grassland is currently unmanaged and is becoming rank (See plate 5-1). Succession has occurred to some extent across the site. Bramble is becoming increasingly dominant in patches and young self-seeded trees such as willow and oak are present. If the succession is left unchecked there would be a resultant loss of species diversity and overall reduction in the sites value as an ecological resource.



Plate 5-1 Grassland habitat within the application site. Scrub vegetation is becoming increasingly abundant.

- 5.2.3 The development would see a net loss in the extent of the grassland habitat. However, with appropriate management of grassland within the designated compensation area it is considered that a smaller, but more diverse habitat would result, enhancing the ecology of the site and the wider area.

- 5.2.4 The area set-aside as compensation land will be cleared of scrub vegetation and then subjected to management to enhance its value as both a grassland habitat and as a resource for a variety of fauna.
- 5.2.5 Five locally scarce plants were recorded within the grassland; although the development footprint will result in the loss of some individual plants, these species are either represented within the area outlined as compensation land or would be encouraged to colonise this area through appropriate management. These species are:
- Prickly lettuce *Lactuca serriola* (locally threatened)
 - Grass vetchling *Lathyrus nissolia*
 - Bristly ox-tongue *Picris echioides*
 - Pepper saxifrage *Silaum silaus*
 - Hoary Ragwort *Senecio erucifolius*
- 5.2.6 The designated compensation area will be safeguarded throughout the construction phase of the development with the erection of heras fences.

5.3 AQUATIC HABITAT

- 5.3.1 The on-site ditch (see plate 5-2) in its current condition is heavily shaded by bank side trees and scrub vegetation and the channel dominated by duckweed *Lemna minor*. A section of the channel is concrete lined. The ditch will not be subject to direct impact and is located within the area of compensation land that will be protected throughout the construction phase of the development.



Plate 5-2 Ditch within application site, heavily shaded by bank site trees and scrub vegetation.

- 5.3.2 The ditch was subject to detailed survey in 2010 to ascertain the presence or likely absence of great crested newt, water vole and otter. No evidence was found to indicate the presence of these species. All three species are known to occur within the wider area. Great crested newt eggs were found in a ditch approximately 80m from the application site. With management, the on-site section of ditch would become more valuable as a resource for wildlife.
- 5.3.3 Thinning of bank side vegetation will open up the channel and will encourage aquatic and marginal vegetation to develop.
- 5.3.4 A section of the channel within the application site is concrete lined up to a height of approximately 1.5m. The possibility of removing the concrete lining and creating a more natural channel will be explored. If achievable this will benefit a wide variety of wildlife including amphibians.
- 5.3.5 In addition, a new pond providing further aquatic habitat is proposed. A new pond at this location being within 250m of known great crested newt ponds and with no barriers to dispersal would have a good chance of being colonised quickly by great crested newts.
- 5.3.6 The pond will also provide new opportunities for invertebrates and other wildlife.
- 5.3.7 Consideration is given to maximising the ponds value as a wildlife resource, while not significantly reducing the extent of land outlined as on-site compensation for species rich grassland lost.
- 5.3.8 Sustainable urban drainage (SUD) systems are encouraged within the Wrexham Industrial Estate. The use of the pond within a SUD system will require measures to prevent pollution of the pond from surface runoff.

5.4 HABITAT CORRIDORS AND CONNECTIVITY TO THE WIDER LANDSCAPE

- 5.4.1 The development is designed to maintain habitat corridors and dispersal routes across the site; both north to south and west to east. The initial site layout was altered following a meeting with Wrexham County Borough Council (December 2010) to reflect comments on the importance of dispersal routes within the Estate.
- 5.4.2 The western boundary of the application site is marked by a stand of scrub and young / early mature trees. A proportion of these will be removed to increase the extent of grassland as the habitat of principle importance. To compensate for the loss of scrub and trees, a species rich hedgerows will be planted, that will in time provide a dense and continuous habitat corridor across the site.
- 5.4.3 It is proposed that a native hedgerow is to be planted along the western boundary of the application site (with the adjacent landowner's permission) and extend past the limits of the application site. This will provide a link between the application site and the mature hedgerows and standard trees in the wider agricultural landscape.

- 5.4.4 A secondary hedgerow will be planted along the southern boundary of the application site, linking the western hedgerow to the frontage of the site at Clywedog Road South.
- 5.4.5 In addition to providing important corridors the proposed hedgerows will provide food and shelter for birds and mammals.
- 5.4.6 The following species are recommended by Wrexham County Borough Council for use in hedgerow planting.
- Hawthorn *Crataegus monogyna*
 - Blackthorn *Prunus spinosa*
 - Hazel *Corylus avellana*
 - Dog rose *Rosa canina* spp
 - Black current *Ribes nigrum*
 - Gooseberry *Ribes uva-crispa*
 - Bramble *Rubus fruticosus* spp
 - Crab apple *Malus sylvestris*
 - Wild cherry *Prunus padus*
 - Field maple *Acer campestre*
- } Should form approximately
} 80% of hedgerow planting
- 5.4.7 A strip of grassland will be retained along both the northern and southern site boundaries. It is likely that these areas will be required as working areas initially. However, it is proposed that these areas are left to vegetate naturally following completion of works.

5.5 SOFT LANDSCAPING

- 5.5.1 It is proposed that the landscaped area to the front of the development be seeded with a mix of annual / perennial wildflower species of local provenance. Wildflower mixes can be used to cover larger areas as opposed to monoculture grassland. Benefits of undertaking this include:
- Increased attractiveness for those working nearby and passers-by;
 - Increased biodiversity benefits by providing a food source for birds and insects;
 - Reduced management regime and thereby reduced carbon footprint e.g. less cuts per year.

- 5.5.2 Tree planting to include native species that provide an ecological benefit:
- Silver birch *Betula pendula* - Excellent for insects and to attract insect eating birds. Catkins are a good food source for a variety of birds;
 - Field maple *Acer campestre* - Attractive to a number of invertebrates and fruits are eaten by small mammals;
 - Rowan *Sorbus aucuparia* - Attractive to a number of invertebrates and berries are eaten by birds;
 - Apples *Malus* spp. - Attractive to invertebrates. Fruits are consumed by birds and mammals.

5.6 ADDITIONAL MEASURES

- 5.6.1 It is proposed that bird nest boxes be installed within the area set-aside for nature conservation to encourage breeding birds. These will be situated either in trees or where these features are lacking, attached to posts.
- 5.6.2 It is proposed that a bat roost box be installed on the external wall of the industrial unit facing the area set-aside for nature conservation.
- 5.6.3 Two artificial hibernacula will provide wintering refuge for amphibian species.
- 5.6.4 A phased approach allows the habitats within areas outlined to be developed at a later stage to be retained in the short term.
- 5.6.5 Proposed lighting should be planned to minimise impact on adjacent habitats. Direction will be taken from appropriate guidance, such as *Bats and Lighting in the UK* (BCT 2009)
- 5.6.6 Amphibian friendly drainage will be incorporated along the access roads and service yards instead of using conventional gully pots that may trap and kill amphibians.
- 5.6.7 Small interpretation boards will be incorporated into the nature conservation area to inform employees of the wildlife and habitats present and encourage a connection with nature.

6 HABITAT MANAGEMENT

6.1 OVERVIEW

- 6.1.1 The following section introduces habitat management practices and regimes that are proposed in order to achieve those aims identified in the concept statement.
- 6.1.2 Species rich grassland is the dominant habitat across the application site and it is the grassland that is identified as being of greatest ecological interest. As previously described the application site has received no recent management and this has resulted in encroachment by scrub vegetation. It is evident that this is starting to compromise the integrity of the grassland.
- 6.1.3 A section of the application site is designated as compensation land and this will be managed specifically for nature conservation. The overriding management objective is to return the grassland to a favourable conservation status. Management will seek to develop a species rich grassland with a varied structure across its extent, thus maximising its value as an ecological resource.
- 6.1.4 Initial habitat management works will involve the removal of scrub vegetation across the compensation land as well as the creation of a new pond. Initial habitat works are summarised in Figure 1, Initial Habitat Works.
- 6.1.5 In addition to the management of the species rich grassland, other on-going management will include maintenance of soft landscaping features, including wildflower planting and hedgerows and monitoring and management of aquatic habitats. Ongoing management is summarised in Figure 2, Habitat Management Plan.
- 6.1.6 The habitat management is broken down to discuss each specific habitat type. Providing a timetable of works where appropriate.
- 6.1.7 Habitat management should be viewed as an ongoing and reflective process. Regular monitoring and discussions with interested bodies should determine the future direction of habitat management practices. In the majority of cases natural processes are favoured with management restricted to the minimum required to successfully achieve the aims and objectives.

6.2 GRASSLAND HABITAT

- 6.2.1 Without appropriate ongoing management the grassland habitat within the application site would see a gradual transition to scrub vegetation, through the process of natural succession. The result of which would be a reduction in ecological value and loss of species richness and diversity.

Initial Clearance

- 6.2.2 The initial phase of management works will be to clear the compensation area of scrub vegetation. The vegetation clearance is proposed for the months of September or October; this will avoid the breeding bird season and will allow late flowering plant species to set seed.

On-going Management

- 6.2.3 The area designated for compensation will be divided into two distinct management areas, Area A and Area B. The management of these areas will seek to develop a varied sward length across the extent of the compensation land in order to maximise biodiversity potential.
- 6.2.4 Area A will be subject to two cuts per year. Each cut will reduce the sward height to approximately 150mm. The first cut will be undertaken in February with a second cut undertaken in July. Every third year the period between cuts will be extended, with the second cut undertaken in August to support late flowering species.
- 6.2.5 Area B will be cut once per year in October to a height of 150mm. This will provide cover and benefit a variety of fauna including amphibian species, invertebrates and small mammals.
- 6.2.6 The grassland management will take a fairly flexible approach and the exact dates will largely be dependent upon weather conditions. Table 6-1 provides the proposed cutting regime over the first five years of habitat management.

	Jan / Feb		Mar / Apr		May / Jun		Jul / Aug		Sep / Oct		Nov / Dec	
2011									A/B			
2012		A					A			B		
2013		A					A			B		
2014		A						A		B		
2015		A					A			B		

TABLE 6-1 PROPOSED CUTTING REGIME FOR THE PERIOD 2011 TO 2015.

- 6.2.7 All cutting will take place using powered hand trimmers with cut material removed from site. Cutting will work in a systematic method working from the centre outwards to allow fauna such as invertebrates, amphibians, birds and small mammals to vacate the area temporarily.

6.3 AQUATIC HABITATS

- 6.3.1 A new pond(s) will be created within the compensation land, the exact size and nature of which will be detailed at a later date and through consultation with Wrexham County Borough Council and the Countryside Council for Wales. To be of value to great crested newts a minimum surface of 100m² is generally accepted (English Nature 2001). The pond(s) will be graded to form shallow margins and encourage marginal vegetation. Deeper area (greater than 1m in depth) will be created to maintain open water and avoid deep freezing in cold winter periods.
- 6.3.2 The ground is thought to consist of a clay based soil, and therefore pond construction is likely to be relatively straight forward. If this is not the case then a bentonite liner can be used to provide a natural seal. The pond should be allowed to fill with water and vegetate naturally.
- 6.3.3 The new pond will be dug under the presence and guidance of a suitably experienced ecologist and holder of a great crested newt license. The area where the pond(s) is proposed will be fenced off and cleared of amphibians under a WAG licence prior to any ground works commencing. Within the footprint of the new pond, the vegetation will be subject to a phased cut to avoid inadvertently killing or injuring individual amphibians or other wildlife that may remain.
- 6.3.4 The pond and ditch will be monitored and management undertaken as and when appropriate to prevent invasive species colonising the pond. Scrub and vegetation clearance will be undertaken to prevent the pond or ditch becoming heavily shaded.
- 6.3.5 Any future works directly affecting the pond, or the aquatic and marginal habitat will be undertaken in autumn or early winter to minimise impacts on amphibians and under a conservation licence if required.

6.4 SOFT LANDSCAPING AND HEDGEROWS

- 6.4.1 The wildflower landscaping will be situated to the front of the development. In the first year this will be subject to regular cuts throughout the growing period. In the longer term the landscaped grassland will be subject to an early cut (spring) and then a final cut after the flowering period (late summer / early autumn). The timing of the cuts will be timed to coincide with the management of Area A (section 6.2.4). All cuttings will be removed from the site to prevent nutrient enrichment from decaying cuttings.
- 6.4.2 Hedgerows will be planted along the western and southern boundaries of the application site. Hedgerows can be planted between October and March, earlier planting (October to January) allows more time for the roots to

establish before spring. However, where a hedgerow is to be planted on clay based soils, as is the case here, planting later in the season can be beneficial as this minimises the risk of root damage resulting from frozen or water logged conditions. The hedgerows will be planted during the months of February and March 2012.

- 6.4.3 The hedgerow should be formed using a double staggered row to provide a dense and well-structured hedgerow of value to wildlife. Species to be planted are those recommended by Wrexham County Borough Council (refer to section 5.4.6). It is recommended that between four and six whips are planted per metre of hedgerow.
- 6.4.4 In years one to three light trimming of hedgerows should encourage a dense growth. After this period it is recommended that the hedgerows should be maintained on a two or three year cycle, with cutting undertaken in late January or February.

6.5 MONITORING

- 6.5.1 The success of the habitat management should be reviewed and management practices amended as required. It is proposed that site visit meetings are held between representatives of the current landowner and / or developer (whichever is applicable), the appointed land manager and representatives from Wrexham County Borough Council. These are proposed as a minimum for year's one, three and five following implementation of the plan.

PROTECTED SPECIES

Great Crested Newts

- 6.5.2 Amphibians are likely to use the proposed development site as terrestrial habitat. All native amphibian species within the UK receive some legal protection through the Wildlife & Countryside Act 1981 (as amended). Great crested newts receive further stringent protection under the Conservation of Habitats and Species Regulation 2010.
- 6.5.3 Great crested newts are known to be present within the vicinity of the proposed development site. Although no adult newts were discovered during survey work undertaken by Marches Ecology in 2010, eggs were found within three ponds / ditches within 250m of the proposed development site, it was concluded that a small breeding population was present within proximity of the site.
- 6.5.4 A Welsh Assembly Government (WAG) licence will be required before the development can commence. Future habitat management works as described in this document should be undertaken in a sensitive manner to avoid inadvertently killing or injuring great crested newts. Advice should be taken from an ecologist if there is any uncertainty over potential impacts on great crested newts.

Badgers

- 6.5.5 The Protection of Badgers Act 1992 makes it an offence to kill, injure, take possession or cruelly ill treat (or attempt to do so) a badger and intentionally or recklessly interfere with a badger sett.
- 6.5.6 Evidence of badgers using the site was observed in the form of well used paths. During any development of the site dispersal routes should be maintained and any overnight excavations should be covered to prevent badgers falling and becoming trapped. Where this is not possible, a ramped escape route must be provided from any excavation left open overnight.
- 6.5.7 A pre-construction survey will be undertaken to check for badger setts.

Birds

- 6.5.8 All wild birds, their nests and eggs are, with few exceptions, protected under the Wildlife and Countryside Act 1981 (as amended). Over eighty species or groups of species are listed under Schedule 1 of the Act, which confers special protection with increased penalties for offences committed.
- 6.5.9 Vegetation clearance should be timed to avoid the main breeding bird season, (March to August inclusive). If this is not possible a nest inspection will be required. If any nest is found or suspected then works in that area will need to be postponed until the young have fledged and the nest is no longer in use.

REFERENCES

Bat Conservation Trust (2009) *Bats and Lighting in the UK, Bats and the Built Environment Series*. Bat Conservation Trust, London.

ENGLISH NATURE (2001) *Great crested newt mitigation guidelines*. English Nature, Peterborough.

Marches Ecology (2010) *Proposed industrial development, land adjacent to Clywedog Road South, Wrexham Industrial Estate, Wrexham – Ecological Appraisal*. Marches Ecology Llangollen.

Wrexham County Borough Council (2003) *Local Planning Guidance Note No.26 Landscape and Industrial Development*. Wrexham County Borough Council, Wrexham.

Wrexham County Borough Council (2009) *Local Planning Guidance Note No.29 Wrexham Industrial Estate Employment Development and Nature Conservation*. Wrexham County Borough Council, Wrexham.