



Report Title	Gwersyllt Welsh Medium Primary School - Ecological Management Plan
Client	Wrexham County Borough Council
Date	May 2012



this report was produced by



Unit 23, The Malthouse Business Centre,
Regent Street, Llangollen, Denbighshire, LL20 8HS
01978 860889

Marches Ecology is the trading name of Marches Ecology LLP, Partnership No. OC362423, Registered in England and Wales.
Registered address: Unit 23, The Malthouse Business Centre, Regent Street, Llangollen, Denbighshire, LL20 8HS.

Report Title	Gwersyllt Welsh Medium Primary School - Ecological Management Plan
Client	Wrexham County Borough Council
Marches Ecology Ref	C152/Gwersyllt/EMP/Draft
Date issued	May 2012
Author	Max Ellson
Checked by	Tom Knight

This report has been prepared by Marches Ecology with all reasonable skill, care and diligence within the terms of the Contract with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk

CONTENTS

1	INTRODUCTION.....	4
1.1	PROJECT BACKGROUND	4
1.2	THE ECOLOGICAL MANAGEMENT PLAN	4
1.3	LEGISLATIVE AND POLICY CONTEXT	6
1.4	STRUCTURE OF THIS REPORT.....	7
2	SITE DESCRIPTION	8
2.1	GENERAL INFORMATION	8
2.2	BIOLOGICAL DESCRIPTION	8
2.3	STAKEHOLDERS AND MANAGEMENT INFRASTRUCTURE	10
3	OBJECTIVES	11
3.1	VISION STATEMENT	11
3.2	OBJECTIVES.....	11
4	MANAGEMENT PROJECTS.....	15
4.1	INTRODUCTION	15
4.2	GRASSLAND.....	15
4.3	WETLAND SCRAPE	19
4.4	NATIVE TREES AND SHRUBS	19
4.5	BIRD AND BAT-BOXES	20
5	ACTION PLAN.....	22
6	MONITORING AND REVIEW	23
7	REFERENCES.....	24

Figure 1 – Site Location

Figure 2 – Summary Management Proposals

1 INTRODUCTION

1.1 Project Background

1.1.1 Wrexham County Borough Council (WCBC) has been granted outline planning permission (Ref. P/2010/0881) in January 2011 for the construction of a new Welsh Medium Primary School on land off Delamere Avenue, Gwersyllt, Wrexham (OS Grid Ref. SJ 319 540). The outline permission was subject to a number of conditions/ reserved matters.

1.1.2 The proposed development is to comprise a single storey Primary School of approximately 1,800 m². It will comprise a nursery, early years and primary years; there will be a total of 270 pupils and 30 staff. The proposals include for extensive landscaping (both hard and soft) and associated habitat creation.

1.1.3 Condition 8 of the outline planning permission states the following:

'No part of the development shall commence until a long-term Ecological Management Plan and Ecological Method Statement¹ for a minimum of 10 years, have been submitted to and approved in writing by the Local Planning Authority. This information shall demonstrate how existing features of ecological / wildlife interest will be protected, identify any areas of compensation and demonstrate management in the long-term. The recommendations as approved shall be fully implemented in accordance with timescales to be agreed in writing before any part of the development commences on site.'

1.1.4 The development is also to be assessed in accordance with the BREEAM² Education³ 2008 assessment procedure, of which Mandatory Requirement 3 of the LE6 BREEAM credit requires a 'landscape and habitat management plan, appropriate to the site, ...covering at least the first five years after project completion'.

1.2 The Ecological Management Plan

1.2.1 This Ecological Management Plan (EMP) has been prepared by Marches Ecology on behalf of Wrexham County Borough Council (WCBC). As required by Condition 8, it sets out a ten-year management strategy for the grounds of the new Welsh Medium Primary School, Gwersyllt, Wrexham (hereafter referred to as the Site). Although management prescriptions are provided for a ten-year period, the EMP includes for a review after five years, at which point the Action Plan may be updated. At the end of the ten year period, an EMP as a whole will be reviewed and the Action Plan will then be compiled for the next ten-year period.

1.2.2 The EMP will cover a ten-year period after project completion and will guide management and enhancement of the wildlife resource of the site. As detailed above, as well as being submitted with reference to Planning Condition 8, it is also required by Mandatory Requirement 3 (of the LE6 BREEAM credit) to be provided to the building occupants and to address the following:

¹ It has been agreed with the WCBC Ecologist (Zara Lomax) and the WCBC Planning Officer (Sharon Holman) that an Ecological Method Statement is no longer required as per Condition 8 [WCBC to confirm].

² Building Research Establishment Environmental Assessment Method (BREEAM).

³ BRE Global Ltd (2009). *BRE Environmental & Sustainability Standard. BES5051: Issue 3.0 – BREEAM*

- Management of any protected features on site,
- Management of any new, existing or enhanced habitats,
- A reference to the current or future site level Biodiversity Action Plan.

1.2.3 The start date of this management plan has been assumed to be following completion of the construction/ landscaping programme. The management plan does not cover landscaping works/ habitat creation measures associated with the scheme; these are considered in Marches Ecology (2012) and include the following:

- a number of swales to be sown with a wetland wildflower mix;
- provision of several areas of non-intervention grassland;
- supplementing two areas of existing grassland with new wildflower plug plants;
- creation of a wetland scrape; and
- areas of native shrub and tree planting.

The Action Plan includes management prescriptions for after-care of these newly created habitats, along with an existing area of retained vegetation (located adjacent to the western boundary of the site) which comprises rough grassland with a mosaic of patches of dense scrub, patches of tall herbs and scattered trees/ shrubs.

1.2.4 *Text-box 1* below outlines the framework and structure for the EMP based on that detailed in the Commission for Architecture and the Built Environment (2004).

Text-box 1 – Structure/ Scope of Gwersyllt Welsh Medium Primary School EMP

Stage of Process	Management Plan Structure
Where are we now?	▶ Introduction ▶ Policy Context ▶ Site description
Where do we want to get to?	▶ Vision ▶ Assessment and analysis ▶ Aims and objectives
How will we get there?	▶ Work/action plan ▶ Finance and resources
How will we know when we have arrived?	▶ Monitor and review

- 1.2.5 Compilation of the EMP has and will require proactive consultation with all key stakeholders particularly staff, pupils and grounds maintenance personnel. As much of this consultation will take place as part of the BREEAM process this EMP may be subject to change so as to reflect the input of the stakeholders. The EMP is designed to be an active document.

1.3 Legislative and Policy Context

Wrexham Biodiversity Action Plan

- 1.3.1 The framework document for the Wrexham Biodiversity Action Plan (WBAP) was written in 2003 and is an active document. Currently eight Habitat Action Plans (HAPs) are included within the WBAP: woodland (all types), veteran trees, upland moorland, rivers, streams and canals, ponds, lowland bog, gardens, and derelict and industrial land. None of these are relevant to the site prior to habitat creation, although woodland and gardens⁴ will be of relevance in the future. Currently the WBAP includes seven Species Action Plans (SAPs): Badger, Otter, Lesser Horseshoe Bat, Barn Owl, Song Thrush, Great Crested Newt and Black Poplar. Of these the most relevant SAP to the site is perhaps the Song Thrush, although Barn Owl, and to a lesser extent Badger and Great Crested Newt, may also be of some relevance.
- 1.3.2 This EMP will contribute to the aims and objectives of both the Woodland HAP and Gardens HAP through the appropriate management of areas of native tree and shrub planting (particularly an area to be located adjacent to existing plantation woodland outside the site) and the other created habitats within the school grounds. It is also proposed to create a wetland scrape although this is unlikely to hold sufficient water to be considered a pond. Similarly the EMP will contribute to the aims and objectives of the Song Thrush and Barn Owl SAPs by providing enhanced opportunities for feeding, the Badger SAP by providing sett construction opportunities, and the Great Crested Newt SAP by providing potential terrestrial habitat. Relevant objectives within these Action Plans are as follows:
- The Woodland HAP includes the following objective:
 - *'Increase the area of woodlands in Wrexham County Borough by 50% by 2050.'*
 - The Garden HAP includes the following objectives:
 - *'Establish a green network in all new developments.'*
 - *'Reduce the use of peat based composts to 20% over the next ten years.'*
 - *'Reduce the use of wildlife unfriendly pesticides by 50% over the next ten years.'*
 - The Song Thrush SAP includes the following objective:
 - *'Protect, enhance and extend habitats favoured by the song thrush.....over the next ten years'.*
 - The Barn Owl SAP includes the following objective:
 - *'To encourage land owners/managers to make provision for suitable feeding habitats for barn owls...'*
 - The Badger SAP includes the following objective:
 - *'To enhance Badger habitat'.*

⁴ THE WBAP notes that 'Garden' also relates to 'those areas of garden (including wildlife areas) created within school grounds'.

- The Great Crested Newt SAP includes the following objective:
 - *'To maintain and establish extensive networks of suitable habitat within pond clusters and associated pond landscapes (pondscapes) in Wrexham'.*

1.4 Structure of this Report

1.4.1 The remainder of this report is structured as follows:

Section 2 provides the site description;

Section 3 outlines the (management) objectives;

Section 4 presents the management projects;

Section 5 presents the action plan; and

Section 6 outlines the mechanisms for monitoring and review.

2 Site Description

2.1 General Information

Location and Site Boundaries

- 2.1.1 Gwersyllt Welsh Medium Primary School is a new build facility – the site is currently dominated by a playing field. The site is located immediately adjacent/ to the north of Delamere Avenue and immediately adjacent/ to the east of the A541 (Mold Road). It is on the northern edge of Gwersyllt. It is located approximately 3.9 km to the northwest of Wrexham town centre. *Figure 1* illustrates the location of the site (OS Grid Ref. SJ 319 540). Once the school is constructed, vehicular access will be off Delamere Avenue.

2.2 Biological Description

Introduction

- 2.2.1 Wrexham *Landmap*⁵ identifies the part of Gwersyllt (including Alyn Waters Country Park) to the east of the A541 road as within character area 8: Gwersyllt, Llay, Gresford, Borrass. This character area is typified by lowland agricultural land, sand and gravel extraction, and commuter villages with a mining history. Ecological features of the area are noted as including active/ inactive sand quarries and farmland. Alyn Waters Country Park is located on reclaimed land.
- 2.2.2 A mixture of plantation woodland, scrub and rough grassland is located to the north of the site within Alyn Waters Country Park. To the east there is further land associated with the Country Park and a sports club including a disused bowling green. To the south, on the opposite side of Delamere Avenue, there is a residential housing estate with an adjacent amenity area at The Wauns (between Gwersyllt and Bradley). The Wauns is characterised by frequently managed amenity grassland. To the west, on the opposite side of the A541 road, there are some commercial premises; residential housing associated with Gwersyllt/ Summerhill and to the northwest some agricultural fields.

Habitat

- 2.2.3 The description provided here is taken from Marches Ecology (2011). This report details the results of an Extended Phase 1 Habitat Survey of the site completed in 2011. In addition the habitat present was assessed for its potential value to legally protected species.
- 2.2.4 Marches Ecology (2011) concludes that most of the site is dominated by amenity grassland that is of little ecological value. It is intensively managed and species-poor, being typically dominated by *Lolium perenne* (Perennial Rye-grass) with locally abundant *Bellis perennis* (Daisy) and frequent *Ranunculus repens* (Creeping Buttercup). Slightly more species-rich grassland is located on the edge of the amenity grassland in one place and is associated with a BMX track. It is typically characterised by *Agrostis capillaris* (Common Bent) and has small amounts of *Centaurea nigra* (Common Knapweed), *Potentilla reptans* (Creeping Cinquefoil), *Daucus carota* (Wild Carrot) and *Centaureum erythraea* (Common Centaury).

⁵ http://www.wrexham.gov.uk/english/planning_portal/landmap/spg.htm

- 2.2.5 Other habitat types present include scrub, trees, neutral grassland and tall-herbs. At the eastern end of the site there are several small patches of planted scrub with scattered ornamental trees; the trees are predominantly young or semi-mature *Populus* sp. (Poplars). There is a broken line of trees/ shrubs along the southern site boundary; these are predominantly *Fraxinus excelsior* (Ash) and *Ulmus glabra* (Wych Elm). A steep bank at the western end of the site supports a mosaic of scrub, young trees, tall-herbs and rough grassland. The dense scrub is dominated by *Rubus fruticosus* agg. (Bramble) and the patches of tall herbs by *Urtica dioica* (Common Nettle), *Galium aparine* (Cleavers), *Chamerion angustifolium* (Rosebay Willowherb) and *Epilobium hirsutum* (Great Willowherb). The scattered trees/ shrubs are mostly *Quercus robur* (Pedunculate Oak) and *Crataegus monogyna* (Hawthorn) with some *Fraxinus excelsior* (Ash). The grassland is dominated by *Arrhenatherum elatius* (False Oat-grass) with locally frequent *Ranunculus ficaria* (Lesser Celandine), *Centaurea nigra* (Common Knapweed), frequent *Cirsium arvense* (Creeping Thistle), *Anthriscus sylvestris* (Cow Parsley), *Galium aparine* (Cleavers) and lesser amounts of *Dryopteris filix-mas* (Male-fern) and *Hypericum perforatum* (Perforate St. John's-wort).
- 2.2.6 To the immediate north of the site there is a mixed plantation on sloping ground; the canopy includes a range of tree species although *Acer pseudoplatanus* (Sycamore) and *Acer platanoides* (Norway Maple) are locally frequent. The trees/ shrubs are all young. There is little in the shrub layer and the ground layer is sparsely vegetated. Locally there is a patch of mature *Salix* sp. (Willow) scrub. To the east of the site there is a sports club with associated buildings, hard-standing and disused bowling green. There is also a similar mixed plantation and an informal car park for the Alyn Waters Country Park.
- 2.2.7 The proposed scheme will result in the loss of amenity grassland, a small number of young trees/ shrubs towards the eastern end of the site, and a small number of trees along Delamere Avenue. The steep bank at the western end of the site (which supports a mosaic of scrub, young trees, tall-herbs and rough grassland) is to be retained and largely to be subject to non-intervention management.
- 2.2.8 The Extended Phase 1 Habitat Survey did not summarise the presence or absence of any locally notable (e.g. Locally Scarce⁶) species of plant from the survey site, however the species-list contained within Marches Ecology (2011) does not detail any

Proposed Enhanced Habitat

- 2.2.9 The following habitat enhancements are proposed:
- Creation of rough grassland habitat (both adjacent to part of the boundary with Delamere Avenue and on the northern and eastern sides of a proposed sports pitch) to be created by the cessation of management.
 - The sowing of a two swales (principally provided for drainage) with a wetland wildflower mix, to be subject to appropriate management.
 - Wildflower grassland to be created by supplementing an area of existing amenity grassland with new wildflower plug plants, to subject to infrequent annual management.
 - A 'flowering lawn' to be created by supplementing an area of existing amenity grassland with new wildflower plug plants.

⁶ In Vice County 50, a scarce plant is described as being recorded in 4-15 10 km squares (Green 2006).

- A wetland scrape (to be left to colonise naturally).
- Significant areas of native shrub and tree planting.
- Bulb planting of at least ten different species into an area of amenity grassland.
- Provision of an amphibian hibernacula.
- Provision of bird and bat-boxes (to be installed further to the occupation of the school).

2.3 Stakeholders and Management Infrastructure

- 2.3.1 All management of enhanced habitat and other features will be undertaken by the school in conjunction with WCBC/ North Wales Wildlife Trust (NWWT)⁷ as appropriate. Responsibility for ensuring all management prescriptions are undertaken will remain with the school. Some of the management prescriptions may require the input of specialist contractors.

⁷ As part of the BREEAM LE8 credit (Marches Ecology, 2012) NWWT have pledged to provide on-going support with a view to establishing a long-term working partnership with Gwersyllt Primary School once it is established. NWWT have outlined that they will *'currently move ahead to establish a relationship with Ysgol Plas Coch staff as it is envisaged there will be a close working relationship between these two schools once the new school is built. This is done in the hope of establishing a more permanent association with the new school once key staff are appointed.'* NWWT also state that they would *'actively seek to develop a long term association with the school either through steering the Wildlife Watch Group, working with the school Eco group / committee, PTA or engaging with other external groups'* and furthermore would *'seek to further develop effective habitats for increased biodiversity on the site, and provide advice, guidance or on-going assistance in maintaining the site through our network of sub-contractors, volunteers and associated groups'*.

3 OBJECTIVES

3.1 Vision Statement

- 3.1.1 The aim of management of the Gwersyllt Welsh Medium Primary School grounds will be to protect/ enhance the habitats for a range of wildlife. Particular emphasis will be paid to the wildflower grassland and wetland scrape that are to be established in the north-east of the site (*Figure 2*) – a timber cabin is also to be provided in this area and it is hoped that use will be made of the area by pupils for developing a range of ecological skills, such as plant identification, bird watching and invertebrate recording. Elsewhere within the school grounds the habitat will be principally be enhanced through the provision of areas of rough grassland by introducing non-intervention management, and scrub/ tree planting which aims to extend the existing plantation woodland located to the immediate north of the site. These habitats should also be of benefit to a range of wildlife including birds. In addition the value of amenity grassland will be locally enhanced through the creation of a ‘flowering lawn’ and bulb planting.

3.2 Objectives

Introduction

- 3.2.1 The intention is for areas of the site to be ecologically enhanced for a wide range of species and to become a feature of the development. However the wildflower grassland and the wetland scrape (that are to be created in the northeast of the site) and the (potential for) nesting birds have been identified as the most important ecological features of the site.

Management Objective 1 – Wildflower Grassland

- 3.2.2 Appropriately managed, species-rich, wildflower grassland is a habitat that has declined in the wider countryside. Currently this habitat type does not occur within the site that is to be developed for the school, and therefore this habitat should not only be of value in its own right, but also provide a valuable resource for other wildlife (such as invertebrates, birds (feeding and a source of nesting material) and small mammals). The proposed management of the wildflower grassland seeks to develop and maintain the value of this habitat in the long-term.

Wildflower Grassland Monitoring

- 3.2.3 This monitoring includes for the wildflower grassland in the northeast of the site and the ‘flowering-lawn’ (both of which are to have been supplemented with plug plants), as well as two lengths of swale that are to have been sown with a wildflower seed mix.
- 3.2.4 As outlined in Marches Ecology (2012), the wildflower grassland in the northeast of the site (*Figure 2*) is to be created by supplementing the existing amenity grassland with the BTCV ‘Long Season Meadow’ wildflower plug collection⁸. This plug planting mix contains approximately 29 species of native meadow flowers (of which at least 25 species will be utilised); as follows: *Achillea millefolium* (Yarrow), *Centaurea nigra* (Common Knapweed), *Centaurea scabiosa* (Greater Knapweed), *Daucus carota* (Wild Carrot), *Echium vulgare* (Viper's Bugloss), *Galium verum* Lady's Bedstraw, *Geranium pratense* (Meadow Cranesbill),

Hypochaeris radicata (Common Cat's-ear), *Knautia arvensis* (Field Scabious), *Lathyrus pratensis* (Meadow Vetchling), *Leontodon hispidus* (Rough Hawkbit), *Leucanthemum vulgare* (Oxeye Daisy), *Linaria vulgaris* (Common Toadflax), *Lotus corniculatus* (Common Bird's-foot Trefoil), *Malva moschata* (Musk Mallow), *Plantago media* (Hoary Plantain), *Primula veris* (Cowslip), *Prunella vulgaris* (Self Heal), *Ranunculus acris* (Meadow Buttercup), *Ranunculus bulbosus* (Bulbous Buttercup), *Rhinanthus minor* (Yellow Rattle), *Rumex acetosa* (Common Sorrel), *Scabiosa columbaria* (Small Scabious), *Silene dioica* (Red Campion), *Stachys officinalis* (Betony), *Succisa pratensis* (Devil's-bit Scabious), *Trifolium pratense* (Red Clover), *Verbascum nigrum* (Dark Mullein) and *Vicia cracca* (Tufted Vetch). Further to successful establishment, the whole resource will be subject to infrequent management in order to maintain an informal wildflower grassland area; it should retain all of the species that were planted.

3.2.5 Marches Ecology (2012) also details that an area of amenity grassland to the east of the main entrance into the school (*Figure 2*) will also have been supplemented with plug plants, namely the BTCV 'Flowering Lawn' wildflower plug collection⁹. This plug planting mix contains approximately 12 species of native flowers (all of which are to have been planted) that can tolerate close mowing as follows: *Achillea millefolium* (Yarrow), *Anthyllis vulneraria* (Kidney Vetch), *Galium verum* (Lady's Bedstraw), *Hypochaeris radicata* (Common Cat's-ear), *Leontodon hispidus* (Rough Hawkbit), *Leucanthemum vulgare* (Oxeye Daisy), *Lotus corniculatus* (Common Bird's-foot Trefoil), *Plantago lanceolata* (Ribwort Plantain), *Primula veris* (Cowslip), *Prunella vulgaris* (Self Heal), *Ranunculus acris* (Meadow Buttercup) and *Rumex acetosa* (Common Sorrel). Further to successful establishment, the whole of this resource will be subject to frequent mowing management (with the cessation of mowing for one month in summer to encourage flowering); it should retain all of the species that were planted.

3.2.6 In addition, and as outlined in Marches Ecology (2012), two lengths of swale (*Figure 2*) are to have been sown with the British Seed Houses mix RF3 'River Flood Plain/ water meadow mix' in order to create damp grassland. This includes thirteen species of wildflower as follows: *Caltha palustris* (Marsh Marigold), *Centaurea nigra* (Common Knapweed), *Filipendula ulmaria* (Meadow Sweet), *Leontodon autumnale* (Autumn Hawkbit), *Leontodon hispidus* (Rough Hawkbit), *Leucanthemum vulgare* (Ox-eye Daisy), *Lotus corniculatus* (Common Bird's-foot Trefoil), *Lychnis flos-cuculi* (Ragged Robin), *Plantago lanceolata* (Ribwort Plantain), *Prunella vulgaris* (Self-Heal), *Ranunculus acris* (Meadow Buttercup), *Rhinanthus minor* (Yellow Rattle) and *Sanguisorba officinalis* (Greater Burnett). The wildflower grassland should retain an average of at least eight of these species per two square meters.

⁸ <http://shop.tcv.org.uk/shop/stock?l=level3;lid=850;sid=947>

⁹ <http://shop.tcv.org.uk/shop/stock?l=level3;lid=850;sid=8875>

Wildflower Grassland Monitoring – ‘Long Season Meadow’ and ‘Flowering Lawn’			
Methodology	Both these areas of grassland should be surveyed at least once a year. As the plug plants are to be planted between 2.5 and 5 plants per m² (Marches Ecology, 2012), it will not be possible to monitor the grassland using a standard approach of a 2 m square quadrat. Therefore the monitoring should comprise the recording of all wildflowers present. Use should also be made of the DAFOR scale to record relative abundance of the wildflowers and to enable comparison between different years. The DAFOR scale works on % cover: Dominant = >75%, Abundant = 75 – 51%, Frequent = 50 – 26%, Occasional = 25 – 11%, Rare 10 – 1 %; there are additional categories of LD, LA and LF, where L = locally. This monitoring should be undertaken when the wildflowers are in flower, between June and August for the ‘Long Season Meadow’ and for the ‘Flowering Lawn’ during the month when it is not be mowed. It should be undertaken by school pupils in conjunction with advice from e.g. NWWT.		
Timing	Where	Equipment	Responsibility
Years 1 to 10; 1 survey each year, between June and August.	‘Long Season Meadow’ and ‘Flowering Lawn’, see <i>Figure 2</i> .	Clipboard, recording form/ map, wildflower identification book/ guide, DAFOR scale.	School/ NWWT.

Wildflower Grassland Monitoring – Swales			
Methodology	The wildflower grassland within the swales should be surveyed at least once a year using a 2 m square quadrat. The number of different species of wildflower should be recorded in fifteen separate quadrats (these should be randomly placed along the swales) and an average taken. This monitoring should be undertaken when the wildflowers are in flower, between June and August. It should be undertaken by school pupils in conjunction with advice from e.g. NWWT.		
Timing	Where	Equipment	Responsibility
Years 1 to 10; 1 survey each year, between June and August.	Two swales, see <i>Figure 2</i> .	Clipboard, recording form/ map, wildflower identification book/ guide, 2 m square quadrat.	School/ NWWT.

Management Objective 2 – Wetland Scrape

- 3.2.7 Wetland scrapes are shallow depressions with gently sloping edges, which seasonally hold water; such features are very attractive to wildlife, including a wide variety of aquatic, terrestrial and aerial invertebrates, as well as a variety of birds. Currently this habitat type does not occur within the site that is to be developed for the school. The proposed management of the wetland scrape will seek to develop and maintain the value of this habitat in the long-term.

Wetland Scrape Monitoring

- 3.2.8 The monitoring will focus on the development of the wetland scrape habitat from its creation. No marginal or aquatic plants are to be introduced into the wetland scrape on its creation, rather it is hoped that a natural, native flora will develop over time. The wetland scrape has been designed to allow seasonal standing water within the scrape, along with muddy edges; it will be allowed to completely dry up at the end of the summer.

Wetland Scrape Monitoring – Flora			
Methodology	The scrape flora should be surveyed at least once a year. A detailed map should be drawn up of the scrape and annotated with the locations of different plant species/ groups of plants. This monitoring should be undertaken when the flora will be most developed, between June and August. It should be undertaken by school pupils in conjunction with advice from NWWT.		
Timing	Where	Equipment	Responsibility
Years 1 to 10; 1 survey each year, between June and August.	Wetland scrape, see <i>Figure 2</i> .	Clipboard, recording form/ map, aquatic plant identification book/ guide.	School/ NWWT..

Management Objective 3 – Nesting Birds

- 3.2.9 Gardens, parks and school grounds can be important for a number of nesting bird species. Some of these species are of conservation interest and have declined in the wider countryside, e.g. Song Thrush. The enhanced habitat will include several areas of native tree and shrub planting and areas of rough/ wildflower grassland. The provision of these habitats seeks to increase the value of the school grounds for nesting and feeding birds. Appropriate management of these features may also provide an enhanced feeding resource over the winter. The proposed nest-boxes will provide additional safe nesting opportunities. The rough/ wildflower grassland should also provide an important feeding resource and, for example, source of nesting material.

Nesting Bird Monitoring

- 3.2.10 The six nest-boxes should be used by at least two pairs of nesting bird during one year in three. As the nest-boxes are to be installed further to the occupation of the school (the locations which will be agreed with teaching staff and pupils), it is recognised that it may not be possible to initiate monitoring until Year 2.

Nesting Bird Monitoring			
Methodology	The number of nest-boxes being used and the species using them should be recorded every year. The nest-boxes should be visited at least once a year between April and June inclusive. The nest-boxes should not be directly disturbed but observed from an appropriate distance.		
Timing	Where	Equipment	Responsibility
Years 1 to 10; 1 visit each year, April to June inclusive.	Nest-boxes	Binoculars, clipboard, recording form/ map.	School/ NWWT.

4 MANAGEMENT PROJECTS

4.1 Introduction

- 4.1.1 The following tables describe the prescribed management projects required to achieve the management objectives. The sub-sections are divided according to the key habitat types – the majority of these habitats will have been created/ enhanced as part of the school development proposal; the key exception to this is the mosaic of scrub, young trees, tall-herbs and rough grassland at the western end of the site – this is to be retained and largely to be subject to non-intervention management. Management will be continuously reviewed and should changes be required to these prescriptions they will be discussed and agreed with the school prior to implementation. *Figure 2* summarises the management prescriptions. The amphibian hibernacula/ bulb planting will not require any management prescriptions and is therefore not dealt with in this section.

4.2 Grassland

GRASSLAND MANAGEMENT – SWALES			
Methodology	Species-rich wildflower damp grassland will be established in two swales. Marches Ecology (2012) details the management that should be undertaken after the first year of sowing; in summary (if autumn sown) the sward should be cut once the height exceeds 10 cm (late March/ early April) reducing the height to between 4-7 cm according to the evenness of the ground. A second cut could be required if regrowth exceeds 10cm by the end of April/early May. A 3rd cut should be undertaken in September (to 4cm) after flowering. If spring sown, the sward should be cut approximately 6 weeks after sowing (to 4-7 cm if there is sufficient material) and then again in September (as above). In addition, if weed species (e.g. docks/ thistles) become established in the first 1-2 years they should be hand-pulled or spot-treated with a glyphosate-based herbicide as appropriate. In all subsequent years a first cut (to 4-7cm) should be undertaken in March/ April followed by a final cut to 4-7cm at the end September/ October. Due to the location of this grassland in swales, it is likely that a strimmer will be required; after each cut the clippings should be removed. In addition mowing should ideally be undertaken during hot and or dry weather conditions. This management regime should be reviewed subject to the results of the proposed monitoring (as outlined in <i>Section 3</i>). Should the diversity of wildflowers decline it may indicate that the substrate is too fertile; further to input from e.g. NWWT it may be that in this case additional cuts should be taken to assist in reducing the fertility. Due to the location of the swales in school grounds there is the potential for the wildflower grassland to collect rubbish; they should be subject to a litter-pick at least once a year.		
Purpose	Where	Equipment	Responsibility
To provide species-rich wildflower wetland grassland.	Two swales, see <i>Figure 2</i> .	Plan of swales, strimmer, rake. Bin-bags for litter-pick.	School/ WCBC
Timing	Programme		
First year after autumn sowing; cut in late March/ early	All years.		

April, end April/ May and September. First year after spring sowing; cut approximately 6 weeks after sowing, then September. Subsequent years; cut in March and end September/ October. Litter-pick – at least annual.	
--	--

GRASSLAND MANAGEMENT – ‘LONG SEASON MEADOW’			
Methodology	An area of amenity grassland is to be supplemented with plug plants from a ‘Long Season Meadow’ mix. Marches Ecology (2012) details the management that should be undertaken after the first year of planting. It is critical that the grass is never allowed to overshadow and swamp the wildflower plug plants while they establish. As such, during the spring and early summer the adjacent grass around the plants should be kept short – whenever the adjacent grass reaches a maximum height of 20 cm it should be cut back to 10 cm around the plants (up to late May); another cut should be taken in July. All cuttings should be removed or dispersed. In addition, if planted after April, the plants should be spot irrigated in dry spells during the first year whilst they establish themselves. If weed species (e.g. docks/ thistles) become established in the first 1-2 years they should be hand-pulled or spot-treated with a glyphosate-based herbicide as appropriate. In all subsequent years a first cut (to 4-7cm) of the whole grassland area (i.e. including the plug plants and the surrounding retained grassland) should be undertaken in March/ April followed by a final cut to 4-7cm at the end of September/ October. After each cut the clippings should be removed. In addition mowing should ideally be undertaken during hot and or dry weather conditions. Paths that were retained unplanted should be subject to regular mowing. This management regime should be reviewed subject to the results of the proposed monitoring (as outlined in <i>Section 3</i>). Should the diversity of wildflowers decline it may indicate that the either the plug plants are being outcompeted (e.g. by grasses) or the substrate is too fertile; further to input from e.g. NWWT it may be that in this case additional targeted cuts should be taken to remove competing vegetation and/ or cuts of the whole area to assist in reducing the fertility. Due to the location of the grassland in school grounds there is the potential for the wildflower grassland to collect rubbish; they should be subject to a litter-pick at least once a year.		
Purpose	Where	Equipment	Responsibility
To provide species-rich wildflower grassland.	‘Long Season Meadow’ area, see <i>Figure 2</i> .	Plan of grassland, hose-pipe or water bowser, strimmer/ mower, rake. Bin-bags for litter-pick.	School/ WCBC
Timing	Programme		
First year after planting; grass adjacent to plug plants to be cut when reaches 20 cm (up to late May) and again in July. Spot irrigation if required.	All years.		

Subsequent years; cut all grassland in March and end September/ October.	
Litter-pick – at least annual.	

GRASSLAND MANAGEMENT – ‘FLOWERING LAWN’			
Methodology	An area of amenity grassland is to be supplemented with plug plants from a ‘Flowering Lawn’ mix. Marches Ecology (2012) details the management that should be undertaken after the first year of planting. It is critical that the grass is never allowed to overshadow and swamp the wildflower plug plants while they establish. As such, during the spring and early summer the adjacent grass around the plants should be kept short – whenever the adjacent grass reaches a maximum height of 20 cm it should be cut back to 10 cm around the plants (up to late May); another cut should be taken in July. All cutting should be removed or dispersed. In addition, if planted after April, the plants should be spot irrigated in dry spells during the first year whilst they establish themselves. If weed species (e.g. docks/ thistles) become established in the first 1-2 years they should be hand-pulled or spot-treated with a glyphosate-based herbicide as appropriate. In all subsequent years the ‘flowering lawn’ is to be subject to frequent mowing as per the amenity grassland resource elsewhere in the school grounds, with the exception that it should be left uncut for a period of one month every summer (between June and August) in order to encourage flowering. This management regime should be reviewed subject to the results of the proposed monitoring (as outlined in <i>Section 3</i>). Should the diversity of wildflowers decline it may indicate that the plug plants are being outcompeted (e.g. by grasses); further to input from e.g. NWWT it may be that in this case additional targeted mowing should be taken to remove competing vegetation.		
Purpose	Where	Equipment	Responsibility
To provide a species-rich amenity grassland.	‘Flowering Lawn’ area, see <i>Figure 2</i> .	Plan of grassland, hose-pipe or water bowser, strimmer/ mower, rake. Bin-bags for litter-pick.	School/ WCBC
Timing	Programme		
First year after planting; grass adjacent to plug plants to be cut when reaches 20 cm (up to late May) and again in July. Spot irrigation if required. Subsequent years; frequent mowing with the exception of one month in summer (between June and August).	All years.		

GRASSLAND MANAGEMENT – ROUGH GRASSLAND			
Methodology	It is proposed that a rough grassland habitat (adjacent to part of the boundary with Delamere Avenue and on the northern and eastern sides of the proposed sports pitch) will be managed through non-intervention. Should management be perceived to be necessary in the future this policy should be reviewed. Similarly the requirement and funding for planting of (native) wildflowers into this grassland should be reviewed. Due to the location of the grassland in school grounds there is the potential for the rough grassland to collect rubbish; this resource should be subject to a litter-pick at least once a year.		
Purpose	Where	Equipment	Responsibility
To provide undisturbed grassland for a range of wildlife, e.g. feeding birds, invertebrates and small mammals.	Adjacent to part of the boundary with Delamere Avenue and on the northern and eastern sides of the proposed sports pitch, see <i>Figure 2</i> .	Bin-bags for litter-pick.	School/ WCBC
Timing	Programme		
Litter-pick – at least annual.	All years.		

GRASSLAND MANAGEMENT			
Methodology	Management of the grassland outwith the dedicated areas detailed in the above tables should minimise potential impacts on wildlife. Wherever possible (beyond playing surfaces, e.g. football pitches) cutting blades for mowing machinery should be set at 10 – 15 cm above ground level. In addition mowing should ideally be undertaken during hot and or dry weather conditions. Further opportunities for the creation of additional areas of long grassland (through cessation of management) should be reviewed.		
Purpose	Where	Equipment	Responsibility
To manage all grassland areas in a wildlife-friendly manner.	Grassland for which no other management prescribed.	-	School/ WCBC
Timing	Programme		
-	-		

4.3 Wetland Scrape

WETLAND SCRAPE MANAGEMENT			
Methodology	Marches Ecology (2012) details that the aim of the wetland scrape is to provide an area of seasonal standing water (within the scrape), along with muddy edges. As such the scrape should ideally hold water (from rainfall) from March through to the end of June and will then be allowed to completely dry up at the end of the summer. The scrape is not to be subject to planting/ sowing – rather it will be allowed to colonise naturally. The scrape will be reviewed in the first, second, fifth and tenth years after construction (in late spring/ early summer) to determine whether it is holding sufficient amounts of water and that it provides sufficient variation in water depths <i>etc.</i>, for plants and animals to utilise; should it be considered necessary for the scrape to be adapted (for example to ensure it holds water, provides maximum benefit for wildlife) this will be undertaken as required (e.g. with the use of appropriate machinery to remodel the scrape and/ or ensure it holds water as required). The results of the annual monitoring of the scrape flora will inform the review. Should it be deemed appropriate to remodel the scrape then it is important that the entire scrape is not completed in any one year. Management should be rotational, e.g. approximately one-third should be dredged in any one year with progressive 'thirds' completed in the following two years. This will allow re-colonisation by flora and fauna from the undisturbed habitat. Dredged material should be removed off site. Prior to undertaking this work it may be necessary to survey for legally protected species.		
Purpose	Where	Equipment	Responsibility
To provide a valuable wildlife-rich wetland scrape.	Wetland scrape, see <i>Figure 2</i> .	N/a	School/ WCBC
Timing	Programme		
Review: May/ early June	Years 1, 2, 5 and 10 – review of scrape (structure and wildlife benefit).		
Re-modelling (if required): Autumn	Remodelling: to be completed over three year rotation (as required after review).		

4.4 Native trees and shrubs

NATIVE TREES AND SHRUBS MANAGEMENT	
Methodology	Native shrubs/ trees are to be planted in a number of places in the school grounds, in particular along the northern boundary (adjacent to existing plantation woodland) but also on the edges of the area in the northeast of the site where the wetland scrape/ 'Long Season Meadow' is to be located, and also adjacent to the south eastern boundary. Spot treatment with an appropriate herbicide (Roundup) should be undertaken in the first three years around the trees/shrubs (an area of at least 1 m²); this will control competition with grasses/ other plants. Any losses should be replaced in the first five years after planting during the first planting season (October to March) following failure. Further to this, the developing scrub/ woodland should be largely subject to non-intervention. It should be inspected every 15 years – trees and shrubs that require removal at this time (for health and safety reasons) will be cleared (using hand-tools) and replaced. Cut logs can be stacked throughout the tree/ shrub resource, for example to provide refuges for amphibians and dead wood for invertebrates.

Purpose	Where?	Equipment	Responsibility
To develop/ maintain areas of woodland and dense scrub for breeding birds, hibernating/ foraging amphibians and invertebrates.	Various, see <i>Figure 2</i> .	-	School/ WCBC
Timing	Programme		
Replacement of dead shrubs/ trees - October to March.	Replacement of dead shrubs/ trees – Years 1 to 5.		

4.5 Existing Habitat Mosaic

EXISTING HABITAT MOSAIC MANAGEMENT			
Methodology	The existing mosaic of habitats that occupies a steep embankment at the western end of the site will be managed through non-intervention. Should management be perceived to be necessary in the future (for example to ensure areas of rough grassland do not succeed into scrub) this policy should be reviewed. Due to the location of this habitat mosaic in school grounds there is the potential it to collect rubbish; this resource should be subject to a litter-pick at least once a year.		
Purpose	Where?	Equipment	Responsibility
To maintain the existing mosaic of scrub, young trees, tall-herbs and rough grassland for breeding birds, hibernating/ foraging amphibians and invertebrates.	Existing habitat mosaic at western end of site, see <i>Figure 2</i> .	Bin-bags for litter-pick.	School/ WCBC
Timing	Programme		
Litter-pick – at least annual.	All years.		

4.6 Bird and Bat-boxes

MANAGEMENT OF BIRD AND BAT-BOXES	
Methodology	Bird-boxes Six Schwegler bird-boxes (1No. Sparrow Terrace, 3No. 3S Starling Box, and 2No.1B General Nest Box) will be provided as part of the scheme. The locations of these boxes will be agreed with teaching staff and pupils (with the assistance of an environmental advisory body, e.g. NWWT) after the school is occupied; the Sparrow Terrace is to be attached to a building/ structure, and the other five boxes to appropriate trees (as large as possible) around the school grounds (for example, trees adjacent to Delamere Avenue). All bird-boxes will be checked and cleaned outside the breeding season. Boxes should be sited out of reach, 3m or more off the ground ideally on large tree trunks. All of the nest-boxes should be located somewhere between (facing) north through east to southeast; avoiding prevailing winds and direct sunlight where possible. The nest-boxes should generally be sited near shrubs/ other vegetation that will provide good cover for young birds. Where nest-boxes are attached to trees, this should utilise wire or similar, not nails, to facilitate easy maintenance. All maintenance should be carried out when the last bird has left the nest-box; at least October. As such all boxes should be cleaned annually in the autumn (October) as they can be heavily infested with parasites. Allow at least 2 to 3 weeks after fledging before cleaning. <i>The Wildlife and Countryside Act 1981</i> states that cleaning should only be carried out between

MANAGEMENT OF BIRD AND BAT-BOXES

first August and first January and that any eggs present should be destroyed immediately. All nest material should be completely removed and disposed of safely. To ensure that parasite build-up is controlled the inside of the nest-box should be cleansed with boiling water. For safety, this should be undertaken with the nest-box located on the ground. Care should be taken when opening nest-boxes as it is possible that they could be inhabited by bees, wasps or even bats.

Bat-boxes

In addition to the bird-boxes, six bat boxes (1No. 1FQ and 5No. 2FN) will be provided as part of the scheme. The locations of these boxes will be agreed with teaching staff and pupils (with the assistance of an environmental advisory body, e.g. NWWT) after the school is occupied; the 1FQ is to be attached to a building/ structure and the 2FN boxes to two appropriate trees (as large as possible) (for example, trees adjacent to Delamere Avenue).

Bat-boxes should be sited no lower than 3 m from the ground and ideally between 3 m and 5 m above the ground on large tree trunks. The 2FN boxes should be erected in one cluster of three and one of two, generally facing south, southwest and southeast wherever possible (so that they are not overly exposed). There should be no over-hanging branches/ other vegetation and there should be direct and easy access to the entrances. Generally the bat-boxes should be located in the darkest areas, away from artificial light sources. No paint or preservatives should be used on the box or the attachments.

It is important to remember that once discovered, a bat roost is legally protected and must not be disturbed. If a bat roost is suspected to be present a suitably qualified bat consultant or the Clwyd Bat Group should be contacted and may need to undertake the annual maintenance operations detailed below. To discover whether a bat-box is being used they can be watched at dusk during the summer to see if any bats emerge or a search can be conducted beneath the box entrance for the characteristic crumbly bat droppings. Again should it be necessary to inspect the bat-box an appropriately licensed individual may be required to undertake this work. Occasionally a bat-box may be used by nesting birds. If this is the case it should be cleaned as per the procedure outlined above.

The bat-boxes require annual maintenance. All maintenance should be carried out when bats have left the bat-box to hibernate in winter (late autumn to early spring). At this time the slotted entrance should be carefully brushed to remove any build up of dust, dirt or cobwebs that could block the opening. Any branches or other vegetation that may have grown up around the bat-box should also be pruned/ removed. If any of the bat-boxes is not used after two years they should be re-sited.

Purpose	Where	Equipment	Responsibility
Nest-boxes and bat-boxes will be provided in appropriate locations around the school grounds. Nesting opportunities are currently limited by the small amount of suitable habitat on site. The bat-boxes will also provide opportunities for roosting bats.	Building/ large trees (to be confirmed).	Ladder, hammer, appropriate fixing mechanisms e.g., nails, wire. Gloves for cleaning nest-boxes.	School/ WCBC
Timing	Programme		
Install Jan/Feb. October annually for cleaning.	Annually for cleaning.		

5 ACTION PLAN

5.1.1 The table below provides a summary of the tasks to be completed as part of the EMP and the year (or years) that the task is to be completed.

Task	Year										Notes
	1	2	3	4	5	6	7	8	9	10	
Grassland/ Existing Habitat Mosaic											
Strim wildflower grassland in swales	Mar, May & Sept	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Timing in Year 1 assumes Autumn sowing; if Spring sowing, refer to <i>Section 4</i> . School grounds maintenance staff with advice from environmental advisory body, <i>e.g.</i> NWWT.
'Long Season Meadow' & 'Flowering Lawn' – cut grass adjacent to newly planted plugs	Up to late May, again in July										To be cut when reaches 20 cm. School grounds maintenance staff with advice from environmental advisory body, <i>e.g.</i> NWWT.
'Long Season Meadow' & 'Flowering Lawn' – spot irrigation of establishing plug plants	Spring/ summer										As required. School grounds maintenance staff with advice from environmental advisory body, <i>e.g.</i> NWWT.
Cut 'Long Season Meadow'		Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	Mar & Sept/Oct	School grounds maintenance staff with advice from environmental advisory body, <i>e.g.</i> NWWT.
Cut 'Flowering Lawn'		All year, except 1 month in summer	All year, except 1 month in summer	All year, except 1 month in summer	All year, except 1 month in summer	All year, except 1 month in summer	All year, except 1 month in summer	All year, except 1 month in summer	All year, except 1 month in summer	All year, except 1 month in summer	School grounds maintenance staff with advice from environmental advisory body, <i>e.g.</i> NWWT.
Rough grassland/ existing habitat mosaic											Non-intervention unless management objectives change. Requirement/ funding for plug planting in rough grassland to be reviewed.
Manage all grassland areas in 'wildlife-friendly' manner											School grounds maintenance staff with advice from environmental advisory body, <i>e.g.</i> NWWT.
Litter-pick wildflower grassland swales, 'Long Season Meadow, rough grassland & existing habitat mosaic											Undertaken at least once annually.
Wetland Scrape											
Review structure/ habitat resource & need for on-going active management	May/ early June	May/ early June			May/ early June					May/ early June	Should on-going active management be deemed appropriate a new management project may be prescribed.
Native Trees and Shrubs											
Replacement of dead tree/ shrub plantings	Oct to Mar	Oct to Mar	Oct to Mar	Oct to Mar	Oct to Mar						Any losses to be replaced in the first five years after planting during the first planting season (October to March) following failure. The developing scrub/ woodland should be subsequently inspected every 15 years.
Bird and Bat-boxes											
Erect/ maintain bird & bat-boxes	Install Jan/ Feb	Maintain autumn	Maintain autumn	Maintain autumn	Maintain autumn	Maintain autumn	Maintain autumn	Maintain autumn	Maintain autumn	Maintain autumn	School to complete with advice from environmental advisory body, <i>e.g.</i> NWWT.
Monitoring											
Wildflower grassland monitoring	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	'Long Season Meadow', 'Flowering Lawn' and two swales sown with wetland wildflower mix. School to complete with advice from environmental advisory body, <i>e.g.</i> NWWT.
Wetland scrape monitoring	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	June-Aug	Flora. School to complete with advice from environmental advisory body, <i>e.g.</i> NWWT.
Bird-box monitoring		April-June	April-June	April-June	April-June	April-June	April-June	April-June	April-June	April-June	School to complete with advice from environmental advisory body, <i>e.g.</i> NWWT. Could also monitor bat boxes at the same time.
Review											
Review EMP every 10 years											School to establish EMP steering group with advice from environmental advisory body, <i>e.g.</i> NWWT. Steering group to review Action Plan after 5 years and whole EMP after 10 years.

6 MONITORING AND REVIEW

- 6.1.1 An annual report covering the results of the monitoring and management undertaken in that year will be prepared by the EMP Steering Group in November of each year. This report will form the main component of the review process. The main purpose of this review will be to ensure that the site is being managed in accordance with the approved EMP. Compilation of the report will require records to be maintained throughout the year. The Action Plan will be reviewed (and updated as required) every five years, with the EMP as a whole reviewed at the end of the ten year period.

7 REFERENCES

Building Research Establishment Ltd (2006). *BREEAM Schools 2006 Guidelines*.

Commission for Architecture and the Built Environment (2004). *A Guide to Producing Park and Green-space Management Plans*. CABEspace. Available on-line:

<http://www.cabe.org.uk/default.aspx?contentitemid=484>

HMSO (1981). *The Wildlife and Countryside Act 1981*. HMSO, London.

Marches Ecology (2011). *Proposed Welsh Medium Primary School, Gwersyllt, Wrexham – Extended Phase 1 Habitat Survey*. Unpublished report produced on behalf of Wrexham County Borough Council.

Marches Ecology (2012). *Proposed Welsh Medium Primary School, Gwersyllt, Wrexham – BREEAM Ecology Report*. Unpublished report produced on behalf of Wrexham County Borough Council.

Wrexham County Borough (2003). *Wrexham Biodiversity Action Plan (Edition 2 – September 2003)*. The Planning Department, WCBC.

Wrexham Landmap. Supplementary Planning Guidance (adopted March 2007) [Online]. Available from http://www.wrexham.gov.uk/english/planning_portal/landmap/spg.htm



Mapping data licensed from Ordnance Survey with the permission of the Controller of Her Majesty's Stationary Office © Crown copyright 2005. All rights reserved. Licence Number 100046285.



C152 Gwersyllt Welsh Medium Primary School – Ecological Management Plan

Figure 1 – Site Location

Drawn by: ME
 Checked by: TK
 Date: 04.05.12

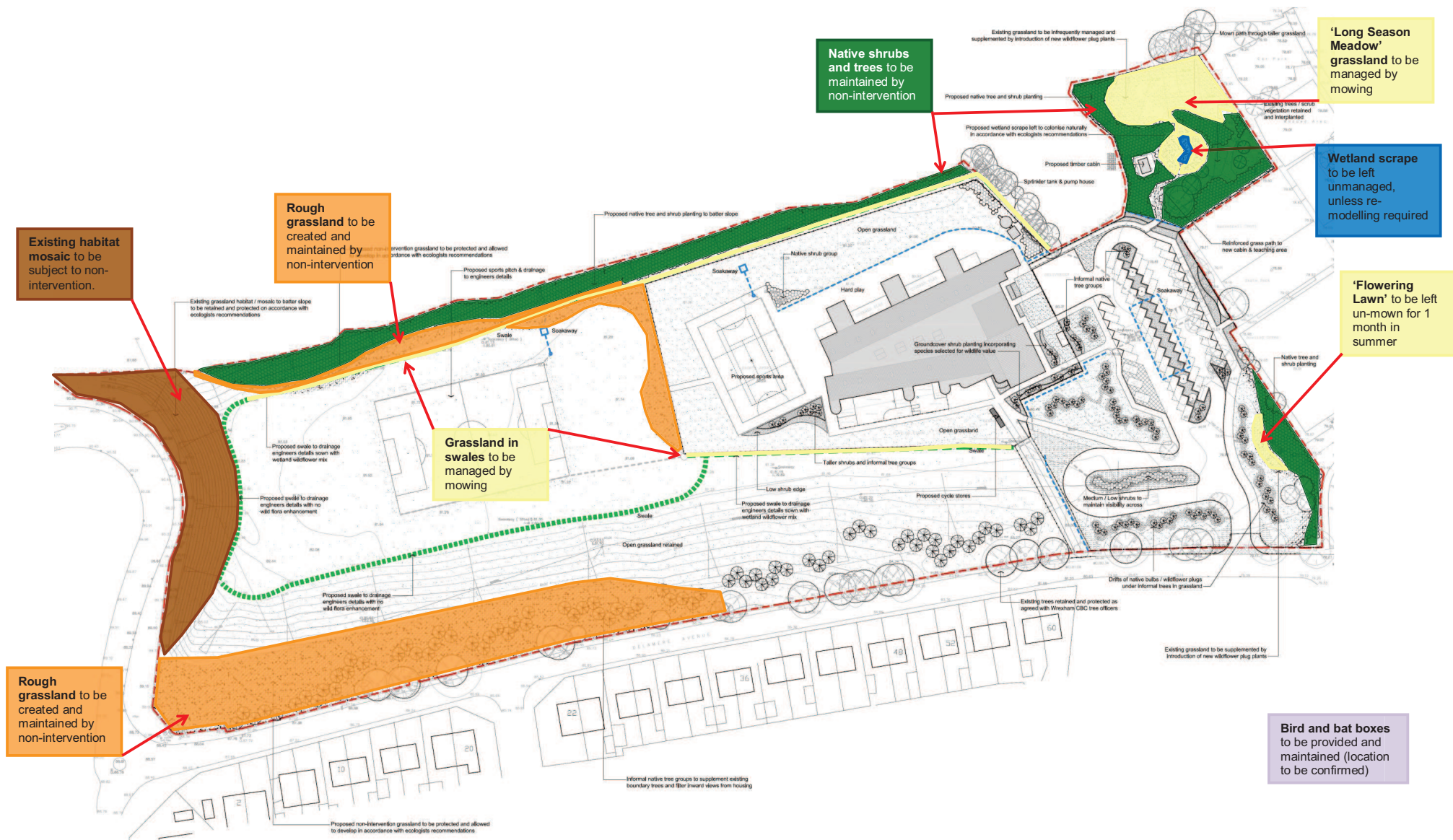


Figure based on The Ark Company Landscape Architects plan entitled 'Land at Delamere Avenue, Gwersyllt – Proposed New School; hard and soft landscaping layout' (drawing no. 02/107/01).