DAVID CLEMENTS ECOLOGY LTD

LAND AT MARINERS WAY, RHOOSE

ECOLOGICAL ASSESSMENT

October 2012

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SUMMARY

The present report refers to a residential development on a site located off Mariners Way in Rhoose, in the Vale of Glamorgan which is located at the Ordnance Survey grid reference ST 056 663

The site does not contain or lie adjacent to any statutory sites of nature conservation interest, such as Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs). East Aberthaw Coast SSSI lies approximately 350m to the south west of the site. The site does not contain or lie adjacent to any non-statutory sites of nature conservation interest, such as Sites of Importance for Nature Conservation (SINCs). There are two SINCs which lie within 1km from the site. Rhoose Quarry lies approximately 300m to the southeast of the site and Font-Y-Gary Quarry SINC lies approximately 50m directly south of the site.

The grassland, bramble/ruderal and short perennial vegetation, are considered to be of Local value to wildlife whilst the remaining bare ground is considered to be of Negligible value to wildlife.

Limited mitigation measures are recommended based on the current survey in addition to recommendations with respect to potential enhancements. However further survey work is also recommended to determine the presence or absence of protected species within the site including great crested newts and reptiles, and which may highlight further mitigation and or compensation measures that could be required.

Further information from the additional survey work is required before it is possible to determine the significance of impacts from the development on valuable wildlife features within the site. Providing no protected species are found within the site it is thought that there should be minimal impact on wildlife within this site if the broad recommendations within this report are followed. Following further survey work, the significance of potential impacts and recommended mitigation measures should be re-evaluated

The report is structured as follows:

1.0 INTRODUCTION

1.1 This report has been prepared by David Clements Ecology Ltd (DCE) for Hendre Limited, and refers to a site located off Mariners way in Rhoose, in the Vale of Glamorgan. The site location and context is shown at Plan 1.

1.2 The site is located at Ordnance Survey Grid reference ST 056 663.

1.3 The site can be accessed through the car park of the Tesco store, which is located immediately south of the site. Mariners Way runs along the eastern boundary, and residential development is present to the north and west of the site. A wooden fence marks the site boundary, and a metal gate to the west of the Tesco building provides access into the site.

1.4 The site is proposed for the residential development.

1.5 The remainder of this report sets out the results of an ecological survey and assessment of the site. It also assesses the likely impact of the development and makes recommendations regarding the mitigation of any potentially adverse biodiversity impacts.

1.6 The survey data is also used for a provisional assessment of the site in accordance with the ecological criteria ECO1-ECO4 of the Code for Sustainable Homes (DCLG 2010), which is reported separately (DCE 655, CSH report 2012, in prep).

1.7 Designated Sites of Biodiversity Interest

Statutory Sites

1.7.1 The site does not contain or lie adjacent to any statutory sites of nature conservation interest, such as Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or Local Nature Reserves (LNRs). East Aberthaw Coast SSSI lies approximately 350m to the south west of the site (see Plan 1).

1.7.2 East Aberthaw Coast SSSI is made up of a small stretch of the South Glamorganshire Coastline which supports a range of habitats including rocky and sandy shore, shingle spits, saltmarsh, relict sand dunes and Liassic limestone cliffs. These habitats support species of plants and animals that are of a limited distribution in the county such as *Adiantum capillus-veneris* and *Lithospermum purpurocaeruleum, Phanacis caulicola, Brachinus crepitans* and *Lima pontia.*

Non-Statutory Sites

1.7.3 The site does not contain any non-statutory sites of nature conservation interest, such as Sites of Importance for Nature Conservation (SINCs). There are two SINCs which lie within 1km from the site. Rhoose Quarry lies approximately 300m to the southeast of the

site and Font-Y-Gary Quarry SINC lies approximately 50m directly south of the site. (Plan 1).

1.7.4 Rhoose Quarry SINC is an abandoned quarry with cliff faces, large vegetated and bare pools, rush dominated grasslands, dense and scattered scrub and small areas of reed bed, unmanaged calcareous grasslands and skeletal floras of perennial and ephemeral species, and coastal cliffs. Notable species occurring in these habitats include Rock sea-lavender (*Limonium agg*), wood small-reed (*Calamagrostis epigejos*), upright brome (*Bromopsis erecta*) and rock samphire (*Crithmum maritimum*)

1.7.5 Font-Y-Gary Quarry SINC is an extensive excavation quarry with steep sides. The quarry supports calcareous grassland, ephemeral/short perennial flora, scrub and shallow pools. Notable species include Pale flax (*Linum bienne*) present in the calcareous grassland on the edge of the quarry.

2.0 APPROACH AND METHODS

2.1 Survey Methodology

2.1.1 The site was surveyed on 17th October during good weather, being mainly overcast, but warm with sunny intervals. The site was subject to an Extended Phase 1 survey as recommended by the Institute of Environmental Assessment (IEA 1995). This was based on the Phase 1 vegetation classification methodology developed by the former Nature Conservancy Council (NCC 1990), a nationally-accepted and standard method for the rapid survey and appraisal of ecological habitats which is based primarily on the recording of vegetation and its classification into defined habitat categories. Dominant and conspicuous flora species were recorded and 'target notes' were prepared for any features of particular interest.

2.1.2 This methodology also requires the recording of conspicuous fauna species such as birds, herptiles (ie amphibians and reptiles), mammals and invertebrates such as butterflies and dragonflies, paying particular attention to the presence (or possible presence) of any rare or protected species. Features such as trees and waterbodies etc were inspected for evidence of fauna using close-focusing binoculars.

2.1.3 Where appropriate, the habitats of the site were also characterised against the descriptions provided by the National Vegetation Classification (NVC) as set out by Rodwell (1991 *et seq*).

2.2 Survey constraints

2.2.1 The survey was carried out in early October at which time, certain species which flower early in the year may have been unrecorded.

2.2 Data Trawl

2.2.1 In addition to original survey, a data trawl was carried out in order to obtain access to any existing information about the site which may be held by nature conservation bodies in the region. The bodies contacted included:

- South East Wales Biological Records Centre (SEWBReC)

SEWBReC is now the main repository for biodiversity and wildlife records in the south-east Wales region.

3.0 SURVEY RESULTS

3.1 Habitats & Vegetation

3.1.1 The results of the vegetation and habitats survey are shown on Plan 2 of this report, and are described briefly below. Lists of the species recorded are given at Appendix 1, Target Notes in Appendix 2 and representative photographs are included at the end of the report in Appendix 7.

Notable Plant Species

3.1.2 No nationally rare or scarce species were recorded and no species have been recorded, which are listed in the Vale of Glamorgan Local Biodiversity Action Plan (LBAP: VoG 2009).

3.1.3 A number of plant species have been recorded within 1km although all species are at least 200m from the site and occur within or adjacent to quarries along the coastline. Notable species include the true service tree (*Sorbus domestica*) and sainfoin (*Onobrychis viciifolia*), which are listed as protected and or priority species for conservation. In addition pyramidal orchids (*Anacamptis pyramidalis*) were present within 1km, which are known to be of local conservation concern.

Notable Habitats

3.1.3 None of the habitats within the site qualify as Priority Habitats of the UK Biodiversity Action Plan (UK BAP: BRIG 2007) or its Welsh Equivalent or The Local Biodiversity Action Plan for the Vale of Glamorgan.

Bare ground

3.1.4 The majority of the site is bare ground, of which parts are being used for the storage of materials including timber and bricks. In the north eastern corner stands a stack of bricks (Target note 2) and timber has been piled up along the eastern border (Target note 3).

Short perennial vegetation

3.1.5 Around the periphery of the site and in patches across the site, there is short perennial vegetation. In the periphery, growing amongst rubble there are occasional grasses such as creeping bent (*Agrostis stolonifera*), Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubra*) and annual meadow grass (*Poa annua*) which occur in a patchy distribution along with occasional ribwort plantain (*Plantago lanceolata*), black medick

(*Lupulina medicago*), red clover (*Trifolium pratense*), dandelion (*Taraxacum officinalis agg*), herb Robert (*Geranium robertianum*), self heal (*Prunella vulgaris*), creeping cinquefoil (*Potentilla reptans*) and common knotgrass (*Polygonum aviculare*). Hairy sedge (*Carex Hirta*) is also present in damper areas, where the site has become slightly waterlogged.

Grassland

3.1.6 Around the periphery of the site, and particularly in the south of the site, there are areas of semi improved neutral grassland. In these areas, grasses are dominant including Yorkshire fog, red fescue, smooth meadow grass (*Poa pratensis*), perennial rye grass (*Lolium perenne*) and creeping bent. In parts cocks foot (*Dactylis glomerata*) is present, along with frequent herbs such as ribwort plantain, broad leaved plantain (*Plantago major*), black medick, dandelion, red clover and white clover (*Trifolium repens*). Within the sward, bristly oxtongue (*Helminthotheca echioides*), teasel (*Dipsacus fullonum*) and willowherb (*Epilobium spp*) are also present occasionally.

Bramble/ruderal vegetation

3.1.7 Along the western and northern boundaries of the site is abundant bramble, which grows in dense stands particularly in the north western corner. Along the periphery of bramble, are taller stands of ruderal species such as false oat grass (*Arrhenatherum elatius*), cocks foot and Yorkshire fog, in addition to bristly oxtongue, teasel, willowherb and hedge mustard (*Sisymbrium officinale*). Other species such as St Johns wort (*Hypericum spp*) and Hedge woundwort (*Stachys sylvatica*) occur although only scarcely. Along the northern boundary to the western side there is a stand of Himalayan honeysuckle (*Leycesteria formosa*) and to the eastern side there is a stand of Buddleia (*Buddleia Davidii*).

3.1.8 Within the vegetation there is debris such as pieces of timber and plastic, piles of bricks and also logs, which have been piled up (Target Note 1).

3.2 Fauna

Bats

3.2.1 All species of bat and their roosting sites are protected under the EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC; the 'Habitats Directive'), implemented in the UK via the Conservation (Natural Habitats &c.) Regulations 2010 (the 'Habitats Regulations'). The roosting places used by bats are also protected against unauthorised disturbance or obstruction under the amended Wildlife & Countryside Act 1981. Several bats are listed as 'Priority Species' for conservation in the UK Biodiversity Action Plan and its Welsh equivalent.

3.2.2. There are no buildings and or structures on either of the sites that would support bat roosts and no records of bats exist from the site. There is however records of an unidentified bat roost at 473m from the site, within one of the local houses and of foraging common pipistrelle (*Pipistrellus pipistrellus*) bat at 452m over Rhws School (SEWBReC). The scrub and taller grassland could possibly provide opportunities for

foraging bats although it is likely that this would be limited by the extent of these habitats. The site is therefore assessed as having a low value for bats although it is possible that bats would commute across the site between roosts and foraging habitats.

Other mammals

3.2.3 No parts of the site were assessed as having potential to support other protected mammals such as dormouse, water vole, otter or badger, due to the lack of suitable habitat and absence of previous records. No evidence of any such species was found.

3.2.4 It is likely that rabbits and a range of other common and ubiquitous mammals occur on the site, such as mice, voles, shrews, and fox etc, at least on occasion.

Birds

3.2.5 Nearly all species of bird are protected against killing or injury as individuals under UK legislation, and this protection extends to their nests, eggs and young. A number of especially rare species are subject to enhanced protection under UK law by virtue of their listing on Schedule 1 of the Wildlife & Countryside Act 1981, and may not be disturbed whilst nesting.

3.2.6 No birds were recorded during the survey and no records exist for the either of the sites. A number of records exist of various bird protected species and species listed as being of importance for conservation within 1km of the site although they are all found at least 200m from the site. Protected and priority species for conservation include common scoter (*Melanitta nigra*), house sparrow (*Passer domesticus*), common linnet (*Carduelis cannabina*), yellowhammer (*Emberiza citrinella*), peregrine falcon (*Falco peregrinus*), grey partridge (*Perdix perdix*), hedge accentor (*Prunella modularis*), skylark (*Alauda arvensis*), common kestrel (*Falco tinnunculus*), common quail (*Coturnix coturnix*), red kite (*Milvus milvus),* spotted flycatcher (*Muscicapa striata*), northern lapwing (*Vanellus vanellus*), barn owl (*Tyto alba*), ring ouzel (*Turdus torquatus*), common starling (*Sturnus vulgaris*), golden plover (*Pluvialis apricaria*), song thrush (*Turdus philomelos*) and field fare (*Turdus pilaris*) (SEWBReC). In addition there are a number of other species of conservation concern within 1km including stonechat (*Saxicola torquata*), willow warbler (*Phylloscopus trochilus*), great skua (*Stercorarius skua*), house martin (*Delichon urbicum*), barn swallow (*Hirundo rustica*), lesser black backed gull (*Larus fuscus*), Eurasian woodcock (*Scolopax rusticola*), mistle thrush (*Turdus viscivorus*), mallard (*Anas platyrhynchos*) and mute swan (*Cygnus olor*) (SEWBReC).

3.2.7 It is likely that a range of common birds such as robin (*Erithacus rubecula*), house sparrow, dunnock and wren (*Troglodytes troglodytes*) would utilise the scrub within site.

Reptiles

3.2.8 Four native reptile species occur in South Wales, comprising common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), adder (*Vipera berus*) and grass snake (*Natrix natrix*). These four species are all afforded so-called 'partial protection' under the amended Wildlife & Countryside Act 1981, which prohibits the deliberate killing or

injury of individuals. However, there is no direct protection extended to the habitats which support these species. All four common reptiles are listed as 'Priority Species' in the UK BAP and its Welsh equivalent.

3.2.9 Common reptile species are difficult to detect in the field without recourse to targeted Phase 2 survey methods. Reliance was therefore placed on the subjective assessment of the habitats of the site with respect to their potential as dispersal, foraging and hibernating grounds for common reptiles, based on previous experience and on published information.

3.2.10 The data trawl returned no records of reptiles from the site and no reptiles were recorded during the survey. There are records of slow worm 353m from the site. The scrub and grassland could provide opportunities for foraging. Although foraging would be limited by the extent of these habitats the log piles may provide suitable habitat for sheltering and hibernation.

Amphibians

3.2.11 Five native amphibian species occur in south Wales, comprising common frog (*Rana temporaria*), common toad (*Bufo bufo*), smooth newt (*Lissotriton vulgaris*), palmate newt (*Lissotriton helveticus*) and great crested newt (*Triturus cristatus*). The latter species is nationally rare and declining, and is afforded full protection under both UK and European legislation (see under bats, above), which also extends to the habitats which support it. The other four species are not afforded any direct statutory protection, other than with respect to trade.

3.2.12 No amphibians were found during the present survey although a number of records returned from the data trawl. Palmate newt and common frog have been recorded at 494m from the site and there are numerous records of great crested newts at 430m 494m, 661m and 1095m from the site.

3.2.13 Common amphibians such as common frog and palmate newt may visit the site on occasion to forage and or when commuting to other habitats and may also shelter/hibernate within log piles present on the site. However there are no suitable breeding habitat for common amphibians.

3.2.14 The site would not be suitable as breeding habitat for great crested newts however they may forage within the site and also utilise log piles within the site as habitats for shelter and/or hibernation.

Invertebrates

3.2.15 Upwards of about 30,000 species of invertebrates are recorded in Britain, occurring in every available habitat. About 40 species are afforded full statutory protection in the UK under either European or British legislation.

3.2.16 No invertebrates were recorded during the survey although there are records of grayling (*Hipparchia semele),* a protected and priority species for conservation, within 1km of the site. The site is assessed as being likely to support a small range of ubiquitous

invertebrate species, although the probability of any rare or protected species being present is considered to be low.

4.0 ECOLOGICAL EVALUATION

4.1 There is currently no nationally accepted system for the categorising of sites or features of biodiversity significance below the level of national value, criteria for which are set out by the former Nature Conservancy Council (1989, as amended). However, guidance for the identification of non-statutory sites of county significance (ie SINCs) is available in this instance (WBP 2008).

4.2 For the purposes of this study the habitats and features of the site have therefore been provisionally evaluated and graded in accordance with the categories set out in Appendix 3. The ecological assessment of the site is shown on Plan 3.

International, National, County & District Value

4.3 No parts of the site are considered to fall into any of these categories

High Local Value

4.4 No parts of the site are considered to fall into this category.

4.5 If, following further survey work, protected species such as great crested newt are found to occur within the site it may be re-evaluated as being of High Local value.

Local

4.5 The grassland, bramble/ruderal and short perennial vegetation are considered to be of Local value, in the context of the site and its immediate surroundings.

Negligible Value

4.6 The bare ground is considered to be of Negligible value to wildlife.

5.0 ASSESSMENT OF DEVELOPMENT IMPACTS

5.1 Planning consent is sought by the developer for residential development within the site.

5.2 The bramble/ruderal and short perennial vegetation and grassland within the site, are considered to be of Local value to wildlife, providing habitat for nesting birds, common invertebrates and potentially reptiles and amphibians including great crested newt. If any evidence of protected species such as great crested newt is found within the site, following further survey work, the site could be re-evaluated as being of High Local value.

5.3 Limited mitigation measures are recommended based on the current survey in addition to recommendations with respect to potential enhancements, which are set out below. However further survey work is also recommended to determine the presence or absence of protected species including great crested newts and reptiles within the site, and which may highlight further mitigation and or compensation measures that could be required.

5.4 Further information including additional survey work is required before it is possible to determine the significance of impacts from the development on valuable wildlife features within the site. Providing no protected species are found within the site it is thought that there should be minimal impact on wildlife within this site if the broad recommendations within this report are followed. Following further survey work, the significance of potential impacts and recommended mitigation measures should be re-evaluated.

6.0 RECOMMENDATIONS

6.1 Statutory Requirements

6.1.1 The following are mandatory requirements under current legislation:

- A survey will be required to determine the presence or absence of great crested newts and reptiles within the site.

- Clearance and construction works must not cause any harm or disturbance to any birds which are nesting on the site at the time. In the event that any nesting birds are discovered immediately prior to or during any works, all work in the immediate area should cease immediately and appropriate expert advice sought.

- In the unlikely event that bats are discovered anywhere on the site at any point prior to or during clearance or construction, all work in the immediate area should cease immediately and appropriate expert advice sought.

6.1.2 Great crested newt surveys should be carried in accordance with best practice guidelines (EN's Mitigation Guidelines, 2001 and Froglife's Conservation handbook, 2001) ensuring survey are carried out at the optimal time of year and by an appropriately experienced and qualified ecologist.

6.1.3 Reptile surveys should follow best practice guidelines such as Froglife's advice sheet 10, ensuring that these surveys are undertaken at the appropriate time of year.

6.1.3 Any works affecting the trees and scrub should avoid the main bird-nesting season, which runs approximately from March to August inclusive. Alternatively, any works which must necessarily be carried out during this period should be preceded by a survey to ensure that no nesting birds are present. This restriction also applies to any other habitats which are found to support nesting birds, including ground-nesting species.

6.1.4 In 2-3 above, the 'immediate area' should be considered the entirety of the building, and in the case of nesting birds, any other habitats for an area of at least 5m radius around the find-site. If necessary, the affected area should be clearly demarcated on the ground (eg by means of striped bunting) and made off-limits to all site personnel until inspected by an appointed expert. Appropriate measures to rectify the situation in accordance with statutory obligations and responsibilities will be determined at the time by the appointed expert, and may include consultations with the statutory agencies and the seeking of derogation licences etc.

6.2 Additional Recommendations

6.2.1 Given the relatively low ecological value of the site, limited mitigation measures are considered necessary in the event of development. However, it is recommended that any proposed development should incorporate best-practice enhancement measures. These

could include:

1. The installation of bat boxes in suitable locations in the developed site. These should be sited in groups of 2-3, in such a manner that predators such as cats cannot reach them. They should be at least 4m (preferably 5m) above ground level and the entrances should not be illuminated at night.

2. The installation of bird boxes in suitable locations within the landscaping of the site. These should be sited in such a manner that predators such as cats cannot reach them, and be at least 4m (preferably 5m) above ground level.

3. Bird and bat boxes should ideally be of 'woodcrete' construction (such as those manufactured by Schwegler Ltd), since these are much more robust and longer-lived than traditional wooden boxes and require less after-maintenance (see Appendix 4).

4. The landscaping of the developed site should use native trees and shrubs which are indigenous to the region. Any such new plantings of native trees and shrubs should be of local (or at least UK) provenance. Suitable species are listed in Appendix 6.

5. The landscaping could also include new areas of semi-natural neutral grassland swards dominated by low productivity grass species such as red fescue (*Festuca rubra),* crested dog's-tail (*Cynosurus cristatus*) and common bent (*Agrostis capillaris),* and containing around a 10-15% mixture of typical neutral grassland flower species. Such grassland should subsequently be maintained by mowing, with arisings being removed from the site. Suitable species are listed in Appendix 6. All seed stock should be of local, or at least UK, provenance.

6. Amenity grassland and lawn areas could include plug-plants of common rosette-forming native species, such as ribwort plantain (*Plantago lanceolata*), daisy (*Bellis perennis*), self-heal (*Prunella vulgaris*) and common cat's-ear (*Hypochaeris radicata*) etc, as well as bulbs of ornamental species such as *Crocus* etc

7.0 REFERENCES

Biodiversity Reporting & Information Group (BRIG 2007) *Report on the Habitats & Species Review: A Report to the UK Biodiversity Partnership*. Joint Nature Conservation Committee, Peterborough.

David Clements Ecology Ltd (October, 2012) *Land at Mariners Way, Rhoose: CSH Report.*

Institute of Environmental Assessment (IEA 1995) *Guidelines for Baseline Ecological Assessment*. IEA Lincoln.

Nature Conservancy Council (NCC 1989) *Guidelines for the Selection of Biological SSSIs*. NCC Peterborough.

Nature Conservancy Council (NCC 1990) *Handbook for Phase 1 Habitat Survey: a Technique for Environmental Audit*. NCC Peterborough.

Rodwell, J (Ed) (1991-2000) *British Plant Communities*. Vols 1-5. Cambridge University Press.

South Wales Wildlife Sites Partnership (SWWSP 2004) *Guidelines for the Selection of Wildlife Sites in South Wales.* Gwent Wildlife Trust.

United Kingdom Steering Group (UKSG 1995) *Biodiversity: The UK Steering Group Report*. Vols 1-2. HMSO, London.

Wales Biodiversity Partnership (WBP 2007) *List of Species & Habitats of Principal Importance for Conservation of Biological Diversity in Wale (as amended).* Wales Biodiversity Partnership/Welsh Assembly Government.

APPENDIX 1: SPECIES RECORDED

All species recorded by DCE 2012, unless otherwise indicated:

		Indicator species							Status
Latin	**English names**	**W**	**NG**	**CG**	**AG**	**MG**	**PIL**	**TF**	
Agrostis stolonifera	Creeping bent								
Arrhenatherum elatius	False oat grass								
Bellis perennis	Daisy								
Buddleia davidii	Buddleia								
Centranthus ruber	Red valerian								
Calystegia sepium	Hedge bindweed								
Conyza canadensis	Canadian fleabane								
Carex hirta	Hairy sedge								
Dactylis glomerata	Cocks foot								
Dipsacus fullonum	Teasel								
Epilobium montanum	Broad leafed willowherb								
Epilobium hirsutum	Great willow herb								
Euphorbia spp	Spurge spp								
Festuca rubra	Red fescue								
Fraxinus excelsior	Ash (sapling)								
Geranium molle	Doves foot cranesbill								
Geranium robertianum	Herb robert								
Helminthotheca echioides	Bristly oxtongue						x		
Holcus lanatus	Yorkshire fog								
Hypericum spp	St Johns wort spp								
Leycesteria formosa	Himalayan honeysuckle								
Lolium perenne	Perennial rye grass								
Medicago lupulina	Black medick			x					
Melilotus officinalis	Ribbed melilot								
Phleum pratense spp pratense	Timothy grass								
Plantago lanceolata	Rib wort plantain								
Plantago major	Broad leaved plantain								
Poa spp	Meadow grass								
Poa annua	Annual meadow grass								
Polygonum aviculare	Common knot grass								
Potentilla reptans	Creeping cinquefoil								
Prunella vulgaris	Self heal								
Quercus spp	Oak spp (sapling)								
Ranunculus repens	Creeping buttercup								
Rosa spp	Rose spp								
Rubus fruticosus	Bramble								
Rumex spp	Docks								
Senecio jacobaea	Ragwort								
Sisymbrium officinale	Hedge mustard								
Stachys sylvatica	Hedge woundwort								

Taraxacum officinalis agg	Dandelion								
Trifolium pratense	Red clover		x						
Trifolium repens	White clover								
Urtica dioica	Nettles								
	SWWSP 2004 'Indicator Species' Totals		1	1			1		
		W	**NG**	**CG**	**AG**	**MG**	**PIL**	**TF**	

Key
PS - Regionally Scarce - Primary Species in SWWSP (2004)
CS - Regionally Uncommon - Contributory Species in SWWSP (2004)
Indicator Species (SWWSP 2004)
W - Woodland, NG - Neutral Grassland, CG - Calcareous Grassland, AG – Acid Grassland, PMG Purple Moor Grass and Rush Pasture, PIL – Post Industrial Land, TF Species-rich Tillage Fields and Margins
SINC Selection
Sites which support 1 primary species or 5 contributory species or habitats which support 8 neutral grassland, 8 calcareous grassland, 7 acid grassland, 12 Purple Moor Grass and Rush Pasture or 8 tillage field and margins indicator species should be considered for selection as a SINC. Post Industrial sites which support 20 or more indicator species from the combined post-industrial land, acid, neutral, calcareous and marshy grassland lists should also be considered for selection.

APPENDIX 2: TARGET NOTES

Target Note Number	Description
1	Log pile
2	Stack of bricks
3	Stacked timber

APPENDIX 3: DEFINITIONS OF SITE VALUE

International Value

Site carrying an internationally recognised designation such as Ramsar Site, World Heritage Site, Special Protection Area, Special Area of Conservation, Biosphere Reserve or Biogenetic Reserve, or:

Habitats: site supporting nationally significant areas of habitats of defined international community interest.
Species: site supporting nationally significant populations of species of defined international community interest.

National Value

Site meeting published Site of Special Scientific Interest (SSSI) designation criteria (NCC 1989), whether so designated or not.

Habitats: site supporting nationally significant areas of habitats of defined national rarity or interest.
Species: site supporting nationally significant populations or communities of UK Red Data Book, Nationally Notable or protected species (other than badger).

County Value

Site identified as a County Wildlife Site (CWS), Site of Importance to Nature Conservation (SINC) or similar at the county level (ie greater than district, borough or city level); meeting published CWS designation criteria (where these exist), but falling short of SSSI designation criteria, whether designated as a CWS or not.

Habitats: site supporting good examples of nationally threatened habitats, or extensive areas of habitats which are rare or unique in the county.
Species: site supporting large or strong populations or communities of nationally rare or protected species (other than badger), or of species which are rare in the county and uncommon nationally.

District Value

Sites failing to meet County Value criteria, but nevertheless supporting habitats, species or communities which appreciably enrich the ecological resource of the county, especially by virtue of their size or extent.

Habitats: sites supporting habitats uncommon in the county, small but unmodified fragments of nationally threatened habitats, or comprising extensive areas or systems of semi-natural habitats.
Species: sites supporting nationally rare species, or strong populations or communities of regionally uncommon species, which would not otherwise be present (ie they are critically dependant on the site characteristics).

Local Value

Habitats which fail to meet District Value criteria, but which appreciably enrich the ecological resource of the locality. This category can be further divided into:

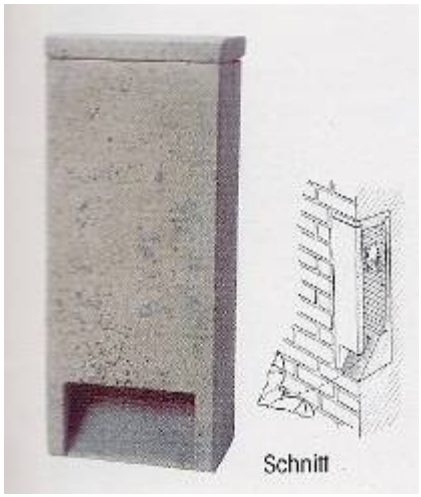
- **High Local Value**: just failing to meet District Value Criteria; supporting species which are notable or uncommon in the county; or species which are uncommon, local or habitat-restricted nationally, and which might not otherwise be present in the area.

- **Local Value**: sites which are of ecological value only in the context of their immediate surroundings. Rare or uncommon species may occur but are not restricted to the site or critically dependant upon it for their survival in the area.

Sites failing to meet any of the above can be considered as being of '**Negligible**' ecological value.

APPENDIX 4: BAT & BIRD BOXES EXAMPLES

Schwegler 2F bat box



Schwegler 1FR wall integrated bat box, can be rendered over, just leaving entrance

Schwegler 27 wall integrated bat box, can be rendered over

Schwegler 1FQ wall-mounted bat box

Schwegler 2FF wall-hanging bat box

Schwegler 1WI integral wintering bat box, can be rendered over

Schwegler 1B bird box

Schwegler 2H robin box

APPENDIX 5: REPTILE MITIGATION MEASURES – CCW GUIDANCE (Draft Feb 2005)

For any development site which supports reptiles, or which contains habitats with the potential to support reptiles, CCW recommends detailed survey at an early stage. Where suitable survey information is unavailable, however, or where there is insufficient time to carry out the necessary surveys, it should be assumed that any habitats on the site which are suitable for reptiles do indeed support reptiles, and mitigate accordingly.

Legislation

The four most common British reptiles (comprising grass snake, adder, slow-worm and common lizard) are afforded so-called 'partial protection' under the Wildlife and Countryside Act 1981 (as amended). This protects individuals of all species from 'intentional' or 'reckless' killing and injury, but does not confer any direct protection to the habitats which support them.

Where it can reasonably be predicted that reptiles could potentially be killed or injured by activities such as site clearance, earthworks or construction operations etc, to carry out such activities in the absence of appropriate mitigation could legally constitute intentional or reckless killing or injuring, and could result in prosecution.

Where reptiles (other than sand lizard, smooth snake and turtles, all of which are subject to additional restrictions under the law) are present, or potentially present, on a development site, the developer should consider the need for mitigation at an early stage in the development programme. The presence of reptiles on a development site will not necessarily prevent the development from taking place, but it means that 'reasonable' mitigation measures must be put in place to prevent, as far as possible, the killing or injuring of any reptiles.

It is not necessary to obtain a licence to carry out works which affect reptiles, but it is always advisable to seek guidance in any case where a development could potentially cause impacts to reptiles, and to obtain advice regarding what would constitute 'reasonable' mitigation, although it is ultimately up to the developer to decide what is 'reasonable' (and to accept any consequences which may ensue). In most cases, the services of an appropriately qualified and experienced reptile consultant will be required.

The remainder of this document sets out the main elements of a typical reptile clearance strategy. It is recognised, however, that not all of the elements listed below will be necessary or appropriate in all cases, and that individual strategies will vary from site to site.

Reptile Clearance Methodology

If reptiles are confirmed as being present (or are assumed to be present, for example from habitat assessment) then measures should be put in place to avoid or minimise the killing and injuring of reptiles as a result of development operations. Ideally, a 'Reptile Mitigation Strategy' should be drawn up for the site by a suitably qualified person, and agreed in advance with either the CCW or the relevant Local Authority Ecologist.

Wherever possible, reptiles should be accommodated within the site, or on one or more adjacent or nearby site. The translocation of reptiles to a different site which lies at a distance from the development site should only be undertaken as a last resort. Where reptiles cannot be accommodated within the site, a suitable receptor site should be identified in advance and surveyed for suitability. If a reptile population already exists on the receptor site, then advance enhancement works to increase the 'carrying capacity' of the receptor site may be necessary Adequate time should be allowed in the development programme for the safe clearance of reptiles ahead of any potentially harmful works using suitable means, which may vary from site to site.

It should be noted that the clearance of reptiles from a site can only be undertaken when the reptiles are active (ie, during the spring, summer and autumn months) and should never be attempted during the winter hibernation period (which runs approximately from November to March inclusive). This constraint may lead to conflict with other issues – the presence of nesting birds, for example, all species of which are protected against disturbance – which will also need to be taken into account and mitigated for accordingly[1].

[1] Hedgerow translocations or clearance of habitats such as trees, scrub, bramble or reedbed etc can lead to direct conflicts, which may require phased clearance or other mitigation measures to overcome.

Mitigation measures should apply to all areas of the site which will be subject to potentially harmful impacts, including the laying of haul routes, siting of contractors' compounds and the bulk storage of materials and soils etc. It should be remembered that reptiles may be present beneath the soil at depths of up to 250mm or more, as well as in locations such as amongst tree roots or buried rubble and brick waste etc.

Typical Mitigation Procedure

1. Where there are suitable receptor sites adjacent to the development site, mitigation should commence with the removal of tall vegetation from all areas affected by development to make them less attractive to reptiles, and to encourage them to move away voluntarily into adjacent habitats. Vegetation should initially be cut to a height of about 200mm, starting furthest away from the adjacent habitats and working towards them, so as to drive any reptiles which may be present towards the receptor habitats. All cutting must be done by hand (eg by strimmer or brush-cutter), rather than by tractor-drawn mowers, so as to minimise the risk of causing reptile casualties. All arisings should be removed immediately from the site following cutting.

   After a maximum of two days, the vegetation of the site should be cut again in a similar pattern to a height of about 50mm, taking great care to avoid injuring any reptiles which may be present and with all arisings again being removed from the site. The vegetation of the site should then be maintained in this short condition for a minimum of two further days before proceeding to Step 2.

In some rare situations this staged cutting, coupled with the careful removal of any structures which may be used by sheltering reptiles (eg rubble piles, timber piles, drystone walls etc – see Step 3 below) may be sufficient to achieve 'clearance' of the site by rendering it so unsuitable for reptiles that no further measures are required. In these circumstances, the site should then be maintained in this unsuitable condition until the commencement of development works, which should then be preceded by 'destructive searching' (see Step 8 below). These situations are likely to be very unusual, however, and will require careful assessment in advance by an appropriately qualified person.

Where there are no suitable habitats in the surrounding area for reptiles to relocate to (for example if the site is surrounded by roads or hard standings, or is hemmed in by other developments) then this step should be ignored.

2. Reptile-proof fencing should be erected around the perimeter of the affected areas of the site. These should be erected in accordance with published specifications such as that contained in the Highways Agency's *Design Manual for Road & Bridges* (Vol 10(4) (7) HA116/05 *Nature Conservation Advice in Relation to Reptiles and Roads* or the forthcoming *Reptile Mitigation Guidelines* (English Nature). The fencing will normally be required to extend below ground level for a depth of about 250mm, and both the installation and fabrication process may require careful supervision by a suitably qualified reptile handler to ensure that no reptiles are accidentally injured in the process. On large sites it may be useful, and will probably speed up the process, if the site is subdivided into smaller parcels.

   Reptile-proof fences may be either vertical 'no-pass' fences or sloping 'one-way' fences. The former will prevent the movement of reptiles in either direction, whilst the latter can be erected in areas where the site lies immediately adjacent to a suitable receptor sites, and will allow reptiles to leave the development area voluntarily.

3. Within the enclosed parcels, any rubble piles, drystone walls, tree roots, buried rubble and timber piles etc should be dismantled by hand to prevent reptiles from using them to shelter in. All arisings should be removed from the site. As far as possible, these operations should be carried out by hand, with the minimum tracking by any vehicles or machinery across the site. Complex or large structures may need to be carefully dismantled under the supervision of a reptile handler who can halt the works and rescue any reptiles which may be found sheltering in them.

4. Following the clearance of sheltering places, the vegetation of the enclosed parcel should be cut, if it has not already been so. Cutting should initially be to a height of about 200mm, starting at the centre of the parcel and working outwards towards the edges. All cutting must be done by hand (eg by strimmer or brush-cutter), rather than by tractor-drawn mower, so as to minimise the risk of causing reptile casualties. All arisings should be removed immediately from the site following cutting.

   Note that for a linear site, such as a cycle-path or verge, strimming should be undertaken from the path working ahead and outwards at the same time, effectively cutting a 'V'-shape.

5. After cutting, the site should be strewn with 'refugia'. These should comprise a combination of suitable materials such as sheet metal, timber (eg chipboard), roofing felt and carpet tiles. These will be used by reptiles for sheltering beneath, or for basking on, where they can be found and caught more easily. If the vegetation is already shorter than 200mm, refugia may be laid out straight away without cutting the vegetation. Refugia should be spread evenly around the site at a high density (ie about 100 per hectare).

6. Depending on the site, visits should be made to the site by a reptile handler over at least the next two days to check beneath the refugia, collect any reptiles which may be beneath them and remove them to the receptor habitats. In practice, it will usually take at least a week for the refugia to 'bed in', and daily reptile collection visits may need to take place over a period of several weeks. Reptile collecting visits must be undertaken in suitable weather conditions, ie in dry, still conditions with air temperatures in excess of 10^{o}C.

7. Daily or near-daily reptile collection and removal visits should continue until reptile numbers under the refugia begin to decline noticeably, at which point the vegetation of the site can be cut again, using the same methodology as at Step 4, but this time to a height of 100mm. Daily reptile collection and removal visits should continue for a further minimum of three days, in suitable weather conditions.

8. When reptile numbers are again detected to be declining, a final cut can be made to achieve very short, close-cropped vegetation of about 40-50mm height, again using the same methodology as at Step 4. This staged removal of the vegetation is likely to drive reptiles to make greater and greater use of the refugia, by removing alternative sheltering places and rendering the rest of the site unattractive to reptiles.

Depending on the individual circumstances of the site, it may be advisable to review the spread and location of refugia, and to begin to cluster these towards the edges of the site or in selected locations, although if this is done then the areas where refugia are no longer present must be kept in a highly unattractive state for reptiles. The manipulation of refugia numbers and locations may be used to reduce the amount of time needed for a reptile handler to check for reptiles. On a small site, however, there is probably no point in moving the refugia, and moving refugia may reduce capture efficiency[2]. This is a matter which will require expert assessment.

It is essential that the integrity of the reptile-proof fences is maintained throughout the trapping period. These should be checked on every visit, and any breaks repaired within 24 hours, otherwise reptiles could re-enter the trapping area from outside. An advantage of subdividing the trapping areas into compartments is that any breaks in the perimeter fence which do occur, and which go undetected for any length of time, will only affect the compartment it lies alongside, and not the whole trapping area.

On sites where vandalism is a significant problem, it may be necessary to institute security measures to ensure that the reptile-proof fences remain intact throughout the trapping period. The measures necessary will vary from site to site, but could include the use of 'Heras' fencing and/or the presence of site security personnel in extreme cases.

9. Daily or near-daily reptile collection visits should carry on until 10 successive nil-returns have been achieved, in suitable weather conditions, following the last vegetation cut. Following a final inspection by a suitably qualified person (the final inspection can be done at the same time as the last check of the refugia). At this point, the trapping records should be summarised and sent to the relevant Species Officer at the CCW. Although there is no obligation to do this, it will assist in maintaining a clear position with the statutory body and will encourage a cooperative dialogue. This may be useful in establishing that there has been full and reasonable compliance with the legal requirements in the event of a challenge arising.

   Note that there is no need to have 10 successive nil-returns between the vegetation cuts, but that these cuts should be at least 2 days apart and the numbers should be showing a decline (the exact time taken should be determined by the reptile handler in charge, and will vary from site to site).

10. CCW will then write to the developer to "release" the site to the developer or site engineers. Again, there is no obligation to obtain written consent from the CCW, but it will further demonstrate that there has been best-practice compliance to the satisfaction of the statutory body.

11. The area cleared of reptiles should then ideally be immediately stripped of all vegetation and the topsoil removed, leaving bare subsoil. This final stripping may be done with machinery (ideally using a bucket with

[2] Reptiles usually take a while to find refugia (hence the 'bedding in'), and once they do they tend to use them habitually. Moving refugia may simply confuse the animals and be counterproductive.

tines)[3]. In some cases it may be desirable that the site is 'destructively searched' prior to development, especially if the trapping out has not gone absolutely to plan (eg vandalism problems etc). This means that the topsoil layer to a depth of about 250mm is removed from the site in strips or sections, working sequentially across the site, using a digger with a tined bucket, under the supervision of a reptile handler who is able to check for the presence of any reptiles remaining in the soil. Where such reptiles are found, the reptile handler will stop the works, rescue the animal and release it to the receptor area.

12. The edges of the cleared area should be marked with high-visibility temporary fencing to prevent accidental trafficking of vehicles on the uncleared parts of the site (if any).

13. If there is any delay between the end of the reptile clearance operation and the commencement of development, measures must be taken to prevent the recolonisation of the site by reptiles from adjacent habitats, unless there is no such habitat adjacent to the site. To prevent reptiles re-entering the cleared area, the developer must therefore either:
    a) Keep the area in the cleared condition obtained at Step 9 - bare earth with no vegetation. To keep the area bare, the developer could consider using an approved herbicide. Or:
    b) Retain the reptile-proof fencing until development works are underway in the area concerned. If this option is chosen, the integrity of the reptile-proof fences will need to be checked regularly throughout the intervening period (ie daily or near-daily), and any breaks repaired within 24 hours. If undetected breaks occur for any length of time, the affected area (or compartment) will need to be trapped out again by repeating Steps 5-9 above.

    Maintenance of the site in a cleared and reptile-proof condition is really only critical during the reptiles' active period, since recolonisation is not likely to occur during the winter months. Therefore if a site has been cleared of reptiles in summer prior to development in winter, the reptile-proof fences can be removed (or allowed to deteriorate) once the hibernation period has begun (ie after about the end of October). If the start of development is subsequently delayed beyond the end of the hibernation period, however, (ie after about the end of March) it may be necessary to reinstall the fences, or even re-trap the site.

    The site can be re-opened to reptiles by removing the fencing after all construction works are complete.

Catching Methods

The use of refugia at high densities (100/ha) can be very effective for collecting slow-worms. However, other species are less readily found under refugia, and can be much more difficult to catch. 'Noosing' of common lizards whilst sunning on refugia can be effective, but requires skill and is very time-consuming. Snake catching is also a specialised skill, and carries health and safety implications. However, both snakes and common lizards tend to be more mobile than slow-worms, and are therefore more likely to respond to the vegetation clearance and remove themselves from the trapping area where one-way fences make this possible.

Keeping Records

For trapping records, we recommend logging the date, time, weather conditions, temperature, minimum night temp (night before), species caught and location caught (a rough map would suffice, eg area A, B or C) and, if possible, the sex and age of the animals, and if gravid. Ideally a report of the trapping operation, in which all of the capture records are summarised and evaluated, should be prepared at the end of the operation and submitted to the CCW and/or the local authority ecologist. There is no obligation to do so, but the keeping of clear and unambiguous records may be essential in establishing that there was full and reasonable compliance with the law in the event of there being any challenge to the methods used.

When to Trap

Ideally clearance should begin as early as 1 April, with the aim of the site being cleared by the end of July. Clearance operations are less desirable later in the summer, since after about June there is the chance that juvenile animals will also be present, which as well as being extremely difficult to see and catch, may also significantly increase the number of animals on the site.

[3] It is worth noting that there can be a conflict on sites where there is also an archaeological watching brief: archaeologists usually specify a bladed bucket to produce smearing in which archaeological layers can be seen. A tined bucket makes this much more difficult.

Post-development Monitoring

In addition to the above, we would encourage the developer to put in place a scheme to monitor the effects of the development on the reptiles and to see if the mitigation has been successful. The design of any monitoring exercises should be discussed in advance with the CCW.

APPENDIX 6: SUITABLE NATIVE SPECIES FOR PLANTING

Grassland

New or existing low-fertility topsoil should be lightly harrowed and raked to create a moderately fine tilth. No fertiliser should be added to any of these areas. Areas should be seeded either by hand (broadcasting) or by using a light tractor-mounted spinner or drill with drills at 5cm centres, 5mm maximum depth, immediately after preparation which should ideally occur in late summer (ie Aug-Sep). The seed rate should be 4g/m^2 (ie 40kg/ha). The seed mixture in new soil areas should comprise an 80:20 mix of native grass to native wildflower seed.

All seed material should be of Welsh, or at least UK, native origin. Seed suppliers should be signatories to the *Flora Locale* Code of Practice for collectors, growers and suppliers of native plants and seed.

Flowering lawn mixture (allowing regular maintenance to create a relatively short sward) (eg Emorsgate Seeds EL1)

Galium verum	Lady's bedstraw
Leontodon hispidus	Rough hawkbit
Leucanthemum vulgare	Oxeye daisy
Lotus corniculatus	Birds-foot trefoil
Primula veris	Cowslip
Prunella vulgaris	Self-heal
Ranunculus acris	Meadow buttercup
Rumex acetosa	Common sorrel
Trifolium pratense	Red clover
Agrostis capillaris	Common bent
Cynosurus cristatus	Crested dog's-tail
Festuca rubra	Red-fescue
Phleum bertolonii	Smaller cat's-tail

A sward of this type may take longer to form a dense turf than more conventional grass lawns. Once established, the lawn should be mown regularly (as any other lawn) to a sward height of between 25-40mm. Reduce mowing in April to allow cowslip to flower and from late June to allow further flowering of the other species - next cut once the sward again becomes untidy. Cuttings should be collected and removed from site.

Wildflower meadow (creating a more 'traditional' meadow with a long sward) (eg Emorsgate Seeds EM3)

Achillea millefolium	Yarrow
Centaurea nigra	Common knapweed
*Centaurea scabiosa**	Greater knapweed
Daucus carota	Wild carrot
Galium mollugo	Hedge bedstraw
*Galium verum**	Lady's bedstraw
*Knautia arvensis**	Field scabious
Leontodon hispidus	Rough hawk-bit
Leucanthemum vulgare	Ox-eye daisy
Lotus corniculatus	Bird's-foot trefoil
*Origanum vulgare**	Wild marjoram
*Plantago media**	Hoary plantain
Primula veris	Cowslip
Prunella vulgaris	Self-heal
Ranunculus acris	Meadow buttercup
Rhinanthus minor	Yellow rattle
Rumex acetosa	Common sorrel
*Sanguisorba minor**	Salad burnet
Silene dioica	Red campion
Silene vulgaris	Bladder campion
Vicia cracca	Tufted vetch

Primula veris	Cowslip
Prunella vulgaris	Selfheal
Ranunculus acris	Meadow buttercup
Rumex acetosa	Common sorrel
Trifolium pratense	Red clover
Agrostis capillaris	Common bent
Cynosurus cristatus	Crested dog's-tail
Festuca rubra	Red-fescue
Phleum bertolonii	Smaller cat's-tail

** For calcareous soils*

For the first year of growth, mowing should take place at 6-8 weeks after sowing, with the cuttings collected and disposed of off-site. This should be repeated at two-monthly intervals, with the last cut being made in October.

In the second and subsequent years, the grass should be mown twice each year, with a first cut to 50mm in April and a second cut to 100mm in September. All cuttings should be collected and removed for off-site disposal.

Trees and shrubs

All planting stock should be of native species which are indigenous to the region and will be of Welsh or at least UK, provenance.

New Woodlands

Canopy Species		**Percentage**
Quercus robur and/ or	Pedunculate oak	40
Quercus petraea	Sessile oak	40
Fraxinus excelsior	Ash	30
Acer campestre	Field maple	20

Understorey		
Corylus avellana	Hazel	30
Crataegus monogyna	Common hawthorn	30
Betula pendula	Silver birch	)
Cornus sanguinea	Dog wood	)
Ilex aquifolium	Holly	)
Malus sylvestris	Crab apple	)
Prunus avium	Wild cherry	) 40
Prunus spinosa	Blackthorn	)
Rosa canina	Common dog-rose	)
Sorbus aucuparia	Rowan	)
Taxus baccata	Yew	)
Viburnum opulus	Guelder rose	)

Planting should be carried out using 600mm bare-rooted transplants in spiral plastic guards (rabbit/vole protection) where appropriate. Standard tree aftercare should be applied.

New Hedgerows (a minimum of seven species)

Canopy Species		**Percentage**
Crataegus monogyna	Common hawthorn	30
Prunus spinosa	Blackthorn	10
Corylus avellana	Hazel	20
Acer campestre	Field maple	)
Cornus sanguinea	Dogwood	)

Euonymus europaeus	Spindle	)
Fraxinus excelsior	Ash	)
Ilex aquifolium	Holly	) 40
Prunus avium	Wild cherry	)
Quercus robur	Pedunculate oak	)
Rosa canina	Common dog-rose	)
Sambucus nigra	Elder	)
Sorbus aucuparia	Rowan	)
Viburnum opulus	Guelder rose	)

Climbers

Clematis vitalba	Traveller's-joy	) Alternate at 3m intervals
Lonicera periclymenum	Honeysuckle	)
Solanum dulcamara	Bittersweet	)
Tamus communis	Black bryony	)

Ideally plant in late autumn, after mid-November, although anytime between October and March is appropriate if the ground is not frozen. Plant 60-125mm high whips in trenches (300mm depth x 600mm width) in two lines 300mm apart to form a staggered, double row. Whips in each line should be 450mm apart, giving a total of five plants per running metre. Use a spiral guard to protect the whip from rabbits with a cane to support them. Back fill with a mixture of the topsoil excavated from the pit, mixed with organic matter.

Newly planted hedges are vulnerable to damage by wind, drought and severe weather for the first 2-3 years. Keep moist and mulch with a 50-75mm layer of composted bark to stop weed growth and retain moisture in the soil.

Wildlife friendly plants for formal landscaping

The species listed below are primarily non-native species, which are commonly found in gardens and formal landscape areas. Those native species included are aesthetically pleasing and suitable for formal planting schemes.

Woody Species

Bodnant viburnum (*Viburnum* x *bodnantense*)
Californian lilac (*Ceanothus spp.*)
Firethorn (*Pyracantha spp.*)
Laurustinus (*Viburnum tinus*)
Japanese quince (*Chaenomeles japonica*)
Lilac (*Syringa vulgaris*)
Mahonia (*Mahonia spp.*)
Mock orange (*Philadelphus spp.*)
Serviceberry (*Amelanchier canadensis*)
White jasmine (*Jasminium officinale*)

Herbs

Alpine rock-cress (*Arabis alpina*)
Angelica (*Angelica archangelica*)
Annual honesty (*Lunaria annua*)
Aubretia (*Aubretia deltoidea*)
Autumn Stonecrop (*Sedum* 'Purple Emperor')
Borage (*Borago officinalis*)
California poppy (*Eschscholtzia californica*)
Canadian Fleabane (*Erigeron canadensis*)
Candytuft (*Iberis sempervirens*)
Christmas rose (*Helleborus niger)*
Common mallow (*Malva sylvestris*)
Common poppy (*Papaver rhoeas)*
Cosmos (*Cosmos bipinnatus*)
Evening primrose (*Oenothera biennis*)
Wood forget-me-not (*Myosotis sylvatica*)
French marigold (*Tagetes spp.*)
Globe thistle (*Echinops ritro*)
Great mullein *(Verbascum thapsus*)
Orpine (*Sedum telephium*)
Perennial cornflower (*Centaurea montana*)
Perennial honesty (*Lunaria rediviva*)
Perennial sunflower (*Helianthus decapetalus*)
Phlox (*Phlox paniculata*)
Poached-egg plant (*Limnanthes douglasii*)
Purple coneflower (*Echinacea purpurea*)
Purple-top vervain (*Verbena bonariensis*)
Red campion (*Silene dioica*)
Red valerian (*Centranthus rubber*)
Rosemary (*Rosmarinus officinalis*
Sage *(Salvia officinalis*)
Shrubby Veronica *(Hebe recurva*)
Snapdragon (*Antirrhinum majus*)
Soapwort (*Saponaria officinalis*)
Spear mint (*Mentha* spicata)
Spring crocus (*Crocus chrysanthus*)
Sunflower (*Helianthus annuus*)

Grecian windflower (*Anemone blanda*)
Heart-Leaf Ice-plant (*Aptenia cordifolia*)
Hollyhock (*Althaea rosea*)
Hyssop (*Hyssopus officinalis*)
Ice plant (*Sedum spectabile*)
Lacy phacelia (*Phacelia tanacetifolia*)
Late Michaelmas-daisy (*Aster* x *versicolor*)
Lavender *(Lavandula angustifolia.)*
Lenten rose (*Helleborus orientalis*)
Ox-eye daisy (*Leucanthemum vulgare*)
Marjoram (*Origanum vulgare*)
Sweet alyssum (*Lobularia maritime*)
Sweet bergamot (*Monarda didyma*)
Sweet rocket (*Hesperis matronalis)*
Sweet William (*Dianthus barbatus*)
Tickseed *(Coreopsis spp*)
Tobacco plant (*Nicotiana affinis*)
Wallflower (*Cheiranthus cheiri*)
Winter aconite (*Eranthis hyemalis*)
Yellow alyssum (*Alyssum saxatile*)
Yellow loose-strife *(Lysimachia vulgaris*)

Sources: *Plants for wildlife friendly Gardens* (Natural England), *Planting Gardens for Birds* (RSPB), *Gardening for Bats* (Bat Conservation Trust) and *Starting a Butterfly Garden* (*School Garden Company*).

APPENDIX 7: PHOTOGRAPHS OF SITE (October 2012)

1. View from the entrance, from the south

2. View from the entrance, from the west

3. Close up of Himalayan honeysuckle, north of site

4. Bramble along the western boundary

5. View from the centre of the western boundary

6. View of western boundary, further south

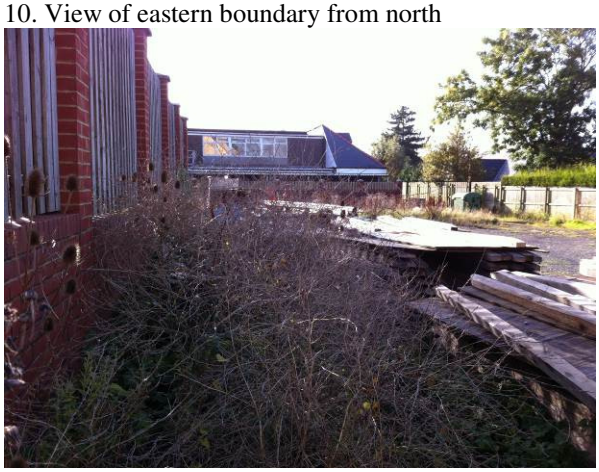

7. Close up of log piles in centre (Target Note 1)


8. Stack of bricks in north eastern corner (target note 2)


9. Timber stacked along eastern boundary


10. View of eastern boundary from north


11. Brambles behind bricks in north eastern corner


12. Ruderal vegetation behind timber stacks

13. North eastern corner

14. Brambles to the west of the site, with bare ground

15. View of south eastern corner

16. Grassland in south of site, in front of Tesco

17. Temporary pool