St Modwen Developments Ltd.

Land off Station Road, Newport

ECOLOGICAL ASSESSMENT

January 2015

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Rev	Issue Status	Prepared / Date	Approved/Date
-	Draft	MWH / 10.12.14	SMM / 15.01.14

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1.0 INTRODUCTION

1.1 FPCR Environment and Design Ltd were commissioned by St Modwen Developments Ltd. to undertake an ecological assessment of an area of land situated west of Station Road, Newport, referred to herein as 'the site'.

Site Context & Development Proposals

1.2 The site is situated to the south of Newport, Telford & Wrekin (Central Grid Reference SJ 750 182). The site is bounded by the urban edge of Newport to the north, an arable field to the south and west, and by Station Road to the east.

1.3 The habitats on site currently consist of a horse paddock and arable field, with other habitats comprising hedgerows, trees, a pond and hard standing. The wider area consists of more agricultural land, industrial estates and the town of Newport itself.

Proposals

1.4 The proposals are for a residential development for 120 dwellings, together with access roads and associated development.

1.5 The findings of the Extended Phase-1 Habitat survey are presented in this report, together with an assessment of impact of the proposed work and any recommendations for mitigation, compensation and enhancement, as required.

2.0 METHODOLOGY

Desk Study

2.1 A desk study was undertaken for existing ecological data regarding non-statutorily habitats / sites of interest to nature conservation within a 1 kilometre radius of the site. Data within this area was provided by the Shropshire Ecological Data Network (SEDN). The desk study included a review of ecological information provided in support of planning applications TWC/2011/0871 & TWC/2011/0916.

2.2 The Multi-Agency Government Information for the Countryside (MAGIC) website (www.magic.gov.uk) was consulted for information on the presence of statutorily protected sites including Special Protection Areas (SPA) and Special Areas of Conservation (SAC) within 5Km and Sites of Special Scientific Interest (SSSI's), within 2Km. The National Biodiversity Network database (www.searchnbn.gateway) was consulted for additional species information.

Habitats

2.3 The site was surveyed on 22nd September 2014, and represented an up-date of previous survey work completed on the 20th March 2014, 30th September 2013, 9th August 2011 and 26th February 2011. The survey was completed using the standard Extended Phase 1 Habitat Survey Methodology (Joint Nature Conservation Committee 2010[1]). This involved a systematic walk over of the site to classify the habitat types present and marking them on a base map. Target notes were used to record features or habitats of particular interest, as well as any sightings or evidence of protected or notable species. Whilst the plant species lists obtained should not be regarded as exhaustive, sufficient information was obtained to determine broad habitat types.

Hedgerows

2.4 Hedgerows were also surveyed using the Hedgerow Evaluation and Grading System (HEGS) (Clements and Toft 1993). The aim of the assessment is to allow the rapid recording and ecological appraisal of any given site in the UK, and to allow the grading of the individual hedges present, in order to identify those which are likely to be of greatest significance for wildlife. This method of assessment includes noting down: canopy species composition, associated ground flora and climbers; structure of the hedgerow including height, width and gaps and associated features including number and species of mature tree and the presence of banks, ditches and grass verges.

2.5 Using the HEGS methodology each hedgerow can then be given a grade. These grades are used to assign a nature conservation value to each hedgerow as follows:

Grade -1, 1, 1+ High to Very High Value

Grade -2, 2, 2+ Moderately High to High Value

Grade -3, 3, 3+ Moderate Value

Grade -4, 4, 4+ Low Value

2.6 Hedgerows graded -2 or above are suggested as being a nature conservation priority.

2.7 The hedgerows were also assessed for their potential ecological value under the Hedgerow Regulations 1997 (Statutory Instrument No: 1160). Hedgerow diversity is evaluated by determining both the average number of woody native species present per 100m and the number of hedgerow associated features. These results are compared against the nature conservation criteria of the Hedgerow Regulations to ascertain whether a hedgerow is classed as 'Important' under these regulations.

2.8 All hedgerows were also assessed as to whether they qualified as Habitats of Principle importance under Section 41 of the Natural Environment and Rural Communities Act 2006 or Shropshire Biodiversity Action Plan (BAP) priority habitat, i.e. they consisted of 80% or more native species.

[1] JNCC (2010) *Handbook for Phase-1 Survey – a Technique for Environmental Audit* JNCC

Fauna

2.9 During the survey, observations, signs of, or suitable habitat for, any species protected under Part 1 of the Wildlife and Countryside Act 1981 (as amended), the Protection of Badgers Act (1992) and the Conservation of Habitats and Species Regulations 2010 (as amended) was also noted. Throughout the survey, consideration was also given to the existence and use of the site by other notable fauna such as those of principle importance as listed under Section 41 of the NERC Act 2006, Shropshire BAP or Red Data Book (RDB) species.

Amphibians

Habitat Suitability Index (HSI)

2.10 The HSI score for ponds was re-assessed on 22nd September and 20th March 2014 to provide an up-dated evaluation of the suitability of ponds for great crested newt *Triturus cristatus* (GCN).

2.11 This methodology assesses ponds against ten pre-determined criteria, producing a score which indicates suitability for GCN occupation.

2.12 The Habitat Suitability Index provides a measure of the likely suitability that a waterbody has for supporting GCNs (Oldham *et al* 2002[2]). Whilst not a direct indication of whether or not a pond will support GCNs, generally, those with a higher score are more likely to support GCNs than those with a lower score and there is a positive correlation between HSI scores and ponds in which GCNs are recorded. Ten separate attributes are assessed for each pond to calculate the suitability of the ponds to support GCN:

- Geographic location
- Pond area
- Pond drying
- Water quality
- Shade
- Presence of water-fowl
- Presence of fish
- Number of linked ponds
- Terrestrial habitat
- Macrophytic coverage

2.13 A score is assigned according to the most appropriate criteria level set within each attribute and a total score calculated of between 0 and 1. Pond suitability is then determined according to the scales shown in Table 1.

[2] Oldham et al., (2000) *Evaluating the suitability for the great crested newt* Herpetological Journal 10(4)

Table 1: HSI Scores as a Measure of Pond Suitability

HSI score	Pond Suitability
<0.5	Poor
0.5 - 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

2.14 In some cases the attributes for each pond are different from those previously assessed, which is likely to have occurred as succession (Appendix D). This variation has resulted in only minor changes to the overall score and / or final assessment attributed to individual ponds.

Badger

2.15 A full badger survey was conducted on the 22nd September 2014. Evidence indicating the presence of badgers was sought with the identification of signs which might indicate a presence on site, including:

- Setts (main, annexe, subsidiary and outlier)
- Latrines
- Prints and trackways
- Hairs caught on rough wood and fencing
- Snuffle holes, scratching posts and general feeding activity

2.16 Evidence of such activity was sought within the site and on accessible land within 30m of the boundaries.

2.17 The identification of snuffle holes, scratching posts or feeding signs on their own does not necessarily provide conclusive evidence of the presence of badgers and a number of such signs need to be seen in conjunction before they can be said to be conclusive of badger activity.

Bats

Tree Assessment

2.18 Tree assessments were undertaken from ground level, with the aid of a binoculars where required on 22nd September 2014. These surveys were undertaken by an experienced bat ecologist.

2.19 During the surveys, features considered to provide suitable roost sites for bats such as the following were sought:

- Trunk cavity – Large hole in trunk caused by rot or injury.
- Branch cavity – Large hole in branch caused by rot or injury.
- Trunk split – Large split / fissure in trunk caused by rot or injury.
- Branch spilt – Large split / fissure in branch caused by rot or injury.
- Knot Hole / Branch socket cavity – Where a branch has fallen from the tree and resulted in formation of an access point in to a cavity.
- Woodpecker hole – Hole created by nesting birds suitable for use by roosting bats.
- Lifted bark – Areas of bark which has rotted / lifted to form suitable access point/roost site for bats.
- Hollow trunk – Decay in heartwood leading to internal cavity in trunk.
- Hazard beam failure – Where a section of the tree stem/branch has failed causing collapse and leading to longitudinal fractures / splits / cracks along its length.

2.20 Table 2 below classifies the potential categories as accurately as possible. This table is based upon Table 8.4 in Bat Surveys- Good Practice Guidelines (Bat Conservation Trust, 2012). The table within the guidelines has been designed to inform assessments completed prior to the completion of arboricultural works. Consequently, the suggested survey methods have been refined to suit development works and considers the definition of a breeding site or resting place as described in the Habitat Regulations.

Table 2: Bat survey protocol for trees

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and/or further surveys.
Category 1 Confirmed bat roost with field evidence of the presence of bats, e.g. live / dead bats, droppings, scratch marks, grease marks and / or urine staining.	Identified on a plan and in the field. Further assessment such as climb and inspect and/or dusk/dawn surveys should be undertaken, if the trees are affected by the development, to provide an assessment on the likely use of the roost, numbers and species of bat present.	Avoid disturbance where possible. Felling or other works that would affect the roost would require an EPS licence with like for like roost replacement as a minimum. Works may also be subject to timing constraints.
Category 2a / 2b Trees that have a high / moderate potential to support bat roosts.	Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats. Where the tree(s) will be affected by the proposed development, further assessment such as climb and inspect and/or dusk/dawn surveys (up to 2/3 nocturnal surveys) should be undertaken (as appropriate), to ascertain presence/absence of roosting bats. Trees may be upgraded if presence of roosting bats is confirmed or downgraded following further surveys if features present are of low suitability and / or no evidence of a breeding site or resting place * is found within features that can be assessed fully.	**Trees where no bat roost confirmed after further surveys:** Avoid disturbance where possible. In situations where disturbance cannot be avoided and where no evidence of occupation of suitable cavities has been confirmed during the initial surveys or nocturnal surveys (as appropriate), further precautionary survey work following the granting of planning permission and prior to works being completed is recommended to ensure features have not been occupied by bats. The additional precautionary survey work could comprise further nocturnal surveys during the active bat season immediately prior to felling or management works or the completion of additional aerial inspections. Use “soft felling” techniques, removing ivy cover by hand and avoid cutting through tree cavities is recommended once the presence of a roost has been discounted.

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and/or further surveys.
Category 2c Trees with a low potential to support bat roosts.	Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats. Where the tree(s) will be affected by the proposed development, further assessment such as climb and inspect and/or dusk/dawn surveys (one nocturnal survey) should be undertaken (as appropriate), to ascertain presence/absence of roosting bats. Trees may be upgraded if presence of roosting bats is confirmed or downgraded following further surveys if features present are not suitable for bats and / or no evidence of a breeding site or resting place* is found within features that can be assessed fully.	**Trees where no bat roost confirmed after further surveys:** Avoid disturbance where possible. In situations where disturbance cannot be avoided and where no evidence of occupation of suitable cavities has been confirmed during the initial surveys or nocturnal surveys (as appropriate), further precautionary survey work following the granting of planning permission and prior to works being completed is recommended to ensure features have not been occupied by bats. The additional precautionary survey work could comprise further nocturnal surveys during the active bat season immediately prior to felling or management works or the completion of additional aerial inspections. Use "soft felling" techniques, removing ivy cover by hand and avoid cutting through tree cavities is recommended once the presence of a roost has been discounted.
Category 3 Trees with no / negligible potential to support bat roosts.	Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats.	None.

* The Conservation of Habitats & Species Regulations 2010 (as amended) affords protection to breeding sites or resting places at all times. For an area to be classified as a breeding site or resting place, the Regulations require there to be a reasonably high probability that the species will return to the sites and / or place.

Confirmation of a breeding site or resting place in trees can be established through the completion of aerial inspection and / or nocturnal surveys (as appropriate). In situations where nocturnal surveys are completed and a breeding site or resting site is not confirmed, the survey effort is considered to be sufficient to reasonably discount the presence of roosting bats (for a period of time as defined in Natural England's current Standing Advice). However, further precautionary works may be recommended if the trees is affected by works.

+Where features of a tree are identified as providing potential to be used as a breeding site or resting place, evidence of current or previous use of the feature should be identified during an aerial inspection to necessitate the completion of further detailed nocturnal survey work prior to the granting of planning permission. In situations where no evidence of use is identified it is reasonable to conclude that a feature is not being used as a breeding site or resting place as defined by the Regulations but further precautionary measures maybe recommended if a tree is affected by development to ensure occupation has not occurred following completion of the survey. If the presence of a breeding site or resting place cannot be discounted from ground level or aerial inspections, nocturnal survey work to confirm the presence of a breeding site or resting place should be completed.

3.0 RESULTS

Desk Study

3.1 The locations of designated sites and faunal records discussed in the following section are illustrated in Figure 1.

Designated Nature Conservation Sites

Statutory Sites

3.2 The statutorily designated nature conservation sites located within 5km of the application site are listed in Table 3.

3.3 An area of the Midlands Meres & Mosses Phase-2 Ramsar site of International importance was located ~1.6km north-east of the application site. This comprises a series of 18 component open water bodies (meres) and associated habitats located in the north-west Midlands of England and north-east Wales. The area closest to the site corresponds with Aqualate Mere National Nature Reserve (NNR) / Site of Special Scientific Interest (SSSI).

3.4 Newport Canal SSSI was also located 1.3km to the north of the application site at its closest point.

Table 3: Sites of Nature Conservation Interest

Name	Description / Reason for designation
Aqualate Mere NNR / SSSI	Large mere and associated habitats that include a complex of open water, fen, grassland and woodland. The site also supports a wide variety of mammal, bird, and plants associated with reed beds and low lying wet grassland
Newport Canal SSSI	Approximately 2 km of disused canal supporting a range of submerged and broad-leaved plant communities that form a continuous narrow fringe of marginal swamp and extensive areas of fen

Non-statutory Sites

3.5 The non-statutorily designated Quarry at Barrack Lane County Wildlife Site (CWS) was located ~1km south-west of the application site. This site was designated for the grassland and wetland habitats it supports.

Fauna

3.6 There were no records for GCN within 2km of the application site. Survey had identified a 'good' population of common toad *Bufo bufo* within 'Millwood Mere', which lies 290m west of the site (Appendix D).

3.7 There were no badger records for badgers within the site boundary; however, there were records of badger from the local area. Badger records are confidential and should not be disclosed to the general public or other third parties without prior permission.

3.8 There were previous records of brown long-eared *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus,* nathusius pipistrelle *Pipistrellus nathusii* and noctule *Nyctalus noctua*. at various locations within 1km north of the site. There were also records of *Myotis* sp. bats within the wider area.

3.9 The specially protected or notable bird species recorded from various locations around the wider Newport area are presented in Table 4. These records included the Schedule-1 bird species kingfisher *Alcedo athis*, red kite *Milvus milvus* and peregrine falcon *Falco peregrinus*, which had all been noted at least 750m north of the application site.

Table 4: Protected & Notable Birds Recorded within the Local Area

Species		WCA[1]	NERC[2]	LBAP[3]
Red[4]				
House Sparrow	*Passer domesticus*		+	*
Linnet	*Carduelis cannabina*		+	*
Redwing	Turdus iliacus	+		
Skylark	*Alauda arvensis*		+	*
Song thrush	*Turdus philomelos*		+	**
Tree Sparrow	*Passer montanus*		+	*
Yellowhammer	*Emberiza citrinella*		+	*
Amber[4]				
Dunnock	*Prunella modularis*		+	
Bullfinch	*Pyrrhula pyrrhula*		+	*
Kingfisher	*Alcedo atthis*	+		
Meadow Pipit	*Anthus pratensis*			
Reed Bunting	*Emberiza schoeniclus*		+	*
Red Kite	*Milvus milvus*	+		
Snipe	*Gallinago gallinago*			**
Swallow	*Hirundo rustica*			
Willow warbler	*Phylloscopus trochilus*			
Green[4]				
Peregrine Falcon	*Falco peregrinus*	+		

[1] Birds listed on Schedule 1 of the Wildlife and Countryside Act (1981) as amended

[2] Birds featuring in the Natural Environment and Rural Communities (NERC) Act, Section 41(S41)

[3] Birds of the Shropshire BAP: *, farmland bird Priority Species; **, individual Priority Species

[4] The bird population status, as set by criteria on the RSPB Birds of Conservation Concern (BoCC) list. Red and amber listed are declining species.

3.10 There were no records of reptiles, including common lizard *Zootoca vivipara*, grass snake *Natrix natrix* and slow worm *Angius fragilis*, within 2km of the application site.

3.11 There were numerous water vole *Arvicola amphibious* records associated with Newport Canal and its associated watercourses, the closest of which was 850m east of the application site.

3.12 There were records for white-clawed crayfish *Austropotamobius pallipes* in association with the Newport Canal at least 1.3km north of the application site.

Habitats

3.13 The site was consisted of a horse paddock and arable fields, with hedgerows, trees, a pond and hardstanding. The site was located on the fringe of Newport and the urban areas lie to the north, with a predominantly arable landscape to the south.

3.14 The location of habitats is illustrated in Figure 2. Representative photographs of the sites habitats are provided in Appendix A and a full list of the plant species recorded within the site is provided in Appendix B.

Woodland

3.15 An area of relatively young and developing semi-natural broad-leaved woodland was located along the disused railway line on the northern site boundary. The canopy consisted of ash *Fraxinus excelsior*, silver birch *Betula pendula* and sycamore *Acer pseudoplatanus*, together with a sparse understory of apple *Malus* sp., bird cherry *Prunus padus*, bramble *Rubus fruticosus* sp., goat willow *Salix caprea* and hawthorn *Crataegus monogyna*. The groundflora included ivy *Hedera helix*, periwinkle *Vinca* sp., sedge *Carex* sp., Spanish bluebell *Hyacinthoides hispanica*, wood avens *Geum* arbanum. A small area of amenity grassland with spring crocus *Crocus vernus* was located at the east end of the woodland.

Trees & Scrub

3.16 Scattered broad-leaved trees of varying age were associated with the field boundaries, including mature examples of ash, pedunculate oak *Quercus robur* and white poplar *Populus alba*. None of these trees exhibited sufficient features, such as deadwood, rot holes or fungi, to be considered of Veteran status

3.17 A single mature pedunculate oak (T5), located within the southern extent of the horse paddock is considered to be a Veteran tree by virtue of its large stem size and possession of a number of characteristic Veteran features (refer to the Arboricultural report). None of the remaining trees exhibited sufficient features, such as deadwood, rot holes or fungi, to be considered of Veteran status.

3.18 A dense blackthorn *Prunus spinosa* stand was located within the corner of the horse paddock, adjacent to Station Road.

Grasslands

3.19 A horse paddock that consisted of semi-improved neutral grassland was located in the eastern half of the application site. Grasses that occurred occasionally within the sward included common bent *Agrostis capillaris*, perennial rye-grass *Lolium perenne*, crested dog's-tal *Cynosurus cristatus* and meadow-grasses *Poa* sp. Herbs noted in the grassland included common knapweed *Centaurea nigra*, bird's-foot trefoil *Lotus corniculatus*, pignut *Conopodium majus*, yarrow *Achillea millefolium*, red clover *Trifolium pratense* and autumn hawkbit *Leotodon autumnalis* (Appendix B). Although a number of the identified species were characteristic of less improved habitat types, the overall abundance and diversity was not recognised as high. Previous surveys had demonstrated that the grassland also supported widespread and common fungi, and incidental records include scarlet waxcap *Hygocybe coccinea*, meadow waxcap *Hygrocybe pratensis* and meadow coral *Clavulinopsis corniculata*.

3.20 The remaining areas of grassland were associated with the road verges. Here the grassland was dominated by false oat-grass *Arrhenatherum elatius*, with occasional cock's-foot *Dactylis glomerulata* and brome *Bromus* sp. Forbs included locally dominant common nettle, and occasional broad-leaved dock *Rumex obtusifolia* and common ragwort *Senacio jacobaea*.

Pond

3.21 There was a single pond within the application site; Pond 1. Pond 1 was a shallow ephemeral field pond of ~200m², the edges of which were heavily poached by horses was located within the southern end of the paddock. Aquatic and wetland vegetation included jointed rush *Juncus articulatus*, marsh cudweed *Gnaphalium uliginosum*, toad rush *Juncus bufonius*, water crowfoot *Ranunculus* sp., water-purslane *Lythrum portula* and water-starwort *Callitriche* sp.

Hedgerows

3.22 There were four hedgerows within the application site; H1 – H4 (Appendix C). Hedgerow H2 was species-rich, and comprised a mix of woody species, including hazel *Coryllus avellana*, hawthorn, holly *Ilex aqui* and blackthorn. The groundflora included common nettle, ground ivy *Glechoma hederacea*, ivy and lords and ladies *Arum maculatum*. The hedge H2 was considered to be of 'High' conservation value according to HEGS (score of 2), mainly as a result of its dense structure and connections to adjacent woodland and hedgerows.

3.23 The hedgerows H1, H3 & H4 were species-poor, being dominated by hawthorn, with blackthorn being locally dominant. The groundflora was continuous with the adjacent habitat type or locally dominated by ivy. HEGS assessment indicated that hedges H1, H3 & H4 were of 'low' conservation value (score of 3 or below). This was a result of its poor structure and low species diversity structure.

3.24 None of the hedgerows were considered to be Important according to the wildlife and landscape criteria of the Hedgerow Regulations 1997.

Hardstanding

3.25 Hardstanding consisted of the tarmac road surface and lacked any associated flora.

Fauna

3.26 Due to a lack of suitable habitat the application site is of negligible interest for otter, water vole and white-clawed crayfish, and these species groups are not considered further.

Badger

3.27 There was no evidence of badger activity within the application site. The grassland and scrub within the site provide suitable foraging habitat for badger.

Bats

3.28 There were no buildings within the site boundary.

3.29 The trees T2 and T5 supported features, including cracks, fissures and flaking bark, that were considered to have high (Category 2a) and moderate (Category 2b) potential to be used by roosting bats. However, no evidence of roosting bats, such as accumulated droppings or staining, was identified during aerial inspection of these features in November 2012. Visual inspection of the trees in September 2013, March 2014 and September 2014 indicated that there had been no significant alterations in the number and extent of suitable roosting features since 2012. Due to a lack of significant features the remaining trees within the site boundary were considered to be of negligible interest to roosting bats (Category 3).

3.30 The woodland, trees, scrub pond and hedgerow within the site boundary all provide potentially suitable foraging habitat for bats. The woodland and hedgerows also provides some connectivity for bats to similar habitats in the surrounding area.

Birds

3.31 Woody vegetation, including scrub and trees, within the site provided suitable nesting habitat for a range of bird species. These habitats and the grassland and scrub also represent a potentially suitable foraging resource for breeding and over-wintering birds.

Great Crested Newts

3.32 There was a single pond within the site boundary; pond 1. Although pond 1 was observed to hold water in March and September 2014, previous survey demonstrated that this field pond often dries out by mid-June. Re-assessment of the Habitat Suitability Index (HSI) of pond 1 in 2014 indicated that it provides *'Average'* (Score = 0.67) habitat for GCN (Table 5).

3.33 In addition to those within the application site, there were a total of five ponds located within 500m of the site boundary; ponds 1 – 4 & 6 (Appendix E). Re-assessment of the HSI for pond 3 / 'Millwood Mere' indicated that it continued to provided *'average'* (score = 0.68) breeding habitat for GCN. Aquatic surveys had also confirmed the absence of this GCN from ponds 3 / 'Millwood Mere' (Appendix E).

3.34 The busy road corridors of Station Road and the A518 are considered to represent a permanent barrier to the dispersal of GCNs. It is considered reasonably unlikely that any GCN that may be present in the ponds that are separated from the application site by either of these roads, i.e. ponds 2, 4 & 6, would make regular use of any suitable habitat within the site boundary. Therefore, these ponds were not considered further.

Table 5: Habitat Suitability Index Assessment of Pond 1 & Pond 3

Pond Ref.	Location[1]	Area (m^2)	Years[2]	Water[3*]	% Shade	Fowl[4]	Fish[5]	Pond[6]	Terr[7]	% Macro*	HSI
1 (value)	A	200	S	M	0%	Abs	Abs	2	Mod	5%	**0.67 'Average'**
1 (score)	1	0.4	0.5	0.67	1	1	1	0.55	0.67	0.35	
3 (value)	A	3,500	N	P	50%	Mn	Abs	2	Mod	10%	**0.68 'Average'**
3 (score)	1	0.67	0.9	0.33	1	0.67	1	0.55	0.67	0.4	

[1] Geographical location as categorised by Oldham *et al* 2000

[2] Pond drying: N, Never; R, Rarely; S, sometimes; Ann, annually

[3] Water quality: G, Good; M, Moderate; P, Poor; B, Bad

[4] Fowl: Abs, Absent; Mn, Minor; Mod, Moderate; Maj, Major

[5] Fish: Abs, Absent; Pos, Possible; Mn, Minor; Maj, Major

[6] Ponds within 1km

[7] Terrestrial Habitat; G, Good; Mod, Moderate; P, Poor; N, None

Optimal field values have been selected based on survey in 2014 to establish the maximum likelihood of presence

Reptiles

3.35 As a result of intensive grazing by horses the habitats within the site boundary were open and exposed, with very few opportunities for reptiles to shelter. There were also very few suitable features, such as animal holes or rubble piles, that could be used by reptiles to as places of shelter. The site was surrounded by unsuitable reptile habitat, such as roads and arable fields, and this limited connectivity to any areas of suitable reptile habitat in the surrounding. Therefore, overall the site was considered to provide poor habitat for reptiles.

Invertebrates

3.36 The shortly grazed pasture and arable fields were considered to be of very limited value for invertebrates. The field pond (pond 1) and its associated wetland flora were also considered likely to be of value for species associated with marshy ground or pools. Southern hawker *Aeshna cyanea*, pond skater *Gerris lacustris* and diving beetles were recorded in association with pond 1. However, overall grazing and intensive management had resulted in the formation of hard edges between different habitat types, which limited diversity of vegetation structure around the site and the variety of niches available for invertebrates.

3.37 Suitable habitat for invertebrate species was provided by deadwood habitat associated with hedgerows. In particular deadwood associated with the Veteran tree (T5) and mature ash tree T2 were likely to be of value for a number of species, particularly saproxylic invertebrates. Sampling of the invertebrate fauna from the Veteran tree T5 in November 2012 identified representatives of the following groups: woodlice, spiders, bugs, beetles, slugs and snails. Notable species present included a Nationally Scarce[3] beetle *Cryptophagus labilis* and a Nationally Scarce (Notable b)[4] rove beetle *Quedius scitus*, beetles *Megatoma undata* and *Mycetophagus piceus*, and the woodworms *Dorcatoma flavicornis* and *Anitys rubens*. The Index of Ecological Connectivity (IEC) approach was also applied to the Veteran tree T5. This assigns scores to species according to the extent to which they have been consistently recorded from areas with a continuity of dead-wood habitats from ancient times to the present, particularly wood-pastures. Five IEC scoring species recorded on-site, including *Anitys rubens*, which is a Grade 1 (under the Index) Indicator of Ecological Continuity, were present in tree T5. The ash tree (T2) was found to support two Key Species (Nationally Scarce b) but no Indicators of Ecological Continuity.

Other Species

3.38 No evidence or potentially suitable habitats for any other protected, rare or notable species were recorded.

[3] Species which do not fall within Red Data Book (RDB) categories, but which are uncommon & thought to occur 16-100 10km^2 grid squares

[4] Species which do not fall within RDB categories, but which are uncommon and thought to occur in between 31-100 10km^2 grid squares or, for less recorded groups, between 8-20 vice counties

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 The proposals are for the construction of a residential development comprising 120 dwellings, together with access roads and associated development

4.2 The following provides an evaluation of the existing habitats within and adjacent to the survey area, and provides recommendations for mitigation. The evaluation has been made in the context of relevant statutory and policy protection, including the National Planning Policy Framework (NPPF), the Telford and Wrekin Core Strategy and the saved policies of the Wrekin Local Plan.

Designated Nature Conservation Sites

Statutory Nature Conservation Sites

4.3 There will be no direct loss of habitat from statutory sites of nature conservation interest (Ramsar, NNR or SSSI) as a result of the proposed development. The wetland habitats of Aqualate Mere NNR / SSSI, which form part of the Midlands Meres & Mosses Phase-2 Ramsar, are known to be sensitive to alterations in air quality, hydrology and water quality.

4.4 The potential adverse effects of these factors upon the Midlands Meres & Mosses Phase-2 Ramsar were considered within a previous Habitat Regulations Assessment (Appendix D). This assessment is considered sufficient to address the potential effects upon the interest features of the Aqualate Mere NNR / SSSI as a result of the proposed development. The potential hydrological and pollution impacts to off-site habitats, including statutory sites, will be managed through the adoption of best practice (Paragraph 4.18).

4.5 In some situations an increase in human presence can have detrimental effects upon sensitive habitats through the compaction of soil, altered hydrology and damage or disturbance of vegetation. Likely sources of such disturbance impacts to the Newport Canal SSSI may potentially be associated with recreational activity, such as cycling, walking or dog walking. The magnitude of any potential impact from increased visitor numbers will be significantly reduced by the distance separating the Newport Canal SSSI from the proposed development and the fact that there are no direct connections between the SSSI and the development. Therefore no significant impacts are expected to this statutory site as a result of increased recreational pressure from the proposed development.

Non-statutory Nature Conservation Sites

4.6 Non-statutory designated sites do not receive statutory protection. They do however receive policy protection (as “Local Sites”), as reflected in the National Policy Planning Framework (NPPF). NPPF suggests that Local Sites can have a fundamental role to play in meeting overall national biodiversity targets and that appropriate weight should be attached to designated sites when making planning decisions. In relation to CWSs Policy OL2 of the Wrekin Local Plan states that ‘*The loss of any habitat must be fully compensated for by the creation or enhancement of other habitats of equal or greater value in the local area’.*

4.7 There will be no direct loss of habitat from any designated non-statutory sites of nature conservation interest (CWSs) as a result of the proposed development.

4.8 The non-statutorily designated Quarry at Barrack Lane CWS is located ~1km south of the application site. Barrack Lane CWS is a publically accessible area supporting notable grassland and wetland habitats. As described above, increases in visitor pressure to sensitive habitats may result in a number of potential impacts, including increased trampling and disturbance to flora and fauna. These effects can reduce overall floristic diversity, which can lead to a similar reduction in the faunal species that depend upon them. It is likely that the potential effects of any increase in recreational pressure will be mitigated through the existing clearly defined footpaths within the CWS. Furthermore, the CWS is only indirectly connected to the application site and there are a number of alternative footpaths within the wider landscape leading away from the CWS. Therefore, given these factors and the size of the proposed site, it is considered that there is unlikely to be any significant change to the designated features of the CWS as a result of the proposals.

Habitat

4.9 The degree to which habitats receive consideration within the planning system relies on a number of mechanisms, including:

- Inclusion within specific policy, e.g. veteran trees, ancient woodland and linear habitats in NPPF, or non-statutory site designation,
- Identification as a habitat of principal importance for biodiversity under the NERC Act 2006 and identification as a Priority Habitat within the Shropshire BAP.

4.10 Under the NPPF development should seek to contribute a net gain in biodiversity where possible.

Woodland, Trees & Hedgerows

4.11 Due to its limited extent, low diversity and lack of appropriate management the areas of woodland and scrub are unlikely to meet criteria for selection as a CWS, Habitat of Principle Importance or BAP habitat. However, the woodland and scrub does contribute to the diversity of habitats in the area and is therefore considered to be of low (local) value.

4.12 The biodiversity value of Veteran trees is recognised by the NPPF and is listed as a Priority Habitat of the Shropshire Biodiversity Action Plan. Therefore, tree T5 is considered to be of moderate (district) value. Due to either their relatively young age or lack of significant associated features the remaining mature trees, including T2, were considered to be of lower (local) value. The Veteran tree T5 will be retained and protected within the proposed site layout.

4.13 The hedgerows provide some limited connectivity across the site and to the wider countryside, and this connectivity is likely to be of value to a number of faunal species, including bats and birds. All hedgerows within the site consist of native species and therefore meet the selection criteria as a Habitat of Principle Importance under Section 41 of the NERC Act 2006. The hedgerow H2, which is species-rich and has reasonably good structure (HEGS score of 2), is considered to be of moderate (local) value. As a result of their comparatively low diversity or poor structure the remaining hedgerows are considered to be of low (site) value.

4.14 It is recommended that the woodland, trees and hedgerows are retained where possible and afforded suitable protection during construction activities. Where possible the layout should avoid introducing breaks into the ecologically valuable hedgerows. It should be noted that the layout for site access, which comes in close proximity to the trees and hedgerows, is covered by an existing planning permission (TWC / 2011/ 0871). Therefore potential impacts to these features has been established and accepted. Where this cannot be avoided any hedgerow breaks or losses should be kept to a minimum distance. The protection measures should include consideration of *BS5837:2012 Trees in Relation to Design, Demolition & - Construction - Recommendations*(relevant to trees and hedgerows with trees present) (see separate arboriculture report for details).

Grassland

4.15 The grassland within the site, which is grazed and semi-improved in character, will be lost to development. As a result of its semi-improved character and low diversity it does not qualify as a Habitat of Principle Importance or Shropshire BAP habitat. Assessment of fungi species-richness according to the criteria of Rald (1985) as adapted by Versterhalt et al (1999), indicates that the grassland is not of an unimproved or species-rich nature, and has little importance as wax-cap grassland. The occurrence of floral species in the grassland does meet the Shropshire CWS selection criteria for neutral meadows (Appendix B). Therefore, on this basis the grassland is considered to be of moderate (county) ecological interest.

4.16 It is recommended that the losses of the grassland habitat are off-set through the translocation and / or new creation of grassland as part of the scheme. This mitigation should be implemented in accordance with an agreed strategy, which should include prescriptions to maximise the floral diversity of the grassland over the long-term.

Pond

4.17 Although it was not listed in Shropshire's rare plant register (Lockton and Whild 2005), water-purslane had not previously been recorded within this area of the county (www.nbn.org.uk). Despite this water purslane is also known to occur in nearby ponds. On this basis although the field pond does support a good range of marginal and aquatic plants, these were not considered to be exceptional. The pond is therefore unlikely to qualify as a CWS or a Habitat of Principle Importance and at most is considered to be of district importance.

4.18 It is recommended that all operations should aim to reduce the risk of accidental potential impacts by adhering to best practice. This includes following the recommendations of the Environment Agency's *Pollution Prevention Guidelines 5: Works or Maintenance in or Near Water* and *Pollution Prevention Guideline 6: Working at Construction and Demolition Sites*. It is further recommended that the design of the development should also be sensitive to the potential for any impacts upon wetland features, such as increased water run-off, pollution and erosion. These measures will also ensure that pollutants are not released to existing systems, including Aqualate Mere NNR / SSSI and Millwood Mere.

4.19 Pond 1 is to be retained and reconfigured as part of the proposals. It is recommended that the detailed design of is carried out according to a method statement that should be agreed with the relevant nature conservation consultees. The method statement would include details of the ponds reconfigured layout and the sensitive working methods, including appropriate timing of work. The establishment of management focused on retaining the ponds interest features will ensure that the status of the pond is maintained over the long-term.

Fauna

4.20 Principal pieces of legislation protecting wild species are Part 1 of the Wildlife and Countryside Act 1981(as amended) (WCA) and the Conservation of Habitats and Species Regulations 2010. Some species, for example badgers, also have their own protective legislation (Protection of Badgers Act 1992). The impact that this legislation has on the Planning system is outlined in ODPM 06/2005 *Government Circular: Biodiversity and Geological Conservation – Statutory obligations and their Impact within the Planning System*.

4.21 This guidance states that as the presence of protected species is a material consideration in any planning decision, it is essential that the presence or otherwise of protected species, and the extent to which they are affected by proposals is established prior to planning permission being granted. Furthermore, where protected species are present and proposals may result in harm to the species or its habitat, steps should be taken to ensure the long-term protection of the species, such as through attaching appropriate planning conditions for example.

4.22 In addition to protected species, there are those that are otherwise of conservation merit, such as those listed as species of principal importance for the purpose of conserving biodiversity under the NERC Act 2006. These are recognised in the NPPF which advises that when determining planning applications, LPA's should aim to conserve and enhance biodiversity by applying a set of principles including:

- *If significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused*
- *Development proposals where the primary objective is to conserve or enhance biodiversity should be encouraged*

4.23 The implications that various identified species or those that are thought reasonably likely to occur may have for developmental design and programming are outlined below.

Badgers

4.24 Badgers are a widespread species that are protected from harm and cruelty by the Protection of Badgers Act 1992. Although no active setts were recorded within the application site, badgers are a wide-ranging species and may make occasional use of the site for foraging.

4.25 As badgers are present and are likely to make use of the sites wider habitats, precautionary measures would also be required prior to and during the construction phase of works to ensure that badgers are not harmed (thus maintaining legal compliance).

- The site and an area of 30m around the site will need to be reassessed for the possible presence of active badger setts immediately prior to commencement of construction
- During construction any pipes greater than 250mm in diameter will need to be capped if they are left open overnight, thereby preventing badgers from becoming trapped
- Any pits or trenches will similarly need to be covered overnight, or left with a suitable means of escape, e.g. wooden plank

4.26 In the unlikely event that active badger setts are present within the site and have to be temporarily or permanently closed, then this will be carried out according to a Natural England Protected Species Licence.

Bats

4.27 Bats and their habitats are protected under the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2010 (as amended). In summary this makes it an offence to damage destroy or obstruct any place used by bats for breeding and shelter, disturb a bat, or kill, injure or take a bat. Seven bat species, including brown long-eared bats and soprano pipistrelle, are listed as Species of Principal Importance under the provisions of the NERC Act 2006.

Trees

4.28 Aerial inspection and assessment has not identified any evidence of roosting bats in association with the trees T2 and T5. T5 is to be retained and protected as part of the proposals and therefore no further survey or mitigation is considered necessary for this tree. Although the risk of bats being present in these trees is considered to be low, precautionary mitigation is recommended to ensure this risk is further minimised during any operations directly affecting them, e.g. pruning and felling. In the event that it is necessary to carry out works to trees with bat roost potential then this should be completed using the following best working practices to ensure that any potential risk to bats is minimised during the works:

- A precautionary nocturnal (dusk emergence or dawn return) or aerial assessment survey should be completed immediately prior to the felling / pruning of the trees to confirm the absence of bats. Nocturnal surveys may only be completed during suitable weather conditions in the period mid-March to mid-October, i.e. when bats active
- Providing no bats are discovered, felling will commence
- Felling will be undertaken in sections beginning with those parts of the tree that do not contain any such features to support bats. All sections will be lowered to the ground using ropes as to avoid any damage and disturbance to surrounding trees
- To ensure that no bats are present, the piece of timber will be left on the ground for a minimum of 24 hours prior to disposal to allow any bats to escape
- If at any time during the above processes, should a bat be found all works will cease and the licensed bat worker will advise on what mitigation / possible licensing would be required to enable works to continue.

4.29 In the event that bats are confirmed to be present then works will be halted until an appropriate Natural England European Protected Species derogation licence is put in place. This licence would detail the appropriate timing and safe working practices necessary to ensure that the risk to bats is minimised and that suitable alternative roosting sites are provided. These measures would be sufficient to ensure that the Favourable Conservation Status (FCS) of local bat populations is not altered.

Activity

4.30 Activity surveys of the site and the wider area were carried out in 2011 and 2013 as part of planning applications TWC/2011/0871 & TWC/2011/0916. This confirmed that small numbers of common pipistrelle and noctule *Nyctalus noctulus* make use of the habitats adjacent to the site, with this activity being predominantly limited to the boundaries of field compartments. The boundary features within the site provide habitat that are likely to be used by foraging and commuting bats. It is recommended that the continuity of the boundary features is maintained as part of any development proposals. High-intensity lighting can have a negative impact upon the use of habitats by bats and other faunal species. Therefore, the lighting of the retained tree and landscaping should also be designed to minimise impact to sensitive bat species. It is recommended that this is implemented through a lighting strategy has been designed with regard to guidance, such as the Bat Conservation Trust (May 2011) *Statement on the impact and design of artificial light on bats* and the Institution of Lighting Professionals Guidance Notes. Therefore, where appropriate the lighting scheme will include the following:

- The avoidance of direct lighting of existing trees, scrub, woodland, open water or proposed areas of habitat creation / landscape planting
- Where appropriate the road and flood lighting should use low pressure sodium or high pressure sodium instead of mercury or metal halide lamps
- Unnecessary light spill will be controlled through a combination of directional lighting, low lighting columns, hooded / shielded luminaires or strategic planting
- Lighting levels would be as low as guidelines permit and only used where required for public safety

4.31 By avoiding any significant alterations in the illumination of habitats the proposed development will ensure that risk of any adverse effect to the local bat population is negligible.

Birds

4.32 The habitats of the application site are likely to provide nesting and foraging habitat for bird species that have been recorded within the local area. All birds are protected while nesting by the WCA 1981 (as amended). Specially protected Schedule-1 bird species are afforded additional protection from disturbance while nesting. Mitigation is therefore recommended to ensure that any nesting birds are adequately protected during site clearance.

4.33 It is recommended that site clearance works including the removal of any woody vegetation and ground flora during development is conducted outside the bird breeding season (March – August, inclusive). If clearance is planned for the bird breeding season then it will be preceded by a nesting bird survey conducted by an experienced ecologist. This will involve observing any vegetation to identify birds exhibiting nesting behaviour and/or searching for active nests. Should active nests be identified then an exclusion zone would need to be retained until the chicks had fledged as determined by the supervising ecologist.

Great Crested Newts

4.34 Assessment in 2014 has demonstrated that pond 1 provides average habitat for GCN. However, previous survey has confirmed that the pond dries regularly, which is likely to significantly limit its ability to support a breeding population of GCN. On the basis of lack of local records, the habitat assessment and the survey results it is considered reasonably likely that GCNs are absent from the site. Therefore, this species is not considered to represent a statutory constraint to the development of the site.

Common Toad

4.35 Common toad is a wide-ranging species that are likely to make use of suitable habitat within the surrounding area, including the suitable habitat within the application site. Site clearance will result in the removal of hedgerow and scrub habitat, and these are features that may be used for hibernation by the local population of common toad. The removal of this habitat during periods of hibernation can lead to direct mortality or disturbance through the depletion of energy reserves, which may in-turn result in increased mortality. Toads are protected from unlicensed sale by the Wildlife and Countryside Act 1981 (as amended) and are recognised as a Species of Principle Importance under Section 41 of the NERC Act 2006.

4.36 It is recommended that the following measures are put in place to reduce the risk of harm to toads during clearance of suitable hibernation habitat:

- Removal of suitable hibernation habitat should be timed to avoid the hibernation period of common toad, i.e. between November to late-January. The hibernation period can be said to be over from late-January when there are no ground-frosts and the minimum ambient temperature exceeds 5^{o}C for a period of at least 3 days.
- This would not preclude the safe removal of the aerial parts of woody vegetation during the hibernation period, e.g. coppicing hedgerows or directional felling of trees with the stumps carefully retained in situ.
- The removal of hibernation habitat should be carried out under the supervision of a suitably qualified ecologist
- Any common toads recovered during clearance will be carefully removed by hand to a ‘soft release area’, i.e. a log pile or similar, within an area of retained habitat

4.37 These measures are considered to be sufficient to ensure that the effect of disturbance to common toad during construction is negligible.

4.38 It is not considered practical to prevent common toads accessing the proposed development; however, the potential impacts that may result from individuals becoming trapped in drains may be significantly reduced through sensitive design. It is recommended that this should be achieved through the incorporation of dropped kerbs and gulley pots with aligned ACO wildlife kerbing or similar. These features should be located along the boundary between the hardstanding and any areas of suitable habitat, such as the retained woodland, hedgerows and / or newly created green infrastructure. The strategic use of these features will prevent toads becoming trapped along this boundary, while allowing access to be retained to Millwood Mere (Target Note 2) and its associated terrestrial habitat. These measures will significantly reduce the levels of toad mortality throughout the lifetime of the proposed development.

Reptiles

4.39 All common reptile species are protected from harm and sale by the Wildlife & Countryside Act 1981 (as amended). Common reptile species are also listed as Species of Principal Importance under Section 41 of the NERC Act 2006.

4.40 Based on the low suitability of available habitats it is considered reasonably likely that reptiles are absent from the site and therefore no further survey or mitigation is considered necessary.

Invertebrates

4.41 The presence of the invertebrate species recorded in association with tree T2 and T5 is not sufficient to meet Shropshire CWS invertebrate selection criteria. On the basis of the assemblage that it supports the Veteran oak tree T5 is considered to be of at least district value for invertebrates. The ash tree T2 supports a lower diversity of saproxylic invertebrates and is therefore considered to be of lower (local) ecological interest for invertebrates. The tree T5 will be retained and protected as part of the proposals and therefore no further survey or mitigation is considered necessary.

4.42 It is recommended that where possible any deadwood removed from mature trees should be retained and protected within the sites green infrastructure. This could be a sheltered area of retained woodland or other undisturbed part of the site.

4.43 The effect upon the local invertebrate population as a result of the loss of grassland and scrub habitats is not considered significant.

Compensation & Enhancement

4.44 The National Planning Policy Framework (NPPF) places emphasis on sustainable development, and minimising impacts on biodiversity whilst providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. Opportunities to incorporate biodiversity in and around developments should therefore be encouraged. Therefore, the following section provides broad recommendations for ecological enhancement that will help achieve a net biodiversity gain from the proposed development. Wherever possible, any compensation and enhancement measures will focus on Priority Habitats and Species and will be tailored to maximise the contribution that the development makes to local conservation objectives.

Native Planting

4.45 It is recommended that where possible newly created wetland and grassland habitats form part of the application sites green infrastructure. The strategic layout of planting should be designed to ensure that any retained habitats are both enhanced and protected. The landscape planting scheme should use only native plant species or those species that are known to benefit native fauna. Native habitats created within the sites green infrastructure may include:

- Neutral grasslands communities similar to those found within the wider Natural Area
- Wetland features similar to appropriate habitats of the Newport Canal NNR / SSSI
- Native species-rich hedgerow planting

4.46 More formal areas should use a flowering lawn mix as an alternative to a standard rye grass mix, and any garden planting proposed at the outset should also use native species of value to wildlife. Suitable small tree species for inclusion in garden planting schemes include field maple *Acer campestre*, silver birch *Betula pendula*, rowan *Sorbus accuparia*, crab apple *Malus sylvestris* and holly *Ilex aquifolium*. Overall the planting scheme should aim to create a diverse habitat structure utilising climbers, trees, shrubs and ground cover for greater biodiversity value. Species bearing nectar, berries, fruit and nuts are favourable as they enhance the foraging opportunities of local fauna, including birds and invertebrates.

Green Corridors

4.47 By forming an integrated and functional part of local ecology the establishment of the sites habitats would contribute to green infrastructure networks identified as part of the emerging maps and guidance for Shropshire's Environmental Networks. The retention of boundary features, in combination with a scheme of native planting, will ensure that the proposals will help maintain and enhance connectivity across the site. These measures will therefore preserve and enhance important linkages to areas of adjacent habitat, and ensure the site access to the wider countryside is maintained for local faunal populations, including bats.

Sustainable Drainage System

4.48 The sites layout includes a scheme of sustainable drainage system (SuDS). Features of the SuDS design that may enhance the sites value to wildlife would include the scheme of native planting of the swales and balancing ponds. As recommended above a design that reflects the habitats of Newport Canal NNR / SSSI would be of particular benefit to local fauna. Once established the creation of these features would provide new and additional shelter and foraging opportunities for notable species present, including common toad. These measures may also bring additional benefits by aiding the interception and attenuation of run-off and pollution and make contribution to Pond Conservations 'Million Ponds Project'[5].

[5] www.pondconservation.org.uk/millionponds

Fauna

4.49 Habitat creation will also bring benefits to a number of notable faunal species, including bats, birds, amphibians and invertebrates. A network of interconnected habitats, including retained woodland and newly created hedgerows, that have an improved structure will provide opportunities for fauna to disperse across the site and to the wider countryside. Once established, these are expected to provide an improved foraging resource for bats and new nesting opportunities for a range of common bird species.

4.50 The inclusion of a bat box scheme around the development site will provide new potential roosting sites. Bat boxes will be considered for inclusion within the design of proposed buildings or sited on existing features, such as mature trees. Boxes will be located in sheltered spots and at placed at a height of at least 3 metres from the ground. Boxes will also be arranged around the site so that a number of different aspects are covered. Suitable boxes for buildings include the Schwegler 1FR bat tube and N27 bat brick, and those suitable for trees are the Schwegler 2F and 2FN boxes. This scheme would provide significant enhancement for the bats species that are known to use the site and would contribute to the biodiversity targets of national and local BAPs.

4.51 Breeding opportunities for the local bird assemblage will be enhanced by inclusion of bird nest boxes or nest bricks around the site. The use of a number of different entrance holes, e.g. 26mm, 32mm and open-fronted will enable the scheme to encompass the nesting requirements for a range of species. Boxes should be placed on existing features within sheltered areas that are free of regular disturbance. Nest bricks may be incorporated into the fabric of proposed buildings in similarly sheltered locations.

Management Plan

4.52 Implementation of a nature conservation management plan for both the retained and newly created habitats would ensure that the optimal benefits for biodiversity are achieved. This conservation plan should span a minimum of 5 years and include details for appropriate management of semi-natural habitats, e.g. hedgerows, retained grassland and ponds. Nature conservation plans should be designed by an appropriately qualified ecologist.

5.0 SUMMARY

5.1 The site is dominated by a horse paddock, with a hedgerow, Veteran tree and pond.

5.2 As a result of the implementation of best practice the development of the site is not expected to have an adverse effect upon the interest features of Aqualate Mere SSSI / NNR or Newport Canal SSSI.

5.3 It is considered that the magnitude of the intervening distance between the development and non-statutory sites of nature conservation interest is sufficient to avoid any direct or indirect impacts.

5.4 Best practice guidance should be followed to protect both the retained and adjacent habitats during construction. This should include the retention and protection of trees, including the Veteran trees T5, and the protection of wetland habitats

5.5 It is recommended that the loss of grassland within the site should be off-set through the adoption of an agreed mitigation strategy

5.6 It is recommended that the re-configuration of the ephemeral field pond (pond 1) is completed according to an agreed method statement to ensure that its interest features are maintained over the long-term

5.7 There was no evidence of badgers within the site. Measures are recommended to ensure that badgers are adequately protected from harm and disturbance during construction.

5.8 Assessment and aerial inspection indicate that trees T2 and T5 are reasonably unlikely to be used by roosting bats. Tree T5 will be retained within the site layout and therefore no further survey or mitigation is considered necessary. Precautionary mitigation is recommended to avoid any risk to bats during works to trees with bat potential

5.9 A scheme of sensitive lighting is recommended to minimise any disturbance to bat foraging and commuting habitat.

5.10 The removal of all vegetation from the site should avoid the bird breeding season (March – Auugust, inclusive). If this is not possible then vegetation removal should be preceded by precautionary checks for nesting birds (further details in report).

5.11 Assessment and survey of ponds within the site and surrounding area indicate that it is reasonably likely that great crested newts are absent from the site. Therefore, this species does not represent a statutory constraint to development.

5.12 Precautionary measures are recommended to ensure that toads are adequately protected during site clearance and within the completed development (further detail within the report)

5.13 The removal of all vegetation from the site should avoid the bird breeding season (March – August, inclusive). If this is not possible then vegetation removal should be preceded by precautionary checks for nesting birds (further details in report).

5.14 Due to the low suitability of available habitat it is considered reasonably likely that reptiles are absent from the site and therefore no further survey or mitigation is considered necessary.

5.15 Previous survey has demonstrated that the trees T2 and T5 support an assemblage of saproxylic invertebrates. Tree T5 is to be retained and protected within the layout. It is recommended that any deadwood lost as a result of works to tree T2 should be retained within the sites green infrastructure

5.16 The careful design and management of green infrastructure, which will include the habitat creation of semi-natural grassland and wetland habitats, would enable the developed site to achieve gains for biodiversity.

Aqualate Mere
Ramsar / SSSI / NNR

Newport Canal SSSI

NEWPORT

Quarry at Barracks Lane CWS

- Redline
- Ramsar
- SSSI
- County Wildlife Site (CWS)

Fauna

- Brown Long-eared Bat
- Common Pipistrelle
- Leisler's Bat / Lesser Noctule Bat
- Grass Snake
- Western Hedgehog
- Western Polecat

St Modwen Developments Ltd

Land at Station Road,
Newport

SITES & SPECIES PLAN
1:20,000 @ A3 MWH 08.12.14

Figure 1

FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH t: 01509 672772 f: 01509 674565 e: mail@fpcr.co.uk w: www.fpcr.co.uk
masterplanning environmental assessment landscape design urban design ecology architecture arboriculture

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- Application Boundary
- Woodland
- T1 Scattered Broad-leaved Trees
- Dense scrub
- SI Semi-improve Grassland
- SI Poor Semi-improved Grassland
- Pond
- Arable
- H1 Hedgerow
- Dry Ditch
- Fence
- Hardstanding

St Modwen Developments Ltd

Land at Station Road, Newport

PHASE-1 HABITAT PLAN

1:1,400 @ A3 MWH 15.01.15

Figure 2

FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH t: 01509 672772 f: 01509 674565 e: mail@fpcr.co.uk w: www.fpcr.co.uk
masterplanning environmental assessment landscape design urban design ecology architecture arboriculture

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APPENDIX A: Photographs

Photo 1: Grassland & Pond 1

Photo 2: Tree T5 & Scrub

Photo 3: Station Road on East Site Boundary

Photo 4: Arable Field & Hedgerow H10

APPENDIX B: Botanical Species Lists

TREES AND SHRUBS

Common Name	Scientific Name
Ash	*Fraxinus excelsior*
Blackthorn	*Prunus spinosa*
Bramble	*Rubus fruticosus agg.*
Cotoneaster	*Cotoneaster sp.*
Dog Rose	*Rosa canina agg.*
Elder	*Sambucus nigra*
Elm	*Ulmus* sp.
Goat Willow	*Salix caprea*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Holly	*Ilex aquifolium*
Pedunculate Oak	*Quercus robur*
Silver Birch	*Betula pendula*
Snowberry	*Symphoricarpos albus*
Sycamore	*Acer pseudoplatanus*

GRASSES & HERBS

Common Name	Scientific Name
Amphibious bistort	*Persicaria amphibia*
Autumnal Hawkbit	*Leontodon autumnalis*
Black Medick	*Medicago lupulina*
Broad-leaved Dock	*Rumex obtusifolius*
Broad-leaved Willowherb	*Epilobium montanum*
Bugle	*Ajuga reptans*
Cat's Ear	*Hypochaeris radicata*
Cleavers	*Galium aparine*
Cock's-foot	*Dactylis glomerata*
Common Bent	*Agrostis capillaris*
Common Bird's-foot Trefoil	*Lotus corniculatus*
Common Chickweed	*Stellaria media*
Common Knapweed	*Centaurea nigra*
Common Nettle	*Urtica dioica*
Common Ragwort	*Senecio jacobaea*
Common Sorrel	*Rumex acetosa*
Cow Parsley	*Anthriscus sylvestris*
Creeping Bent	*Agrostis stolonifera*
Creeping Buttercup	*Ranunculus repens*
Creeping Thistle	*Cirsium arvense*
Crested Dog's-tail	*Cynosurus cristatus*
Daffodil	*Narcissus pseudonarcissus*
Dandelion	*Taraxacum officinale* agg.
Duckweed	*Lemna* sp.
False Oat-grass	*Arrhenatherum elatius*
Field Woodrush	*Luzula campestris*
Floating Sweet-grass	*Glyceria fluitans*
Forget-me-not	*Myosotis* sp.
Great Willowherb	*Epilobium hirsutum*
Greater Plantain	*Plantago major*
Ground-elder	*Aegopodium podagraria*
Ground-ivy	*Glechoma hederacea*

Hairy Sedge	*Carex hirta*
Hard Rush	*Juncus inflexus*
Hedge Bindweed	*Calystegia sepium*
Hedge Woundwort	*Stachys sylvatica*
Herb-robert	*Geranium robertianum*
Hoary Ragwort	*Senecio erucifolius*
Hogweed	*Heracleum sphondylium*
Ivy	*Hedera helix*
Jointed Rush	*Juncus articulatus*
Marsh Cudweed	*Gnaphalium uliginosum*
Meadow Buttercup	*Ranunculus acris*
Mugwort	*Artemisia vulgaris*
Perennial Rye-grass	*Loilum perenne*
Pignut	*Conopodium majus*
Prickly Lettuce	*Lactuca serriola*
Primrose	*Primula vulgaris*
Red Campion	*Silene dioica*
Red Clover	*Trifolium pratense*
Red Fescue	*Festuca rubra* agg.
Ribwort Plantain	*Plantago lanceolata*
Rosebay Willowherb	*Chamerion angustifolium*
Sedge	*Carex* sp.
Selfheal	*Prunella vulgaris*
Smooth Meadow-grass	*Poa pratensis sens.lat.*
Spanish Bluebell	*Hyacinthoides hispanica*
Spear Thistle	*Cirsium vulgare*
Timothy	*Phleum pratense sens.lat.*
Toad Rush	*Juncus bufonius* agg.
Tufted Hair-grass	*Deschampsia caespitosa*
Upright Hedge-parsley	*Torilis japonica*
Water crowfoot	*Ranunculus aquatic* sp. agg.
Water Purslane	*Lythrum portula*
Water-starwort	*Callitriche* sp.
White Clover	*Trifolium repens*
White Dead-nettle	*Lamium album*
Wood Dock	*Rumex sanguineus*
Yarrow	*Achillea millefolium*
Yellow Iris	*Iris pseudacorus*
Yorkshire-fog	*Holcus lanatus*

Species recorded in March and September 2014 from horse paddock grassland.

Common Name*	Scientific Name
Amphibious bistort	*Persicaria amphibia*
Autumnal Hawkbit (O)	***Leontodon autumnalis***
Black Medick (R)	***Medicago lupulina***
Broad-leaved Dock	*Rumex obtusifolius*
Broad-leaved Willowherb	*Epilobium montanum*
Cat's Ear (R)	***Hypochaeris radicata***
Cock's-foot	*Dactylis glomerata*
Common Bent (O)	***Agrostis capillaris***
Common Bird's-foot Trefoil (O)	***Lotus corniculatus***
Common Chickweed	*Stellaria media*
Common Knapweed (A)	***Centaurea nigra***
Common Nettle	*Urtica dioica*
Common Ragwort	*Senecio jacobaea*
Common Sorrel	*Rumex acetosa*
Creeping Buttercup	*Ranunculus repens*
Creeping Thistle	*Cirsium arvense*
Crested Dog's-tail (O)	***Cynosurus cristatus***
Dandelion	*Taraxacum officinale* agg.
False Oat-grass	*Arrhenatherum elatius*
Field Woodrush	*Luzula campestris*
Greater Plantain	*Plantago major*
Hairy Sedge	*Carex hirta*
Hoary Ragwort	*Senecio erucifolius*
Jointed Rush	*Juncus articulatus*
Knotgrass	*Polygonum* sp.
Mugwort	*Artemisia vulgaris*
Perennial Rye-grass	*Loilum perenne*
Pignut (O)	***Conopodium majus***
Prickly Lettuce	*Lactuca serriola*
Red Clover	*Trifolium pratense*
Ribwort Plantain	*Plantago lanceolata*
Sedge	*Carex* sp.
Smooth Meadow-grass	*Poa pratensis sens.lat.*
White Clover	*Trifolium repens*
Yarrow (F)	***Achillea millefolium***
Yorkshire-fog	*Holcus lanatus*

Bold text indicates species listed in Appendix 2.2 Neutral Grasslands and Lowland Meadows of Shropshire Wildlife Trust (April 2010) *Revised Guidelines for the Selection of Wildlife Sites in Shropshire*

***** DAFOR shown for indicator species; D, Dominant, A, Abundant, F, Frequent, O, occasional, R, Rare

Appendix C: Hedgerow Survey Results

Table 6: Hedgerow Survey Results

Hedgerow Number	Species[1]	Length	Average Species per Central 30m	Species Rich Hedgerow[2]	Associated Features[3]	Grade under HEGS	Important[4]
H10	Ca, Cm, Ia, Pa, Ps, Qr, Rc, Scin, Sn	190m	5	Yes	Public byway, <10% Gaps	-2	No
H11	Ca, Cm, Ia, Qr	90m	4	No	<10% Gaps	3	No
H12	Cm, Sn, (Rf)	70m	2	No	<10% Gaps	-3	No
H13	Cm, Ps, Ul	75m	3	No	<10% Gaps	4	No

[1] *Corylus avellana*; Cm, *Crataegus monogyna*; Ia, *Ilex aquifolium*; Pa, *Prunus avium*; Ps, *Prunus spinosa*; Qr, *Quercus robur*; Rc, *Rosa canina*; Rf, *Rubus fruticosus* agg.; Scin, *Salix cinerea*; Sn, *Sambucus nigra;* Ul, *Ulmus* sp.;
[2] Average species exceeds 5 per central 30m
[3] Bank or wall; Gaps; Ditch along half its length; Connections; >1 standard tree / 50m; Parallel hedge within 15m; Public byway
[4] Hedgerow qualifies as Important according to the wildlife and landscape criteria of the Hedgerow Regulations 1997

APPENDIX D: Habitat Regulations Assessment

Habitat Regulations Assessment for proposed development on land off Station Road, Newport, Shropshire

Cotswold Wildlife Surveys

September 2011

CONTENTS

SUMMARY

On land off Station Road in Newport, Shropshire, a Habitats Regulations Assessment (HRA) has been carried out to assess the potential impacts of a proposed mixed use development on the Midlands Meres and Mosses Phase 2 Ramsar site, the closest edge of which lies approximately 1.86 km to the northeast of the application site.

The Habitats Directive protects habitats and non-avian species of European importance and applies to Special Areas of Conservation (SACs) and the European Directive (79/409/EEC) on the Conservation of Wild Birds (Birds Directive), protects bird species of European importance and applies to Special Protection Areas (SPAs).

These are known as the network of Natura 2000 Sites or "European Sites". The UK Government Guidance on HRA from the Department of Communities and Local Government (DCLG), August 2006 states that areas designated as globally important wetlands under the Ramsar Convention (1971) should also be given the same level of protection as SAC and SPA designations in the HRA process.

In producing this report, the necessary information has been provided to enable the competent authority, Telford and Wrekin Council, to determine whether an Appropriate Assessment should be completed in respect of the proposed development off Station Road.

In concluding its determinations, it is anticipated that the Council will consult with Natural England.

The HRA has been made following relevant guidance from the UK Government, including:

- A test in respect of the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and consideration of whether these impacts are likely to be significant;
- An assessment of the impacts of a plan or project against the conservation objectives of a European Site, in order to identify whether there are likely to be any adverse effects on site integrity and site features;
- When significant negative effects are identified, an assessment of alternative solutions to avoid any potential damaging effects to the integrity of the Natura 2000 site; and
- Where adverse impacts remain, an assessment of compensatory measures if it is deemed that the project or plan should proceed.

The HRA has considered a range of potential impacts, and in each case has determined that there is unlikely to be any effect, or that an impact will not be material. In no circumstances will any of the impacts have a significant effect on the integrity of the Ramsar site.

Given this conclusion, Telford and Wrekin Council should proceed on the basis that there will be no requirement for a separate Appropriate Assessment of the proposed development.

1. INTRODUCTION

1.1 Background

The UK is bound by the terms of the EC Habitats Directive (and EC Birds Directive and the Ramsar Convention).

The aim of the Habitats Directive is to conserve natural habitats and wild species across Europe by establishing a network of sites known as Natura 2000 sites (for the purpose of this report, and as defined under the 2010 Habitats Regulations, these are referred to as European site(s)).

Under Article 6(3) of the Habitats Directive, an Appropriate Assessment is required where a plan or project is likely to have a significant effect upon a European site, either individually or in combination with other projects.

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives" Article 6(3).

This Article has been interpreted as meaning that any project is to be subject to an Appropriate Assessment if it cannot be proven, beyond reasonable scientific doubt, that there is no significant effect on that site (a precautionary approach), either alone or in combination with other plans or projects.

Further to this, Article 6(4) states that where an Appropriate Assessment has been carried out and results in a negative assessment, (in other words, any proposed avoidance or mitigation measures anticipated are unable to reduce the potential impact so it is no longer significant), or if uncertainty remains over the significant effect, consent will only be granted if there are no alternative solutions, and there are **i**mperative **r**easons of **o**ver-riding **p**ublic **i**nterest (IROPI), for the development and compensatory measures have been secured.

If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted Article 6(4).

A Habitats Regulations Assessment (HRA) is a recognised step by step process which helps determine likely significant effect and (where appropriate) assess adverse impacts on the integrity of a European site. The HRA also examines alternative solutions, and provides justification for IROPI.

European guidance describes a four stage process to HRA which is summarised in Table 1 overleaf.

Stage 1	Screening	The process to identify the likely impacts of a project upon a European site, either alone or in combination with other plans and projects, and consider whether the impacts are likely to be significant.
Stage 2	Appropriate assessment	The consideration of the impacts on the integrity of the European site, either alone or in combination with other plans and projects, with regard to the site's structure and function and its conservation objectives. Where there are adverse impacts, an assessment of mitigation options is carried out to determine adverse effect on the integrity of the site. If these mitigation options cannot avoid adverse effects then development consent can only be given if stages 3 and 4 are followed.
Stage 3	Assessment of alternative solutions	Examining alternative ways of achieving the objectives of the project to establish whether there are solutions that would avoid or have a lesser effect on European sites.
Stage 4	IROPI	This is the assessment where no alternative solution exists and where adverse impacts remain. The process to assess whether the development is necessary for IROPI and, if so, the potential compensatory measures needed to maintain the overall coherence of the site or integrity of the European site network.

Table 1: Four stage process to the HRA

1.2 Site Description and Project Proposal

The application site encompasses two large areas divided by Station Road, with both areas lying just off the A518 Newport Bypass. The majority of the land, to the south and southwest, comprises large arable fields and grazing pastures, whilst to the northeast, just beyond the site boundary there is a school and an industrial estate along Audley Avenue.

The school grounds consist of extensive amenity grassland playing fields, along with large modern buildings, pre-fabricated units, hard courts, car parks and walkways.

The industrial estate consists of a mix of semi-modern industrial units, warehouses and offices, along with large areas of hard standing, several access roads, and car parking. Some areas of hard standing have become colonised with ephemeral/short perennial species, whilst an embankment dividing the industrial site from the neighbouring school grounds supports dense stands of tall ruderal vegetation and pockets of scattered scrub.

To the south of the industrial estate and school grounds there is a strip of plantation woodland that separates these areas from a small, semi-improved grassland field and a large arable field. At the margins of the plantation woodland there are stands of tall ruderal vegetation and pockets of scattered scrub, along with several log piles.

Much of the application site is dominated by arable fields and grazing. Hedgerows divide the fields and some of these contain mature trees.

The Ordnance Survey Grid Reference is SJ 753 184 centred on the middle of the site.

The land is to be used for the erection of up to 350 dwellings (Use Class C3); extra care housing (Use Class C2); 4.5ha of employment land (Use Classes B1, B2 and B8); a superstore (Use Class A1) with petrol filling station and car wash; open space and landscaping provision including a new all-weather sports pitch, and landscaped park; demolition of existing industrial buildings; highway works (including diversions of public rights of way); and associated infrastructure development. The illustrative layout is shown below (Fig. 1).

Fig. 1 Masterplan of land at Newport

2. CITATION FEATURES AND CONSERVATION OBJECTIVES

2.1 Midlands Meres and Mosses Phase 2 Ramsar site

The Meres and Mosses form a geographically discrete series of lowland open water and peatland sites in the northwest Midlands of England. These have developed in natural depressions in the glacial drift left by receding ice sheets which formerly covered the Cheshire/Shropshire Plain. The 16 component sites include open water bodies (meres), the majority of which are nutrient-rich with associated fringing habitats; reed swamps, fen, carr and damp pasture. Peat accumulation has resulted in nutrient poor peat bogs (mosses) forming in some sites in the fringes of meres or completely infilling basins. In a few cases the result is a floating quaking bog or schwingmoor. The wide range of resulting habitats supports nationally important flora and fauna.

Designated in 1997, the Midlands Meres and Mosses qualifies as a Ramsar site under the following criteria of the Ramsar Convention:

Ramsar criterion 1

The site comprises a diverse range of habitats from open water to raised bog.

Ramsar criterion 2

The site supports a number of rare species of plants associated with wetlands, including five nationally scarce species, together with an assemblage of rare wetland invertebrates (three endangered insects and five other British Red Data Book species of invertebrates).

Conservation objectives

No conservation objectives are available for the site.

2.2 Aqualate Mere National Nature Reserve (NNR) and Site of Special Scientific Interest (SSSI)

The NNR and SSSI boundaries coincide with the boundary of the Midlands Meres and Mosses Phase 2 Ramsar site.

Aqualate Mere comprises a complex of open water, fen, grassland and woodland, whose large area and juxtaposition of semi-natural habitats support an outstanding assemblage of invertebrates, and is of considerable ornithological interest.

The beetle fauna associated with the mere fringes and marshy grassland habitat, includes a number of nationally restricted species such as *Philonthus atratus*, *Dorytomus salicinus* and *Lema cyanella*. The site supports nationally important numbers of breeding Grey Herons *Ardea cinerea* and passage Shoveler *Anas clyptea*, and is regionally significant for breeding waders.

Ditches and streams within the site support locally uncommon plants which include Water Violet *Hottonia palustris*, Common Meadow-rue *Thalictrum flavum* and Blunt-flowered Rush *Juncus subnodulosus*.

The full SSSI citation is provided in Appendix 1.

Aqualate Mere SSSI was assessed by Natural England in February 2011 to be 27.26% by area in *favourable* condition, 45.22% by area in *unfavourable recovering* condition, with the remaining 27.52% in *unfavourable no change* condition.

Conservation objectives

No conservation objectives are available for the site.

A map showing the Ramsar site, SSSI and NNR in relation to the proposed development land is shown in Fig. 2 below.

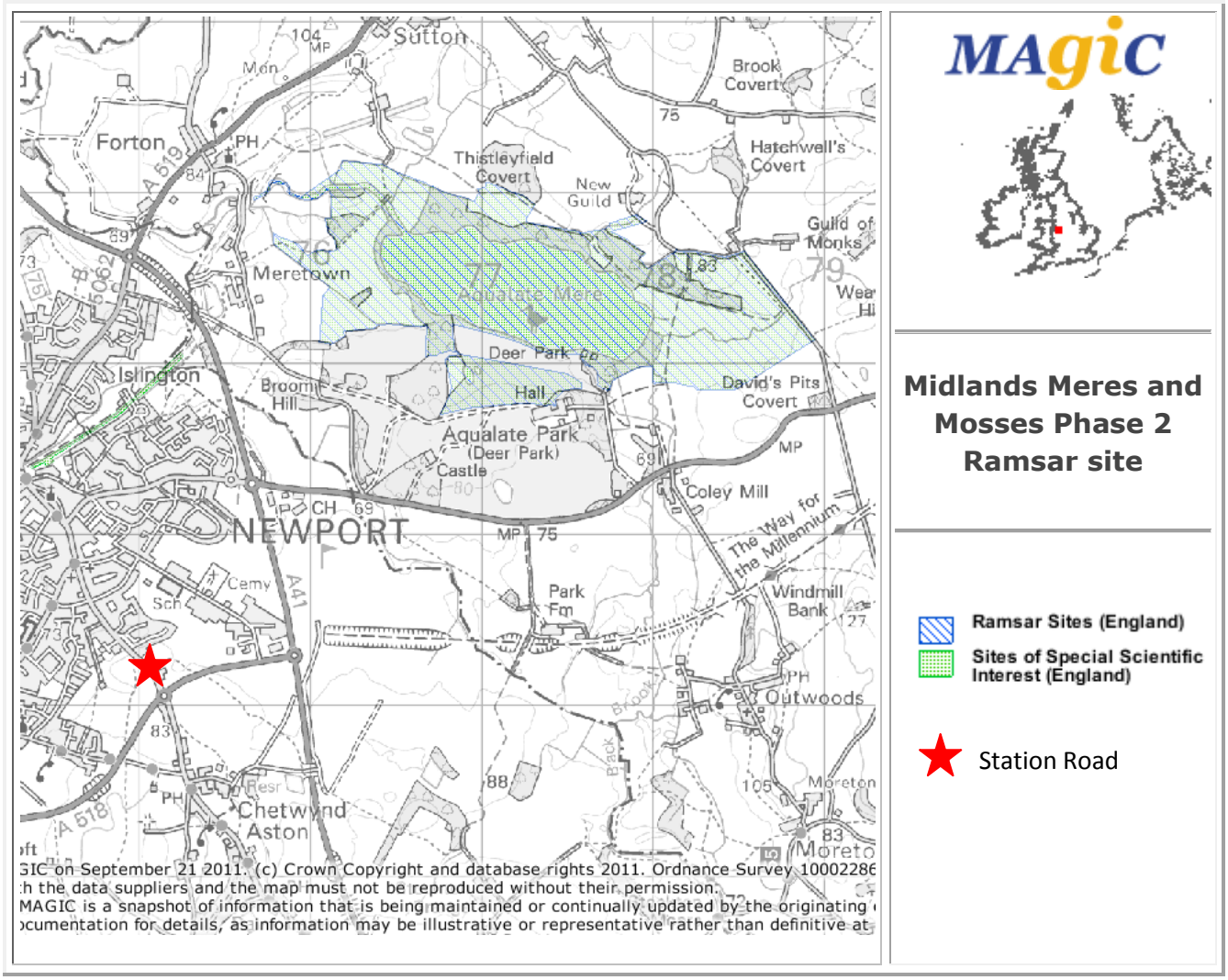

Fig. 2 Ramsar site and SSSI/NNR

3. POTENTIAL IMPACTS

Potential impacts of the proposed development off Station Road have been considered in relation to the Midlands Meres and Mosses Phase 2 Ramsar site and SSSI. These include:

- Physical damage and land acquisition;
- Impacts of increased air pollution on biological assemblages associated with the Ramsar site;
- Impacts of increased water pollution and/or changes in hydrology;
- Disturbance, damage or erosion caused by increased amenity and recreational use.

Potential impacts - direct

Land acquisition from or physical damage to the Natura 2000 site

The proposed development site lies approximately 1.86 km from the closest edge of the Ramsar site and SSSI. There is no direct or indirect connectivity between the Ramsar/SSSI and application sites, and they are separated by intervening land use, which includes extensive residential areas, industrial estates, and main roads. Furthermore, the proposal does not include any infrastructure which will cause physical damage to the Ramsar site or SSSI.

As such, there will be no direct or significant effect upon the integrity of the Ramsar site or SSSI arising from the proposed mixed use development.

Potential impacts - indirect

Increased air pollution on the Natura 2000 site

An increase in the volume of traffic, especially where the flow becomes congested, can result in a localised increase in air pollution from vehicle emissions. Exhaust gases include nitrogen dioxide (NO_2) and particulate matter (PM10).

In addition there are similar gases produced by the treatment of waste water, and an increase in population, such as that associated with a new residential area, will inevitably lead to a rise in the amount of waste water requiring treating. However, emissions produced by treatment processes are generally negligible.

Once in the atmosphere, the gases react with rainwater to create a dilute acidic solution. In sufficient concentration, the acid can adversely affect sensitive plants, in particular fragile communities such as those associated with fen, mere and bog.

The proposed development off Station Road includes the provision of up to 350 houses, a 4.5 ha employment zone, a 0.4 ha care home, and a 4.6 ha superstore. As such there is a potential to generate relatively substantial volumes of polluting gases over and above those already produced in Newport.

It is not envisaged at this time that there will be any new waste water treatment plant on site, and if any additional capacity is required, it is more likely to be achieved through the upgrading of the existing sewage treatment plant on the western side of Newport.

Atmospheric gases will therefore largely be restricted to vehicle emissions. However, the strongest effects on plant communities are only observed in the first 50-100 m away from roads, and this is consistent with the nitrogen dioxide pollution profile, which decreases to background levels at a distance of 100-125 m (Bignal *et al*, 2008). Thus only those habitats within 125 m of a major road are considered to be at risk from increased air pollution at sufficient levels, to alter the composition of vulnerable plant communities.

Station Road, the main route bisecting the application site, lies 2.2 km from the edge of the Ramsar site and SSSI, whilst between it and the Natura 2000 site, there is the A41 and A518, which are the main arterial routes used by commuters and the work force entering Newport.

It is therefore considered that the potential impacts of increased air pollution will have no significant effect on the integrity of the Natura 2000 site habitats.

Increased water pollution and/or changes in hydrology

The Midlands Meres and Mosses Phase 2 Ramsar site is considered to be vulnerable to deterioration of water quality associated with sedimentation and eutrophication, the latter measured through phosphorus target levels.

Phosphorus is a pollutant typical of agricultural run-off and treated waste water, whilst sedimentation arises from agriculture, surface water drainage and wind erosion.

At Station Road, approximately 28 ha of land will be developed (excluding open space), the majority of this potentially contributing to surface water run-off through an increase in impermeable area. The hydrology of the site has therefore been investigated, and consideration has been given to the hierarchy for surface water disposal which recommends the Sustainable Urban Drainage System (SUDS) approach, including infiltration as the first tier.

The second tier is to discharge to a watercourse, and therefore the local watercourse to the north of the western side of the site is a viable option. In addition the Strine Brook to the east could be used to drain part of the eastern side of the site. However, it is likely that the majority of the east site will discharge to the Severn Trent Water sewer within Audley Avenue.

The risk of fluvial flooding from the Strine Brook is considered to be low even during a blockage of the A518 culvert, as there is a considerable flood area upstream of the culvert at a lower level than the application site.

Although there will be an increase in surface water run-off, there will be a decrease in agricultural pollution, as the land will no longer be used for arable farming.

The provision of an integrated SUDS scheme supports the conclusion that there will be no significant effect on the integrity of the Natura 2000 site, arising from water pollution or changes in site drainage.

Disturbance, damage or erosion caused by increased amenity and recreational use

Significant increases in the numbers of visitors to areas of public open space can have the potential to damage sensitive habitats and disturb wildlife. Furthermore, invasive species could be introduced accidentally which subsequently overrun vulnerable native biological assemblages.

Public Rights of Way within the Midland Meres and Mosses Phase 2 Ramsar site are restricted to two footpaths, which bisect the eastern and western sides, and a bridleway which runs partially within the northern boundary. With the exception of these rights of way, public access to the site is limited to permit holders only, with parking facilities catering for a maximum of ten vehicles at any one time.

There are to be no direct rights of way leading from the proposed development land to the Natura 2000 site. Access to the latter would therefore entail walking through the eastern residential and industrial fringe of Newport, across the A41 and A518, and towards Meretown, a distance of at least 2.5 km.

The proposed development will be incorporating areas of formal and informal public open space (approximately 7.0 ha), whilst access to existing open space that is being retained will be enhanced.

As such, there will be no significant effect from amenity and recreational interests on the integrity of the Natura 2000 site, arising from an increase in population associated with the proposed development.

4. CONCLUSIONS AND RECOMMENDATIONS

This report details the results of a Habitat Regulations Assessment, of the potential impacts on the Midland Meres and Mosses Phase 2 Ramsar site and Aqualate Mere SSSI, arising from a proposed mixed use development on land off Station Road in Newport, Shropshire.

A range of impacts have been identified, none of which are considered to have a significant effect on the integrity of the protected sites.

Given this conclusion, Telford and Wrekin Council should proceed on the basis that there will be no requirement for a separate Appropriate Assessment of the proposed development.

5. REFERENCES

Bignal, K.L., M.R. Ashmore, & A.D. Headley. 2008. *Effects of air pollution from road transport on growth and physiology of six transplanted bryophyte species*. Environmental Pollution. 156: 332-340.

European Commission (1995): *Conservation (Natural Habitats, & c.) Regulations 1994, (or Northern Ireland 1995) (the Habitats Regulations).*

European Commission (2001): *Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive*.

Office of the Deputy Prime Minister (ODPM) (2005a): *Planning Policy Statement 9: Biodiversity and Geological Conservation*.

ODPM (2005b): Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*.

United Nations Educational, Scientific and Cultural Organisation (UNESCO) (1971): *Convention on Wetlands of International Importance especially as Waterfowl Habitat*. (Ramsar (Iran), 2 February 1971, UN Treaty Series No. 14583).

6. APPENDICES

Appendix 1: Aqualate Mere SSSI citation

COUNTY: STAFFORDSHIRE SITE NAME: AQUALATE MERE

DISTRICT: Stafford SITE REF: 15WCV

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981 as amended.

Local Planning Authority: STAFFORDSHIRE COUNTY COUNCIL, Stafford Borough Council.

National Grid Reference: SJ 770205 Area: 241.00 ha

Ordnance Survey Sheet 1:50,000: 127 1:10,000: SJ 72 SE, SJ 71 NE

Date Notified (Under 1949 Act): 1956 Date of Last Revision: 1968

Date Notified (Under 1981 Act): 1987 Date of Last Revision: 18 August 1994

Other Information:
Site boundary alteration (extensions). Part of the site is a National Nature Reserve.
Proposed Ramsar site.

Description and Reasons for Notification:
The Meres & Mosses of the northwest Midlands form a nationally important series of open water and peatland sites. These have developed in natural depressions in the glacial drift left by the ice sheets which covered the Cheshire-Shropshire plain some 15,000 years ago. The majority lie in Cheshire and north Shropshire, with a small number of outlying sites in adjacent parts of Staffordshire and Clwyd.

The origin of most of the hollows can be accounted for by glaciation but a small number have been formed at least in part by more recent subsidence resulting from the removal in solution of underlying salt deposits.

There are more than 60 open water bodies known as 'meres' or 'pools' and a smaller number of peatland sites or mires known as 'mosses'. They range in depth from about one metre to 27 metres and have areas varying between less than a hectare to 70 hectares. Although the majority of the meres are nutrient rich (eutrophic) the water chemistry is very variable reflecting the heterogeneous nature of the surrounding drift deposits. Associated fringing habitats such as reedswamp, fen, carr and damp pasture add to the value of the meres. The development of these habitats is associated with peat accumulation which in some cases has led to the complete infilling of the basin. During this process the nutrient status of the peat surface changes and typically becomes nutrient poor (oligotrophic) and acidic thus allowing species such as the bog mosses *Sphagnum* spp. to colonise it. The resulting peat bogs are the 'mosses'. In a few cases colonisation of the water surface by floating vegetation has resulted in the formation of a quaking bog known as a 'schwingmoor'.

Aqualate Mere is the largest of the meres with the most extensive reedswamp community. The mere and its surrounds form a complex of open water, fen, grassland and woodland unrivalled in Staffordshire for the variety of natural features of special scientific interest.

The esker formation on the north side of the mere is of national geomorphological importance in its own right. The large area and juxtaposition of semi natural habitats supports an outstanding assemblage of beetles, moths and sawflies. The site has nationally important numbers of breeding herons *Ardea cinerea* and passage shoveler *Anas clypeata* and is regionally significant for breeding waders.

Biology

The mere occupies a shallow basin in glacial drift over-lying Triassic sandstone. It is highly eutrophic and subject to siltation. There is little aquatic vegetation other than sparse yellow water-lily *Nuphar lutea*, but the reedswamp of common reed *Phragmites australis* and lesser bulrush *Typha angustifolia* is well developed, in places up to 40 metres wide. The fringing fen contains a wide variety of plants including yellow iris *Iris pseudacorus*, skullcap *Scutellaria galericulata*, water mint *Mentha aquatica* and purple-loosestrife *Lythrum salicaria*. It is one of the most diverse examples of this community type represented in the meres group.

Willow carr is well, developed, particularly at the ends of the mere. Grey willow *Salix cinerea* is usually dominant with scattered crack willow *S. fragilis*, osier *S. viminalis* and purple willow *S. purpurea*. In turn these stands give way to transitional sump alderwoods dominated by alder *Alnus glutinosa* with crack willow, downy birch *Betula pubescens*, sallows *Salix* spp. and alder buckthorn *Frangula alnus*. Amongst the meres, Aqualate is second only to Bomere and Shomere (Shropshire) in the area occupied by alder-willow woodland.

To the west and east of the mere are 'fen pastures' – low-lying, wet grasslands on peat, displaying a range of plant communities. Only two other sites from the meres group have larger areas of this habitat type. Much of the sward has escaped agricultural improvement and represents an outstanding example of a nationally rare and threatened acidic marshy grassland community. Here this consists of many grasses and sedges with a high cover of carnation sedge *Carex panicea*, common sedge *C. nigra*, red fescue *Festuca rubra*, brown bent *Agrostis canina* and sweet vernal-grass *Anthoxanthum odoratum*. Some of the more abundant herbs are marsh pennywort, *Hydrocotyle vulgaris*, creeping-jenny *Lysimachia nummularia*, marsh ragwort *Senecio aquaticus*, meadow thistle *Cirsium dissectum* – a county rarity – and lesser spearwort *Ranunculus flammula* as well as various rushes *Juncus* spp. Though parts of these pastures have been subject to agricultural treatments and are less botanically rich as a whole they are an important lowland floodplain locality for breeding snipe *Gallinago gallinago* and curlew *Numenius arquata*.

The pastures are drained by a system of streams and ditches. The latter, where unpolluted and regularly managed, provide a valuable freshwater habitat for many aquatic invertebrates and water plants and are the only known examples from Staffordshire. Locally uncommon ditch plants include water violet *Hottonia palustris*, common meadow-rue *Thalictrum flavum*, cyperus sedge *Carex pseudocyperus*, blunt-flowered rush *Juncus subnodulosus* and greater spearwort *Ranunculus lingua*.

Limited recording has identified a large number of locally and nationally scarce invertebrates. There is a very rich beetle fauna associated with the mere fringes and marshy grasslands including a number of nationally restricted species such as *Philonthus atratus*, *Dorytomus salicinus* and *Lema cyanella*. Hoverflies *Diptera*, caddis-flies *Trichoptera*, sawflies *Hymenoptera* and moths *Lepidoptera* are also well represented.

Aqualate has considerable ornithological interest for the variety of its breeding birds especially for species associated with the mere and adjoining wetland. The mere-side heronry regularly has nationally significant numbers of nesting grey herons. The numbers of migrant shoveler in autumn are also nationally significant.

Geology

Aqualate Mere is important for Quaternary geomorphology. It provides a rare example in the Midlands of an esker system formed by glacial meltwaters during the late Devensian glaciation, about 50,000 years ago. The site is also significant in demonstrating the close association of the esker with fan deposits formed in a proglacial lake, a nationally rare group of land forms. The esker and related fan, kettleholes and ice-contact slopes provide detailed evidence for a type of complex landform development associated with ice margin wastage and retreat. As one of the best examples of an esker system in England and one with a complex origin revealed in the detailed morphology of its landforms, Aqualate Mere is a particularly instructive site for studies in glacial geomorphology.

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Land off Station Road, Newport, Shropshire – Habitat Regulations Assessment

To: St Modwen Developments Ltd and Davidson's Developments Ltd

Report Number: 672-CWS-05

Version: 02

Date: 28th September 2011

APPENDIX E: Great Crested Newt Report

Great Crested Newt *Triturus cristatus* Survey Report for land to west of Station Road, Newport, Shropshire

Cotswold Wildlife Surveys

3rd and 17th March & 14th and 20th April 2012

CONTENTS

SUMMARY

i. On land to the west of Station Road in Newport, Shropshire, planning permission is being sought for the erection of a superstore and associated infrastructure.

ii. The majority of the land comprises a block of arable land under continuous cultivation, with an adjoining heavily grazed horse paddock, and a small area of relatively poor quality woodland lying on the edge of a residential and industrial area. Narrow, rather open hedgerows divide the fields, and in the corner of the paddock there is a small block of scrub.

iii. In the paddock there is a small, shallow pond (No. 1). This has been virtually dry since June 2011, but at the end of February 2011 it contained shallow water and supported a small amount of aquatic vegetation, this identified as Soft Rush *Juncus effusus*. It was also heavily poached by horses, and the water was very turbid.

iv. The Great Crested Newt (GCN) Habitat Suitability Index (HSI) score was 0.51, giving the pond below average suitability for the species, with a below average predicted presence.

v. The adjacent Millwood Mere (pond 3) lies about 100 m to the northwest of the application site. This was not surveyed for GCN in 2011, primarily because there will be no direct impact of the proposed development on the Mere, or on or the surrounding terrestrial habitat, the latter thought to be relatively poor as it was comprised largely of amenity grassland with intense use by local people for informal recreation and exercising their dogs.

vi. Nevertheless, the Mere was examined in January 2012 and the Habitat Suitability Index score was calculated as 0.66, which equates to an average predicted presence of Great Crested Newts at the site. Given the relatively low HSI score, the absence of GCN records at the site, and the surrounding poor terrestrial habitat, it was assumed that GCN were absent, and a professional judgement was made that there would be no requirement for GCN surveys.

vii. Despite stating this in the Ecological Addendum Report, criticisms were made regarding the lack of GCN surveys. It was therefore decided to support the professional opinion with a full survey for Great Crested Newts. This was carried out in spring 2012, focussing on Millwood Mere, the horse paddock pond and two other ponds within 250 m of the application site (ponds 2 and 4).

viii. Pond 2 was located on the edge of an arable field to the east of Station Road. The HSI score was calculated as 0.38, which equates to a poor predicted presence of Great Crested Newts. This pond has also been dry since June 2011, and judging by the growth of tall ruderal vegetation in the pond depression, it is thought to hold water only after very heavy rainfall or excessive snowmelt.

ix. Pond 4 is a small, shallow field pond approximately 220 m southeast of the Station Road/A518 roundabout. Unlike other field ponds in the area this one held water

throughout the survey period. The HSI score of 0.68 equates to an average predicted presence of Great Crested Newts at the site.

x. An additional pond (No. 5) lies within 220 m of the application site boundary to the south of the Station Road/A518 roundabout. This has been dry for several years and has become completely grassed over.

xi. A further 6 ponds (Nos. 6-11) within 300-400 m of the site boundary have also been examined, but all are currently dry, and have been for a minimum of two years, some for much longer. None of the 7 additional ponds are suitable for amphibians and do not require surveys.

xii. The first Great Crested Newt survey took place on the 2nd/3rd March 2012. This revealed no amphibians of any species at any of the ponds or in the surrounding habitat.

xiii. The second survey on 16th/17th March again revealed no newts in any ponds, although a large number of Common Toads *Bufo bufo* (approximately 200 +) were noted in the Mere and migrating towards it from the surrounding roads and Hutchison Way. A small number of Common Frogs *Rana temporaria* were also present.

xiv. The third survey on 13th/14th April revealed a single male Smooth Newt *Lissotriton vulgaris* in Millwood Mere, along with small numbers of Common Frogs. There was a reduction in the numbers of Common Toads in the Mere. No other amphibians were recorded, and the pond in the paddock remained dry.

xv. The fourth survey on 19th/20th April revealed no newts of any species, with just Common Toads in Millwood Mere. The pond in the paddock held slightly more water following several days of rain, but this did not fully cover the bottom, and the water was completely turbid as it had been churned up by horses grazing in the paddock.

xvi. The results of the surveys demonstrate that no Great Crested Newts are present in Millwood Mere or any of the surrounding ponds, thereby substantiating the original view. The Mere does support small numbers of Common Toads and Smooth Newts, and a fairly large population of Common Toads. The other ponds in the area contain no amphibians of any species.

1. INTRODUCTION

1.1 On land to the west of Station Road in Newport, Shropshire, planning permission is being sought for the erection of a superstore, highway works, associated infrastructure and landscaping.

1.2 In spring 2012, Cotswold Wildlife Surveys was instructed to undertake a Great Crested Newt Survey of all ponds with 250 m of the application site.

1.3 On 2nd/3rd and 16th/17th March and 13th/14th and 19th/20th April 2012, visits were made to the site to carry out the surveys. The results of the surveys are contained in this report.

1.4 Great Crested Newts are protected under Schedule 5 of the Wildlife & Countryside Act (1981) as amended, and Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations 1994 (Regulation 38). As a result of their rarity across Europe, they are also protected under Annexes IIa and IVa of the Habitats and Species Directive, and under the Berne Convention (the Convention on the Conservation of European Wildlife and Natural Habitats).

1.5 The above legislation can be summarised thus (Langton *et al*, 2001):

- *Intentionally or deliberately capture or kill, or intentionally injure Great Crested Newts;*
- *Deliberately disturb Great Crested Newts or intentionally or recklessly disturb them in a place used for shelter or protection;*
- *Damage or destroy a breeding or resting place;*
- *Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection;*
- *Possess a Great Crested Newt, or any part of it, unless acquired lawfully;*
- *Sell, barter, exchange or offer for sale Great Crested Newts or parts of them.*

2. METHODOLOGY

2.1 A survey for Great Crested Newts may be indicated when background information on distribution suggests that they may be present. More detailed indicators are:

- *Any historical records of Great Crested Newts on site or in the general area;*
- *A pond on or near the site (within around 500 m), even if it holds water only seasonally;*
- *Sites with refuges (such as piles of logs or rubble), grassland, scrub, woodland or hedgerows within 500 m of a pond.*

2.2 There are several field survey methods which can be employed depending on the time of year:

- *Bottle or funnel trapping – adults ideally February to May, with June and July sub-optimal, and August to September for detection of larvae (i.e. young);*
- *Egg search – April to June ideally, with March and July sub-optimal;*
- *Torch survey – March to May for adults, with February and June to July sub-optimal, and August to September for larvae;*
- *Netting – March to May for adults, with February and June to July sub-optimal, and August to September for larvae;*
- *Pitfall trapping – March to May and September for adults, with February, June to August and October sub-optimal;*
- *Refuge search – April to September ideally, with March and October sub-optimal.*

2.3 The latter two methods involve terrestrial habitats, the others aquatic habitats, for which a minimum of 4 visits per year are recommended, with at least 2 visits between mid-April and mid-May to record peak numbers (English Nature, 2001).

2.4 A total of 11 ponds were identified within 400 m of the site, and all were examined for their potential to support bottle trapping. Of these just two held water of sufficient depth to use traps (ponds 2 and 4).

2.5 On the 2nd/3rd and 16th/17th March and 13th/14th and 19th/20th April 2012, twenty five bottle traps were set around pond 2 (Millwood Mere), with a further ten set around pond 4.

2.6 These activities were carried out by Andy Warren (Natural England Great Crested Newt Licence No. 20112127) and Matt Liston (Natural England Great Crested Newt Licence No. 20112151).

2.7 The bottle-traps (converted 2 litre soft drink bottles) were placed, as far as possible and practical, at two metre intervals around the margins of the ponds to be surveyed. Each bottle was attached to a cane and held at an angle such that it retained an air pocket in the inverted bottom. Traps were placed after 16:00 hrs each afternoon and collected before 10:00 hrs the following day.

2.8 Amphibians were handled only with wet hands. They were identified, counted, sexed and returned to the point of capture without undue delay.

2.9 Torchlight surveys were carried out at 4 ponds within 250 m of the application site (Nos. 1-4). These used a 1,000,000 candle power Clulite CB2 torch and were carried out after dark. Egg searches were made during the morning visits when checking the bottle traps.

Population Size Class Method

2.10 An assessment of population size and class was carried out following the standard guidance described in the Great Crested Newt Mitigation Guidelines (English Nature, 2001).

2.11 The method stipulates that the maximum adult count per pond per night gained through torch survey or bottle-trapping can be used and expressed as 'peak counts' per pond. This figure enables the populations to be classified as:

- 'small' for maximum counts up to 10;
- 'medium' for maximum counts between 11 and 100;
- 'large' for maximum counts over 100.

Habitat Suitability Index

2.12 An evaluation system devised by Oldham *et al* (2000) can produce a figure that indicates the suitability of a pond for Great Crested Newts. The index is based on an analysis of ten factors that affect Great Crested Newts. A figure of '0' indicates unsuitable habitat and '1' represents optimal habitat.

* * * * *

The results of the survey are detailed in Section 3.

3. RESULTS

3.1 Location

3.1.1 The application site is located to the west of Station Road on the southern side of Newport in Shropshire. The Ordnance Survey Grid Reference is SJ 749 182 centred on the middle of the site (Appendix 1).

3.2 Site Description

Pond 1

3.2.1 Pond 1 is a small shallow pond in the middle of a horse paddock (Fig. 1). In February 2011 when it was first examined, it contained turbid water. By June 2011 the pond had dried out, and it has remained dry until April 2012, with water restricted to the deep fissures in the clay base.

Pond 2

3.2.2. This small pond lies on the edge of the arable fields to the east of Station Road (SJ 75242 18223). It contained water in February 2011, but has been dry since June 2011, and judging by the growth of tall ruderal vegetation in the pond depression, it is thought to hold water only after very heavy rainfall or excessive snowmelt (Fig. 2).

Fig. 1 Pond 1

Fig. 2 Pond 2

Pond 3

3.2.3 Millwood Mere lies about 100 m to the northwest of the application site. It is a large water body surrounded by trees, with a small wooded island in the middle (Fig. 3). The water is clear and there is a wide fringe of emergent vegetation around most of the edge. The Mere is well used by waterfowl, with a pair of Canada Geese *Branta canadensis* nesting on the island in April 2012.

Pond 4

3.2.4 Pond 4 is a small shallow field pond located approximately 220 m southeast of the Station Road/A518 roundabout (Ordnance Survey Grid Reference – SJ 75381

17975 – Fig. 4). The pond contains fairly turbid water, and the surveys have revealed the presence of all the aquatic plant species noted in the horse paddock pond. This includes Water-purslane *Lythrum portula* which is growing fairly abundantly along the western side of the field pond.

Fig. 3 Millwood Mere – pond 3

Fig. 4 Pond 4

3.3 Great Crested Newt survey results

Habitat Suitability Index scores for the four ponds were calculated thus:

Pond number	HSI Score	Class
1	0.51	Below average
2	0.38	Poor
3	0.66	Average
4	0.68	Average

Presence/Absence

3.3.1 During the four visits no Great Crested Newts were caught, although one Smooth Newt was found in pond 3.

3.3.2 No eggs for any newt species were found during the surveys, and no animals were observed during the torchlight searches.

For full survey results see Appendix 2.

Population Estimate

3.3.3 Great Crested Newt – none.

Smooth Newt – small.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 A total of 11 ponds were identified within 400 m of the application site, and all were examined for their potential to support bottle trapping. Of these there were four ponds within 250 m of the site which held water in February 2011, but by the start of the survey period just two held water of sufficient depth to use traps. All four were subjected to torchlight searches.

4.2 The Great Crested Newt Habitat Suitability Index scores of the four ponds (1 to 4) were 0.51, 0.38, 0.66 and 0.68, giving the ponds below average, poor, average and average suitability for the species respectively.

4.3 A search of the biological records database at Shropshire Biological Records Centre was made, this revealing no records of Great Crested Newts within a 2.0 km search area around the application site.

4.4 The Great Crested Newt survey was carried out within the period recommended by Natural England, and according to the recognised methodology.

4.5 The results of the surveys demonstrate that no Great Crested Newts are present in Millwood Mere or any of the surrounding ponds. The Mere does support small numbers of Common Toads and Smooth Newts, and a fairly large population of Common Toads. The other ponds in the area contain no amphibians of any species.

4.6 In the absence of Great Crested Newts no mitigation measures will be required, and the proposed development could proceed without recourse to licensing if planning approval is granted.

4.7 Since the risk of committing an offence is minimal, to reduce that risk further, the following careful working practices should be adhered to:

- Restrict work to the daylight hours when amphibians are least active in the terrestrial environment;
- Any trenches excavated should be covered at the end of the working day to avoid amphibians falling into the trench. If this is not possible escape routes should be provided. These can be in the form of branches or boards placed on the bottom of the trench, with their upper ends above ground level and touching the sides, or sloping ends left in trenches.

5. REFERENCES

English Nature, 2001. *Great Crested Newt mitigation guidelines*. English Nature, Peterborough.

Fitter R. & Fitter A., 1984. *Grasses, Sedges, Rushes & Ferns of Britain and Northern Europe*. Collins, London.

Gent, T. & Gibson, S., 1998. *Herpetofauna Worker's Manual*. Joint Nature Conservation Committee, Peterborough.

JNCC, 2003. *Handbook for Phase 1 habitat survey – a technique for environmental audit (revised reprint).* Joint Nature Conservation Committee, Peterborough.

Oldham R.S. et al., 2000. *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus).* Herpetological Journal 10 (4), 143-155.

Stoke, W. J., 1958. *British Wild Animals.* Frederick Warne & Co. Ltd., London.

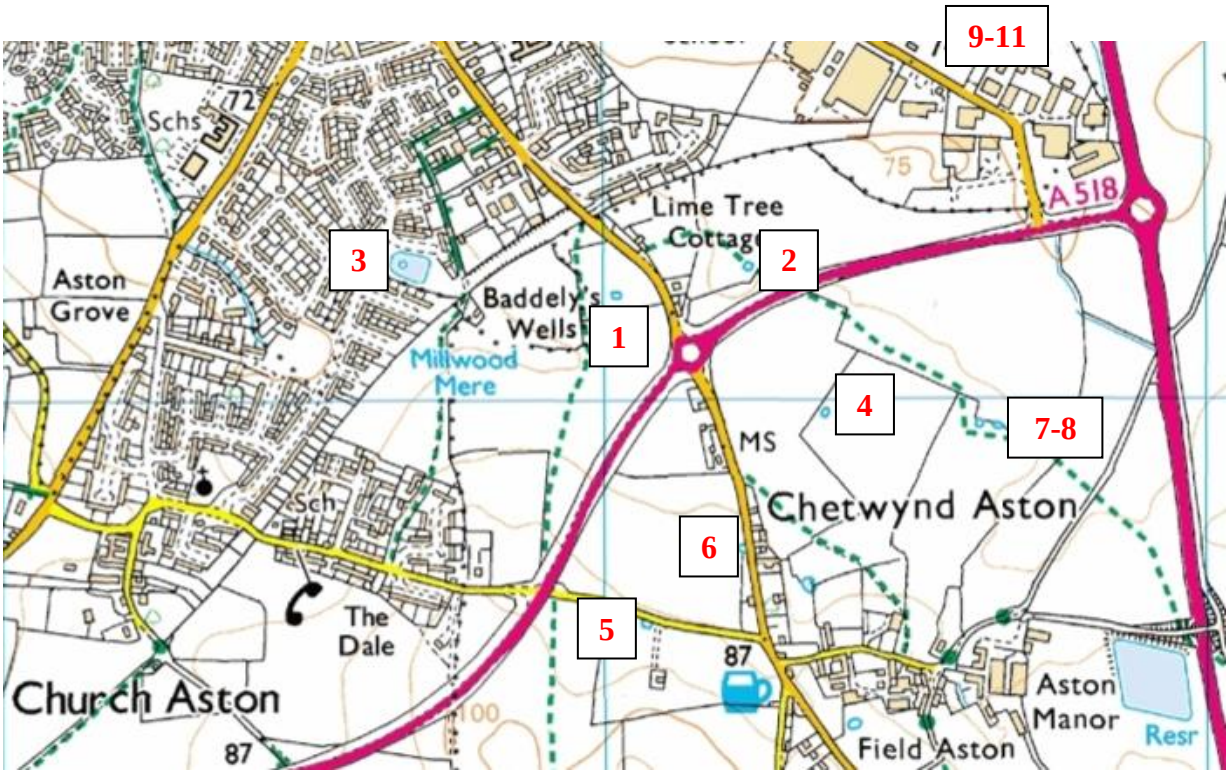
APPENDICES

Appendix 1: Location plan

Appendix 2: Survey results

Appendix 3: Great Crested Newt Habitat Suitability Index scores

Appendix 1: Location plan



OS Map showing locations of ponds and pond numbers (in boxes)

Appendix 2: Survey results

POND 3				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
					Torch power:										larvae found? (any method)
No. of survey visits to this pond:			4												
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Traps Used					0	0						
2nd/3rd March	8.5° C	10%	25	Adult totals:	N/A	N/A	N/A	**0**			N/A	N/A	N/A	N/A	N/A
(2) Date:	Air temp	Veg cover	Traps Used					0	0						
16th/17th March	9.5° C	10%	25	Adult totals:	N/A	N/A	N/A	**0**			N/A	N/A	N/A	N/A	N/A
(3) Date:	Air temp	Veg cover	Traps Used					0	0						
13th/14th April	8.0° C	10%	25	Adult totals:	N/A	N/A	N/A	**0**			N/A	N/A	N/A	N/A	N/A
(4) Date:	Air temp	Veg cover	Traps Used					0	0						
19th/20th April	7.4° C	10%	25	Adult totals:	N/A	N/A	N/A	**0**			N/A	N/A	N/A	N/A	N/A
Peak adult count for this pond in any one visit (by torch, trap or net):								**0**							
Comments and constraints:	A single ♂ Smooth Newt was caught on 14th April 2012, whilst 200+ Common Toads were present on 16th/17th March 2012, along with small numbers of Common Frogs. Ducks, geese and Moorhens were present during all 4 surveys.														

POND 4				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
					Torch power:										larvae found? (any method)
No. of survey visits to this pond:			4												
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Traps Used					0	0						
2nd/3rd March	8.5° C	10%	10	Adult totals:	N/A	N/A	N/A	**0**			N/A	N/A	N/A	N/A	N/A
(2) Date:	Air temp	Veg cover	Traps Used					0	0						
16th/17th March	9.5° C	10%	10	Adult totals:	N/A	N/A	N/A	**0**			N/A	N/A	N/A	N/A	N/A
(3) Date:	Air temp	Veg cover	Traps Used					0	0						
13th/14th April	8.0° C	10%	10	Adult totals:	N/A	N/A	N/A	**0**			N/A	N/A	N/A	N/A	N/A
(4) Date:	Air temp	Veg cover	Traps Used					0	0						
19th/20th April	7.4° C	10%	10	Adult totals:	N/A	N/A	N/A	**0**			N/A	N/A	N/A	N/A	N/A
Peak adult count for this pond in any one visit (by torch, trap or net):								**0**							
Comments and constraints:	The water level was beginning to drop towards the end of the survey period.														

Appendix 3: Great Crested Newt Habitat Suitability Index scores

Pond 1

Suitability Indices	Value	Criteria	Indices Score
SI_1 Location	Optimal	Location within GCN range	1.0
SI_2 Pond area	200 m^2	Pond surface area	0.4
SI_3 Pond drying	Dries annually	Dries annually	0.1
SI_4 Water quality	Poor	Low invertebrate diversity	0.33
SI_5 Shade	0%	Estimate of percentage perimeter shaded	1.0
SI_6 Fowl	Absent	No evidence of waterfowl	1.0
SI_7 Fish	Absent	No evidence of fish	1.0
SI_8 No. of ponds	10	Number of ponds within 1 km (excluding pond surveyed)	1.0
SI_9 Terrestrial habitat	Poor	Quality of terrestrial habitat	0.33
SI_{10} Macrophytes	0%	Estimate of percentage of pond surface covered	0.3
		HSI score	0.51

$HSI = (SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$

The suitability of the pond for Great Crested Newts was considered thus:

HSI	Pond suitability
<0.5	Poor
0.5 – 0.59	**Below average**
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Pond 2

Suitability Indices	Value	Criteria	Indices Score
SI_1 Location	Optimal	Location within GCN range	1.0
SI_2 Pond area	<100 m^2	Pond surface area	0.05

SI_3 Pond drying	Dries annually	Dries annually	0.1
SI_4 Water quality	Poor	Low invertebrate diversity	0.33
SI_5 Shade	100%	Estimate of percentage perimeter shaded	0.2
SI_6 Fowl	Absent	No evidence of waterfowl	1.0
SI_7 Fish	Absent	No evidence of fish	1.0
SI_8 No. of ponds	10	Number of ponds within 1 km (excluding pond surveyed)	1.0
SI_9 Terrestrial habitat	Moderate	Quality of terrestrial habitat	0.67
SI_{10} Macrophytes	0%	Estimate of percentage of pond surface covered	0.3
		HSI score	0.38

$HSI = (SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$

The suitability of the pond for Great Crested Newts was considered thus:

HSI	Pond suitability
<0.5	**Poor**
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Pond 3 (Millwood Mere)

Suitability Indices	Value	Criteria	Indices Score
SI_1 Location	Optimal	Location within GCN range	1.0
SI_2 Pond area	3500 m^2	Pond surface area	0.67
SI_3 Pond drying	Never	Pond never dries	0.9
SI_4 Water quality	Poor	Low invertebrate diversity	0.33
SI_5 Shade	50%	Estimate of percentage perimeter shaded	1.0
SI_6 Fowl	Minor	Water fowl present but little impact on vegetation	0.67
SI_7 Fish	Absent	No records of fish stocking and no fish revealed during survey	1.0

SI_8 No. of ponds	10	Number of ponds within 1 km (excluding pond surveyed)	1.0
SI_9 Terrestrial habitat	Poor	Quality of terrestrial habitat	0.33
SI_{10} Macrophytes	10%	Estimate of percentage of pond surface covered	0.4
		HSI score	0.66

$HSI = (SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$

The suitability of the pond for Great Crested Newts was considered thus:

HSI	Pond suitability
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	**Average**
0.7 – 0.79	Good
>0.8	Excellent

If one considers the impact of wildfowl as being more severe, i.e. major, the score reduces to 0.43 which equates to a poor predicted presence of Great Crested Newts. This could be argued inasmuch that there are virtually no aquatic invertebrates (just a few beetles and backswimmers), no floating vegetation (just a fringe of reed-grass), and several Canada Geese (3), Mallards (10), and Moorhens (4) present.

Pond 4

Suitability Indices	Value	Criteria	Indices Score
SI_1 Location	Optimal	Location within GCN range	1.0
SI_2 Pond area	75 m^2	Pond surface area	0.2
SI_3 Pond drying	Never	Pond never dries	0.9
SI_4 Water quality	Poor	Low invertebrate diversity	0.33
SI_5 Shade	0%	Estimate of percentage perimeter shaded	1.0
SI_6 Fowl	Minor	Water fowl present but little impact on vegetation	0.67
SI_7 Fish	Absent	No records of fish stocking and no fish revealed during survey	1.0
SI_8 No. of ponds	10	Number of ponds within 1 km (excluding pond surveyed)	1.0
SI_9 Terrestrial	Moderate	Quality of terrestrial habitat	0.67

habitat			
SI_{10} Macrophytes	50%	Estimate of percentage of pond surface covered	0.8
		HSI score	0.68

$HSI = (SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$

The suitability of the pond for Great Crested Newts was considered thus:

HSI	Pond suitability
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	**Average**
0.7 – 0.79	Good
>0.8	Excellent

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Land to west of Station Road, Newport - Great Crested Newt Survey Report

To: St Modwen Developments Ltd & Davidsons Developments Ltd

Report Number: 672-CWS-13

Version: 02

Date: 22nd April 2012