



Whitgift Estates
Land at Hook Lane, Westergate
Ecological Appraisal

July 2016

FPCR Environment and Design Ltd

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1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Ltd on behalf of Whitgift Estates. It summarises all the ecological surveys undertaken on land west of Hook Lane, Westergate (central grid reference SU933046), hereafter referred to as 'the site'. The surveys were commissioned to assess potential ecological constraints to development from the presence of any rare/notable habitats or as a result of the potential for protected species to inhabit/utilise the site. Surveys undertaken included an Extended Phase One habitat survey and Preliminary Bat Roost Assessment.
- 1.2 The site is located within the residential garden of Barnside and measures approximately 0.97 hectares, with improved amenity grassland dominating a large area of the site with areas of scrub/ruderal in the central regions, with an outgrown hedgerow on the eastern boundary backing onto Hook Lane. There is a pond present within the south-west corner of the site, upon which Great Crested Newt (GCN) presence/likely absence surveys were undertaken by FPCR on land to the east of Hook Lane in 2013. A summary of the findings are detailed in this report.
- 1.3 The baseline ecology of the site and its surrounds has been reviewed and the character / nature conservation value of habitats and species assessed in order to inform the development process.
- 1.4 A walkover survey was undertaken on the 17th September 2015 to assess any habitat changes between previous surveys undertaken in 2013, during which all habitats were reassessed and signs of protected species sort. During this survey, site conditions were found to be consistent with the findings of 2013 and minimal changes, such as the extent of marginal scrub growth and more broken tiles on building B5, were recorded. These changes have not affected those conclusions in 2013.

Development Proposals

- 1.5 The proposals comprise the construction of eight residential dwellings with associated access roads which will cover approximately 0.74ha. To the south of the site is an area designated for recreation and ecological enhancement which will include the existing pond, associated grassland habitat and newly planted hedgerow which measures 0.26ha, these will include features such as tussock grassland and hibernaculum.

2.0 METHODOLOGY

Desk study

- 2.1 In order to compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations, including:
- Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.defra.gov.uk);
 - Sussex Biological Record Centre
 - Sussex Badger Group
- 2.2 Further inspection, using colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.
- 2.3 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:
- 15km around the site for sites of International Importance (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site)
 - 2km around the site for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR))
 - 1km around the application site for sites of County Importance (e.g. Sites of Importance for Nature Conservation (SINC) / Local Wildlife Sites (LWS) and species records (e.g.: protected, Species of Principal Importance as listed on Schedule 41 of the NERC Act [2006]¹ or other notable species).

Flora

Habitats

- 2.4 The site was initially surveyed on 21st October 2013 using the standard Phase 1 habitat assessment methodology as recommended by Natural England², to identify specific habitats and features of ecological interest. A further survey was undertaken on 17th September 2015 to assess any changes to the habitats previously recorded. Habitats were marked on a base plan and where appropriate, target notes were made. An inspection of the site for the presence of any invasive weed species was also carried out. Features such as trees were considered with regard to their ecological value and potential to provide suitable habitats for protected species.

Fauna

- 2.5 During the initial survey of the site in October 2013, followed by the update in September 2015, observations, signs of or suitable habitat for any species protected under Part 1 of the Wildlife

¹ The Natural Environment and Rural Communities Act 2006. [Online]. Available from: <http://www.legislation.gov.uk/ukpga/2006/16/contents> [Accessed 11/11/2013]

² JNCC. (1990). Handbook for Phase 1 habitat survey – a technique for environmental audit. Peterborough: JNCC (as amended 2003 & 2007)

and Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2010 (as amended)³ and the Protection of Badgers Act 1992⁴ were noted with particular attention being given to the potential presence of bats, reptiles, great crested newt *Triturus cristatus*, and badger *Meles meles*. Consideration was also given to the existence and use of the site by other notable fauna such as Local Biodiversity Action Plan (LBAP) or Red Data Book (RDB) species.

- 2.6 Consideration was also given to the existence and use of the site by other notable fauna such as those listed as species of principal importance under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006, priority species in England or Red Data Book (RDB) species.

Badgers

- 2.7 As part of the survey all habitats within the site and immediately adjacent, were searched for evidence of badger activity. The standard methodology was used, as outlined by Harris, Creswell and Jefferies⁵ (1989). This involved a thorough search for evidence of the presence of badgers, including:
- Setts: including earth mounds, evidence of bedding and runways between setts;
 - Latrines: often located close to setts, at territory boundaries or adjacent to favoured feeding areas
 - Prints and paths or trackways
 - Hairs caught on rough wood or fencing; Other evidence: including snuffle holes, feeding and playing areas and scratching posts
- 2.8 The identification of snuffle holes, scratching posts or feeding signs on their own are not necessarily conclusive evidence of the presence of badgers. A number of such signs need to be seen in conjunction before they can be said to be conclusive of badger activity.

Reptiles

- 2.9 The site was largely absent of any suitable grassland mosaics due to the heavy management which occurred through the site, there were patches of scrub around the ditch on the western boundary, around some outbuildings and central regions of the site. The site was evaluated as being suboptimal for reptiles, and specific surveys deemed unnecessary.

Amphibians

- 2.10 Aquatic habitats within the site were assessed for their suitability to support great crested newts (GCNs). The occurrence of water bodies within a 500m radius was also assessed using aerial photographs and OS maps. Terrestrial habitats were also assessed for their capacity to support GCNs, suitable habitat typically include woodland, scrub, grassland and wetland areas.

³ *The Conservation of Habitats and Species Regulations* (as amended 2012). [Online]. Available from: <http://www.legislation.gov.uk/uksi/2010/490/contents/made> [Accessed 11/11/2013]

⁴ *The Protection of Badgers Act 1992 (as amended)*. London: HMSO [Online]. Available from: <http://www.legislation.gov.uk/ukpga/1992/51/contents> [Accessed 03/05/2013].

⁵ Cresswell, P., Harris, S. & Jefferies, D.J. (1989). *Surveying Badgers*. The Mammal Society Publication No.9 Mammal Society

- 2.11 Where accessible all water bodies within the site and in a 500m radius were assessed for potential to support an amphibian population, including GCNs, using the Habitat Suitability Index (HSI). This instrument assesses the ponds against ten pre-determined criteria, producing a score which indicates the degree of suitability for occupation by GCNs.

Habitat Suitability Index

- 2.12 The Habitat Suitability Index⁶ provides a measure of the likely suitability that a water-body will support newts. In general, ponds with a higher score are more likely to support great crested newts than those with a lower score and there is a positive correlation between HSI scores and ponds with newts recorded. Ten separate attributes are assessed for each pond:

- 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 following scale.

Table 1 – HSI Scores and Pond Suitability

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

⁶ Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

Aquatic Surveys

- 2.14 Survey methods followed those recommended by Natural England as detailed in the Great Crested Newt Mitigation Guidelines⁷. To determine the presence or absence of GCNs four survey visits were undertaken between April and May 2013. On each survey occasion three of a possible four different techniques were employed (egg search, sweep net, bottle trap and torch). A summary of these techniques is detailed below:

Bottle trapping

- 2.8 Bottle traps are set within the water body in the evening at densities of one trap per two metres of shoreline (where feasible) and left overnight for inspection in the morning. Traps are partially submerged in the water leaving an air bubble in the bottle and secured by a cane marked with a high visibility tape to ensure relocation the following day. Care is taken to ensure that trapping does not occur during excessively warm weather, when the temperature inside the trap could rise considerably, reducing oxygen levels and potentially suffocating the newts.

Sweep netting

- 2.9 Long handled sweep-nets are used to sample the margins of the pond for great crested newts, with approximately 15 minutes of netting per 50m of shoreline.

Torching

- 2.10 Torching involves searching the water body after dusk using high-powered torches to scan the margins and potential display areas for newts. The perimeter of the pond are walked slowly spending approximately 15 minutes torching each 50 m of shoreline recording any newts observed. Torch surveys are unsuitable within heavily vegetated and/or turbid ponds or after periods of heavy rain as visibility is diminished.

Egg searching

- 2.11 Newts lay single eggs on leaves of aquatic plants or other suitable pliable material, after which the material is folded over the egg to protect it. Great crested newt eggs can be distinguished from those of the other newts by their size, shape and colour. Submerged vegetation was examined for newt eggs and folded leaves gently opened to check for eggs. Once a great crested newt egg is identified, no further leaves need to be examined to minimise any further potential disturbance.
- 2.12 All surveys are conducted by at least one licensed ecologist from FPCR Environment and Design Ltd. All surveys were completed during suitable conditions i.e. when the ambient air temperature exceeds 5°C, with little/no wind and no rain.

Bats

External/Internal Building Surveys

- 2.13 External building features were assessed to determine the potential for bat roosting opportunities. Structural features were recorded and suitable access points such as small gaps under

⁷ Whitehurst (2001) *Great Crested Newt Mitigation Guidelines: Version August 2001*. English Nature, Peterborough.

eaves/soffit boards, raised or missing ridge tiles, gaps through degraded mortar and gaps at gable ends was sought. Where potential access points were identified evidence of bat usage was sought, which included fur and urine staining and the presence of bat droppings within or beneath the potential access points. The presence of heavy cob-webbing and general detritus around or within potential access points was considered as an indicator that bats have not recently used the area. Binoculars were used to aid the surveys.

- 2.14 A thorough internal and external inspection of all outbuildings were undertaken on 21st October 2013 and updated on 17th September 2015. Evidence of a roost was determined as the presence of a dead or live bat(s), concentrated piles or scattered droppings, food remains such as insect wing fragments as well as scratch marks and/or staining on beams or brick work.

Nocturnal Activity Surveys

- 2.15 Due to the small size and low quality of the habitats present within the main site, it was predicted that local bat populations would only be using the peripheries of the site, the majority of which will be retained; therefore no activity surveys were deemed necessary.

Trees

- 2.16 All trees on site were assessed for their potential to support roosting bats. Features which could provide suitable bat habitat include cracks, fissures, cavities, woodpecker/rot holes or missing limbs. Presence of dense ivy cover was also noted as this can obscure the aforementioned features. The trees were classified into general bat roost potential groups based on the presence of features listed above. Table 2 below classifies the potential categories as accurately as possible. This table is based upon Table 8.4 in Bat Surveys- Good Practice Guidelines⁸. This published table is aimed at the assessment of trees scheduled for arboricultural work rather than those affected by proposed development. As such, the strategy and recommendations described in Table 2 have been designed to reflect the more intensive survey effort required to satisfy the requirements of the planning process.

Table 2. Classification of Bat Potential in 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 Trees that have a	Identified on a plan and in the field to assess the potential use of suitable cavities, based	Trees where no bat roost confirmed after further surveys:

⁸ Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust, London.

Tree Category and Description	Survey Requirements Prior to Determination.	Recommended Mitigation Works and/or Further Surveys.
high / moderate potential to support bat roosts.	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.	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 2b 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

Tree Category and Description	Survey Requirements Prior to Determination.	Recommended Mitigation Works and/or Further Surveys.
		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 are 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 may be 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 (Figure 1)

Statutory Sites (Figure 1)

- 3.1 The Multi-Agency Geographic Information for the Countryside (MAGIC) website indicates that there are seven internationally designated site within 15km of the site boundary including: Pagham Harbour Ramsar/SPA (7.8km south-west); Duncton to Bignor Escarpment SAC (9.2km north-east); Chichester and Langstone Harbours Ramsar/SPA (9.3km north-west); Solent Maritime SAC (9.3km south-west); Singleton and Cocking Tunnels SAC (11.1km north-west); Kingley Vale SAC (12.2km north-west) and Arun Valley SAC/SPA/Ramsar (12.6km west of the site).

Table 3. Details of Internationally Designated Sites within 15km of the site

Site Name	Designation	Approximate Location	Size (ha)	Reasons for Designation
Pagham Harbour	Ramsar/SPA	7.8km south-west	636.68	<u>SPA</u> Supports Annex I bird species during the breeding and over winter periods, including: Little Tern <i>Sterna albifrons</i> and Ruff <i>Philomachus pugnax</i> . The site also supports Pintail <i>Anas acuta</i> which is of European importance.
Duncton to Bignor Escarpment	SAC	9.2km north-west	214.47	The site comprised the Annex I habitat, <i>Asperulo fagetum</i> beech forests. Rare plants include white helleborine, yellow bird's nest and green hellebore.
Chichester and Langstone Harbour	Ramsar/SPA	9.3km north-west	5810.03	<u>SPA</u> Classified as a wetland of international importance as this area regularly supports at least 20,000 wetland species, including Annex 1 species.
Solent Maritime	SAC	9.3km south-west	11325.09	Supports three Annex I habitats: Estuaries – encompasses major estuarine system on the south-coast with four coastal plain estuaries and four bar-built estuaries.

				Spartina swards – the only site for smooth cord-grass in the UK. Atlantic salt meadows – the second-largest aggregation of Atlantic salt meadows in the south and south-west England. The Solent Maritime also supports Desmoulin's whorl snail <i>Vertigo moulinsiana</i>.
Singleton and Cocking Tunnels	SAC	11.1km north-west	2.45	Supports Annex II species Barbastelle <i>Barbastella barbastellus</i> and Bechstein's <i>Myotis bechsteini</i> bats.
Kingley Vale	SAC	12.2km north-west	208.05	Annex I habitat – Largest area of Yew woodland on chalk within Britain. It is also considered to be an important orchid site
Arun Valley	SPA/SAC/Ramsar	12.6km west	528.62	The Arun Valley consists of three component SSSI. Together these sites comprise an area of wet meadows on the floodplain of the River Arun between Pulborough and Amberley. The neutral wet grassland which is subject to winter, and occasional summer, flooding, is dissected by a network of ditches, several of which support rich aquatic flora and invertebrate fauna. The area is of outstanding ornithological importance notably for wintering wildfowl and breeding waders. <u>SPA</u> Annex II species:- 4056 Ramshorn snail <i>Anisus vorticulus</i> <u>Ramsar</u> Criteria 2:- supports 7 wetland invertebrates in the British Red

				Data Book as threatened; and 4 nationally rare and 4 nationally scarce plant species. Criteria 3:- Ditches with a rich diverse flora Criteria 5:- Important for wintering birds including Northern pintail <i>Anas acuta</i> <u>SAC</u> Article 4.1:- Overwintering Bewicks swan <i>Cygnus columbianus bewickii</i> 1.6% global population Article 4.2:- Large population of overwintering birds
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- 3.2 There are no statutory sites of national importance or non-statutory sites within 2km of the site boundary.

Fauna

- 3.3 Records of protected and notable species were returned by Sussex Biological Records Centre. No records were provided from within the site boundary, however a number of records were provided from within 1km of the site. The locations of these records are illustrated on Figure 1 Consultation Results Plan.
- 3.4 The consultation search returned two records of GCN situated approximately 10m and 120m south of the site, respectively, both dated in 2013. There is a pond present within the south-west corner of the site, upon which GCN surveys were undertaken by FPCR on land to the east of Hook Lane in 2013, where a single male and female GCN were found to be present. A GCN record occurred approximately 50m north of the site within a residential property called The Willows (1992).
- 3.5 There were seven European hedgehog *Erinaceus europaeus* records within the search area, with the nearest recorded in 2000 to the west of the site near Manor House (1km).
- 3.6 There were seven bat records within the search area. The nearest three records occur within Manor House (1km NW, in 2003), where a serotine *Eptesicus serotinus*, *Pipistrelle* and brown long eared *Plecotus auritus* roost were found, although the type of roost was not confirmed. A feeding roost was found at Decoy Farm (1.1km SW) in 2011, although the species of bat was not confirmed. Approximately 1.4km north east of site was the record of a dead *Pipistrelle* bat (2010). Another brown long eared roost occurred almost 2km north from the site, within Bayleys Barn 1999.

- 3.7 There was one adder *Vibera berus* record 0.3km east of the site within Lamorna Gardens residential estate, which dated back to 1990. Grass snakes *Natrix natrix* have been recorded in a number of locations; within a property on Hook Lane which is approximately 0.7km north east (2001); within a field 0.7km south west of site (2001); two records within Elm Grove South which is 2km south east of the site and a number around West Barnham between 1996 to 2001.
- 3.8 There were five water vole *Arvicola amphibius* records within 2km of the site boundary, with the nearest occurring being 1km to the north west of the site, within the Aldingbourne Lake, in the Manor House (1989 to 1990). There was also a records 1.5km south east within Lidsey Rife in the south east (1996); Groves Farm 1.6km south west (2007); 1.9km south west within Aldingbourne Rife (2009) and 1.9km north west within the upper Aldingbourne Rife (1997).

Flora (Figure 2)

- 3.9 The location of habitats can be seen in Figure 2.

Scrub



Photo 1. Scrub and ruderal embankment in centre Photo 2. Scrub south of B6

- 3.10 Scrub was largely isolated to the western boundaries where bramble *Rubus fruticosus* agg originated from the dry ditch on the boundary (Dd1, figure 2), this has spread into the site, particularly dense around outbuildings. A central embankment which consisted of rumble and soil, had areas of dense bramble, although there were also more ruderal species dominating central parts. A similar but smaller feature also existing in the south eastern corner of the site.
- 3.11 To the east of the site was a defunct hedgerow (H1) with large gaps along its length, scrub and ruderal species had colonised gaps with no evidence to suggest that these areas have been recently managed.
- 3.12 The scrub within the central regions had more lateral growth, whereas those to the west had dense patches with more structural diversity, however as species were limited these habitats were of negligible conservation value.
- 3.13 During the 2015 walkover, the bramble coverage was similar to that previously recorded, however as little management had occurred the peripheries of the outbuilding were more densely covered.

Tall Ruderal

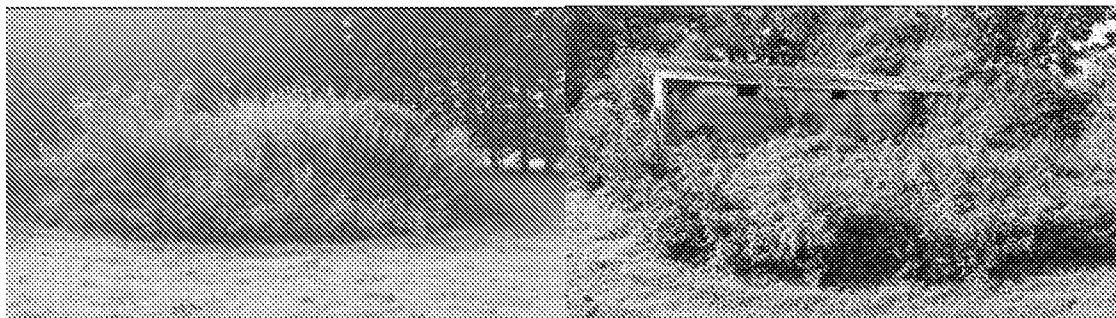


Photo 3: Ruderal mound in south-east corner. Photo 4: Ruderal adjacent to northern elevation of B6

- 3.14 Ruderal species were present around the peripheries of the site, but particularly in association with areas around outbuildings. Species which were most abundant were broadleaved dock *Rumex obtusifolius*, rosebay willowherb *Chamerion angustifolium* and common nettle *Urtica dioica*, there were also areas of creeping thistle *Cirsium vulgare* and bristly oxtongue *Picris echioides*.
- 3.15 The central regions of embankments (Target Note 1 & 2) contained a mixture of scrub and ruderal species with common nettle and rosebay willowherb being the most abundant species, however there were also elder *Sambucus nigra*, spear thistle *Cirsium vulgare* and teasel *Dipsacus fullonum*.
- 3.16 Common nettles were a dominant feature around building B6, where they had spread around the entire building, with some areas looking like they may have formed on areas of nutrient rich ground. Ruderal species were also found along the western edge backing onto the dry ditch, and in the north western corner common nettles were abundant with spear thistle, common sedge bristly oxtongue *Picris echioides*, ribwort plantain *Plantago lanceolata*, broadleaved dock *Rumex obtusifolius* and dandelion *Taraxacum officinale*. Such areas were of **negligible** conservation value.

Amenity Grassland



Photo 5. View westward towards water body

Photo 6. View eastward towards Hook Lane

- 3.17 The development plot is part of the garden which belongs to the Barnside property, this consisted of a large expanse of short amenity grassland which was regularly mown, it contained red fescue *Festuca rubra* and perennial ryegrass *Lolium perenne*, with cock's foot *Dactylis glomerata* and false oatgrass *Arrhenatherum elatius* found around buildings and along the peripheries of the site

which were not as regularly managed. Some herbaceous species were present such as ribwort plantain and creeping buttercup *Ranunculus repens*, white clover *Trifolium repens* and daisy *Bellis perennis*. As the grassland stretched northward herbaceous species became more dominant with ribwort plantain being more abundant with some patches of yarrow *Achillea millefolium*.

- 3.18 Due to their species content and heavily managed structure, this habitat was considered to be of **negligible** nature conservation value.

Hedgerow



Photo 7. Defunct hedgerow on eastern boundary

- 3.19 Only one defunct hedgerow was present along the eastern boundary backing onto Hook Lane (H1, figure 2); this consisted of mature hawthorn *Crataegus monogyna* which had grown to approximately 3m in height and 3m width, with no evidence of any management. There were also patches of blackthorn *Prunus spinosa*, elder, hazel *Corylus avellana* and dense areas of bramble. There was a small roadside verge on the eastern side of this hedgerow, but there were no other features. There were a two semi mature crack willows *Salix fragilis* and a single pendunculate oak *Quercus rubur*, within the hedgerow.
- 3.20 In the north western corner was a small stretch of garden privet *Ligustrum ovalifolium* (Target Note 3, figure 2). The hedgerow within the site was of limited value, due to the lack of management and the number of gaps that had formed; therefore this was valued as having **negligible** conservation value.

Dry Ditch



Photo 8. Ditch Dd1 on western boundary

- 3.21 Ditch Dd1 was located along the western boundary of the site, it was approximately 60-80cm deep and 1m wide. The ditch was dry during the 2015 survey and the absence of any marginal species indicates that water was absent the majority of the year. The ditch had a number of crack willow trees on the banks, especially in the southern stretches, some specimens had self-set within the ditch. The entire stretch of this ditch had been colonised by bramble which was very dense in patches where overshadowing was absent, holly had also established in some areas reducing access to areas. The current state of this ditch would suggest that it was of **negligible** conservation value.

Trees

- 3.22 The site had a number of semi mature trees along the western boundary, some were outside of the boundary on the opposite bank, however in the south western corner were a number of crack willows and oak species, these were all healthy with no signs of any damage. A number of trees had been removed from around the pond in the south west, as all that remained with tree stumps, of what was likely to be crack willow.
- 3.23 Two crack willows and a single oak was also recorded in hedgerow H1. Just outside of the north eastern corner of the site were two oaks trees which backed onto the access into Barnside property, these were covered with ivy, however they were in good condition and are outside of the boundary and will not be affected by development.
- 3.24 A row of leylandii species stretch along the southern boundary, these overshadow parts of the site, but also reduce the ground flora under their canopies, whereby large areas were bare.

Pond

- 3.25 In 2013 the pond measured approximately 3m x 5m with an unknown depth, however there were tree trunks in the middle which were floating suggesting that there was sufficient water present to suspend such material. A sluice gate was located in the south western corner of the pond, which allowed water to flow into ditch Dd1 when it reached a set depth. The water was covered with leaf

litter and debris from the recent felling operations; it was overshadowed slightly by the surrounding trees and the water quality was poor. There was no aquatic or marginal species present and all scrub vegetation on the eastern banks had been removed.

- 3.26 The update survey carried out in 2015, found the pond to have swelled to 15m x 8m. The pond was still heavily shaded with no aquatic species present. However, the bordering habitat comprised tall ruderal and dense scrub which connected to the dry ditch to the west.

Fauna

Badgers

- 3.27 No evidence of badgers was recorded across the site or immediately adjacent to the west. No mammal runs were seen across the site.
- 3.28 No records for badger were returned by consultees within the site or in the surrounding 1km radius.

Reptiles

- 3.29 The site lacked any continuous suitable habitats, as tussocky habitat mosaics were absent through the site due to regular management. The western peripheries supported areas of ruderal and scrub, particularly along the dry ditch which was heavily overshadowed and lacked any suitable basking opportunities.
- 3.30 Consultations have records of reptiles within the wider area, with the majority occurring over a 1km away, the nearest was an adder 0.3km to the east (1990). The records were all separated from the site via residential dwellings, areas of arable land and roads, reducing the potential for colonisation. Due to the limited habitats within the site and limited connectivity to surrounding habitats it is considered that reptiles are unlikely to use the site.

Amphibians

- 3.31 A GCN survey was undertaken by FPCR on land to the east of Hook Lane in 2013, whereby all the ponds within a 500m radius were surveyed for a planning application; the data subsequently achieved during that survey have been used within this planning application as the area covered were the same.
- 3.32 A HSI assessment was undertaken on pond P1 to the south off site within a nursery approximately 10m from the site boundary and pond P2 within the site boundary. Ditches were also surveyed in close proximity to the development (ranging from 50m to 130m), however these were dry.

Table 4. HSI Scores of Water Bodies within 500m of Site

Water Body	Score	Suitability
Pond 1	0.58	Below Average
Pond 2	0.74	Good

- 3.33 During the six surveys of ponds P1 & P2, a peak count of one female GCN was found in pond P1 on 6th June 2013. While in pond P2 a peak count of two GCNs were recorded (one male and one female) on 1st May 2013.

Table 5. Summary of Peak Newt Counts Per Pond Surveyed in 2013

Pond	Great Crested Newt				Smooth Newts			
	Male	Female	Unknown	Eggs	Male	Female	Unknown	Eggs
Pond 1	0	1	0	0	0	1	0	No
Pond 2	1	1	0	0	4	6	0	No

Bats

Building Surveys

- 3.34 In total there were six buildings within the site boundary, the majority were wooden outbuildings used as storage sheds for household furniture and a workshop.

Building B1 (Figure 2)

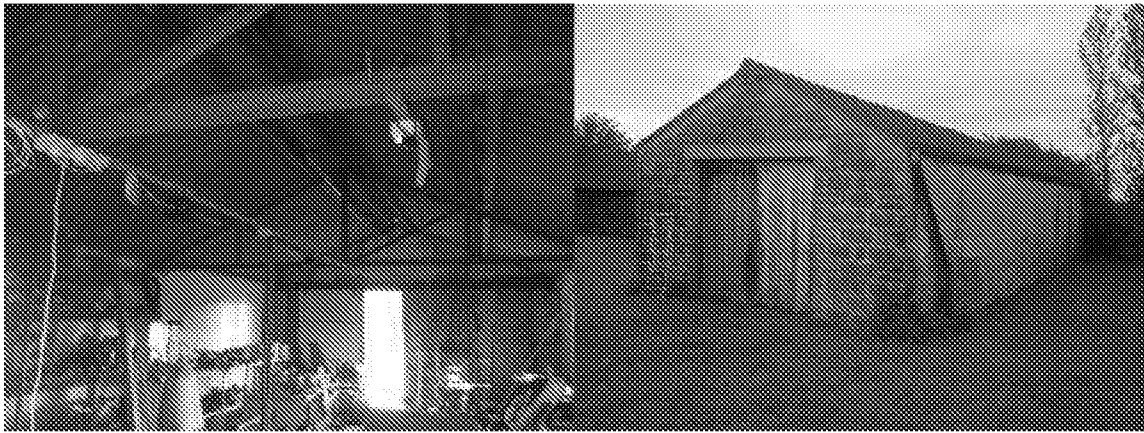


Photo 9 & 10. Building B1 external and internal features

- 3.35 Building B1 a shed was constructed at the base using breeze blocks with the upper two thirds constructed out of vertically hung wooden boards which attach to a wooden support structure. There was a pitched single sheeted corrugated steel roof which was eroded but had no visible gaps into the structure. The northern gable end had vertical hanging wooden panels with a double barn door with two sets of windows, when the doors were closed there were small gaps at the top. On the eastern aspect of this building was a small lean to, constructed out of the same materials as the main building, however this was densely covered with bramble.
- 3.36 Internally there was lots of furniture and tools which provided ideal surfaces for evidence of bat droppings to be seen. The roof was supported by modern wooden trusses with a wooden purlin adding additional support, a ridge board was absent. At the southern gable end a number of the vertical hanging panels were missing, these were covered with plastic sheets therefore reducing the potential for access. During the surveys no bat evidence was seen, mouse droppings were seen on a number of surfaces and some rat droppings occurred in sections on the floor to the south.

Building B2 (Figure 2)**Photo 11 & 12. Building B2.**

- 3.37 Building B2 an old hay barn with a pitched single skinned corrugated steel roof, with an open northern gable end. On the western and eastern ends were single storey lean to buildings which were constructed out of a mixture of horizontal and vertical wooden panels and/or steel corrugated sheets, there were a few gaps between sheets which allowed light to penetrate into the building. On the eastern aspects there was a dense coverage of bramble which had entered the structure creating nesting areas for birds, whereby two old nests were seen. The western lean to had a slight pitch also constructed out of single skinned steel sheets, this also had wooden sarking. The eastern lean to had a concrete fibre roof, the wooden panels around this small structure had a large amount of ivy and bramble establishing through, these had a number of bird nests.
- 3.38 The internal structure consisted of a wooden king post support structure within the main barn, these had metal purlins running along the length of the roof. There was a double ridge beam with a steel ridge sheet running along the length of the roof, under which light appeared through. There were a number of gaps between wooden and steel panels on the southern aspect which had been covered with plastic sheets, there was also an old window frame on the southern gable which had been covered mesh which would impede access. Due to the open nature of the building and large areas of exposed trusses with no gaps or crevices. During the surveys there was no evidence of any bat activity; farming equipment under the ridge had no evidence of urine or droppings. There were a number of bird nests within the scrub which penetrated into the structure and there was a swallow *Hirundo rustica* nests within one of the support beams.

Building B3**Photo 13 & 14. Building B3**

- 3.39 Building B3 was a breeze block constructed workshop with a pitched single skinned corrugated concrete fibre roof, with ridge tiles with no visible gaps. Where the roof overhangs guttering had been installed, although bargeboards and soffits were absent. On the eastern gable was a double wooden door with small gaps around the tops, a concrete lintel was present above the door, this was well sealed with no gaps or missing mortar. The western gable was covered with scrub and holly. Windows were present on the southern aspect, there were well sealed with no gaps or crevices seen.
- 3.40 The internal metal modern trusses were exposed along with the roofing material and where these joined to the supporting walls, expanding foam sealed any gaps. There were lots of cob webs on the southern aspects around the window and between the two ridge beams at the apex. The workshop was in use and there was no evidence of any bats, as the building when closed provided no access.

Building B4

Photo 15, 16 & 17. Building B4

- 3.41 Building B4 is a hipped roofed shed with clay tiles and ridges. There were a number of tiles where there were gaps underneath and a few tiles which were missing on the eastern aspect, there were no signs of any staining or dropping within such gaps, and inspections under such features found that there were no bats present. There was also a skylight on the western hip, this had a number of clay tiles around it which also had some gaps, again no evidence of bats were seen. Wooden soffit boxes were present, and in the south western corner a small hole had been created by birds, these allowed access into the structure, an inspection found that this was cob webbed and that there was old bird nesting material present. The external wooden cladding was in good condition with no gaps, and where windows were present there were no crevices to allow access.
- 3.42 The internal surveys found that the roof was under felted covering the beams, there was a small section which was damaged in the south, under which the beams were exposed with a high levels of cob webbing seen. There was a large amount of furniture within this structure, during searches no evidence of bats was observed, some mice droppings were seen.

Building B5**Photo 18 & 19. Building B5**

- 3.43 Building B5 was an old stable or animal shelter as there were three stable doors on the southern aspect, these were heavily warped and only one of the doors could be opened. The structure was half breeze block with the remaining being wooden panels, covered with dense bramble and ivy on all aspects. The pitched roof was single skinned corrugated concrete fibre which was also partially covered by ivy.
- 3.44 The internal structure was constructed out of basic wooden trusses with a number of purlins running across the roof, with two ridge beams either side of the apex. The internal roof structure was very heavily cob webbed with no areas indicating recent use by bats, cob webs continued down the walls and across the internal stable divides. Detritus was very high which was a result of the large degree of ivy which had established from the outside; there was evidence of birds possibly using the structure for nesting/resting as there was a high degree of bird droppings. On the southern aspect plastic sheeting had covered gaps where wooden panels had been lost, this created a light and airy environment, which was not suitable for bats to roost as there was an absence of crevices and gaps to provide refuge.

Building B6**Photo 20. Building B6**

- 3.45 Building B6 had a similar structure to building B5, as this was used as pig pen, however this had a single pitch made from single skinned concrete fibre corrugated sheets. All walls were constructed out of breeze blocks with a number of gaps near the roof to provide a light source

and ventilation. Scrub covered the entire southern aspect of the building, whereby all doors were covered, this coverage continued on the western aspect and around parts of the north.

- 3.46 The internal structure had a number of wooden beams running across the roof, with no trusses structure present, therefore no gaps or crevices were present. A number of pigeons were seen within the building and there was no evidence of bats.

Trees

- 3.47 Very few trees were present within the site, there were crack willows along the western boundary and within the outgrown hedgerow to the east, all were absent of any features which could be used by roosting bats. There were two oak trees just outside of the north eastern boundary, these had a coverage of ivy up the trunk, however this was not dense enough to provide any roosting potential.

Water Voles

- 3.48 There were no signs of any water vole activity along the dry ditch (Dd1, figure 2), this was dry during recent and previous visits to the site. The ditch was heavily scrubbed over and the trees which lined the banks also reduced diversity of vegetation, through the high degree of overshadowing. Searches of the ditch found no evidence of any water vole activity. The ditch had a bankside structure which could form suitable burrowing habitats, however the lack of water and suitable foraging opportunities would limit the potential for this ditch to be used by water voles.
- 3.49 There are records of water voles within the wider area, however the ditch which runs down the western boundary does not directly form linkages with these records, therefore colonisation from these areas is highly unlikely. The ditch habitat at the moment is not of a suitable quality to provide foraging habitats for water voles.

4.0 DISCUSSION AND RECOMMENDATIONS

Proposals

- 4.1 The framework plan includes eight residential dwellings, associated infrastructure and green open space. The onsite pond will be retained and a 10m buffer around the pond will be specifically enhanced for GCNs, with the remaining area of the total 0.26ha, used for recreational activity. The surrounding houses will have their rear gardens backing onto the peripheries of the site, therefore providing possible linkages through the site. A native species hedgerow will be planted to replace the leylandii treeline along the southern boundary, further enhancing the refuge and commuting habitat for GCN and other wildlife.

Designated sites

- 4.2 The Multi-Agency Geographic Information for the Countryside (MAGIC) website indicates that there are seven internationally designated sites within 15km of the site boundary.
- 4.3 The closest, Pagham Harbour, a designated Ramsar and SPA is situated approximately 7.8km south-west of the site. This site supports Annex I bird species during the breeding and over winter periods, including Little Tern *Sterna albifrons* and Ruff *Philomachus pugnax*. The Harbour also supports Pintail *Anas acuta* which is of European importance.
- 4.4 Duncton to Bignor Escarpment SAC is situated approximately 9.2km north-west of the site. The steep scarp slopes and more gently sloping hillsides support an *Asperulo-Fagetum* beech forest with a mosaic of ash woodland, scrub and grassland. The area supports rare plant species such as white helleborine *Cephalanthera damasonium*, yellow bird's nest *Monotropa hypopitys* and green hellebore *Helleborus viridis*.
- 4.5 Chichester and Langstone Harbour Ramsar and SAC is located 9.3km west of the site. This area is classified as a wetland of international importance as this area regularly supports at least 20,000 wetland species, including Annex 1 species.
- 4.6 Solent Maritime SAC is situated approximately 9.3km west of the site. Supports three Annex I habitats: Estuaries (including coastal plain and bar-built estuaries), *Spartina* swards and Atlantic salt meadows. The Solent Maritime also supports Desmoulin's whorl snail *Vertigo moulinsiana*.
- 4.7 Singleton and Cocking Tunnels SAC is located 11.1km north-west of the site and supports Annex II species Barbastelle *Barbastella barbastellus* and Bechstein's Myotis *Myotis bechsteini* bats.
- 4.8 Kingley Vale SAC is situated approximately 12.2km north-west of the site and comprises the largest area of Annex I habitat Yew woodland on chalk within Britain. It is also considered to be an important orchid site.
- 4.9 Arun Valley, designated a SAC, SPA and Ramsar with component SSSIs, lies approximately 3.8km west of the site and comprises wet meadows on the floodplain of the River Arun. The neutral wet grassland which is subject to winter, and occasional summer, flooding, is bisected by a network of ditches, several of which support rich aquatic flora and invertebrate fauna. The area is of outstanding ornithological importance notably for wintering wildfowl and breeding waders.
- 4.10 All sites are separated from the proposed development by a number of roads and residential units. There are no watercourses linking these sites.

Non-Statutory Sites

- 4.11 There are no statutory sites of national importance or non-statutory sites within 2km of the site boundary.

Flora and Fauna

- 4.12 The vegetation within the site was typical of an ornamental garden with large grassland areas under continuous management which provided limited species diversity and lack of structure. The grassland habitats within the site will be lost as all the central areas will be designated for development, such losses will not have a detrimental effect on the conservation value of the site and the development will have areas designated for open spaces which will consist of amenity grassland, which will also include an area of ecological enhancement.
- 4.13 Patches of scrub were isolated around the peripheries of the site and around outbuildings, with some linear stretches along the dry ditch to the west. Dense scrub could provide nesting potential for breeding birds and also foraging during the autumn where fruiting bodies develop. The scrub and ruderal embankments within the middle of the site were isolated from other habitats by the amenity grassland, and the species content was limited with common species recorded, which provide negligible conservation value. These habitats will be removed during the development to make way for residential dwellings, new scrub and ruderal habitats will be created to the south west, providing mitigation for protected species (see below).
- 4.14 The single hedgerow along the eastern boundary of the site was unmanaged and had become overgrown with no defined structure. This hedgerow will be lost to facilitate a new access from the properties onto new footpaths proposed along Hook Lane. Sections of this hedgerow may be replaced once construction is completed, whereby a more native species rich hedgerow can be planted. The surrounding residential dwellings on Hook Lane also have limited vegetation adjacent to the road and as such this area is considered to have limited value to wildlife, especially bats due to a lack on linear vegetation. The more valuable areas are considered to be the southern and western boundaries which provide navigational routes, which will be enhanced through the proposals with more native planting.
- 4.15 The leylandii trees along the southern boundary, will be removed as they provide very little benefit to wildlife although they may provide some habitat linkage for bats. A species rich hedgerow with standards will be planted to replace them, species such as field maple *Acer campestre*, pedunculate oak and wayfaring tree *Viburnum lantana* will provide structural diversity in the long term. Hedgerow species should include hawthorn, blackthorn, honeysuckle *Lonicera periclymenum*, hazel, dogwood *Cornus sanguinea*, dog rose *Rosa canina*, guelder rose *Viburnum opulus* and holly.
- 4.16 Habitat suitability for reptiles is very limited due to the continual management of the site, and the lack of structural diversity. No reptile records were provided for the immediate area from consultees. Given the sub-optimal habitat and lack of connectivity, it is considered reasonably unlikely that reptiles will be using the site.
- 4.17 Pond P2 within the site has a poor aquatic, marginal and bankside habitat composition; this is due to the historical overshading by surrounding trees, however now the majority of these have been removed more suitable conditions may develop. This pond is to be retained within the

development and enhanced through planting of marginal and aquatic plants, with surrounding habitats enhanced to ensure linkages to the wider area.

- 4.18 During the GCN surveys within the site a peak count of two adult GCNs were recorded in pond P2 and one in pond P1 just outside of the southern boundary, this represents a small population according to current guidance⁷.
- 4.19 GCNs are afforded full protection at a European and UK level under the Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife & Countryside Act 1981 (as amended).
- 4.20 Under Regulation 41 of the Conservation of Habitats and Species Regulations 2010 it is illegal to:
- Deliberately capture, injure or kill any wild animal of a European Protected Species (EPS),
 - Deliberately disturb wild animals of an EPS (affecting ability to survive, breed or rear young) – disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young,
 - Deliberately disturb wild animals of an EPS (impairing ability to migrate or hibernate) – disturbance of animals includes in particular any disturbance which is likely to impair their ability in the case of hibernating or migratory species to hibernate or migrate,
 - Deliberately disturb wild animals of an EPS (affecting local distribution and abundance) – disturbance of animals includes in particular any disturbance which is likely to affect significantly the local distribution or abundance of the species to which they belong,
 - Deliberately disturb wild animals of an EPS (whilst occupying a structure or place used for shelter or protection) – intentionally or recklessly disturb any wild animal while it is occupying a structure or place which it uses for shelter or protection,
 - Damage or destroy a breeding site or resting place of an EPS.
- 4.21 Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to:
- Recklessly or intentionally kill, injures or take any wild animals included in Schedule 5.
 - Recklessly or intentionally damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection,
 - Recklessly or intentionally disturb any such animal while it is occupying a structure or place which it uses for shelter or protection.
- 4.22 GCNs are listed as a Species of Principal Importance in England in Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and are also Sussex BAP species. Current national planning policy for nature conservation is provided in the National Planning Policy Framework (NPPF). This is concerned with protection through the planning system of statutory and non-statutory sites of biodiversity and/or geological conservation value, as well as species protection and biodiversity conservation in the wider environment.
- 4.23 The Government Circular ODPM06/2005 states that the presence of a protected species is:
- ... a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in harm to the species or its habitat.*

- 4.24 GCN are using the pond P2 within the site, although male and female adults were recorded there was no evidence that breeding was taking place as no eggs were recorded, however as newts are largely terrestrial they are likely to use the immediate areas around the pond during their life stage. Therefore the proposed development could potentially have an impact on this species as terrestrial habitats are likely to be lost, however the majority of which are classified as suboptimal as it consists of short mown amenity grassland which provide no areas of shelter or refuge. As possible disturbance is likely, a European Protected Species Licence from Natural England is required in order to allow proposals to derogate from the Legislation (licenses cannot be obtained to provide protection against offences under the Wildlife & Countryside Act 1981 (as amended)). As part of the application process a number of tests have to be met by the application.
- 4.25 Natural England Guidance Note: European Protected Species and the Planning Process – Natural England’s Application of the ‘Three Tests’ to Licence Applications (March 2011) states:
- “In determining whether or not to grant a licence Natural England must apply the requirements of Regulation 53(2) of the Regulations and, in particular, the three tests set out in sub-paragraphs (2)(e), (9)(a) and (9)(b).”*
- (1) Regulation 53(2)(e) states: a licence can be granted for the purposes of “preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment”.*
- (2) Regulation 53(9)(a) states: the appropriate authority shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”.*
- (3) Regulation 53(9)(b) states: the appropriate authority shall not grant a licence unless they are satisfied “that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.”*
- 4.26 Conservation status is defined as “the sum of the influences acting on the species concerned that may affect the long term distribution and abundance of its population within its territory”. It is assessed as favourable when:
- population dynamics data on the species concerned indicate that it is maintaining itself on a long term basis as a viable component of its natural habitats, and
 - The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
 - There is, or will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis.
- 4.27 Where an offence under the Conservation of Habitats and Species Regulations 2010 (as amended) is reasonably likely to be committed by works envisaged in a planning application then the planning authority must also engage with these tests when determining a planning application.
- 4.28 The presence of GCNs is a statutory constraint to the development, therefore sufficient mitigation measures will be required to ensure that this species sustains a favourable conservation status into the future. Areas of refuge and hibernation could include the outbuildings on the western edge, scrub along western edge and ruderal/scrub embankments in more central regions. The development will retain an area surrounding pond P2 and sections in the west and south, so

linkages will be maintained with habitat enhancements to increase utilisation by GCNs, which will include new foraging, refuge and hibernation features. A new native hedgerow is proposed along the southern boundary, which will strengthen linkages and create areas of refuge.

- 4.29 The habitats created within a 10m buffer of the pond will be of optimal value and will provide increased foraging opportunities and areas of refuge and hibernation will be created with log piles and hibernaculum constructed. The open spaces within the wider area will have to function as an amenity and ecology area, therefore it is proposed that a tall tussocky grassland structure is created with mown rides and open areas that can be used for walks, but still provide a resource for wildlife. These habitat creations/enhancements will ensure that the GCN population sustains a favourable conservation status into the future, as linkages to other populations will continue and more favourable terrestrial habitats will be created and managed for GCNs. The specific mitigation measures for this species are provided within section 5.0 below.
- 4.30 The drainage proposals include the use of dry swales with filter drains to be laid in the back garden of the residential units to the south and west of the site. These will be shallow grassed depressions which will allow rainwater to flow into them and move slowly through the grassed area. In dry weather, the swale will be dry and will only fill in extreme storm events. The swale will allow vegetation to develop with the potential to be used by amphibian during their terrestrial life stages. At the outfall, there is a flow control manhole which will restrict flows to a greenfield rate (5l/s) before discharging into the existing watercourse south west of the site.
- 4.31 The outbuildings within the site provide no roosting opportunities for bat species, the majority are open and airy with an absence of cracks and crevices which could be used for roosts. During the surveys no evidence of bats was recorded. Judging by the number of older residential properties within the surroundings these are more likely to provide suitable roosting opportunities than these structures. As a precautionary measure the roof tiles on building B5 should be removed by hand prior to any demolition, if any evidence of bats are seen then all work should stop and a licensed bat worker called.
- 4.32 The site has limited habitats that are likely to be used by commuting or foraging bats; the pond could provide foraging opportunities, but the boundary features are not well developed but could provide some navigational benefits. The potential for the line of leyandii to be removed could temporarily disrupt commuting routes, however as the length lost is limited and new more beneficial habitats be created, the linkages will be restored which will also provide enhanced foraging opportunities in the future. Linkages along the western boundary will be retained, thus enabling the local bat population to commute around the site while construction is undertaken and new habitats develop.
- 4.33 The west boundary features of the site will not be directly affected by the development, as the residential dwellings will be set back from the peripheries with gardens leading up to the boundary, this therefore means that lighting from houses would not illuminate features.
- 4.34 Lighting will be sensitively positioned around natural habitats, as it is important that such habitats are not illuminated, especially the canopies as these are the heights which most bat species pass. Directional and shrouded lighting should be used to minimise impacts arising from light disturbance. Recommended measures to avoid the unnecessary lighting of retained or newly created habitats include the following:
- The use of low level and / or hooded lamps to minimise light-spill

- Application of low-intensity (sodium lamps or similar) lighting, where possible
- Screening bunds to minimise light-spill on to habitats surrounding the Proposed Development
- Strategic planting to shield sensitive areas

4.35 The strategic implementation of these general measures would ensure that the potential for any indirect impacts upon foraging and commuting habitats used by the local bat population would be reduced to negligible levels.

5.0 MITIGATION STRATEGY GREAT CRESTED NEWTS

- 5.1 A small population of GCNs have been recorded in pond P2 within the site boundary and within the neighbouring pond P1 to the south. Proposals include eight residential units with areas of open space and the retention of the onsite water body and habitats associated with the western boundary.
- 5.2 The licence for undertaking works can only be gained once full planning permission has been granted and all ecological conditions discharged. The licence application takes at least 6 weeks to be reviewed by Natural England and the works can only be undertaken between March and October (inclusive). The details below are a summary of the work required, however specific details will be required within a Great Crested Newt Method Statement, which is required as part of the licence application.

Receptor Site

- 5.3 A licence will be obtained for the entire development area, whereby no work can take place until the trapping exercise has been completed. It is important that the receptor area in the south west is enhanced prior to any works, and that this has established a suitable structure to sustain a population of GCNs caught during the trapping exercise. This receptor area will be fenced off from the construction area, so ensuring that individuals caught do not re-enter the development footprint. Exclusion fencing will also be installed around the entire peripheries of the site, this will represent the area within which a trapping exercise will commence, this will have pitfall traps installed at regular intervals within the site side. Drift fencing also installed through the middle of the site, the exact design will be determined at the licensing stage, this will enable the effective and safe clearance of GCNs prior to the start of works onsite.
- 5.4 The trapping exercise will take place daily before 11.00 am for a 30-day trapping period (in accordance with guidance for 'Small' populations) during suitable weather conditions, the last five days of which must be free of trapped newts (trapping will be continued until 5 consecutive trapping days without finding great crested newts is achieved). The trapping exercise should be undertaken between March and October (inclusive), when weather conditions are suitable (consistent nocturnal temperature over 5°C) and newts are not hibernating.
- 5.5 Once the trapping period has been completed any hedgerows, trees or scrub to be removed within the licensable area will be grubbed up under the supervision of an ecologist to ensure no newts sheltering below ground are harmed. Destructive searches of any log, debris piles and outbuilding will be undertaken within the licensable area, with careful dismantling under the supervision of an ecologist. The amphibian fencing around the site boundary and the receptor area will remain in place until development has been completed to prevent newts entering the

working area. The drift fencing through the middle of the site will be carefully removed under supervision of an ecologist. Any GCN caught or found during the trapping/searching will be relocated to the receptor area. On the completion of the trapping the site working area will be declared free from newts and the land released for development, however the perimeter fencing will be retained to avoid GCNs moving into the development.

- 5.6 The on-site pond will be enhanced with marginal and aquatic planting, with the habitats within the immediate surroundings providing refuge and foraging opportunities. No evidence of breeding was observed within the waterbody and it is therefore considered unlikely that efts will be present.
- 5.7 The size of the receptor site will include a 10m buffer around the pond. The majority of the site consists of sub-optimal habitats such as amenity grassland only very small pockets were deemed adequate to provide refuge for GCNs. Approximately 65% of the site was unsuitable for GCNs, with 10% providing refuge along the western boundary.

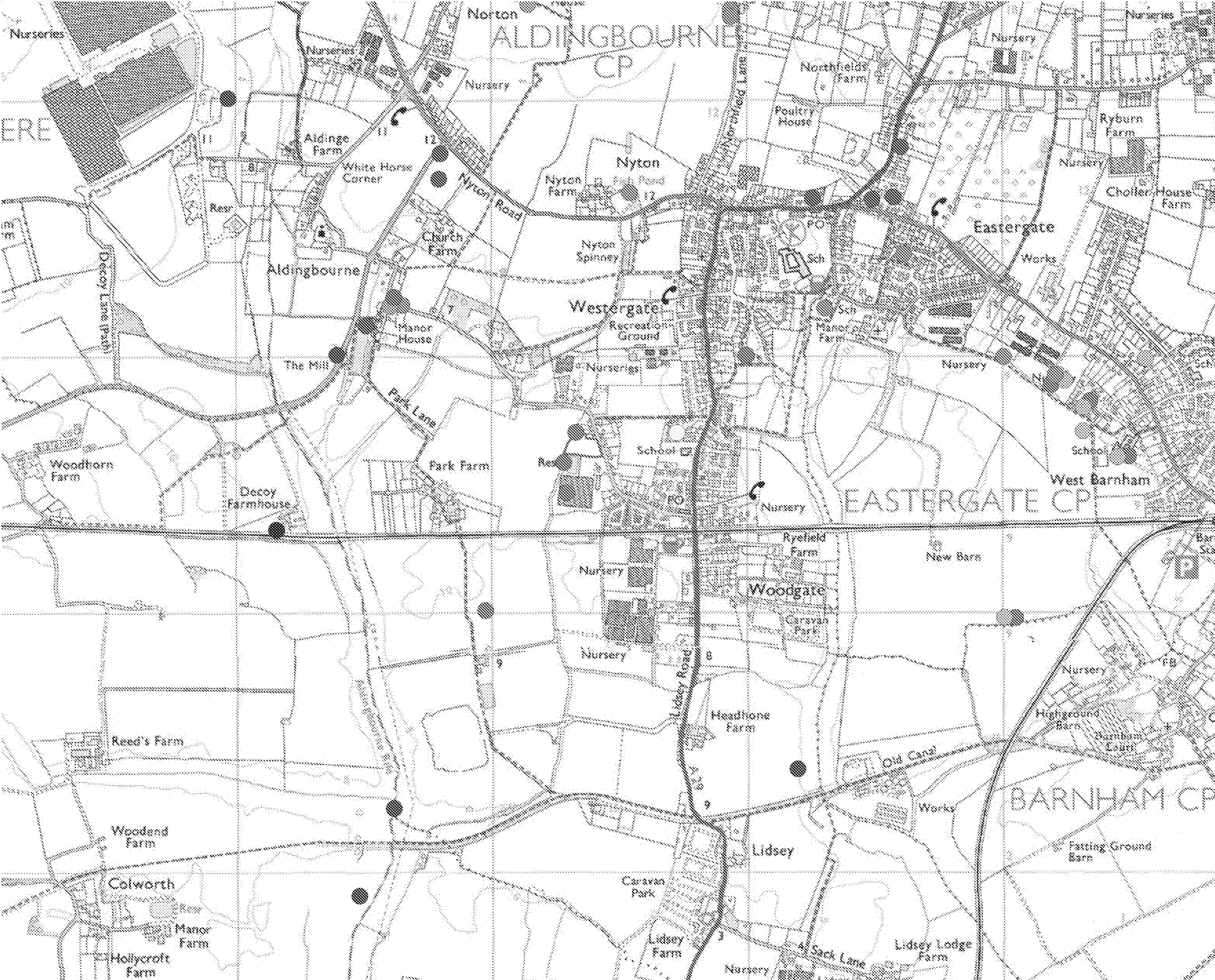
Mitigation Measures/Enhancements

- 5.8 Enhanced terrestrial habitats within the west will be created in the form of refugia around pond P2 and vegetation will strengthen western linkages to the neighbouring pond P1 in the south, but also continue possible links to habitats further north within residential areas.
- 5.9 Once the development has been completed the amphibian fencing around the site will be removed, this could potentially result in GCNs using new gardens and open spaces, therefore as a precautionary measure dropped kerbs and off-set gully pots will be installed instead of traditional drainage, this will ensure that any GCNs that stray onto these areas do not become entrapped or harmed. Permeable paving could also be proposed to reduce any risk of GCN falling down gully pots etc.
- 5.10 The south western receptor area will have refuge structures created which will consist of hibernacula and log piles, but the terrestrial habitats will be enhanced through the planting of a tussocky grassland seed mixes, these will be managed to ensure that a mosaic of grassland structures are created which will provide safe passage and foraging opportunities of GCNs. Planting of hedgerows and scrub whips will also provide a corridor of movement and additional refuge.
- 5.11 Further details for the pond and hibernacula specification will be provided during the Natural England licence application.

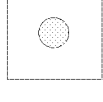
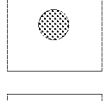
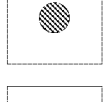
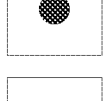
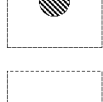
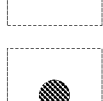
Monitoring

- 5.12 Post-development monitoring plays an important role in ensuring that mitigation proposals have worked. It is therefore recommended that monitoring surveys are completed post development to ensure that the favourable conservation status of the local population has been maintained.

The proposals will ensure no GCN come to harm as a result of the proposals, enhance the current site conditions for GCNs and provide habitat suitability not currently available on site (GCN-breeding pond and optimal terrestrial habitat (currently very limited due to the dominance of amenity grassland). It is therefore considered that as a result of the mitigation and enhancement proposals the favourable conservation status of GCNs will not only be maintained but enhanced within the local area.



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-  Site Boundary
-  Great Crested Newt *Triturus cristatus* Record
-  Grass Snake *Natrix natrix* Record
-  Adder *Vipera berus* Record
-  Slow worm *Anguis fragilis* Record
-  Common Lizard *Zootoca vivipara* Record
-  Bat *Chiroptera* Roost Record
-  Serotine *Eptesicus serotinus* Roost Record
-  Pipistrelle record
-  Brown Long-eared Bat *Plecotus auritus* Roost Record
-  Hedgehog *Erinaceus europaeus* Record
-  Water Vole *Arvicola amphibius* Record

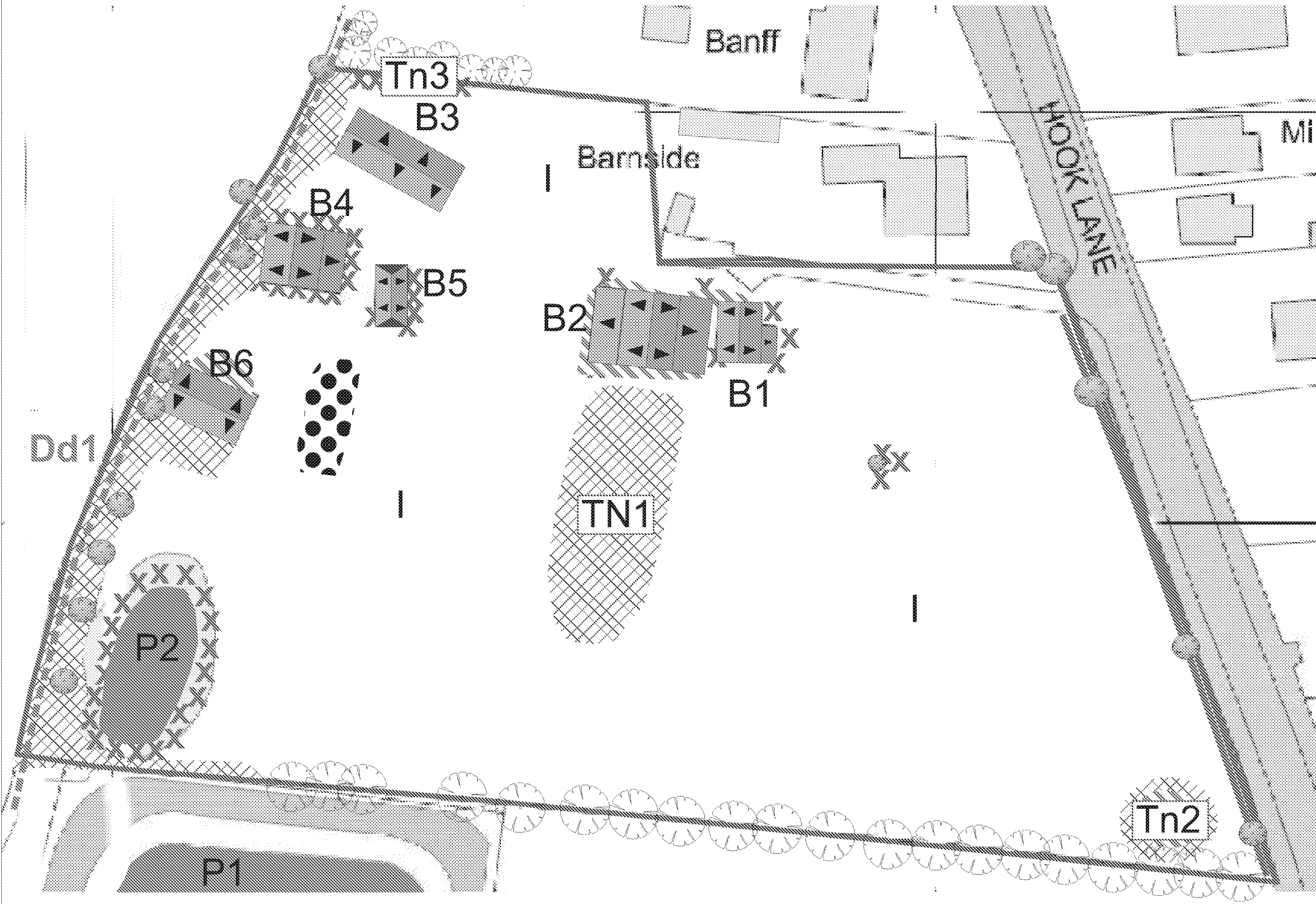


Whitgift Estates
Land West off Hook Lane, Westergate

CONSULTATION RESULTS PLAN

NTS @ A3 LC / DAH 20.01.2016

Figure 1 5907-E-01



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- Site Boundary
- Waterbodies
- Dry Ditch with Reference
- Dense Scrub
- Scrub Patches
- Outgrown Hedgerow
- Trees Groups
- Individual Trees
- Improved Grassland (Amenity)
- Bare Ground
- Target Note

Whitgift Estates

Land West off Hook Lane, Westergate

PHASE ONE PLAN

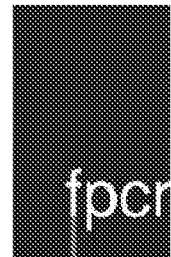
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KAW / DAH

20.01.2016

Figure 2

5907-E-02



Hallam Land Management Ltd

Land off Hook Lane, Westergate

Great Crested Newt Survey Report

APPENDIX A

29th May 2013

FPCR Environment and Design Ltd

Registered Office: Lockington Hall, Lockington, Derby DE74 2RH

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Rev	Issue Status	Prepared / Date	Approved/Date
-	Draft 1	DH 15.05.13	KEH 16.05.13
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	Final	DH 29.05.2013	

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Table 2: Determining Population Size Class (Great Crested Newt Mitigation Guidelines, 2001)

Table 3: Pond HSI Results Summary

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Figure 2: Phase One & Pond Location

1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Ltd on behalf of Hallam Land Management Ltd. It provides details of the results of Great Crested Newt (GCN) *Triturus cristatus* surveys which are being undertaken on land off Hook Lane, Westergate, Sussex (central OS grid ref: SU935 046), hereafter referred to as 'the site'.
- 1.2 This site had one ditch which extended down the eastern boundary, this held water during the winter months, however during the GCN season this had dried out. To the west of the site were a number of roadside ditches, which during the winter months also held water, however these had also dried out in the spring. Two large water bodies were present to the west of Hook Lane, one was located within the residential garden of Barnside; and the second within a commercial nursery, both of these ponds were with 150m/180m of the site boundary.
- 1.3 Surveys were being undertaken during the 2013 GCN season, with two surveys having been undertaken at the time of writing this report on pond P2. Access to pond P1 was only confirmed during mid May, therefore only one survey has been undertaken. The remaining surveys required in accordance with the Crested Newt Mitigation Guidelines, will be completed in May and June 2013, and results submitted as an addendum.

2.0 LEGISLATION

- 2.1 GCNs are protected under European and UK law. They are also a Species of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and are listed as a priority species within Sussex.
- 2.2 GCNs are protected under Section 41 of the Conservation of Habitats and Species Regulations 2010, which transposes into UK law the EC Habitats Directive (92/43/EEC). This species is also afforded full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (WCA) (as amended). Great crested newts are protected under these laws from killing, harm or disturbance as well as protecting their shelter, resting and breeding places.

3.0 METHODOLOGY

Desk Study

- 3.1 In order to compile existing baseline information, relevant ecological information was requested from Sussex Biodiversity Records Centre for existing records of GCN within 2km of the survey area boundary.

Field survey

- 3.2 Any water bodies to which access could be legally gained were noted and described so as to indicate their potential to support an amphibian population, including great crested newts. Where access was granted ponds within a 500m radius of the site were surveyed and assessed for suitability. These ponds were assessed using the great crested newt Habitat Suitability Index (HSI).

Habitat Suitability Index (HSI)

- 3.3 All water bodies within the surroundings were assessed for potential to support an amphibian population, including GCNs, using the Habitat Suitability Index (HSI). This assesses the ponds against ten pre-determined criteria, producing a score which indicates the degree of suitability for occupation by GCNs.
- 3.4 The Habitat Suitability Index provides a measure of the likely suitability that a water-body will support newts (Evaluating the suitability for the Great Crested Newt, *Herpetological Journal* 10(4); Oldham *et al*). In general, ponds with a higher score are more likely to support great crested newts than those with a lower score and there is a positive correlation between HSI scores and ponds with newts recorded. Ten separate attributes are assessed for each pond:
- Geographic location
 - Pond area
 - Pond drying
 - Water quality
 - Shade
 - Presence of water-fowl
 - Presence of fish
 - Number of linked ponds
 - Terrestrial habitat
 - Macrophytic coverage
- 3.5 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 following scale.

Table 1 – HSI scores and pond suitability

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

Field Surveys

- 3.6 Survey methods followed those recommended by Natural England as detailed in the Great Crested Newt Mitigation Guidelines (English Nature, 2001). To determine the presence or absence of GCNs four survey visits were undertaken between April and May 2013. On each survey occasion three of a possible four different techniques were employed (egg search, sweep net, bottle trap and torch). A summary of these techniques is detailed below:

Bottle trapping

- 3.8 Bottle traps are set within the water body in the evening at densities of one trap per two metres of shoreline (where feasible) and left overnight for inspection in the morning. Traps are partially submerged in the water leaving an air bubble in the bottle and secured by a cane marked with a high visibility tape to ensure relocation the following day. Care is taken to ensure that trapping does not occur during excessively warm weather, when the temperature inside the trap could rise considerably, reducing oxygen levels and potentially suffocating the newts.

Sweep netting

- 3.9 Long handled sweep-nets are used to sample the margins of the pond for great crested newts, with approximately 15 minutes of netting per 50 m of shoreline.

Torching

- 3.10 Torching involves searching the water body after dusk using high-powered torches to scan the margins and potential display areas for newts. The perimeter of the pond are walked slowly spending approximately 15 minutes torching each 50 m of shoreline recording any newts observed. Torch surveys are unsuitable within heavily vegetated and/or turbid ponds or after periods of heavy rain as visibility is diminished.

Egg searching

- 3.11 Newts lay single eggs on leaves of aquatic plants or other suitable pliable material, after which the material is folded over the egg to protect it. Great crested newt eggs can be distinguished from those of the other newts by their size, shape and colour. Submerged vegetation was examined for newt eggs and folded leaves gently opened to check for eggs. Once a great crested newt egg is identified, no further leaves need to be examined to minimise any further potential disturbance.
- 3.12 All surveys are conducted by at least one licensed ecologist from FPCR Environment and Design Ltd. All surveys were completed during suitable conditions i.e. when the ambient air temperature exceeds 5°C, with little/no wind and no rain.

Population Size Class Assessment

- 3.13 Population size class assessments are based on the highest maximum (peak) count of adult GCNs observed on any one survey occasion.

Table 2 – Determining population size class (Great Crested Newt Mitigation Guidelines, 2001)

Population Size Class	Peak counts
Low Population	0 – 10 animals
Medium Population	11 – 100 animals
High Population	> 101 animals

4.0 RESULTS

Desk Study (Figure 1)

- 4.1 The Sussex Biodiversity Records Centre provided four records of GCNs within the surrounding habitats.
- 4.2 The only GCN record occurred within The Willows property to the west of Hook Lane, approximately 95m from the grassland habitats within the site. The details received were not specific and population estimates were lacking, aerial photographs and OS map did not show any ponds within the garden, which could suggest that the pond was ornamental and recently constructed. This record dated back to 1992, with no further data provided.

Habitat Suitability Index (HSI)

- 4.3 An HSI assessment was undertaken on the pond P2 during the initial surveys. Pond P1 has not been surveyed to date but the first survey is scheduled for 16th May, during which an HSI assessment will be undertaken. Table 3 below presents a summary of the results of this assessment.

Table 3 – Summary of HSI scores per pond surveyed

Water Body	Score	Suitability
P1	0.58	Below Average
P2	0.74	Good (0.7 – 0.79)

- 4.4 Pond P1 obtained an HSI score of 'below' suitability, this was due to uncertainty of fish being present but also the lack of marginal and aquatic vegetation. The terrestrial habitats around the pond were also limited, there were sections of scrub and shrubs, but also a large area of amenity grassland which was regularly cut. Pond P2 was smaller in size but still lacked marginal and aquatic vegetation, however there were small patches which could provide egg laying potential. The immediate terrestrial habitats comprised of hedgerows, scrub patches and less frequently managed grassland, thus providing refuge, hibernation and foraging potential.

Field Surveys (Figure 2)

- 4.5 No water bodies were surveyed within the site during the GCN season, as ditch D1 had dried out. Two ponds and three ditches occurred within a 500m radius outside of the site. Ponds P1 & P2 were positioned across Hook Lane approximately 150m and 180m, respectively from the site. Ditches D2, D3 and D4 were holding water in the winter but were dry in April, the unusually wet winter could have accounted for the water retention in these ditches during the winter. Therefore no further survey work was conducted on ditches D1 to D4, as they are dry during the GCN season and do not provide breeding conditions.

Pond P1 – Nursery



Photo 1. Pond P1

Photo 2. Habitats to the south of pond P1

- 4.6 Access to this pond had only been granted during mid-May, therefore at the time of writing only one survey had been conducted, the remaining surveys will be completed during the later stages of May and June 2013, and results submitted in as addendum. There was a lack of marginal and aquatic vegetation seen during the survey, although a detailed vegetation description is still depending.
- 4.7 During the first survey of this pond on the 16th May, one female GCN was found within bottle traps.

Pond P1 - Barnside

- 4.8 This pond was located within the residential garden of Barnside, the pond measured approximately 20m² with limited aquatic and marginal vegetation present (10% cover). The immediate 2-3m of terrestrial habitat around the pond consisting of grassland species which were not subjected to any regular management, therefore tussocky tall swards had formed which would provide refuge and possible foraging potential. However, habitats over 3m from the pond consisted of well managed short amenity grassland, which was uniform in its structure and provided no cover. To the west of the pond was an area of scrub, this lined the top of a drainage ditch which separated it from an arable field compartment further west. To the south was a hedgerow which separated this private garden from a nursery, this would provide possible refuge and hibernation for amphibian species. To the north was more amenity grassland and ornamental gardens.
- 4.9 At the time of writing only two GCN surveys had been undertaken on this pond, during which a peak count of two adult GCN were found during the bottle trapping (one female & one male). Currently this represents a low population size class in accordance with table 2 above. Also

during surveys ten smooth newts *Lissotriton vulgaris* were observed during the torch searches on the 16th May. Table 3 below summaries the current survey results.

Table 4. Summary of Peak Newt counts per Pond Surveyed

	Great Crested Newt				Smooth Newts			
Pond	Male	Female	Unknown	Eggs	Male	Female	Unknown	Eggs
Pond 1	0	1	0	0	0	1	0	No
Pond 2	1	1	0	0	4	6	0	No

Habitats between Site and Ponds

- 4.10 Ponds P2 was separated from the site by 110m of managed amenity grassland, Hook Lane and residential properties to the east of Hook Lane which had both front and rear gardens. The hedgerows and scrub patched within the immediate area of the pond would provide refuge, hibernation and foraging potential. However, the open nature of the amenity grassland would be unlikely to provide a suitable habitat which amphibians would cross, due to exposure to predation. The hedgerow along the southern boundary of Barnside, could provide cover for commuting amphibians, however individuals would need to negotiate Hook Lane and the residential gardens, before gaining access into the site.
- 4.11 Pond P1 is located to the west of the nursery complex with a number of green houses and hardstanding areas to the south/south east. To the east of this pond was an areas of amenity grassland, which seem to be managed, this stretches for approximately 95m eastward until Hook Road is reached, which has an associated hedgerow. A hedgerow separating Barnside and the nursery runs along the northern boundary, this could provide commuting, refuge and hibernation opportunities.

Appendix A

Our ref: 3249/DH

Sir / Madam
The Willows
Hook Lane,
Aldingbourne,
Westergate,
Chichester,
West Sussex
PO20 3TE

11th April 2013

Dear Sir or Madam

Great Crested Newt Surveys: The Willows

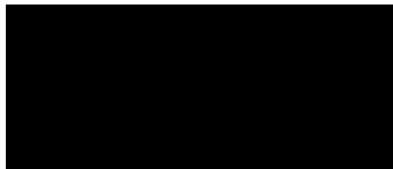
FPCR has been commissioned by a surrounding landowner to undertake a number of ecological surveys to assess the biodiversity of the area. As part of our fieldwork we will be surveying for protected species, including pond surveys for potential breeding great crested newts. We have had consultation responses from the local biodiversity records centre that has a record of a great crested newt within proximity to your property. However this record does not specify if this was within the ditches along the road or within any ornamental ponds within the garden.

In line with Natural England guidelines we are hoping to survey all ponds within a 500m radius, to this end I am writing to request confirmation that other water bodies do exist in your boundary and whether it would be possible for us to survey them. The Natural England guidelines require us to survey each pond on four occasions between March and mid-June, or six times if great crested newts are confirmed to be present. The surveys would be completed by two surveyors during the evening shortly after dark, returning the following morning to remove monitoring equipment.

I would be grateful for any information you can provide. I can be contacted at the above address or by mobile or via email. If we have no response to this letter by 2nd May we will assume access to the pond has been refused.

Thanks for any assistance you can offer.

Kind regards



Dave Harper
Senior Ecologist
FPCR



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- Site Boundary
- Improved Grassland
- Ruderal
- Scrub
- Ditch
- Dry Ditch
- Fence Lines
- Buildings
- Individual Trees / Trees with Bat Potential
- Water Bodies

Hallam Land Management Ltd
Land off Hook Lane, Westergate

Phase 1 & Pond Location Plan

Not to Scale @ A3 DAH 13.02.2013

Figure 2 3249-E-02