

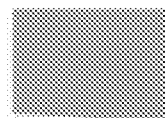
Ecological Impact Assessment

for

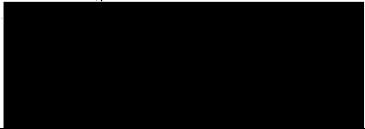
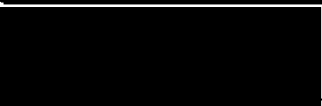
Proposed care home, Broadlees, Dappers
Lane, Angmering

September 2018

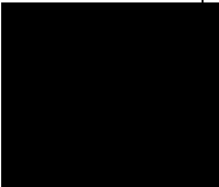
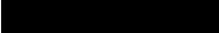
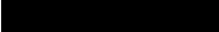
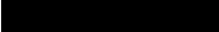
Status: for planning



thelandscapepartnership
planning and designing environments for life

Quality management		
Project:	Proposed care home, Broadlees, Dappers Lane, Angmering	
Project No:	B16005	
Report title:	Ecological Impact Assessment	
Report author:		Name: Nick Sibbett Title: Associate
Approved by:		Name: Dr Jo Parmenter Title: Director
Status:	for planning	
Date of last revision:	22 nd September 2018	

Client Details	
Client:	Frontier Estates Ltd
Client Address:	25 Oldbury Place, London, W1U 5PR

Contact Details
The Landscape Partnership Ltd Greenwood House 15a St Cuthberts Street Bedford MK40 3JG Tel:  Jonathan Scott Hall Thorpe Road Norwich NR1 1UH Tel:  The Granary Sun Wharf Deben Road Woodbridge IP12 1AZ Tel:  Ensign House (E&F) Tavern Quay Sweden Gate Surrey Quays London SE16 7TX Tel:  The Landscape Partnership Ltd is a practice of Chartered Landscape Architects, Chartered Ecologists and Chartered Environmentalists, registered with the Landscape Institute and a member of the Institute of Environmental Management & Assessment & the Arboricultural Association. Registered Office: Greenwood House 15a St Cuthberts Street Bedford MK40 3JG Registered in England No 2709001

Quality standards
This report is certified BS 42020 compliant and has been prepared in accordance with The Chartered Institute of Ecology and Environmental Management's (CIEEM) Technical Guidance Series '<i>Ecological Report Writing</i>' and Code of Professional Conduct. The copyright of this document rests with The Landscape Partnership. All rights reserved.

Contents

Non-technical summary

1	Introduction	1
1.1	Commission	1
1.2	Legislation and policy background	1
1.3	Reporting standards	1
1.4	Site location and context	1
1.5	Acknowledgements	2
1.6	Description of the project	2
1.7	Objectives of this appraisal	2
1.8	Previous ecological studies	3
1.9	Duration of appraisal validity	3
2	Methodology	4
2.1	Great crested newt: Habitat Suitability Index (HSI) assessment	4
2.2	Reptile habitat assessment	6
2.3	Reptile survey	6
2.4	Dormouse habitat assessment	7
2.5	Dormouse survey	8
2.6	Preliminary bat roost assessment: Buildings	8
2.7	Assessment methodology	10
2.8	Mitigation hierarchy	12
3	Results	13
3.1	Great crested newt Habitat Suitability Index (HSI) assessment	13
3.2	Reptile habitat assessment results	13
3.3	Reptile survey results	13
3.4	Dormouse habitat assessment results	15
3.5	Dormouse survey results	15
3.6	Preliminary bat roost assessment results: Buildings	16
4	Evaluation of conservation status and impact assessment	19
4.1	Assessment rationale	19
4.2	Evaluation and assessment of habitats for great crested newts	19
4.3	Evaluation and assessment of reptiles	19
4.4	Evaluation and assessment of dormouse	19
4.5	Evaluation and assessment of bats	19
4.6	Cumulative impacts	19
5	Mitigation and avoidance measures	20
5.1	Great crested newts and bats	20
5.2	Reptiles	20
5.3	Dormice	20
6	Conclusions	21

Figures

1. Assessment of habitats for great crested newts, reptiles and dormice
2. Reptile survey results
3. Buildings assessed for bat roost potential
4. Location of dormouse survey tubes
5. Photographs

Appendices

1. Summary of relevant legislation
2. Impact and assessment methodology
3. Location
4. Details of proposed development

Non-technical summary

The Landscape Partnership was commissioned by Frontier Estates Ltd to undertake an Ecological Impact Assessment comprising an assessment of great crested newt habitat suitability, reptile habitat suitability, dormouse habitat assessment, and bat roost assessment and an assessment of the impacts of the proposed development at Proposed care home, Broadlees, Dappers Lane, Angmering. This was informed by an earlier Preliminary Ecological Appraisal by Middlemarch Environmental in January 2018. The Middlemarch assessment and mitigation for habitats and species other than those included and thus superseded by this report (great crested newts, reptiles, dormice, bats) remain valid.

A nearby pond was found to be unsuitable for great crested newts. An inspection of the house and outbuildings found that there was negligible potential for these to be used by roosting bats. A juvenile slow worm found on the northern boundary in proximity to adjacent scrubby habitat indicates that the adjacent land may have a breeding population of slow worm, but no other reptiles were found during survey. Maintenance of a short sward grassland of minimum 20m width between the presumed reptile population and the construction zone will avoid impacts on reptiles. No dormice were found on the site.

The proposed development is the construction of a 70-bed care home.

1 Introduction

1.1 Commission

- 1.1.1 The Landscape Partnership was commissioned by Frontier Estates Ltd to carry out an Ecological Impact Assessment (EclA), comprising an assessment of great crested newt habitat suitability, reptile habitat suitability and survey, dormouse habitat assessment and survey, bat roost assessment and an assessment of the impacts of the proposed development. This was informed by a Preliminary Ecological Appraisal by Middlemarch Environmental.

1.2 Legislation and policy background

- 1.2.1 There is a range of protection given to sites and species. Sites may be designated for local, national, European or global importance for nature conservation. Species may be protected by European-scale legislation or varying levels of national regulation.
- 1.2.2 The Local Planning Authority has a policy to protect features of nature conservation value within its Local Plan. Other regulators have policies relating to the consents issued by them.
- 1.2.3 Further information is given in Appendix 1.

1.3 Reporting standards

- 1.3.1 This report was written in compliance with British Standard 42020:2013 'Biodiversity — Code of practice for planning and development' and the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct.
- 1.3.2 This report was prepared in accordance with the CIEEM 'Guidelines for Ecological Report Writing' as updated December 2017¹.
- 1.3.3 The report was prepared by Nick Sibbett. The report was reviewed by Dr Jo Parmenter, Director of The Landscape Partnership.
- 1.3.4 Assessment was undertaken against current legislation and planning policy, and in accordance with standard guidance. Further information is given in Section 2 and Appendix 2.

1.4 Site location and context

- 1.4.1 The proposed development site is located within the village of Angmering. The site is located on the outskirts of the village at the junction of Dapper's Lane and Water Lane. The wider site itself covers 1.25ha, with one residential property 'Broadlees', comprising a house, a barn and another outbuilding, and a garden, together with a pasture field to the east. To the north of the site is an area of former greenhouses which has been derelict for at least ten years and has developed some scrub. To the east of the paddock is another paddock in separate ownership, currently grazed by horses. There is a boundary of mature trees that will separate the proposed development from the main road (Water Lane) and housing opposite. The Wider Broadlees site is proposed for development following the grant of a previous planning permission.
- 1.4.2 The Ordnance Survey Grid Reference for the approximate centre of the proposed development site is TQ07330471. The location of the site is shown in Appendix 3.

¹ CIEEM (2017) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester

1.5 Acknowledgements

Surveyors

Survey(s) undertaken	Surveyor(s)	Experience (years)	Licences Held
Great crested newts: Habitat Suitability Index (HSI) survey Reptile habitat assessment Bats: Preliminary Roost Assessment – buildings Dormouse habitat assessment	Nick Sibbett CEnv MCIEEM CMLI	25+	Great crested newt Class Licence CL08 (Level 1) Bat Class Licence CL18 (Level 2) Bat Roost Visitor Licence CL16 (Level 2)
Reptile survey Dormouse survey	Sally Clifton MCIEEM CEnv	25+	Great crested newt Class Licence CL08 (Level 1) White-clawed crayfish Class Licence CL11 Dormouse Class Licence CL10a

Other contributors

- 1.5.1 We acknowledge a Preliminary Ecological Appraisal report by Middlemarch Environmental², which informed our work and is also to be submitted as part of the planning application package. This report is referred in this Ecological Appraisal as the 'Middlemarch report'. The Middlemarch report covered the whole site, which was at that time being considered for a larger development than is currently proposed, but the findings and recommendations remain relevant to this appraisal with respect to the currently-proposed development.

1.6 Description of the project

- 1.6.1 The proposed development comprises the construction of a 70 bed care home on part of the Dappers Lane site. There would be associated car parking, landscape, and small-scale improvements to Dappers Lane. Further development may come forward on the wider site as separate applications, which would be separately assessed. The proposed development is shown in Appendix 4.

1.7 Objectives of this appraisal

- 1.7.1 The purpose of this appraisal is to inform a planning application for the proposed development, as described above. Detailed objectives are based on recommendations in the Middlemarch Environmental report and are to:
- identify the suitability of nearby ponds to support great crested newts;
 - identify the quality of habitat in the development site to support reptiles and dormice;
 - assess the bat roost potential of existing buildings
 - describe any measures necessary to avoid impacts, reduce impacts or compensate for impacts so that there is no net harm to those ecological features studied;
 - propose ecological enhancements

² Middlemarch Environmental (January 2018) Broadlees, Dappers Lane, Angmering Preliminary Ecological Appraisal. A Report to: Fed3 Projects Report No: RT-MME-127094

- 1.7.2 This Ecological Appraisal further progresses the ecological issues raised in the Middlemarch report and does not duplicate matters already presented by Middlemarch such as phase 1 habitat survey.

1.8 Previous ecological studies

- 1.8.1 A Preliminary Ecological Appraisal was completed by Middlemarch Environmental in January 2018².
- 1.8.2 There was an earlier report for the site by Wold Ecology in 2014³. This report indicated that the surveys then carried out would need to be repeated after January 2016.

1.9 Duration of appraisal validity

- 1.9.1 The assessment, conclusions and recommendations in this appraisal are based on the studies undertaken, as set out in this report, and the stated limitations. This appraisal is based on the project as described and any changes to the project would need the appraisal to be reviewed. Unless otherwise stated, the assessment, conclusions and recommendations given assume that the site habitats will continue to be used for their current purpose without significant changes until development takes place. However, changes in use or management may occur between the time of the survey and proposals being implemented. Ecological features may change naturally at any time; for example, species may be lost from existing sites or colonise new areas. Our knowledge of the ecology of the site enables us to provide an estimate of the duration of the validity of the surveys carried out and hence the applicability of this appraisal, so that any future need for review and update of this appraisal, or the surveys described within it, and the date by which such updates would become necessary, can be identified.
- 1.9.2 The table below sets out the duration of validity of each element of each information source. If the proposed development is delayed beyond the stated timescale, update surveys or further investigations would be required.

Information source	Date undertaken	Duration of validity from date undertaken	Notes
Great crested newts: Habitat Suitability Index (HSI) survey	16 th March 2018	2 years	Pond condition and suitability for great crested newts may change especially if management of nearby habitats changes
Reptile habitat assessment	16 th March 2018	2 years	Providing management of the site is unchanged, no significant changes to reptile populations within 2 years are expected
Dormouse habitat assessment	16 th March 2018	2 years	Providing management is unchanged, no changes to dormouse habitat quality within 2 years are expected
Bats: Preliminary Roost Assessment - buildings	16 th March 2018	2 years	Storm damage, maintenance, neglect or other factors can change bat roost potential of buildings

³ Wold Ecology Ltd (2014) Broadlees, Dappers Lane, Angmering. Extended Phase 1 Habitat Survey

2 Methodology

2.1 Great crested newt: Habitat Suitability Index (HSI) assessment

Rationale

- 2.1.1 Great crested newts are protected by national and European legislation and are 'European Protected Species'.
- 2.1.2 Great crested newts are widespread but scattered at low density in mainland Britain. They breed in ponds and outside the breeding season they use land habitats such as farmland, woods, grasslands, quarries, industrial and 'brown-field' sites. They do not usually occur in flowing water. They hibernate on land, in shelter away from frosts and flooding, in places such as in log piles, under rubble or in hollow tree stumps. If a pond close to a site supports great crested newts, then there is potential for this species to occur on the site itself.
- 2.1.3 The Habitat Suitability Index (HSI) survey is used to estimate the likelihood of great crested newts being present in a pond and identifies which ponds in a survey area are likely to require great crested newt surveys. A summary of the methodology is given below.
- 2.1.4 HSI is a geometric mean of ten suitability indices, all of which are factors thought to affect Great Crested Newts. In general, ponds with high HSI scores are more likely to support Great Crested Newts than those with low scores. There is a positive correlation between HSI scores and the numbers of Great Crested Newts observed in ponds. So, in general, high HSI scores are likely to be associated with greater numbers of Great Crested Newts. The system is not sufficiently precise to allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so. It can, however, be useful in prioritising ponds for further survey effort.

Selection of ponds

- 2.1.5 Natural England's *Method statement template for great crested newt mitigation licence*⁴ is used to determine how many ponds require a HSI assessment. The area of the site is measured from OS maps and inputted into the great crested newts rapid risk assessment as part of the NE method statement. This informs the distance from the site boundary, whether that be 100m, 250m or 500m, required to identify that an offence to great crested newts is *highly unlikely*, see table below. A large-scale OS map is then inspected to identify any ponds within the buffer distance.

Distance from site (m)	Maximum area lost or damaged (hectares)		
	Green: <i>Offence highly unlikely</i>	Amber: <i>Offence likely</i>	Red: <i>Offence highly likely</i>
100	Up to 0.01	0.01-0.5	> 0.5
250	Up to 0.5	0.5-10	> 10
250+	Up to 5	5-10	N/A

- 2.1.6 Guidance on risk assessment categories

- **'Green', offence highly unlikely:** indicates that the development activities are of such a type, scale and location that it is highly unlikely any offence would be committed should the development proceed. Therefore, no licence would be required. However, precautions may need to be taken to avoid an offence.
- **'Amber', offence likely:** indicates that the development activities are of such a type, scale and location that it is likely. Design plans for the development may need to be altered (location, layout, methods, durations or timings) to minimise the effect on great

⁴ www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence

crested newts and if the scheme still results in a likely offence a licence may be required to carry out the works.

- **'Red', offence highly likely:** indicates that the development activities are of such a type, scale and location that it is highly likely. Design plans for the development should be altered (location, layout, methods, durations or timings) to minimise the effect on great crested newts and if the scheme still results in a likely offence a licence may be required to carry out the works.

2.1.7 The rapid risk assessment is a simplistic assessment and provides a general overview of a situation. The following factors should be considered when using the rapid risk assessment; population size, terrestrial habitat quality, presence of dispersal barriers, timing and duration of works, detailed layout of development in relations to newt resting and dispersal. The following factors could increase the risk of committing an offence: large population size, high pond density, good terrestrial habitat, low pre-existing habitat fragmentation, large development footprint, and long construction period. The following factors could decrease the risk: small population size, low pond density, poor terrestrial habitat, substantial pre-existing dispersal barriers, small development footprint and short construction period.

Methodology

2.1.8 The standard Habitat Suitability Index (HSI) methodology⁵ was followed. No water bodies were identified on the Ordnance Survey 1:25,000 map within the site and a further three were seen within an approximate 250m radius of the site. One of those water bodies appeared to be a widening of a flowing stream and so would not be suitable for great crested newts, which avoid flowing water. Another of the water bodies was at 250m distance, so that very little or none of the development site was within 250m and so no impact would be expected; this pond also appears to be a widening of a stream rather than a pond. One water body were chosen for HSI survey, south across Water Lane from the development site.

2.1.9 The following measurements were made or estimated on site:

- pond area, to nearest 50m²;
- estimate of the number of years in every ten when the pond would dry up in summer;
- water quality, estimated by observation of invertebrates present;
- percentage of pond edge (up to 1m from the shore) which is shaded, e.g. by trees;
- presence/absence of and impact from waterfowl;
- presence/absence and density of fish populations;
- quality of surrounding terrestrial habitat;
- percentage of the pond covered by aquatic macrophytes (plant species).

2.1.10 Two map based estimates were made following the field survey

- The area of the UK within which the pond is situated
- The number of ponds within a 1km radius (including any ponds seen on the site visit but which are absent from 1:25,000 Ordnance Survey mapping and excluding any mapped ponds found to be absent during the site visit (see above)).

2.1.11 Pond suitability for great crested newts was defined using a categorical scale, as follows.

< 0.5	poor: very unlikely to contain great crested newts.
0.5 – 0.59	below average: unlikely to contain great crested newts.
0.6 – 0.69	average: might contain great crested newts.
0.7 – 0.79	good: might contain great crested newts.
> 0.8	excellent: most likely to contain great crested newts.

2.1.12 The survey was undertaken on 16th March 2018 and the weather conditions were dry and cool.

⁵ ARG UK (2010) *ARG UK Advice note no. 5. Great crested newt habitat suitability index*, Amphibian and Reptile Groups of the United Kingdom.

Limitations to HSI survey

- 2.1.13 The pond was viewed from the adjacent public road. This meant that some characteristics normally requiring a close inspection of the pond were estimated, thus limiting the quality of the survey. The characters for which estimates were more tentative were
- Water quality – the water quality looked greenish-brown and very turbid; it was estimated as 'poor' as a conservative estimate instead of 'bad' which might have been applicable.
 - Fish presence – estimated conservatively as 'possible' although the turbidity suggested it might have been 'major'
 - Macrophyte cover – estimated at zero from visible parts of the pond, but as not all parts of the pond could be seen it is possible that there may have been some macrophytes elsewhere in the pond (although the water turbidity indicated perhaps none would be present)
- 2.1.14 Whilst the HSI assessment is particularly useful in terms of quantifying and subsequently comparing pond conditions within the local area, the assessment is not without limitations, which should be taken into consideration. The HSI score is designed to provide a general overview which quantifies favourable conditions that are commonly associated with the species. The assessment alone should not therefore be used to determine, at least with any confidence, whether or not further surveys should be undertaken.
- 2.1.15 In practice, there are many different variables which dictate the likelihood of presence or absence. For example, the methodology does not take into account known records of the species in the vicinity nor habitat connectivity. The surveyor's own personal experience should therefore always be used in combination with the HSI scores to determine which ponds should be included within the next stage of survey.

2.2 Reptile habitat assessment

Rationale

- 2.2.1 The commoner species of reptile (slow worm, common lizard, grass snake and adder) are protected from intentional killing or injury, and it is also illegal to sell these species. The rare species, found primarily in heathland and dunes in the south of England, are smooth snake and sand lizard. These are European Protected Species and it is illegal to kill, injure, disturb, or take any of these species, or to damage or destroy a breeding site or resting place. Habitats used by reptiles include heathland, brownfield land, long grassland, scrub, including gorse and bramble scrub, the base of hedgerows and open (sunny) woodland. Most undisturbed (e.g. not regularly mown or closely grazed) areas of suitable size have the potential to support reptiles.
- 2.2.2 Possible hibernation sites, or hibernacula, (potentially occupied from late September to early April) include embankments, piles of cut logs or timber, fly-tipped material (including dumped tin sheets, rubble, tyres, turfs and mounds of soil), beneath tree roots, in mammal burrows and any other cavities or crevices above the winter water table.

Methodology

- 2.2.3 The site was visited, and the Middlemarch Environmental phase 1 habitat survey was reviewed to identify habitat which was potentially suitable for reptiles.
- 2.2.4 There was no significant limitation to the assessment.

2.3 Reptile survey

Rationale

- 2.3.1 The commoner species of reptile (slow worm, common lizard, grass snake and adder) are protected from intentional killing or injury, and it is also illegal to sell these species. The rare species, found primarily in heathland and dunes in the south of England, are smooth snake and sand lizard. These are European Protected Species and it is illegal to kill, injure, disturb, or take any of these species, or to damage or destroy a breeding site or resting place. Habitats used by

reptiles include heathland, brownfield land, long grassland, scrub, including gorse and bramble scrub, the base of hedgerows and open (sunny) woodland. Most undisturbed (e.g. not regularly mown or closely grazed) areas of suitable size have the potential to support reptiles.

- 2.3.2 Possible hibernation sites, or hibernacula, (potentially occupied from late September to early April) include embankments, piles of cut logs or timber, fly-tipped material (including dumped tin sheets, rubble, tyres, turfs and mounds of soil), beneath tree roots, in mammal burrows and any other cavities or crevices above the winter water table.

Methodology

- 2.3.3 A reptile presence-absence survey was carried out. The survey followed best practice guidance⁶. Twenty-seven artificial refugia each measuring approximately 50cm by 50cm were placed around the site in areas thought potentially suitable for reptiles, on 10th April 2018 and three more were added on 26th April 2018. Locations for refugia were primarily located in the ungrazed paddock, overgrown garden, overgrown areas around outbuildings, and boundary habitats such as at the base of boundary hedges/bramble scrub. Where possible, refugia were placed in inconspicuous locations to reduce the risk of interference. They were left in situ for a period of at least 1 week before survey visits were commenced.
- 2.3.4 Refugia were placed at a density around 24 per hectare of suitable habitat (which is higher than the recommended density of ten per hectare) for more accurate results. The higher density was chosen to give a greater sample size and a greater likelihood of attracting reptiles compared to standard recommended density. The refuges comprised twenty-five dark grey roofing felt, and five dark green corrugated iron refuges, to offer a choice of shelter and basking to different species of reptile.
- 2.3.5 Six survey visits were carried out in the morning and late afternoon (at least twice per visit), during suitable weather conditions; avoiding heavy rain, strong wind and temperatures below 10°C or above 17°C. The visits started on 26th April 2018 and continued to 6th June 2018. Opportunistic survey of potential basking areas, such as bare soil on banks, was undertaken concurrently with checks on the refugia. This survey method can also identify presence or absence of terrestrial amphibians.

Limitations to reptile survey

- 2.3.6 There was no interference with the refugia and no other significant limitations to the survey.

2.4 Dormouse habitat assessment

Rationale

- 2.4.1 Dormice are European Protected Species. They live in dense woody vegetation such as coppiced woodlands, dense scrub or hedges. Hedges are used to move between areas of woodland or scrub, and these connections are vital to ensure a large enough area of habitat is available. Dormice rarely cross open ground.

Methodology

- 2.4.2 The site was visited, and the Middlemarch Environmental phase 1 habitat survey was reviewed, to identify habitat which was potentially suitable for reptiles.
- 2.4.3 Aerial photography (Google Earth) was used to identify potentially suitable connecting habitat outside the development site.
- 2.4.4 There was no significant limitation to the survey.

⁶ Froglife (1999) *Froglife advice sheet 10: reptile survey*. Froglife, London & Gent T & Gibson S (2003) *Herpetofauna Workers Manual*. JNCC, Peterborough.

2.5 Dormouse survey

Methodology – nest tube survey

- 2.5.1 Dormouse nest tubes consists of a wooden 'tray' and a 'nesting tube'. The tray, made from 3-ply plywood, fits securely inside the nesting tube which is made from plastic tree guard material, with a wooden block sealing the tube at one end. Dormice make nests in these tubes and it is these that are used as indicators of their presence in the habitat.
- 2.5.2 Nest tubes were secured to tree or shrub branches using cable ties at up to 20m intervals along hedgerows and along the edges of woodland/scrub, on 10th April 2018. The tubes are being checked for evidence of dormice at monthly intervals from April to September for evidence of dormice, following guidelines⁷. The first dormouse check was on 26th April 2018 and repeated checks were carried out until September 2018.
- 2.5.3 Twenty-five nest tubes were used during the survey, fewer in total than the normal suggested fifty tubes, but the tubes were spaced closer than the recommended distance due to the small size of the site. It is considered that the number of tubes placed was more than adequate to survey the available and accessible potential Dormouse habitat. Tubes were removed after the survey ended.

Methodology – nest tube survey

- 2.5.4 Only one hazel bush was recorded on the site, in the hedge with trees west of the garden. A hand search for gnawed hazel nuts under this tree (which was also a nest tube location) was carried out for 10 minutes, and samples collected for closer subsequent examination.

Limitations to dormouse survey

- 2.5.5 Impenetrability of bramble scrub reduced the areas within which nest tubes could be distributed, although the number of tubes was at a higher density than standard guidelines recommend. There was no interference with the nest tubes and no other significant limitations to the survey.
- 2.5.6 Tubes 22 and 23 became overgrown by brambles and could not be removed at the end of the survey.

2.6 Preliminary bat roost assessment: Buildings

Rationale

- 2.6.1 Bat surveys are usually needed for the building types where bats are likely to be present, which include the following types⁸.
- Agricultural buildings (e.g. farmhouses, barns and outbuildings) of traditional brick or stone construction and/or with exposed wooden beams.
 - Buildings with weatherboarding and/or hanging tiles which are within 200m of woodland or water.
 - Pre-1960 detached buildings and structures within 200m of woodland or water.
 - Pre-1914 buildings within 400m of woodland or water.
 - Pre-1914 buildings with gable ends or slate roofs, regardless of location.
 - Buildings located within or immediately adjacent to woodland or immediately adjacent to water.
 - Dutch barns or livestock buildings with a single-skin roof and board-and-gap or Yorkshire boarding if, following a preliminary roost assessment, the site appears particularly suited to bats.
 - Churches and listed buildings.

7 Bright P, Morris P & Mitchell-Jones T (2006). *The Dormouse Conservation Handbook*. English Nature, Peterborough.

8 Collins, J. (ed.) (2016) *Bat surveys for professional ecologists: good practice guidelines*, Third Edition, Bat Conservation Trust.

2.6.2 This list is a guide and may be varied where professional and local knowledge can be used to justify variations.

Methodology

2.6.3 The standard Preliminary Roost Assessment (PRA) methodology for structures⁹ was followed. This aims to determine the actual or potential presence of bats, by inspecting for potential roost features, and determines any need for further survey and/or mitigation. In many situations, it is not possible to inspect all locations where bats may be present and an absence of bat evidence is not adequate evidence that bats are not present.

2.6.4 The house and two outbuildings were inspected internally and externally. A search was made for direct evidence of bat presence. A systematic search pattern was used in order to avoid missing parts of the building or built structure, although some may not have been visible from accessible parts of the building. During the survey, a search was made for live or dead bats, droppings, urine splashes, fur-oil staining and clean, cobweb-free gaps around potential entrance points and crevice roost sites. The sound of bats was listened for. Feeding remains such as moth wings were also searched for, particularly internally. Potential access points and roosting sites were recorded even if there was no direct evidence of use by bats. The inspection was thorough and a consistent search effort was applied to all accessible parts of the buildings. Sometimes bats leave no visible signs of their presence in or outside a building, and rain can remove external signs.

2.6.5 The external search included the following, where these features were present:

- the ground, particularly beneath potential access points;
- any window-sills;
- window panes;
- walls
- behind peeling paint or lifted render;
- hanging tiles;
- weatherboarding;
- eaves;
- soffit boxes;
- fascias;
- lead flashing; gaps under felt, including flat roofs;
- under tiles/slates;
- gaps in brickwork or stonework;
- in bat boxes; and
- all other relevant external features.

2.6.6 A high-power torch (Cluson clulite) was used to survey the internal and external parts of the building, so that no evidence of bats was missed because of poor illumination. Close-focusing binoculars (Pentax Papilio 8.5 x 21) were used when inspecting the external parts of the building from the ground, in order to view features which might be used by bats to gain access to the building.

2.6.7 The internal search included the following, where these features were present:

- the floor and surfaces of furniture and other objects;
- behind wooden panelling;
- in lintels above doors and windows;
- behind window shutters, curtains and boarded up windows;
- behind pictures, posters, furniture, peeling paintwork or wallpaper;
- behind lifted plaster;

9 Collins, J. (ed.) (2016) *Bat surveys for professional ecologists: good practice guidelines*, Third Edition, Bat Conservation Trust.

- inside cupboards;
- in chimneys accessible from fireplaces; and
- all other relevant internal features.

2.6.8 A search of the loft voids included, where these features were present:

- the tops of gable end or dividing walls;
- tops of chimney breasts, ridge and hip beams and other roof beams;
- mortise and tenon joints;
- all beams;
- the junction of roof timbers;
- behind purlins;
- between tiles and the roof lining; and
- under flat felt roofs

2.6.9 The roof void search also paid attention to:

- the floor;
- water tanks;
- stored materials and other surfaces
- under and around the edges of recently laid insulation;

2.6.10 The assessment was undertaken on 16th March 2018 and the weather conditions were dry and cool.

Limitations to preliminary bat roost assessment: buildings

2.6.11 One outbuilding was partially underground and the walls were partially collapsed. Internal inspection was not attempted as the structure was thought to be unsafe.

2.7 Assessment methodology

2.7.1 The assessment was undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's Professional Guidance Series¹⁰.

2.7.2 More details of the assessment methodology are provided in Appendix 2, but, in summary, the impact assessment process involves:

- identifying and characterising impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects; and
- identifying opportunities for ecological enhancement.

2.7.3 The hierarchical process of avoiding, mitigating and compensating for ecological impacts is explained further below.

2.7.4 In Ecological Impact Assessment (EclA) it is only essential to assess and report significant *residual* effects (i.e. those that remain after mitigation measures have been taken into account). However, it is considered good practice for the EclA to make clear both the potential significant effects without mitigation and the residual significant effects following mitigation, particularly where the mitigation proposed is experimental, unproven or controversial. Alternatively, it should demonstrate the importance of securing the measures proposed through planning conditions or obligations.

10 CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*, Second Edition.

2.7.5 Assessment of the potential impacts of the proposed development takes into account both on-site impacts and those that may occur to adjacent and more distant ecological features. Impacts can be positive or negative. Negative impacts can include:

- direct loss of wildlife habitats;
- fragmentation and isolation of habitats through loss of connectivity;
- disturbance to species from noise, light or other visual stimuli;
- changes to key habitat features; and
- changes to the local hydrology, water quality, nutrient status and/or air quality.

2.7.6 Negative and positive impacts on ecological features are characterised based on predicted changes as a result of the proposed activities. In order to characterise the impacts on each feature, the following parameters are considered:

- the magnitude of the impact;
- the spatial extent over which the impact would occur;
- the temporal duration of the impact and whether it relates to the construction or operational phase of the development;
- the timing and frequency of the impact; and
- whether the impact is reversible and over what time frame.

2.7.7 Both short-term (i.e. impacts occurring during the site clearance and construction phases) and long-term impacts are considered.

Conservation status

2.7.8 The extent to which the proposed development may have an effect upon ecological features should be determined in the light of its expected influence on the integrity of the site or ecosystem. The integrity of protected sites is considered specifically in the light of the site's conservation objectives. Beyond the boundaries of designated sites with specific nature conservation designations and clear conservation objectives, the concept of 'conservation status' is used. Conservation status should be evaluated for a study area at a defined level of ecological value. The extent of the area used in the assessment relates to the geographical level at which the feature is considered important.

2.7.9 For habitats, conservation status is determined by the sum of the influences acting on the habitats and their typical species that may affect their long-term distribution, structure and functions, as well as the long-term survival of its typical species within a given geographical area. For species, conservation status is determined by the sum of influences acting on the species concerned and inter-relationships that may affect the long-term distribution and abundance of its populations within a given geographical area.

Confidence in predictions

2.7.10 It is important to consider the likelihood that a change or activity will occur as predicted and also the degree of confidence in the assessment of the impact on ecological structure and function.

- **Certain** probability estimated at above 95%
- **Probable** probability estimated above 50% but below 95%
- **Possible** probability estimated above 5% but below 50%
- **Unlikely** probability estimated as less than 5%

Cumulative impacts

2.7.11 Consideration is also given to the potential for the development proposal to give rise to significant negative impact in combination with other proposed developments in the local area.

Overall assessment

2.7.12 An overall assessment of value and impact is provided. This is based upon the highest level or value of any of the features or species present, or likely to be present on the site. Similarly, the overall assessment of impact is the impact of greatest significance.

2.8 Mitigation hierarchy

2.8.1 The following principles underpin EclA and have been followed, where applicable, in this assessment¹¹.

- **Avoidance** Seek options that avoid harm to ecological features (for example, by locating the proposed development on an alternative site or safeguarding on-site features within the site layout design).
- **Mitigation** Adverse effects should be avoided or minimised through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.
- **Compensation** Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.
- **Enhancement** Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

¹¹ CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

3 Results

3.1 Great crested newt Habitat Suitability Index (HSI) assessment

3.1.1 The results of the HSI assessment for the pond are tabulated below.

HSI category.	Measurement/ estimate	HSI score
Geographic Location	A	1
Pond Area	2500m ²	0.3
Permanence	never dries	0.9
Water Quality	Poor	0.33
Shade	50%	1
Waterfowl	none	1
Fish	possible	0.67
Pond Count on 1:25,000 map	none per km ²	0.01
Terrestrial Habitat	Moderate	0.75
Macrophytes	0	0.3

3.1.2 The HSI index is calculated as 0.37, which is 'poor' suitability with a very low probability of great crested newts being present. Figure 01 shows the location of the pond.

3.1.3 Whilst the HSI assessment is particularly useful in terms of quantifying and subsequently comparing pond conditions within the local area, the assessment is not without limitations which should be taken into consideration. The HSI score is designed to provide a general overview which quantifies favourable conditions that are commonly associated with the species. The assessment should not therefore be used to determine alone, at least with any confidence, whether or not further surveys should be undertaken.

3.1.4 In practice there are many different variables beyond habitat conditions which dictate the likelihood of presence or absence; for example the methodology does not take into account known records of the species in the vicinity.

3.2 Reptile habitat assessment results

3.2.1 The paddock was described in 2014 by Wold Ecology as being closely sheep grazed, and in early 2018, in the Middlemarch report, as 'overgrown', as was the lawn.

3.2.2 The paddock and lawn remained unmanaged, with long grass, during the current surveys in March-June 2018. These habitats are suitable for reptiles, although previously may not have been suitable under grazing and mowing management whilst the house was occupied. Figure 01 shows the location of potential reptile habitat which was surveyed. Dense bramble scrub may also be used by reptiles, for foraging after basking in sunlight to increase body temperature to operating standards.

3.3 Reptile survey results

3.3.1 The location of refuges is described in the table below.

Habitat and comments	No of refuges used
Overgrown lawn: south of the house - mosaic of tall, tussocky, poor semi-improved neutral grassland and tall ruderal vegetation, dominated by perennial rye-grass, annual meadow-grass, common bent, spear thistle, creeping thistle, ragwort, dandelion, common nettle, daisy and clover spp.	9

Habitat and comments	No of refuges used
Overgrown paddock: mosaic of tall, tussocky, poor semi-improved neutral grassland and tall ruderal vegetation, dominated by common bent, annual meadow-grass, cleavers, spear thistle, creeping thistle, ragwort, hogweed, dandelion and common nettle.	5 (with more along boundaries)
Species-poor intact hedge, northern boundary of paddock: This hedge was unmanaged and overgrown, 2-4 m in height, mostly up to 4m wide with a single taller goat willow. In places it was continuous with scrub habitat on the neighbouring derelict greenhouse area. Dominant plant species were bramble, Buddleia, elder, blackthorn, and goat willow.	6
Species-poor intact but wider hedge, southern boundary of paddock: This hedge was similarly unmanaged and overgrown, up to 4m high and 8m wide. It becomes wider at the western end and merges with the scrub area. Dominant plant species were bramble, hawthorn, wych elm and common nettle.	3
Tall Ruderal vegetation on a low embankment along boundary north of outbuildings: dominant plant species include Buddleia, sycamore, bramble, green alkanet, spear thistle, dandelion, cow parsley, hogweed, common nettle and ivy. This area merges with scrub on the neighbouring property.	2
Species-poor intact hedgerow with trees, to west of garden: this overgrown hedge borders Dappers Lane and is comprised partly of native species including ash, goat willow, bramble, common nettle and cleavers, and partly of introduced shrub species including laurel, mahonia, and non-native conifers.	4
Log pile and piles of rubble just east of the outbuildings.	1
Total	30

3.3.2 The results of the survey are given below in table 2 below and the location of refugia and reptile records are shown in the table below.

Survey Date and time (BST)	Temp (°C)	Weather	Common Lizard	Slow worm	Grass snake	Adder
26 April 2018 10.00, 16.00	11.5, 11.5	Sun & cloud, light wind	0	1 juv	0	0
3 May 2018 10.15, 17.00	11, 11	Mostly sunny, thin high cloud, v. little wind. Rain previous day	0	1 juv	0	0
8 May 2018 09.45, 17.30	11.5, 12	Clear sun, no wind	0	0	0	0
16 May 2018 09.15, 17.00	15, 15	Sun and cloud, light wind	0	0	0	0
23 May 2018 08.50, 12.00, 15.00	15, 15, 15	Clear sun till 15.00 then clouded over - slight breeze	0	0	0	0
6 June 2018	16,16	Sunny, slight breeze	0	0	0	0

Survey Date and time (BST)	Temp (°C)	Weather	Common Lizard	Slow worm	Grass snake	Adder
10.11, 16.00						
Peak count			0	1	0	0

- 3.3.3 The only reptile records during this survey were of a single slow worm from beneath refuge F15 on the northern boundary of the paddock, approximately 20m from the its eastern end and outside the proposed development site. This juvenile, possibly the same individual, was noted on the first two survey visits, and not subsequently. No other reptile species were found.

3.4 Dormouse habitat assessment results

- 3.4.1 Dense scrub with scattered trees giving a woodland appearance in places was identified as potentially suitable habitat within the proposed development site. A hedge along Water Lane provided a continuous corridor to an area of woodland and scrub post-dating 2001 according to Google Earth photography. From this woodland and scrub a connecting hedgerow lead north alongside a private drive used as a public footpath.
- 3.4.2 The tree canopy on the southern edge of the site appeared to join across Water Lane to woodland and scrub in the vicinity of the large pond, with connecting woodland/scrub continuing to the west. Dormice would be capable of crossing the road here to move between habitats.
- 3.4.3 The area of habitat appears to be large enough, and connected into the wider countryside, for a population of dormice to be viable. Dormice have been recorded 520m to the north-east, according to the Middlemarch report, and there is a reasonable likelihood that dormice could be present within the proposed development site.
- 3.4.4 Potential dormouse habitat is shown in Figure 01.

3.5 Dormouse survey results

- 3.5.1 The location of dormouse tubes used on the site is shown in the table below and in Figure 04.

Habitat	Description	Tube numbers
Western partly defunct boundary hedge with trees	Unmanaged, rather gappy mix of ornamental and native trees and shrubs, including Wych elm, laurel, Buddleia, mahonia, ash, holly, 1 hazel	1, 2, 25
Southern intact species-poor hedge	Unmanaged, merges with scrub, dominated by hawthorn, Buddleia, bramble, elder	7 - 11
Northern intact species-poor hedge	Unmanaged, merges with scrub on adjacent site, dominated by privet, elder, Buddleia, bramble, goat willow and blackthorn.	12 – 16, 24
Scrub	This area was largely dominated by very dense, tall impenetrable scrub, with a row of taller trees, including ash, elder, hawthorn, privet, and nettles along Water Lane, and clumps of other trees and shrubs within the scrub. Tubes could only be placed around or near the edges.	3 – 6, 17 - 23

3.5.2 The dates of dormouse survey, and results are shown in the table below.

Date	Results
10 April	Nest tubes placed.
3 May	No evidence of dormice
6 June	No evidence of dormice
11 July	No evidence of dormice
15 August	No evidence of dormice
13 September	No evidence of dormice. Tube 2 (in hazel) had thin layer of dead litter, and there were hazel nuts gnawed by Squirrels and Wood Mice ¹² on ground beneath hazel. Tube 3 had thin layer of dead litter, and acorns gnawed by Wood Mice.

3.5.3 In summary, no evidence of dormice was found.

3.6 Preliminary bat roost assessment results: Buildings

Plans of the buildings/ trees surveyed and age of buildings

3.6.1 The website www.old-maps.co.uk was searched on 26th March 2018 to identify the maps upon which the buildings were present. No buildings are present on OS maps up to 1938 – 1943. On the 1961 OS map, the garage in its current shape, and a further building to the east were present but no house is shown. The 1971 OS map shows Broadlees, with its garage, and the small sunken outbuilding adjacent to a large building or other feature. The small sunken outbuilding has a large chimney, and it may have been a boiler house for the adjacent building.

3.6.2 The buildings which were surveyed are shown on Figure 03.

Broadlees house

3.6.3 Broadlees house dates from the 1960s and has white rendered walls under a tiled roof. It is a two-storey building. Windows and doors were of modern white uPVC and fitted tightly with no gaps or cracks which could allow potential bat access. Tiles were tight-fitting with none missing, raised or loose. Flashing around chimneys was tight-fitting with no raised areas. Soffits were tight-fitting and verges at gable ends were well-mortared with no potential bat access points.

3.6.4 A single storey lean-to extension on the western elevation was not present on 2001 Google Earth aerial photography but was present in 2007. The join to the main house was tight-fitting and there was no potential bat access.

3.6.5 The extension on the southern elevation was not present on the 1971 OS map but was present on 2001 Google Earth aerial photography. The walls, windows, doors and tiles were similarly without potential bat access as the original house. A clear plastic canopy on the south elevation covered the patio and offered no potential bat roosting areas.

3.6.6 The loft of the original house was divided into two lofts separated by a firewall. Both lofts were partially boarded, and pink fibreglass insulation was present on the floor. Some of the fibreglass was moved off joists to allow surveyor access where necessary. Both lofts were used for storage of a small number of domestic items. A water tank was present. No light ingress was noted into the lofts. The roof was constructed of rafters meeting at a ridge beam, with no trusses or other beams in the body of the loft, thus leaving a clutter-free open space. Bitumen felt lined the underside of the roof and was in good condition with no tears or holes noted.

¹² Confirmed by later hand lens examination: most appeared broken in half with jagged edges (Squirrel); some had round holes, but perpendicular tooth marks pointing towards the hole, and no tooth marks on the outside of the hole - characteristic features of gnawing by Wood Mouse. None showed the smooth inner surface and tooth marks on the outside of the rim characteristic of gnawing by Dormice.

- 3.6.7 There was a scatter of mouse droppings in both lofts, and 3 – 4 rat droppings in the western loft. A sample of the mouse droppings were tested by rubbing them between gloved fingers to see if they crumbled (bat droppings would do this) but they remained hard and unyielding which is typical of mouse droppings. The rat droppings were identified from their size and shape but not tested from crumbling. There were mouse burrows in the insulation in both lofts.
- 3.6.8 There was no evidence of bats in the loft of the original house.
- 3.6.9 The loft of the 1970s/1980s extension was accessed from a hatch from the bedroom below. The loft was partially boarded, and pink fibreglass insulation was present on the floor. Some of the fibreglass was moved off joists to allow surveyor access where necessary. The loft was used for storage of a very few domestic items. No light ingress was noted into the lofts. The roof was constructed of rafters meeting at a ridge board, with a series of king-posts supporting the ridge. Bitumen felt lined the underside of the roof and was in good condition with no tears or holes noted. There were numerous mouse droppings in the extension loft, which tested by rubbing them between gloved fingers to see if they crumbled (bat droppings would do this) but they remained hard and unyielding which is typical of mouse droppings. There were several mouse burrows in the insulation.
- 3.6.10 There was no evidence of bats in the loft of the extension.

Garage / attached outbuilding

- 3.6.11 This building gives the appearance of the brick section on the eastern end having been constructed initially, with a more modern single-skin block construction suggesting perhaps that the garage on the west was subsequently added. There was brick detailing around the doors and at corners of the garage. However, neither were present on the 1938-1943 OS map and both were present on the 1961 map, so both must have been built in that period and it is possible that they may have been built at the same time. Both have corrugated cement roofs which appear to be of similar age. Both had concrete floors. Figure 03 shows the position of the buildings.
- 3.6.12 The garage has two no. large paired doors of sufficient size to allow vehicles to enter, although none were present at the time of survey. One door of a pair was wide open at the time of survey and the frame around the other pair of doors had large gaps, so bat access to the interior was possible. Its corrugated cement roof was pitched, and there were gaps at the ridge allowing potential bat access. There was no liner under the roof, so if bats had been present their droppings would have fallen and been visible. The garage was used for storage of low/no value items such as for example old tyres, chairs and furniture. The western end had been converted to an office with a plasterboard partition wall and ceiling, and a shallow mezzanine-type storage area above. This storage area also contained low/no value stored items. There were no potential roost features within the garage building or on the exterior, and no evidence of bats was found.
- 3.6.13 The brick outbuilding attached to the garage was built with single skin brick walls with a lean-to corrugated cement roof. It comprised two separate rooms, one of which was connected by an internal door to the garage. The rooms were separated by an open area, covered by the corrugated cement roof which continued over the gap between the rooms to form a canopy over a concrete floor. Windows were banded, but doors were open and would allow potential bat access. However, there were no potential roost features. There was no liner under the roof, so if bats had been present their droppings would have fallen and been visible. No evidence of bats was found.

Lean-to sunken outbuilding

- 3.6.14 The sunken outbuilding was dug around 1m into the ground and was around 0.5 – 0.8m above ground. It had a corrugated cement sheet roof, sloping from one side to the other. The walls were of single-skin brick, with parts of the wall missing and parts partially detached, so it was unsafe for surveyor access due to risk of collapse. There were various pieces of fallen wall and fallen roof supports in the building. A large chimney at one end suggested that it was previously used to heat the large structure seen adjacent on the OS maps from 1962 to 1979, although that structure was not evident on Google Earth aerial photography in 2001. The sunken nature of the

building could perhaps so that heated water or air would rise by convection into the adjacent structure, with the large chimney being evidence of large fires.

- 3.6.15 The absence of some walls ensured that the interior was illuminated by natural daylight, and draughty. It did not appear to be suitable for use as a bat roost, within the limitation of the survey, due to the illumination and draughtiness. No evidence of bats was seen when viewing the structure from outside.

4 Evaluation of conservation status and impact assessment

4.1 Assessment rationale

4.1.1 The assessment is based on the ecological data presented within this report. Future changes in the wildlife present on site are beyond the scope of this report, unless specifically stated. Other matters, such as impacts on other species or on designated sites, can be found in the Middlemarch Environmental report.

4.1.2 Figure 05 shows photographs of parts of the site.

4.2 Evaluation and assessment of habitats for great crested newts

4.2.1 The results of the Habitat Suitability Index suggest that the pond within the zone of influence of the development has poor suitability for great crested newts and they are not likely to be present. No further survey is needed and the impact on these species would be **Neutral**.

4.3 Evaluation and assessment of reptiles

4.3.1 The presence of one juvenile slow worm on two occasions outside the boundary of the proposed development site, despite thorough survey, indicates that the value of the proposed development site for reptiles is **Negligible**. The presence of the juvenile slow worm on the northern boundary of 'Broadlees', adjacent to a derelict greenhouse site which appears to have remains of greenhouses with scrub habitats having developed as early as 2001 (Google earth aerial photo sequence) suggests that there may be a breeding population of slow worm on that adjacent land.

4.3.2 Following completion of the reptile survey, it is understood that grassland in the paddock and in the overgrown lawn has been mown regularly to maintain a short sward, and other vegetation in the garden and around outbuildings has also been cleared. This will greatly reduce the likelihood of reptiles colonising from the adjacent derelict greenhouse site, thus maintaining the value of the proposed development site as **Negligible**.

4.3.3 The distance between the presumed off-site slow worm population and the development site, with the mown grassland barrier to be maintained as a short sward, will have a **Neutral** impact on reptiles.

4.4 Evaluation and assessment of dormouse

4.4.1 No signs of dormice were recorded during this survey. The small area of the available habitat, the low densities at which dormice live, and the distance from known populations suggest that the probability of dormice being present in the site is considered to be low.

4.4.2 The development would have a **Neutral** impact on dormice.

4.5 Evaluation and assessment of bats

4.5.1 The buildings are assessed as of **Negligible** value to bats. Demolition of the buildings would have no impact on bats and no further survey is necessary.

4.5.2 During the site visit, no trees of value to bats as roosts were identified. Trees alongside Water Lane could not be closely inspected due to traffic safety issues and brambles impeding access, but these trees are understood to be retained.

4.6 Cumulative impacts

4.6.1 There are no known cumulative impacts for this proposed development. Future development proposals on the Broadlees, Dapper's Lane site may have cumulative impacts which would be assessed when/if those developments come forward.

5 Mitigation and avoidance measures

5.1 Great crested newts and bats

5.1.1 No mitigation is required as no bat roosts are considered to be present.

5.2 Reptiles

5.2.1 The avoidance measure to be undertaken would be the ongoing maintenance of a short sward in the space between the presumed slow worm population on adjacent land to the north, and the construction zone. This would prevent colonisation and so avoid an impact upon reptiles.

5.2.2 No other mitigation is required.

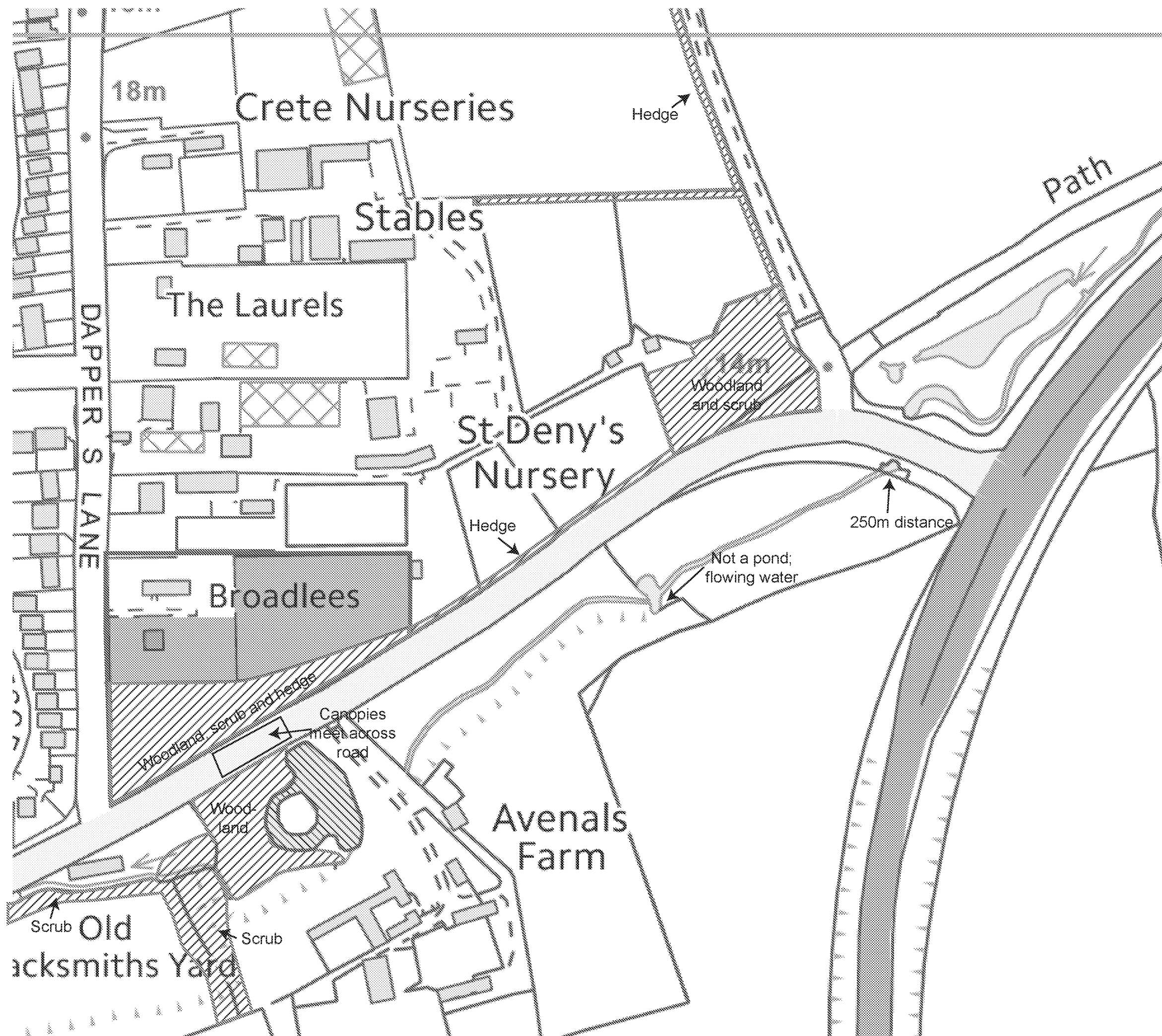
5.3 Dormice

5.3.1 No mitigation is required.

6 Conclusions

- 6.1.1 The purpose of this report is to inform a planning application for the proposed development.
- 6.1.2 The overall value of the site to wildlife is considered to be **Negligible** for **great crested newts, reptiles, roosting bats** and **dormice**.
- 6.1.3 The accompanying Middlemarch report assesses the value of the habitats and other species present and provides mitigation for impacts. This mitigation remains valid and should be considered together with this report. The recommendation for further consideration of buildings for bats is however superseded by this Appraisal, because roost assessment as reported here has shown that there is no evidence of use and/or potential use of the buildings by bats.
- 6.1.4 Further survey was proposed by Middlemarch and has been completed by The Landscape Partnership for great crested newts, reptiles, dormice and bats.

Figures



Key

- Site Boundary
- Reptile potentially suitable habitat
- Dormouse potentially suitable habitat
- Pond: Habitat suitability index for great crested newts: pond

B16005 - Dappers Lane

Habitat Assessment

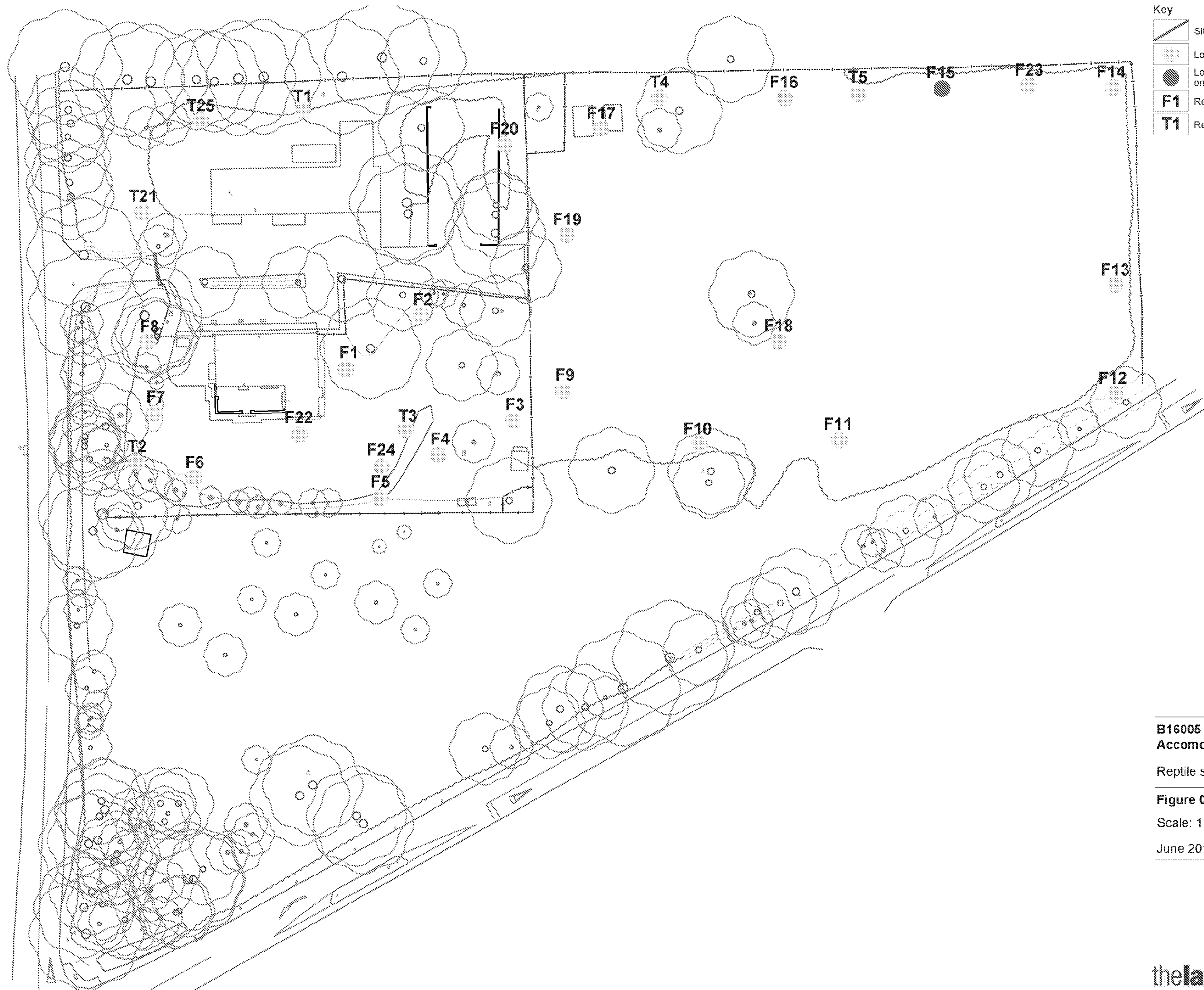
Figure 01

Scale: 1:250 @ A3

March 2018



the **landscape** partnership



Key

	Site Boundary
	Location of reptile refugia (no reptiles found)
	Location of refuge (one juvenile slow worm found once)
F1	Refuge made of bitumen felt
T1	Refuge made of corrugated iron

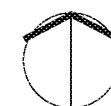
B16005 - Dappers Lane Extra Care Home Accommodation

Reptile survey

Figure 02

Scale: 1:500 @ A3

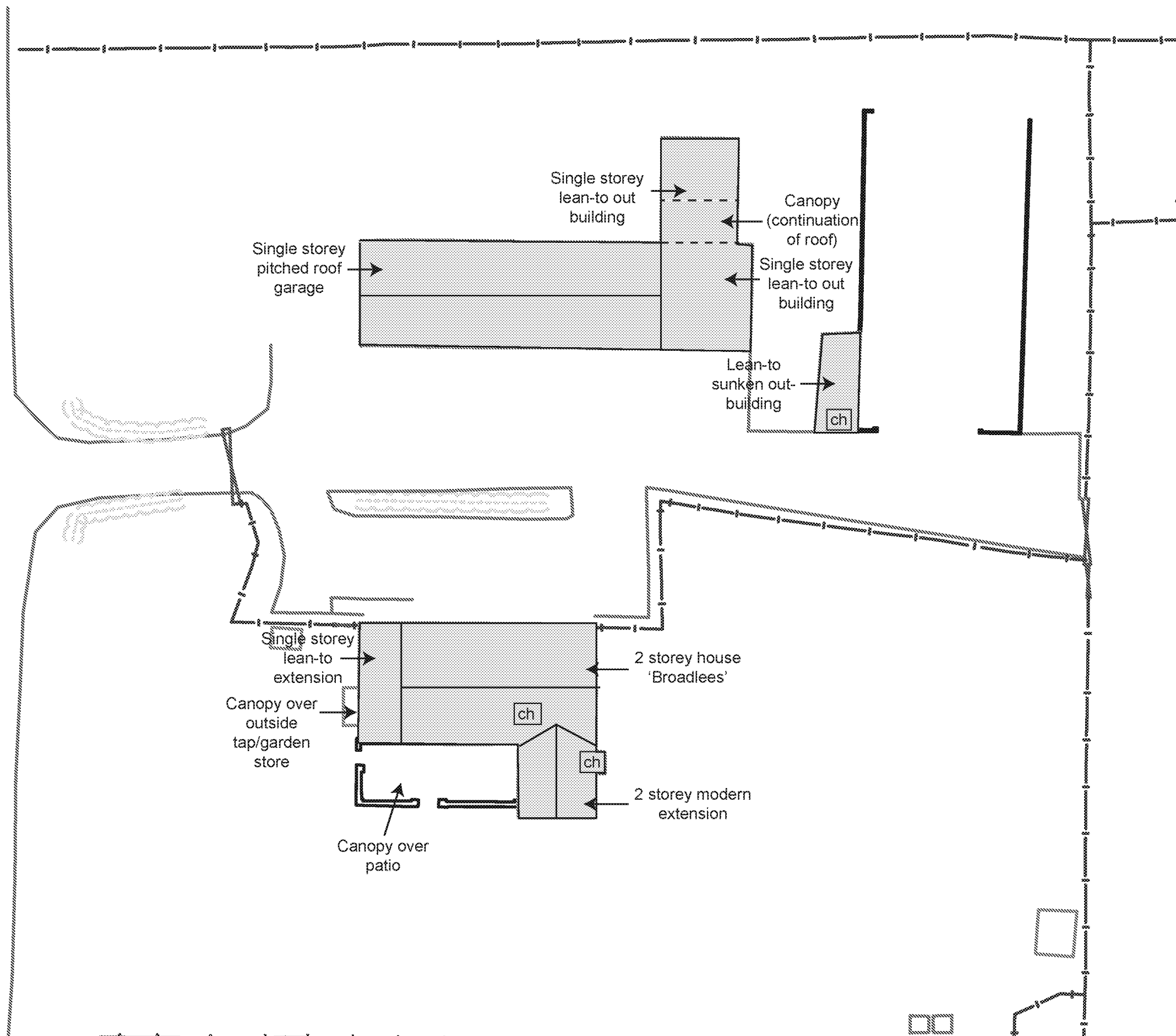
June 2018



the **landscape** partnership

Key

ch Chimney



B16005 - Dappers Lane

Buildings assessed for bat roost potential

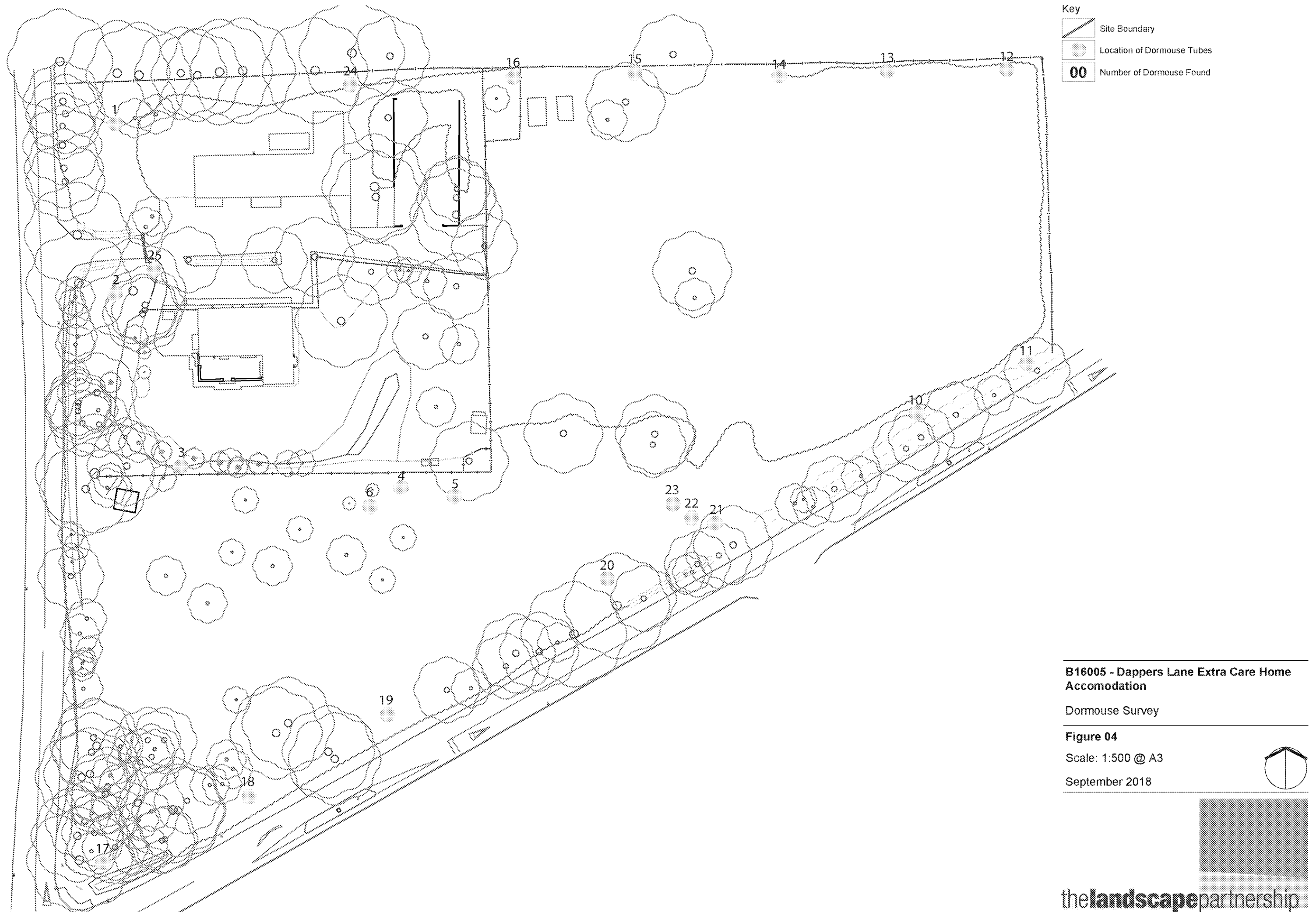
Figure 03

Scale: 1:250 @ A3

March 2018



the **landscape** partnership

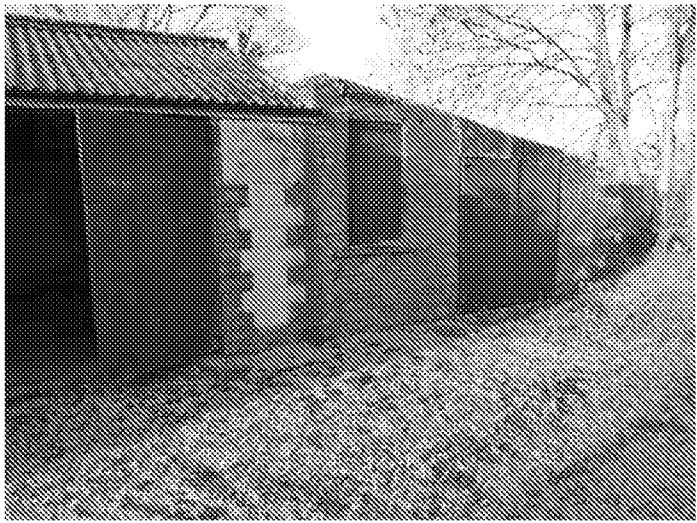




Partially sunken outbuilding



Garage and attached outbuilding



Outbuilding attached to garage



Broadlees, rear elevation



Ungrazed poor semi-improved grassland in paddock



Broadlees lawn and east elevation



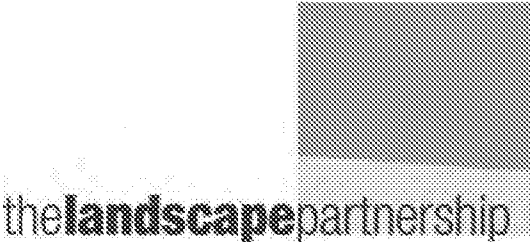
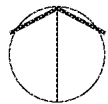
Bramble scrub

16005 - Dappers Lane

Photographs

Figure 05

March 2018



Appendix 1

Legislative and policy context

There are a number of pieces of legislation, regulations and policies specific to ecology which underpin this assessment. These may be applicable at a European, National or Local level. References to legislation are given as a summary for information and should not be construed as legal advice.

Birds Directive

The European Community Council Directive on the Conservation of Wild Birds (79/409/EEC), normally known as the Birds Directive, sets out general rules for the conservation of all naturally occurring wild birds, their nests, eggs and habitats. It was superseded by the 'new' Birds Directive (2009/147/EC) which generally updated the previous directive.

These requirements are interpreted into English law by the Wildlife and Countryside Act 1981 (as amended) with regard to protection of birds, and the Conservation of Habitats and Species Regulations 2017 with regard to the registration and regulation of Special Protection Areas.

Habitats Directive

The European Community Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC), normally known as the Habitats Directive, aims to protect the European Union's biodiversity. It requires member states to provide strict protection for specified flora and fauna (i.e. European Protected Species) and the registration and regulation of Special Areas of Conservation.

These requirements were interpreted into English law by the Conservation of Habitats and Species Regulations 2010 with regard to European Protected Species and the registration and regulation of Special Areas of Conservation. This Directive was amended in 2017 following the consolidation of the England and Wales and Offshore Habitats Regulations.

Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 interpret the Birds Directive and Habitats Directive into English and Welsh law. For clarity, the following paragraphs consider the case in England only, with Natural England given as the appropriate nature conservation body. In Wales, the Countryside Council for Wales is the appropriate nature conservation body.

Special Protection Areas and Special Areas of Conservation are defined in the regulations as 'European sites'. The Regulations regulate the management of land within European sites, requiring land managers to have the consent of Natural England before carrying out management. Byelaws may also be made to prevent damaging activities and if necessary land can be compulsorily purchased to achieve satisfactory management.

The Regulations define competent authorities as public bodies or statutory undertakers. Competent authorities are required to make an appropriate assessment of any plan or project they intend to permit or carry out, if the plan or project is likely to have a significant effect upon a European site. The permission may only be given if the plan or project is ascertained to have no adverse effect upon the integrity of the European site. If the competent authority wishes to permit a plan or project despite a negative assessment, imperative reasons of over-riding public interest must be demonstrated, and there should be no alternative to the scheme. The permissions process would involve the Secretary of State and the option of consulting the European Commission. In practice, there will be very few cases where a plan or project is permitted despite a negative assessment. This means that a planning application has to be assessed by the Local Planning Authority, based on information provided by the applicant, and the assessment must either decide that it is likely to have no significant effect on a European site or ascertain that there is no adverse effect upon the integrity of the European site.

Government policy is for Ramsar sites (wetlands of global importance) to be treated as if they were European sites within the planning process.

Appropriate Assessment

Appropriate Assessment is required in certain instances under the Conservation of Habitats and Species Regulations 2017. Regulation 63 says that:

63.—(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which-

(a) is likely to have a significant effect on a European site or a European offshore marine site

- (either alone or in combination with other plans or projects), and*
- (b) is not directly connected with or necessary to the management of the site,*
- must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.*
- (2) A person applying for any such consent, permission or other authorisation shall provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable them to determine whether an appropriate assessment is required.*
- (3) The competent authority shall for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority may specify.*
- (4) They must also, if they consider it appropriate, take the opinion of the general public, and if they do so, they must take such steps for that purpose as they consider appropriate.*
- (5) In the light of the conclusions of the assessment, and subject to regulation 64 (considerations of overriding public interest), the competent authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).*
- (6) In considering whether a plan or project will adversely affect the integrity of the site, the authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which they propose that the consent, permission or other authorisation should be given.*

The competent authority is typically the local planning authority. The appropriate assessment contains the information the council requires for the purposes of its assessment under the Habitat Regulations.

The Habitat Regulations also are applicable to local authority land use plans and policies. If a policy or plan is likely to have a significant effect upon a European site, the permission may only be given if the policy or plan is ascertained to have no adverse effect upon the integrity of the European site. This approach gives rise to a hierarchy of plans each with related appropriate assessments. For example, the appropriate assessment of a Regional Spatial Strategy will affect policies within a Core Strategy, which will then need its own appropriate assessment, and so on.

European Protected Species

European Protected Species of animals are given protection from deliberate capture, injury, killing, disturbance or egg taking/capture. Their breeding sites or resting places are also protected from damage or destruction, which does not have to be deliberate. A number of species are listed as European Protected Species, with those most likely to be considered in planning applications being bats, dormouse, great crested newt and otter. Natural England may give a licence for actions that are otherwise illegal, subject to them being satisfied on the three tests of no alternative, over-riding public interest, and maintenance of the species in favourable condition.

European Protected Species of plant are also listed and given protection. These species are generally very rare and unlikely to be present in proposed development sites.

Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981 has been amended many times, including by the Countryside and Rights of Way Act 2000. It contains provisions for the notification and regulation of Sites of Special Scientific Interest, and for protected species.

The Regulations regulate the management of land within Sites of Special Scientific Interest, requiring land managers to have the consent of Natural England before carrying out management.

All public bodies are defined as 'S28G' bodies, which have a duty to further the nature conservation of Sites of Special Scientific Interest in the undertaking of their functions. In practice, this prevents planning applications being permitted if they would harm Sites of Special Scientific Interest, as it would be a breach of that duty.

The Act makes it an offence intentionally to kill, injure, or take any wild bird, take, damage or destroy the nest of any wild bird, while that nest is in use or being built, or take or destroy an egg of any wild bird. Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.

The Act makes it an offence intentionally to kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. Some species have lesser protection under this Act, for example white-clawed crayfish, common frog and toads are only protected from sale, and reptile species, other than smooth snake and sand lizard, are protected from intentional killing or injury, but they are not protected from disturbance and their habitat is not protected. It is also an offence intentionally to pick, uproot or destroy any wild plant listed in Schedule 8.

National Planning Policy Framework

The National Planning Policy Framework (NPPF) dated July 2018 replaces previous Government Policy in relation to nature conservation and planning expressed in the NPPF dated March 2012.

Chapter 15 paragraph 170(d) of the NPPF 2018 says that the planning system should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity.

Paragraphs 171 and 172 relate to policy for designated sites of biodiversity or landscape importance. Proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged against Local Plans policies which will distinguish between the hierarchy of international, national and locally designated sites and allocate land with the least environmental or amenity value and maintain and enhance networks of habitats and green infrastructure. Further policy is within paragraph 174, where Local Planning Authorities should within their Local Plans aim to protect and enhance biodiversity by:

- Identifying, mapping and safeguarding components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- Promoting the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

When determining planning applications Local Planning Authorities should apply the following principles:

- If significant harm resulting from a development cannot be avoided (through locating it on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused,
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

Paragraph 176 adds protection to candidate sites of European or International importance (Special Protection Areas, Special Areas of Conservation and Ramsar sites) and also to those sites identified or required as compensatory measures for adverse effects on habitats sites, potential SPA, possible SAC listed or proposed Ramsar sites.

Paragraph 177 clarifies that the presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site (i.e a SAC, SPA, Ramsar or candidate sites) is being planned or determined.

Government circular 'Biodiversity and Geological Conservation – Statutory Obligations and their Impact Within the Planning System' referenced ODPM 06/2005 has not been replaced and remains valid. It sets out the legislation regarding designated and undesignated sites and protected species and describes how the planning system should take account of that legislation. It does however pre-date the NERC Act 2006 (see below), which includes a level of protection for a further list of habitats and species regardless of whether they are on designated sites or elsewhere.

Natural Environment and Rural Communities (NERC) Act 2006

This Act includes a list of habitats and species of principal importance in England. Local Authorities are required to consider the needs of these habitats and species when making decisions, such as on planning application.

Local Planning Authority's planning policy

The Local Planning Authority will have policies relating to biodiversity conservation.

Species Legislation

The following table provides an overview of legislation with regard to species.

Protected Species	Legislation			
	Wildlife & Countryside Act, 1981	The Conservation of Habitats and Species Regulations, 2017	Natural Environment & Rural Communities (NERC) Act, 2006	Protection of Badgers Act, 1992
Plants (certain 'rare' species)	✓	✓ ¹³	✓	
Invertebrates (certain 'rare' species)	✓	✓ ¹⁴	✓	
White-clawed crayfish	✓		✓	
Great crested newt, natterjack toad, pool frog	✓	✓	✓	
Other amphibians	✓ ¹⁵		✓	
Sand lizard, smooth snake	✓	✓ ¹⁶	✓	
Other reptiles	✓ ¹⁷		✓	
Breeding birds	✓	✓	✓	
Wintering birds (certain 'rare' species)	✓	✓	✓	
Bats	✓	✓	✓	
Dormouse	✓	✓	✓	
Water vole	✓		✓	
Otter	✓	✓	✓	
Badger				✓

¹³ Nine species present in the UK, with very specialised habitat requirements, are European Protected Species.

¹⁴ Fisher's estuarine moth, large blue butterfly and lesser whirlpool ram's-horn snail are European Protected Species.

¹⁵ The four other native amphibian species (smooth and palmate newts, common frog and common toad) are only protected against trade under this act.

¹⁶ Smooth snake and sand lizard are European Protected Species.

¹⁷ The four other native reptile species (common lizard, slow worm, grass snake and adder) are protected against intentional killing, injury and trade under this act.

Appendix 2

Assessment Methodology: Valuing Ecological Features and Impact Assessment

The three-stage assessment method for determining ecological value is based upon assessment matrices published in the Handbook of Biodiversity Methods¹⁸. It has been updated to comply with recent changes to planning policy and legislation. The three-stage process allows the value of ecological sites, habitats and populations, and the magnitude of the impact, to be cross-tabulated to identify impact significance.

Valuing ecological sites, habitats and populations: scale and level of value

Scale	Level of value	Sites, habitats and populations
European	Very High	Statutory sites designated under international conventions or related national legislation, for example: - Wetlands of International Importance (Ramsar sites), - Special Areas of Conservation, - Special Protection Areas.
National	High	Statutory sites designated under national legislation, for example: - Sites of Special Scientific Interest (England, Wales, Scotland), - National Nature Reserves (UK). Significant viable areas of habitats, or populations or assemblages of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)¹⁹ of such size and quality as might qualify for SSSI designation. Populations or assemblages of red-listed, rare or legally protected species, as might qualify for SSSI designation, for example: - species of conservation concern, - Red Data Book (RDB) species, - birds of conservation concern (Red List species), - nationally rare and nationally scarce species, - legally protected species.
County	Medium	Statutory sites of lower conservation value designated under national legislation, for example Local Nature Reserves (UK). Non-statutory sites designated under local legislation, for example: - County Wildlife Sites, - Local Wildlife Sites, - Roadside Nature Reserves (protected road verges). Viable areas of habitat or populations of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)²⁰ of such size and quality as might qualify for designation at the county level. Other non-designated sites which meet the criteria for designation at this level.

18 Hill, D., Fasham, M., Tucker, G., Shewry, M., Shaw, P. (eds.) (2005) *Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring*, Cambridge University Press.

19 Listed under S41 of the Natural Environment and Rural Communities Act 2006 <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>.

20 Listed under S41 of the Natural Environment and Rural Communities Act 2006 <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>.

District/ Borough²¹	Lower	Sites meeting criteria for metropolitan designations. Undesignated sites or features not meeting criteria for county designation, but that are considered to enrich appreciably the habitat resource within the local district or borough, for example: • ancient woodland, • diverse, ecological valuable and cohesive hedgerow networks, • significant clusters or groups of ponds, • veteran or ancient trees. Viable areas of habitat or populations of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)²² not qualifying for designation at the county level.
Parish	Lower	Areas of habitat considered to enrich appreciably the ecological resource within the context of the local parish. Small areas of habitat or populations of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)²³.
Site only	Negligible	Ecological feature or resource not meeting any of the above criteria.

Note: there is much overlap in designations and lists of important species, and many sites, habitats and species appear on several. Where a site, habitat or species has multiple designations or levels of protection, normally the highest level would be the level at which impacts are assessed.

²¹ Including metropolitan boroughs.

²² Listed under S41 of the Natural Environment and Rural Communities Act 2006 <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>.

²³ Listed under S41 of the Natural Environment and Rural Communities Act 2006 <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>.

Definitions of impact magnitude

Magnitude (negative or positive)	Definition/ trigger
Severe	Loss or severe degradation affecting over 75% of a site feature, habitat or population. Adverse change to, or reduced condition of, over 90% of a site feature, habitat or population, for example through disturbance or trampling.
Major	Loss or severe degradation affecting over 25% of a site feature, habitat or population. Adverse change to, or reduced condition of, over 50% of a site feature, habitat or population, for example through disturbance or trampling. For benefits, an impact equivalent in nature conservation terms to a gain of over 50% in a site feature, habitat or population.
Moderate	Loss or severe degradation affecting over 5% of a site feature, habitat or population. Adverse change to, or reduced condition of, over 10% of a site feature, habitat or population, for example through disturbance or trampling. For benefits, an impact equivalent in nature conservation terms to a gain of 10-50% in a site feature, habitat or population
Minor	Loss or severe degradation affecting up to 5% of a site feature, habitat or population. Adverse change to, or reduced condition of, 1-10% of a site feature, habitat or population, for example through disturbance or trampling. For benefits, an impact equivalent in nature conservation terms to a gain of up to 10% in a site feature, habitat or population.
Insignificant	No loss of or severe degradation to a site feature, habitat or population. Adverse change to, or reduced condition of, less than 1% of a site feature, habitat or population. No benefit to a site feature, habitat or population.

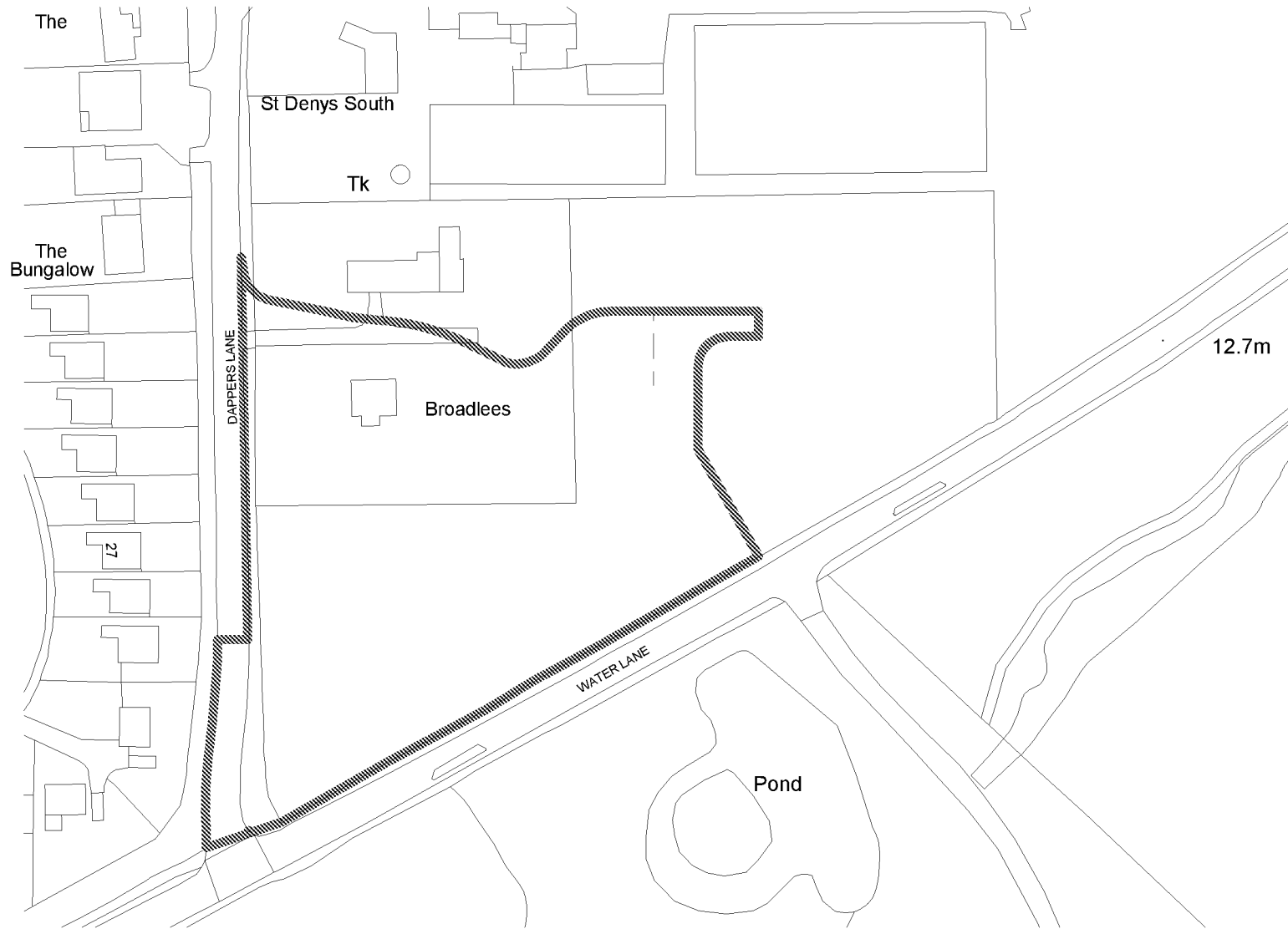
Impact significance

Value of site, habitat or population	Magnitude of impact							
	<i>Severe Negative</i>	<i>Major Negative</i>	<i>Moderate Negative</i>	<i>Minor Negative</i>	<i>Insignificant</i>	<i>Minor Positive</i>	<i>Medium Positive</i>	<i>Major Positive</i>
<i>European (Very High)</i>	Severe Adverse	Severe Adverse	Major Adverse	Major Adverse	Neutral*	Major Beneficial	Major Beneficial	Major Beneficial
<i>National (High)</i>	Severe Adverse	Major Adverse	Major Adverse	Moderate Adverse	Neutral*	Moderate Beneficial	Major Beneficial	Major Beneficial
<i>County/Metropolitan (Medium)</i>	Major Adverse	Major Adverse	Moderate Adverse	Moderate Adverse	Neutral	Minor Beneficial	Moderate Beneficial	Major Beneficial
<i>District/Borough (Lower)</i>	Major Adverse	Moderate Adverse	Moderate Adverse	Minor Adverse	Neutral	Minor Beneficial	Moderate Beneficial	Moderate Beneficial
<i>Parish (Lower)</i>	Moderate Adverse	Moderate Adverse	Minor Adverse	Minor Adverse	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial
<i>Minimal/negligible</i>	Neutral	Neutral	Neutral	Neutral	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial

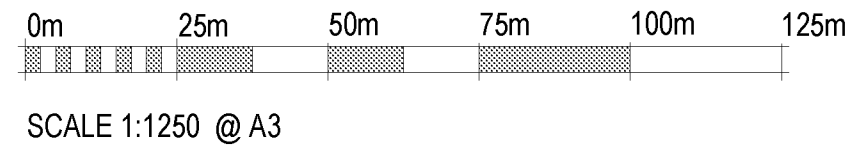
Where the impact significance falls below Minor Adverse, the term 'Neutral' is used.

* In some circumstances, some 'insignificant' impacts might fail legislative or policy tests and the impact would be greater than Neutral.

Appendix 3



1 Location Plan
1 : 1250



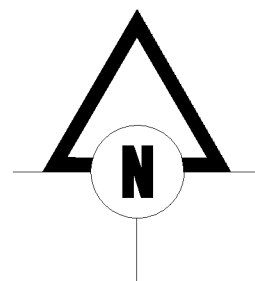
NOTES

Do not scale this drawing.

All dimensions are in millimetres unless stated otherwise.

This drawing is to be read in conjunction with all other relevant drawings and specifications.

The copyright of this drawing is vested in Harris Irwin Associates Ltd. and must not be copied or reproduced without his written consent of a Director.



P1	18/05/18	Full Draft Issue	AC	RSW
Rev	Date	Description	Drawn By	Checked By

harrisirwin
architects & designers

Aske Stables, Aske, Richmond, North Yorkshire. DL10 5HG
t: 01748 825675
e: enquiries@harrisirwin.com
w: www.harrisirwin.com

Project:
Dappers Lane
Angmering

Client:

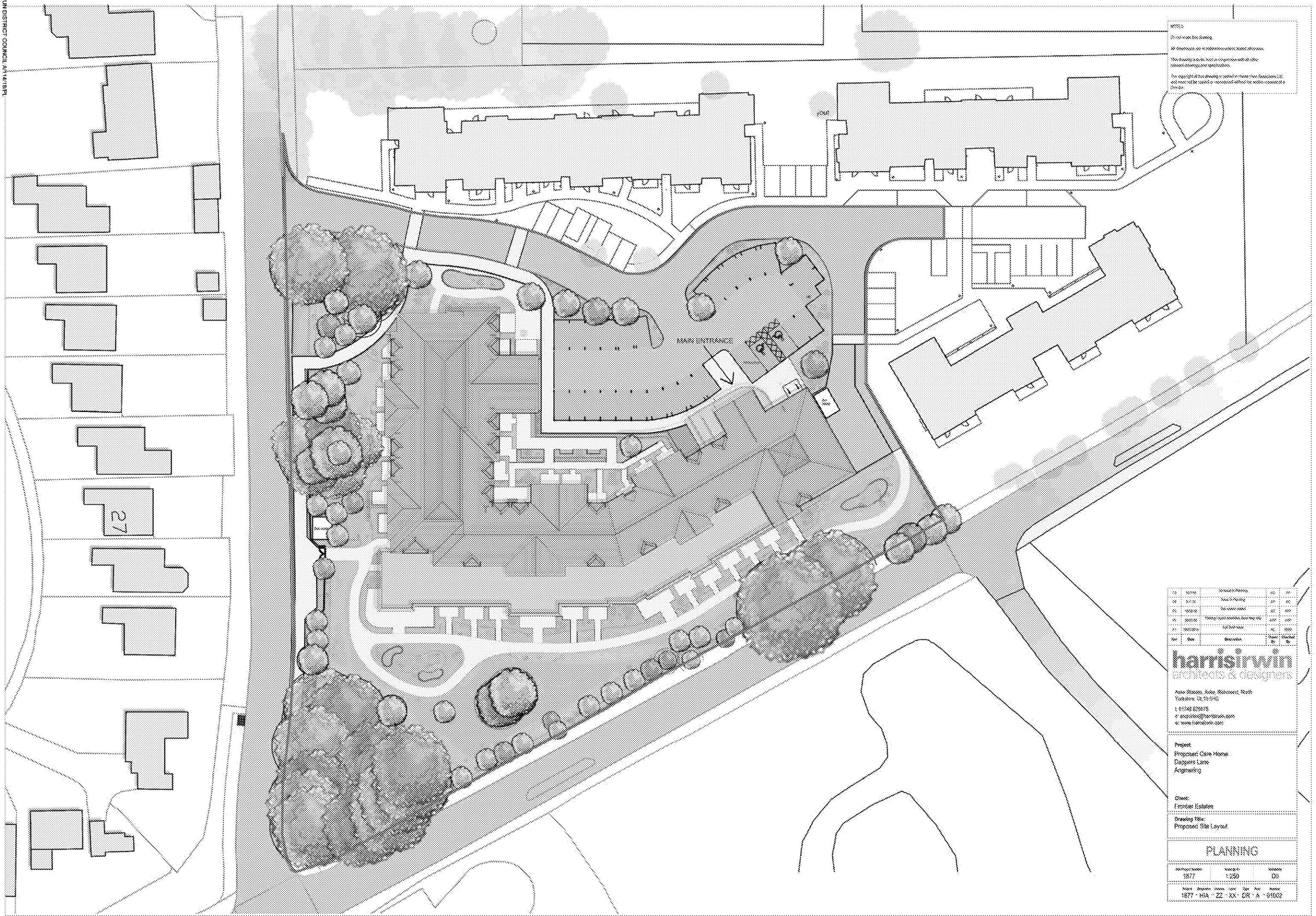
FRONTIER

Drawing Title:
Location Plan

For Review and Comment

HIA Project Number 1877	Scale @ A3 1 : 1250	Suitability S3
Project 1877 - HIA	Originator - 04 -	Volume - XX -
Type - DR -	Role - A -	Number 01001

Appendix 4



NOTES

Do not scale this drawing.

All dimensions are in millimetres unless stated otherwise.

This drawing is to be read in conjunction with all other relevant drawings and specifications.

The copyright of this drawing is vested in Harrisirwin Ltd and must not be copied or reproduced without the written consent of a Director.

NO	DATE	REVISION/REMARKS	BY	CHKD
01	10/11/16	Issue for Planning	AM	AC
02	10/01/16	Revised layout	AM	AC
03	20/01/16	Planning application drawing only	AM	AC
04	10/02/16	Final layout	AM	AC

harrisirwin
architects & designers

Apex Studios, Arle Road, North
Yorks YO1 5HG

T: 01745 625675
E: enquiries@harrisirwin.com
W: www.harrisirwin.com

Project:
Proposed Care Home
Daggers Lane
Angmering

Client:
Frontier Estates

Drawing Title:
Proposed Site Layout

PLANNING						
As Proposed	1877	Scale	1:250	Sheet	DS	
Project	Design	Drawn	Check	Scale	Notes	
1877	HA	ZZ	XX	DR	A	91502

