



**Proposed New Light Industrial
Building For B1 / B8 Use, Land at The Vinery,
Arundel, BN18 9PY**

Ecological Assessment

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Peach Ecology
9 Elizabeth Road
Wilton
Wiltshire
England
SP2 0JH

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1.0 Summary

The proposal is to construct a new light industrial building, this will involve removing the existing structure and polytunnels on site. The proposal land has been cleared as part of a previous application and is mostly composed of bare earth although a leylandii hedge is present along the western boundary and some ruderals are present next to the polytunnels. Two ponds lie 50m south, an eDNA survey was undertaken in 2018 and this came out as negative for Great Crested Newts. The site has low ecological value however the leylandii hedge to the west will contribute to wildlife corridors for bats and birds locally. An ecological survey of the adjacent site in 2012-2013 as part of a previous application found no reptiles present and a great crested newt translocation was undertaken as part of the proposals, but this found no newts on the site. It is therefore assumed that amphibians are not present on the current application site. It is possible that there is a small population of reptiles present within the vicinity although these would only make minimal use of the sub-optimal leylandii hedgerow habitat. Additional advice is contained within this report to prevent harm to wildlife from future proposals and from lighting. Recommendations have been set out to enhance biodiversity at the site level in line with local and national planning policies, this includes the use of wildlife boxes and biodiverse landscaping.

2.0 Introduction

Background

- 2.1 Peach Ecology was commissioned in November 2019 to carry out an Ecological Assessment of the site at The Vinery, Arundel Road, Arundel, BN18 9PY, Grid Reference: TQ 05112 05552 (Appendix A and B). This report has been produced to support the planning application to Arun District Council for permission to construct a new industrial building (Appendix C).
- 2.2 This report describes the existing ecology on site based on the findings of a site visit, protected species and habitats data searches and review of previous planning applications and reports and local and national policies.

Description of site and surrounding area

- 2.3 The site, which measures approximately 0.5Ha, lies to the western boundary of an industrial area to the northwest of Worthing, just to the north of Poling village in West Sussex and just south of the A27. The site consists of a patch of cleared vegetation, now bare earth, with a line of mature leylandii trees to the west. Polytunnels and a building are present within the area and to the south is an area where a new car park has been granted permission. Further bare ground is present to the north. The industrial site to the north and east contains large industrial buildings, with tarmac roads and paths. Outside of the industrial area the landscape is dominated by arable fields to the west, south and east and to the north the site is bounded by the A27 dual carriageway, beyond which is mixed woodland.

Brief

- 2.4 To carry out an Ecological Assessment of the site and inform the clients of any ecological implications associated with the current proposals.

3.0 Methodology

Desk Study

- 3.1 This involved gathering ecological data relating to statutory nature conservation sites from within 2km, the results of which are shown in **Appendix D**. A search was undertaken using Multi-Agency Geographic Information for the Countryside (MAGIC), a DEFRA run website, to check for European Protected Species licenses and other ecological data nearby. Ordnance Survey maps and aerial images were assessed to check for other relevant data on notable habitats and species nearby including ponds, watercourses and wildlife corridors where the site connects into the surrounding area.
- 3.2 Ecological Assessments from the previous applications on site and nearby were reviewed including:
- The Vinery, Angmering, West Sussex, Reptile Survey, Report for Fargo (The Ecology Consultancy, 2012)
 - The Vinery, Poling, West Sussex, Great Crested Newt Survey Report for Fargo (The Ecology Consultancy, 2013)
 - The Vinery, Poling, West Sussex, Walkover Survey for Fargo Ltd (The Ecology Consultancy, 2014)
 - Land at the Vinery, Ecological Assessment (Peach Ecology, 2018)
- 3.3 The Ecology Consultancy were also contacted for the results of their European Protected Species licence application and for feedback on this.

Site Assessment

- 3.4 The site was assessed on the 14th November by Clare Halliday and Davog McCloskey, experienced ecologists. This employed techniques based on standard Phase I Habitat Survey methodology (CIEEM, 2016). Habitat types on and adjacent to the site were identified according to standard habitat definitions. The collection of botanical information focused on the dominant and key indicator species for each habitat type. The site survey included an assessment of the habitats immediately adjacent to the site, where possible, to look at the value of the site within the local landscape and to see whether these nearby sites supported protected species. Indicative methodologies for the most likely protected and notable species that could occur on site and be impacted by the proposals are set out below. An annotated map of habitats onsite is shown in **Appendix E**.

Bats

- 3.5 Trees and buildings within the footprint of the site and any areas potentially impacted by the proposals were inspected in accordance with current survey guidance (BCT, 2016) for roosting features which could support bats. Trees were checked for ivy cover, crevices and rotten sections and buildings were checked for droppings, staining and for bats and other signs of bat usage using a ladder, torch and endoscope.

Birds

- 3.6 Vegetation were surveyed for signs of breeding birds and any nesting activity was noted along with birds in the area.

Badgers

- 3.7 Any area that could be used for foraging or could potentially contain a Badger sett was surveyed and any signs noted. Signs include active or disused setts, digging, latrines and dung pits, foraging signs ('snuffle holes'), footprints and hairs. Badger paths often have no sticks or other obstacles at ground level.

Dormice

- 3.8 The suitability of the habitat was assessed for dormice in terms of scrub and hedges and the connectivity of the site to other areas of suitable habitat locally. Any small mammal feeding signs were checked and assessed, these include teeth marks on hazel nuts and other nuts and any evidence of nest building.

Great Crested Newts

- 3.9 Any ponds on site and within the vicinity of the site were noted and the potential of the land to act as a commuting route, shelter or foraging resource for great crested newts was assessed.

Reptiles

- 3.10 Habitat features that could be suitable as hibernacula, foraging or basking areas were noted. Material on site including strips of wood and plastic were carefully examined to look for reptiles or for evidence of reptiles, including sloughs (shed skins).

4.0 Results and Discussion

Desk study

- 4.1 No sites of statutory conservation interest lie within 2km of the site. The nearest site is Arundel Park Site of Special Scientific Interest (SSSI) which lies 3.5km northwest of the proposal site. This will not be impacted either directly or indirectly by the proposals due to the small scale and limited impact of the application.
- 4.2 It is important that the proposals follow appropriate pollution prevention and drainage guidelines to protect all adjacent habitats as bare earth will be replaced with hard standing and drainage may therefore need to be considered.

Site Assessment

Habitats

- 4.3 Habitats recorded within the site boundary and immediately adjacent comprised of:
- Bare earth
 - Structures
 - Ruderal vegetation
 - Hedgerow

Bare earth

- 4.4 Approximately 90% of the site is composed of bare earth that has recently been cleared (Photo 1) of any vegetation, this has some ruts in the soil from plant machinery. Occasional plants are growing but these are mostly confined to the edges and close to the structures. A large mature oak tree (Photo 2) fell over in recent winds in autumn 2019 and this has been left in situ. The oak tree can be moved to a corner of the site so that it can rot down on its own over time – this will become an interesting wildlife feature for stag beetles and other wildlife.



Photo 1: The majority of the site is covered in bare earth (Photo taken from the south looking north)

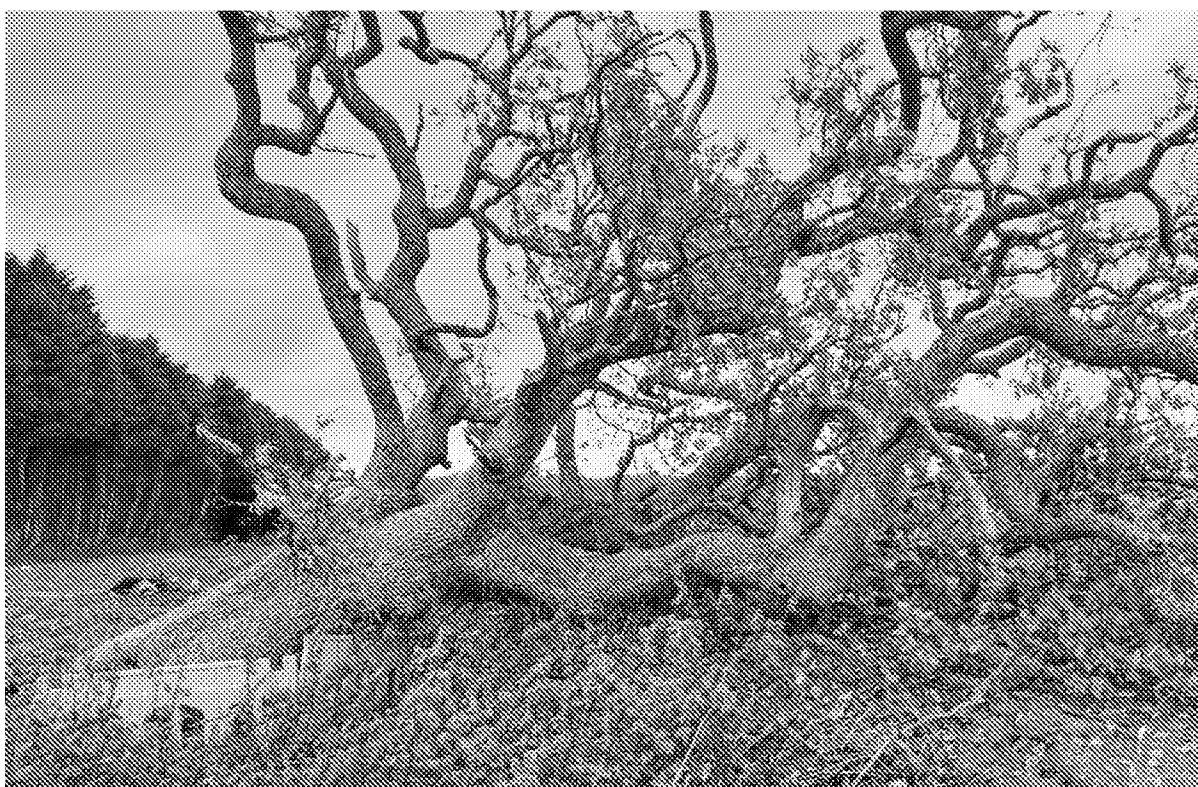


Photo 2: The fallen oak tree to the south of the site

Structures

- 4.5 A metal container (Photo 3) with a brick front and two polytunnels (Photo 4) are present on site, these are currently in use. These were assessed inside and out and no evidence of bats or nesting birds was found, the structures have low – negligible potential for both. There are some shallow crevices around the brick work and although these could be easily checked and there were no signs of wildlife it is recommended

that these are checked again prior to demolition so that it is confirmed no animals will be hurt or disturbed. New features for bats and birds can be incorporated into the new building to enhance it for biodiversity.

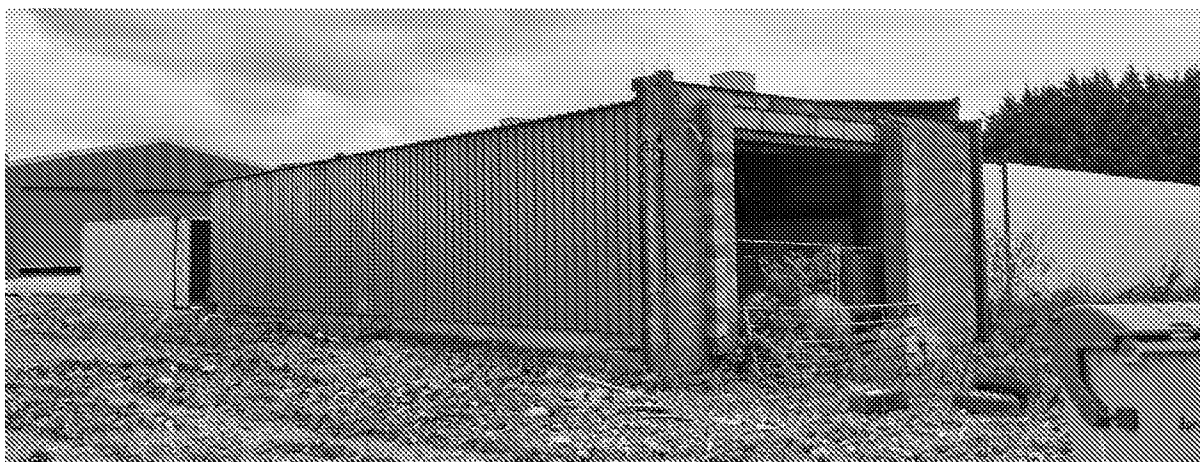


Photo 3: The building to the north is attached to the polytunnels to the south



Photo 4: The polytunnels

Ruderal vegetation

- 4.6 The site contains ruderal vegetation in a small area to the west of the polytunnels, this area measures approximately 60m² (Photo 5). The vegetation is common and can be considered to have relatively low ecological value, as the species are widespread, although it provides some value for foraging invertebrates, birds and bats. Species contained include thistle, nettle, buddleia, ragwort, bramble, teasel and perennial ryegrass. The proposals will result in the removal of the remaining vegetation and therefore it is important that new vegetation is planted/sown to compensate for the loss and enhance the remaining land for biodiversity. This is achievable by sowing wildflower seed and then managing this appropriately so that there are areas of long grass retained where practicable, especially along the hedgerow boundary.



Photo 5: The area of ruderal vegetation beside the polytunnel

Hedgerow

- 4.7 A line of tall mature leylandii trees is located along the western boundary and another short section is located just outside the site boundary to the south. The trees to the west form part of a wildlife corridor with the wider area and will need to be retained. Although these non-native trees can be considered to have typically low ecological value in terms of hedgerows they still perform an ecological function by offering connectivity, acting as a windbreak, offer structure to the site and provide habitat for nesting birds and commuting wildlife including bats and birds.
- 4.8 The hedgerow will thus need to be retained and protected during construction and incorporated into the landscaping proposals. This can be achieved by planting new hedgerow on site and connecting this into the retained hedge, then underplanting the retained and new hedgerow with new bulbs. A lighting plan will be required which ensures internal light does not shine directly onto the hedgerows, which would impact on bats.

Bats

- 4.9 No European Protected Species licences for bats have been granted within 2km of the site.
- 4.10 The tall leylandii trees bounding the western side of the site have low suitability for roosting bats. The trees do provide potential foraging and commuting habitat for bats, providing some connectivity with the wider environment therefore these will be retained and protected from external lighting impacts.
- 4.11 No trees will be removed as part of this proposal and so no further surveys will be required to assess their status as bat roosts. Ruderal vegetation will be removed as part of this proposal, which will be mitigated for by planting new diverse grassland on the site, which will increase habitat connectivity with the wider environment and mitigate for any loss in diversity. Lighting in the new carpark must be minimised and only used where it is essential, using downward pointing low bollards. Where lighting is necessary, hoods or cowls can be used on the lamps to direct light and minimise spillage onto the trees and hedgerows.

Reptiles

- 4.12 There is little in the way of suitable habitat for reptiles on site other than at the boundary at the base of the leylandii hedge, although this is sub-optimal due to the lack of ground vegetation. A large pile of rubble is present on site however this is surrounded by bare earth and has been recently created so it is unlikely to be colonised by reptiles. Similarly a mature oak tree has fallen over to the southern boundary, this occurred in October 2019 and is currently unsuitable for hibernating reptiles. It is recommended that this is used to create a log pile in the south-west corner of the development. New hedgerow planting at the site boundaries that over time would create new wildlife corridors for reptiles and other wildlife.
- 4.13 Reptiles surveys were carried out on site in 2012 and no reptiles were recorded, it is unlikely that reptiles are present currently due to the low level of habitat connectivity between the site and the wider countryside. There is potential in the long term for the site to become more suitable for reptiles if the site becomes vegetated again, and so it should be managed to keep it short up until construction commences.

Great crested newts, ponds and waterbodies

- 4.14 One license has been granted for great crested newts (GCN) within 500m of the proposal site: 2014-1236-EPS-MIT at a large site adjacent to the eastern boundary of the proposal site. A translocation was undertaken in 2014-2015 as the field contained suitable refuge habitat and one GCN was found during the reptile surveys undertaken on the site. However no GCN were discovered during the translocation (information gathered directly from The Ecology Consultancy) and so none were translocated to the new mitigation pond. The pond where GCN were found (figure 1; pond 5) lies approximately 500m west of the site and is separated by a minor road. The proposal site is a section of the site where the translocation took place and therefore it is considered likely that there remain no GCN on the site.
- 4.15 There are no ponds on the site and 5 ponds within 500m of the site, as shown on figure 1. The nearest pond (pond 1) is the mitigation pond for the GCN translocation which lies approximately 50m south of the site. An assessment for its suitability to be used by breeding GCN recorded the following results:

Factor		Outcome	Score
1	Geographic location	A	1
2	Pond Area	226	0.4
3	Permanence	Never	0.9
4	Water Quality	moderate	0.67
5	Shade	10%	1
6	Water Fowl	minor	0.67
7	Fish	absent	1
8	Pond Count	5	0.75
9	Terrestrial Habitat	good	1
10	Macrophytes	20%	0.5
HSI Score:			0.76
Pond suitability:			Good

- 4.16 A “balancing pond” (pond 2) is also present adjacent to the mitigation pond, which was dry at the time of the survey. Two additional ponds are present within 500m but no GCN were discovered in these during the phase 2 surveys in 2012. A map of the ponds within 500m is displayed in figure 1. It is considered there is a very low chance that they have been colonised in the intervening time.

MAGC

Ponds within 500m of Land at The Vinery

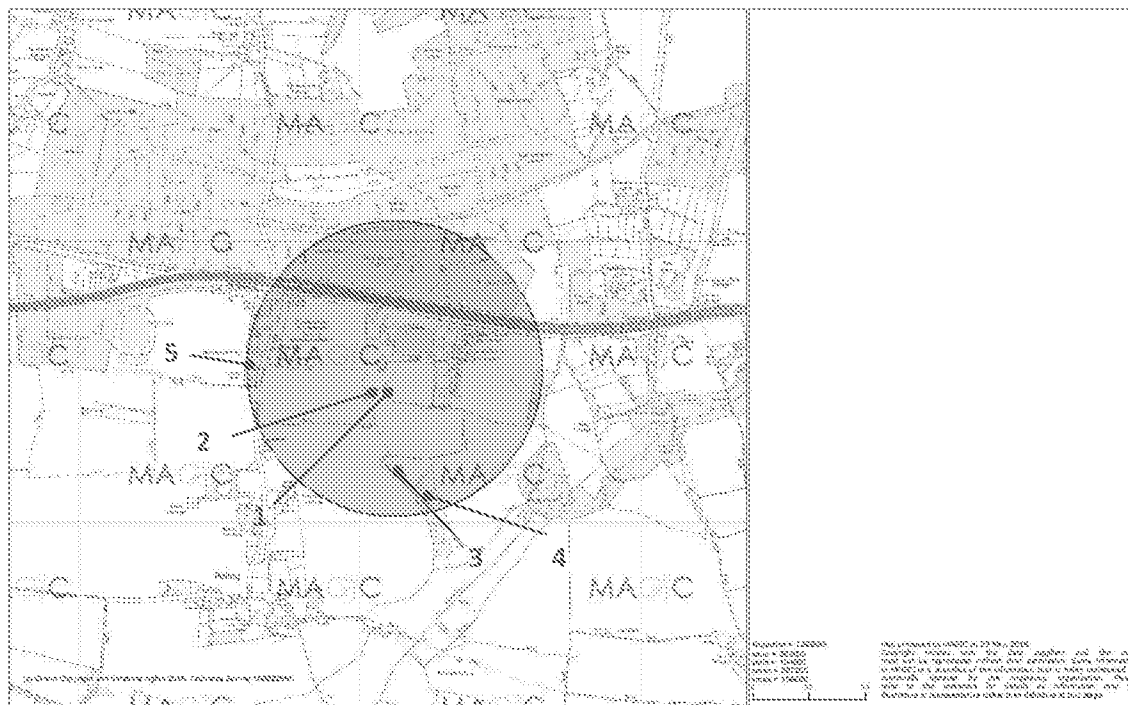


Figure 1. Ponds within 500m of Land at The Vinery

- 4.17 An eDNA survey was undertaken of Pond 1 on Friday 29th June 2018 and the results came back as Negative for this species (Appendix G).
- 4.18 There is a very low chance that GCN would be using habitat within this small site for foraging or hibernating, as previous survey work has found GCN not to be present on the adjacent site. Site clearance on the adjacent site with planning permission was undertaken under ecological supervision in 2018 and no newts or reptiles were found.

Birds

- 4.19 During the survey no nesting birds or signs of nesting birds were found on site. A robin and several pigeon were noted. The leylandii trees on site provide suitable habitat for nesting birds, but these will not be impacted by the proposals. It is also possible that birds may nest within the structure that will be removed and so site clearance should take place outside of the bird nesting season (March to July, inclusive) unless the structure is carefully checked for nesting birds by an ecologist and it is confirmed that no birds are nesting. Erecting boxes for nesting birds would be an enhancement.

Dormice

- 4.20 No European Protected Species licence for dormice have been granted within 2km of the site although it is understood that dormice have been recorded 2.2km from the site as part of another development scheme.
- 4.21 No dormice or signs of dormice were noted at the time of survey. The impacted areas of the site do not contain suitable dormouse habitat and the leylandii hedgerow to the western boundary would itself not be regarded as high quality habitat for this species however due to the year round cover provided by such trees it is impossible to rule out dormice.

Badgers

- 4.22 No signs of badgers were found during the survey. The mounds of earth around the site and wider site were checked carefully for signs of paths, tracks, latrines and burrows but none were found. It is possible that badgers could use earth mounds nearby to the site although the site itself is unsuitable for setts. Badgers if present locally are likely to move through the site so it is important that routes for ground dwelling mammals and other wildlife are not obstructed.

Other

- 4.23 Hedgehogs, a Biodiversity Action Plan species, may be present locally and the tall ruderal vegetation onsite could conceal a resting or hibernating hedgehog. The clearance of ruderal vegetation on site should be undertaken in a sensitive manner, under ecological supervision so that any hedgehogs found can be moved to safety.

Stag beetle

- 4.24 The existing oak tree and its roots will need to be removed under ecological supervision as the feature is suitable habitat for stag beetles. A new habitat pile will need to be created to mitigate for the loss of the oak tree habitat and any stag beetle larvae found during removal can be moved to the new feature.

5.0 Requirements and Recommendations

Landscaping

- 5.1 Landscaping proposals will need to include measures set out below to ensure biodiversity net gain. This will also need to show the management regimes so they can be included into the site management plan.
- 5.2 Native bulbs and plug plants will be planted around the site margins at the base of all the new and existing hedgerow at a density of 10-20 per m², daffodil, snowdrop, fritillary, star anemone and wild garlic etc.
- 5.3 The proposed grassland areas will be sown with wildflower grassland using a suitable Emorsgate mixture or similar. Spray off grassland, create a smooth seed bed and sow either in spring or autumn and then manage accordingly. The grassland will then be managed so that there are some shorter areas and longer areas towards the boundaries.
- 5.4 Plant at least 100m of a double row of new native hedgerow with the following species: Guelder rose; Elder; Hazel; Hawthorn; and Rowan.
- 5.5 At least ten new native oak trees and other natives will be planted on site.
- 5.6 The existing site will be maintained free of vegetation up until development commences.

Vegetation clearance - Reptiles, amphibians and hedgehogs

- 5.7 The small patch of ruderal vegetation to the side of the structure will be removed using a staged clearance approach under ecological supervision, working from the centre of the site outwards. Clearance will be undertaken in two stages: first vegetation will be cut to a height of 100 - 150mm, then a hand search of the area will be undertaken to check for amphibians, reptiles, hedgehogs and other notable wildlife before the rest of the vegetation is cut to ground level.

Trees and hedgerows

- 5.8 Appropriate fencing will need to be erected prior to construction to protect the retained trees and hedgerows. Fencing will need to account for the root protection area of each tree to ensure that no machinery goes within this zone.

Birds and bats

- 5.9 Vegetation and building demolition will need to take place outside of the bird nesting season which runs from 1st March – 1st August inclusive unless an ecologist is present to ensure there are no birds nesting.

- 5.10 Erect four swift boxes and four house sparrow boxes to the western side of the new unit – these can be attached to the exterior.
- 5.11 Erect two Schwegler 1FF bat boxes or similar (to be agreed) to the western gable – these can be attached to the exterior.
- 5.12 All new external lighting associated with the building will be avoided unless it is essential. A light plan will need to be reviewed by an ecologist to ensure there is no light impact onto hedges, trees or bat roosting features. Dark corridors need to be maintained.
- 5.13 Lighting in the new carpark must be minimised and only used where it is essential, using downward pointing low bollards. Where lighting is necessary, hoods or cowls can be used on the lamps to direct light and minimise spillage onto the trees and hedgerows.

Pollution prevention and drainage

- 5.14 It is important that the proposals follow appropriate pollution prevention guidelines (PPG 6) and drainage guidelines (Defra guidelines for Sustainable Urban Drainage) to protect the nearby watercourse and other habitats connected hydrologically.

Construction and storage of materials

- 5.15 During construction materials should be stored on areas of hard standing away from vegetation to avoid colonisation by reptiles or other wildlife.

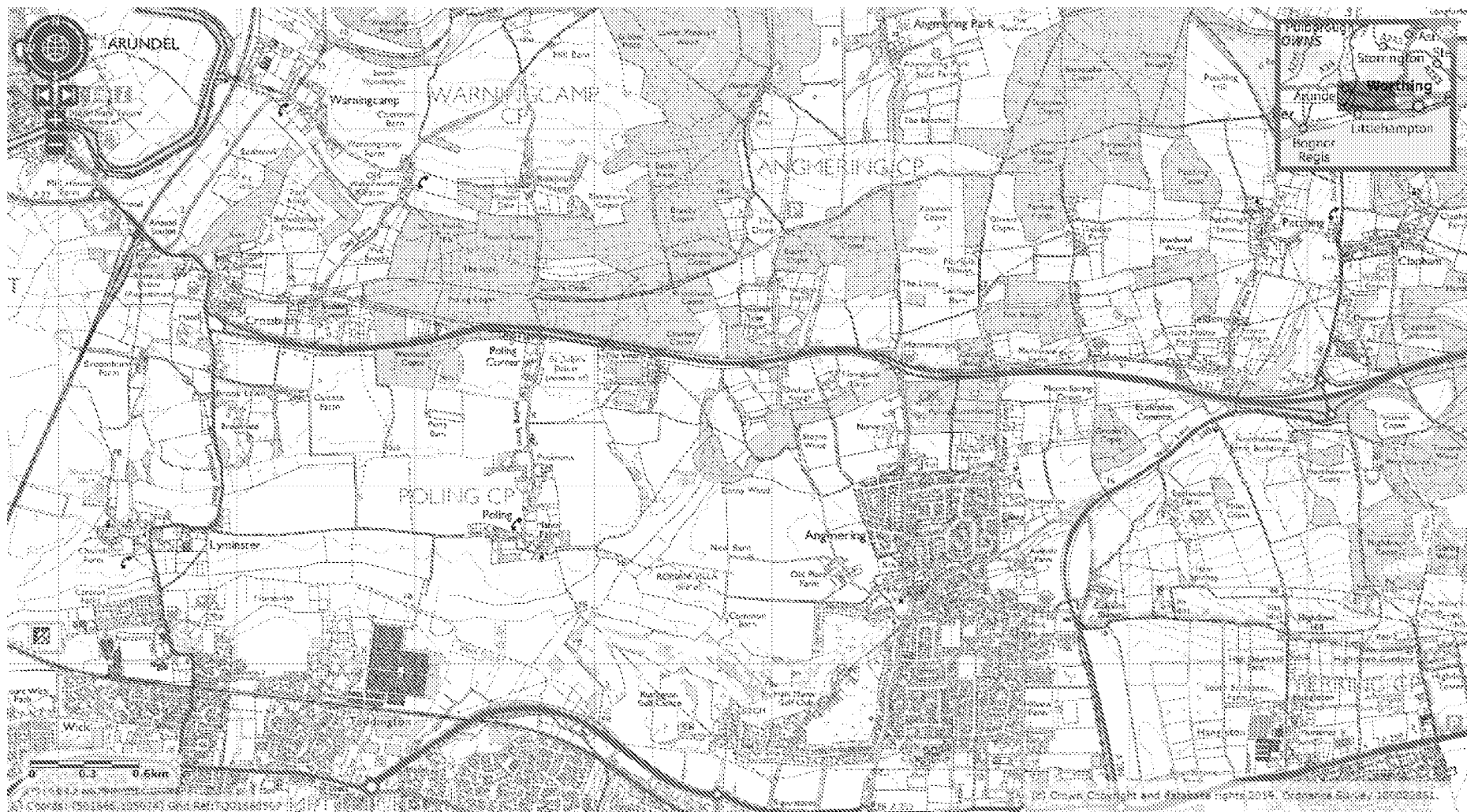
Stag beetle and oak tree removal

- 5.16 Creation of stag beetle habitat: As much of the fallen oak tree as possible will need to be retained. Approximately 10-20 of the larger branches will be sawn off and placed upright in a hole together. The hole will be approximately 500mm deep and any excess bark and chippings can be placed around the base of the logs to create a damp microclimate. The logs (about 1.8 m in length) are placed vertically with about 1.3 m protruding above ground level. Additional branches can be used to make a vertical log pile for reptiles and other wildlife.
- 5.17 Translocation of stag beetles: A search of the oak tree and it's roots, when they are removed (with digger), will take place under ecological supervision to check for any stag beetle larvae. All will be collected and transferred to the newly created habitat.
- 5.18 Management: A general minimal disturbance approach is advised, with occasional 'topping up' of logs (using broadleaf species like oak) and careful trimming of vegetation where appropriate e.g. occasionally cutting around the logpile to prevent it becoming overgrown with vegetation like ivy and bramble. Ideally, vegetation should not be cut during the summer months (between May and September) when adult beetles are most active.

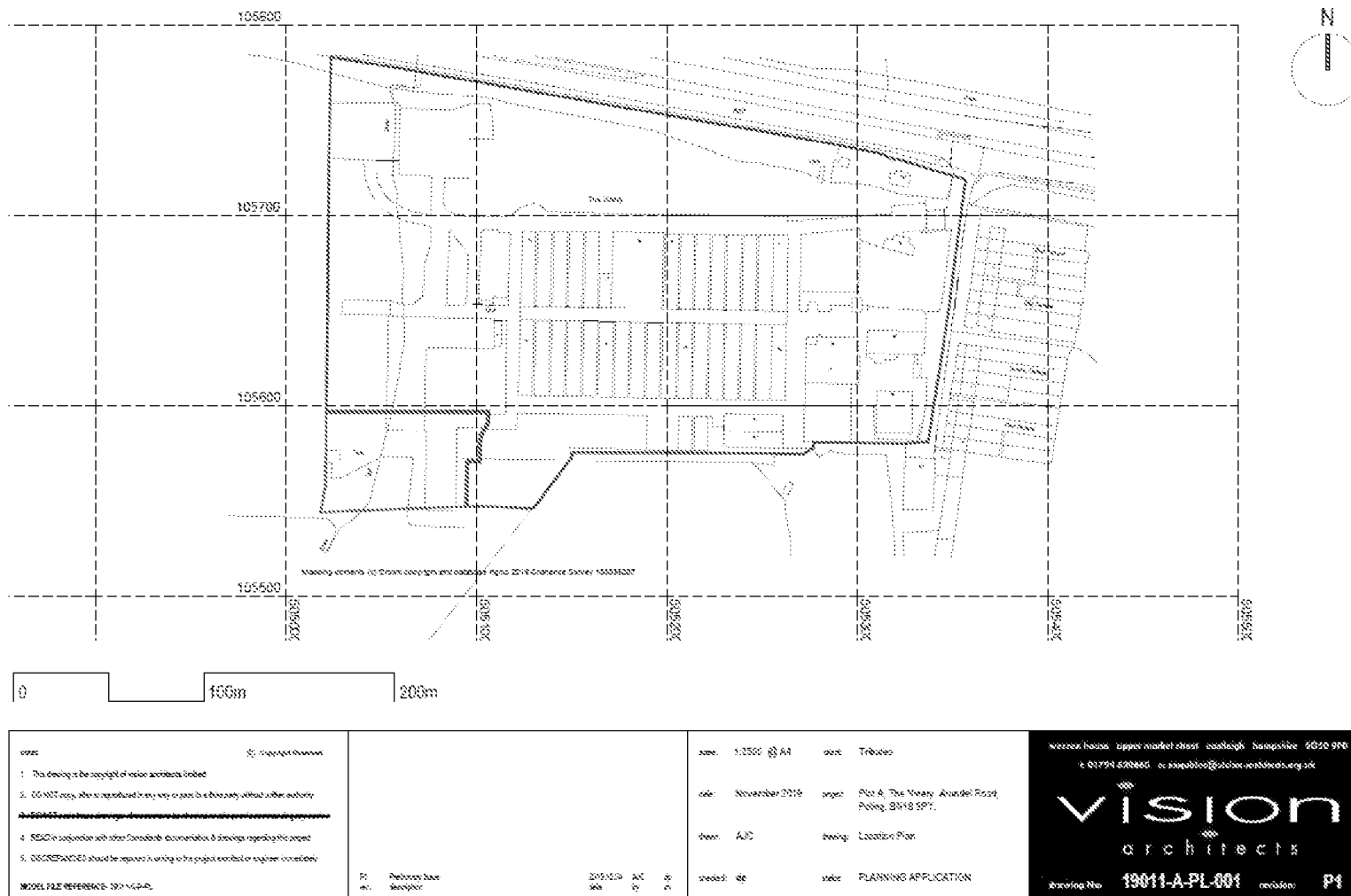
Other

- 5.19 A follow up site visit will be required to determine if there are any changes to the ecological status of the site after a year from the original survey.

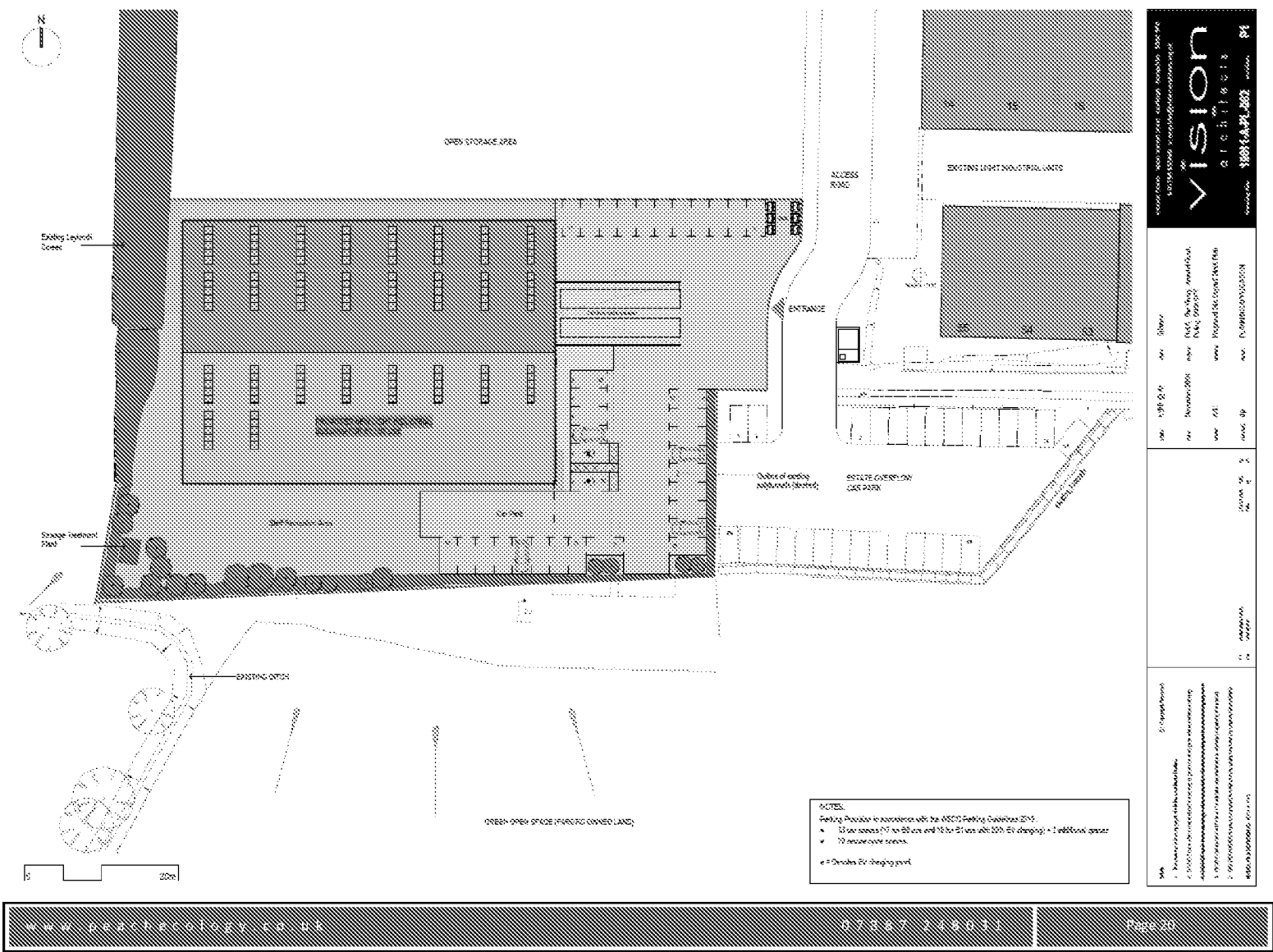
Appendix A: Location



Appendix B: Existing site plan



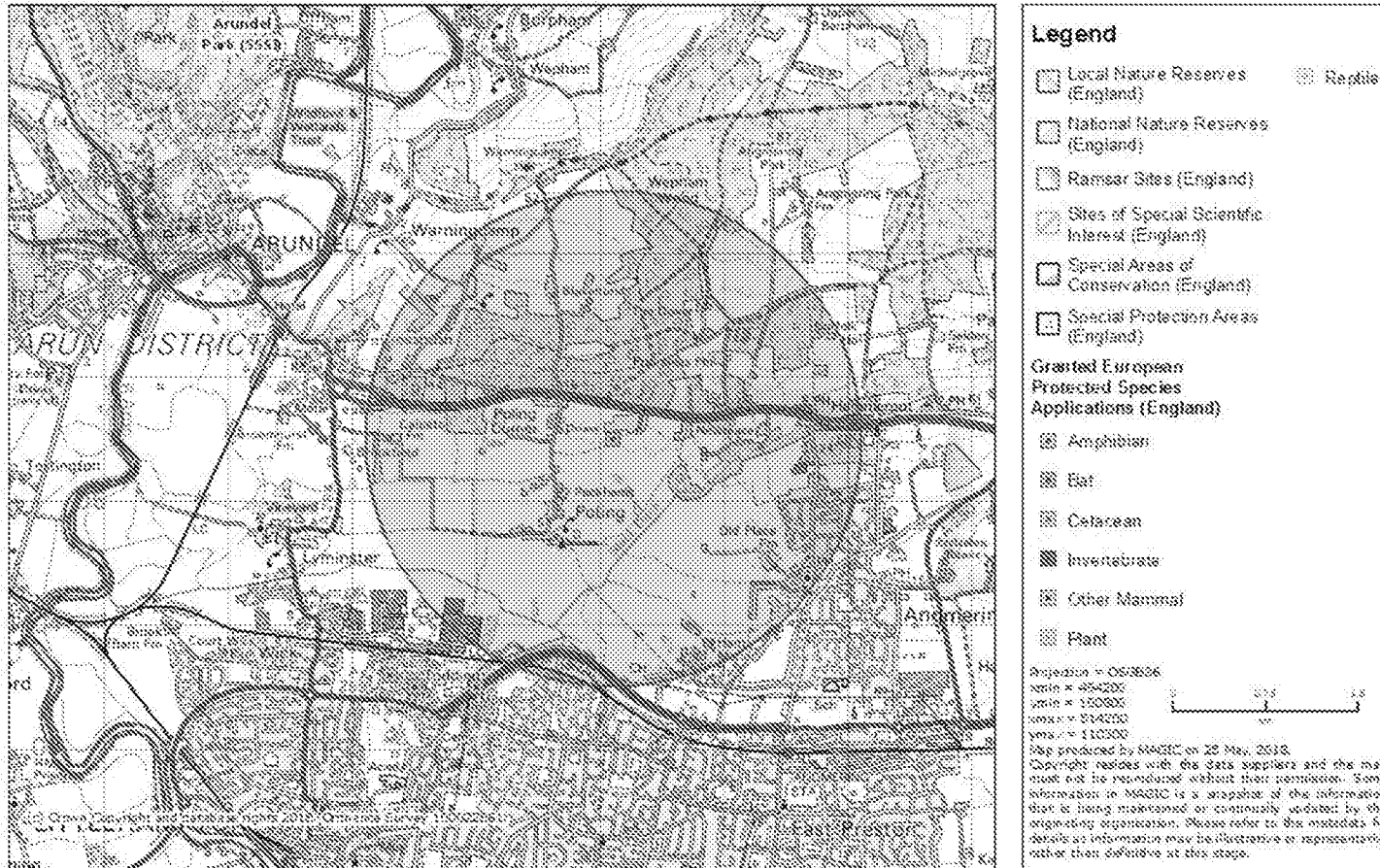
Appendix C: Proposed site plan



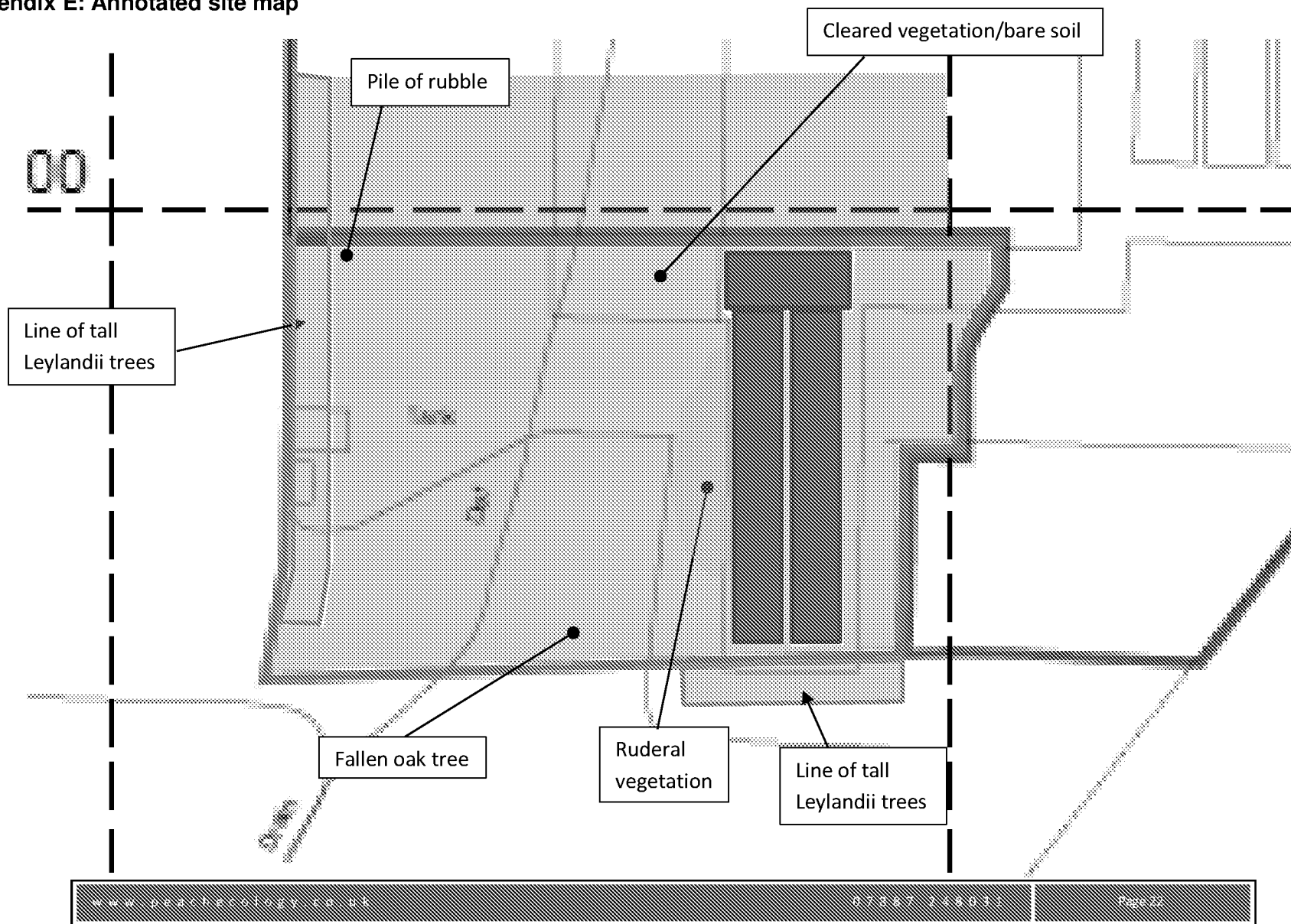
Appendix D: Protected sites and species EPS licenses within 2km

MAGIC

Magic Map



Appendix E: Annotated site map



Appendix F: Wildlife mitigation and enhancements

Erect four swift boxes and four house sparrow boxes to the western side of the new unit – these can be attached to the exterior.

Erect to bat boxes to the western gable – these can be attached to the exterior.

Plant native bulbs along the base of all the hedgerows on site, existing and retained: daffodil, snowdrop, fritillary, star anemone and wild garlic etc

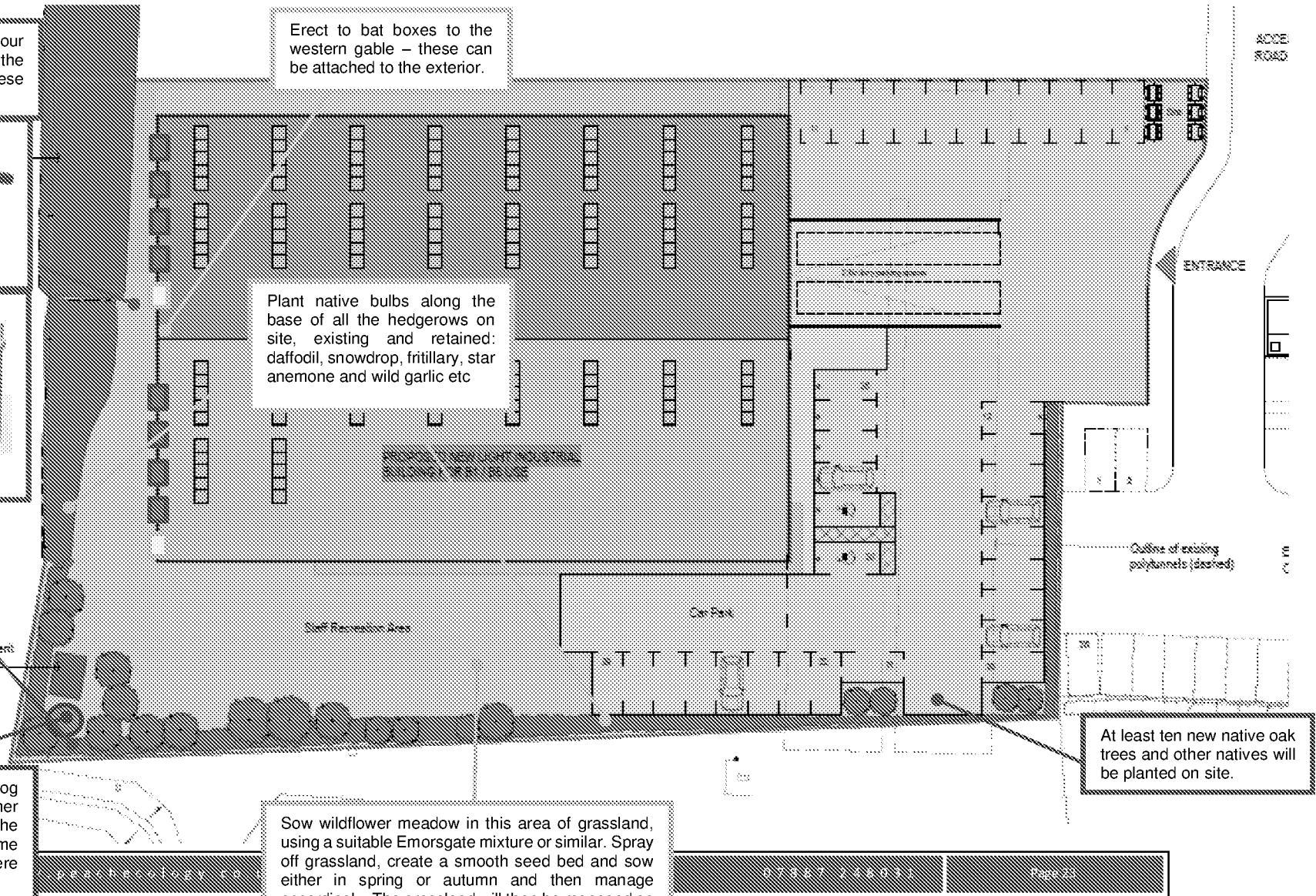
Plant at least 100m of a double row of new native hedgerow with the following species:

- Guelder rose
- Elder
- Hazel
- Hawthorn
- Rowan

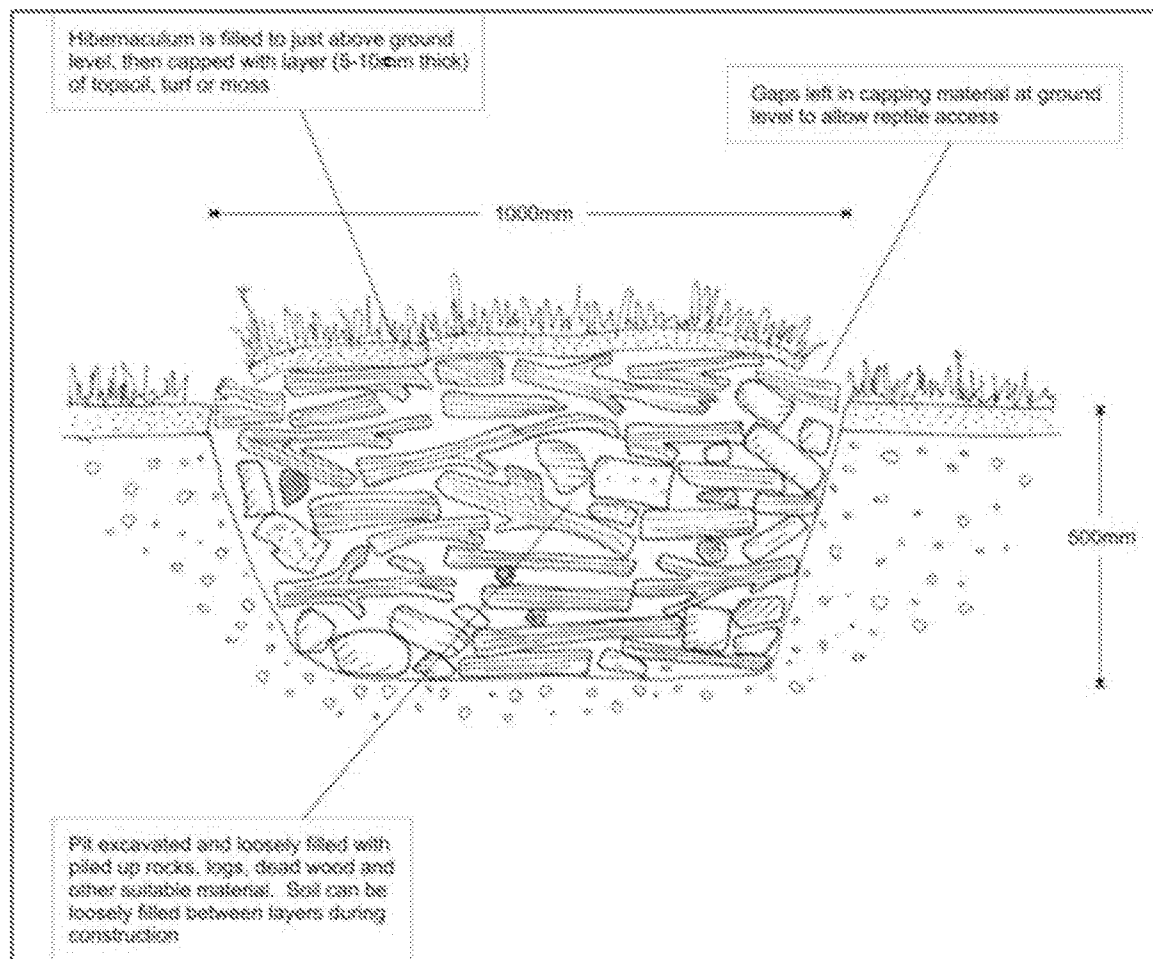
Build a hibernaculum and a log pile in the south-west corner under ecological supervision. The existing oak tree can have some limbs removed and moved here so that it can rot down.

Sow wildflower meadow in this area of grassland, using a suitable Emorsgate mixture or similar. Spray off grassland, create a smooth seed bed and sow either in spring or autumn and then manage accordingly. The grassland will then be managed so that there are some shorter areas and longer areas towards the boundaries.

At least ten new native oak trees and other natives will be planted on site.



Appendix G: Building hibernacula



Appendix H: Protected species legislation

European Protected Species

Bats

These species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010*. They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb any such animal, including in particular any disturbance which is likely:
 - to impair its ability to survive, breed, or rear or nurture their young;
 - to impair its ability to hibernate or migrate;
 - to affect significantly the local distribution or abundance of that species; or
- damage or destroy a breeding site or resting place of any such animal; or
- intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat (*Rhinolophus ferrumequinum*);
- Lesser horseshoe bat (*Rhinolophus hipposideros*);
- Bechstein's bat (*Myotis bechsteinii*);
- Barbastelle (*Barbastella barbastellus*);
- Greater mouse-eared bat (*Myotis myotis*).

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favorable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

Dormouse (*Muscardinus avellanarius*), European otter (*Lutra lutra*) and Great Crested Newt (*Triturus cristatus*)

These species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010*. They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb any such animal, including in particular any disturbance which is likely:
 - to impair its ability to survive, breed, or rear or nurture their young;
 - to impair its ability to hibernate or migrate.
 - to affect significantly the local distribution or abundance of that species; or
- damage or destroy a breeding site or resting place of any such animal; or
- intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

Nationally Protected Species

Badger (*Meles meles*)

The *Protection of Badgers Act 1992* consolidates previous legislation (including the *Badgers Acts 1973 and 1991 Badgers (Further Protection) Act 1991*). It makes it a serious offence to:

- kill, injure or take a badger;
- attempt to kill, injure or take a badger; or
- to damage or interfere with a sett.

The 1992 Act defines a badger sett as “any structure or place which displays signs indicating current use by a badger”.

Breeding Birds

With certain exceptions¹, all wild birds, their nests and eggs are protected by section 1 of the *Wildlife and Countryside Act 1981* (as amended). Therefore, it is an offence, *inter alia*, to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 subject to various controls.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- intentionally or recklessly disturb the dependent young of any such bird.

Reptiles

The four widespread² species of reptile that are native to Britain, namely common or viviparous lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), adder (*Vipera berus*) and grass snake (*Natrix natrix helvetica*), are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

- intentionally kill or injure any of these species.

Water vole (*Arvicola amphibius*)

The water vole is listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and is afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

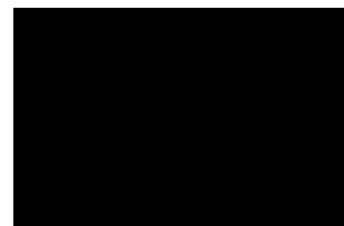
- intentionally kill, injure, or take (handle) any a water vole (in England only);
- intentionally or recklessly damage or destroy or obstruct access to any structure or place which water voles use for shelter or protection; or
- intentionally or recklessly disturb water voles while they are using such a place

¹ Some species, such as game birds, are exempt in certain circumstances

² The other native species of British reptile (sand lizard and smooth snake) receive a higher level of protection under the *Habitats Regulations 1994* and (in England and Wales only) the *Wildlife and Countryside Act 1981* (as amended). However, the distribution of these species are restricted to only a very few sites. All marine turtles (Cheloniidae and Dermochelyidae) are also protected.

Appendix G: eDNA Results

Client: Davog McCloskey,
Peach Ecology,
The Crows Nest,
Wilton,
SALISBURY,
SP4 8NR



Sample ID: 2018-1762 Condition on Receipt: Low Sediment Volume: Passed
Client Identifier: Vinery Description: pond water samples in preservative
Date of Receipt: 06/07/2018 Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control*	2 of 2	Real Time PCR	11/07/2018
Degradation Control [§]	Within Limits	Real Time PCR	10/07/2018
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	10/07/2018
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁴ ng/μL)*	4 of 4	Real Time PCR	As above for GCN
Report Prepared by:	Dr Helen Rees	Report issued by:	Dr Ben Maddison

Signed:



Position: Director: Biotechnology Position: MD: Biotechnology
Date of preparation: 12/07/2018 Date of issue: 12/07/2018

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

** Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.*

§ No degradation is expected within time frame of kit preparation, sample collection and analysis.

**Additional positive controls (10¹, 10², 10⁴ ng/μL) are also routinely run, results not shown here.*

ADAS eDNA Results Sheet: 1040008-30425-(01)

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