



ARBOR VITAE

ECOLOGY • FORESTRY • LAND USE



PRELIMINARY ECOLOGICAL APPRAISAL

LAND AT CHIRK, WREXHAM

Project name: Land at Chirk, Halton, Wrexham, LL14 5AZ

Grid Reference: SJ30093965

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1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for the construction of a drive-through coffee shop adjacent to an existing fast-food restaurant at the island between the A5 and the A483 near Halton, Wrexham.

Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

1.2 SCOPE OF SURVEY

The survey is primarily designed to:

- Identify and record habitats and important ecological features on site;
- Evaluate the potential of the proposed development site to provide opportunities for protected species;
- Determine any likely impact which the development and landscape proposals may have on these.
- Identify opportunities for the enhancement of habitats and biodiversity features on site.

1.3 KEY PRINCIPLES

All ecological surveys conducted by Arbor Vitae Environment Ltd are underpinned by the following key principles, as outlined by CIEEM (2018):

Avoidance - Seek options that avoid harm to ecological features (for example, by locating on an alternative site).

Mitigation - Adverse effects should be avoided or minimized 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.

Enhancements - Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

2 SITE DESCRIPTION

2.1 LOCATION, LANDSCAPE, AND BACKGROUND

The site is located off the A5 near Halton, Wrexham (Figure 1). There is an existing fast-food restaurant adjacent to the proposed site and partial road infrastructure exists leading up to the site. The land surrounding the site is made up of agricultural land-use including arable and pasture, commercial land-use and planted woodland corridors (Figure 2). Chirk airfield sits to the west of the site with the outer reaches of Chirk beyond.

The proposals will include the improvement of an existing road, extension of highway, construction of a coffee shop and all associated parking spaces and hardstanding. The River Dee sits 1km away from the site at its closest point with the Clwydian range and Dee Valley AONB 1.6km to the west.

3 SURVEY METHODOLOGY

3.1 DESK STUDY

An initial desk study was composed to gain background information regarding any protected species or designations within the area. The main sources of information were MagicMap, Lle Geoportal and NBN Atlas.

3.2 SITE SURVEY

A site visit was made on 08/02/2020. The survey was carried out in accordance with CIEEM (2017) best practice guidelines. The objective of the survey was to find and record any signs of use by protected species and to note the habitat features present.

An assessment of the available habitats both on and adjacent to the site led to consideration of the potential of the site for the following protected species:

- Badgers
- Bats
- Breeding birds
- Great Crested Newts

The survey methodology was tailored to evaluate the area for these species in the following ways:

Badger

An area within 50 metres of the site was closely searched for the following signs of badger activity:

- Setts,
- Tracks and footprints,
- Latrines,
- Snuffle holes.

Bats

The site was assessed in terms of its suitability to support bat species. Hedgerow habitat and nearby potential habitat were assessed and recorded and potential impacts from the proposals considered.

Breeding birds

The site was assessed in terms of its suitability to support breeding bird populations. Hedgerow habitat and nearby potential habitat were assessed and recorded.

Great crested newts

A desk study and a ground search were conducted to search for any areas of open water within 250 metres. Waterbodies were then assessed based on the Habitat Suitability Index for great crested newts (Oldham et al., 2000 and ARG UK, 2010).

3.3 PERSONNEL

The survey was carried out by Phillipa Stirling MSc ACIEEM: assistant ecologist.

3.4 CONSTRAINTS

Breeding birds would not have been present at the time of the survey but previous nesting and appropriate nesting sites would have been apparent.

4 SURVEY RESULTS

4.1 DESK STUDY

The desk study found that within 1km of the site there were the following designations:

Name	Designation	Distance from site
Pen-y-park Wood	Plantation on Ancient Woodland Site Restored Ancient Woodland Site	0.4km
Prynela Wood	Ancient Semi Natural Woodland Plantation on Ancient Woodland Site Restored Ancient Woodland Site	0.7km
Chirk Green Wood	Restored Ancient Woodland Site	0.8km
Bola's Dingle	Ancient Semi Natural Woodland Restored Ancient Woodland Site	1km
The search included Ramsar, SSSI, SAC, SPA, NNR and LNR. ¹		

Results from the desk study revealed that within a 1km radius of the proposed development site the following protected species have been recorded:

Species	Distance	Protection
Noctule	0.5km	European Protected Species, Wildlife and Countryside Act 1981.
Common pipistrelle	0.6km	European Protected Species, Wildlife and Countryside Act 1981.
Brambling	0.9km	Wildlife and Countryside Act 1981.
Kingfisher	1km	Wildlife and Countryside Act 1981.
West European hedgehog are also present within 1km of the site. The European hedgehog is a Species of Principal Importance under section 41 of the Natural Environment and Rural Communities Act 2006.		

¹ SSSI: Site of Special Scientific Interest, SAC: Special Area of Conservation, SPA: Special Protection Area, LWS: Local Wildlife Site NNR: National Nature Reserve, LNR: Local Nature Reserve.

4.2 HABITATS ON SITE

All habitats are classified using JNCC's Phase 1 Habitat Survey Handbook (JNCC, 2010).

Broad-leaved plantation woodland

Approximately 0.072ha of the site is made up of this habitat type. The woodland still appears to be relatively young, with no mature trees present. Tree species present include silver birch, oak, ash, hazel and Scot's pine with hawthorn dominating the understorey. The ground flora is sparse, with areas of bramble in woodland clearings. Ground vegetation recorded includes lesser celandine, common nettle, cleavers, primrose, and foxglove.

Scrub

There is an open area, in line with the existing road, to the east of the site which sits between two woodland blocks. This has become dominated by bramble and regenerating trees.

Improved grassland

Approximately 0.046ha of the site is made up of improved grassland. Species recorded during the survey includes white clover, perennial ryegrass, cock's foot, creeping thistle, Yorkshire fog, dandelion and common nettle.

4.3 ADJACENT HABITATS

Hardstanding

There is an existing road from the roundabout to the north which serves the site. There is a fast-food restaurant including extensive parking areas to the north of the site with the main A5 road to the north and west.

Building

There is a small single storey concrete building which houses utilities present to the north of the site. The structure has a flat roof and is concrete construction.

Improved grassland

Land to the west and south of the site are dominated by agricultural land.

Broadleaved plantation woodland

The land immediately to the east of the site is made up of broadleaved woodland which appears to have been planted at a similar time to the woodland on site, with a similar species composition.

Standing water

There is one pond shown on maps within 250m of the site. Upon inspection, this area is a balancing pond for overflow drainage water and does not permanently hold water. The pond was dry at the time of the survey and the area is dominated by vegetation including reedmace, knapweed, cock's foot and bramble.

4.4 PROTECTED SPECIES

Badgers

There was no evidence of badger presence on site during the survey, nor within 50m of the site boundary. There are also no historic records of badger within 1km of the site.

Bats

The woodland on site does not contain any mature trees and therefore there are no potential roosting features on site. The grassland on site also does not provide any roosting sites for bat species.

The woodland on site could potentially provide foraging and commuting opportunities for bat species as there is a good amount of connectivity to adjoining woodland and hedgerow habitats. Common pipistrelle and noctule bats have been recorded within 1km of the site.

Breeding birds

There was no evidence of previous nesting observed on site during the survey, however, it was not possible to visually assess the full extent of the scrub as this area is impenetrable without some vegetation clearance beforehand. The dense scrub could provide breeding birds with nesting and feeding opportunities.

Great Crested Newt

The pond mapped within 250m of the site was found to be completely vegetated and dry at the time of the survey. The area is used as a balancing pond for surface water run-off and does not provide any suitable aquatic habitat for breeding amphibians. No further survey work or assessment is required in respect of GCN.

5 POTENTIAL ECOLOGICAL IMPACT

5.1 HABITAT ASSESSMENT

The proposed development will lead to the loss of approximately 0.072ha of planted broadleaved woodland and 0.046ha of improved grassland.

The woodland itself is young and there are no mature or notable trees present nor a well-developed ground flora. However, the broadleaved woodland to be lost forms part of a corridor of vegetation and therefore its loss would result in a reduction of connectivity through the landscape. Mitigation for this loss of habitat will be needed.

The loss of small areas of scrub will lead to a reduction in the amount of nectar available to pollinator species and may lead to a reduction in the number of invertebrates on site. In turn, this reduced the food resource for birds and other wildlife, causing an overall loss of biodiversity at the site. Mitigation for this will be required.

The loss of a relatively small area of improved grassland is unlikely to have negative ecological consequences and mitigation will not be needed.

5.2 PROTECTED SPECIES ASSESSMENT

Badger

The survey revealed no signs of use by badger and there are no historic records of badger at the site. The proposals will have no impact on this species and no further survey work or mitigation is required.

Bats

The proposals will not result in the loss of potential roosting sites for bat species and will therefore have no direct impact upon bats. However, the surrounding woodland could be in use by foraging and commuting bats and therefore external lighting at the site needs to be carefully considered. Mitigation will be required in the form of a Wildlife Sensitive Lighting Plan.

Breeding birds

No previous nesting was observed on site but the scrub was largely impenetrable and could have possibly concealed nest sites. The clearance of scrub and woodland on site has the potential to disturb breeding birds if it is carried out during the breeding season.

The proposals will also lead to a loss in the number of nesting opportunities on site for breeding birds and mitigation will be required in the form of replacement nesting sites.

Other key species

Hedgehogs could be using the site as the habitats available present suitable opportunities for feeding, breeding and hibernation. The proposals have the potential to injure or disturb hedgehogs with an overall loss in terrestrial opportunities for them.

Hedgehog are a priority species in the UK due to a decline in the amount of suitable habitat available to them through the development of land.

6 AVOIDANCE, MITIGATION AND ENHANCEMENT

6.1 HABITAT MITIGATION

The loss of 0.072ha of broadleaved woodland will be mitigated through replacement planting of an equal area with similar species composition around the proposed site. The replacement planting will encompass the footprint of the development and join into the existing woodland to the north and south of the site.

Species will include: oak, silver birch, hazel, holly, hawthorn and wild cherry. Planting will be at 2500/ha. All planted trees will be protected with spiral guards and any losses within the first 3 years will be replaced. Trees will be maintained in a weed-free condition for 3 years.

Within the woodland, small clearings should be incorporated and planted with native scrub species including: dogwood, Guelder rose, wild privet and elder. Plant spacing will be at 2 metre centres and include various combinations of the species listed.

6.2 PROTECTED SPECIES MITIGATION

Bats

All artificial lighting will be designed with nocturnal wildlife in mind:

- The remaining woodland surrounding the site will be left free of illumination in order to retain dark-movement corridors. Illuminance along these features will be below 0.2 lux on the horizontal plane, and 0.4 lux on the vertical plane.
- All external lights will be hooded and directed toward the ground to reduce upward light spill.
- Any essential highway lighting will be fitted with baffles in order to focus the direction of light onto the ground.
- A warm white spectrum should be adopted throughout the scheme to reduce blue light component (<2700Kelvin).

- Internal luminaires should be recessed where installed in proximity to windows to reduce glare and light spill. LED luminaires should be used internally where possible due to their sharp cut-off, lower intensity, and dimming capability.
- Luminaires should always be mounted horizontally with an upward light ratio of 0%.

Breeding birds

Scrub removal will be carried out between September and October in any given year so as to avoid the hibernation period for hedgehogs and also avoid the breeding season for wild birds.

Replacement nesting sites will be installed into the remaining woodland nearby in order to replicate potential nest sites. The following will be installed:

- Four Woodcrete nest boxes, two with 28mm and two with 32mm hole, to be installed into trees within nearby woodland. Boxes should be at least 2m from the ground with the entrance facing away from the prevailing wind.

Hedgehog

Scrub removal will be carried out between September and October in any given year so as to avoid the hibernation period for hedgehogs and also avoid the breeding season for wild birds.

At least two hedgehog domes will be installed into the remaining woodland surrounding the site in order to replace hibernation and nesting sites lost to scrub clearance.

The following mitigation measures will be implemented to decrease the likelihood of killing/injuring small animals such as hedgehogs:

- If piles of rubble, logs, bricks, other loose materials or other potential refuges are to be disturbed, this will be done by hand and carried out during the active season (March to October) when the weather is warm to allow animals to disperse naturally.
- All dense scrub on site will be cleared using hand-held tools where possible, clearing small areas (less than 2m² at a time) and removing any arising as produced.
- The grassland areas will be kept short prior to and during construction to avoid creating attractive habitats for wildlife.
- All building materials, rubble, bricks and soil must be stored on raised platform (e.g. wooden pallets) to prevent their use as refuges by wildlife.

- Where possible, trenches will be opened and closed in the same day to prevent any wildlife becoming trapped. If it is necessary to leave a trench open overnight then it will be provided with a means of escape in the form of a shallow ramp.
- Any open pipework will be capped overnight. All open trenches and pipework will be inspected at the start of each working day to ensure no animal is trapped.

6.3 ECOLOGICAL ENHANCEMENT

In order to provide shelter, breeding and hibernating opportunities for a variety of wildlife, we recommend that a nest box scheme is adopted as follows:

- Three Woodcrete general purpose bat boxes, suitable for crevice-dwelling species should be installed into trees within the surrounding woodland. No lighting should be installed in the vicinity of the boxes. They should be at least 3m from the ground and face south or south west.
- Two Woodcrete cavity nesting bird boxes with 28mm or 32mm access holes. These will be positioned within the woodland at the boundary of the site and the access should face away from the prevailing wind.
- Four insect 'hotels' will be positioned around the site in a variety of places including full sun and shady damp areas beneath trees or hedges. The hotels should be positioned within the vicinity of flowering plants to provide food for butterflies and bees. The hotels should be no less than 50cmx50cm in size to ensure sufficient space to accommodate a variety of invertebrates who would otherwise take refuge in scrub or grassland.

7 SUMMARY

Planning permission will be sought for the construction of a drive-through coffee shop the island between the A5 and the A483 near Halton, Wrexham. Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

The proposed development will lead to the loss of approximately 0.072ha of planted broadleaved woodland and 0.046ha of improved grassland. The loss of a relatively small area of improved grassland is unlikely to have negative ecological consequences and mitigation will not be needed.

The loss of 0.072ha of broadleaved woodland will be mitigated through replacement planting of equal area and species composition around the proposed site. The replacement planting will encompass the footprint of the development and join into the existing woodland to the north and south of the site.

Within the woodland, small clearings should be incorporated and planted with native scrub species including: dogwood, Guelder rose, wild privet and elder.

All artificial lighting will be designed with nocturnal wildlife in mind, following the Bat Conservation Trust Guidelines for bats and artificial lighting in the UK.

Scrub removal will be carried out between September and October in any given year so as to avoid the hibernation period for hedgehogs and also avoid the breeding season for wild birds.

Replacement nesting sites will be installed into the remaining woodland nearby in order to replicate potential nest sites for breeding birds.

At least two hedgehog domes will be installed into the remaining woodland surrounding the site in order to replace hibernation and nesting sites lost to scrub clearance.

A set of precautionary mitigation measures will be implemented to reduce the risk of disturbing or injuring hedgehogs and other small animals likely to be using the site.

Ecological enhancement can be achieved through a nest box scheme to include: three Woodcrete bat boxes, two Woodcrete bird boxes and four insect hotels.

8 REFERENCES

- ARG UK (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom
- Bat Conservation Trust (2018) Bats and artificial lighting in the UK. *Bats and the Built Environment series*, Guidance Note 08/18. Institution of Lighting Professionals.
- CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.
- Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust.
- JNCC (2010) Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7.
- Mitchell-Jones, T. (2004) Bat mitigation guidelines. External Relations Team, English Nature.
- Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155.

FIGURE 1 LOCATION. 1:50,000



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FIGURE 2 AERIAL PHOTOGRAPH



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FIGURE 3 HABITAT MAP

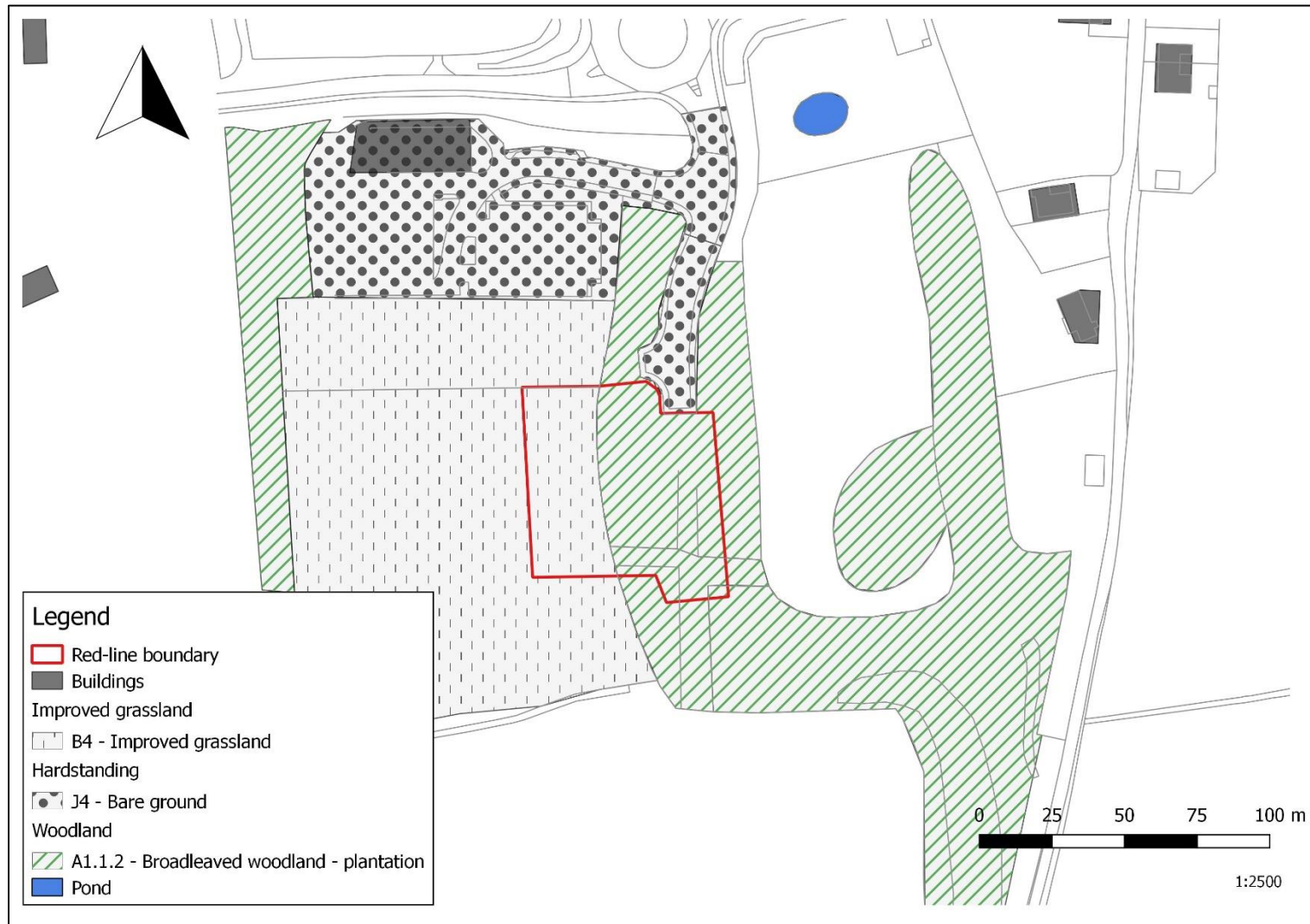
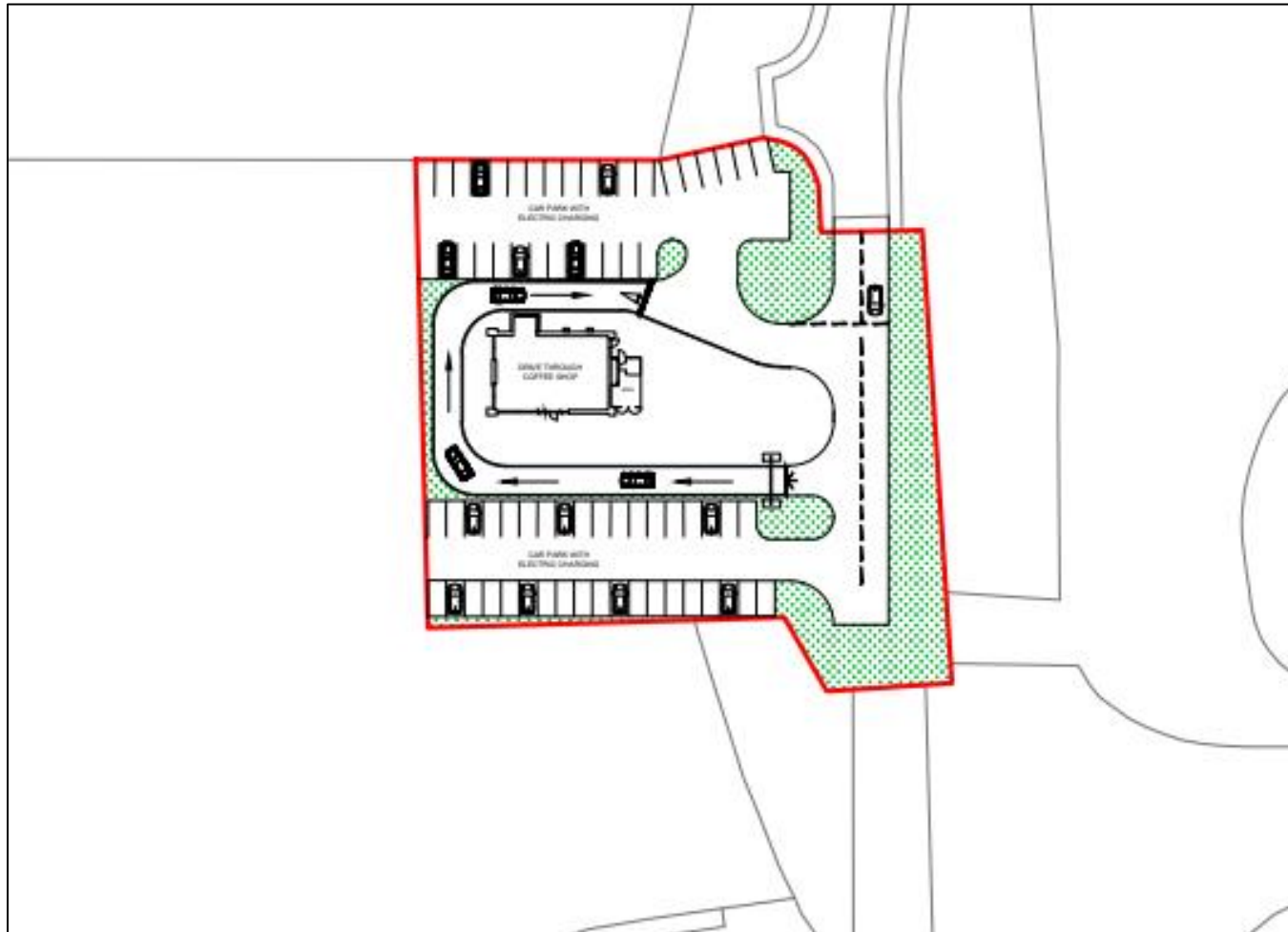


FIGURE 4 PROPOSED SITE PLAN



APPENDIX 1 PHOTOGRAPHS

	Existing access road.
	Broadleaved plantation woodland covering part of the site.
	Small clearing dominated by bramble and natural regeneration of trees.



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Pond 1 is a balancing pond for drainage of the area.



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