ARBOR VITAE

ECOLOGY • FORESTRY • LAND USE

Preliminary Ecological Appraisal

Date prepared:	28-11-2025
Site name:	Lower Leighton, Welshpool, Powys, SY21 8HH
Site address:	Lower Leighton, Welshpool, Powys, SY21 8HH
Grid reference:	SJ24260661
Local authority:	Powys County Council
Client:	Farm Biomethane Limited
Prepared by:	Phillipa Stirling MSc ACIEEM
Reviewed by:	Will Prestwood BSc

Contents

1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for the construction of an Anaerobic Digestion Plant on land at Lower Leighton Farm near Welshpool.

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

Lower Leighton Farm is positioned just east of Welshpool, along the B4388 between Buttington and Leighton. The landscape surrounding the site is dominated by arable fields in all directions, with the main farmyard on the opposite side of the road to the east. A range of mixed woodland parcels lie further east, running from north to south through the area.

The plans for the site will result in around 8ha of land being repurposed from arable.

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 and NBN Atlas.

3.2 SITE SURVEY

A site visit was made on 30/10/2025. 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:

- Badger
- Bats
- Breeding birds
- Great Crested Newt
- Otter

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 newt

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).

Otter

Any water courses within the area and appropriate terrestrial land were searched for the following field signs:

- Spraint,
- Footprints,
- Feeding remains.

3.3 PERSONNEL

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

Natural Resources Wales bat licence number: S094220-1 and GCN licence number: S090921/1.

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 & IMPACT ASSESSMENT

4.1 DESK STUDY

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

Name	Designation	Distance from site
Bryn Pasture	SSSI	1000m
Goppas Wood	Ancient Woodland	450m
Cwm Dingle	Ancient Woodland	860m
Woodland at Pentre	Ancient Woodland	920m
Woodland corridor to west	Ancient Woodland	400m
The search included Ramsar, SSSI, SAC, SPA, LWS, 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
Mammals		
Brown long-eared bat	300m	European Protected Species, Wildlife and Countryside Act 1981.
Birds		
Kingfisher	800m	Wildlife and Countryside Act 1981.
Reptiles		
Grass snake*	900m	Wildlife and Countryside Act 1981.

*Whilst grass snake was recorded in 2022 some 900m from the site, reptiles were not considered as part of this report due to the unsuitable nature of the habitats on site.

[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).

Habitat type & description	Predicted Impact	Proposed mitigation measures
Cereal crops Approximately 7.5ha of land within the development boundary is made up of arable land. A small portion at the northeast corner is currently down as 'temporary grassland' but the majority of the site has been recently harvested from a summer crop.	The arable land will be permanently lost as a result of the plans. The land in its current form provides very little in the way of 'habitat' and the overall value of the site is not expected to change significantly.	A proposed soft landscaping scheme will be adopted on-site to provide vegetated landscaping bunding and permanent grassland. Tree planting is also recommended. See section 5.1.
Developed land Two large tanks have been installed to the east of the site which occupy around 0.2ha of land.	The tanks will be retained on-site, with no ecological impact.	None required.
Bare ground Areas of bare ground are found around the large tanks.	There are no plans to alter this area although natural succession is likely to take place, first with ruderal plant species, and possibly developing into tall forbs.	None required.
Ruderal/ephemeral Small earth bunds have been made around the edges of the tanks. The bunds have become colonised by the following ruderal species: nettle Canadian fleabane, herb Robert, Colt's foot, creeping thistle, and cleavers.	Plans for the site will see these areas left as they are. The bunds currently have limited value but may develop to provide a more varied botanical structure. It is not expected that they will be of any significant ecological value.	None required.
Native hedgerow H1: running along the east boundary of the site, the hedgerow consists of hawthorn and blackthorn, with small amounts of elder and ivy. There are two gateways along the length.	Plans for the site will see the retention of H1-3 an TL1, with the exception of the removal of around 50m from H1 to form two new access points, and 60m from H2. The hedgerows are not	Replacement hedgerow planting will be carried out along the newly created west boundary of the site. This will include around 300m of new native hedgerow on site.

H2: along the north boundary, limited to hawthorn and blackthorn. H3: along the south boundary, includes hawthorn, blackthorn, and ash. There is a dead ash tree and also 1x early mature oak. The hedges are 'box' profile and cut annually. Average height is 2m and width of 1.5m. TL1: a row of mature oak trees set along an embankment, with a ditch at the base.	'important' and other than replacement planting, bespoke compensation is not required.	Hedge protection measures will also be adopted during all work on site for retained hedges/tree lines (Appendix 4).
Ditch A heavily polluted and stagnant length of ditch found at the base of TL1.	Plans do not appear to have any impact upon the ditch habitat although is it recommended that any source of pollutants is stopped from entering the ditch.	Sources feeding into the ditch should be evaluated and all pollutants should not be allowed to enter the ditch system.

4.3 PROTECTED SPECIES

Protected species	Predicted Impact	Proposed mitigation measures
Badger	There are no historical records of badger at the site, and no field signs were found within the search area. Opportunities on site for this species are limited, and the plans are not expected to have any impact upon badger.	Reasonable Avoidance Measures will be adopted to remove any residual risk to wildlife on-site (Appendix 1).
Bats	The main habitats on site do not provide suitable opportunities for bats in terms of roosting, foraging, and commuting. There are limited linear landscape features, except for boundary hedges and TL1. There are limited records of bats locally, although Leighton Bat Roost (SSSI) is located some 2km southeast. The plans are not expected to have any impact upon potential roosting features, linear landscape features, or suitable foraging grounds.	A Wildlife Sensitive Lighting Plan will be adopted to reduce overall landscape-scale impact of the project for all nocturnal wildlife (Appendix 2).

Breeding birds	The hedges on site provide some opportunities for generalist nesters but the site is mostly limited in its potential for breeding birds. Removal of hedgerow will need to be carefully timed to avoid the breeding season but otherwise, plans are not expected to have any impact upon this group.	See Appendix 3.
Great crested newt	A total of four areas of standing water are mapped within 500m of the site. One of these lies in the southwest corner of the field and is not a pond. Another lies on the far side of the B4388 and serves as a run-off collection for the farm yard and is therefore entirely unsuitable for breeding GCN. Pond 1 lies 230m southwest from the site boundary and sits on the opposite side of the B4388, plus a small development of residential houses and primary school. Both features form a significant barrier to dispersal and the pond was discounted from the assessment. Pond 2 is located 300m southwest from the site but was not accessible at the time of the survey. However, there are no records of GCN within 1km of the site and studies have demonstrated that 95% of all summer refuges of GCN fall within 63m of their summer breeding pond (Jehle, 2000). Subsequent studies also found that capture rates of GCN were at their highest within 50m of a breeding site with a significant reduction in capture rates beyond 100m (Cresswell and Whitworth, 2004). The development site itself provides sub-optimal terrestrial opportunities for amphibians, given the intensive management regime in place and lack of shelter/foraging areas. It is unlikely that the plans will have any impact upon GCN and no further survey work is deemed necessary.	Reasonable Avoidance Measures to be adopted to remove any residual risk.
Otter	The River Severn lies some 450m west from the site. During the survey, no evidence of otter, nor suitable terrestrial habitat, was recorded on the site. The plans are unlikely to have any impact upon this species and no further survey work is required.	Reasonable Avoidance Measures and Wildlife Sensitive Lighting Plan will remove any residual risk.

5 ENHANCEMENTS

5.1 ECOLOGICAL ENHANCEMENT

Soft landscaping for the site should include:

Seeding of permanent grassland, as shown on 29754 - 910 Rev 0 - Proposed Site Layout (DRAFT). The grassland should include some flowering plants, to provide opportunities for pollinators e.g. https://germinalamenity.com/wfg2-flowering-meadow which provides 80% grass to 20% wildflowers.

The landscape bund along the west boundary should also be seeded, as above, with the addition of tree planting to include native species such as field maple, rowan, wild cherry, common oak, and hazel.

The west boundary of the site should be planted with a new native species hedge, to incorporate a mixture of woody species planted at 6 plants per m2. Suitable hedging plants include: hawthorn, blackthorn, hazel, holly, field maple, sycamore, elder, dogrose, Guelder rose.

There are limited opportunities for wildlife boxes on the site but the following should be installed onto retained trees in TL1:

3x Woodcrete open-fronted nestbox. The box/es will be positioned on a mature tree at a height of no less than 2.5m from ground level. The opening of the box/es will face away from the prevailing wind.

3x Woodcrete multi-chamber bat box. The box/es will be positioned within a mature tree at a height of no less than 3m from ground level. Artificial lighting will not be installed within 5m of the box.

6 SUMMARY

Planning permission will be sought for the construction of an Anaerobic Digestion Plant on land at Lower Leighton Farm near Welshpool. 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 plans for the site will result in around 8ha of land being repurposed from arable.

Plans for the site will see the retention of H1-3 an TL1, with the exception of the removal of around 50m from H1 to form two new access points, and 60m from H2. The hedgerows are not 'important' and other than replacement planting and hedge protection measures, bespoke compensation is not required.

Plans do not appear to have any impact upon the ditch habitat although is it recommended that any source of pollutants is stopped from entering the ditch.

The plans are not expected to have any impact upon protected species, as long as the following measures are adopted:

- Reasonable Avoidance Measures Method Statement
- Wildlife Sensitive Lighting Plan
- Pre-commencement breeding bird inspection
- Hedge protection measures

Ecological enhancement at the site will include:

- Creation of permanent grassland around the southwest of the site and throughout,
- Planting of native trees along the landscape bund to the west boundary,
- Planting of 300m of native hedge along the west boundary,
- Provision of bird and bat boxes, to be installed into trees along TL1.

7 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.

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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.

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Cresswell, W. and Whitworth, R., 2004. An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt. Natural England Research Reports, p.36.

GOV.UK. (2015) Badgers: surveys and mitigation for development projects. [online] Available at: [Accessed 29 October 2021].

Harris, S., Creswell, P. and Jefferies, D. (1989) Surveying Badgers. 1st ed. London: The Mammal Society, pp.3-21.

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

Jehle, Robert. (2000). The terrestrial summer habitat of radio-tracked great crested newts (Triturus cristatus) and marbled newts (T. marmoratus). Herpetological Journal. 10. 137-142.

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Mitchell-Jones, T. (2004) Bat mitigation guidelines. External Relations Team, English Nature.

Natural England (2002) Badgers and Development. 1st ed. Peterborough: Natural England, pp.2- 12.

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.

8 APPENDICES

Appendix 1. Reasonable Avoidance Measures Method Statement

A set of Reasonable Avoidance Measures will be adopted on site during all pre-construction, during, and post-construction phases. The following applies:

1. The site owner/site manager will ensure that anyone (including sub-contractors) undertaking construction, demolition and landscaping (both creation and management), is made aware of the potential for the site to support protected species, where to expect them, their protected status and the procedure to follow in the unlikely event that protected species are discovered during works. A copy of this Precautionary Method of Working will be always kept on site and available for inspection.
2. Should any hedgehogs or other protected species (i.e. common toads, reptiles, birds) be discovered during construction or other works on site, which are likely to be affected by the development, works will cease immediately. The owner/ site manager will then seek the advice of a suitably qualified and experienced ecologist and works will only proceed in accordance with the advice they provide.
3. Any vegetation clearance (i.e. removal of trees, scrub, hedgerows) or works to buildings shall not commence until a careful check for nesting birds has been completed, particularly during the main breeding season (months of March to August). If bird nests are found, then works in the area must stop until the chicks have fledged the nest.
4. All clearance works (i.e. clearance of log piles, debris, rough grass etc.) will be undertaken when hedgehog are likely to be fully active i.e. during the April to September period.
5. Clearance of dry-stone walls, logs, brash, stones, rocks or piles of similar debris will be undertaken carefully and by hand.
6. Clearance of tall vegetation will be undertaken using a strimmer or brush cutter with all cuttings raked and removed the same day. Cutting will only be undertaken in a phased way which may either include: Cutting vegetation to a height of no less than 30mm, clearing no more than one third of the site in any one day or; Cutting vegetation over three consecutive days to a height of no less than 150mm at the first cut, 75mm at the second cut and 30mm at the third cut;
7. Following removal of tall vegetation, remaining vegetation will be maintained at a height of 30mm through regular mowing or strimming to discourage common reptiles and amphibians from returning.

8. Ground clearance of any remaining low vegetation (if required) and any ground works will only be undertaken following the works in point 5) above.
9. Any trenches left overnight will be covered or provided with ramps to prevent animals falling into the trenches and being trapped. Excavations left overnight should be checked prior to filling. Any open pipes left overnight will be covered.

Appendix 2. Wildlife Sensitive Lighting Plan

The following measures will be incorporated into site-wide lighting design:

- Hedgerows and key habitat features including mature trees on the site will not be illuminated in order to retain dark movement corridors for nocturnal wildlife.
- Any exterior security or decorative lights to be installed on the development site will be less than 3 m from the ground and fitted with hoods to direct the light below the horizontal plane, at an angle of less than seventy degrees from vertical, and shall not be fixed to, or directed at, bat boxes or gables or eaves.
- Security lighting will be set on motion sensors with short timers (<1 minute) and will be LED with a passive infrared trigger.
- Lighting must be less than 3 lux at ground level and there shall be no light splay exceeding 1 lux along buildings, eaves or roof or adjacent hedgerows or trees.
- External lights will be hooded and directed toward the ground to reduce upward light spill.
- A warm white spectrum will be adopted throughout the scheme to reduce blue light component (<2700Kelvin).
- Internal luminaires will be recessed where installed in proximity to windows to reduce glare and light spill. LED luminaires will be used internally where possible due to their sharp cut-off, lower intensity, and dimming capability.
- Luminaires will always be mounted horizontally with an upward light ratio of 0%.

Bat Conservation Trust (2023) Bats and artificial lighting at night. *Bats and the Built Environment series,* Guidance Note 08/18. Institution of Lighting Professionals.

Appendix 3. Pre-commencement breeding bird inspection

All essential hedgerow removal will take place outside of the breeding bird season i.e. September to February (inclusive). All material arising from the work will be removed from site immediately to prevent accidental creation of suitable nesting habitat.

Prior to works starting on site, all structures or habitats which provide any suitable nesting habitat for breeding birds will be inspected thoroughly. If any sign of nesting behaviour is recorded, or

nests are found, a minimum 5m buffer will be implemented around the nest until all young have fledged.

Appendix 4. Hedge protection measures

A gap of 2m will be left between any hedgerow on site and proposed construction work. During works, a protective barrier fence will be installed to protect the hedgerow and its root zone. Iron rods and netted fencing will be positioned approximately 1m from the spready of the hedge and retained throughout development.

As per section 7.4.2 of BS5837:2010 the following will be implemented when designing and constructing buildings within proximity to any hedge feature:

- The design should not require excavation into the soil, including through lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or surface vegetation.
- The structure of the hard surface should be designed to avoid localised compaction by evenly distributing the loading over hard surfaces.
- New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within 2m of a hedge.

FIGURE 1 LOCATION

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FIGURE 2 AERIAL PHOTOGRAPH

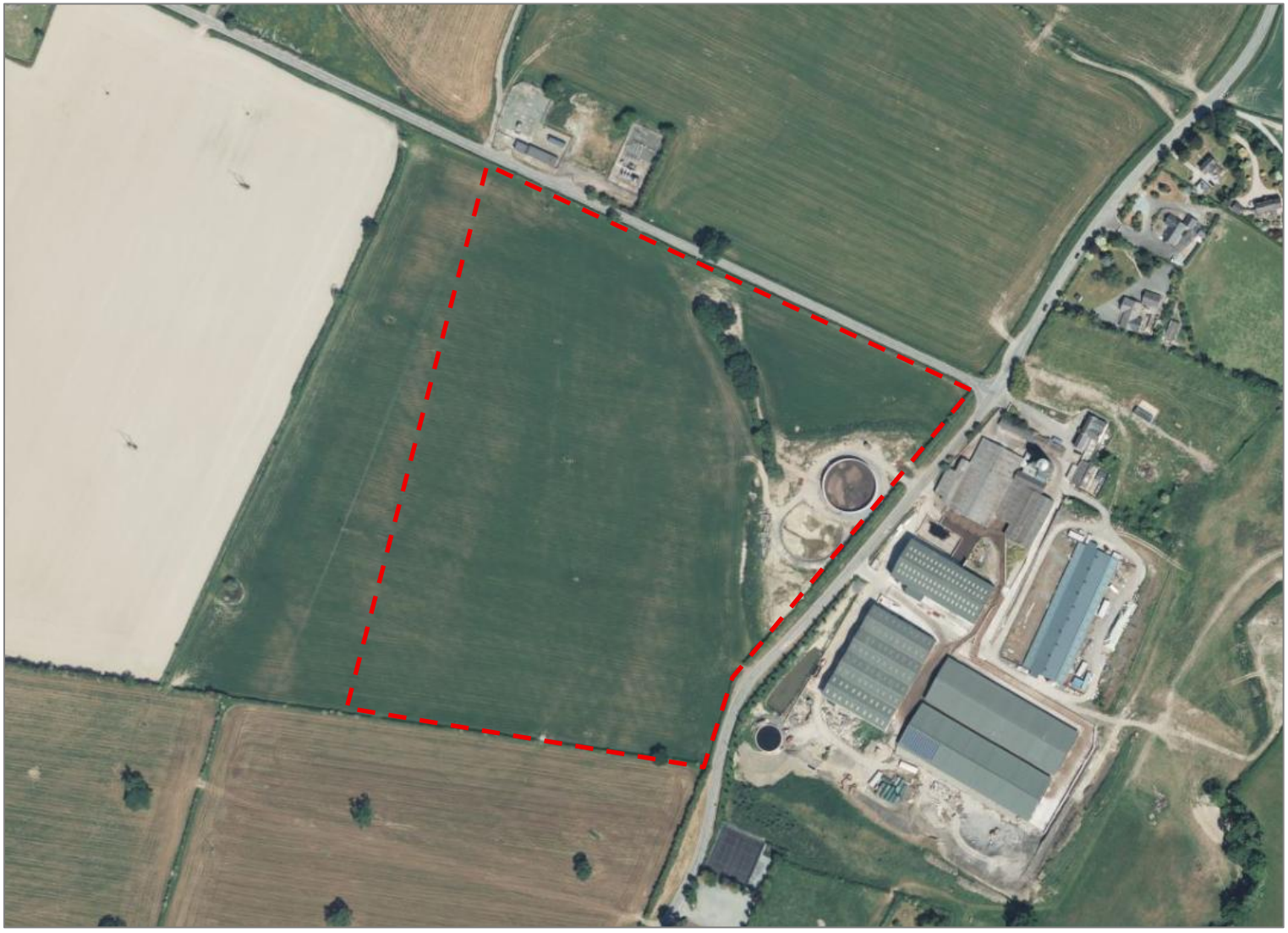

FIGURE 3 PONDS WITHIN 500M

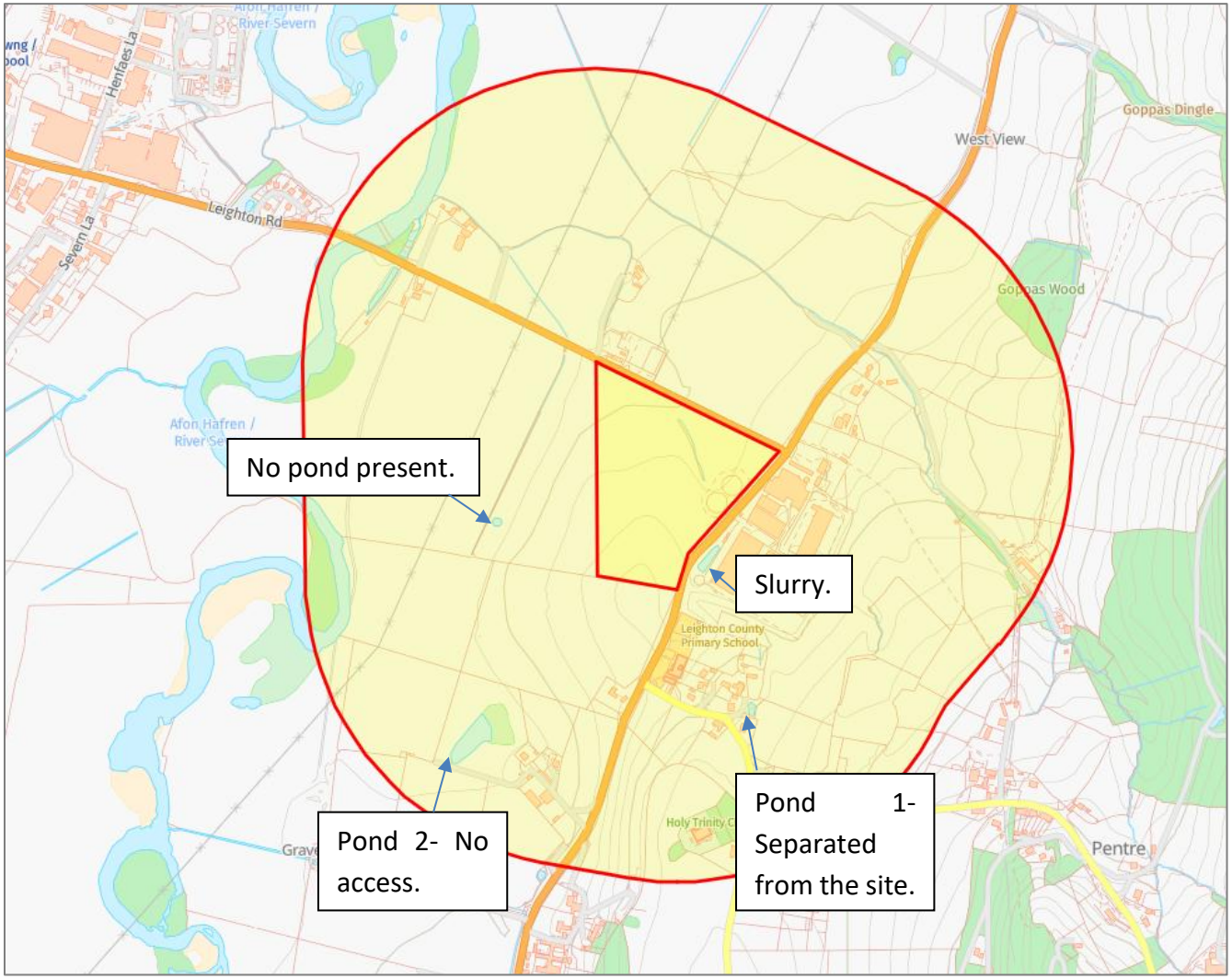

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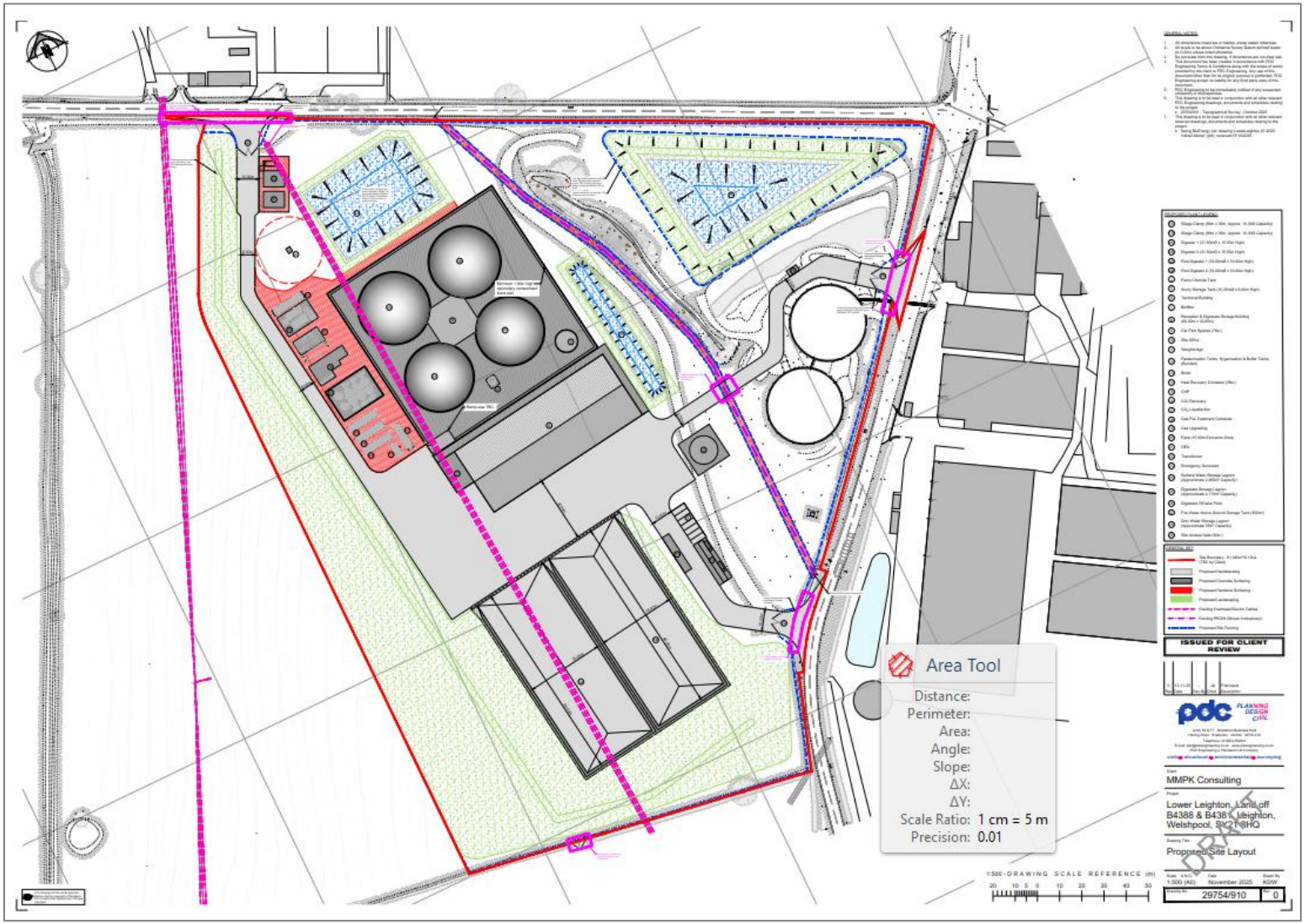
FIGURE 4 HABITAT MAP EXISTING

FIGURE 5 PROPOSED LAYOUT



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APPENDIX 1 PHOTOGRAPHS

	
The site	The site
	
Ditch 1	TL1
	
H1	Ruderal embankment

	
Bare ground and tanks	Existing access from main road
	
H2	H3