



Wetland Implementation Plan – Including Environmental Assessment & BNG Calculations

Hepple Estate

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Hepple estate

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Field Investigations and Data

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1. Summary

EcoNorth Ltd was commissioned by Hepple Estate to undertake a Hydrological Restoration Plan at the Hepple Estate, Coquetdale, Northumberland. The plan is required to comprise of 2 elements; a scoping and prioritisation exercise followed by the development of an implementation plans for selected areas to be taken forward. This document comprises the implementation plan for elements of the strategy which require planning permission due to the nature of the works.

A desk study completed alongside the field visit highlighted the presence of 3 statutory sites within 2km of the site boundary. All wetland creation areas identified are located outside the designated sites however, all the sites are hydrologically connected to the River Coquet SSSI.

A range of measures for wetland creation were identified within a scoping report for the estate prepared in March 2024. The measures which were identified that require planning permission are identified within this report.

Measures proposed include:

- Creation of standing open water in the form of ponds
- Intervening with existing drainage channels to ensure a good water supply to newly created ponds and to slow the flow of water off the land by diverting it into new ponds
- A series of scrape features - some located in close proximity to proposed ponds and some on additional components of the estate

The wetland features are targeted towards creating wetland habitat features beneficial to breeding waders, amphibians and aquatic invertebrates, features may also be suitable for water vole should populations recover within the River Coquet catchment.

The measures identified will support Natural Flood Management (NFM) principles and slow historic artificial drainage though no hydrological modelling is available to show any effect of this.

The following table highlights the key ecological features/species identified on site and those which have the potential to be present, based on the information available to date;

Ecological Feature	Presence on Site	Potential Ecological Value	Further Surveys Required?
Habitats	Habitats within the site boundary are comprised of g3c other neutral grassland as recorded in estate wide habitat surveys completed in 2023 and verified during site visits in April 2024.	Local	No
Invasive Plant Species	None recorded within works area or surroundings	N/A	No
Bats	A range of mature trees and buildings are present in the surrounding area which have potential to support roosting bats – all	Local or above	No



Ecological Feature	Presence on Site	Potential Ecological Value	Further Surveys Required?
	features have been avoided through site selection and design and there are no features present which could be directly affected. The existing wet grassland, woodland and riparian habitats in the wider area provide optimal foraging habitat for bats.		
Great Crested Newt	Terrestrial habitats form suitable foraging and hibernating areas for great crested newts however no permanent standing open water forming potential breeding habitat is present within 300m of the works. There is a theoretical possibility of the species being present.	Low	No
Otter	Signs of otter are recorded along the Grasslees Burn and they are likely to have a regular feeding / commuting presence – no resting places were identified within 100m of the site boundary	County	No
Freshwater Pearl Mussel	Considered to be absent from the River Coquet catchment. No works directly affecting rivers or streams which could comprise suitable habitat are proposed.	Negligible	No
Reptiles	Habitats present are suitable for foraging and basking reptiles. Slow worm and adder are known to be present in the wider Hepple estate with the habitats also being suitable to support common lizard.	Up to Local	No
White-clawed Crayfish	Considered to be absent from the River Coquet catchment. No works directly affecting rivers or streams which could comprise suitable habitat are proposed.	Negligible	No
Water Vole	While the Grasslees Burn and associated tributaries / drainage channels support potentially suitable habitat for water vole – while the species still exists in upland Northumberland following some reintroduction effort none have been recorded in Coquetdale for some time. No evidence of water vole was recorded during the survey.	Negligible	No
Red Squirrel	The Hepple Estate and surrounding parts of Coquetdale continue to support a red squirrel population. Tree and woodland cover close to the works area is generally deciduous and may form a commuting route for the species	Low	No



Ecological Feature	Presence on Site	Potential Ecological Value	Further Surveys Required?
	however no dreys or other field signs were recorded during the survey.		
Badger	The riparian corridor surrounding the Grasslees as well as associated burn is suitable for badger foraging and in some cases sett building. Much of the grassland is relatively too wet for sett creation. No evidence of badger was recorded during the survey effort.	Low	No
Birds	The grassland within the study area as well as surrounding fen, riparian woodland, and individual mature trees provide a range of habitats and nest site opportunities.	Local	No
Migratory Fish	The Grasslees Burn which is located in close proximity is considered suitable to support a range of freshwater fish including those associated with the River Coquet and Coquet Valley Woodlands SSSI. No works directly affecting rivers or streams which could comprise suitable habitat are proposed.	County	No

Other non-ecological constraints such as the presence of historic or archaeological constraints have been considered in the selection and design of sites for wetland restoration and the proposed locations and are;

- not located with or in immediate proximity to any scheduled ancient monuments.
- located outside of all known peatland soils within the estate.
- Avoid any risk to downstream receptors in relation to flood patterns and is expected to slow the flow of water from the floodplain surrounding Grasslees Burn into the main channel and retain more water on the land for longer. This is in line with part of the Estate and wider Coquet restoration plans to ‘Slow the Flow’ of water with proposals contributing to this process along with a range of other activities being planned and delivered by the estate.

The baseline conditions Biodiversity Net Gain (BNG) assessment was based on a UK Habitat Classification survey completed by Gordon Haycock (Haycock & Jay Hepple Estate Vegetation Mapping 2022) and the post-development assessment was based on the landscape masterplan. The biodiversity ‘value’ of the site both before and after the proposed development has been calculated using the Defra Statutory Biodiversity Metric. Comparing the pre- and proposed post-development biodiversity units, the proposed pond development results in an increase of 0.12 units (~10.04%) net gain based on the proposed works and on the basis that the ponds will comprise of priority habitats within the relevant timeframes.



2. Introduction

2.1 Background

EcoNorth Ltd was commissioned by Hepple Estate to undertake a Hydrological Restoration Plan at the Hepple Estate, Coquetdale, Northumberland. The plan is required to comprise of 2 elements; a scoping and prioritisation exercise followed by the development of implementation plans for selected areas to be taken forward. This document comprises the implementation plan for elements of the strategy which require planning permission due to the nature of the works.

This report:

- Presents the nature of proposed habitat creation works.
- Sets out the results of the protected species walkover survey.
- Presents details of the habitats present including the BNG baseline and post works summary.
- Analyses the site's value for nature conservation.
- Identifies any additional survey requirements in order to fully determine the baseline ecological conditions on the site.

2.2 Site Context

Figure 1a identifies the location of the development site.

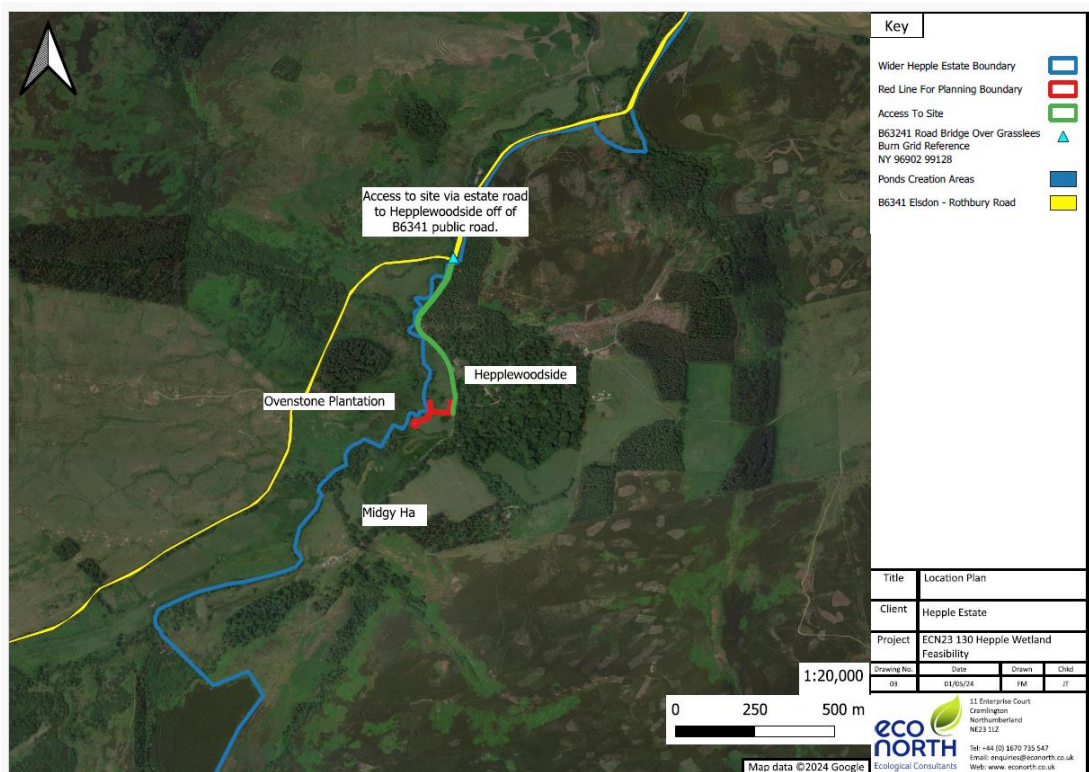


Figure 1b: Indicative Site Boundary (Boundary outlined in red)



2.3 Nature of the Proposals

It is proposed to create a series of 2 ponds to create and enhance wetland habitat within the floodplain of the Grasslees Burn. The ponds have been designed to be located in non-priority habitats and avoid other ecological and environmental sensitivities.

Figure 2a below presents an illustrative proposal of the proposed series of ponds. Figures 2b and 2c illustrate indicative cross sections of proposed ponds 1 and 2.

The scheme comprises of 2 pond features, the locations and dimensions of these ponds are set out in Table 1 below. Arisings from the pond construction will be moved to a more elevated location and deposited alongside the existing estate access track. The ponds will comprise uneven edges and variable depths / slope gradients into the features to increase their structural heterogeneity and increase value for wildlife however the maximum length, width and depth parameters which will be applied are set out below.



Table1: Pond Locations and dimensions

Pond Reference	Max Length (M)	Max width (M)	Max depth (M)
Pond 1	22	17	1.5
Pond 2	30	7	1.0

A number of considerations have been factored into the design phase of the works to ensure that the proposals avoid any adverse environmental / ecological effects, and which aim to maximise biodiversity benefit.

Design will follow these principles to maximise benefits to wildlife:

- All pond sides will be shallow slopes, ranging between 1:5 and 1:20 (3°). This will help create wide draw down zones within which water levels fluctuate seasonally.
- Where practicable ponds will include wide marginal zones consisting of shallows and mid depth zones will be created as including a range of depth zones will maximise benefit to a range of aquatic species.
- The deepest part of the ponds will be up to 1.5m deep (Pond 1) and 1m deep (pond 2). Where possible, undulations will be created in the deeper areas to provide bars to benefit aquatic plants.
- Small scrapes and depressions (which we are advised previously by the Planning Department as not needing planning permission) will also be created in the locality to further increase the diversity of wetland features creating a more extensive complex of wetland habitat types. This will help to create a complex of water retaining features, many of which will dry out in the summer. Temporary pools are highly valuable to wildlife and will complement the permanent water of the main ponds which are intended to hold water year round.



Figure 2a: Development Proposals

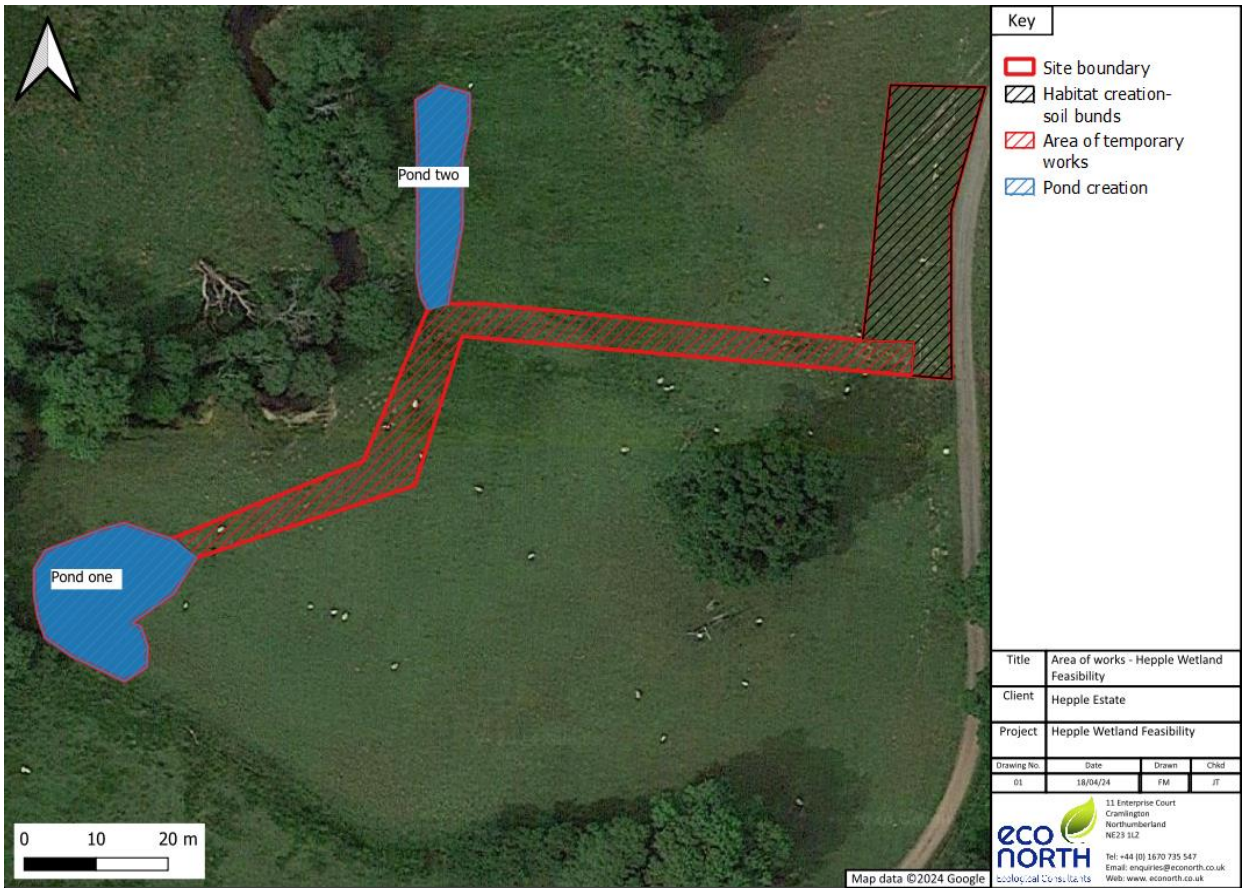
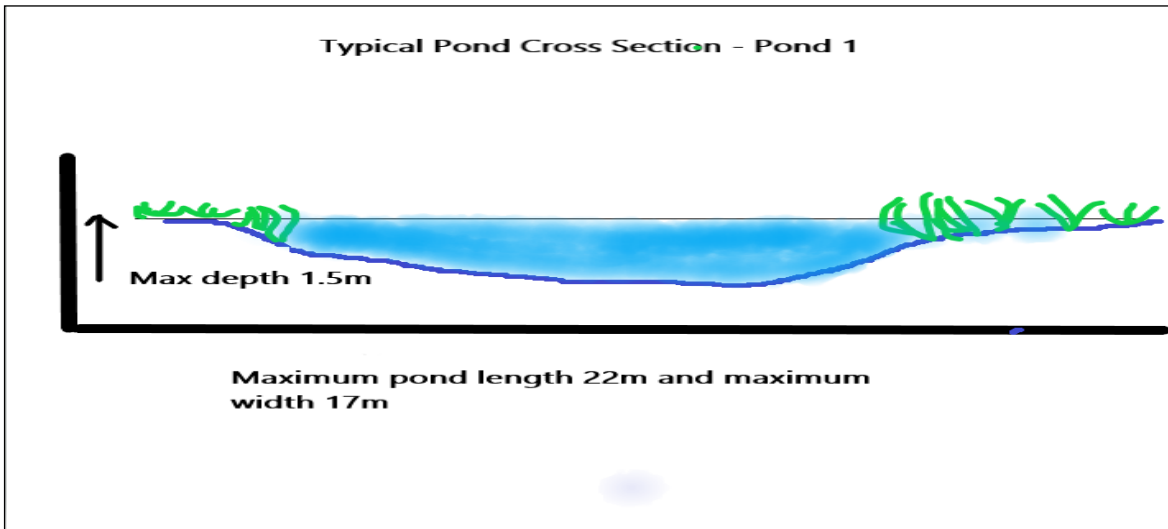
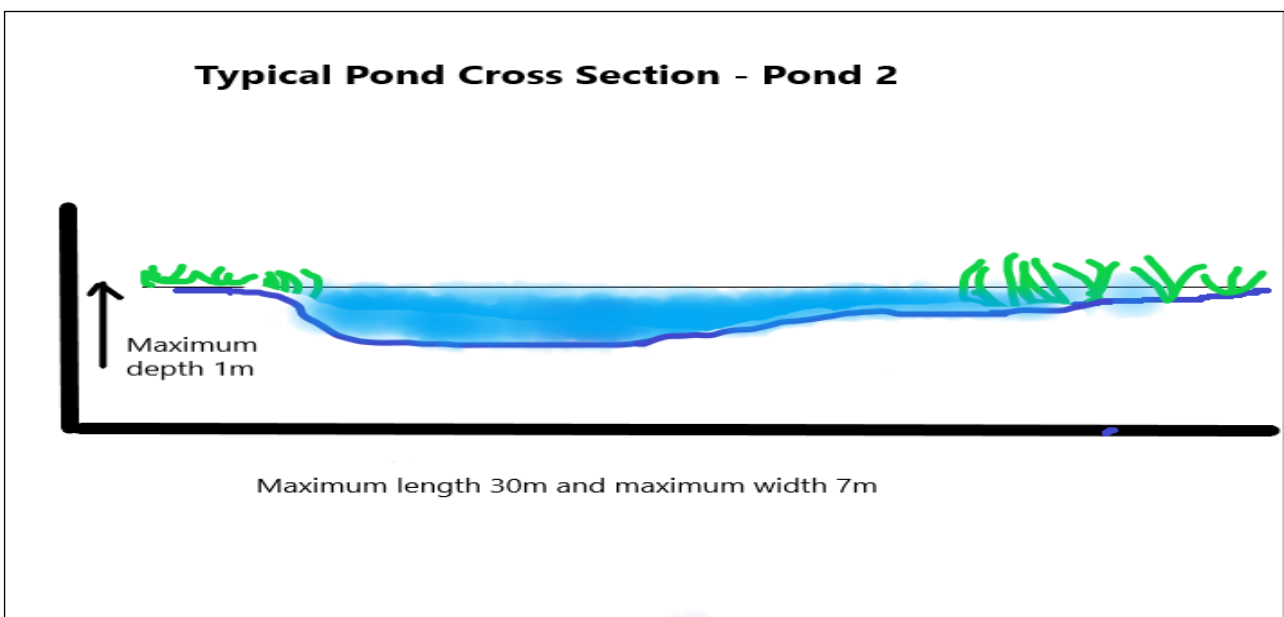


Figure 2b – Pond 1 Indicative Cross section Pond 1 (Not to Scale)



Pond 1 illustrated above comprises a broadly rounded shaped pond with the edges and overall shoreline varied to increase the amount of high value ecological niches such as shoreline habitat available. The pond slopes will include a range of gradients and will ensure that extensive shallow and mid depth areas are available as well as reaching more significant depth to ensure pond permanence. Some edges will comprise slopes as steep as 1:5 while other areas will include a more gentle gradient with an average gradient of 1:10 expected throughout the pond feature.

Figure 2C – Pond 2 Indicative Cross section (Not to Scale)



Pond 2 comprises a longer and narrower profile pond. As a result it is anticipated that to achieve the relevant shallow profiles and extent of shoreline required that a shallow gradient slope will only be possible on a single side and will be in the region of 1:6 – 1:8. On the opposing side the slope will need to be steeper to fit a pool in which reaches depths of up to 1m and will likely be at a slope of 1:2. The end slopes at the north and south ends of the pool will comprise much shallower gradients of 1:10 or more.

3.0 Planning Policy and Legislation

3.1 Planning Policy and Guidance

A series of national and local planning policies are in place which are designed to ensure that development works do not have an adverse impact upon biodiversity, at a site or wider level. Such policies ensure that both developers and public bodies must give due consideration to the potential effects of development works upon both ecological receptors (in line with existing wildlife legislation) and biodiversity.

3.1.1 *National Planning Policy Framework (NPPF) (2023)*

The NPPF outlines the Government's policies through the planning process, acting as guidance for local planning authorities and decision-makers. The document places a duty on local authorities to consider the principles included when assessing planning applications and preparing Local Plans and Regional Spatial Strategies. Chapter 15 relates to the conservation and enhancement of the natural environment, in line with existing wildlife legislation. Further details are provided on the gov.uk website (<https://www.gov.uk/government/publications/national-planning-policy-framework--2>).

3.1.2 *Habitats and Species of Principal Importance / Biodiversity Action Plans (BAPs)*

The UK BAP was published in 1994 to guide national strategies for the conservation of biodiversity. BAPs were designed to ensure the conservation and re-establishment of natural habitats, and that measures were implemented to aid the conservation and enhancement of habitats and species of local importance, the latter through the development of Local BAPs. The UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in 2012, however, the lists of species and habitats of conservation importance are still considered a valuable tool for identifying features of local and national conservation concern. As such, the potential presence of both Local and UK BAP habitats and species were considered throughout the surveys and assessment.

Species and habitats formerly identified and included within UK BAPs are typically also those which are considered to be "of principal importance for the purpose of conserving biodiversity" and listed under section 41 (England) of the NERC Act (2006) in accordance with the requirements of the NERC Act. Such species and habitats need to be taken into consideration by a public body when performing any of its functions.



3.2 Legislation

A range of legislation is in place to ensure that habitats and species of conservation importance are protected from both direct and indirect harm. Key legislation includes:

- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (The Habitat Regulations).
- The Convention on the Conservation of European Wildlife and Natural Habitats 1979 (The Bern Convention).
- The Wildlife and Countryside Act 1981 (as amended).
- The Natural Environment and Rural Communities (NERC) Act 2006.
- The Countryside and Rights of Way (CROW) Act 2000.
- The Wild Mammals (Protection) Act 1996.
- The Protection of Badgers Act 1992.
- The Hedgerow Regulations 1997.

An overview of the above legislation is provided in Appendix A.

The potential presence, on or near the site, of species afforded protection under the above legislation was considered throughout the surveys and assessment. Species considered include:

- Bats.
- Great crested newt.
- Otter.
- Freshwater pearl mussel.
- Reptiles.
- White-clawed crayfish.
- Water vole.
- Red squirrel.
- Badger.
- Birds.
- Migratory fish.

An overview of the legislation and level of protection relating to such species is provided in Appendix A.

3.3 Methodology

3.1 Desk Study

Contextual information was gathered as part of a desk study undertaken prior to the start of field surveys. Such information can identify protected or notable species which may occur on the proposed development site or in the local area, as well as identifying statutory and non-statutory ecological sites which may have the potential to be affected by the proposals. Species records and the location of statutory and non-statutory nature conservation sites within 2km of the survey site were obtained from the Environmental Records and Information Centre for the North East (ERIC North East) and from the Multi-Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk).

The Hepple Estate was subject to a full NVC and UKHab habitat survey in 2022 by qualified botanist Gordon Haycock from Haycock & Jay ecological consultancy. The habitat mapping and species lists from this 2022 habitat mapping was provided by the Hepple Estate and used to inform both the selection of appropriate sites and this assessment.

Additionally, 1:10,000 Ordnance Survey maps were consulted to help identify waterbodies or watercourses within 500m of the site. This search reflects the potential for great crested newts *Triturus cristatus* to utilise terrestrial habitat up to 500m from their breeding ponds and also helps determine the potential for other riparian or semi-aquatic species which will move away from a watercourse to be present (e.g. otter *Lutra lutra*).

It should be noted that an absence of records is likely to reflect an absence of survey data and cannot be taken as confirmation that a particular species is not present in the site or surrounding area.

3.2 Field Survey

3.3.1 Habitats

A walkover survey was completed in which the habitat data available prior to site selection was verified by surveyors on site.

Plant species were identified in accordance with Rose (2006) and Stace (2010). A search was also conducted for presence of Schedule 9 invasive non-native plant species such as Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera*.

Habitats of potential interest are shown in Appendix B, with Target Notes provided in Appendix C and site photographs in Appendix D.

3.3.2 Protected and Notable Species

Throughout the walkover (and during site selection exercises), searches were made for field signs indicating the presence of protected and notable species, including but not being limited to those species listed in Section 3.2. Any field signs recorded (including sightings of the animals themselves) were mapped; any such



signs are illustrated in Appendix B and listed as Target Notes in Appendix C. An assessment was also made of the potential for the site and adjacent areas to support protected and notable species, to identify where the proposals may impact upon such species and identify and requirements for further (species-specific) surveys.

3.3.3 Survey Conditions and Personnel

The walkover survey was completed on John Thompson BSc MSc MCIEEM and by Fiona Muir Ma MSc Qualifying CIEEM.

Table 1 shows the conditions during the survey.

Table 1: Survey Conditions

Date	Precipitation	Temperature (°C)	Cloud Cover (Oktas)	Wind (Beaufort Scale)
11/04/24	Nil	9 - 12	2-4/8	SW 3

Any constraints or limitations to the survey are discussed in Section 6.1.

3.3 Assessment

The potential botanical value of the habitats on site and the value of the site for protected species, as determined through the walkover survey, were based on the criteria published by the Chartered the Institute of Ecology and Environmental Management (CIEEM) in 2016 (<http://www.cieem.net/ecia-guidelines-terrestrial->). Each feature was classified as being as one of the following levels of value:

- International.
- National.
- Regional/County.
- City/District/Borough.
- Local.
- Low.

Examples of different ecological features meeting each of these criteria are outlined in Appendix E.

4.0 Baseline Conditions

4.1 Desk Study

4.1.1 Designated Sites

Table 2 shows those designated sites identified through the desk study as lying within 2km of the site boundary.

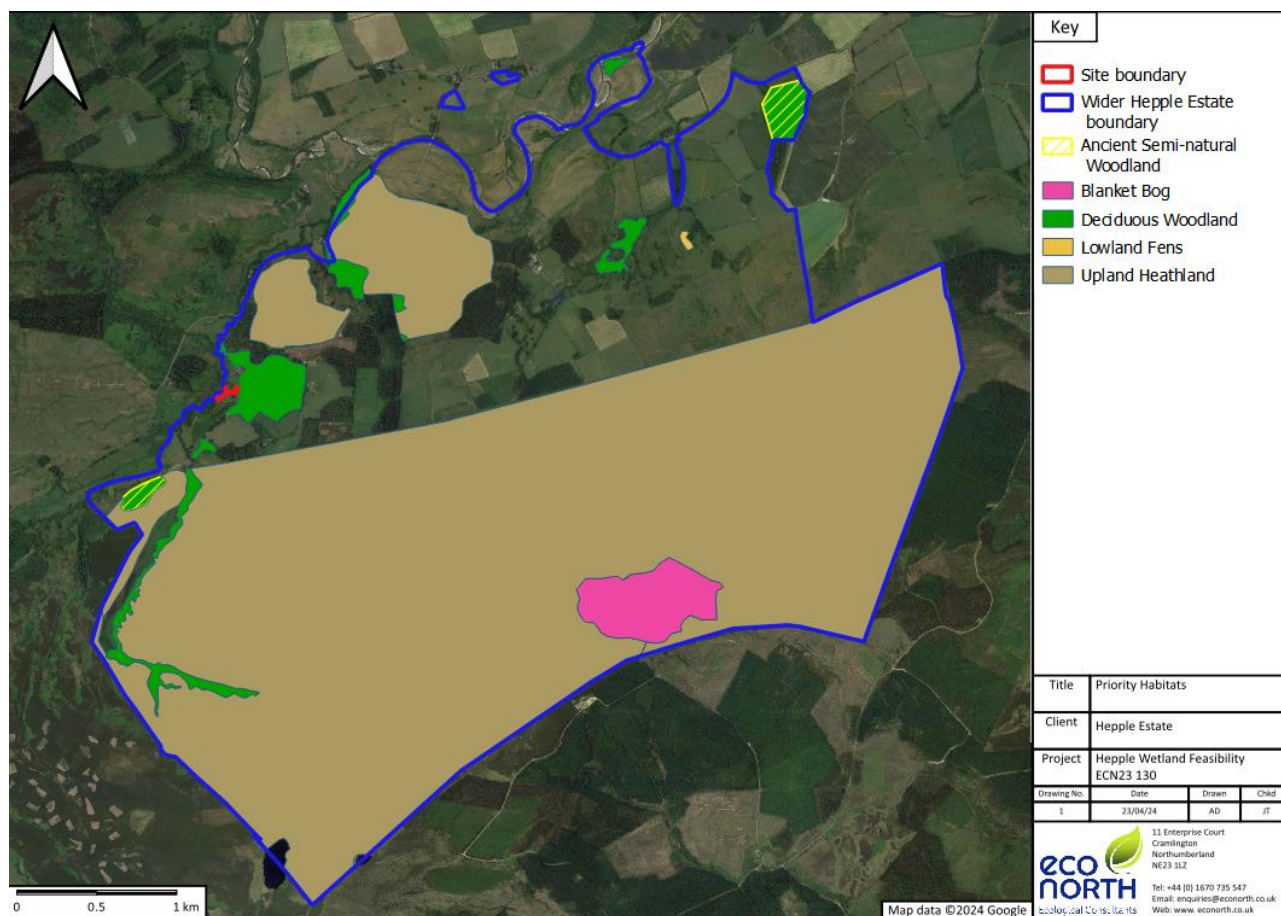
Table 2: Designated Sites within 2km

Designated Site	Distance & Direction from Site	Reasons for Designation
Simonside Hills SAC	C330m Southwest	European Dry Heaths Blanket Bog
Simonside Hills SSSI	C330m Southwest	Heather moorland Blanket mire Woodlands Grasslands
River Coquet and Coquet valley woodlands SSSI	c1.3km north (Grasslees Burn immediately adjacent is hydrologically connected)	Aquatic and riparian habitat Woodland habitats Breeding bird assemblage Invertebrate assemblage Freshwater fish assemblage including Atlantic Salmon, Sea Trout and Lamprey sp.

4.1.2 Priority habitats

Hepple Estate supports an extensive range of priority habitats as recorded on Magic.gov.uk, highlighted below. The closest mapped priority habitats comprise of areas of deciduous woodland at the western side of the estate as presented below.

Figure 3: Priority habitats



4.1.3 Protected and Notable Species

A range of protected and notable species were identified through the desk study as having been recorded within 2km of the site boundary within the last 10 years.

This included records of reptiles including Slow-worm *Anguis fragilis*, Common Lizard *Zootoca vivipara*, and schedule 1 bird species, Red Kite *Milvus milvus*. Terrestrial mammal species included hedgehog *Erinaceus europaeus*, Eurasian otter *Lutra lutra* and Eurasian red squirrel *Sciurus vulgaris* as well as bat species including whiskered/Brandt's *Myotis mystacinus/brandtii*, noctule *Nyctalus noctula*, Natterer's Bat *Myotis nattereri*, brown long-eared bat *Plecotus auratus*, common pipistrelle *Pipistrellus pipistrellus*, and soprano pipistrelle *Pipistrellus pygmaeus*, as well as unidentified bats including *Pipistrellus sp.* and *Myotis sp.*

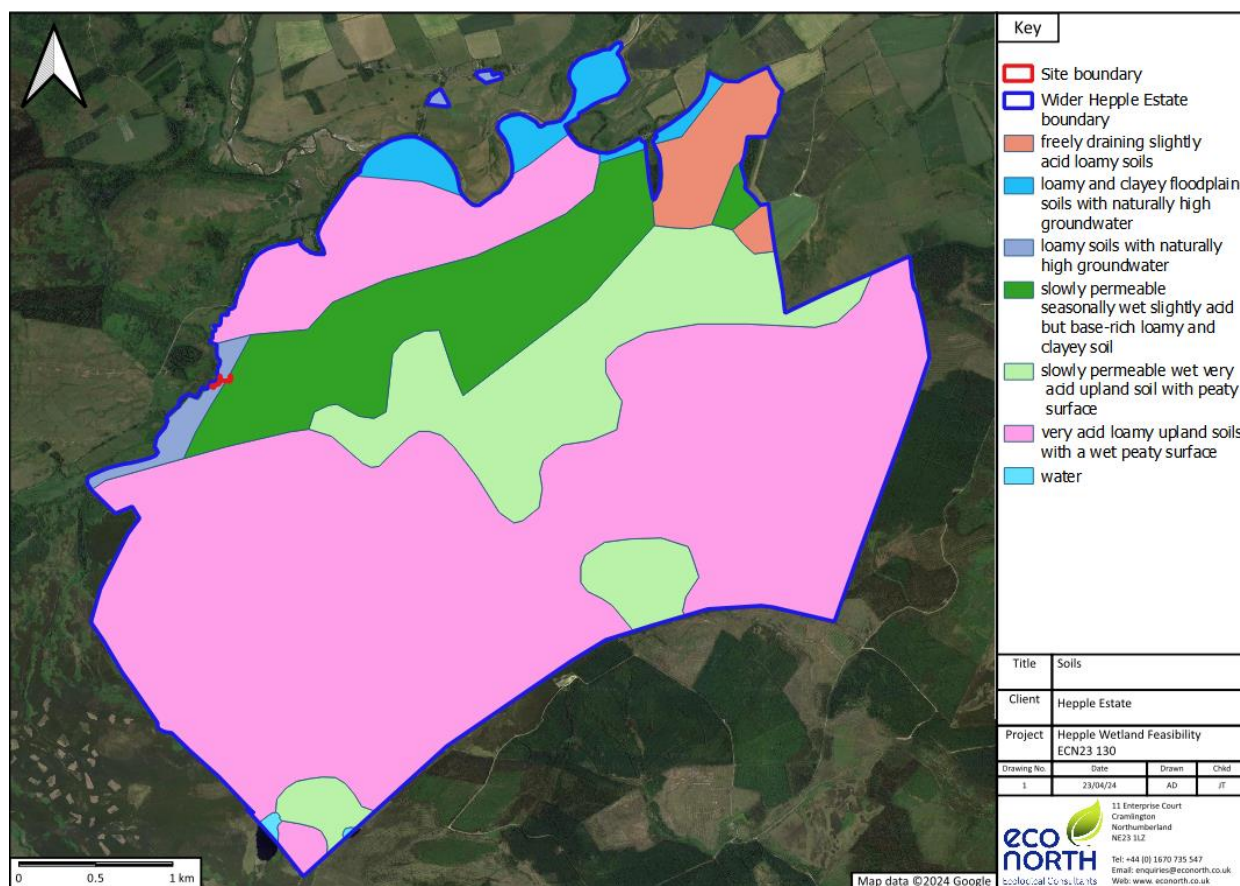
Records of Section 41 (Priority) species also included Lapwing *Vanellus vanellus*, Big Blue Pinkgill *Entoloma bloxamii* and Date Waxcap *Hygrocybe spadicea*.

Records of schedule 9 species including Rhododendron *Rhododendron ponticum* and Grey Squirrel *Sciurus carolinensis* were also included within the desk study. Further information is provided in Appendix F.

4.1.4 Soils

The soils present within the proposed works area are outside the areas of peat present on the Hepple Estate and are located on soils that are mapped as ‘loamy soils with naturally high groundwater’ with some potential overlap into ‘slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils’. While no soils sampling has been undertaken on site, walkover surveys confirmed that these descriptions represent the likely constituent soil types present within the working areas.

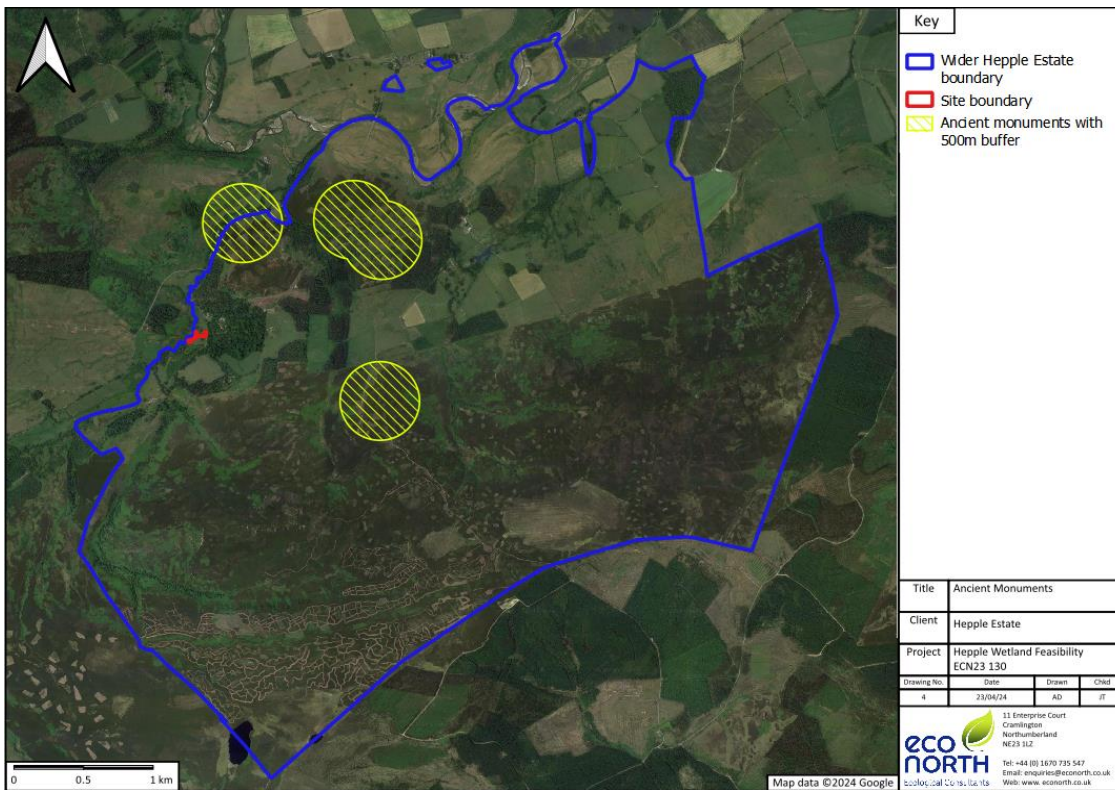
Figure 4: Soil types



4.1.5 Historic Environment

A desk-based reviews of potential constraints relating to the historic environment revealed a number of scheduled ancient monuments SAM sites within the Estate. None of the SAM sites fall within a 500m buffer area of the proposed works – the locations of SAM sites within the estate are presented below.

Figure 5: Scheduled Ancient Monuments (SAMs)

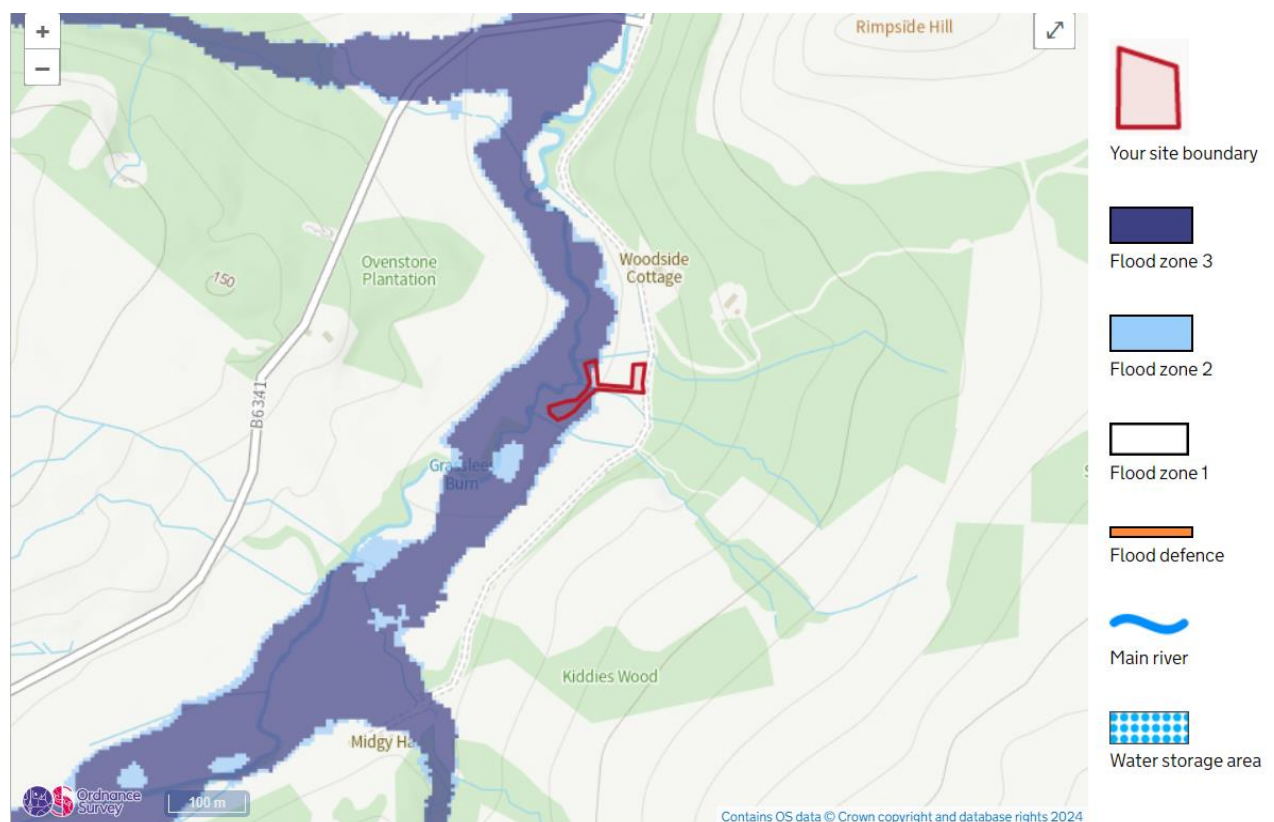


4.1.1 Water Environment and Flood Risk

The site is located partially within Flood Risk Zone 3 due to its location within the valley of the Grasslees Burn. The areas which will be subject to pond creation are located within Flood Zone 3. Temporary works areas are partially within Zone 3 and partially within Flood Zone 1. All areas identified for the deposition and landscaping of arisings from pond excavation are located within Flood Zone 1. Potential implications relating to flood risk are discussed further below. An illustration of an indicative site layout in relation to flood risk Zones is presented in Figure 6 below.

From discussions with estate staff it would appear that the area proposed for the pond creation does not regularly flood and was not inundated in recent very high flows in the Coquet Catchment when other areas of the Coquet Catchment flood plain were under water.

Figure 6: Flood Risk Zones



4.2 Field Survey

4.3.1 Habitats

Habitats within the site were found to be dominated by other neutral grassland g3c. This was recorded as species poor with less than 10 species per m² and had a varied sward height throughout. Species present included; common bent *Agrostis capillaris*, sweet vernal grass *Anthoxanthum odoratum*, common mouse-ear *Cerastium fontanum*, pignut *Conopodium majus*, Yorkshire fog *Holcus lanatus*, meadow buttercup *Ranunculus acris*, common sorrel *Rumex acetosa*, lesser stitchwort *Stellaria graminea* and germander speedwell *Veronica chamaedryas*. With species indicative of suboptimal conditions including creeping thistle *Cirsium arvense*, creeping buttercup *Ranunculus repens*, broadleaved dock *Rumex obtusifolius*, white clover *Trifolium repens*, common nettle *Urtica dioica* also being present with cover of these species combined found to be over 5% of the total area. Areas of bare earth were found to be between 1- 5% with scrub and bracken cover absent within the site boundary.

Adjacent habitats include alder dominated woodland along the banks of the Grasslees Burn, upland acid oak woodland and wet woodland present to the east and south of the site. A series of veteran and mature trees are identified in the fields surrounding the works, these and their root zones, have been avoided in the design of the proposals.

Areas of running water are present in minor channels on site, generally flowing in a south east to north western direction as well as the main watercourse of the Grasslees Burn. The Grasslees Burn was found to have a fast to moderate flow at time of survey with water levels ranging from approximately 10cm to 1.5m deep. The banks were steep to gradual and made of soil with signs of erosion including undercutting present throughout this stretch of burn.

Other habitats in close proximity to the site boundary include fen habitats to the south west of the area of works and a gravel access track, directly adjacent to the east of the site

Key areas/features of interest identified through the walkover survey are shown in Appendix B, with Target Notes provided in Appendix C and site photographs in Appendix D.

4.3.2 Schedule 9 Plant Species

No Schedule 9 invasive non-native plant species were recorded during the site protected species walkover surveys.

4.3.3 Protected and Notable Species

Bats

The combination of grassland and fen, surrounding riparian woodland and nearby belts of deciduous woodland makes the site optimal for bat foraging. Pond locations have been selected which avoid structures or trees which could support roosting bats and therefore there is no potential for roosting bats to be present in works areas.

Great Crested Newts

Terrestrial habitats form suitable foraging areas for great crested newts, with brash piles located in close proximity to the area of works providing suitable hibernacula however no permanent standing open water forming potential breeding habitat is present in the immediate vicinity of the works, or within 300m of the site boundary There is a theoretical possibility of the species being present.

Otter

The Grasslees Burn is a highly suitable foraging resource for otter very capable of supporting populations of salmonid fish species and a range of other freshwater fish species. Other potential prey resources for otters are present in the surrounding wet grasslands including common frog and common toad. No holts or resting places were recorded within 100m upstream or downstream of the proposals. A single deceased (considered female) otter was recorded much further (>400m) upstream (NZ 96449 97313). The otter was located at the base of an alder tree with a significant cavity at the base which may form a potential otter resting place. The cause of death of the otter was unknown however given the state of the otter it was likely to have been deceased for around 1 week which coincides with the timing of very high water levels within the wider catchment. Some recent spraint was located a short distance upstream of that.

Freshwater Pearl Mussels (FWPM)

The Grasslees Burn directly adjacent to the site provides suitable depth and likely suitable water quality for FWPM. The level of bankside shading also makes the watercourse suitable for this species. FWPM are currently considered absent on the River Coquet catchment.

Reptiles

The site is located in upland Northumberland in an area known to support a number of the UK's more regularly occurring reptile species namely; common lizard *Zootoca vivipara*, adder *Vipera berus* and slow worm *Anguis fragilis*. No observations of reptiles were noted during site walkover surveys however both adder and slow worm were recorded in the valley of the Grasslees Burn during the walkover survey of the wider area, recorded approximately 1km south west of the proposed pond locations. Hibernacula (brash piles) were recorded in close proximity to the site boundary however the proposed pond locations and associated access routes and other works area do not support any potential hibernacula or other refugia though could at times potentially be used by foraging reptiles.

White-clawed Crayfish

The Grasslees Burn directly adjacent to the site provides suitable depth and likely suitable water quality for white-clawed crayfish. Suitable rocks and tree roots on the bottom of the burn provide suitable habitat. The level of bankside shading also makes the watercourse suitable for this species. White-clawed crayfish are currently considered absent on the River Coquet catchment.

Water Vole

While the species still exists in upland Northumberland following some reintroduction effort none have been recorded in Coquet dale for some time. The Grasslees burn provides suitable banksides and substrates as well as foraging resources of grasses, sedges and rushes for water vole. The watercourse does however fluctuate significantly reducing the overall suitability of the channel for water vole. No burrows, latrines, prints or other evidence was present to indicate the presence of water vole during the walkover survey effort.

Red Squirrel

The Hepple Estate and surrounding parts of Coquetdale continue to support a red squirrel population. Tree and woodland cover close to the works area is generally deciduous and may form a commuting route for the species however no dreys or other field signs were recorded during the survey.

Badger

The riparian corridor surrounding the Grasslees Burn as well as the associated burn itself is suitable for badger foraging and in some cases sett building. Much of the grassland is however relatively wet for sett creation. A series of well-formed mammal paths are present following the strip of riparian woodland following the Grasslees Burn however no prints or other evidence was present to indicate use by badger. No badger setts or other evidence of badger was recorded during the survey effort.

Birds

The grassland within the study area as well as surrounding fen, riparian woodland, and individual veteran and mature trees provide a range of habitats and nest site opportunities. Notably snipe *Gallinago gallinago* was present 'chipping' indicating a territory in nearby fen habitat.

Migratory Fish

The Grasslees Burn which is located in close proximity to the northern site boundary is considered suitable to support a range of freshwater fish including those associated with the River Coquet and Coquet Valley Woodlands SSSI. No works directly affecting rivers or streams which could comprise suitable habitat are proposed.

BAP and Other Species

Common toad *Bufo bufo* and common frog *Rana temporaria* are present within the wider Grasslees valley and may potentially be present in terrestrial vegetation on site at any time. Palmate newt *Lissotriton helveticus* and potentially smooth newt *Lissotriton vulgaris* may also utilise fen / wetland habitats nearby for foraging purposes. There are currently no areas of permanent standing open water within the immediate vicinity of proposed ponds, or within 300m that are considered suitable for amphibian breeding efforts.

4.4 Biodiversity Unit Calculations

4.4.1 Baseline Habitats

Table 6 shows the inputs used and resultant biodiversity unit calculations for each of the habitats identified on site through the field survey, as described above. The pre-development UK Habitat Classification map is included in Appendix A.

Table 6: Pre-Works Biodiversity Units

Habitat Type	Size of Habitat Parcel (ha)	Distinctiveness	Condition	Biodiversity Units
Other neutral grassland	0.059	Medium	Moderate	0.47
Other neutral grassland	0.069	Medium	Moderate	0.55
Other neutral grassland	0.025	Medium	Moderate	0.20
Total				1.22

4.4.2 Proposed Habitats

The proposal effectively comprises the installation of 2 pond features which forms part of a suite of wetland creation measures being considered by the Hepple Estate. The ponds and associated arisings will be located within an area of other neutral grassland.

Following the completion of works, the ponds are expected to qualify as priority habitat (ponds with species of high conservation importance, BRIG 2008) while temporary access routes will be restored and the sections of relocated arisings will be created as other neutral grassland g3c.

Table 7 shows the inputs used and resultant biodiversity unit calculations for each of the newly created habitats proposed for the site.

Table 7: Post-Works Biodiversity Units based on the Submitted Plan

Habitat Type	Size of Habitat Parcel (ha)	Distinctiveness	Target Condition	Difficulty	Time to Target Condition (Years)	Biodiversity Units
Ponds (priority habitat)	0.018	High	Good	Medium	5	0.21
Ponds (priority habitat)	0.032	High	Good	Medium	5	0.37
Other neutral grassland	0.019	Medium	Moderate	Low	5	0.13
Other neutral grassland	0.025	Medium	Moderate	Low	5	0.17
Other neutral grassland (retained)	0.059	Medium	Retained in moderate condition	N/A	N/A	0.46
Total						1.34

4.4.3 Assessment of Change

Tables 8 and 9 show the overall change in biodiversity units resulting from the proposed development.

Table 8: Overall Change in Biodiversity Units based on Landscape Plan

Biodiversity Units Pre-Works (a)	Biodiversity Units Post-Works (b)	Change in Biodiversity Units (a – b)
1.22	1.35	+0.12

Table 9: Overall Changes in Hedgerow Units based on Landscape Plan

Biodiversity Units Pre-Works (a)	Biodiversity Units Post-Works (b)	Change in Biodiversity Units (a – b)
N/A	N/A	N/A

Based on the above, the proposals result in a net gain of 0.12 biodiversity units, or an increase of ~10.04%.

Under the current guidance, this change constitutes net gain (Panks *et al.* 2021a, and Panks *et al.* 2020b) with an increase in biodiversity units of over 10% and therefore no changes are required to the landscape design and no off-site compensatory measures are necessary.

4.5 Interpretation and Discussion

4.5.1 Survey Constraints and Further Survey Requirements

The walkover survey was completed under suitable weather conditions however it followed a prolonged period of high rainfall and associated high water levels therefore the level of otter (or other faunal species) activity on the Grasslees Burn may therefore be underestimated due to the high water levels washing out field signs. This assessment is therefore undertaken on the basis that otter routinely use the Grasslees Burn. No significant constraints to necessary survey and assessment are identified and no further surveys are considered necessary to inform the planning application.

4.5.2 Assessment of Value

Based on the results of the desk study and field work completed to date, the ecological interests of the site are valued as shown in Table 4, below, using the criteria outlined in Section 4.3 and Appendix E.

Table 10: Potential Value of Ecological Features Recorded on Site

Ecological Feature	Ecological Value	Justification
Habitats - Other Neutral grassland (g3c)	Local	Other neutral grassland is a non-priority habitat and is widespread throughout the locality.
Invasive Plant Species	N/A	N/A
Bats	Local or above	The site supports optimal commuting and foraging habitat however all trees and structures will be avoided by the proposal.
Great Crested Newt	Low	No known great crested newt ponds are recorded in the immediate vicinity and no ponds are present within 300m of the site boundary. Terrestrial habitat suitable for foraging and hibernating newts present.
Otter	County	The Grasslees Burn located 10m north of the site boundary comprises high quality habitat for otter and comprises a tributary of the River Coquet SSSI which is designated for Otter.
Freshwater Pearl Mussel FWPM	Negligible	Freshwater Pearl Mussel are considered to be absent from the River Coquet catchment.
Reptiles	Up to Local	Habitats in the immediate surrounds were confirmed as supporting adder and slow worm during site walkovers. Suitable hibernacula were also recorded in the wider site. The habitats within the proposed works area are suboptimal and do not support any refugia or hibernacula but could support foraging reptiles.



Ecological Feature	Ecological Value	Justification
White-clawed Crayfish	Negligible	White-clawed crayfish are considered to be absent from the River Coquet catchment.
Water Vole	Negligible	No recent records of water vole are known from the area and no burrows or other field signs were present.
Red Squirrel	Low	Red squirrel are an important species within Northumberland and some commuting habitat may be present in adjacent habitats however there is no suitable habitat within the site boundary and no field signs including dreys were recorded during the walkover surveys.
Badger	Low	Habitats on site comprise suitable habitats for badger foraging and in some areas sett building however no evidence of current activity was recorded during surveys.
Birds	Local	While no breeding bird survey has been completed the small areas of grassland within the application boundary have the potential to be used by a small range of ground nesting species.
Migratory Fish	County	The Grasslees Burn adjacent to site forms a tributary of the River Coquet and Coquet valley Woodlands SSSI designated in part for populations of migratory fish.

4.5.3 Input into the Design Process

In order to minimise the potential adverse impacts of the proposals upon ecological interests of the site, and to maximise the potential ecological and hydrological benefit, the proposals have considered the following:

- All works will be kept outside of designated sites.
- All proposed works have been planned outside of priority habitats.
- All works will avoid potential effects on mature trees or structures.
- Proposed ponds and scrapes have been planned and designed to maximise ecological benefits for a range of faunal species which may include priority species.
- Proposed works comprise 1 of a series of wetland creation measures planned on Hepple Estate which aim to contribute to reducing downstream flood risk by slowing the transit of water off the land

4.5.4 Impact Assessment

4.4.4 Ecology

A series of mitigation concepts have been considered in the design and location of the proposals and these are outlined in section 5 to mitigate against the possible effects outlined below:

- Habitat change – areas of neutral grassland will be excavated and managed as ponds which are expected to comprise priority habitats. The proposed habitat changes are expected to deliver > 10% net gain in biodiversity (as calculated by the current version of the Defra Metric) while also creating priority habitat (ponds with species of high conservation importance) and habitat beneficial to a range of faunal species. Some loss of foraging habitat for a range of bird and potentially mammal species may also be expected, however this is limited in extent.
- Direct harm or disturbance to breeding birds.
- Direct harm or disturbance to herptiles (amphibians and reptiles).
- Disturbance to commuting or foraging otter.
- Release of sediment into the Grasslees burn (a tributary of the River Coquet and Coquet Valley Woodlands SSSI).
- Pollution incidents associated with operating plant affecting the Grasslees Burn and surrounding terrestrial habitats.

4.4.5 Landscape and visual effects

Potential effects on the local landscape are considered to be neutral at worst in the long term with wetland features being suitable and appropriate for the floodplain location in which they are proposed. Some short term and small scale effects may be noted in terms of exposed soils and bare earth until vegetation has re-established which is expected to be at worst with 1 growing season.

4.4.6 Flood Risk

The pond features associated with the proposal are located within EA flood risk Zone 3 and therefore on a simplistic level the proposals require a flood risk assessment. The proposals however are comprised of wetland creation.

The hierarchy for flood risk assessment requires that consideration is given to alternative locations for development using the 'sequential test' described on the gov.uk website <https://www.gov.uk/guidance/flood-risk-and-coastal-change#the-exception-test>.

In the case of the proposed pond locations they have been selected to lie within the land ownership boundary, outside of priority habitats as well as avoiding other sensitive ecological receptors and have been identified where the existing land forms (current flat topography) will be suitable for pond creation that will

function and retain water. On this basis given the nature of the proposals any other suitable sites would likely be within the same flood zones and so other alternatives have been considered as far as possible.

Where projects can not be planned outside of the relevant flood zones the 'exception test' may be considered. The relevant text relating to the exception test from the gov.uk website is included below.

The Exception Test requires two additional elements to be satisfied (as set out in paragraph 164 of the National Planning Policy Framework) before allowing development to be allocated or permitted in situations where suitable sites at lower risk of flooding are not available following application of the sequential test.

It should be demonstrated that:

- *development that has to be in a flood risk area will provide wider [sustainability benefits to the community that outweigh flood risk](#); and*
- *the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*

In relation to the first test. The overall aims of the wetland creation documented in this report are aligned with wider sustainability objectives of 'biodiversity' and flood resilience through natural flood management measures and for the purposes of this assessment it is considered that the creation of wetland habitats meet this test.

In relation to the second test while no measurable effects can be reported without modelling, the creation of ponded excavations within the flood plain may result in an overall net positive effect on flood risk – reducing risk overall, this takes into account that no temporary or permanent material deposits will be retained within flood zone 3 as part of the project and all arisings will be distributed within flood zone 1. Similarly, the ponds will intercept currently straight line channels which convey water directly to the Grasslees Burn into the pond effectively slowing the flow of water in this location off the land. End users of the development will relate to temporary visitors to the location who will not be exposed to any risk as a result of the proposals. Given the nature and aim of the proposals it is considered that the proposed pond creation work pass this test.

5. Mitigation measures Mitigation and Compensation Strategy

5.1 Ecology

- The proposals are expected to result in an uplift in the quality and diversity of habitats on site delivering a >10% net gain in biodiversity units and therefore no further offsite habitat creation is considered necessary.



- To prevent the spread of invasive non-native botanical species from off-site, all equipment and footwear introduced to the site will be cleaned, dried, and disinfected prior to arrival. Plant providers, if required, should have certification of this available on arrival.
- No fires will be lit as part of the proposals.
- Any chemicals, including empty containers, will be stored in appropriate locked containers when not in use. These containers will be located at least 30m from any detectable hydrological pathway.
- Works will not proceed until a toolbox talk has been provided to contractors by a Suitably Qualified Ecologist (SQE) covering the legislation relating to relevant protected and notable species, how to identify them and their field signs, appropriate working methods, and the procedure to follow if any such species are recorded within or adjacent to the site.
- No works will be permitted between sunset and sunrise to avoid the risk of disturbing nocturnal species that may be present within the local area.
- No lighting will be installed during the works which is allowed to illuminate the adjacent Grasslees burn or woodland/mature trees to avoid the risk of adverse impacts resulting from illuminating bird and bat , foraging or commuting features either on or off site, or any other nocturnal species.
- In the event that any protected species are recorded on site, works in that area will cease immediately and the ECoW contacted for advice on how to proceed.
- Any sightings of notable and/or protected species within or adjacent to the site during the works period will be recorded in a site diary and reported to the ECoW within 24 hours.
- Spill kits will be kept on site at all times and made available to all individuals present. Contractors will ensure that staff trained in the use of the kits are on site at all times during works.
- Areas affected are subject to seasonal grazing – depending on the length of grass at the time of works it may be necessary to complete a phased cut of vegetation in advance of works to minimise the potential presence of amphibians and reptiles present in advance of works.
- Works will be planned to minimise potential release of sediment into adjacent watercourses, suitable controls such as straw bales and silt fencing will be retained for use on site if required. Works will be phased to minimise the risk of sediment release into adjacent watercourses.
- Clearance works will not be undertaken during the bird nesting period unless the Ecological Clerk of Works (ECoW) has completed a nesting bird check no more than three days in advance of works, to confirm such features are absent. In the event any active nests are identified which may be affected by the proposals, the ECoW will implement an appropriate buffer zone around this feature into which no works will progress until subsequent checks confirm that the nest is no longer active.
- Works may be undertaken in areas with no active bird nests present during the three days following the ECoW's nesting bird check. If works are to be completed over a longer period, the ECoW will

repeat the nesting bird check within appropriate timescales as agreed by the ECoW, depending on the level of risk prior to works moving into each new area.

- No fencing will be installed which may hinder the movement of wildlife around the site.
- A reptile/ amphibian check of suitable habitat should be carried out immediately before clearance, with any animals relocated outside of the works area.
- Works will be carried out late summer / autumn to reduce the risk to hibernating reptiles and amphibians.
- A local contractor, who is very experienced in wetland creation and has undertaken many projects within the National Park, will undertake the work using a tracked excavator plus dumper truck. Both have low ground pressure so will have minimal impact on the surrounding ground. The contractor will use the smallest area possible to move around the site and will minimize the number of journeys across the site, especially on the wetter areas, to keep disturbance to existing vegetation to a minimum.

5.2 Landscape

No mitigation is proposed for landscape and visual effects outside of the design which aims to create features which would naturally occur within floodplain habitats and working methods which aim to retain and reuse grass turfs to minimise short terms visual effects of exposed soils being present over the small construction areas .

5.3 Flood Risk Measures to minimise any risk of flooding are inherently embedded within the proposals which aim to contribute to wider Natural Flood management NFM principals of retaining water on the land for longer. Additionally, the proposals avoid the introduction of any raised ground within Flood Zones 2 or 3 by identifying locations for soil arisings further upslope within Flood Zone 1. Additional mitigation which will be implemented at constructions stage includes.

- Works will be targeted to periods in the year which are typically drier where possible (late summer / early autumn).
- All plant and other construction materials will be removed from flood Zones 2 and 3 and stored securely at the end of each working day.
- All fuel storage and refuelling operations will be undertaken on areas of hardstanding within the estate outside of flood zones and a minimum of 30m form any detectable watercourse
- No temporary material storage will take place within Flood Zones 2 and 3 and all materials will be moved upslope as it is excavated.

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Appendix A – Key Legislation

Table A1: Overview of Key Legislation

Legislation	Key Features
The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	<p>These Regulations consolidate and update the Conservation of Habitats and Species Regulations 2010 (the “Habitats Regulations 2010”). The Conservation of Habitats and Species Regulations 2019 (“the Habitats Regulations 2019”) transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (“the Habitats Directive) and elements of Directive 2009/147/EC on the conservation of wild birds (“the Birds Directive”) in England, Wales and, to a limited extent, Scotland and Northern Ireland. The objective of the Habitats Directive is to protect biodiversity through the conservation of natural habitats and species of wild fauna and flora. The Directive lays down rules for the protection, management and exploitation of such habitats and species.</p> <p>The Habitat Regulations make it an offence (with certain exceptions) to deliberately capture, disturb, kill or trade in those animal species listed in Schedule 2, or to pick, cut, uproot, collect, destroy or trade in those plant species listed in Schedule 4.</p> <p>The EC Birds Directive requires member states to establish and monitor Special Protection Areas (SPAs) for all rare or vulnerable species included in Annex I, as well as for all regularly occurring migratory species, with key focus on wetlands of international importance. Annex I and II of the Habitats Directive respectively list those habitats and species for which a similar network of sites – Special Areas of Conservation (SACs) – must be established and monitored. Collectively, SPAs and SACs form a network of pan-European protected areas which are referred to as ‘Natura 2000’ sites.</p>
The Convention on the Conservation of European Wildlife and Natural Habitats 1979 (Bern Convention)	<p>The Bern Convention was adopted in 1979 and ratified by the UK Government in 1982. The principal aims of the Convention are to ensure the conservation and protection of all wild plant and animal species and their natural habitats (listed in Appendices I and II), to increase cooperation between contracting parties, and to afford special protection to the most vulnerable or threatened species (including migratory species).</p> <p>Members of the European Community meet their obligations via the Birds Directive and the Habitats Directive. These are transposed into UK law by the Wildlife and Countryside Act 1981 (as amended), Nature Conservation (Scotland) Act 2004 (as amended), Wildlife (Northern Ireland) Order 1985, and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985.</p>
The Wildlife and Countryside Act 1981 (as amended)	<p>The Wildlife and Countryside Act consolidates and amends existing national legislation to implement the requirements of the Bern Convention and the Birds Directive throughout Great Britain. The Act is the primary UK mechanism for the designation of statutory ecological sites - Sites of Special Scientific Interest (SSSIs) - and the protection of individual species listed under Schedules 1, 2, 5, 6 and 8 of the Act, each of which is subject to varying levels of protection.</p> <p>Schedule 9 of the Act also lists those plant species which it is an offence to plant or otherwise cause to grow in the wild, while Schedule 14 prevents the release into the wild or sale of certain plant and animal species which may cause ecological, environmental or socio-economic harm.</p>

Legislation	Key Features
Natural Environment and Rural Communities Act 2006	The NERC Act places a duty on public bodies to consider and conserve biodiversity through the exercise of their functions and includes a range of measures to strengthen the protection of both habitats and wildlife. The Act makes provision in respect of biodiversity, pesticides harmful to wildlife, protection of birds and invasive non-native species.
The Countryside and Rights of Way (CRoW) Act 2000	The CRoW Act, which applies to England and Wales only, strengthens the provisions of the Wildlife and Countryside Act 1981 (as amended), both in respect of protected species and statutory ecological sites, the latter primarily relating to the management and protection of SSSIs. It also provides for better management of Areas of Outstanding Natural Beauty (AONBs). The Act places a statutory obligation on public bodies to further the conservation of biodiversity through the exercise of their functions, thereby providing a statutory basis to the Biodiversity Action Plan (BAP) process. Section 74 of the Act lists those habitats and species of principal importance in England.
The Wild Mammals (Protection) Act 1996	This Act provides protection for wild mammals from acts of cruelty. An offence is committed if any person mutilates, kicks, beats, nails, or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering.
The Protection of Badgers Act 1992	This consolidates the existing legislation relating to the protection of badgers, and makes it an offence in England and Wales to wilfully kill, injure or take a badger (or attempt to do so) and affords protection to both the animals themselves and their setts.
Hedgerow Regulations 1997	The Hedgerow Regulations are intended to protect important countryside hedgerows from destruction or damage in England and Wales.

Table A2: Overview of Key Protected Species Legislation and Protection

Species	Key Legislation and Protection
Bats	All European bat species are protected in Britain under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. All British bat species are included on Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended) and the whole of Section 9 applies to European bat species. The above collectively prohibits the following: <ul style="list-style-type: none"> • Deliberately or recklessly capturing, injuring, taking or killing of a bat. • Deliberately or recklessly harassing a bat. • Intentionally or recklessly disturbing of a bat in its place of rest (roost), or which is used for protection or rearing young. • Deliberately or recklessly damaging, destroying or obstructing access to any resting place or breeding area used by bats. • Deliberately or recklessly disturbing a bat in any way which is likely to significantly affect the local populations of the species, either through

Species	Key Legislation and Protection
	<p>affecting their distribution or abundance, or affect any individuals' ability to survive, reproduce or rear young.</p> <ul style="list-style-type: none"> • Possession or advertisement/sale/exchange of a bat (dead or alive) or any part of a bat. <p>Bats are also protected by the Wild Mammals (Protection) Act 1996. Licenses are issued by Natural England for any works which may compromise the protection of European protected species, including bats. This license is required irrespective of whether the works require planning permission. Selected species are also listed in the UK BAP.</p>
Great Crested Newt	<p>Great crested newts receive the same levels of protection under British and European law as is afforded to bats (see above). Great crested newts are included on the UK BAP.</p>
Otter	<p>Otter are protected under British and European law, receiving the same level of protection as bats (see above). Otter are also listed as a priority species in Appendix II of the Bern Convention. Otter are included on the UK BAP.</p>
Freshwater Mussel Pearl Mussel	<p>Freshwater pearl mussels are protected under British and European law, receiving the same level of protection as is afforded to bats (see above). The species is also included in Appendix III of the Bern Convention and is listed on the UK BAP.</p>
Reptiles	<p>Common reptiles (grass snake, adder, common lizard and slow-worm) receive partial protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to:</p> <ul style="list-style-type: none"> • Intentionally or recklessly kill or injure these species. • Sell, offer or advertise for sale, possess or transport for the purposes of sale these animals, whether alive or dead, or any part thereof. <p>In addition, smooth snake and sand lizard are also protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which makes it an offence to:</p> <ul style="list-style-type: none"> • Intentionally or recklessly kill, injure, capture, disturb or handle these species. • Intentionally or recklessly damage or destroy any place used by these species for shelter, protection, resting or breeding. • Intentionally or recklessly obstruct access to any place used for shelter, protection, resting or breeding by these species. <p>All 6 species of native reptile are listed on the UK BAP.</p>
White-clawed Crayfish	<p>White-clawed crayfish are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:</p> <ul style="list-style-type: none"> • Take white-clawed crayfish. • Sell, possess or transport white-clawed crayfish for the purpose of sale. • Advertise the buying or selling of white-clawed crayfish. <p>The species is also protected under the Habitats Directive, being listed under Annex II and V, and is included on the UK BAP.</p>

Species	Key Legislation and Protection
Water Vole	<p>Water voles are protected under Schedules 5 and 6 of the WCA 1981 (as amended). This makes it an offence to:</p> <ul style="list-style-type: none"> • Intentionally kill, injure or take water voles. • Possess or control the species. • Damage or destroy any place used by water vole for shelter or protection. • Disturb water vole while they occupy such places of shelter. • Sell, possess or transport water vole for the purpose of sale. • Advertise the buying or selling of water vole. <p>The species is also protected under the Wild Mammals (Protection) Act 1996 and is listed on the UK BAP.</p>
Red Squirrel	<p>Red squirrels are protected under Schedules 5 and 6 of the WCA 1981, receiving the same level of protection as water vole. The species is also protected under the Wild Mammals (Protection) Act 1996 and listed on the UK BAP.</p>
Badger	<p>Badger are protected under the Protection of Badgers Act 1992, which makes it an offence to:</p> <ul style="list-style-type: none"> • Knowingly kill, capture, injure or disturb any individual. • Intentionally damage or destroy a badger sett, or any part thereof. • Obstruct access to an area which is used for breeding, resting or shelter. • Disturb a badger while it is using any place used for breeding, resting or shelter. <p>The species is also protected by the Wild Mammals (Protection) Act 1996 and received partial protection through inclusion on Schedule 6 of the Wildlife and Countryside Act 1981 (as amended).</p>
Birds	<p>With the exception of some species listed on Schedule 2, the majority of bird species are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to intentionally or recklessly:</p> <ul style="list-style-type: none"> • Kill, injure or take any wild bird. • Take, damage or destroy any nest which is in use or being built. • Take, damage or destroy the eggs of any such bird. <p>Additional protection against disturbance at the nest is also afforded to any bird species listed on Schedule 1 of the Act. Selected bird species are also listed on the UK BAP.</p>
Migratory Fish	<p>Atlantic salmon and sea trout are protected under the Salmon and Freshwater Fisheries Act 1975, supplemented by the Salmon Act 1986. Both species also listed under the EC Habitats Directive 1992, Annexes IIa and V.</p> <p>All three species of lamprey receive a degree of legal protection, being listed under Annexes Iia and Va of the Habitats Directive. The conservation of species listed under Annex II of the Habitats Directive requires the designation of Special Areas of Conservation. Species listed under Annex V of the Directive are also considered to be of</p>

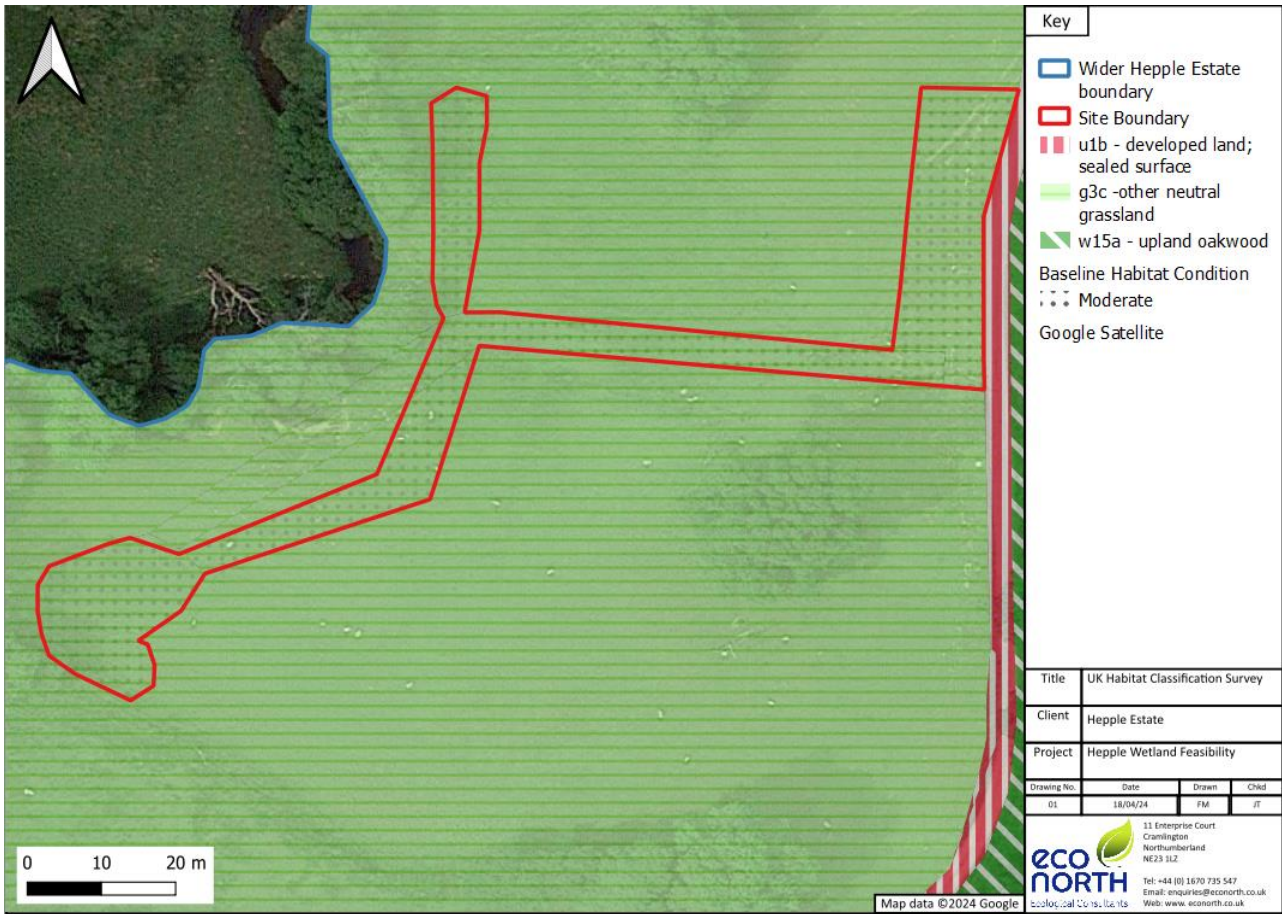


Species	Key Legislation and Protection
	<p>community interest and their taking in the wild and exploitation may be subject to management measures.</p> <p>River and sea lampreys, Atlantic salmon, European eel and brown/sea trout are listed on the UK BAP.</p>

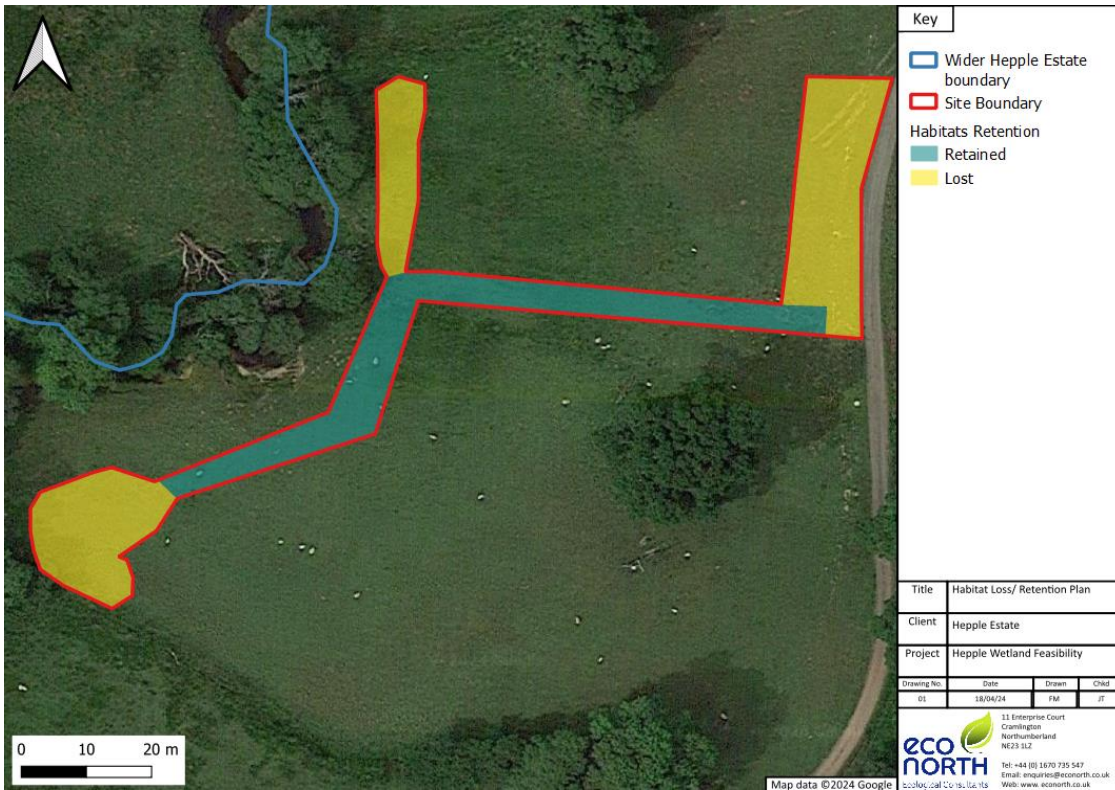


Appendix B – Field Survey Maps

B1 – UK Habitat Classification Survey



B2 – Habitat Loss/ Retention Plan



Appendix C –Species Lists

Table C1: Species List Relating to Figure B1 (see Appendix B)

UK Habitat Classification	Common Name	Latin Name	Frequency
g3c other neutral grassland	Common Bent	<i>Agrostis capillaris</i>	LF
	Sweet vernal grass	<i>Anthoxanthum odoratum</i>	O
	Common mouse-ear	<i>Cerastium fontanum</i>	O
	Creeping thistle	<i>Cirsium arvense</i>	LF
	Yorkshire fog	<i>Holcus lanatus</i>	D
	Meadow buttercup	<i>Ranunculus acris</i>	O
	Creeping buttercup	<i>Ranunculus repens</i>	LA



UK Habitat Classification	Common Name	Latin Name	Frequency
	Common sorrel	<i>Rumex Acetosa</i>	A
	Broadleaved dock	<i>Rumex obtusifolius</i>	LA
	Lesser stitchwort	<i>Stellaria graminea</i>	R
	White clover	<i>Trifolium repens</i>	LF
	Common nettle	<i>Urtica dioica</i>	R
	Germander speedwell	<i>Veronica chamaedryas</i>	LF



Appendix D – Site Photographs

Photo 1: Site dominated by other neutral grassland. Ancient and mature trees outside of site boundary



Photo 2: Flowing channel directly adjacent to site boundary





Photo 3: Grasslees burn 10m north of the site boundary



Photo 4:



Appendix E –Value of Ecological Receptors

Table E1: Examples of Ecological Receptors of Differing Value

Value	Examples
International	<ul style="list-style-type: none"> • An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site) or an area which meets the designation criteria for such sites. • Internationally significant and viable areas of a habitat type listed in Annexe 1 of the Habitats Directive, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole. • Any regularly occurring, globally threatened species.



Value	Examples
	<ul style="list-style-type: none"> • A regularly occurring population of an internationally important species, which is threatened or rare in the UK, of uncertain conservation status • A regularly occurring, nationally significant population/number of any internationally important species.
National	<ul style="list-style-type: none"> • A nationally designated site (e.g. SSSI, NNR) or a discrete area which meets the published selection criteria for national designation (e.g. SSSI selection guidelines) irrespective of whether or not it has yet been notified. • A viable area of a UK BAP priority habitat, or smaller areas of such habitat which are essential to maintain the viability of a larger whole. • A regularly occurring significant number/population of a nationally important species e.g. listed on the Wildlife and Countryside Act 1981 (as amended). • A regularly occurring population of a nationally important species that is threatened or rare in the county or region. • A feature identified as being of critical importance in the UK BAP.
Regional/County	<ul style="list-style-type: none"> • Viable areas of key habitat identified in the Regional or County BAP or smaller areas of such a habitat, which are essential to maintain the viability of the larger whole. • Regional/county significant and viable areas of key habitat identified as being of regional value in the appropriate English Nature (now Natural England) Natural Area. • A regularly occurring significant population/number of any important species important at a regional/county level. • Any regularly occurring, locally significant population of a species which is listed in a Regional/County Red Data Book or BAP on account of its regional rarity or localisation. • Sites of conservation importance that exceed the district selection criteria but that fall short of SSSI selection guidelines.
City/District/Borough	<ul style="list-style-type: none"> • Areas of habitat identified in a District/City/Borough BAP or in the relevant Natural Area profile. • Sites that the designating authority has determined meet the published ecological selection criteria for designation, including Local Nature Reserves selected on District/City/Borough ecological criteria. • Sites/features that are scarce within the District/City/Borough or which appreciably enrich the District/City/Borough habitat resource. • A diverse and/or ecologically valuable hedgerow network. • A population of a species that is listed in a District/City/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation.



Value	Examples
	<ul style="list-style-type: none">• A regularly occurring, locally significant number of a District/City/Borough important species during key phases of its life cycle.
Local	<ul style="list-style-type: none">• Areas identified in a Local BAP or the relevant natural area profile.• Sites/features which are scarce in the locality or which are considered to appreciably enrich the habitat resource within the local context, e.g. species-rich hedgerows.• Local Nature Reserves selected on Parish/Local ecological criteria.• Significant numbers/population of a locally important species e.g. one which is listed on the Local BAP.• Any species, populations or habitats of local importance.
Low	<ul style="list-style-type: none">• Habitats of moderate to low diversity which support a range of locally and nationally common species, the loss of which can be easily mitigated.

Appendix F – Protected and Notable Species Identified by the Desk Study

Table F1: Protected Species Records within 2km

Species	Number of Records	Most Recent Record	On Site?	Level of Protection		
				HR 2019	WCA 1981	NERC /UK BAP
Red Kite <i>Milvus milvus</i>	1	2016	No	<input type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 1	<input type="checkbox"/>
Lapwing <i>Vanellus vanellus</i>	2	2018	No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wood Crane's-bill <i>Geranium sylvaticum</i>	3	2019	No	<input type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 8	<input type="checkbox"/>
Bluebell <i>Hyacinthoides non-scripta</i>	1	2019	No	<input type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 8	<input type="checkbox"/>
Rhododendron <i>Rhododendron ponticum</i>	1	2019	No	<input type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 9	<input type="checkbox"/>
Big Blue Pinkgill <i>Entoloma bloxamii</i>	1	2020	No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Date Waxcap <i>Hygrocybe spadicea</i>	1	2016	No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Slow-worm <i>Anguis fragilis</i>	1	2020	No	<input type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input checked="" type="checkbox"/>
Common Lizard <i>Zootoca vivipara</i>	1	2019	No	<input type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input checked="" type="checkbox"/>
West European Hedgehog <i>Erinaceus europaeus</i>	1	2019	No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Eurasian Otter <i>Lutra lutra</i>	1	2019	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input checked="" type="checkbox"/>
Myotis Bat species	8	2017	No	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Whiskered/Brandt's Bat <i>Myotis mystacinus/brandtii</i>	6	2015	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input type="checkbox"/>
Natterer's Bat <i>Myotis nattereri</i>	1	2014	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input type="checkbox"/>
Noctule Bat <i>Nyctalus noctula</i>	2	2015	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input checked="" type="checkbox"/>
Common Pipistrelle <i>Pipistrellus pipistrellus</i>	31	2017	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input type="checkbox"/>

Species	Number of Records	Most Recent Record	On Site?	Level of Protection		
				HR 2019	WCA 1981	NERC /UK BAP
Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>	25	2017	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input checked="" type="checkbox"/>
Brown Long-eared Bat <i>Plecotus auritus</i>	5	2015	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input checked="" type="checkbox"/>
Eastern Grey Squirrel <i>Sciurus carolinensis</i>	12	2018	No		<input checked="" type="checkbox"/> Schedule 9	
Eurasian Red Squirrel <i>Sciurus vulgaris</i>	40	2019	No	<input type="checkbox"/>	<input checked="" type="checkbox"/> Schedule 5	<input checked="" type="checkbox"/>
<p>Key: HR 2019 – The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 WCA 1981 – The Wildlife and Countryside Act 1981 (as amended) (Bird species listed relate solely to those included on Schedule 1) NERC – The Natural Environment and Rural Communities Act 2006 UK BAP – UK Biodiversity Action Plan</p>						



Figure F1: Map of Designated Site Records

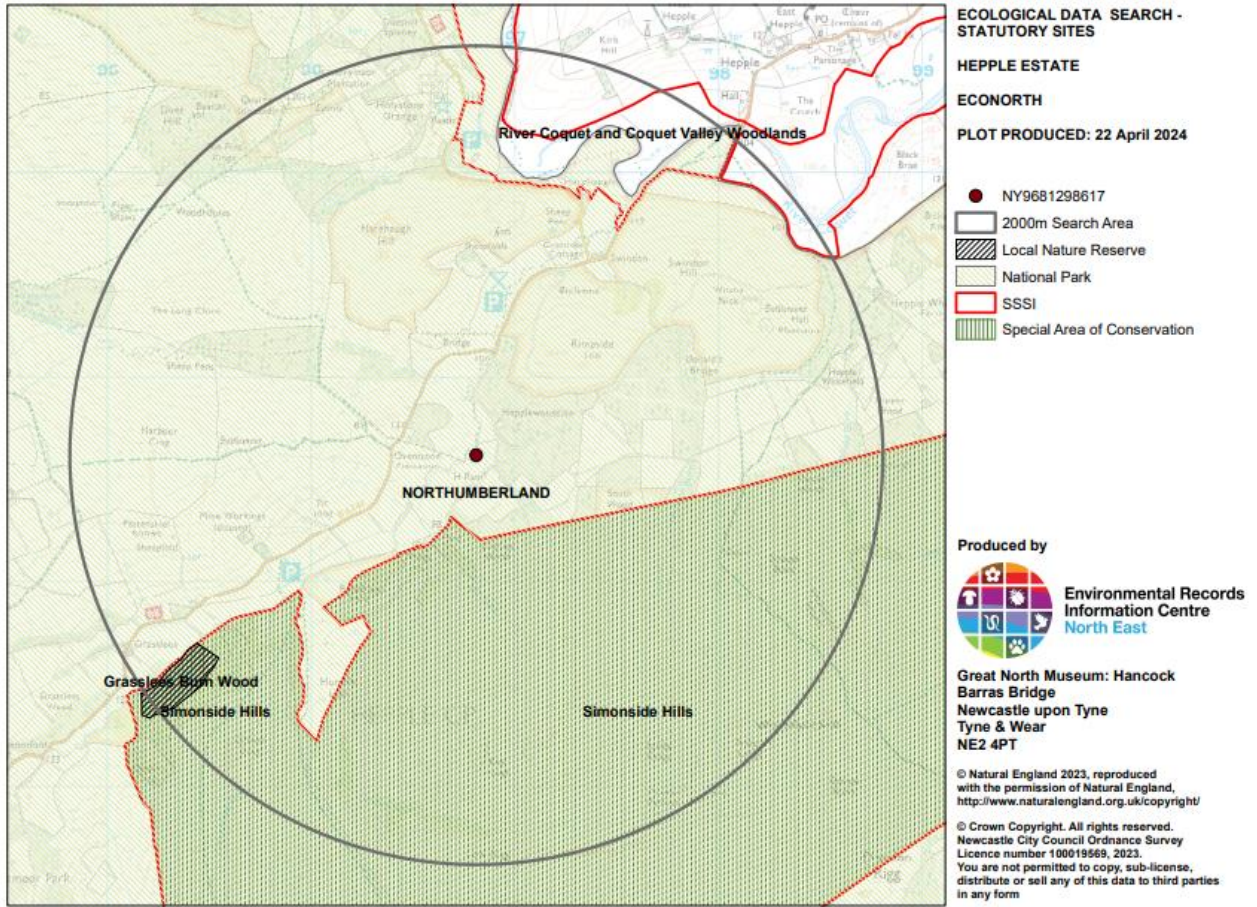


Figure F2: UK Priority Habitats

