Coalburn North Substation

Preliminary Ecological Appraisal Report

SP Energy Networks

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Quality information

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1. Introduction

1.1 Background

Coalburn Substation, south of Lesmahagow, South Lanarkshire, is owned by Scottish Power Transmission (SPT), the electricity Transmission Licence holder in south and central Scotland.

In 2022, AECOM was commissioned by SP Energy Networks (SPEN) to undertake a Preliminary Ecological Appraisal (PEA) of a proposed new substation to the north of the existing Coalburn Substation. The proposed new substation is referred to as Coalburn North Substation and, in this Report, as the 'Proposed Development'. The purpose of the PEA of the Proposed Development was to identify any ecological constraints to the Proposed Development as well as opportunities for the Proposed Development to deliver biodiversity benefits, proportionate to the scale of the project.

In 2020, as a result of new renewable energy development in the wider area, SPT was required to extend the existing Coalburn Substation, for which AECOM was appointed by SPEN to conduct an Ecological Impact Assessment (EcIA). The Coalburn Substation Extension is currently under construction. The PEA presented herein in relation to Coalburn North builds upon and is informed by the ecological data collected in 2020 for Coalburn Substation Extension (where the survey areas overlap).

1.2 Overview of the Proposed Development

The Proposed Development is located just north of the existing Coalburn Substation, approximately 1 km south of Lesmahagow and west of the B7078 Carlisle Road. The preliminary boundary of the Proposed Development is hereafter referred to as the 'Site' as shown in Figure 1. The central Ordnance Survey (OS) grid reference of the Site is approximately NS 82511 37584.

The PEA was informed by field survey within the footprint of the Proposed Development plus a 100 m buffer (this area is hereafter referred to as the 'Survey Area' and is shown on Figure 1). The exact footprint and layout of the Proposed Development is subject to finalisation, however the Survey Area (and Study Area as detailed in Section 3.3) was adopted to provide sufficient geographical extent to identify ecological constraints which may exist to the Proposed Development.

The Survey Area predominantly comprises immature Sitka spruce (*Picea sitchensis*) plantation and rough unmanaged grassland along with a small number of mature beech *Fagus sylvatica* trees. Surrounding habitat comprises immature broadleaved plantation, unmanaged grassland, scrub and lines of mature beech trees. The Survey Area is considered to be upland and lies at approximately 228 m altitude above sea level.

1.3 Purpose of this Report

This PEA Report presents ecological information collected by the following:

- an ecological desk study to obtain records of designated sites, notable habitats and protected and notable species within the Study Area (as defined in Section 3.3); and,
- an extended Phase 1 habitat survey of accessible land within the Survey Area as defined above. Integral to the extended Phase 1 habitat survey is a walkover of the Survey Area to identify and describe the habitats present and any protected or notable ecological features.

The purpose of this PEA Report is to:

- establish baseline ecological conditions (designated sites, habitats and potential for protected or notable species), as far as is possible, within the Survey Area;
- identify potential ecological constraints to the Proposed Development and make initial recommendations to avoid impacts on protected or notable ecological features, where possible;
- identify presence of invasive non-native plant species, including Japanese knotweed (*Reynoutria japonica)* and giant hogweed *Heracleum mantegazzianum*;
- provide advice on any required further detailed ecological surveys; and,

- identify and provide recommendations for enhancement measures that may be feasible as part of the Proposed Development.

1.4 Quality assurance

This Report, the desk study and field survey described within it, has been completed in accordance with the AECOM Integrated Management System (IMS). Our IMS places emphasis on professionalism, technical excellence, quality, as well as covering health, safety, environment, and sustainability management. All AECOM staff members are committed to maintaining our accreditation to those parts of BS EN ISO 9001:2015 and 14001:2015, as well as BS OHSAS 18001:2007 that are relevant to a consultancy service.

The field surveys were led by trained and experienced AECOM ecologists.

2. Relevant legislation, planning policy and guidance

2.1 Legislative context

This ecological appraisal has been carried out within the context of the following relevant legislation:

- Convention on Wetlands of International Importance ('Ramsar Convention');
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (the 'Habitats Regulations');
- Wildlife and Countryside Act 1981 (as amended) (the 'WCA');
- Nature Conservation (Scotland) Act 2004 (as amended);
- Wildlife and Natural Environment (Scotland) Act 2011 (as amended) (the 'WANE Act');
- Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003;
- Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) ('CAR'); and,
- Water Environment and Water Services (Scotland) Act 2003 ('WEWS Act').

Note that compliance with legislation may require the attainment of relevant protected species derogation licences prior to implementing works.

2.2 Relevant planning policy

2.2.1 National planning policy

Scottish Planning Policy (SPP) 2014 recognises the environment as a national asset offering opportunities for enjoyment, recreation and sustainable economic activity. In summary, the policy principles most relevant to this ecological appraisal state that the planning system should:

- facilitate positive change while maintaining / enhancing distinctive landscape character;
- conserve and enhance protected sites and species, maintaining healthy ecosystems and the natural processes which provide important services to communities;
- protect and improve the water environment and soil;
- protect and enhance ancient woodland, hedgerows and trees with high ecology / landscape importance; and,
- seek biodiversity benefits from new development where possible.

SPP emphasises the biodiversity duty of public bodies and the legislative requirements for protected sites and species.

At the time of carrying out this ecological appraisal, Scottish Government had published a draft version of National Planning Framework 4 (NPF4). Although not yet adopted, and subject to change, the draft version of NPF4 states that the planning system should "*protect, restore and enhance Scotland's natural assets; make best use of nature-based solutions; and… reverse biodiversity loss, including by delivering positive effects for biodiversity from new developments*" (Scottish Government, 2021). In particular, Policy 3: Nature Crisis, states that:

- development proposals should contribute to the enhancement of biodiversity, including restoring degraded habitats and building and strengthening nature networks and the connections between them;
- any potential adverse impacts of development proposals on biodiversity, nature networks and natural environment should be minimised through careful planning and design. Design should take into account the need to reverse biodiversity loss, safeguard the services that the natural environment provides and build the resilience of nature by enhancing nature networks and maximising the potential for restoration; and,
- proposals for 'local' development (i.e., that which does not require a statutory Environmental Impact Assessment (EIA)) should only be supported if they include appropriate measures to enhance biodiversity, in proportion to the nature and scale of development. Development proposals which integrate nature-based solutions and deliver positive effects for biodiversity should be supported.

Prior to the UK's exit from the European Union (EU), Scotland's Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) were part of a wider European network of such sites known as the 'Natura 2000 network'. They were consequently referred to as 'European sites'. Now that the UK has left the EU, Scotland's SACs and SPAs are no longer part of the Natura 2000 network but form part of a UK-wide network of designated sites referred to as the 'UK site network'. However, it is current Scottish Government policy to retain the term 'European site' to refer collectively to SACs and SPAs (Scottish Government, 2020).

2.2.2 Local planning policy

Relevant local planning policies for South Lanarkshire Council are included in the South Lanarkshire Local Development Plan 2 (LDP2) (South Lanarkshire Council, 2021) was approved for adoption on 1 December 2020. Table 1 below lists the policies within South Lanarkshire LDP2 that are relevant to nature conservation and the Proposed Development.

Table 1. Summary of relevant policies within South Lanarkshire LDP2

Planning policy	Relevant purpose to nature conservation
Policy 13: Green Network and Greenspace	Development proposals should safeguard the local green network and should identify opportunities to enhance the green network to deliver multiple benefits, including supporting biodiversity. The loss of any priority greenspace will not be supported. Development proposals which may impact on greenspace and green networks must also accord with other relevant policies and proposals in the development plan and with relevant supplementary guidance.
Policy 14: Natural and Historic Environment	Development which could affect SPAs or SACs will only be permitted where an appropriate assessment of the proposal demonstrates that it will not adversely affect the integrity of the site following the implementation of any mitigation measures. Proposals where it cannot be ascertained that there will be no adverse effect on any SPA or SAC will only be permitted where there is no suitable alternative and there are imperative reasons of over-riding of public interest. Where possible, any development proposal which will affect natural designations should include measures to enhance the conservation importance of the site affected. Development which will have an adverse effect on protected species following the implementation of mitigation measures will not be permitted unless it can be justified in accordance with the relevant protected species legislation.

2.3 Local Biodiversity Action Plan

The South Lanarkshire Biodiversity Strategy 2018-2022 (South Lanarkshire Biodiversity Partnership, 2018) adopts an ecosystem-based approach which aims to protect species and habitats by conserving the whole of the environment in which they are found. The Strategy focuses on six ecosystems which are considered to be most important in South Lanarkshire:

- freshwater;
- lowland and farmland;
- peatland;
- upland;
- urban; and,
- woodland.

The Biodiversity Strategy highlights the progress made in restoring the Raised Bog at neighbouring Coalburn Moss Special Area of Conservation (SAC) and Site Special Scientific Interest (SSSI), for example through drain blocking, scrub removal and exclusion of grazing animals by installing fencing. The Strategy sets out that this work is to continue and monitoring of water level changes at the bog is to be carried out to assess the effectiveness of such actions. Coalburn Moss SAC and SSSI is located approximately 54 m from the Site at its closet point (as detailed in Section 4.1).

3. Methodology

3.1 Protected and notable ecological features

Protected and/or notable habitats and species which constitute target ecological features for this PEA comprised:

- the qualifying features (habitats and/or species) of SACs, Special Protection Areas (SPAs) or Wetlands of International Importance (Ramsar sites) within 10 km of the Site, extending further where there are pathways of effect (e.g., via watercourses, and to 20 km for certain non-breeding geese (SNH, 2016));
- the notified features of SSSIs within 2 km of the Site;
- woodland included on the Ancient Woodland Inventory (AWI) and/or identified by the Native Woodland Survey of Scotland (NWSS) as being 'native' or 'nearly native';
- habitats on Annex I of the Habitats Directive[1];
- species of birds on Annex I of the Birds Directive[2];
- species listed on Schedules 2, 4 and 5 of the Habitats Regulations;
- species listed on Schedules 1, 5 and 8 of the WCA;
- species and habitats on the Scottish Biodiversity List (SBL) which are thus of principal importance for biodiversity conservation in Scotland;
- habitats which are representative of the six ecosystem categories in the South Lanarkshire Biodiversity Strategy;
- all bird species on the Red List of Birds of Conservation Concern (BoCC) (Stanbury *et al*, 2021); and,
- invasive non-native species of UK concern such as those identified on Schedule 9 of the WCA, and those considered species of European Union (EU) concern under the EU Invasive Alien Species Regulation.

Other species or habitats that may be rare, scarce or otherwise notable are included where deemed appropriate through available information and/or professional judgement.

3.2 Zone of Influence

The zone of influence (ZoI) of the Proposed Development is the area over which important ecological features may be subject to significant effects as a result of its construction and/or operation and may extend beyond the Site.

The ZoI will vary for different ecological features depending on their ecology and sensitivity to an environmental change. It is therefore appropriate to identify different ZoI for different features. As recommended by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2019), professionally accredited or published studies and guidance, where available, were used to help determine the likely ZoI, as well as professional judgement. However, CIEEM (2019) also highlights that establishing the ZoI should be an iterative process and can be informed by further desk study and field survey.

3.3 Desk study

A desk study was carried out to identify relevant nature conservation designations, and records of protected and notable habitats and species (as defined in Section 3.1) potentially relevant to the Proposed Development. A stratified approach was taken during the desk study, based on the likely ZoI of the Proposed Development (as described above) on different ecological features and the maximum distances typically considered by statutory consultees. Accordingly, the desk study sought to identify:

- any SAC, SPA or Ramsar site within 10 km of the Site;
- other statutory nature conservation designations i.e. SSSIs within 2 km of the Site;

[1] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, which is more commonly known as the 'Habitats Directive'.
[2] Council Directive 2009/147/EC on the conservation of wild birds, which is more commonly known as the 'Birds Directive'.

- local non-statutory nature conservation designations i.e. locally/county designated wildlife sites within 1 km of the Site; and,
- records of protected and/or notable habitats or species within 1 km of the Site.

The desk study was carried out using the sources detailed in Table 2.

Table 2. Desk study data sources

Data source	Date accessed	Data obtained
Glasgow Museum Biological Records Centre (GMBRC)	10 August 2022	• Protected and notable species within 2 km. • Local designated sites within 2 km.
NatureScot SiteLink website (https://sitelink.nature.scot/home)	25 July 2022	• International statutory designations within 10 km. • Other statutory designations within 2 km.
NatureScot Natural Spaces website (https://gateway.snh.gov.uk/natural-spaces/)	25 July 2022	• Woodland listed on the AWI. • Woodland identified by the NWSS as being 'native' or 'nearly native'.
NBN Atlas Scotland website (commercially available records only)	25 July 2022	• Commercially available recent (defined as being from the year 2002 onwards) notable and protected species records.
OS 1:25,000 maps and aerial photography	25 July 2022	• Habitats and connectivity relevant to interpretation of planning policy and potential protected / notable species constraints. Search for ponds with great crested newt *Triturus cristatus* habitat suitability.

3.4 Field survey

A detailed description of the field survey methods adopted is provided under the following sub-headings. The relevant field Survey Area is shown on Figure 1.

Throughout this Report, species are given their scientific name on first mention and common name only thereafter. Nomenclature for plant species follows that of Stace (2019). Distances quoted are cited as the shortest boundary to boundary distance 'as the crow flies', unless otherwise specified.

3.4.1 Scope of field survey

The scope of survey for this appraisal was determined based on a review of aerial images, on the results of the desk study and previous survey work (AECOM, 2021). Based on the information collected during this review exercise, a number of ecological features were excluded from targeted field survey, as set out in Table 3.

Table 3. Ecological features excluded from survey

Ecological feature(s)	Reason(s) for exclusion from field survey
Otter *Lutra lutra*	No field survey was carried out for otter because there are no watercourses or waterbodies within 200 m of the Site that are suitable for otter. Ditches along the nearest edge of raised bog in Coalburn Moss SAC are over 300 m from the nearest point to the Site. Ditches within agricultural fields, to the east of the Survey Area have no open water and are dry.
Water vole *Arvicola amphibius*	The nearest wet drainage ditch to the Site is over 300 m to the south. This is beyond the distance within which any direct impacts on water vole are likely to occur. The ditch is also unsuitable for water vole, being densely clogged with vegetation.
Red squirrel *Sciurus vulgaris*	No field survey was carried out because red squirrel is assumed to be absent from the area. This is based on: • the nearest post-2000 commercially-available NBN records (which are the majority in this case) for red squirrel are two records from the Scottish Wildlife Trust 5 km south-west of the Site; • lack of records at Saving Scotland's Red Squirrels (https://scottishsquirrels.org.uk) from the surrounding area; • the conifer plantation north of the Site, which will be unaffected, is very immature and therefore unfavourable for red squirrel; and, • the only directly affected woodland is a small and relatively isolated block of very immature broadleaved plantation adjacent to the existing substation, also unfavourable because of its immaturity and isolation for red squirrel.
Great crested newt	There is a potentially viable very shallow waterbody within 500 m of the Site, which dries out during periods of low rainfall. This is described in Section 4.2.6 below. However, inspection of commercially-available records from the NatureScot Great Crested Newt dataset and Biological Records Centre Amphibians and Reptiles Dataset on the NBN Atlas Scotland (which together comprise the majority of great crested newt records in southern Scotland), with no date limit, shows a conspicuous large void in the distribution of great crested newt covering all of South Lanarkshire except the far north at East Kilbride and beyond, and all adjacent parts of Ayrshire, Borders and Dumfries and Galloway for considerable distances. The nearest of these records is over 20 km to the north. Therefore it is improbable that great crested newt exist in the very shallow waterbodies near the Development, and this species is assumed to be absent.
Fish	No fish survey was carried out because there are no watercourses or waterbodies (excluding small areas of seasonally-dry shallow water amongst pasture which could not support fish) within the Survey Area.
Breeding birds	The location of the Site (not near statutory sites designated for breeding birds) and the habitats within it and immediately adjacent (improved and neutral grasslands, a block of very immature broadleaved plantation, a small number of beech trees, and very small amount of scrub) indicate that the Site is highly unlikely to support notable breeding bird species. The search of NBN Atlas Scotland for commercially-available records returned fourteen bird species. Two species were listed on Schedule 1 of the WCA, barn owl *Tyto alba* and fieldfareTurdus *pilaris.* Barn owl could hunt in the rough and marshy grasslands outside the Site, and further afield across the raised bog, but there are no apparent roosting / nesting opportunities. Fiedlfare visit the UK in large numbers as winter migrants, but breeding attempts are extremely rare. The habitats on site have limited potential to support nesting fieldfare, which prefer open woodland.
Non-breeding birds	The location of the Site (not near statutory sites designated for non-breeding birds, and the general inland geographical position far from the coast or substantial waterbodies) and the habitats in and immediately adjacent to the Site are not likely to be important areas for non-breeding bird species such as geese, waders or raptors.

3.4.2 Extended Phase 1 habitat survey

A Phase 1 habitat survey was carried out within the Survey Area in July 2022 where safe access was possible. Access to the existing substation and the Coalburn Substation Extension construction site was not possible but not necessary as they provide no ecological value. The Phase 1 habitat survey was carried out in accordance with the standard survey method (JNCC, 2010), by which all areas of land within the Survey Area were assigned standard habitat types and ecological target notes recorded. All habitat types in the Survey Area were mapped with reference to aerial photography to maximise mapping accuracy. Notes were made for each habitat of dominant, typical and notable (including invasive non-native) plant species, and these reflect conditions at the time of survey.

The Phase 1 habitat survey was 'extended' to include general assessment of the potential for protected and notable (including invasive) species to occur with a focus on bats, breeding birds, reptiles, badger and invertebrates.

3.4.3 Habitat condition assessment, UK Habitat Classification and National Vegetation Classification

In addition to the Phase 1 habitat classification, the habitats within the Survey Area were categorised according to the UK Habitat Classification (UKHab) (which is a requirement for completion of biodiversity net gain metric). Each habitat type was classified by the dominant, typical and notable plant species, and any relevant ecological characteristics (particularly where relevant to habitat condition), and these reflect conditions at the time of survey. A Condition Assessment of each habitat type was also completed based upon current best practice guidance forming part of The Biodiversity Metric 3.1 (Natural England, 2021).

Additionally, the entire habitat Survey Area was also classified according to the National Vegetation Classification (NVC) system. Homogenous vegetation stands were classified according to the NVC as described in the relevant original NVC volumes (Rodwell 1991a, 1991b, 1992, 1995, 2000), with reference also to the NVC review and other guidance (Rodwell *et al*, 2000; Averis *et al*, 2004) that describe some additional vegetation types not covered in the original NVC volumes. Vegetation was assigned to sub-community except where it did not well fit published descriptions, where close access was not possible, or where vegetation was of negligible ecological importance. Since NVC communities often occur in patches too small to map amongst more extensive communities, or in complexes that cannot be feasibly mapped within a reasonable timescale, NVC polygons were described as mosaics where necessary. Where habitats lacked vegetation, or the vegetation did not correspond to a community described in the NVC volumes or other guidance, a brief descriptive term was given (e.g. 'Hardstanding').

The survey was carried out on 21 July 2020 by a suitably qualified AECOM ecologist with extensive habitat survey experience, including NVC survey. Habitat types were mapped with reference to previous survey work (AECOM, 2021) and with the aid of aerial photography.

3.4.4 Groundwater dependent terrestrial ecosystems

Groundwater Dependent Terrestrial Ecosystems (GWDTE) are a category of wetlands which are ecologically dependent upon groundwater. They derive their water supply primarily from a groundwater body, rather than from rain and surface water saturated soils, and they can support biodiverse, botanically rich ground-flora communities.

The potential presence of GWDTE was assessed following published guidance (SEPA, 2017), by identifying the NVC habitats present, which were determined from the species identified during the Phase 1 habitat survey. The confidence of the likelihood that a habitat is groundwater dependant can be improved based on an assessment of aerial photography, topographic data, Ordnance Survey maps and adjacent habitats. However, groundwater dependence cannot be confirmed without detailed hydro-geological information and thus the habitats are described as "potentially" groundwater dependent.

3.4.5 Invasive non-native plant survey

A detailed search for invasive non-native species (INNS) of plants was carried out within the Survey Area. Target species of UK or EU concern (i.e., those listed on Schedule 9 of the WCA or the EU Invasive Alien Species Regulation), or any other potentially invasive non-native species identified were recorded and mapped as accurately as possible.

3.4.6 Bat surveys

Bat roost suitability assessment

The bat roost suitability of suitable trees within the Survey Area were assessed following guidance published by the Bat Conservation Trust (BCT) (Collins, 2016). Potential roost features (PRF) in trees were identified from the ground and, using binoculars and torch where necessary, were classified as having 'Negligible', 'Low', 'Moderate' or 'High' bat roost suitability, according to the definitions provided in Collins (2016) (see Table 4, below). There were no buildings or other built structures within the Survey Area.

PRFs searched for included suitable holes, cracks or splits. Where such features existed, searches were made as far as possible for evidence of bat use such as droppings, staining, foraging remains, auditory evidence and

the presence of live or dead bats. The assessment was undertaken from ground level using a visual inspection only.

Table 4. Bat roost suitability categories, adapted from Collins (2016)

Suitability	Description of roosting habitats
Negligible	Negligible habitat features likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential
Moderate	A structure or tree with one or more PRFs that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more PRF(s) that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Bat activity surveys

The Proposed Development will result in an area of permanent habitat loss, therefore survey for foraging and commuting bats was also carried out. Based upon an initial aerial mapping-based assessment and taking into account the habitat information collated in previous ecology surveys conducted in 2020/21, it was determined that the habitats within the Survey Area would not likely provide more than Low suitability for foraging and commuting bats (as defined by the Bat Conservation Trust). This was reaffirmed by the completion of the habitat surveys conducted as detailed herein.

Bat activity surveys were carried out following standard methodology described in Collins (2016) which involves the completion of walked transects recording bat activity at dusk.

A single transect route was devised to cover all areas of habitat which could be used by bats for commuting and/or foraging. The transect was walked by experienced AECOM surveyors on three occasions throughout the bat activity season. A static bat detector was also deployed in the Survey Area to supplement the walked transects. Details of the activity surveys are given in Table 5. The transect route is illustrated on Figure 6.

Following Collins (2016), the activity surveys commenced at sunset and ended approximately two hours after sunset. All surveys were digitally recorded using a Elekon Batlogger M detector. Where possible subject to light levels and visibility, the surveyor recorded the flight direction and height and bat behaviour where detecting / seeing a bat. Weather details were recorded using a standard thermometer and descriptions of other conditions were recorded subjectively.

Data collected during surveys were stored and subsequently analysed using Kaleidoscope Pro specialist software, to review where any bat passes may have been faint or not heard in the field and to confirm species.

Table 5. Bat activity survey details

Date	Start time	End time	Time of sunset	Temp (°C)	Cloud cover (%)	Precipitation	Wind (Beaufort)	Description
26 July 2022	21:33	23:37	09:33	11	1/5	0	1	Dry, good conditions.
09 August 2022	21:06	22:46	21:06	16	2	0	0	Dry, good conditions.

3.5 Limitations

Desk study information is dependent on records having been submitted for the area of interest. As such, a lack of records for particular habitats or species does not necessarily mean they are absent from the area of interest.

Similarly, the presence of records for particular habitats and species does not automatically mean they still occur within the area of interest or are relevant in the context of the Proposed Development.

Where habitat boundaries coincide with discernible boundaries on recent aerial photography (where available) the resolution is as determined by the accuracy and clarity of the aerial photography. Otherwise, habitat mapping is as estimated in the field. Where areas of habitat are given, they are approximate and should be verified by measurement in the field where required for design or construction.

Access for surveyors was restricted in some areas to the north-west of the Survey Area due to a lack of landowner permission. However, this did not present a significant constraint to habitat surveys and condition assessment, as habitats were adequately mapped and defined from adjacent areas.

Bat roost suitability surveys were conducted during the growing season and therefore the level of vegetative cover was greater than would be optimal to identify roosing features, however in the context of potential roosing features / habitats present, this was not concluded to result in a significant limitation to the findings of this appraisal.

4. Baseline conditions

4.1 Designated sites and habitats

4.1.1 Statutory designated sites for nature conservation

There are four statutory designated sites for nature conservation within the Study Area as detailed in Table 6 and shown on Figure 2.

Table 6. Statutory designated nature conservation sites

Site name	Reason(s) for designation	Distance / direction from Site
Coalburn Moss SAC and SSSI	Active raised bog and degraded raised bog. Species associated with the bog include bog moss *Sphagnum cuspidatum, S. magellanicum*, *S. capillifolium*, *S. papillosum*, and *S. tenellum*, common cottongrass, hare's-tail cottongrass, round-leaved sundew, cranberry, heather and the lichen Cladonia portentosa.	Coalburn Moss SSSI is exactly coincident with the SAC. They have an area of 224 hectares. The designated sites lie, at the closest point, approximately 50 m south of the Site. Intervening habitat comprises Coalburn Substation and unmanaged grassland.
Clyde Valley Woods SAC	Mixed woodland on base-rich soils associated with rocky slopes.	Clyde Valley Woods SAC comprises several strips of woodland scattered to the north of the Site, with the nearest section located approximately 6 km north. Intervening habitat comprises the town of Lesmahagow and the M74.
Muirkirk and North Lowther Uplands SPA	Five moorland breeding birds, one of which (hen harrier *Circus cyaneus*) also qualifies as a non-breeding species: • golden plover *Pluvialis apricaria*; • hen harrier; • merlin *Falco columbarius*; • peregrine *Falco peregrinus*; and, • short-eared owl *Asio flammeus*.	Located 7.3 km south-west of the Site. Intervening habitat comprises woodland (mostly conifer plantation), farmland and a golf course.

4.1.2 Non-statutory designated sites for nature conservation

There are no non-statutory designated sites for nature conservation within 1 km of the Site.

4.1.3 Ancient and native woodland

There are two areas of woodland on the AWI within 1 km of the Site. A large area of long-established woodland of plantation origin lies to the north of the Site, approximately 30 m at its closest point. One smaller strip of ancient semi-natural woodland lies 920 m west of the Site.

There are five areas of woodland within 1km of the Site which are on the Native Woodland Survey of Scotland. The majority of the AWI long-established plantation described above is classed as 'native' by the NWSS with the native section of the woodland lying, at closest, 63 m from the Proposed Development. Three other small areas of woodland lie to the north-east and north-west of the Proposed Development, at closest 370 m from the Proposed Development. The AWI semi-natural ancient woodland identified above is also classified as 'nearly-native' by the NWSS.

Th location and extents of areas of ancient and native woodland within the Study Area are shown on Figure 3.

4.2 Habitats

Descriptions of the habitats within the Survey Area and the equivalent or transposed UKHab Code are provided below and shown on Figure 4. Condition Assessment information is presented on Figure 5 and described below.

4.2.1 SBL Habitats

The SBL is a list of animals, plants, and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland. There are no habitats within the Survey Area that correspond to a SBL priority habitats.

4.2.2 Groundwater dependant terrestrial ecosystems

Three habitats within the Survey Area are potential GWDTE. The potential dependence on groundwater for specific habitats is described below and potential GWDTE are shown on Figure 4. Two are the mapped Phase 1 marshy grassland habitats and the other is a small area within the only semi-improved acid grassland habitat. All three are UKHab code f2b Purple Moor Grass and Rush Pastures.

4.2.3 Woodland

A large part of the central and western Survey Area comprises very dense immature Sitka spruce plantation, reaching to a maximum height of approximately 8 m. Non-native conifer plantations have no published NVC type, and under UKHab are w2c Other Coniferous Woodland. To the north lies an area of immature broadleaved plantation. which is in part listed as long-established plantation in Ancient Woodland Inventory. Rowan *Sorbus aucuparia* is frequent, with occasional silver birch *Betula pendula* and beech. Its grassy understory has abundant smooth meadow-grass *Poa pratensis* occasional sweet vernal-grass *Anthoxanthum odoratum* and Yorkshire-fog *Holcus lanatus* and rarely tussocks of tufted hair-grass *Deschampsia cespitosa*. These plantations do not correspond to an NVC type because they are too young with a very poor flora, and for these reasons they are assigned by professional judgement to w1g Other Broadleaved Woodland under UKHab (i.e. they are not considered to be a priority woodland type).

Habitat Condition was assessed as Poor for all coniferous woodland. This is the only achievable condition rating for Sitka spruce plantation. Some broadleaved woodland is also Poor, due to single age class of trees, few native tree species and low cover of native tree species, lack of regeneration, NVC type not recognisable, poor vertical structure, no veteran trees and no deadwood. Some woodland habitat was assessed as being in Moderate condition. These had a greater number and cover of native tree species.

4.2.4 Dense / continuous scrub, scattered scrub and trees

Two areas of dense / continuous scrub are present in the Survey Area. An area to the north-east is dominated by hawthorn *Crataegus monogyna* and grey willow *Salix cinerea*. This has developed on a damp neutral grassland community of tufted hair grass, with abundant false oat-grass *Arrhenatherum elatius* and common bent *Agrostis capillaris*, with Yorkshire-fog, lesser stitchwort *Stellaria graminea,* creeping buttercup *Ranunculus repens* and occasional greater bird's-foot-trefoil *Lotus pedunculatus* and creeping thistle *Cirsium arvense*. This type of vegetation could be loosely classified as a form of W21 *Crataegus monogyna-Hedera helix* scrub, but the relatively sparse cover of scrub allows the origins of the habitat to show. It is essentially a damp MG9 *Holcus-lanatus-Deschampsia cespitosa* grassland, on a seral succession to scrub following abandonment of grazing. Under UKHab it is h3f Hawthorn Scrub.

There is also a patch north of the existing substation of dense gorse *Ulex europaeus* with common nettle *Urtica dioica*. It corresponds to NVC type W23, and under UKHab is h3e Gorse Scrub. Hawthorn is present as scattered scrub in two locations, north of the Sitka spruce planation and in farmland to the east. Scattered trees are present, two are lone Sitka spruce, most in the farmland to the east are silver birch, with some grey willow. There are lines of scattered beech trees to the south of the Sitka spruce planation. The beech trees are obviously planted, and whilst mature some appear to be stunted in their growth stage and most have features of senescence (e.g. rot holes).

Hawthorn Scrub was assessed as having Moderate Habitat Condition. The habitat has no invasive non-native species, a well-developed edge of tall grasses and is open in character. Gorse Scrub was assessed as being in Poor condition. It is species-poor, dominated by leggy gorse and with little structural diversity.

4.2.5 Marsh / marshy grassland

Three areas of marshy grassland were identified in the east of the Survey Area. To the extreme east is a grazed area that was classified as NVC type MG10 *Holcus lanatus-Juncus effusus* rush-pasture. This is dominated by dense soft rush *Juncus effusus* with rough meadow-grass *Poa trivialis* and a moderate diversity of forbs (e.g. fen bedstraw *Galium uliginosum*, common sorrel *Rumex acetosa*, marsh thistle *Cirsium palustre*, bog stitchwort *Stellaria alsine*, cuckooflower *Cardamine pratensis* and common nettle). Under UKHab it is a g3c8 *Holcus-Juncus* neutral grassland. A patch of marshy grassland to the east of the existing access track is classified as NVC type M23a *Juncus effusus/acutiflorus-Galium palustre* rush-pasture *Juncus acutiflorus* sub-community, UKHab f2b. This is dominated by soft rush and sharp-flowered rush *Juncus acutiflorus*, but only frequently in some areas. It has a moderate floristic diversity, with species including sneezewort *Achillea ptarmica*, fen bedstraw, marsh thistle, common sorrel and tufted hair-grass. Within the semi-improved acid grassland to the

north of the Survey Area is a flushed area of approximately 10 x 20 m of NVC M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture (also, UKHab f2b). It is possible that this wet area has arisen from forestry drainage infrastructure (e.g. clay pipes).

Depending on the hydrological setting, NVC type MG10 is likely to be moderately groundwater dependent and M23 is likely to be highly ground water dependent (SEPA, 2017). However, it is possible that the wetlands above are sustained by rain / surface water flows and accumulations, as no obvious supply of groundwater was identified during the field survey.

Marshy grassland habitats were assessed as being in Moderate Habitat Condition. The habitat is semi-natural and could be classified as an NVC type, there is no obvious sign of significant enrichment, scrub cover and bare ground is low, invasive non-native species are absent, undesirable species (such as common nettle) are present in low cover and dead vegetation cover is low.

4.2.6 Open water / swamp

There is an area of shallow standing water in the south-east of the Survey Area. This was dry at the time but it is considered likely to contain some water for the majority of the year (AECOM, 2021). It is an elongated narrow strip beside the dismantled railway, dominated by bog pondweed *Potamogeton polygonifolius*, with a few patches of bottle sedge *Carex rostrata* and common spikerush *Eleocharis palustris*, and also containing some floating sweet-grass *Glyceria fluitans*. It is classified as NVC type S9 *Carex rostrata* swamp, which is not a vegetation community identified as having the potential for groundwater dependency (SEPA, 2017). Under UKHab, this habitat is f2f Other Swamps.

Swamp habitats were assessed as being in Moderate Habitat Condition in accordance with condition criteria. The habitat has a water table at or near the surface all year and could be classified as an NVC type, there is no sign of enrichment (e.g. algal blooms), scrub cover, bare ground, invasive non-native species are absent and dead vegetation cover is low.

4.2.7 Acid grassland

To the north of the Sitka spruce plantation is an area of semi-improved acid grassland. It is un-grazed and in a partially shaded forestry ride. Creeping soft-grass *Holcus mollis* is abundant along with tormentil *Potentilla erecta*, heath bedstraw *Galium saxatile* and Yorkshire-fog is frequent with occasional tussocks of tufted hair-grass. Mossy mounds of springy turf-moss *Rhytidiadelphus squarrosus*, with wavy hair-grass *Avenella flexuosa*, sweet vernal-grass, common sorrel. The prevalence of acid indicator species identifies this habitat as having developed on acid soils. It resembles the semi-natural U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland to a degree, but lacks the expected grass species. The species composition of coarse grasses is probably as a result of nutrient run-off from the adjacent plantation. The proliferation of creeping soft-grass is likely to be due to the shady conditions. Under UKHab it is g1b6 Other upland acid grassland. In damper areas, the habitat and transitions to MG9 *Holcus-lanatus-Deschampsia cespitosa* grassland.

Acid grassland habitat was assessed as being in Moderate Habitat Condition. This habitat does not closely resemble an NVC type, but it has a varied structure, and bracken and non-native invasive species are absent.

4.2.8 Neutral grassland

Forestry rides and dry abandoned pastures across the Survey Area support semi-improved neutral grassland. These are generally species-poor and dominated false oat-grass, other associated species include grasses such cock's-foot *Dactylis glomerata*, Yorkshire-fog, common bent and more rarely tufted hair-grass with occasionally common sorrel. This corresponds to a species-poor form of NVC type MG1 and fits into g3c5 *Arrhenatherum* Grassland in UKHab.

The remaining types of neutral grassland are also species-poor, but sheep-grazed damp forms, often with abundant soft rush, with Yorkshire-fog, creeping bent *Agrostis stolonifera* and marsh foxtail *Alopecurus geniculatus*, as well as perennial rye-grass *Lolium perenne* in places. In damp areas. where soft rush is abundant in this grazed grassland, it corresponds to NVC type MG10 (g3c8 in UKHab), and NVC type MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland where it is absent (best also placed in g3c8 in UKHab).

Some areas are neglected pastures, possibly developed from NVC MG6 *Lolium-Cynosuretum cristati* grassland, are UKHab g3c6 *Lolium-Cynosurus* neutral grassland. These lack the dominance of perennial rye-grass and are instead dominated by Yorkshire-fog and occasional sweet vernal-grass.

In the north of the Survey Area are damp semi-improved neutral grasslands. These are dominated by tufted hair-grass and are classified as NVC type MG9 *Holcus-lanatus-Deschampsia cespitosa* grassland, UKHab g3c7. Other species include abundant common bent, frequent Yorkshire-fog, lesser stitchwort and creeping buttercup, with occasional greater bird's-foot-trefoil and creeping thistle, with locally abundant false oat-grass.

Poor semi-improved neutral grassland is present on an un-grazed area developed from hardstanding bordered by breeze block boundary wall to the north of the existing substation. False oat-grass and red fescue *Festuca rubra* co-dominate with common nettle abundant. The most appropriate UKHab code is u1b Developed land; sealed surface.

Improved grassland is present in relatively small area in the east and south-west of the Survey Area. The improved grassland is heavily sheep-grazed species-poor nutrient improved pasture. This is dominated by perennial rye-grass and/or crested dog's-tail *Cynosurus cristatus*, often with white clover *Trifolium repens*, and other species commonly found in such pasture such as rough meadow-grass, Yorkshire-fog, common bent, broadleaved dock *Rumex obtusifolius* and common mouse-ear *Cerastium fontanum.* Currently, UKHab places this within the neutral grassland category rather than the modified grassland category, whereas, by definition, MG6 is highly modified as a result of agricultural improvement and described in the NVC as "*ubiquitous… where there has been intensive improvement for pasturing*". Consequently, on the basis of professional judgement, all of this agriculturally-improved grassland is considered more appropriately categorised in UKHab as g4 Modified Grassland.

The vast majority of neutral grassland habitat was assessed as being in Poor Habitat Condition. In these habitats sward height is not varied, bare ground is absent, and they are species poor. Some more species-rich were assessed as Moderate.

4.2.9 Hardstanding

Hardstanding habitats comprise built-up land at the existing substation, access road and pylon bases. Their UKHab code is u1b Developed land; sealed surface. These habitats do not require Habitat Condition assessment.

4.3 Protected and notable species

4.3.1 Bats

No records of bats were returned by GMBRC or identified from NBN Atlas within the Study Area.

The bat roost suitability assessment identified eight mature beech trees in the south-west of the Survey Area, which are located outside the Site but within approximately 10 m at the closest point. Six trees were classified as having Low suitability for roosting bats. These trees had features such as rot holes, damaged limbs and flaking bark but were generally exposed to the elements. Two trees were assessed as having Moderate bat roost suitability. One tree (Tree 6, Figure 6), has a large hole just above ground level that extends up into trunk. Another tree (Tree 8, Figure 6) was previously identified as a roost for a single noctule bat *Nyctalus noctula* (AECOM, 2021).

Based upon the habitat and features present, geographical context and previous survey data it has been assessed that the Survey Area is of Low suitability to bats for commuting and foraging.

Whilst bat surveys are ongoing, preliminary bat activity survey results indicate that the Survey Area is used by common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle bats *P. pygmaeus*. Preliminary estimates based on analysis of raw field data suggest that between 22 and 31 bat passes (which does not equate to the same number of bats; one bat may make multiple passes) were detected per transect survey. The first bats on the survey were detected nineteen and 43 minutes after sunrise. This does not strongly indicate roosting within the Survey Area, which would be indicated by earlier detection of bats. However, bats do use the Survey Area for commuting and foraging. Full details of the results of the bat activity surveys will be provided once surveys are completed and the data have been analysed.

4.3.2 Birds

NBN Atlas held two records of the WCA Schedule 1 species barn owl spanning from 2005 to 2011 (recorded by RSPB) with no accurate location information. GMBRC also returned one record of barn owl road traffic casualty on the M74, at Lesmahagow in 2020.

Several species on the BoCC Red List and the SBL were returned by GMBRC and are shown in Table 7 below. There is no suitable habitat on Site for the majority of these species to breed.

There is very low potential for specially protected bird species listed on Schedule 1 to nest in proximity to the Site (see Table 3, Section 3.4.1). It is most likely that only common and widespread bird species breed within the Survey Area which contains only low diversity habitats with few features to support any other type of bird.

Table 7. Notable bird records within 2 km of the Site

Species	Scientific name	Conservation designation	Source(s)
Barn owl	*Tyto alba*	WCA Sch 1, SBL	GMBRC, RSPB
Black-headed gull	*Chroicocephalus ridibundus*	SBL	GMBRC
Bullfinch	*Pyrrhula pyrrhula*	SBL	GMBRC
Cuckoo	*Cuculus canorus*	BoCC Red List, SBL	GMBRC
Fieldfare	*Turdus pilaris*	WCA Sch 1, BoCC Red List	GMBRC
Grasshopper warbler	*Locustella naevia*	BoCC Red List, SBL	GMBRC
Greenfinch	*Chloris chloris*	BoCC Red List	GMBRC
Herring gull	*Larus argentatus*	BoCC Red List, SBL	GMBRC
House martin	*Delichon urbica*	BoCC Red List	GMBRC
House sparrow	*Passer domesticus*	BoCC Red List, SBL	GMBRC
Mistle thrush	*Turdus viscivorus*	BoCC Red List	GMBRC
Siskin	*Spinus spinus*	SBL	GMBRC
Song thrush	*Turdus philomelos*	SBL	GMBRC
Starling	*Sturnus vulgaris*	BoCC Red List	GMBRC
Swift	*Apus apus*	BoCC Red List, SBL	GMBRC

4.3.3 Reptiles

No notable reptiles were returned by GMBRC or identified from the NBN Atlas for the Study Area.

A single adult male common lizard *Zootoca vivipara* was noted in the Survey Area (Target Note, Figure 4). The rough grassland habitats, broadleaved woodland and scrub provide suitable habitat for this and other reptile species. It can also be assumed that slow worm *Anguis fragilis* may also be present. This is based on NBN Atlas distribution data, as the species is present in similar habitat at a regional level. Adder *Vipera berus* may also be present based NBN Atlas distribution data, but the habitats within the Survey Area are not those in which adder are most often found (i.e. heathland, moorland and coastal).

4.3.4 Badger

GMBRC returned nine records of badger from 2013 to 2019 (recorded by Scottish Badgers), however no details or location information was provided due to confidentiality of this species. NBN Atlas held no records of badger.

No badger setts or evidence of badger activity were recorded within the Survey Area. The dense immature Sitka spruce plantation is highly sub-optimal habitat for badger setts. Badger prefer sloping ground, with ease of access for digging. Dense spruce plantations are thick with tree roots. They are also recently disturbed by forestry operations. It is therefore reasonable to conclude, given the lack of any other evidence, that badger setts are absent from within the Survey Area.

Grassland habitats surrounding the Survey Area could support foraging habitat for badger, which will presumably be earthworm-rich. Therefore it is possible that these areas may be used for this purpose by animals inhabiting setts elsewhere.

4.3.5 Invertebrates

GMBRC returned records of two moth species on the SBL. One record of an individual small phoenix *Ecliptopera silaceata* and two records of cinnabar *Tyria jacobaeae* from 2014 were provided (one record of one adult and one record of six adults). All records were from locations over 1.5 km south-west of the Site and associated with the habitats within Coalburn Moss SAC and SSSI. NBN Atlas held no records of notable invertebrates.

Small phoenix is common in Britain with a more scattered population in Scotland. Cinnabar moth is fairly common and widespread. Habitats within the Survey Area were not considered to provide optimal conditions for these species (therefore additional surveys would not be warranted) although their occasional presence cannot be entirely ruled out.

4.3.6 Invasive non-native species

GMBRC returned no records of invasive non-native species. NBN Atlas held two records of rhododendron *Rhododendron ponticum* and one record of Japanese knotweed, all were recorded by Central Scotland Green Network Trust in 2006 within grid square NS8237 which is within the same 1 km square as the Proposed Development.

No invasive non-native plant species were recorded within the Survey Area during the completion of the habitat surveys and therefore are not considered to be a constraint to the Proposed Development.

5. Constraints and opportunities

5.1 Approach to identification of constraints and opportunities

Compliance with Scottish and local planning policy requires that the Proposed Development considers and engages the following mitigation hierarchy where there is potential for impacts on relevant ecological features:

1. avoid features where possible;
2. minimise impact by design, method of working or other measures (mitigation) (e.g. by enhancing existing features); and,
3. compensate for significant residual impacts (e.g. by providing suitable habitats elsewhere on the client-owned parts of the wider site).

This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered. The rationale for the proposed mitigation and/or compensation should be provided with planning applications (where relevant), including sufficient detail to show that these measures are feasible and would be provided.

The likelihood of the relevant ecological features constraining any future works has been assessed with reference to the scale described in Table 8. The higher the importance of the ecological feature for the conservation of biodiversity at national and local scales, the more likely it is to be a material consideration during determination of the planning application for the Proposed Development.

In pursuance of the objectives within Scottish Planning Policy, and draft NPF4, of providing biodiversity benefits, consideration should be given (where appropriate) to scope for enhancement as part of the Proposed Development. This should represent biodiversity gain over and above that achieved through mitigation and compensation. Enhancement could be achieved on and/or off the Site.

Table 8. Scale of constraint / opportunity to the Proposed Development

Scale of constraint / opportunity	Definition
Major	Constraint Without further action and/or mitigation on this issue, the project is unlikely to obtain consent (planning application or otherwise, where this is required), and will cause or risk legal offence(s) or non-compliance with policy. Further action could include survey and/or assessment of ecological features known or deemed likely to occur in the zone of influence. The issue is a material consideration to the consenting process (where required) and the action and/or mitigation required to address it is likely to be significant and/or not straightforward. Opportunity An opportunity exists to deliver significant ecological enhancement on or close to the Site for the ecological feature(s) in question, which singly or together are of high conservation value. The feature(s) are known to be present within the likely zone of influence or could reliably be predicted to move into it following enhancement. The overall nature conservation benefit of the enhancement(s) is likely to be high.
Moderate	Constraint Further action and/or mitigation on this issue is likely to be required for the project to obtain consent (planning application or otherwise, where this is required) or may be stipulated by a condition of consent, and without such action there may be legal offence(s) or non-compliance with policy. Further action could include survey and/or assessment, including of ecological features whose status is not yet sufficiently well known within the zone of influence. The action and/or mitigation required to address the issue is however likely to be moderate, and at this stage it is considered unlikely that it would pose a significant consenting risk to the project. Opportunity An opportunity exists to deliver ecological enhancement on or close to site for the ecological feature(s) in question, which are of moderate conservation value. The feature(s) are known to be present within the likely zone of influence or could reliably be predicted to move into it following enhancement. The overall nature conservation benefit of the enhancement(s) is likely to be moderate.
Minor	Constraint The project is expected to obtain consent (planning application or otherwise, where this is required) without any further survey or assessment of this issue. However, a basic action is still required pre-construction or during construction, which may be stipulated by a condition of consent, in order to avoid possible legal offence(s) or non-compliance with policy. This is likely to involve ecological features that are not subject to special protection and are common and widespread. The action and/or mitigation required to address the issue is expected to be minimal and is unlikely to hinder the project (for example, clearance of vegetation during specified seasons). Opportunity An opportunity exists to deliver ecological enhancement likely to benefit relatively common and/or widespread species (e.g. provision of bird nest boxes) or to create or enhance a small area of habitat which is not of very high biodiversity value.
None	There is no constraint on the project because the ecological feature is absent from the Site and zone of influence, or if present then it is not subject to protection and/or it can clearly be determined that there is no possibility of a significant adverse effect.

5.2 Potential constraints and recommendations for further survey

A summary of the potential constraints to the Proposed Development posed by ecological features identified within the ZoI is given in Table 9, alongside initial recommendations for mitigation.

As set out in Table 9, no further ecological survey is recommended. Further investigation is needed to identify whether there are any surface water flows into habitats considered to be GWDTE. However, this can be done as part of the design process, or when developing a drainage strategy for construction. The aim must be to ensure that where any flows of water exist to the marshy grassland, acid grassland and/or swamp, these are maintained.

Table 9. Summary of potential constraints and recommended further action

Ecological feature	Scale of constraint	Further action, including surveys and potential mitigation	Primary driver	When is action likely to be required		
				To inform design	Before planning application*	Pre-construction onwards
Coalburn Moss SAC (and SSSI)	Moderate	• The Site is located, at closest, approximately 54 m from the boundary of Coalburn Moss SAC. An Appropriate Assessment carried out for the Coalburn Substation Extension project (which is located more closely to the SAC) concluded there would be no adverse effect on the SAC. It is therefore considered very likely that this will be the same for Coalburn North Substation. • However, it is advised that Habitats Regulations Appraisal (HRA) Screening, and potentially Appropriate Assessment (depending on the conclusion of the HRA Screening) should be carried out for the Proposed Development. This will confirm the aforementioned assumption and demonstrate that consideration has been given to the European site.	Legislation	✓	✓	
Other designated sites	None	• All other designated sites are located distantly from the Proposed Development and are not considered to pose any constraint to its construction or operation.	Legislation			
All habitats (excluding GWDTE and swamp)	Minor	• All habitats within the Site are of low ecological value and do not present a major constraint to the Proposed Development. • No specific mitigation is required, but there is the potential to deliver enhancements by improving the condition of existing habitats or through planting (see Section 5.3 for more information).	Planning policy	✓	✓	
Groundwater dependent terrestrial ecosystems and swamp	Minor	• Habitats which may be GWDTE are present as marshy grassland and in acid grassland. An area of swamp is also present which could be sensitive to changes to hydrology caused by the Proposed Development. • None are within the Site boundary and direct impacts on them should be avoided. • Indirect effects caused by changing hydrology should be avoided through drainage design, ensuring that existing flows of water to these habitats (where they exist) are maintained.	Planning policy	✓	✓	✓
Bats (roosting)	Minor	• Trees with Low bat roost suitability do not require further survey. • Two trees with Moderate bat roost suitability were identified, the closest of which is approximately 25 m from the Site. At this distance it is unlikely that construction activities of the type associated with the Proposed Development will result in disturbance of bats should they roost in this tree. It is therefore not recommended that further survey of this tree is required. The other tree with Moderate bat roost suitability is approximately 31 m from the Site and likewise no further survey is recommended.	Legislation	✓		

Ecological feature	Scale of constraint	Further action, including surveys and potential mitigation	Primary driver	When is action likely to be required		
				To inform design	Before planning application*	Pre-construction onwards
		• Should the boundary of the Site change and move closer to either tree, then further bat roost survey may be required. • Artificial lighting during construction or operation should be kept to a minimum and should not illuminate any tree with suitability to be used by roosting bats. • All trees with bat roost suitability are located outside of the Site and should be retained.				
Bats (foraging and commuting)	Minor	• The habitats within and surrounding the Site are of Low value to foraging and commuting bats. No specific mitigation is therefore required for foraging / commuting bats. However, habitat enhancements described in Section 5.3 would improve the quality of foraging for bat species and could provide benefits to these species. • The installation of new permanent lighting should be avoided if possible. • Where new lighting is required, it should be carefully designed by a lighting specialist to minimise adverse effects on foraging and commuting bats. In accordance with industry-standard guidance, illumination from new lighting should not exceed 1 lux.	Legislation and planning policy	✓		
Birds	Minor	• There is very little potential for nesting by birds other than by species which are common and widespread. • No specific mitigation is required beyond standard best practice in relation to nesting birds. Ideally this would include clearing vegetation outside the bird breeding season (generally March to August, inclusive). Otherwise carry out checks for active nests and exclude works as necessary until breeding finished. Ideally set out these requirements within a CEMP or precautionary working method statement to manage nesting bird risks.	Legislation		✓	✓
Reptiles	Minor	• Common lizard was confirmed as being present within the Survey Area and slow worm may also be present in low numbers. • Pre-construction checks can be carried out of any features which could be suitable for use as refugia and which will be directly impacted by works (e.g. stone walls, piles of brash or other materials). This should be done by hand by an experienced ecologist and the requirement to do so included in CEMP or precautionary working method statement. • No further targeted survey is required. • Opportunity exists to create reptile refugia as part of the Proposed Development.	Planning policy	✓		✓

Ecological feature	Scale of constraint	Further action, including surveys and potential mitigation	Primary driver	When is action likely to be required		
				To inform design	Before planning application*	Pre-construction onwards
Badger	Minor	• Badger setts are considered likely absent from the Site and wider Survey Area. However, areas of grassland may be used by foraging badgers from elsewhere (although no evidence of badger was found). • There is no requirement for further badger survey and standard mitigation measures can be adopted during the construction phase: – Implement standard pollution prevention measures. – Implement standard animal protection measures (provision of escape from excavations overnight, capping of pipes overnight, no working at night). • If construction is to take place more than twelve months from the date of survey in this Report, re-survey to confirm that no new setts have been established.	Legislation			✓
Invertebrates	None	• There is no specific requirement for mitigation in relation to invertebrates. • Suggested habitat enhancements would provide benefits to a range of invertebrate species.	Planning policy	✓	✓	
Invasive non-native species	None	• No invasive non-native species were identified within the Site or wider Survey Area. • Standard good practice in relation to biosecurity should be implemented during construction.	Legislation and planning policy			✓

5.3 Opportunities

As described above, habitats within the Survey Area are generally assessed as having Poor Habitat Condition. Therefore, there are opportunities to seek to enhance habitats in order to deliver biodiversity net gain. Suggested qualitative enhancements which could be incorporated within the Proposed Development design are:

- planting of native scrub and/or use of heather *Calluna vulgaris* seed on substation landscaped area, dressed with a suitable layer of soil, to provide habitat for plants, birds and reptiles;
- provision of bat / bird boxes within the existing woodland;
- installation of a drainage basin or specifically designed wildlife pond to improve habitat for plants, invertebrates and amphibians; and,
- installation of several small areas (1 x 1 x 0.5 m) of buried crushed stone and woody debris, seeded or dressed with turf, to create reptile hibernacula.

Additional larger-scale enhancement could include;

- provision of native woodland simulating the canopy / shrub layers of an appropriate native woodland;
- supplementary hedgerow / tree planting around the Site, and to west and south; and,
- support of conservation activities which may be ongoing by other organisations within the local area (e.g. the restoration of degraded peatland in Coalburn Moss SAC and SSSI.

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7. Figures

Revision: 0 Drawn: SM Checked: RC Approved: RC Date: 2022-08-24

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PROJECT

Coalburn North Substation

CLIENT

SP Energy Networks (SPEN)

CONSULTANT

AECOM Limited
Tanfield
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www.aecom.com

LEGEND

- Preliminary Site Boundary
- Survey Area (100 m Site buffer)

NOTES

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

60635450

FIGURE TITLE

Site and Survey Area

FIGURE NUMBER

1

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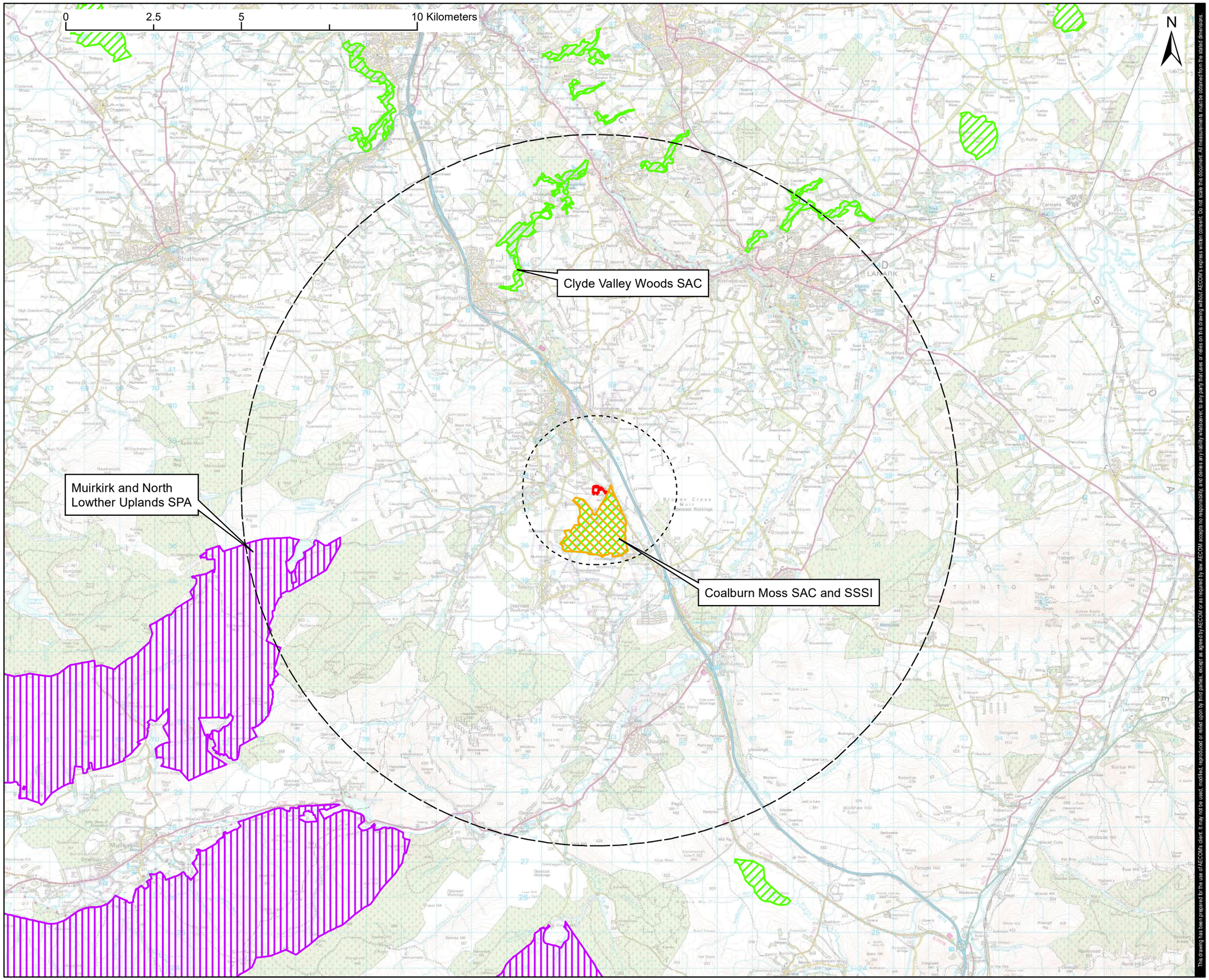

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LEGEND

- Preliminary Site Boundary
- 2 km Site Boundary Buffer
- 10 km Site Boundary Buffer
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)

NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

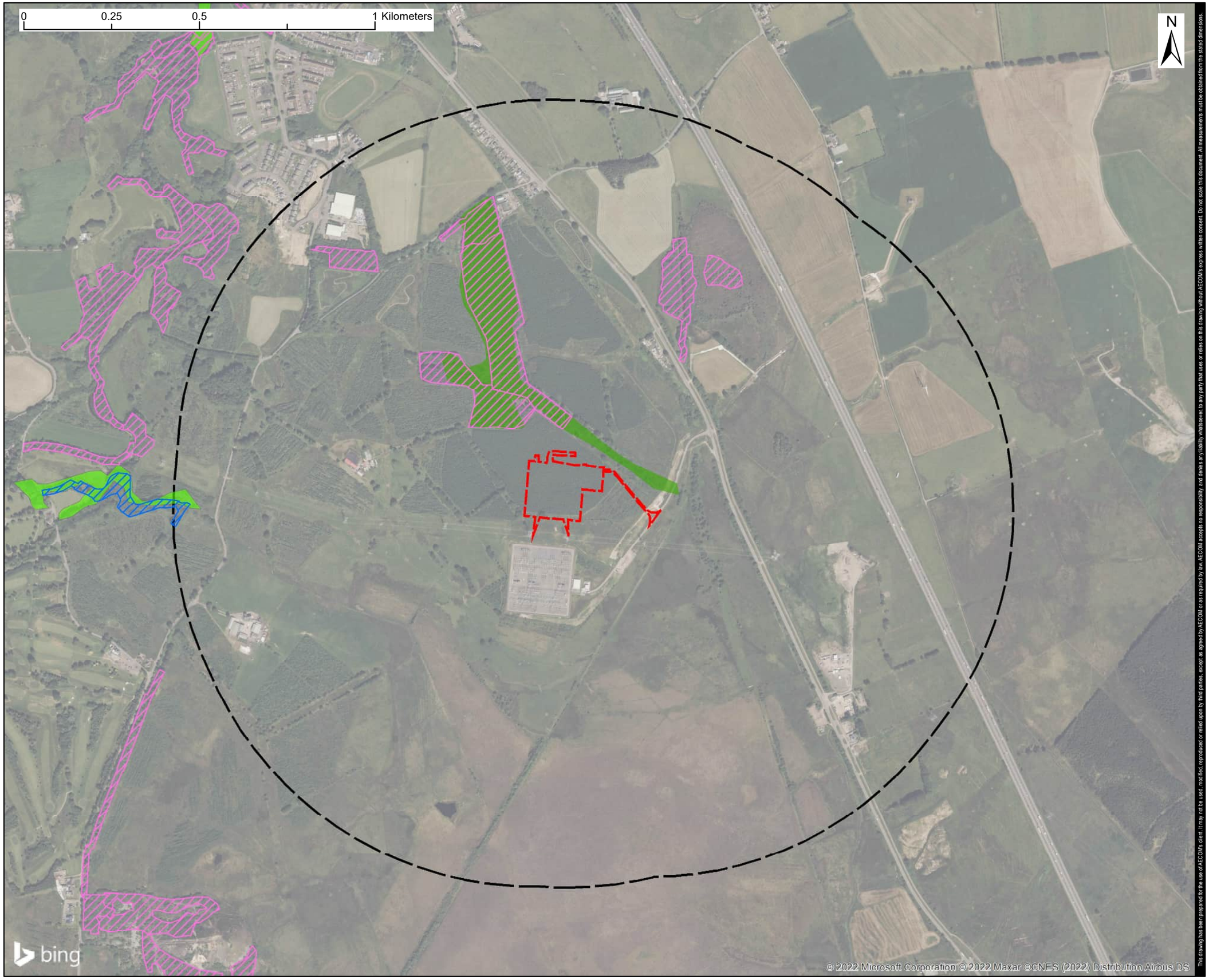
60635450

FIGURE TITLE

Statutory Designated Sites

FIGURE NUMBER

2



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LEGEND

- Preliminary Site Boundary
- 1 km Site Boundary Buffer

Ancient Woodland Inventory (AWI)

- Ancient (of semi-natural origin)
- Long-established (of plantation origin)

Native Woodland Survey of Scotland (NWSS)

- Native woodland
- Nearly-native woodland

NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60635450

FIGURE TITLE

Ancient and Native Woodland

FIGURE NUMBER

3

1:10,000 @ A3

Revision: 0 Drawn: CD Checked: MLS Approved: RC Date: 2022-07-28

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LEGEND

- Survey Area
- A1.1.2 - Broadleaved woodland - plantation (UKHab = w1g)
- A1.2.2 - Coniferous woodland - plantation (UKHab = w1g/w2c)
- A2.1 - Scrub - dense/continuous (UKHab = h3e/h3f)
- B1.2 - Acid grassland - semi-improved (UKHab = N/A)
- B2.2 - Neutral grassland - semi-improved (UKHab = g3c5 - g3c8)
- B4 - Improved grassland (UKHab = g4)
- B5 - Marsh/marshy grassland (UKHab = f2b)
- B6 - Poor semi-improved grassland (UKHab = u1b)
- G1 - Standing water (UKHab = r1)
- Hardstanding (UKHab = u1b/u1c/u1e)
- A2.2 - Scrub - scattered
- A3.1 - Broadleaved parkland/scattered trees
- A3.2 - Coniferous parkland/scattered trees
- Target Note

NOTES

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FIGURE TITLE

Phase 1 Habitats

FIGURE NUMBER

Figure 4

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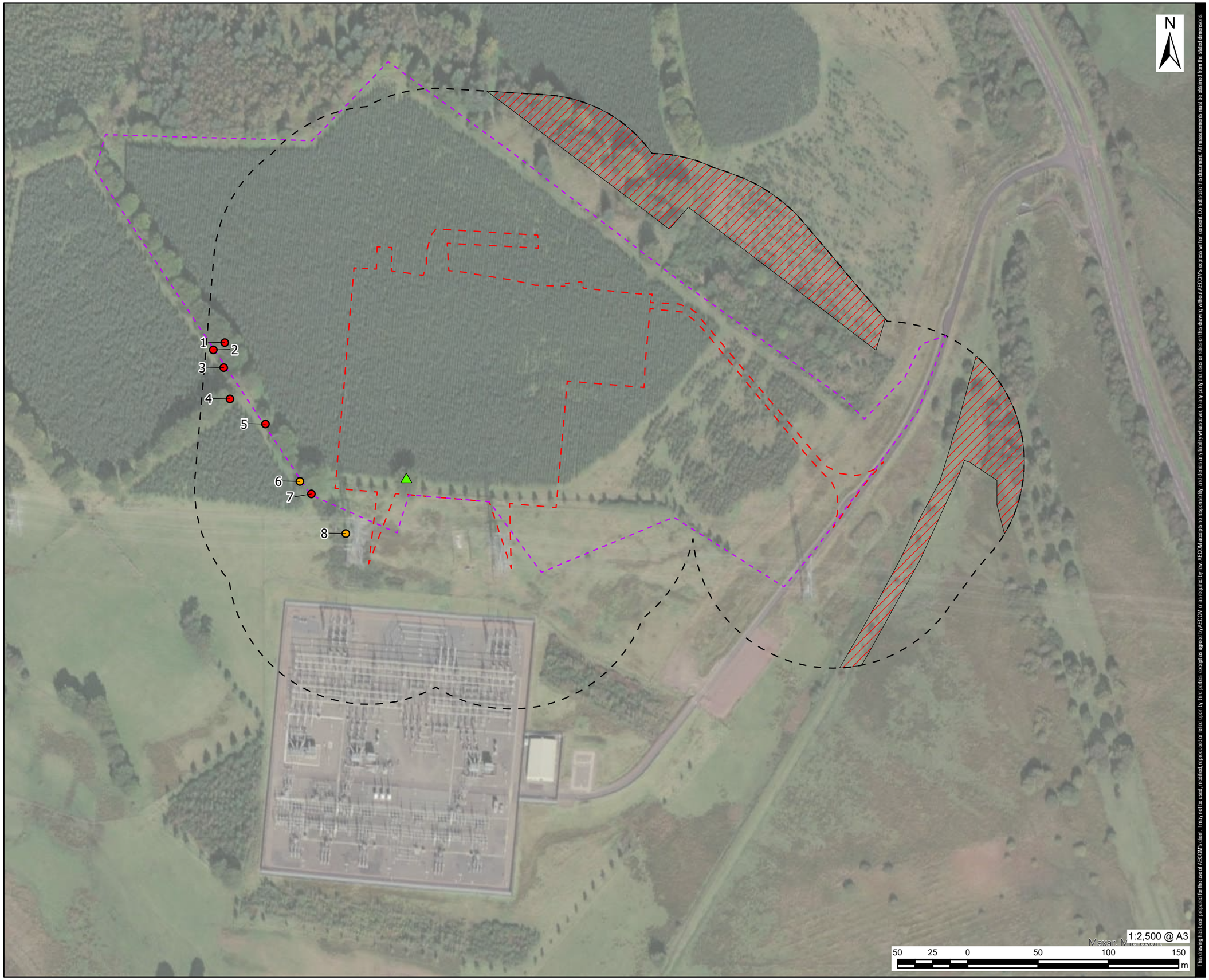

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LEGEND

- Preliminary Site Boundary
- 100m Site Boundary Buffer
- No Access Area
- Static Bat Detector

Trees with Bat Roost Suitability

- Low
- Moderate
- Bat Transect Route

NOTES

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60635450

FIGURE TITLE

Bat Survey Locations and Bat Roost Suitability Results

FIGURE NUMBER

Figure 6

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