



Appendix D.2: Technical Report Extended Phase 1 Survey



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Technical Report

North Connect Converter
Building, Peterhead

Extended Phase 1 Survey

Affric Ltd

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1 Introduction

1.1 Terms of Reference

Atmos Consulting Ltd was commissioned by Affric Ltd on behalf of North Connect to undertake an extended Phase 1 habitat survey at the revised location of a proposed AC/DC Converter Station building and cable route near Peterhead, Aberdeenshire.

In 2013 an Environmental Impact Assessment (EIA), hereafter referred to as the 2013 EIA, was completed for the onshore works associated with the North Connect Development (AMEC, 2013). On completion of this EIA the proposed location of the Converter Station building became unavailable and a new location was sought. Further ecological surveys were undertaken in 2013 across the wider area to include potential sites at North Collielaw and Denend. Subsequently a third location at 'Fourfields' was identified and in April 2014 Atmos Consulting was commissioned to undertake additional ecological surveys to complete the necessary coverage for baseline ecological information.

This report, therefore, presents the findings of the extended Phase 1 survey completed in relation to the new proposed infrastructure, hereafter referred to as the 'Survey Area' (Figure 1). For ease each of the three sections of the Survey Area are discussed separately;

- Northern Grid Link – grid connection route from the existing sub-station at Millbank to the Converter Building. This grid connection is expected to be approximately 1.2km in length with the cable buried along the entire route.
- Converter Building – area located at 'Fourfields' outlined for location of the Converter Building; and
- Southern Grid Link – grid connection route from Converter Building to coast at Long Haven Bay. The grid connection from the Converter Building to location of the start of directional underground drilling is expected to be approximately 0.9km in length with the cable buried along the entire route. The details of the directional drilling under the coastal section is not assessed as part of this report.

As detailed above, the Southern Grid Link will involve the installation of a buried cable from the Converter Building south to a presently unconfirmed location adjacent to the A90 trunk road inland at Long Haven Bay. At this point the grid connection will involve deep underground directional drilling beneath the coastal cliffs and resurfacing offshore from Long Haven Bay. The full details of this section of the grid connection is not available at the time of writing and no aspects of marine or intertidal ecology is assessed as part of this report.

In addition a review of existing information from the 2013 EIA, the existing survey information in relation to the Denend and North Collielaw proposed sites and other publically available sources has been undertaken (Section 3.2).

1.2 Objectives of the Study

The purpose of this study was to establish the baseline ecological conditions of each of the parts of the Survey Area by undertaking an extended Phase 1 habitat survey. The results from this, along with further surveys, where required, will be used to guide site selection and inform the design of the proposed development.

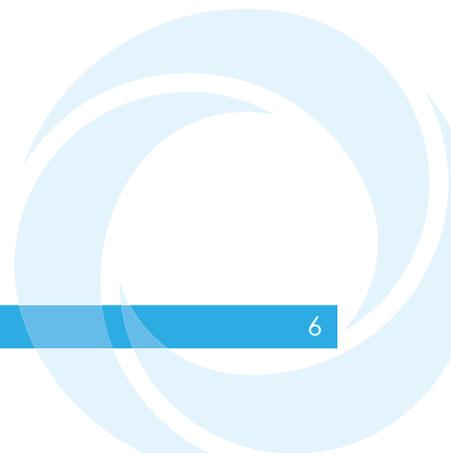
This report will detail the following:

- Desk study information including summary of relevant details from 2013 EIA document;
- field survey methodology;
- field survey results and preliminary assessment the nature conservation importance of receptors within the site;
- recommendations for further survey work where appropriate, and
- outline recommendations for mitigation, compensation and enhancement measures where relevant, for the consideration of the development team.

1.3 Site Description

The proposed grid connection infrastructure lies approximately 2km south of Peterhead and stretches to the Aberdeenshire coast at an altitudinal range of 50–70m above sea level (Figure 1). The development is situated in an area which is intensely farmed with livestock and arable crops. The local area around Peterhead supports numerous minor roads leading to scattered dwellings and farm complexes and is dominated by intensive agriculture.

The Survey Area for all three elements identified above included farmland of arable and improved grassland fields, a large working quarry, several small disused quarries, scrub, coastal grassland and sea cliffs. The only watercourse was the small un-named burn which flowed from Denhead Dam to Boddam. There were also a number of drainage ditches across the Survey Area. There were a number of water bodies within the Survey Area which included the settling ponds for the working quarry, a large pond for fishing and small ponds in the disused quarries. Other than the coniferous plantations at Highfield and around the sub-station and a small area of mixed woodland at Denend there were very few trees or woodland within the Survey Area. At the time of writing the Application Site boundary is not known.



2 Methodology

2.1 Desktop Study

A review of the existing 2013 EIA documents including relevant Technical Appendices was undertaken. The 2013 EIA documents cover an area of the original development site which extends to and overlaps to some degree with the proposed alternative site. Only information relevant to the current development Survey Area is included within this review and information is restricted to terrestrial ecology and ornithological surveys only, excluding any reference to marine or intertidal ecology.

2.2 Information Sources

A variety of sources were used to obtain ecological background information for each of the parts of the Survey Area. Information on statutory sites was obtained from the website of the statutory agency SNH via the "Site Link Portal" (<http://www.snh.org.uk/snhi/>).

A search was also conducted for protected species records in close proximity to the Survey Area on the National Biodiversity Network (NBN) Gateway website (<http://www.searchnbn.net/>).

Aerial photography of the Survey Area was analysed using photography available in the public domain on the www.bingmaps.co.uk web page.

2.3 Extended Phase 1 Habitat Survey

An extended Phase 1 habitat survey, as described in the Guidelines for Baseline Ecological Assessment (IEA, 1995) and Guidelines for Preliminary Ecological Appraisal (IEEM 2012), was undertaken between 23rd and 25th September 2013 over the Denend site, with surveys updated and extended to include all previously unsurveyed land during 16th and 17th April 2014. All ecologists were suitably qualified and surveys were conducted under suitable weather conditions. Phase I habitat survey is a standardised method of recording habitat types and characteristic vegetation, as set out in the Handbook for Phase I Habitat Survey – a technique for Environmental Audit (JNCC, 2010).

This survey method was extended by evaluating the habitats in accordance with the habitats listed in the SNIFFER document Water Framework Directive (WFD) 95 A *Functional Wetland Typology for Scotland* and through the recording of specific features indicating the presence, or likely presence, of protected species or other species of nature conservation significance. Descriptive "target notes" were recorded for characteristic habitats, features of ecological interest, or any other features which require note to aid ecologically sensitive design or mitigation (Appendix A).

The extended Phase I habitat survey was undertaken across the entire Survey Area as outlined in Figure 1.

Whilst not a full protected species or botanical survey, the extended Phase I method enables a suitably experienced ecologist to obtain sufficient understanding of the ecology of a site that it is possible either:

- to confirm the conservation significance of the Survey Area and assess the potential for impacts on habitats/species likely to represent a material consideration in planning terms; or,
- to ascertain that further surveys of some aspect(s) of the Site's ecology will be required before such confirmation can be made.

2.4 Winter Walkover Bird Surveys

No formal guidance exists for wintering bird walkover surveys in relation to non-wind energy developments, and thus the requirement for (and scope of) surveys is a matter of professional judgement.

For the proposed development in this case, a single survey was undertaken in order to form a judgement on whether further surveys might be recommended in due course. The survey was undertaken towards the end of the winter bird survey season, over a two day period during the 27th and 28th February 2014, in suitable weather conditions, the details of which are summarised in Table 1.

Table 1: Winter walkover survey details

Visit Date	Visit Number	Observer	Start	End	Duration (hours)	Temperature (°C)	Visibility (km)
27/02/2014	1a	T. Drew	14:45	18:00	3:15	2-5	3
28/02/2014	1b	T. Drew	07:25	12:40	5:15	2-5	3

The winter walkover survey visit followed the basic methodology of an adapted, scaled-down Common Birds Census (CBC) method. This involved following a route within the Survey Area while ensuring that wherever possible each part of the Survey Area was viewed and visited to within 50m. The route was walked slowly using periodic scanning with binoculars, with the identity and activity of all birds seen recorded. As many hedgerows as practically possible were walked during the survey visits. Target species selected for the survey included species listed in Annex 1 of the Birds Directive and Schedule 1 of the Wildlife and Countryside Act 1981. Full details and results can be found in Ornithology Survey 2014: Single Winter Walkover Visit Atmos Consulting Report Ref 19400-06/R1/Rev1 (Atmos Consulting, 2014).

2.5 Limitations

The only significant limitation experienced with respect to surveys undertaken within the Survey Area was the inaccessibility of a number of areas due to lack of access permission from local landowners. These areas included sections of land within the north of the Survey Area adjacent to the existing Millbank Sub-Station and small areas in close proximity to Highfield Farm north west of the proposed Converter Building location. Assessment of these areas used existing information from the 2013 Environmental Statement combined with visual assessment from adjacent publically accessible areas. The information supplied within the 2013 EIA was based upon survey information collected in 2012, and as part of the Atmos Consulting 2014 surveys was (and, where relevant will continue to be) assessed for any material change to provide up-to-date baseline information.

The single winter walkover bird survey visit was necessarily a 'snapshot' providing an indication of the species present within the Survey Area at one point of time. This was acceptable in this case, as the data was used as a tool for making a judgement over

whether additional work would be required. It is accepted that the results of a single survey do not provide a full record of bird activity throughout the winter period or indicate the only pattern of usage of the Survey Area.

3 Nature Conservation Legislation and Planning Policy

3.1 National Planning Policy and Legislation

National guidance on planning policy in Scotland is provided by the Scottish Executive in the form of the **Scottish Planning Policy** (SPP) and via **National Planning Framework 2** (NPF2), which have superseded National Planning Policy Guidelines (NPPGs), individual Scottish Planning Policies (SPPs), Planning Advice Notes (PANs) and Circulars.

The SPP has three primary objectives for the planning system:

- to set the land use framework for promoting sustainable economic development;
- to encourage and support regeneration; and
- to maintain and enhance the quality of the natural heritage and built environment.

Guidance on nature conservation planning policy is provided by several sections of the SPP, which, in general, advocate protection through the planning system of statutory and non-statutory sites of biodiversity value, as well as species protection and conservation in the wider countryside. The SPP also recognises that careful planning can be used to reconcile nature conservation and development, even in sensitive areas.

Planning policy guidance indicates that the presence of a protected species is a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in harm to the species or its habitat.

A number of specific species termed European protected species (EPS) occur within the UK and are provided protection through inclusion on Schedule 2 of **The Conservation (Natural Habitats, &c.) Regulations 1994**, as amended in Scotland, which transpose into Scottish law **EC Directive 92/43/EEC** on the conservation of natural habitats and of wild fauna and flora (the "Habitats Directive"). The Regulations, commonly referred to as the "Habitats Regulations", extend protection against deliberate disturbance to those animals wherever they are present, and provide tests against which the permission for a development that may have an effect on an EPS must be assessed before permission can be given.

Planning policy guidance indicates that the presence of a protected species is a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in harm to the species or its habitat. National legislation for the special protection of selected species is provided in the **Wildlife and Countryside Act 1981**, as amended in Scotland (WCA). Schedule 5 of the WCA provides special protection to selected animal species other than birds, through section 9(4) of the Act, against damage to "*any structure or place which [any wild animal included in the schedule] uses for shelter and protection*", and against disturbance whilst in such places.

The **Wildlife and Natural Environment (Scotland) Act 2011** (WANE Act) has provided a new licensing element to the WCA within Scotland, specifically for certain non-avian protected species listed on Schedules 5, 5A, 6, 6A, and 8 of the WCA: 'for any other social, economic or environmental purpose'. This licensing purpose is qualified by two

constraints; that undertaking the conduct authorised by the licence will give rise to, or contribute towards the achievement of, a significant social, economic or environmental benefit; and, that there is no other alternative satisfactory solution. The WANE Act therefore equates to similar proof being required for a species listed under the WCA as an EPS in order for a licensable activity to take place.

The **Protection of Badgers Act 1992** (as amended) provides protection to badgers *Meles meles* and their setts.

The **Nature Conservation (Scotland) Act 2004** (NCSA) sets out a series of measures designed to conserve, protect and enhance the biological and geological natural heritage of Scotland. Among these measures is a requirement to establish a list of species considered by the Scottish Government to be “*of principal importance for the conservation of biological diversity in Scotland*”. This list is as set out in the **Scottish Biodiversity Strategy** (Scottish Government, 2004).

Sites with statutory designations receive varying degrees of legal protection under national statute and European directives.

Special Protection Areas (SPAs) are sites of international importance for birds designated under Article 4 of the ‘Birds Directive’ and afforded a high degree of protection through the Habitats Regulations.

Special Areas of Conservation (SACs) are also sites of international importance and together with SPAs are often referred to as European Sites, forming the Natura 2000 network of sites. SACs are designated under the Habitats Directive to protect sites supporting examples of natural habitats listed in Annex 1 to the Directive and populations of species listed in Annex 2 to the Directive (which excludes birds). Annex 1 habitats and Annex 2 species at a site may represent either a “*primary reason for [its] selection*” as a SAC, or “*present as a qualifying feature, but not a primary reason for site selection*”.

Whilst the Natura 2000 network of sites includes some of the best examples of these Annex 1 habitats, designated as primary or qualifying features of SACs, these natural habitats may also be present outside of designated sites and therefore not afforded the same level of statutory protection. All habitats listed in Annex 1 of the Directive are considered to be under threat in the EU as they are identified as being in danger of disappearance or have a restricted range in Europe. In Scotland, most SACs and SPAs are also designated as SSSIs and thus benefit from this legislation as well.

For each SAC and SPA, Scottish Natural Heritage (SNH) is required to publish site-specific Conservation Objectives that relate to the features for which it has been designated as a European site. Under Regulation 48 (1), if a significant effect on a European site is predicted as a result of a project, either alone or in combination with other projects or plans, the potential implications of development proposals must be assessed against the conservation objectives by a Competent Authority before the granting of planning consent, permission or other authorisation.

In making an appropriate assessment, the Competent Authority must take into consideration whether, subject to the impact avoidance and mitigation measures proposed, the scheme will adversely affect the integrity of the European site. The term integrity is defined as the, “*coherence of the site’s ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is classified*”.

Sites of Special Scientific Interest (SSSI) are sites of national importance for nature conservation and can be notified for their biological or earth science interest. These sites are protected under the NCSA.

3.2 Strategic and Local Planning Policy

Structure and Local Development Plans form the basis on which decisions about development and future land use are made in Scotland, and effectively incorporate national, regional and strategic policies within the local framework.

The statutory development plan for Aberdeenshire consists of the **Aberdeen City and Shire Structure Plan 2009** and the **Aberdeenshire Local Development Plan 2012**.

The Aberdeen City and Shire Structure Plan was approved in August 2009 and sets out the development strategy and strategic land use policies and proposals for the next 25 years. Aberdeenshire Council adopted the Aberdeenshire Local Development Plan (ALDP) on 1 June 2012. The Plan sets out statements of the policies used for assessing planning applications and confirms the principle of development on sites across Aberdeenshire.

The ALDP comprises of 14 policies supported by 51 supplementary guidance documents, 6 proposals maps, and 5 schedules. Policy 11 Natural Heritage seeks to 'improve and protect designated nature conservation sites and the wider biodiversity and geodiversity of the area'. It states that, where there is uncertainty over the impacts of a proposed development, an approach based on the precautionary principle should be adopted (Aberdeenshire Local Development Plan 2012).

3.3 Supplementary Planning Guidance

Under the Aberdeenshire Local Development Plan 2012, two SPGs are of relevance to nature conservation and provide further detail to Policy 11 Natural Heritage.

- **SG Natural Environment 1: Protection of Nature Conservation Sites** - outlines the requirements for Environmental Impact Assessment (EIA).
- **SG Natural Environment 2: Protection of Wider Biodiversity and Geodiversity** - explains the important relationships between biodiversity and environmental conditions such as soil, water and air quality and the need for these to be considered in development proposals.

3.4 Other Nature Conservation Initiatives

Under Section 2 (4) of the NCSA Scottish Ministers are required to publish a list of species of flora, fauna and habitats considered to be of principal importance for the purposes of biodiversity, including species considered to be important to the Scottish public. This list is known as the **Scottish Biodiversity List** and includes many common species such as heather *Calluna vulgaris* and brown hare *Lepus europaeus*.

Biodiversity Action Plans (BAPs) are part of the British government's strategy for the implementation of the 1992 Convention on Biological Diversity, to which it is a signatory. BAPs have been developed for the UK and devolved to local levels (LBAPs), to protect a number of rare species and habitats and reverse the declines of more widespread, but declining, species and habitats. As with the Scottish Biodiversity List, LBAPs may also include species which are not nationally rare or declining, but which are considered

important to the local public or are of local nature conservation interest. Under the NCSA, the Scottish Executive and other bodies exercising a public function have a duty to give due regard to the conservation of biodiversity; therefore, the species and habitats listed in the following BAPs and LBAPs have been taken into consideration as part of the EclA process:

- the UK Biodiversity Action Plan (BAP) January 1994
- the Scottish Biodiversity Strategy (Scottish Executive, 2004)
- North East Scotland LBAP (2009).

The UK BAP includes lists of habitats and species which are considered priorities for conservation action in the UK. Referred to as UK BAP Priority Habitats and Species, these selected features differ from the Annex I Priority Habitats and Annex II Priority Species in the Habitats Directive as they are of conservation interest in the UK rather than wider Europe. The UK BAP identifies habitats and species which are of particular importance in the UK due to their size, quality or rarity and may or may not include some overlap with habitats also listed under the Habitats Directive.

In addition to Priority Habitats, the UK BAP refers to another habitat type termed Broad Habitats, which provide biodiversity-focused targets and objectives that are relevant to a relatively wide category of habitats, and can often include a number of UK BAP priority habitats e.g. the broad habitat of 'upland' may include the priority habitats 'wet heath' and 'blanket bog'.

The area to the south west of Peterhead is covered by the **North East Scotland (NES) LBAP**. Most of the work of the NES LBAP is addressed through the Habitat Action Plans (HAPs), which incorporate action for associated priority species. Individual Species Action Plans (SAPs) are aimed at species that have not been fully accommodated within a Habitat Action Plan.

The North East Scotland Biodiversity Partnership has prepared HAPs for the following habitats which may be present across the current Survey Area – Farmland; Field Margins and Boundary Habitats, Species Rich Grassland, Broadleaved Woodland, Planted Coniferous Woodland, Heathland, Rivers and Burns and Wetland. Separate SAPs have been developed for Daubenton's bat *Myotis daubentonii*, water vole *Arvicola terrestris*, red squirrel *Sciurus vulgaris* and wych elm *Ulmus glabra*.

A number of habitats identified as potential Ground Water Dependent Terrestrial Ecosystems (GWDTEs) are also likely to be present and if confirmed as being dependent on ground water are protected under the **Water Framework Directive (Directive 2000/60/EC)** and transposed into Scottish law in 2003 through the **Water Environment and Water Services (Scotland) Act 2003** (WEWS). Disturbance to such habitats may result in disturbance to the groundwater resource and result in a breach of legislation.

4 Results

4.1 Desktop study

4.1.1 2013 EIA Review

The 2013 EIA document included an Ecological Impact Assessment (EclA) of the proposed onshore cable route and Converter Station including all aspects of Terrestrial Ecology and Nature Conservation (Chapter 9 - North Connect, 2013) and Ornithology (Chapter 12 - North Connect, 2013). These chapters assessed the potential significant effects of the onshore elements on ecological and nature conservation interests, proposed mitigation measures to address significant adverse effects and conclusions with respect to residual effects once mitigation is considered.

The site covered within the EclA included a portion of land extending west of the A90 trunk road and north of the current proposed grid link route with the area extending east to Sandford Bay where the proposed cable route in 2013 makes landfall. These areas are dominated by agriculture, industry and coastal habitats.

A scoping opinion consultation in December 2012 identified that although the main ecological concerns are in relation to the offshore and intertidal components of the wider project, onshore ecology will need to be addressed in full.

A Habitat Regulations Appraisal screening opinion response in December 2012 was also provided by Aberdeenshire Council in relation to the onshore elements of the development. Aberdeenshire Council identified that these onshore elements would be unlikely to have a significant effect on Natura sites.

In the absence of mitigation moderate impacts were expected on the Eurasian shag *Phalacrocorax aristotelis* with minor but significant impacts in terms of wildlife legislation compliance effects on barn owl *Tyto alba*, nesting birds and bats. However, the impact assessment identified that no significant effects will result on ecological receptors once proposed mitigation is implemented.

Ground water dependent terrestrial ecosystems were not assessed as part of the Ecology chapter, however this may have been captured within the Hydrology Chapter which has not been reviewed as part of this report.

4.1.2 Data Consultations

A data consultation exercise was initiated in October 2013 with respect to the former sites at Denend and North Collielaw, in order to establish whether there were any pre-existing records of designated nature conservation sites or plant and animal species/assemblages of nature conservation significance for the proposed development and its surroundings. Ecological records were requested from North East Scotland Biological Records Centre (NESBReC) for a buffer of 5km for avian and bat interest and 2km for all other protected or notable species. The response from the NESBReC is summarised in Table 2.

Table 2: Results of Denend Consultation

Organisation	Details
Contact Name	
Biological Records Centres	
North East Scotland Records Centre (NESBReC) Glenn Roberts	<p>The closest record of a bat was of pipistrelle bats <i>Pipistrellus</i> species at Invermettie (2km north of the Survey Area) to the south of Peterhead but these are older records (over 20yrs old). There were a number of UK BAP species within 2km of the Survey Area including Eurasian red squirrel <i>Sciurus vulgaris</i>, common toad <i>Bufo bufo</i>, brown hare <i>Lepus europaeus</i> and the red data list near threatened oysterplant <i>Mertensia maritima</i> a shoreline plant. No records were held from within the Survey Area.</p> <p>An extensive amount of bird records are present within the search area due to the SPA being present. A total of 24 Annex 1 birds were recorded within 5km of the Survey Area, these included: merlin <i>Falco columbarius</i>, sandwich tern, common tern and hen harrier <i>Circus cyaneus</i>. Other birds recorded included 33 UK BAP species and 7 Wildlife & Countryside Act Schedule I species, as well as 18 Scottish Biodiversity List species.</p>
Publicly Available Information	
NBN gateway	<p>Within the 10km grid square NK14 records for otter <i>Lutra lutra</i> (within the River Ugie catchment to the north of Peterhead), common toad <i>Bufo bufo</i>, common lizard <i>Zootoca vivipara</i>, Atlantic salmon <i>Salmo salar</i>, European eel <i>Anguilla anguilla</i>, brown trout <i>Salmo trutta</i> are all present. Several other LBAP species are also present. A number of Annex 1 and Schedule 1 bird species are also present within NK14 including sandwich tern <i>Sterna sandvicensis</i>, whooper Swan <i>Cygnus cygnus</i>, common Tern <i>Sterna Hirundo</i>, brambling <i>Fringilla montifringilla</i> and barn owl <i>Tyto alba</i></p>

Statutory Designated Sites

A review of the SNH Site Link Portal confirmed that the Buchan Ness to Collieston SPA, the Buchan Ness to Collieston SAC and the Bullers of Buchan Coast SSSI lie on the very southern edge of the Southern Grid Link Survey Area and are greater than 500m from the Converter Building and Northern Grid Link Survey Areas. Features of these protected areas are listed in Table 3.

Table 3: Statutory Designated Sites within 2km of the Survey Area

Site	Distance from Survey Area	Designated Interests
Buchan Ness to Collieston Coast SPA	Within extreme southern edge of Survey Area but at least 250m from any likely new infrastructure	Northern fulmar, breeding Common guillemot, breeding Herring gull, breeding Kittiwake, breeding Eurasian shag, breeding Seabird assemblage, breeding
Buchan Ness to Collieston SAC	Within extreme southern edge of Survey Area but at least 250m from any likely new infrastructure (excluding deep underground directional drilling)	Vegetated sea cliffs

Site	Distance from Survey Area	Designated Interests
Bullers of Buchan Coast SSSI	Within extreme southern edge of Survey Area but at least 250m from any likely new infrastructure (excluding deep underground directional drilling)	Seabird colony, breeding Common guillemot, breeding Kittiwake, breeding Eurasian shag, breeding Coastal Geomorphology of Scotland Maritime cliff

Buchan Ness to Collieston Coast SPA

This SPA is situated on the coast to the east of the Survey Area. The SPA qualifies under Article 4.2 of the Council Directive 79/409/EEC on the conservation of wild birds for supporting an internationally important assemblage of birds during the breeding season. These are herring gull which is a UK Biodiversity Action Plan (UKBAP) species, a Scottish biodiversity List (SBL) species and a Red listed Bird of Conservation Concern (BoCC); and fulmar, guillemot, kittiwake and Eurasian shag which are all Amber listed BoCC.

Buchan Ness to Collieston SAC

The qualifying interest of this SAC is the Annex 1 habitat Vegetated sea cliffs of the Atlantic and Baltic Coast. The sea cliffs support a wide range of semi-natural plant communities including maritime heath, acid peatland and brackish flushes which are now rare on the coast of north-east Scotland and this section of coastline has some of the best remaining examples. There is an abundance of local species such as Scots lovage *Ligusticum scoticum* and roseroot *Sedum rosea* and other species which are more typical of southern Britain such as carline thistle *Carlina vulgaris* and cowslip *Primula veris* which are associated with dry, calcareous grasslands.

Bullers of Buchan Coast SSSI

This SSSI covers an area of 104ha along a coastal strip from Buchan Ness to Slains Castle comprising sea cliffs and inshore stacks which are of special geological and biological interest. The breeding seabird colony is the largest in north-east Scotland and forms part of the Buchan Ness to Collieston Coast SPA. The breeding population of kittiwake is of international importance (6% of the British population) and the breeding populations of common guillemot, Eurasian shag, razorbill and herring gull are each of national importance, each being between 1-2% of the British population. The sea cliffs also support a wide range of maritime plant communities with good examples of coastal dwarf-shrub heath and brackish flushes

Non-Statutory Designated Sites

Within 2km of (what – proposed development/Study Area?) are four "Study of Environmentally Sensitive Areas" sites (SESAs). SESAs are local non-statutory sites of varying scientific interest which have been identified by Aberdeenshire Council and from 2014 it is expected these will be replaced by the name "Local Nature Conservation Sites" (LNCSS). Two of these SESAs are designated for their geological features, one for botanical interest and one for ornithological interest (between Cruden Bay and Boddam SESA, 1.6km to the east of the Survey Area). One of these, the Stirling

Hill-Dudwick Longhaven Coast SESA, which has geology (Plio-Pleistocene deposits) as its qualifying feature, overlaps with the Denend Survey Area.

Other Sites & Inventory Habitats

The Scottish Wildlife Trust (SWT) Longhaven Cliffs Reserve is located within extreme southern edge of Survey Area. It is considered to be important for breeding seabird colonies such as the common puffin *Fratercula arctica*, common guillemot and razorbills, along with special habitats such as maritime heath and salt marsh with plants such as devil's-bit scabious *Succisa pratensis* and grass-of-Parnassus *Parnassia palustris*.

There are no areas of ancient woodland within 2km of the Survey Area.

4.2 Extended Phase 1 Habitat Survey

The findings of the extended Phase I habitat survey were mapped (Figure 3). Target notes of features of ecological interest taken during the surveys are presented at Appendix A.

4.2.1 Northern Grid Link

Dominant Habitats

Improved grassland

This was the dominant habitat in the Northern Grid Link part of the Survey Area and comprised 24.6ha (40%) and could be found next to the sub-station and at Denend. This habitat was dominated by perennial rye-grass *Lolium perenne* with daisy *Bellis perennis*, meadow buttercup *Ranunculus acris*, creeping thistle *Cirsium arvense* and white clover *Trifolium repens*. The sward was short and heavily grazed.

Arable

The majority, almost 16.7ha which corresponds to 27%, of the Survey Area was comprised of arable fields which had been harvested for cereal crops at the time of survey. It was assumed that these fields are on rotation for other types of crops and grazing for livestock. These fields were generally bordered by post and wire fencing with occasional scrub and hedgerows also present around field boundaries.

Semi-improved neutral grassland

Within the Survey Area semi-improved neutral grassland covered 7.6ha, which was equivalent to 12.4% of the Survey Area. It was found on the old track below Denend farm cottage and in the small field next to this, as well as along the dismantled railway. This habitat was dominated by grasses such as cock's-foot *Dactylis glomerata*, crested dog's-tail *Cynosurus cristatus* and sweet vernal-grass *Anthoxanthum odoratum*, along with tall herbs such as common nettle, foxglove *Digitalis purpurea*, ribwort plantain *Plantago lanceolata*, creeping thistle, spear thistle *Cirsium vulgare*, common ragwort *Senecio jacobaea* and cow parsley *Anthriscus sylvestris*.

Other Habitats

Ruderal habitats

This habitat comprised a small area 1ha which was equivalent to 1.7% of the Survey Area. It was found around the farm buildings at Denend, where it was dominated by

rosebay willowherb *Chamerion angustifolium*, broad-leaved dock *Rumex obtusifolius*, spear thistle and common nettle *Urtica dioica*, and along the margin of the southern field and around the banks of the small burn which runs to the east and around the ruined buildings at Whinbush. Along the edge of the southern field the habitat had more varied vegetation which included smooth sow-thistle *Sonchus oleraceus*, tufted vetch *Vicia cracca*, oxeye daisy *Leucanthemum vulgare*, cleavers *Galium aparine* and common chickweed *Stellaria media* (TN3). The banks of the small burn had some soft rush *Juncus effusus* but was dominated by grasses such as cock's-foot and rough meadow-grass *Poa trivialis*.

Bare ground

Around the farm at Denend was an area of ground with nothing growing on it which included the track which runs through the farm.

Buildings

The buildings within the Survey Area included the agricultural barns and farmhouse at Denend. Other buildings in the Survey Area included the electricity sub-station, the farmhouse at Gateside and the cottages at Millbank. The sub-station and associated out buildings were all modern and of metal construction. The cottages at Millbank and Gateside were occupied and in a good state of repair, mostly constructed of stone with slate roofs. The farmhouse at Denend was derelict and of similar construction to the agricultural barns, which were of stone walls and slate tile roofs. The farmhouse had a number of potential access points for wildlife particularly bats and barn owls *Tyto alba*, through missing windows and missing tiles from the roof.

Coniferous plantation woodland

Within this part of the Survey Area, just to the north east of the sub-station, was a small young coniferous plantation which was dominated by Sitka spruce *Picea sitchensis* and Norway spruce *Picea abies*.

Broadleaved plantation woodland

Just to the east of the sub-station, on the banking of the entrance road was a small area of planted young (5m) broadleaved trees, which was comprised of alder *Alnus glutinosa* and sycamore *Acer pseudoplatanus*.

Mixed plantation woodland

There were two areas of this habitat within the Survey Area; one, just east of the farm cottage (TN1) at Denend and one to the east of the sub-station. The area next to the cottage at Denend was dominated by mature Sitka spruce with some sycamore, with individual ash *Fraxinus excelsior* and goat willow *Salix caprea*. The area to the east of the sub-station was comprised of Sitka spruce, alder and sycamore.

Marshy grassland

There were two areas of marshy grassland within the Survey Area which were located in the corner of the semi-improved field east of the farm at Denend, on the banks of the burn flowing east from Denend and to the northern boundary of the sub-station. This habitat was dominated by either soft rush or compact rush *Juncus conglomeratus* with occasional Yorkshire fog *Holcus lanatus*.

Although marshy grassland is identified as a habitat potentially dependent on groundwater, SNIFFER WFD 95, in this case the habitat is considered to be surface water

related and is disturbed by current farm management practices including grazing livestock and farm machinery. As a result it is considered very unlikely that these areas are protected from disturbance under the WEWS legislation.

Species-poor hedge with trees

Some of the field boundaries had been planted with hedging which included hazel *Corylus avellana*, hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* which were enclosed within double wire and post fences (TN12). These were heavily grazed and not well established so not forming a continuous hedge. The ground flora between the fences was dominated by common nettle, creeping thistle, cock's-foot, bramble *Rubus fruticosus* and cow parsley.

Fence

All of the fence lines were comprised of wire and post fences and provided no suitable habitat for any protected species.

Running water

There was a small burn running along the southern boundary of the Survey Area which was 0.5-1m wide with a bottom substrate of pebbles and gravel (TN2). At the time of survey there was very little water (0.1 – 0.2m) in the bottom which was barely flowing. The banks were quite steep at 70-90° and covered in scrub and tall ruderal vegetation with plants such as European gorse *Ulex europaeus*, broom *Cytisus scoparius*, meadowsweet *Filipendula ulmaria*, raspberry *Rubus idaeus*, hogweed *Heracleum sphondylium* and common nettle.

Along the south west boundary of this part of the Survey Area was a ditch (TN6) which was wet in places but not flowing. It was 1m wide and 2m deep with steep 70-90° soil banks and mostly overgrown with soft rush and grasses such as Yorkshire fog and cock's-foot.

Along the boundary which bordered Hialtland was a ditch which drained in to the small burn. Again this was 0.5-1m wide and 1m deep and wet in places but not flowing. Banks were 60-90° and overgrown with grasses, common nettle, soft rush and hogweed.

Scrub

The main areas of this habitat were found along the banks of the dismantled railway, on the banks of the small burn and a large area of dense scrub around the disused quarry just bordering the south of this part of the Survey Area. It covered 3ha, just under 5% of the Northern Grid Link Survey Area. This habitat was dominated by European gorse and particularly where the gorse was very dense there was no vegetation under it. Lots of rabbit burrows could be seen under the gorse and along the edge of the gorse, particularly where it bordered grassland.

4.2.2 AC/DC Converter Building

The middle part of the Survey Area was dominated by four habitats: quarries, four large arable fields and the surrounding fields of improved and semi-improved neutral grassland.

Dominant Habitats

Improved grassland

This habitat comprised 12.5ha, just under 19% of the Converter Building Survey Area and could be found in three large fields to the west of the Survey Area and two small fields to the east. This habitat was dominated by perennial rye-grass with daisy, meadow buttercup, creeping thistle and white clover. The sward was short and heavily grazed.

Arable

There were four arable fields in the centre of the Converter Building Survey Area which covered 21.7ha over 32%. They were separated by stone walls, with very little field margins.

Quarries

Apart from the large working granite quarry there were four disused quarries totalling 9.3ha, almost 14% of the North Grid Link Survey Area. The large working quarry had sheer cliff faces of about 40-50m which were mostly bare of vegetation. Although there were places which might be suitable for small mammals or bats to shelter it is unlikely that any would due to the disturbance of the working quarry.

There were three disused quarries to the north of this area which were in the middle of dense gorse so not easily accessible. One had been used to dump rubbish and there was water in the bottom of one of them.

The other disused quarry was situated on the hill above Longhaven Mains. Again it was not possible to access the quarry due to vegetation and large stone blocking the entrance. There was a small pool of water in the bottom which was mostly overgrown with reed canary grass *Phalaris arundinacea*, and surrounded by European gorse. The cliffs were about 5m high and had crevices which would be suitable for a range of species, including possibly roosting bats.

The disused quarries could also potentially provide ledges for breeding birds particularly peregrines *Falco peregrinus*.

Semi-improved neutral grassland

Within the Survey Area were a number of areas of semi-improved neutral grassland which covered 7.6ha, 11.3%. These were found around the quarry where grasses such as cock's-foot and weeds such as broadleaved dock, common ragwort, spear thistle and ribwort plantain were beginning to recolonise the disturbed ground. Other areas of this habitat were found around Highfield and Denhead and were dominated by grasses such as cock's-foot, Yorkshire fog and crested dog's-tail.

Scrub

The main areas of this habitat were found around the working quarry and a large area of dense scrub around the disused quarries just bordering the north of this part of the Survey Area, near Denhead Dam. This habitat was dominated by European gorse and particularly where the gorse was very dense there was no vegetation under it. Lots of rabbit burrows could be seen under the gorse and along the edge of the gorse particularly where it bordered grassland.

One area of scrub on the western boundary of the Survey Area was comprised of grey willow *Salix cinerea* carr. This habitat was situated in the valley bottom and prone to flooding. Between the willow bushes were areas of reed canary grass. Wet woodland

is identified as a habitat which is potentially dependant on groundwater but this area of willow carr was located in the flood basin around the small burn and is assessed to surface water dependent rather than dependant on groundwater. As a result it is considered very unlikely that this area is protected from disturbance under the WEWS legislation.

Other Habitats

Bare ground

Around the working quarry were large areas of bare ground which had been disturbed due to the quarry working and the track into the quarry.

Buildings

The buildings within this part of the Survey Area included the residential house and outbuildings at Highfield, the ruined cottage at Denhead and a barn near to the Hill of Boddam. There was no access to Highfield so it was not possible to determine exactly how many or in what state of repair the buildings were. At Denhead there was one derelict cottage which was stone built with a slate roof. It was in a poor state of repair most of the windows had no glass, there was no door and slates were missing from the roof. This would potentially provide access for bats and barn owls to roost. The barn near Hill of Boddam was in a similar state of repair and constructed of stone walls and slate roof. There were two outbuildings again of stone construction one with tile roof the other with corrugated composite roof. It was not possible to access these buildings but is assumed that they would also be suitable for roosting bats and potentially barn owls.

Coniferous plantation woodland

There was one bank of mature coniferous woodland within this part of the Survey Area located within the **Broadleaved plantation woodland**

Along the northern boundary of the field where a fishing pond (TN 20) was located was an area of broadleaved trees, mostly willow species and hawthorn. The other area of broadleaved plantation bordered one of the arable fields. These were young trees 2-3m high with a mix of ash, alder, rowan *Sorbus aucuparia* and elder *Sambucus nigra*.

Broadleaved semi-natural woodland

The island in the middle of the fishing pond was covered in willow species.

Marshy grassland

There were two areas of marshy grassland within this part of the Survey Area which were located along the disused railway track and near to quarry settling ponds. Both were dominated by soft rush.

Although marshy grassland is identified as a habitat potentially dependent on groundwater, SNIFFER WFD 95, in this case the habitat is considered to be surface water related and is disturbed by current farm management practices including grazing livestock and farm machinery. As a result it is considered very unlikely that these areas are protected from disturbance under the WEWS legislation.

Acid dry dwarf shrub heath

This habitat was found around the top of the granite quarry and on the slopes down to Denhead Dam. It was dominated by heather which was short, no more than 30cm

high. There were few other species present, occasional crowberry *Empetrum nigrum* and with the moss *Pleurozium schreberi* under the heather.

Fence

All of the fence lines were comprised of wire and post fences and provided no suitable habitat for any protected species.

Dry stone walls

Between the arable fields at Highfield were dry stone walls which could provide shelter and hibernacula for small mammals and reptiles. Very limited field margins are present within these fields with arable land use extending to within 2m of dry stone wall.

Running water

There was a small burn running along the western boundary of the Survey Area which drained from Denhead Dam. It was 0.5-1m wide with a bottom substrate of pebbles and gravel. The banks were mostly horizontal, up to 0.5m and covered in reed canary grass, meadowsweet and some European gorse.

The running water was also found in ditches along the eastern arable field boundary. These ditches were 0.5m at the bottom, 2-4m wide at the top with steep soil banks covered in rosebay willowherb, common sorrel *Rumex acetosa*, cock's-foot, Yorkshire fog, hogweed, hard fern *Blechnum spicant* and soft rush.

Standing water

There were a number of areas of standing water in the Survey Area. The largest was a fishing pond located on the Highfield property. It was approximately 120 x 60m with gently sloping banks covered in semi-improved neutral grassland.

Just to the north of the granite quarry were four settling ponds and one pond below these where water had accumulated in a hollow. These were of varying sizes between 5-12m wide and 3-10m long. The banks were steep, of soil and covered in grasses such as cock's-foot, Yorkshire fog, broadleaved dock with ribwort plantain, European gorse and soft rush. The small pond was approximately 5 x 3m and was completely overgrown with curly waterweed *Lagarosiphion major*, which is an invasive non-native plant and is listed on Schedule 9 of the Wildlife and Countryside Act 1981.

There was another small pond near to Hill of Boddam which was 30 x 5m with banks up to 3m high and steeply sloping, covered in semi-improved grassland with occasional willows.

4.2.3 Southern Grid Link

Dominant Habitats

Improved grassland

This habitat comprised 26.3ha (49%) of the Southern Grid Link Survey Area and could be found within the farmland. This habitat was dominated by perennial rye-grass with daisy, meadow buttercup, creeping thistle and white clover. The sward was short and heavily grazed. Cattle were present in some of the fields.

Marshy grassland

There were large areas of marshy grassland in the improved fields which were dominated by soft rush. In total the marshy grassland covered 7.2ha (13.5%) of the Southern Grid Link Survey Area.

Although marshy grassland is identified as a habitat potentially dependent on groundwater, SNIFFER WFD 95, in this case the habitat is considered to be surface water related and is disturbed by current farm management practices including grazing livestock and farm machinery. As a result it is considered very unlikely that these areas are protected from disturbance under the WEWS legislation.

Acid dry dwarf shrub heath

This habitat was found on the hill above Longhaven Mains and covered 2.9ha. It was dominated by heather, which was short, no more than 30cm high. There were few other species present, occasional crowberry, bilberry, red fescue *Festuca rubra* and with the moss *Pleurozium schreberi* under the heather.

Semi-improved neutral grassland

There were two areas of semi-improved neutral grassland which covered 3.8ha (7.1%). These were found along the edge of a field at Longhaven Mains and a field near to the coast. This habitat was dominated by grasses such as cock's-foot, Yorkshire fog and crested dog's-tail with occasional common ragwort, ribwort plantain and spear thistle.

Other Habitats

Quarries

There were two disused quarries within this part of the Survey Area. One was situated on the hill above Longhaven Mains. It was not possible to access the quarry due to vegetation and large stone blocking the entrance. There was a small pool of water in the bottom which was mostly overgrown with reed canary grass, and surrounded by European gorse. The cliffs were about 5m high and had crevices which would be suitable for a range of wildlife, possibly including roosting bats.

The other quarry was situated on the coast and was much bigger about 15-20m high cliffs and had a large pool in the bottom.

The disused quarries could also potentially provide ledges for breeding birds particularly peregrines *Falco peregrinus*.

Valley mire

On the hill above Longhaven Mains was an area of valley mire which was dominated with soft rush with mosses such as *Sphagnum cuspidatum* and common cottongrass *Eriophorum angustifolium*.

Valley mire is identified as a habitat potentially dependent on groundwater as detailed within the SNIFFER WFD.

Scrub

There was one area of scrub along the banks of a drainage ditch. This habitat was dominated by European gorse and particularly where the gorse was very dense there was no vegetation under it.

Fence

All of the fence lines were comprised of wire and post fences and provided no suitable habitat for any protected species.

Dry stone walls

Bordering the fields along the coast were dry stone walls which had been built up further with a layer of soil and over grown with grassland species. These had the potential to provide shelter and hibernacula for small mammals and reptiles.

Running water

The running water in this part of the Survey Area was mainly in ditches, two of which drained down to the sea. These were 0.5-1m wide at the bottom and up to 2m wide at the top. The bottom substrate was of gravel and pebbles with some cobbles. The banks were up to 1.5m high and steeply sloping, covered in soft rush or grasses such as cock's-foot, Yorkshire fog with some European gorse, hogweed and hard fern.

Hard cliff

Around the coast were vertical cliffs 30-40m high with little vegetation. At the top of the cliffs where they were more gently sloping were large areas of greater wood-rush *Luzula sylvatica*.

Coastal grassland

Around the top of the cliffs was grassland with red fescue, occasional cock's-foot, thrift *Armeria maritima* and bird's-foot-trefoil *Lotus corniculatus*.

Table 4: Phase 1 habitats and coverage across the Survey Area

Habitat	North Grid Link (ha)	% of total	Converter Building (ha)	% of total	South Grid Link (ha)	% of total	Grand Total (ha)	% of site
Acid grassland - unimproved					1.06	1.98	1.06	0.58
Bare ground	2.49	4.04	2.11	3.16			4.60	2.53
Broadleaved woodland - plantation	0.05	0.07	0.39	0.58			0.43	0.24
Broadleaved woodland - semi-natural			0.02	0.03			0.02	0.01
Buildings	1.91	3.11	0.09	0.14			2.00	1.10
Coastal grassland					4.37	8.20	4.37	2.40
Coniferous woodland - plantation	0.31	0.50	1.11	1.66			1.42	0.78
Cultivated/ disturbed land - amenity grassland	0.17	0.28	0.43	0.64			0.60	0.33
Cultivated/ disturbed land -	16.70	27.15	21.74	32.47	0.00	0.00	38.44	21.15

Habitat	North Grid Link (ha)	% of total	Converter Building (ha)	% of total	South Grid Link (ha)	% of total	Grand Total (ha)	% of site
arable								
Dry dwarf shrub heath - acid			1.30	1.94	2.98	5.59	4.28	2.35
Fen - valley mire			0.00	0.00	1.88	3.53	1.88	1.03
Hard cliff					3.63	6.82	3.63	2.00
Improved grassland	24.59	39.99	12.55	18.74	26.28	49.31	63.42	34.90
Marsh/marshy grassland	0.89	1.45	0.39	0.59	7.19	13.50	8.48	4.66
Mixed woodland - plantation	0.38	0.62	0.10	0.15			0.48	0.26
Neutral grassland - semi-improved	7.60	12.36	7.62	11.39	3.80	7.13	19.03	10.47
Neutral grassland - unimproved			0.68	1.01			0.68	0.37
Other tall herb and fern - ruderal	1.03	1.67					1.03	0.57
Quarry	0.09	0.15	9.30	13.89	0.37	0.70	9.76	5.37
Running water	0.16	0.27					0.16	0.09
Scrub - dense/continuous	2.85	4.63	3.09	4.62	0.31	0.59	6.25	3.44
Scrub - scattered	0.14	0.23	2.21	3.30	0.37	0.69	2.72	1.50
Shingle above high tide mark					0.11	0.21	0.11	0.06
Standing water	0.05	0.09	1.14	1.71	0.01	0.02	1.21	0.66
Track	2.09	3.39	2.68	4.00	0.93	1.74	5.69	3.13
Grand Total	61.50	100.00	66.94	100.00	53.29	100.00	181.74	100.00

Protected Species

Bats

The main consideration in terms of bats within the Survey Area were the buildings associated with Denend Farm, Denhead, Whinbush and Highfield. These buildings offered numerous opportunities for roosting bats. The disused quarries could also offer some roosting potential. The buildings, former gardens and a small number of mature trees would offer sheltered habitats for foraging bats.

The wider Survey Area would offer limited opportunities for foraging and commuting bats with the field boundaries and sections of scrub providing sub-optimal commuter routes for local bat populations. The unnamed burn running along the southern edge of the Northern Grid Link Survey Area and the associated marshy grassland and scrub habitats offered the most suitable habitat for foraging and commuting bats but

remained sub-optimal as a lack of trees means it does not provide any sheltered environments. The area around Highfield would also offer some foraging opportunities around the ponds.

The habitat across the wider Survey Area and beyond was dominated by the agricultural landscape with improved grassland and arable fields which offered somewhat limited resources for bats, although dependent on crop regimes some seasonal foraging resources may exist.

Otter

A number of otter spraints were found during the survey (TNs 27 and 31), although there was no other evidence of otters. Being close to the coast there would be plenty of resources for otters and there are drains and small watercourses which would connect to the dam and ponds which are further inland and also connect to areas of marshy grassland which could provide food resources in terms of amphibians.

Water vole

There was only one small burn present within the Survey Area and a number of agricultural drains. These watercourses were generally bordered by agricultural fields although habitats immediately adjacent supported marshy or rank improved grassland offering suitable habitat for water voles. The ephemeral nature of the water in many of these ditches may lower the suitability of some sections but nonetheless habitats exist within the Survey Area capable of supporting water voles.

Badger

During the extended Phase 1 survey evidence of badgers was identified at two locations, a latrine at a disused quarry (TN29) and a latrine at the edge of the valley mire (TN30). No setts were identified although it is possible that there could be a sett at the disused quarry (TN28) and the banks to the south of the Denend farmhouse showed signs of a potential relict sett, long abandoned.

A number of large mammal pathways through fences were also identified (e.g. TN8 and 9) although no conclusive evidence that these were badger was identified from footprints or snagged hairs.

The agricultural nature of the Survey Area and surrounding landscape offers highly suitable habitat for badgers, and the presence in places of dense gorse cover could have obscured signs of setts being present. It is therefore likely that badgers use the Survey Area on a frequent basis for foraging.

Amphibians and reptiles

No sightings of reptiles occurred during the extended Phase 1 survey and only one young frog was seen (TN26). Agricultural landscapes and the associated disturbance from farm machinery (arable) and livestock (pasture) offers limited suitable habitat. Nonetheless reptiles including adder *Vipera berus* and common lizard are present throughout this region and it is possible that small numbers of reptiles may be present within undisturbed areas, possibly in the dry heath around the disused quarry and along dry stone walls which also offer hibernation habitat.

The ponds located within the Survey Area are sub-optimal for amphibians due to the fact that they are frequently being disturbed through fishing or a through flow of water

in the settling ponds. The most suitable pond is the one located near to the Hill of Boddam.

Great crested newts *Triturus cristatus* have extremely limited distribution in this part of Scotland, with the nearest population in excess of 100km (NBN Gateway) and the possibility of this EPS being present within farmland ponds is assessed as being negligible.

Aquatic ecology

The only watercourse present within the Survey Area was the unnamed burn which runs from Denhead Dam. This burn had a gravel/cobble substrate with heavy siltation in places where livestock have poached the channel edges. The depth of water at the time of survey was approximately 0.2m and up to 0.3m wide with heavily vegetated banks.

The watercourse appeared to become culverted for a significant portion of its course to the north west of the A90 trunk road. The burn is not designated as a salmonid water under the Freshwater for Fish Directive (78/659/EEC) and fish access to the Survey Area is very limited. The burn and other small drains within the Survey Area have the capacity to support invertebrate populations but no invertebrate species of conservation concern (Scottish Biodiversity List, LBAP, UKBAP, Red Data List) were identified within data searches or through consultations. This suggests that this habitat is likely to support only the characteristically impoverished aquatic fauna typically found in these kind of drains through intensively managed farmland in this part of Scotland.

4.3 Winter Walkover Bird Surveys

Six primary target species were recorded within the Survey Area these are discussed below within the relevant parts of the Survey Area. More details can be found in the full survey report 19400-06/R1/Rev1.

North Grid Link Survey Area

This section of the Survey Area was dominated by passerines, including: yellow hammer *Emberiza citrinella*, skylark *Alauda arvensis* and linnet *Carduelis cannabina*. A large number of herring gull *Larus argentatus* were present around the Millbank sub-station but in general the area supported common and widespread species expected for such an agricultural landscape. The only species of particular note identified in this location were a flock of eighteen pink-footed goose *Anser brachyrhynchus* recorded flying northwest over the Den of Boddam.

AC/DC Converter Building Survey Area

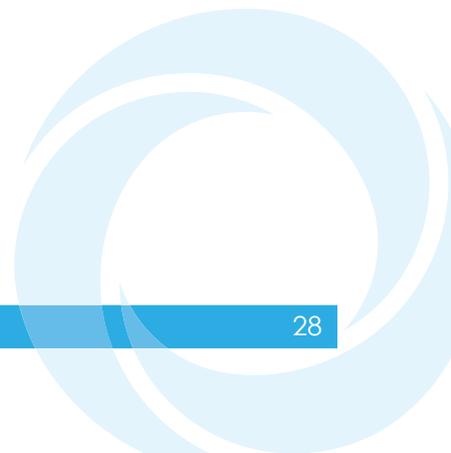
The area surrounding the proposed AC/DC Converter Station building again supported a similar array of common species to that of the above cable route. The pond west of Highfield Farm and the proposed building location supported a pair of mallard *Anas platyrhynchos*, a pair of mute swans *Cygnus olor* and a single male goldeneye *Bucephala clangula*. Two oystercatcher *Haematopus ostralegus*, possibly a pair, were recorded flying over the Fourfields area to the south of Highfield Farm. The secondary species recorded during the survey were buzzard *Buteo buteo* and grey heron *Ardea cinerea*.

The quarries east of the proposed building location were surveyed for signs of peregrine, but no evidence was identified and no wintering individuals were observed.

South Grid Link Survey Area

Of the species recorded herring gulls were the most numerous, recorded in small flocks ranging from 3-40 individuals, flying over this section of the Survey Area in a well distributed manner. Though there was a slight concentration of herring gull towards the southern end of the section adjacent to Long Haven Bay. A further 189 individuals were recorded within the bay itself roosting on the small islands just off shore.

Long Haven Bay and the vicinity also contained sightings of SPA qualifier species including fifteen guillemots *Uria aalge* and 14 fulmar *Fulmarus glacialis*. A further nine eider duck *Somateria mollissima* were observed within Long Haven Bay with buzzard observed at a number of locations inland.



5 Summary

5.1.1 Habitats

The habitats present across the Survey Area were dominated by agricultural fields of semi-improved grassland or arable crops which would offer limited nature conservation value in terms of their botanical content. A number of the habitats are listed within the LBAP and include coniferous woodland, broadleaved woodland, semi-improved grassland, arable, field margins, standing water and running water. However, these listings are generally in relation to offering suitability for faunal species and not for their intrinsic value. In addition the intensive nature of the management of these habitats reduces their overall conservation value.

Several areas of marshy grassland were present within the Survey Area. These areas were located in low lying sections of the Survey Area adjacent to ditches, watercourses or areas of standing water. All these areas appear to be distributed in relation to surface water drainage rather than being dependent or influenced by groundwater. Furthermore, the majority of these areas are disturbed to a greater or lesser degree from current farm management practices including grazing livestock and farm machinery. As a result it is considered very unlikely that these areas are protected from disturbance under the WEWS legislation.

The solid geology mapping shows the majority of the area to be underlain by the Peterhead granitic pluton which is a relatively impermeable or very low productivity aquifer. However, the areas near Den Hill is underlain by Glacial till or clay with sand and gravels, often relatively impermeable or low productivity aquifers.

In terms of groundwater dependant habitats the willow carr beneath Denhead Dam is unlikely to be groundwater as it sits in the flood plain of the small burn. The valley mire above Longhaven Mains could be the only habitat which is groundwater dependant.

Aquatic habitats within the Survey Area are limited to the ditches and small burn which were relatively heavily modified to some degree by the agricultural activities in the area. Therefore they are unlikely to support species of conservation concern (Scottish Biodiversity List, LBAP, UKBAP, Red Data List) and only likely to support the characteristically impoverished aquatic fauna typically found in these kind of drains through intensively managed farmland in this part of Scotland. Overall these watercourses offer low value in terms of aquatic ecology.

Other than the curly waterweed, which is listed on Schedule 9 of the Wildlife and Countryside Act 1981 and present in the pond at TN20, no flora species controlled by invasive species legislation were noted during the extended Phase I habitat survey.

5.1.2 Protected Species

The Survey Area is likely to support foraging bats within the less exposed areas around the Denend farm buildings, the small burn and the area around Highfield. The Denend buildings themselves offer a number of suitable roosting locations within the walls and roof of the agricultural buildings and within the exterior and potentially interior of the farmhouse. It is likely that at least some bat roosting occurs within these buildings. The derelict cottage at Denhead could also offer suitable roosting opportunities in the walls and roof spaces.

Foraging activity, although possible is expected to be low across the majority of the Survey Area although the small burn adjacent scrub and marshy grassland is likely to offer good quality for local bat populations, as well as the ponds and the water pools in the quarries.

Signs of otter were observed during the extended Phase 1 survey and it is likely that otter are present particularly in the south of the Survey Area, close to the coast.

The ditch along the northern boundary and the small burn offer good quality water vole habitat, if the species is present locally.

Badgers are present within the wider landscape and evidence suggests that they use the Survey Area for foraging and commuting, although no setts were identified during the extended Phase I habitat survey.

The Survey Area offered only very limited habitat for amphibians and reptiles, although it is possible that the pockets of less intensively farmed areas, edges of scrub and dry heath may support small populations of species such as common lizard, if present locally. The presence of species such as great crested newt is assessed as being very unlikely with the no records of great crested newts within 2km detailed by NESBReC and the nearest population in excess of 100km to the west (NBN Gateway).

Aquatic habitats within the Survey Area are limited to the ditches and small burn which were relatively heavily modified to some degree by the agricultural activities in the area. As such there is unlikely to be any species of conservation concern present within them and only likely to support the characteristically impoverished aquatic fauna typically found in these kind of drains through intensively managed farmland in this part of Scotland.

Recommendations

- Bats – Assuming that no trees greater than 20cm in diameter would be removed or buildings demolished no further bat surveys would be necessary. Once the final route for the grid connection is determined it might be necessary to reassess the disturbance to bats but general good practice during the development would mean preventing disturbance to commuting routes and reducing the use of artificial lighting.
- Otters and water voles – it is recommended that a survey of all ditches and watercourses within 200m of the proposed development footprint are undertaken between May and September of any given year.
- Badgers – it is recommended that the final grid connection route takes into account the potential for badgers within the scrub adjacent to the disused quarry (TN28/TN29). A buffer of at least 30m to this habitat is recommended. If this is not possible then further survey work to confirm the presence or absence of badger setts within dense scrub will be required. Furthermore it is recommended that a pre-construction walkover survey for badger is undertaken to ensure that no change in sett presence has occurred. This survey should cover all land within 50m of the proposed development and is best undertaken during the winter months (November to May) when visibility (reduced vegetation cover) is best.
- Aquatic ecology – although from the survey work to date the quality of the aquatic environment is low, it is recommended that the Ugie District Salmon Fishery Board and SEPA are consulted to confirm the low sensitivity of this minor catchment.

- Ornithology –
 - To avoid impacts on breeding birds, all vegetation clearance work should ideally be undertaken outside of the breeding bird season (March – July inclusive). Should this not be possible then all areas identified for clearance should be checked for nests by an ecologist prior to clearance. If any nests are identified then the nest and a buffer of at least 3m should be clearly marked and no works allowed until after chicks have fledged and the nest has been abandoned.
 - In accordance with best practice it is recommended that to provide robust baseline data the following surveys are carried out:
 - Three visit common bird census (CBC) survey; and
 - Nesting raptor surveys of the quarries.

However, as no quarries suitable for peregrine will be directly affected by the proposed works and the nearest large quarry remains an active quarry it is assessed that impacts on peregrine should they be present is unlikely to be significant.

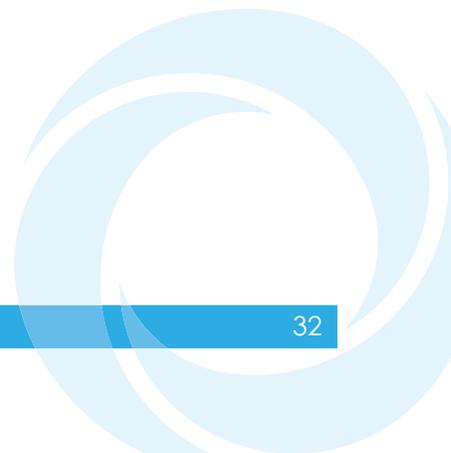
In relation to the recommended CBC surveys; cable installation does not generally constitute a significant impact as duration of disturbance is short and no permanent loss of habitat occurs. The construction of the Converter Station will result in a significant area of habitat loss but this is restricted to arable land which is common and widespread in this part of Aberdeenshire. As a result, assuming that nesting bird mitigation outlined above is taken into consideration, the potential impacts on local avian fauna as a result of this development is assessed to be not significant.
 - It is assessed as being unlikely that breeding wader or breeding bird surveys would be required.
 - The need for further ornithological surveys (including those outlined above) should be scoped at the earliest opportunity with the local planning authority ecologist and/or SNH as appropriate, to confirm the need and scope of any survey effort.
- Reptiles
 - Key areas of suitable habitat include the drystone wall within the Fourfields section of the Survey Area. Significant disturbance (including removal of extensive sections) to these walls is anticipated as being required for the construction of the proposed building. To ensure that full regard to the protection of reptiles under the Wildlife & Countryside Act is ensured the drystone wall should be dismantled by hand at a time of year when reptiles are active. This carefully controlled disturbance should be undertaken outside the reptile hibernation period (when disturbance would inevitably harm any reptiles present, and thus contravene the relevant legislation). If any reptiles are discovered then a suitably qualified ecologist should relocate the individuals to a suitable section of similar habitat outwith the construction area.

6 Site Constraint Summary

In terms of ecological components the major constraints for any development within these Survey Areas are in relation to protected species (otters, water voles and badgers) but based on existing information no constraints represent significant issues in terms of any future impact assessment.

The habitats present are not of significant conservation value in terms of the Water Framework Directive (GWDTEs) or their intrinsic botanical value.

The recommended surveys will provide a robust baseline assessment and will provide additional information on the scale of impact on the protected species.



7 References

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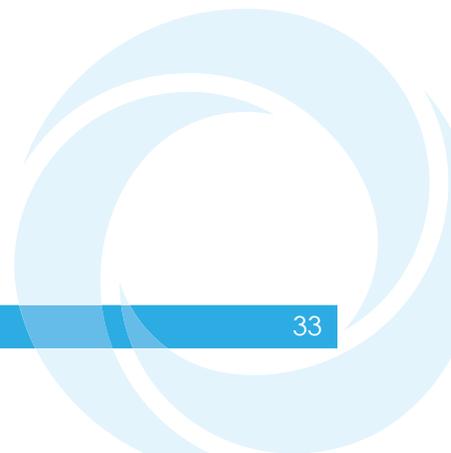
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Appendices

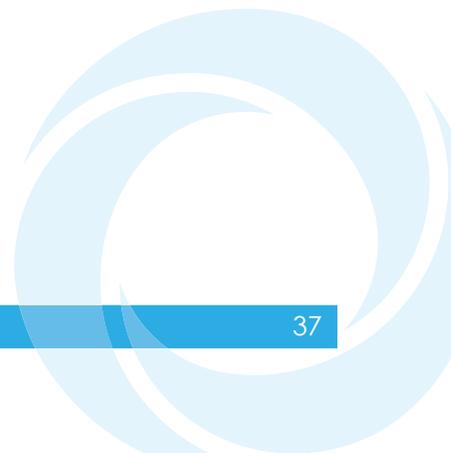
Appendix. A. Target Notes

Target Note	Grid reference	Notes
1	NK 11624 42068	Small copse of woodland adjacent to Denend house dominated by Sitka spruce with sycamore also present. Copse is situated on steep bank approximately 4m high which appears to comprise of rubble and other agricultural refuse. Signs of rabbit burrows and mammal foraging, potentially including badger were present but no conclusive evidence of the species was identified.
2	NK 11722 42046	Stream 0.5 – 1m wide at the bottom, 3-4m wide at the top, banks 80-90° and 2-3m high. Bottom of pebbles and gravel, water depth about 10cm, very slow flow. Overgrown with gorse, broom, meadowsweet, cocksfoot, creeping thistle, raspberry <i>Rubus idaeus</i> , common nettle, Yorkshire fog, hogweed, eared willow <i>Salix aurita</i> .
3	NK 11630 41966	Tall ruderal vegetation along the edge of the arable field with red dead nettle <i>Lamium purpureum</i> , smooth sow thistle, tufted vetch, oxeye daisy, cleavers, common chickweed, common bistort <i>Persicaria bistorta</i> , alder and rowan saplings and the grasses Yorkshire fog and Timothy <i>Phleum pratense</i> ..
4	NK 11591 41937	Mammal pathway going from arable field under fence to stream. No definitive evidence such as prints or hair suggesting which mammal.
5	NK 11581 41925	Dry ditch draining field, only about 10m long, 0.5m wide at bottom, 2m wide at top, banks up steep to 1m, 70 – 90°. Overgrown with soft rush.
6	NK 11552 41879	Wet ditch along fence line with 10cm water but not flowing, ditch becomes dry further to the north west. 1m wide at bottom, 2-3m wide at top, banks 70-90°, 2m high. Overgrown with soft rush, Yorkshire fog, gorse, cocksfoot, common nettle, creeping thistle.
7	NK 11543 41872	Pond in valley with outflow into stream, dammed at eastern end. Roughly rectangle shaped (20x15m wide at eastern end and by 10m wide at western end), banks up to 1m high and 45-60°. Surrounded by unimproved/marshy grassland. Pond is completely overgrown broad-leaved pondweed and soft rush and water horsetail <i>Equisetum fluviatile</i> present on margins.
8	NK 11377 42035	Mammal pathway into arable field from ditch. Some burrows in banking of ditch likely to be rabbit, no other signs, burrows do not go very deep.
9	NK 11406 42061	Mammal pathway into arable field from road and semi-improved field. Double fence line along track planted with alder and hawthorn.
10	NK 11677 42077	Mound of large stones potentially from a former building. These may offer some sheltering opportunities for badgers, small mammals and potentially reptiles.
11	NK 11623 41935	Three mammal pathways from arable field into area of gorse, a single scat was identified which was green/brown in colour and soft with grass and insect remains in. This is most consistent with badger.
12	NK 11536 42228	Fence lines surrounding arable field were mostly comprised of a double post and wire fence with some hedgerow planting including hazel, hawthorn and blackthorn. Planted specimens were heavily grazed and not well established with no effective hedgerow present. Ground flora between fences was dominated by common nettle, creeping thistle,

Target Note	Grid reference	Notes
		cocksfoot, false oat grass <i>Arrhenatherum elatius</i> , bramble, cow parsley, rosebay willowherb, common ragwort, ribwort plantain, creeping buttercup tufted vetch and spear thistle.
13	NK 11522 42285	Low density planting of broadleaved trees associated with edge of plantation habitat including hazel, sycamore and crack willow.
14	NK 11689 42430	Small area of marshy grassland dominated by soft rush, Yorkshire fog and creeping buttercup.
15	NK 11694 42408	Ditch with only very small amounts of stationary water present (<10cm), approximately 1m deep with 45° slopes. Banks were densely vegetated with marshy grassland vegetation with bed of ditch also supporting soft rush colonisation.
16	NK 11759 42049	Burn supporting flowing water up to 20cm deep in places. Banks up to 1.5m high with extensive colonisation on northern bank by European gorse. Southern bank dominated by tall herb communities with extensive rosebay willowherb along with rank grasses dominated by cocksfoot, soft rush, creeping thistle, foxglove, common nettle and meadow vetchling <i>Lathyrus pratensis</i> .
17	NK 11802 42051	A band of marshy grassland to the north of the ditch supported soft rush, compact rush, crested dog's tail, rough meadow grass <i>Poa trivialis</i> , marsh thistle <i>Cirsium palustre</i> , Yorkshire fog and broad-leaved dock along with occasional meadowsweet and wild angelica <i>Angelica sylvestris</i> .
18	NK 11851 42084	Heavily grazed improved grassland field with steep bank to marshy grassland and ditch. Grasses present included perennial rye grass, white clover, crested dog's tail, and Yorkshire fog.
19	NK 12046 48813	Wet ditch, bottom 0.5m wide, 3-4m wide at the top, banks 70-80° covered in brambles, rosebay willow herb and gorse. Water 10-20cm deep, moderate flow, bottom gravel, pebbles.
20	NK 12080 41614	Series of four settling ponds all of indeterminate depth. Pond 1 5x5m, banks 1-1.5m high, 70-80°. Pond 2 6x5m, banks 1m high, 70-80°. Pond 3 6x8m, banks 1-1.5m, 70-80°. Pond 4 4x10m, banks 1m high, 70-80°. Ponds surrounded by semi-improved grassland with soft rush, cocksfoot, broad leaved dock, common ragwort, European gorse. Fifth smaller pond, 4x3m overgrown with curly waterweed. Across the track on Highfield land was an artificial pond which is used for fishing. Approx 60x120m. Island in the middle with deciduous trees, possibly willow. Soil banks about 1m high surrounded by semi-improved grassland.
21	NK 12085 41482	Ditch 0.5m at bottom, 3-4m at top, banks 80-90°, bottom gravel, silt, pebbles. Banks up to 3m with rosebay willowherb, common sorrel, cocksfoot, ribwort plantain, soft rush, spear thistle, hogweed, hard fern.
22	NK 12090 41411	Wind break of young 3-5m planted deciduous trees including ash, alder, hawthorn, rowan, elder and willow. Very open semi-improved grass underneath.
23	NK 12117 41193	Pond 30x5m. Earth banks vary 1m on east side, 2-3m on west side, 60-80°. Surrounded by marshy grassland. Young willows 4m on east bank. Indeterminate depth.
24	NK 12206 41048	Old barn, stone walls with slate roof, some of roof had collapsed exposing roof trusses. Two outbuildings with stone walls, one with pan tile roof and the other corrugated.
25	NK 12077 40964	Dry heath dominated by heather with some crowberry, scarce cross-leaved heath. Heather uniform and short 0.5m. Underneath heather

Target Note	Grid reference	Notes
		hard rush, <i>Pleurozium schreberi</i> and red fescue.
26	NK 12026 40956	Bog pool formed where ditch had been blocked, unknown depth, mostly covered in <i>Sphagnum cuspidatum</i> , surrounded by soft rush. Froglet.
27	NK 12022 40953	Otter spraint on grass hummock, black with remains of bones, slide into bog pool.
28	NK 11858 40939	Quarry disused, cliff face about 10m high, small pool in bottom with reed canary grass and surrounded by European gorse. Hillside with remains of workings
29	NK 11863 40929	Badger latrine with three pits, two with dung located beneath large boulders. Mammal pathways leading from boulders to grassland, no other signs of badger but potential for sett in the boulders or in the gorse.
30	NK 11872 40727	Badger latrine with 10 pits, seven with dung at junction of ditches. Defined mammal pathway leading to the latrine from the north down the fence line from the quarry area. No other signs of badger.
31	NK 11927 40416	Two Otter spraints on wooden step.
32	NK 11873 40364	Ruined building only stone walls remaining. Limited potential for roosting bats in cracks in mortar.
33	NK 12005 40149	Quarry with water in the bottom. Sheer cliffs of 30-40m with little vegetation. Surrounded by grassland. Entrance to quarry facing sea was blocked with large boulders.

Appendix. B. Figures



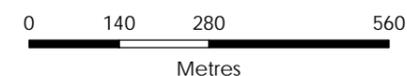
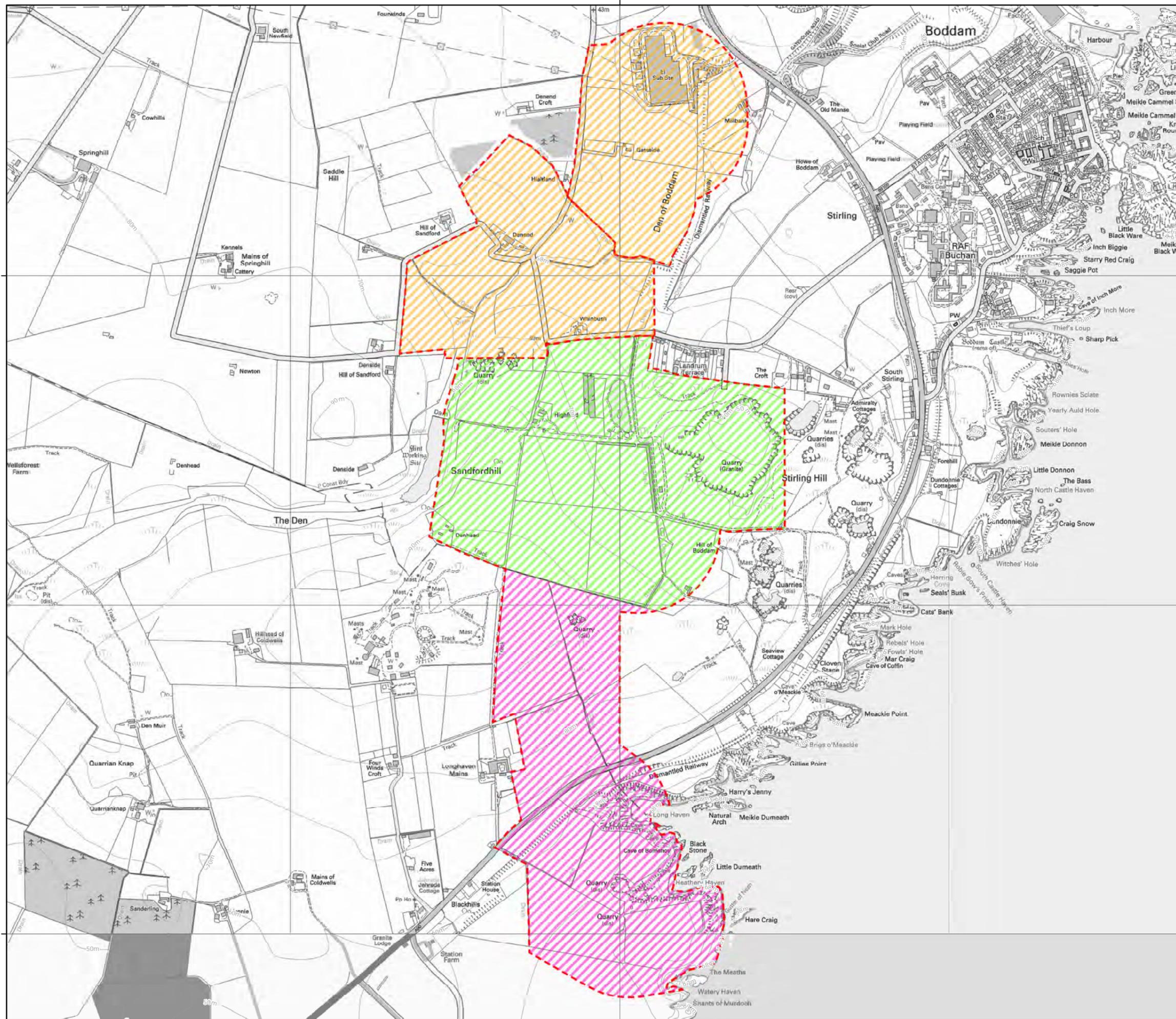
North Connect Converter Building



Figure 1
Survey Areas

Key

-  Survey areas
-  North Grid Link
-  Converter Building
-  South Grid Link



Scale @ A3:
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North Connect Converter Building



Figure 2
Designated Sites

Key

- Survey area
- 2 & 15 km survey area buffer
- RAMSARs
- Special Area of Conservation
- Ancient Woodland Inventory
- RSPB Reserves
- Special Protection Areas
- SSSIs



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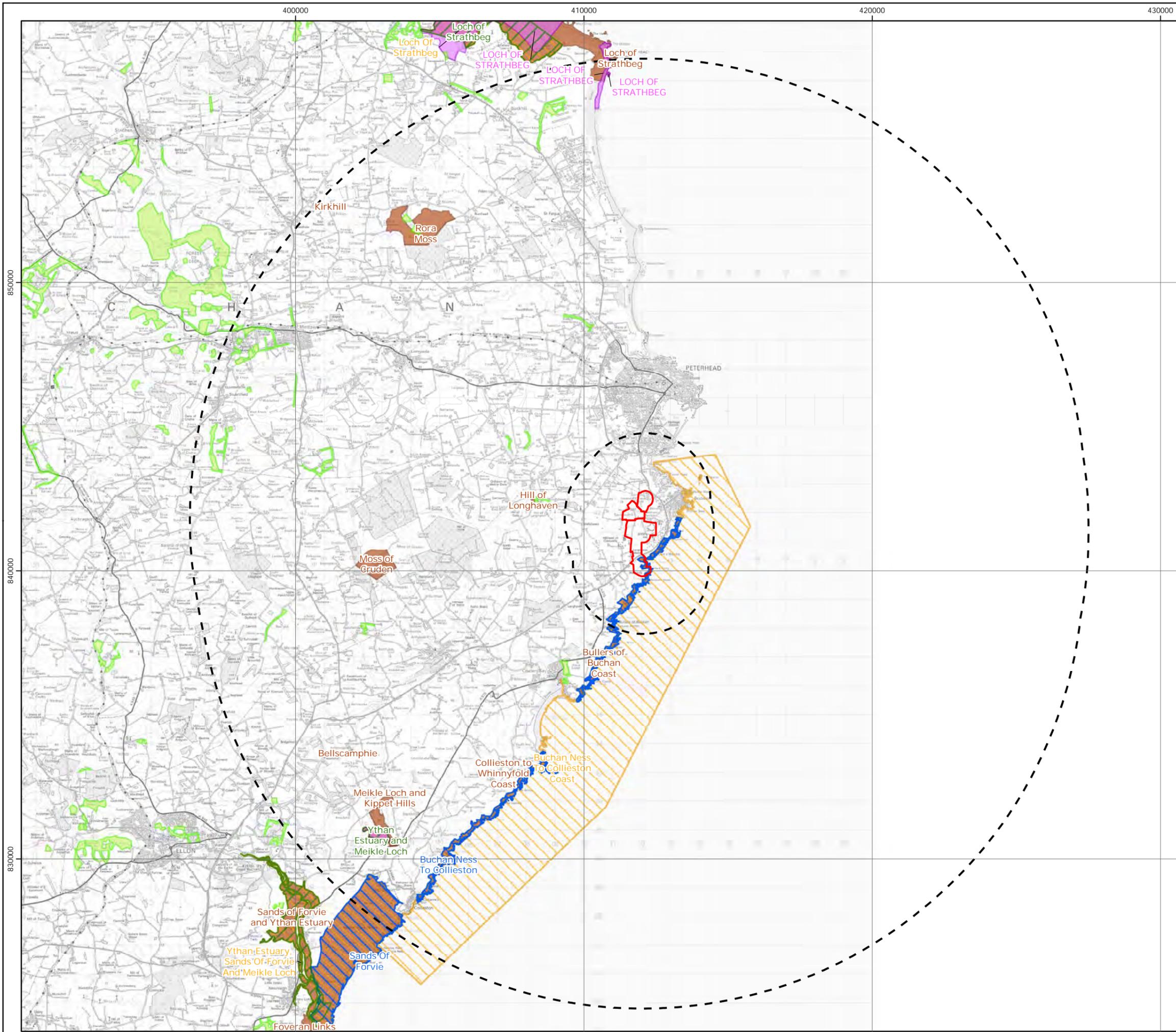


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North Connect Converter Building



Figure 3
Phase 1 Survey Results
Grid Link

Key

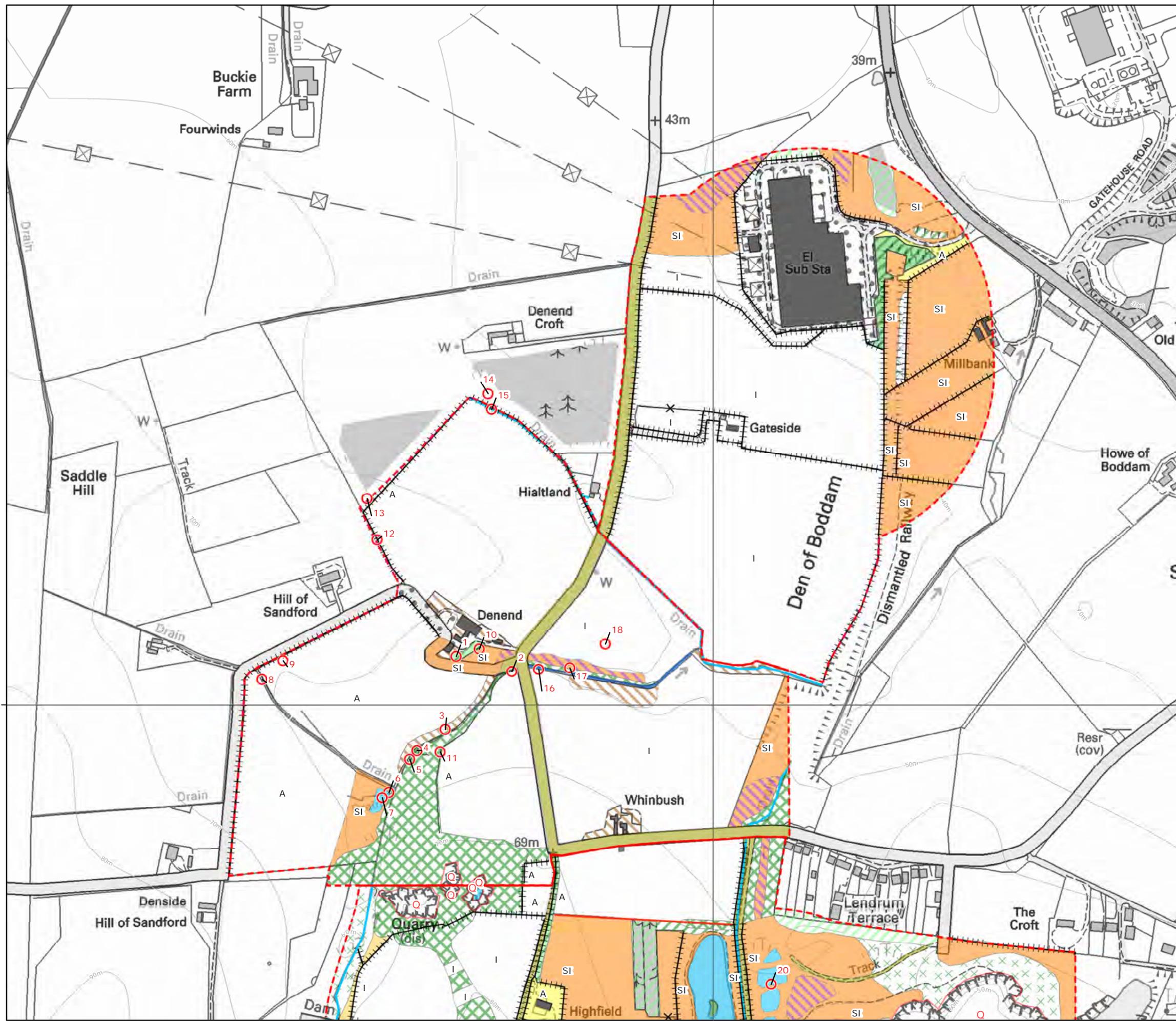
- | | | | |
|--|-------------------------------------|--|---|
| | Survey areas | | SI Neutral grassland - semi-improved |
| | Target Note | | I Improved grassland |
| | Coniferous Parkland/scatt... trees | | M Marsh/marshy grassland |
| | Wet ditch | | O Other tall herb and fern - ruderal |
| | Fence | | D Dry dwarf shrub heath - acid |
| | Wall | | VM Fen - valley mire |
| | Boundary removed | | St Standing water |
| | Broadleaved woodland - semi-natural | | R Running water |
| | Broadleaved woodland - plantation | | H Hard cliff |
| | Coniferous woodland - plantation | | C Coastal grassland |
| | Mixed woodland - plantation | | Shingle above high tide mark |
| | Scrub - dense/continuous | | Q Quarry |
| | Scrub - scattered | | A Cultivated/distur... land - arable |
| | Acid grassland - unimproved | | A Cultivated/distur... land - amenity grassland |
| | Neutral grassland - unimproved | | B Buildings |
| | | | Bg Bare ground |
| | | | T Track |



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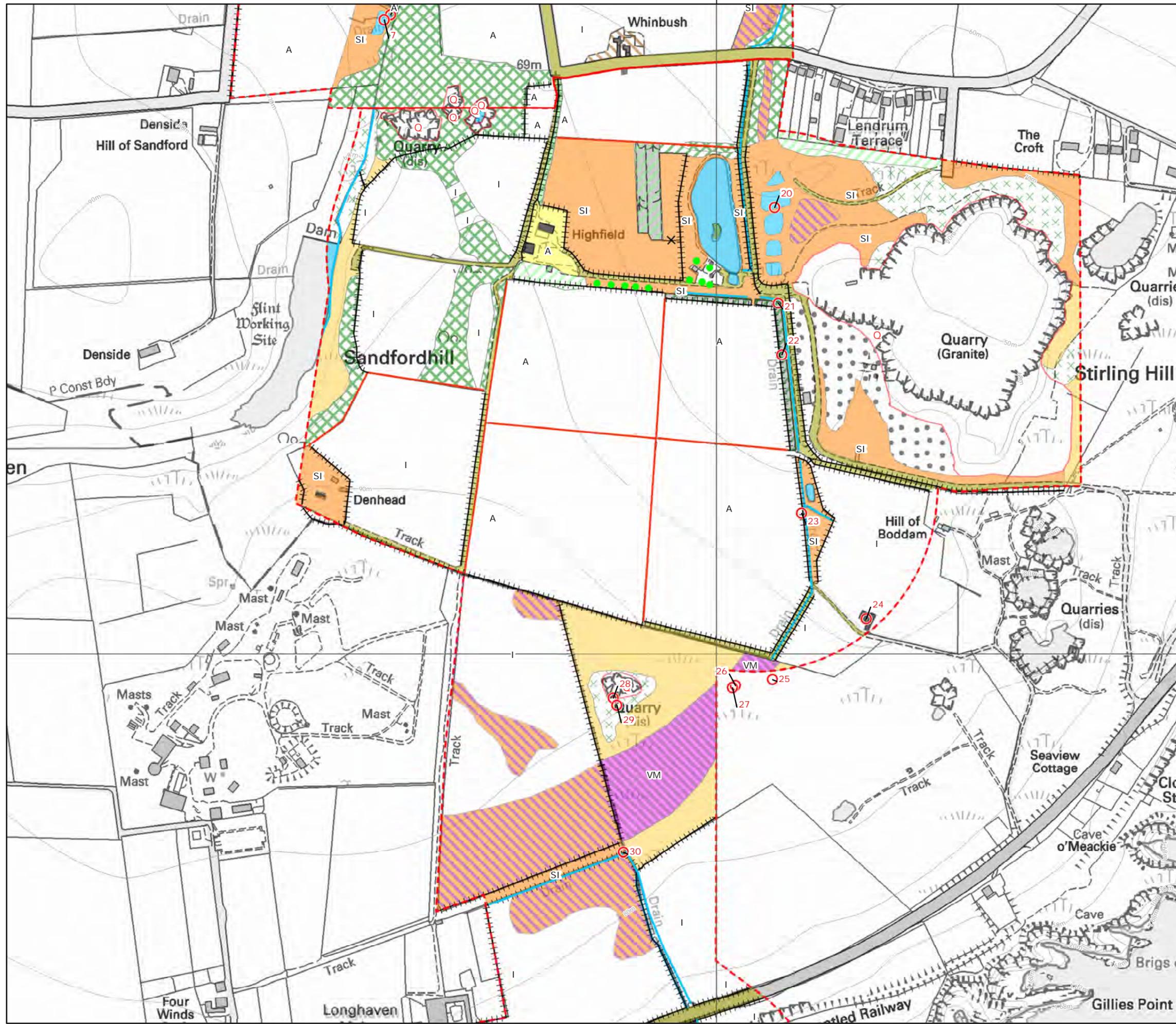


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North Connect Converter Building



Figure 3
Phase 1 Survey Results
Grid Link



Key

Survey areas	Neutral grassland - semi-improved
Target Note	Improved grassland
Coniferous Parkland/scatt... trees	Marsh/marshy grassland
Wet ditch	Other tall herb and fern - ruderal
Fence	Dry dwarf shrub heath - acid
Wall	Fen - valley mire
Boundary removed	Standing water
Broadleaved woodland - semi-natural	Running water
Broadleaved woodland - plantation	Hard cliff
Coniferous woodland - plantation	Coastal grassland
Mixed woodland - plantation	Shingle above high tide mark
Scrub - dense/continuous	Quarry
Scrub - scattered	Cultivated/distur... land - arable
Acid grassland - unimproved	Cultivated/distur... land - amenity grassland
Neutral grassland - unimproved	Buildings
	Bare ground
	Track



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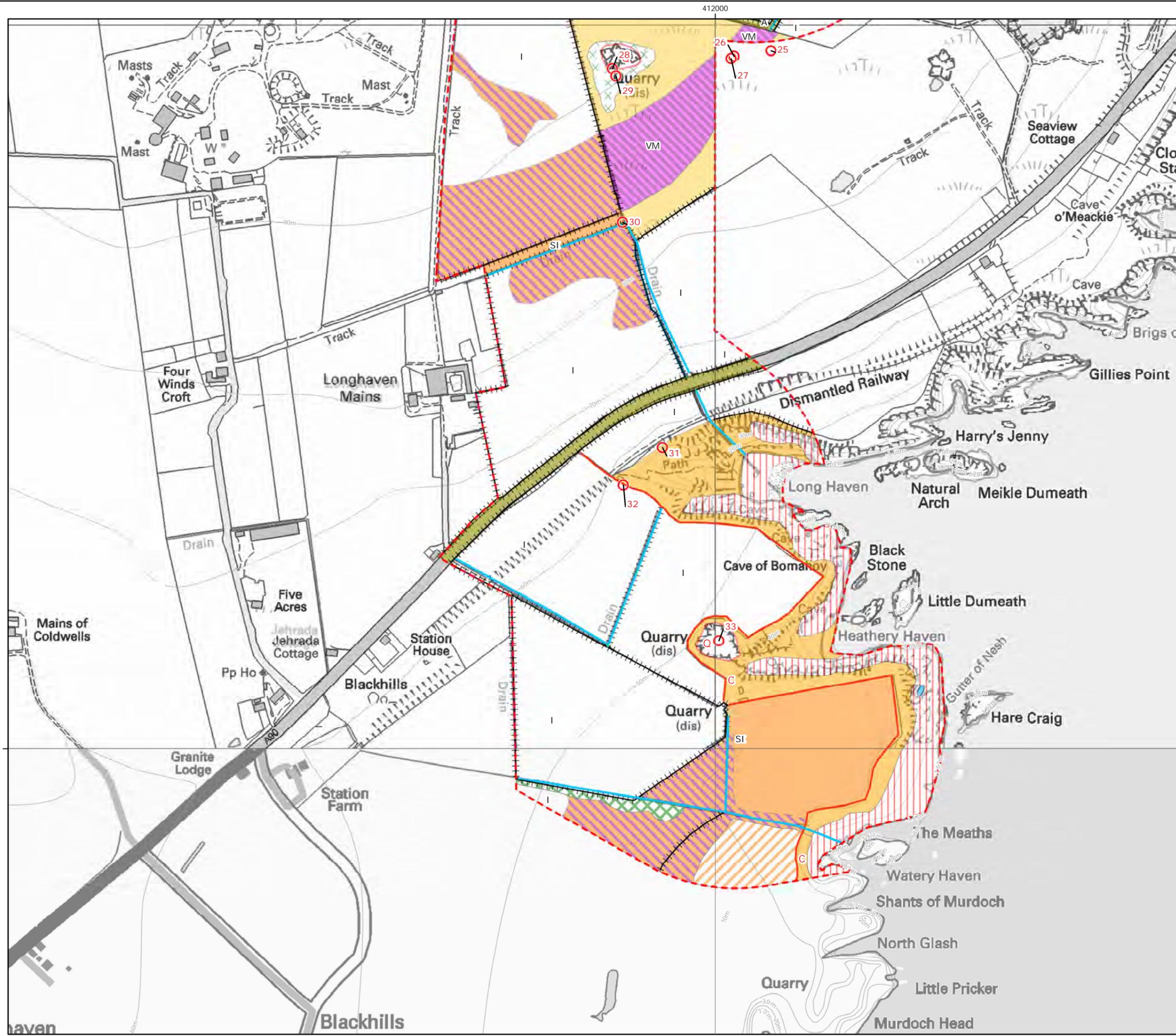
North Connect Converter Building



Figure 3
Phase 1 Survey Results
Grid Link

Key

	Survey areas		SI Neutral grassland - semi-improved
	Target Note		I Improved grassland
	Coniferous Parkland/scatt... trees		VM Marsh/marshy grassland
	Wet ditch		Other tall herb and fern - ruderal
	Fence		Dry dwarf shrub heath - acid
	Wall		VM Fen - valley mire
	Boundary removed		Standing water
	Broadleaved woodland - semi-natural		Running water
	Broadleaved woodland - plantation		Hard cliff
	Coniferous woodland - plantation		C Coastal grassland
	Mixed woodland - plantation		Shingle above high tide mark
	Scrub - dense/continuous		Q Quarry
	Scrub - scattered		A Cultivated/distur... land - arable
	Acid grassland - unimproved		A Cultivated/distur... land - amenity grassland
	Neutral grassland - unimproved		Buildings
			Bare ground
			Track



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