Appendix D.5:
Technical Report National Vegetation Classification Survey – Longhaven Cliffs SWT Nature Reserve

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TECHNICAL REPORT

NORTH CONNECT ECOLOGICAL SURVEYS

LONGHAVEN CLIFFS SWT NATURE RESERVE

NATIONAL VEGETATION CLASSIFICATION SURVEY

REPORT REF: 17/048B/AFF/R01

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CONTENTS

1 INTRODUCTION

1.1 TERMS OF REFERENCE

Tracks Ecology was commissioned by Affric Limited to undertake habitat surveys following the National Vegetation Classification (NVC) methodology across a section of the site of the North Connect scheme; a joint venture project involving the construction of a high voltage direct current (HVDC) power interconnector between Norway and the United Kingdom. For the purposes of this report the 'Site' consists of the Longhaven Cliffs Scottish Wildlife Trust (SWT) Nature Reserve, hereafter referred to as the 'SWT Reserve' (Figure 1).

The survey is required to support a planning application and Environmental Impact Assessment (EIA) of the onshore works and was identified as necessary following an initial extended Phase 1 survey and subsequent consultations following the scoping report.

1.2 OBJECTIVES OF STUDY

This ecological survey and report aims to establish the baseline distribution of habitats of the SWT Reserve by undertaking a National Vegetation Classification survey, identifying habitats to community level and producing a detailed annotated vegetation map using the Phase 1 classification to identify and map the habitats. This is supported by NVC data for communities present within each Phase 1 habitat polygon, habitat descriptions and target notes.

This survey forms a re-survey of the SWT Reserve, with the most recent survey undertaken in July 2015 by Peter Matthews on behalf of SWT (Matthews 2015). Additional historical NVC surveys of the SWT Reserve have been undertaken but these are not considered further in this report. The results of a wider NVC survey including the entire HDVC site is presented in a separate report (Tracks Ecology 2017). A comparison of the 2015 survey data and that collected as part of this survey was also undertaken.

1.3 SITE DESCRIPTION

The Site is located approximately 5km south of Peterhead, Aberdeenshire with the HVDC cable route running from the Converter Station at Fourfields (NK 120414) to beneath the coastline south of Long Haven Bay.

The SWT Reserve encompasses a narrow strip of coastline approximately two kilometers in length, from just north of Longhaven Bay (NK127407) southward to just north of North Haven Bay (NK114386). The reserve includes areas of maritime heath and grassland, cliff vegetation, scrub and grassland communities. The area has been subject to quarrying in the past, and there are several small inland rock outcrops and associated ponds. An additional area of the reserve lies inland between the coast and the A90 public road, near Longhaven. This area comprises heath, scrub and grassland vegetation and is hereafter referred to as the 'inland area'.

Also present, covering much of the SWT Reserve, are sections of the following designated sites (Figure 1).

Buchan Ness to Collieston Coast SPA

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. Species include herring gull, fulmar, guillemot, kittiwake and Eurasian shag.

Buchan Ness to Collieston SAC

The SAC supports 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.

Bullers of Buchan Coast SSSI

This SSSI comprises of sea cliffs and inshore stacks which are of special geological and biological interest. The breeding seabird colony is the largest in north-east Scotland. The sea cliffs also support a wide range of maritime plant communities with good examples of coastal dwarf-shrub heath and brackish flushes.

2 METHODOLOGY

Semi-natural habitats across the site were mapped using the National Vegetation Classification (NVC) (Rodwell, 1991a; b, 1992, 1995, 2000), and the Phase I Habitat Classification (Joint Nature Conservation Committee 2010). Habitat polygons were delineated based on the composition of NVC communities and sub-communities. Where areas were considered to comprise mosaics or complexes of different habitat communities, the proportion of each was estimated in percentage terms. Where communities do not constitute a community as described in the NVC, dominant species codes have been attributed as per Phase I Habitat Classification, to indicate the makeup of the vegetation community.

Polygons were latterly assigned a Phase I Habitat Classification, according to the relationships described in Phase I Habitat Classification. For the purposes of creating a visual representation of habitat types, the dominant Phase I Habitat Classification for each polygon is reflected.

Also, identifying the habitat community allows the habitat to be given a score appropriate to its potential dependency on groundwater as listed in the Scottish Environment Protection Agency (SEPA) document Land Use Planning System (LUPS) Guidance Note 31 (Scottish Environment Protection Agency 2014).

More widely, target notes were also collected to provide an overview of the habitat types present, features of interest and to place the proposed development in the context of site.

Nomenclature for vascular plants follows Stace (2010), bryophytes and liverworts follow Atherton et al (2010) and for lichens Dobson (2011). Additional reference material in relation to species identification and habitat composition was also used (Averis *et al.* 2004; Cheffings *et al.* 2005; Hodgetts 2011; Prescott 2016). Phase 1 habitat maps were digitised using both Quantum GIS 2.16.1-Nødebo and ArcView 10.1 GIS package.

Fieldwork was carried out on the 19th-20th September 2017 by Adam Fraser (MCIEEM) an experienced habitat surveyor, familiar with the habitats of the Site.

2.1 LIMITATIONS

The surveys were undertaken within the latter part of the field survey season and as such it is possible that a number of early flowering species could be overlooked. However, taking into account the experience and skill of the surveyor this is not considered a limitation.

Much of the Site is located along the high steep cliffs. All survey work adjacent to the cliff edges was undertaken with due care and attention to health and safety with no lone working. Small areas were not safely accessible, but these could be viewed using binoculars from

suitable vantage points and combined with the use of detailed aerial imaging this did not result in any significant limitation. As a result of access issues on the cliffs, species assemblages may be under-recorded to some degree. Furthermore, the highly variable topography results in the two dimensional area calculations under-recording the habitats on steep ground.

3 RESULTS

Habitat types and NVC communities identified within the survey area have been mapped and are presented in Figures 2a-g: NVC Survey results. Table 1 lists the NVC communities identified within the SWT Reserve.

Table 1: NVC Communities present within the Site.

Code	Community/sub-community name
Woodlands and scrub	
W1x	*Salix cinerea-Galium palustre* woodland, variant sub-community
W21	*Crataegus monogyna-Hedera helix* scrub
W23a	*Ulex europaeus-Rubus fruticosus* scrub, *Anthoxanthum odoratum* sub-community
W24a	*Rubus fruticosus-Holcus lanatus underscrub*, *Cirsium arvense-Cirsium vulgare* sub-community
Mires and heaths	
H7c	*Calluna vulgaris-Scilla verna* heath, *Erica tetralix* sub-community
H7d	*Calluna vulgaris-Scilla verna* heath, *Empetrum nigrum* ssp. *nigrum* sub-community
H7e	*Calluna vulgaris-Scilla verna* heath, *Calluna vulgaris* sub-community
M6a	*Carex echinata-Sphagnum recurvum/auriculatum* mire, *Carex echinata* sub-community
M27a	*Filipendula ulmaria-Angelica sylvestris* mire, *Valeriana officinalis-Rumex acetosa* sub-community
M27c	*Filipendula ulmaria-Angelica sylvestris* mire, *Holcus lanatus-Juncus effusus* sub-community
Grassland and montane communities	
MG1a	*Arrhenatherum elatius* grassland, *Festuca rubra* sub-community
MG1b	*Arrhenatherum elatius* grassland, *Urtica dioica* sub-community
MG5a	*Cynosurus cristatus-Centaurea nigra* grassland, *Lathyrus pratensis* sub-community
MG10a	*Holcus lanatus-Juncus effusus* rush-pasture, typical sub-community
MG11	*Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland
U6c	*Juncus squarrosus-Festuca ovina* grassland, *Vaccinium myrtillus* sub-community
U17x	*Luzula sylvatica-Geum rivale* tall-herb community, variant sub-community
U20a	*Pteridium aquilinum-Galium saxatile* community, *Anthoxanthum odoratum* sub-community
Aquatic communities	
A24	*Juncus bulbosus* community
Maritime communities	
MC8a	*Festuca rubra-Armeria maritima* maritime grassland, typical sub-community
MC8c	*Festuca rubra-Armeria maritima* maritime grassland, *Ligusticum scoticum* sub-community
MC8d	*Festuca rubra-Armeria maritima* maritime grassland, *Holcus lanatus* sub-community
MC9e	*Festuca rubra-Holcus lanatus* maritime grassland, *Anthoxanthum odoratum* sub-community
SM13	*Puccinellia maritima* salt-marsh community
Vegetation of open habitats	
OV25	*Urtica dioica-Cirsium arvense* community
OV25b	*Urtica dioica-Cirsium arvense* community, *Rumex obtusifolius-Artemisia vulgaris* sub-community

Code	Community/sub-community name
OV27b	*Epilobium angustifolium* community, *Urtica dioica-Cirsium arvense* sub-community

Table 2: Phase I habitat community areas.

Habitat	Area (ha)	Area % of Total
Coastal grassland	10.77	29.45
Maritime cliff	10.59	28.97
Coastal heathland	4.24	11.59
Marsh/marshy grassland	2.48	6.78
Neutral grassland - unimproved	2.00	5.48
Crevice/ledge vegetation	1.67	4.56
Scrub - continuous	1.36	3.71
Other tall herb and fern - non-ruderal	1.35	3.69
Broadleaved woodland/Scrub	0.56	1.52
Open water	0.25	0.68
Saltmarsh	0.23	0.62
Quarry	0.20	0.54
Broadleaved woodland - semi-natural	0.18	0.49
Shingle/gravel above high-tide mark	0.15	0.40
Bare ground	0.13	0.36
Other tall herb and fern - tall ruderal	0.13	0.34
Scrub - scattered	0.12	0.34
Rock exposure	0.09	0.24
Bracken - continuous	0.04	0.11
Bare peat	0.03	0.08
Scree	0.02	0.04
Buildings and gardens	0.00	0.01
Grand Total	**36.57**	**100.00**

3.1 COMMUNITY DESCRIPTIONS

3.1.1 WOODLANDS AND SCRUB

W23a *Ulex europaeus-Rubus fruticosus* scrub, *Anthoxanthum odoratum* sub-community

Scrub communities dominated by European gorse, *Ulex europeaus* are scattered throughout coastal areas along field margins. The majority of these scrub areas are homogenous stands of gorse, with a scattering of bramble *Rubus fruticosus* and grasses sweet-vernal grass *Anthoxanthum odoratum,* crested dog's-tail *Cynosurus cristatus*, Yorkshire fog *Holcus lanatus* and red fescue *Festuca rubra* at the fringes. Often stands of gorse are occupied by common rabbit *Orctyolagus cuniculus* with numerous burrows. As a result, grasses are often heavily grazed in the vicinity.

3.1.2 OTHER WOODLAND AND SCRUB COMMUNITIES

In addition to European gorse dominated scrub, scrub communities dominated by one of Hawthorn (W21 *Crataegus monogyna-Hedera helix* scrub) or Bramble (W23a *Ulex europaeus-Rubus fruticosu*s scrub, *Anthoxanthum odoratum* sub-community or W24a *Rubus fruticosus-Holcus lanatus* underscrub, *Cirsium arvense-Cirsium vulgare* sub-community) are present within the inland section of the SWT Reserve, often in mosaic with stands of broadleaved trees or gorse scrub. Willow dominated woodland or scrub (W1 *Salix cinerea-Galium palustre* woodland) is also present within this area, with grey willow *Salix cinerea* and sometimes creeping willow *Salix repens* dominant.

3.1.3 MIRES AND HEATHS

H7 *Calluna vulgaris-Scilla verna* heath

This is the dominant heath community throughout the site, and two sub-communities are represented. The vegetation is typically short, being wind-clipped, and form rather open stands often transitional to other communities – particularly grasslands. In most cases throughout the survey area bell heather *Erica cinerea* and heather *Calluna vulgaris* were constant with crowberry *Empetrum nigrum* often co-dominant or abundant. Sheep's fescue *Festuca ovina*, heath grass *Danthonia decumbens*, sweet vernal grass and Yorkshire fog are commonly present. Herb species typically include ribwort plantain *Plantago lanceolata*, tormentil *Potentilla erecta*, cat's-ear *Hypochaeris radicata* with less frequent coverage of thrift, *Armeria maritima* and sea plantain *Plantago maritima*.

The H7c *Erica tetralix* sub-community is found in wetter areas of heathland across the site, typically slightly inland on deeper soils and has higher coverage of the cross-leaved heath *Erica tetralix,* common bent *Agrostis capillaris* and mat-grass *Nardus stricta*.

The H7d *Empetrum nigrum* ssp. *nigrum* sub-community is the most common across the site, found on cliff tops and edges, often in exposed conditions or on dry soils. In this sub-community crowberry can be dominant or co-dominant and typical grasses frequent. In the inland area of the SWT Reserve this community is found in pioneer form, with very short vegetation and co-dominant with early hair-grass *Aira praecox.*

The H7e *Calluna vulgaris* sub-community is an impoverished form of the community and is typically dominated by heather and sheep's fescue. This is typical of drier, flatter areas of the site often in mosaic with grassland and on rockier soils.

M27 *Filipendula ulmaria-Angelica sylvestris* mire, *Valeriana officinalis-Rumex acetosa* sub-community

The dominant mire community present within the survey area and is dominated by meadowsweet *Filipendula ulmaria* forming the M27a *Filipendula ulmaria–Angelica sylvestris* mire, *Valeriana officinalis-Rumex acetosa* sub-community. This community is most frequent where natural drainage flows over cliffs from vegetation communities above. Typically this vegetation is quite rich across the site, and whilst meadowsweet and wild angelica, *Angelica sylvestris* are abundant, soft rush *Juncus effusus,* marsh thistle *Cirsium palustre,m* hawk's beard *Crepis paludosa,* marsh woundwort *Stachys palustris,* common nettle *Urtica dioica*, and curled dock *Rumex crispus* form a dense canopy of herbs. Marsh marigold *Caltha palustris,* marsh pennywort *Hydrocotyle vulgaris*, lesser spearwort *Ranunculus flammula*, water mint *Mentha aquatica* and cuckooflower *Cardamine pratensis* are all present within this community at varying levels of coverage. A second sub-community is present in Longhaven Bay and is grassier with higher cover of soft rush. This reflects the M27c *Holcus lanatus-Juncus effusus* sub-community.

3.1.4 OTHER HEATH AND MIRE COMMUNITIES

A small area of M6a *Carex echinata-Sphagnum fallax/denticulatum* mire is present within a wider mosaic of marshy grassland in survey area 2 – inland area. This is not considered to be a discrete community and is in mosaic with rush-pasture vegetation, noticeable only by an increased coverage of Star sedge *Carex echinata* and some *Sphagna*.

3.1.5 GRASSLAND AND MONTANE COMMUNITIES

MG1 *Arrhenatherum elatius* grassland

This grassland community is generally present in mosaic with other grassland and tall-ruderal communities and is present throughout the survey area, typically at field edges and in some open areas co-dominant or transitional with other communities. False oat-grass *Arrhenatherum elatius* and cock's foot *Dactylis glomerata* are the dominant graminoids and the community is present as both grassy form, with other grass species-co-dominant, and a weedy form, with common nettle and hogweed *Heracleum sphondylium* frequent in the sward. These communities tend to be ungrazed but occasionally MG1 grasslands are transitional to semi-improved MG6 *Lolium perenne-Cynosurus cristatus* grassland at the fringes of some arable fields.

MG5a *Cynosurus cristatus-Centaurea nigra* grassland *Lathyrus pratensis* sub-community

This community is frequent in the zone between agricultural field systems and coastal grassland or heathland communities. It frequently forms transitional or co-dominant communities with other grasslands. However, commonly the community is reflected by high abundance of red fescue, crested dog's-tail, common bent, sweet-vernal grass and cock's foot. Ribwort plantain is generally frequent along with red clover *Trifolium pretense,* knapweed *Centaurea nigra*, meadow buttercup *Ranunculus acris* and yarrow *Achillea millefolium*. In the sub-community reflected across the site, patchy coverage of meadow vetchling *Lathyrus pratensis* and bird's-foot trefoil *Lotus corniculatus* is common. Meadowsweet is also present at low coverage and often the grassland community transitions to M27 mire communities where there is a higher water table.

MG10 *Holcus lanatus-Juncus effusus* rush-pasture

MG10 rush-pastures are frequent in damper ungrazed fields and around areas of open water. Here soft rush is co-dominant with Yorkshire-fog, with varying abundance of meadow buttercup, common sorrel *Rumex acetosa*, creeping buttercup, white clover *Trifolium repens*, ribwort plantain and field thistle *Cirsium arvense*.

U17x *Luzula sylvatica-Geum rivale* tall-herb community, variant sub-community

On cliffs along the coast, particularly to the north of the SWT Reserve, stands of greater woodrush *Luzula sylvatica* are frequent, often punctuated by abundant lady fern *Athyrium filix-femina,* male fern *Dryopteris filix-mas* and scaly male-fern *Dryopteris affinis* agg. Wild angelica is occasional through the sward and primrose *Primula vulgaris* and roseroot *Sedum rosea* are notable, but scarce, within a scattered sward on steeper slopes.

U20 Pteridium aquilinum-Galium saxatile community, Anthoxanthum odoratum sub-community

Small stands of this habitat are present within the SWT Reserve and where present bracken is dominant with few other species present.

3.1.6 OTHER GRASSLAND COMMUNITIES

Other grassland communities are infrequent within the survey area but small areas dominated by certain species heath-rush (U6 *Juncus squarrosus-Festuca ovina* grassland, *Vaccinium myrtillus* sub-community) and silverweed (MG11 F*estuca rubra-Agrostis stolonifera-Potentilla anserina* grassland), reflect transitions to other grassland communities which are not fully reflected as discrete communities.

3.1.7 AQUATIC COMMUNITIES

True aquatic communities are not present within the survey area, however a small area within an area of marshy grassland within the inland area of the SWT Reserve was dominated by bulbous rush loosely reflects the A24 *Juncus bulbosus* community.

3.1.8 MARITIME COMMUNITIES

MC8 *Festuca rubra-Armeria maritima* maritime grassland

This grassland community is present along the very edge of cliffs, forming a low, closed sward with a thick mat of red fescue, thrift, sea plantain, and creeping bent *Agrostis stolonifera*. Generally, these grasslands are species poor and reflect the typical sub-community. On steeper cliffs and ledges increased cover of thrift along with Scot's lovage *Ligusticum scoticum* and Yorkshire fog reflects a transition to the M8c *Ligusticum scoticum* sub-community. In NVC mapping areas with higher coverage of bare rock and the MC8c sub-community have been mapped as crevice/ledge vegetation to reflect the increased fragmentation of the community on steeper cliffs and ledges. A third sub-community is present in small amounts in Longhaven Bay, with higher coverage of Yorkshire fog in the sward and reflects the M8d *Holcus lanatus* sub-community.

MC9 *Festuca rubra-Holcus lanatus* maritime grassland

This coastal grassland community is frequent in the zone between the neutral grasslands and coastal heaths that typically occupy higher cliff tops and ledges and the species-poor MC8 maritime grasslands. All MC9 maritime grasslands present within the survey area have been classified as being of the *Anthoxanthum odoratum* sub-community but the sub-community itself is very variable. Thrift is present at low coverage, if at all and grasses tend to dominate with common sorrel, tormentil, bird's-foot trefoil, meadow buttercup frequent in the sward at varying coverage. Occasionally there is cover of crowberry and the community often forms mosaics with coastal heathland H7 communities. Additionally, the community is found within field boundaries and is often transitional to either semi-improved grasslands or to poorly drained rush-pastures.

3.1.9 SALTMARSH COMMUNITIES

Small brackish slacks and flushed areas reflect some forms of saltmarsh. None present within the survey area are fully described within the NVC and as such have been accorded coding SMx, SMy and SMz. The first, SMx is dominated by common saltmarsh grass *Puccinellia maritima* and little else bar some bare earth and stands of pooled water. The second and third SMy and SMx are found in mosaic at the very southern end of the SWT Reserve. SMy is dominated by common cotton-grass *Eriophorum angustifolium* and saltmarsh rush *Juncus gerardii*, whilst the second SMz is dominated by common spike-rush *Eleocharis palustris*. In this area marsh pennywort, grass of parnassus *Parnassia palustris* and wild angelica are frequent and sea arrowgrass *Triglochin maritima* is also present.

3.1.10 VEGETATION OF OPEN HABITATS

OV25 *Urtica dioica-Cirsium arvense* community

This is the most common community within the survey area, present at woodland and field boundaries, along drainage channels, verges and occasionally as larger stands in open areas. The community is dominated by the two constants – common nettle and field thistle – and the most frequent *Rumex obtusifolius-Artemesia vulgaris* sub-community throughout the survey area has higher cover of cock's foot, broad-leaved dock *Rumex obtusifolius* and hogweed. This second sub-community frequently transitions to MG1 neutral grassland

communities where common nettle and field thistle become less dominant than constituent grasses.

OV27 *Chamerion angustifolium* community

Open habitat communities dominated by rosebay willowherb *Chamerion angustifolium* are frequent throughout the survey area and are typically dominated by the community constant in mosaic with common nettle, field thistle, cock's foot, Yorkshire-fog and tufted hair-grass.

3.1.11 OTHER COMMUNITIES

A number of communities recorded do not fit with those described in NVC. Typically, these communities are fragmented woodlands where only one or two tree species may be present, or where trees have been planted and species composition does not reflect semi-natural vegetation. In all cases the dominant vegetation type or species code has been annotated within NVC data provided below. Arable fields which have been cut for silage are not recorded to NVC level.

3.2 COMPARISON WITH PREVIOUS SURVEYS

The survey undertaken for the purposes of this report in part updates a survey of SWT Reserve undertaken by Peter Matthews in July 2015. Comparison of the two surveys shows no major differences in classification and location mapping of recorded vegetation communities.

There are minor differences in the survey approach between the two time periods, with the survey undertaken for this report providing more detail by way of recording NVC mosaic proportions for each mapped polygon and aiming to map smaller community polygons (eg. M27 *Filipendula ulmaria-Angelica sylvestris* mires, referenced but not mapped in the 2015 survey).

An additional difference in approach is in those communities poorly or not described in the NVC. Within this current survey, attempt has been made to describe the communities and loosely attribute them to broader NVC groups or communities, providing variant community codes to illustrate their unique attributes. In the 2015 survey each polygon was attributed an NVC code according to the 'best-fit' or most likely community. An example of this is the area of saltmarsh to the very south of the SWT Reserve. In this current survey there have been three communities identified, none of which are described in NVC – SMx, SMy and SMz, whilst in the 2015 survey these were attributed to SM16 and SD17 communities.

Lastly, surveys were completed at different times of the year (September 2017 and July 2015) and as such species lists compiled vary slightly with a handful of species 'missing' from either survey.

Overall, it is considered that the surveys complement each other and are not contradictory to any significant degree. This is not unexpected as the separation of the field surveys is only two years. Differences in total area of each habitat will be present due to the minor variations in mapping habitats at this scale and any small differences should not necessarily be attributed to change in habitat distribution. A summary of differences between surveys has been outlined in Table 3.

Table 3: Summary of survey comparisons

Community ID/Species ID	July 2015 NVC survey	September 2017 NVC survey	
M27	*Filipendula ulmaria-Angelica sylvestris* mires recorded	*Filipendula ulmaria-Angelica sylvestris* mires recorded as mosaics where present and mapped	
Saltmarsh Communities	SM16 and SM17 recorded in south of reserve.	At the same location (TN10), habitats have been assigned to three non NVC categories: SMx, SMy and SMz to provide better resolution of the habitats.	
Species	Species present but not identified during 2017:	Species present but not identified during 2015:	
	Anthyllis vulneraria *Carex nigra* *Carex viridula* *Dactylorhiza* sp. (hybrid) *Geranium pratense* *Hypericum perforatum* *Koeleria macrantha* *Leondoton autumnalis* *Rosa spinosissima* *Sonchus arvensis* *Trientalis europaea* *Vicia sativa*	*Anemone nemorosa* *Arctium minus* *Callitriche stagnalis* *Caltha palustris* *Cardamine pratensis* *Carex demissa* *Carex echinata* *Carex leporina* *Centaurea nigra* *Cerastium glomeratum* *Chamerion angustifolium* *Cirsium arvense* *Conopodium majus* *Cortaderia selloana* *Cotoneaster* sp. *Crataegus monogyna* *Crepis capillaris* *Crocosmia x crocosmiiflora* *Digitalis purpurea* *Dryopteris affinis* *Epilobium montanum* *Equisetum palustre* *Glyceria fluitans* *Hieracium agg.*	*Hypericum pulchrum* *Juncus bufonius* *Leucanthemum vulgare* *Lolium perenne* *Lonicera periclymenum* *Matricaria discoidea* *Plantago major* *Poa humilis* *Potamogeton polygonifolius* *Prunus spinosa* *Quercus sp.* *Rosa canina* *Salix aurita* *Salix caprea* *Salix cinerea* *Scorzoneroides autumnalis* *Senecio vulgaris* *Stellaria alsine* *Trifolium medium* *Viola palustris*

4 CONSERVATION EVALUATION

Conservation interest within the site is defined as:

- A habitat or species listed on the EU Directive on the Conservation of Natural Habitats and Wild Fauna and Flora (92/32/EEC), the EU Habitats Directive;
- A habitat forming a qualifying feature of a site designated for habitat and/or fauna and flora interests under the EU Habitats Directive;
- A habitat and/or species forming a qualifying feature of national or local designations (eg. Sites of Special Scientific Interest);
- A habitat and/or species listed on the UK Biodiversity Action Plan and Scottish Biodiversity List; and

- A species listed on its relevant UK red data list as being vulnerable to or under threat.

The following vegetation communities recorded within the site are identified as of conservation interest:

- MC8 *Festuca rubra-Armeria maritima* maritime grassland TN13 Figure 2c and Figure 4
- MC9 *Festuca rubra-Holcus lanatus* maritime grassland Figure 4
- H7 *Calluna vulgaris-Scilla verna* heath Figure 4

All three communities are listed under Annex 1 habitat type H1230: Vegetated sea cliffs of the Atlantic and Baltic coasts. All three communities also form component parts of Maritime cliff and slope vegetation, listed under UK BAP and Scottish Biodiversity List priority habitats.

No individual flowering or lower plant species of conservation concern were recorded i.e., rare, threatened, or nationally scarce conservation status.

4.1 NON-NATIVE AND INVASIVE SPECIES

Three non-native species were recorded within the Site:

- Monbretia, *Crocosmia* x *crocosmiiflora* TN14 Figure 2b and Figure 4
- Pampas grass, *Cortaderia selloana* TN12 Figure 2b and Figure 4
- Cotoneaster, *Cotoneaster* sp. TN15 Figure 2b and Figure 4

No species were recorded that are listed on Schedule 9 of the Wildlife and Countryside act 1981 (as amended) (where relevant to Scotland), which makes it an offence to release or spread any plant or animal that is identified as a potential threat to native biodiversity. Species listed on Schedule 9 may not be released or introduced without a license, allowed to escape into the wild, or caused to be spread in the wild. No species were recorded within the survey area identified as invasive 'alien' species on the Water Framework Directive alien species list or on the Scottish Natural Heritage Species Action Framework as being target species for management to limit their spread. As a result, based on the survey findings no specific action in relation non-native species is likely to be required, although the spread of non-natives, not identified on Schedule 9 of the Wildlife and Countryside Act should also be avoided.

4.2 GROUNDWATER DEPENDENT TERRESTRIAL ECOSYSTEMS

Habitat classifications in line with current guidance (Scottish Environment Protection Agency 2014) are detailed in Figures 3a-g. Only a single habitat which is recognized as being potentially highly dependent on groundwater (Scottish Environment Protection Agency 2014) is U17 *Luzula sylvatica-Geum rivale* tall-herb community. This community is located along the cliffs and is not located further inland. The community tends to develop where there is protection from grazing and burning with more base-rich and mesotrophic soils and a degree of dampness which results in the community being identified as potentially dependent on groundwater. These communities are likely to have some influence from base-rich water present where soils become thin on the cliff tops but significant influence from groundwater at these locations is assessed as unlikely although in some locations surface water flow is likely to influence the habitats distribution.

4.3 ASSESSMENT OF IMPACTS

It is considered that the proposed development will not directly impact on sensitive habitats or habitats dependent on the integrity of hydrological systems within the SWT Reserve. All works within this area will be subterranean and at a significant depth beneath the SWT

Reserve with no permanent alterations to land within or immediately adjacent to the SWT Reserve proposed.

However, if construction activities are required for the purpose of surveying or temporary access then potential impacts on habitats from the proposed development include the following:

- Temporary direct habitat loss and fragmentation of habitat as a result of installation of temporary access and use of laydown/working areas;
- Construction-related effects: pollution from materials used or generated from the construction phase have potential to enter hydrological features (inclusive of artificial drainage); and
- Alteration to site hydrology through installation of permanent structures outwith the area and temporary infrastructure.
- Potential for impacts on groundwater due to horizontal directional drilling.

Proposed mitigation should include the following:

- Vehicular access to be restricted, avoiding streams, mires, flushes and soaks where possible;
- Where possible, temporary access shall be 'floated' over sensitive habitats (streams, mires, flushes and soaks) to minimise disruption to hydrology, soil structure and vegetative material;
- Access and working areas adjacent to watercourses should be set back from banks by a minimum distance of 10 m (Scottish Environment Protection Agency 2007, 2012);
- Appropriate protective measures (fencing and signage) should be installed to ensure the banks and inundation zone of watercourses are kept free from litter, dust and debris;
- No permanent or temporary storage of materials should be undertaken within the SWT Reserve.
- The extent of all excavations across the development should be kept to a minimum and during construction activities, surface water flows should be captured through a series of cut off drains to prevent water entering excavations or eroding exposed surfaces. If dewatering of excavations is required, pumped discharges should be passed through silt/sediment control measures and directed towards least sensitive habitats;
- Pipes/culverts should be specified where required to manage and control all watercourses across the site, employed according to SEPA guidelines, with care taken to minimise disturbance to bed and banks of watercourses; and
- Although impacts on the GWDTEs is assessed to be unlikely due to the distance of highly or moderately/highly dependent ecosystems from the proposed surface works, it is recommended that appropriate hydro-geological assessments are undertaken with respect to impacts on groundwater from the horizontal directional drilling.

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APPENDIX A: NVC POLYGON DATA

ID	NVC Community and %	Phase 1 Community	GWDTE	Comment
1	MG10a 75: MG1a 15: OV27b 10	Marsh/marshy grassland	Moderate	
2	MG1a 40: OV27b 40: W23a 10: W24a 8: MG10a 2	Other tall herb and fern - tall ruderal	Low	Mosaic with frequent Cha
3	W24a 40: OV27b 20: MG10a 20: Ag 10: W23a 10	Scrub - scattered	Low	Mosaic of scrub and tall herb and fern
4	MG10a 100	Marsh/marshy grassland	Moderate	
5	W23a 80: W24 20	Scrub - continuous	Low	
6	MC9e 100	Coastal grassland	Low	
7	A1.1 100	Broadleaved woodland/Scrub	Low	Mosaic of planted broadleaves and semi-natural scrub woodland. Ag dominant.
8	SMy 90: SMz 10	Saltmarsh	Low	Area dominated by *Eriophorum angustifolium, Juncus gerardii*
9	H7e 100	Coastal heathland	Low	Pioneer phase heath
10	MG5a 100	Neutral grassland - unimproved	Low	
11	SMz 75: SMy 25	Saltmarsh	Low	Area dominated by *Eleocharis palustris, Juncus gerardii, Hydrocotlye vulgaris*
12	H7d 88: MG10a 6: W23a 6	Coastal heathland	Low	Grassy heath, with pioneer Cv, En
13	Ag 50: W21 50	Scrub - continuous	Low	Mosaic of Ag and Cm scrub
14	H7e 65: H7d 30: MC9e 5	Coastal heathland	Low	
15	H7d 100	Coastal heathland	Low	Pioneer phase heath
16	W24a 40: W23a 30: OV27b 20: MG10a 10	Scrub - continuous	Low	Mosaic of scrub communities and tall herb and fern communities
17	W23a 90: MG10a 5: MG5a 5	Scrub - continuous	Low	Ue
18	W1x 100	Broadleaved woodland - semi-natural	Moderate	Sxci
19	OV27b 60: MG10a 20: W1x 20	Other tall herb and fern - tall ruderal	Low	
20	MG10a 70: A24x 30	Marsh/marshy grassland	Low	*Juncus bulbosus* dominated
21	Ag 100	Broadleaved woodland - semi-natural	Low	Ag dominated woodland cover
22	H7d 100	Coastal heathland	Low	Transitional to grassland, with Crc, Ao, Ju, As in sward and pioneer heath
23	W23a 100	Scrub - continuous	Low	Ue
24	Bare rock 60: H7d 40	Coastal heathland	Low	Heath amongst scatttered boulders

25	J4 100	Bare ground	Low	Access track
26	Mc9e 100	Coastal grassland	Low	
27	H7e 70: H7d 22: MC9e 8	Coastal heathland	Low	
28	H7d 75: MGx 25	Coastal heathland	Low	En dominant, with mosaic of grasses
29	H7d 100	Coastal heathland	Low	Pioneer phase heath
30	MC9e 90: H7d 10	Coastal grassland	Low	
31	MG10a 70:U6 10:W1x 4: M6a 4:H7d 4:MG11 4: W23a 4	Marsh/marshy grassland	Moderate	
32	MC9e 96: H7d 2: Bare rock 2	Coastal grassland	Low	
33	H7d 90: MG10a 10	Coastal heathland	Low	Grassy heath, with pioneer Cv, En
34	H7d 75: MGx 25	Coastal heathland	Low	En dominant, with mosaic of grasses
35	W23a 100	Scrub - continuous	Low	Ue
36	H7d 100	Coastal heathland	Low	Pioneer phase heath
37	MG1b 80: MG10a 20	Neutral grassland - unimproved	Low	
38	Ag 55: Sxc 15: W21 10: W24a 10: W23a 10	Broadleaved woodland - semi-natural	Low	Ag, Sxc, Cm dominated scrub woodland
39	MG1a 70: OV27b 30	Neutral grassland - unimproved	Low	
40	W21 100	Scrub - continuous	Low	Domianted by Cm
41	W23a 100	Scrub - continuous	Low	
42	MG5a 75: MG10a 20: MG1b 5	Neutral grassland - unimproved	Low	
43	MG10a 80: MG5a 20	Marsh/marshy grassland	Moderate	
44	Bare peat 65: H7d 30: MC9e 5	Bare peat	Low	Eroded peats exposed
45	Bare rock 100	Maritime cliff	Low	
46	H7d 80: MC9e 20	Coastal heathland	Low	
47	MG10a 55: MG1b 30: OV27b 15	Marsh/marshy grassland	Moderate	
48	H7d 65: MG10a 20: MG1b 15	Coastal heathland	Low	
49	J4 100	Bare ground	Low	Access track
50	SMx	Saltmarsh	Low	Brackish slack dominated by *Puccinellia maritima*
51	H7d 65: MC9e 35	Coastal heathland	Low	Mosaic of heath and grass communities
52	MC9e 90: H7d 10	Coastal grassland	Low	
53	MC9e 100	Coastal grassland	Low	
54	H7d 100	Coastal heathland	Low	
55	MC8a 70: Bare rock 26: MC8c 4	Coastal grassland	Low	
56	H7e 78: MC9e 22	Coastal heathland	Low	
57	H7d 88: MC9e 12	Coastal heathland	Low	
58	Mc8a 90: MC8c 10	Coastal grassland	Low	
59	Mc9e 80: Bare rock 20	Coastal grassland	Low	

60	MC9e 85: H7d 10: MG5a 5	Coastal grassland	Low	Overgrown track within polygon
61	Bare rock 100	Maritime cliff	Low	
62	MC9e 96: Bare rock 4	Coastal grassland	Low	
63	MC8a 55: Bare rock 35: MC8c 10	Crevice/ledge vegetation	Low	
64	Bare rock 50: MC8a 20: H7d 15: W23a 15	Rock exposure	Low	
65	MC8a 75: Bare rock 25	Coastal grassland	Low	
66	W23a 100	Scrub - continuous	Low	Ue
67	H7e 66: MC9e 34	Coastal heathland	Low	Mosaic of heath and grassland communities
68	G1	Open water	n/a	
69	Bare rock 90: MC8c 8: MC8a 2	Maritime cliff	Low	
70	MC8a 60: Bare rock 30: MC8c 10	Crevice/ledge vegetation	Low	
71	MG5a 72: MC9e 20: H7d 8	Neutral grassland - unimproved	Low	
72	Mc8a 70: MC8c 20: Bare rock 10	Crevice/ledge vegetation	Low	
73	W23a 100	Scrub - continuous	Low	
74	MC8a 70: Bare rock 30	Crevice/ledge vegetation	Low	
75	H7d 86: W23a 8: MC8a 6	Coastal heathland	Low	Scattered Ue
76	Bare rock 90: MC8c 8: MC8a 2	Maritime cliff	Low	
77	H7e 100	Coastal heathland	Low	
78	MC9e 100	Coastal grassland	Low	
79	Bare rock 100	Quarry	Low	
80	MC9e 65: MG5a 25: MC8a 10	Coastal grassland	Low	
81	H7d 100	Coastal heathland	Low	
82	H7e 65: H7d 20: W23a 10: Bare rock 5	Coastal heathland	Low	
83	MC9e 78: H7e 22	Coastal grassland	Low	
84	MG5a 65: MC9e 35	Neutral grassland - unimproved	Low	
85	M27a 100	Marsh/marshy grassland	Moderate	Scattered Tff
86	Bare rock 100	Maritime cliff	Low	
87	H7e 80: MC9e 20	Coastal heathland	Low	
88	H7d 100	Coastal heathland	Low	
89	H7d 72: MC8a 28	Coastal heathland	Low	
90	Bare rock 90: MC8a 10	Quarry	Low	
91	MC8a 85: H7d 15	Coastal grassland	Low	
92	Bare rock 100	Maritime cliff	Low	
93	MC8a 66: H7d 20: MC8c 14	Coastal grassland	Low	
94	M27a 90: MC8a 10	Marsh/marshy grassland	Moderate	
95	H7e 75: H7d 20: MG5 5	Coastal heathland	Low	
96	H7d 100	Coastal grassland	Low	

97	MC8a 100	Coastal grassland	Low	
98	M27a 100	Marsh/marshy grassland	Moderate	
99	MG5a 90: MC8a 10	Neutral grassland - unimproved	Low	
100	H7d 100	Coastal heathland	Low	
101	H7d 60: U17x 25: MC8a 15	Coastal heathland	Low	
102	H7d 75: U17x 25	Coastal heathland	Low	Scattered patches of Ls
103	Mc8a 70: H7e 20: H7d 10	Coastal grassland	Low	
104	Bare rock 100	Maritime cliff	Low	
105	H7d 100	Coastal heathland	Low	
106	Bare rock 100	Maritime cliff	Low	
107	H7d 100	Coastal heathland	Low	
108	MG5a 100	Neutral grassland - unimproved	Low	
109	H7d 100	Coastal heathland	Low	
110	MC8a 100	Coastal grassland	Low	
111	M27a 100	Marsh/marshy grassland	Moderate	
112	MC8a 100	Coastal grassland	Low	
113	OV25b 70: J3.6 30	Other tall herb and fern - tall ruderal	Low	Ruin covered in Ud dominated vegetation
114	MC8a 55: MC8c 20: H7d 20: Bare rock 5	Coastal grassland	Low	
115	MG5a 80: M27a 20	Neutral grassland - unimproved	Low-moderate	
116	W23a 100	Scrub - continuous	Low	
117	MC8a 75: MG5a 15: M27b 10	Neutral grassland - unimproved	Low	
118	W23a 100	Scrub - continuous	Low	
119	MG5a 90: M27a 10	Neutral grassland - unimproved	Low	
120	MG5a 90: MC8a 10	Neutral grassland - unimproved	Low	
121	Mc8a 70: MC8c20: Bare rock 10	Coastal grassland	Low	
122	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
123	W23a 100	Scrub - continuous	Low	
124	MC8a 100	Coastal grassland	Low	
125	MC8a 90: MG5a 10	Coastal grassland	Low	
126	MG5a 70: MG11 30	Neutral grassland - unimproved	Low	High cover Pans
127	MG5a 100	Neutral grassland - unimproved	Low	
128	U17x 70: M27a 15: MG5a 8: MC8a 7	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff
129	MG5a 100	Neutral grassland - unimproved	Low	
130	U17x 60: MC8a 20: MG5a 18: M27b 2	Other tall herb and fern - non-ruderal	High	Dominated by Ls

131	W23a 100	Scrub - continuous	Low	
132	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
133	M27a 65: M27c 35	Marsh/marshy grassland	Moderate	
134	MC8a 100	Coastal grassland	Low	
135	MG5a 90: M9e 10	Neutral grassland - unimproved	Low	
136	MC8a 85: Dr 15	Coastal grassland	Low	Stand of *Dryopteris affinis*
137	MC9e 100	Coastal grassland	Low	
138	MG5a 100	Neutral grassland - unimproved	Low	
139	M27a 65: U17x 20: Bare rock 15	Marsh/marshy grassland	Moderate	
140	W23a 100	Scrub - continuous	Low	
141	Bare rock 50: W23a 30: MC8a 10: U17x 10	Quarry	Low	Wall of quarry
142	MC8a 78: Bare rock 22	Coastal grassland	Low	
143	M27a 100	Marsh/marshy grassland	Moderate	
144	MG5a 65: MC9e 35	Neutral grassland - unimproved	Low	
145	W23a 100	Scrub - continuous	Low	
146	MC8a 92: U17x 8	Coastal grassland	Low	
147	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
148	M27a 100	Marsh/marshy grassland	Moderate	Dominated by *Caltha palustris, Hydrocotyle vulgaris*
149	MC9e 80: M27a 20	Coastal grassland	Low	
150	W23a 100	Scrub - continuous	Low	
151	G1	Open water	n/a	
152	M27a 100	Marsh/marshy grassland	Moderate	
153	M27a 100	Marsh/marshy grassland	Moderate	Dominated by *Crepis paludosa, Stachys palustris*
154	MC8d 100	Coastal grassland	Low	High % cover Hl
155	OV27b 100	Other tall herb and fern - tall ruderal	Low	
156	MG5a 80: MC9e 20	Neutral grassland - unimproved	Low	
157	OV25b 100	Other tall herb and fern - tall ruderal	Low	Dominated by Ud
158	Bare rock 100	Maritime cliff	Low	
159	MG5a 60: MG11 40	Neutral grassland - unimproved	Low	High % cover Crc and Pans
160	Mc8a 60: MC9e 30: MC8d 10	Coastal grassland	Low	
161	I1.2.1 100	Scree	Low	Artificial scree from quarrying
162	MC8a 100	Coastal grassland	Low	
163	MG5a 90: MC9e 10	Neutral grassland - unimproved	Low	

164	MC8a 65: H7d 20: Bare rock 15	Coastal grassland	Low	
165	U17x 80: MC8a 20	Other tall herb and fern - non-ruderal	High	Domianted by Ls
166	MG5a 60: W23a 15: H7c 15: U17x 10	Neutral grassland - unimproved	Low	Mosaic of grassland and other heath/scrub habitats
167	H7d 100	Coastal heathland	Low	
168	H7d 70: U17x 20: M27a 10	Coastal heathland	Low	
169	Bare rock 100	Shingle/gravel above high-tide mark	Low	
170	H7c 70: H7d 25: MG5a 5	Coastal heathland	Low	
171	H7d 100	Coastal heathland	Low	
172	W23a 85: MG5a 15	Scrub - continuous	Low	
173	MC9e 90: MC8a 10	Coastal grassland	Low	
174	MG5a 100	Neutral grassland - unimproved	Low	
175	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff
176	U17x 75: M27a 15: MC9e 10	Other tall herb and fern - non-ruderal	Low	Dominated by Ls/Aff
177	MC8a	Coastal grassland	Low	
178	M27a 100	Marsh/marshy grassland	Moderate	
179	H7d 100	Coastal heathland	Low	
180	MC8a 65: MC8c 25: Bare rock 10	Coastal grassland	Low	
181	MG5a 70: SMx 20: H7c 10	Neutral grassland - unimproved	Low	Area dominated by MG5a with brackish slacks domianted by *Juncus bulbosus, Puccinellia maritima, Carex flacca*
182	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff
183	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
184	W23a 100	Scrub - continuous	Low	Ue
185	H7d 100	Coastal heathland	Low	
186	W23a 100	Scrub - continuous	Low	Ue
187	MC8a	Coastal grassland	Low	
188	MC8a 100	Coastal grassland	Low	
189	MG5a 80: U20a 20	Neutral grassland - unimproved	Low	Scattered Pt
190	MC8a 40: Bare rock 40: H7e 20	Coastal grassland	Low	
191	J3.6 100	Buildings and gardens	n/a	Ruin
192	MG5a 100	Neutral grassland - unimproved	Low	
193	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
194	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff

195	MC8a 100	Coastal grassland	Low	
196	W23a 100	Scrub - continuous	Low	
197	U17x 80: M27a 20	Other tall herb and fern - non-ruderal	High	Dominated by Ls/Aff
198	MC9e 90: SMx 10	Coastal grassland	Low	Area dominated by coastal grassland with brackish slacks dominated by *Puccinellia maritima*
199	H7 90: Puc 10	Coastal heathland	Low	Vegetation domianted by *Puccinellia maritima* and *Carex flacca*
200	Bare rock 100	Maritime cliff	Low	
201	MG5a 100	Neutral grassland - unimproved	Low	
202	MC9e 65: MC8a 20: H7d 10: MG5a 5	Coastal grassland	Low	
203	H7d 65: MC9e 20: Ros 15	Coastal heathland	Low	Scattered *Rosa canina*
204	Bare rock 80: MC8a/c 10 U17x 10	Maritime cliff	Low	Some crevice/ledge vegetation
205	H7d 90: MG5a 10	Coastal heathland	Low	
206	MC8a 80: U17x 10: H7d 8: Bare rock 2	Coastal grassland	Low	
207	M27a 80: MG5a 20	Marsh/marshy grassland	Moderate	
208	U17x 75: MC9e 20: MC8a 5	Other tall herb and fern - non-ruderal	High	
209	MC8a 78: Bare rock 22	Coastal grassland	Low	
210	MC8a 60: MC8c 20: Bare rock 20	Coastal grassland	Low	
211	U17x 100	Other tall herb and fern - non-ruderal	High	Dominated by Ls
212	MC8a 75: MC9e 25	Coastal grassland	Low	
213	Mc9e 100	Coastal grassland	Low	
214	U17x 88: H7d 12	Other tall herb and fern - non-ruderal	High	Dominated by Ls
215	MC8a 88: Bare rock 12	Coastal grassland	Low	
216	H7d 100	Coastal heathland	Low	
217	MC9e 85: MC9a 12	Coastal grassland	Low	
218	MC8a 75: H7d 15: Bare rock 10	Coastal grassland	Low	
219	MC8a 60: Bare rock 40	Coastal grassland	Low	
220	MC8a 90: MC8c 10	Coastal grassland	Low	
221	W23a 80: MC8a 20	Scrub - continuous	Low	
222	Bare rock 100	Maritime cliff	Low	
223	W23a 100	Scrub - continuous	Low	Ue
224	MG5a 80: MC8a 20	Neutral grassland - unimproved	Low	Bank of MC8a runs through grassland area
225	MC9e 90: MC8a 10	Coastal grassland	Low	
226	MC9e 100	Coastal grassland	Low	
227	MC9e 100	Coastal grassland	Low	
228	Bare rock 100	Maritime cliff	Low	

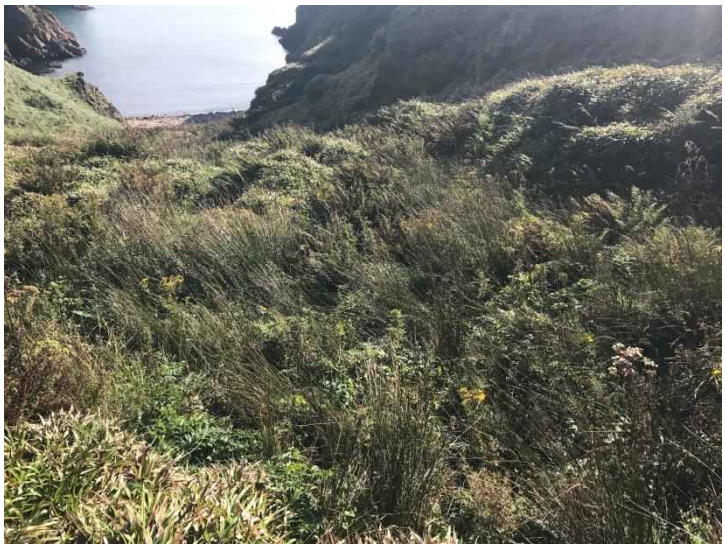
229	MC8a 100	Coastal grassland	Low
230	MC8a 75: Bare rock 25	Coastal grassland	Low
231	MC8a 66: Bare rock 24: MC8c 10	Crevice/ledge vegetation	Low
232	MC8e 80: MC9e 20	Coastal grassland	Low
233	U20c 100	Bracken - continuous	Low
234	MC9e 90: MC8a 10	Coastal grassland	Low
235	U20c 100	Bracken - continuous	Low
236	MC8a 88: Bare rock 12	Coastal grassland	Low
237	MC9e 86: MC8a 14	Coastal grassland	Low
238	MC8a 85: Bare rock 15	Coastal grassland	Low
239	Bare rock 100	Maritime cliff	Low
240	Bare rock 100	Maritime cliff	Low
241	MC8c 65: Bare rock 25: MC8a 10	Crevice/ledge vegetation	Low
242	H7d 100	Coastal heathland	Low
243	MC8a 95: Bare rock 5	Coastal grassland	Low
244	MC8a 55: Bare rock 20: MC9e 20: MC8c 5	Coastal grassland	Low
245	MC9e 90: MC8a 10	Coastal grassland	Low
246	Bare rock 100	Maritime cliff	Low
247	MC8a 70: H7d 25: U17x 5	Coastal grassland	Low
248	MC8a 70: MC8c 15: Bare rock 15	Crevice/ledge vegetation	Low
249	MC9e 70: MC8a 15: H7d 10: MG5a 5	Coastal grassland	Low
250	MC8c 40: MC8a 30: Bare rock 30	Crevice/ledge vegetation	Low
251	MC9e 100	Coastal grassland	Low
252	MC8a 70: MC8c 15: Bare rock 15	Crevice/ledge vegetation	Low
253	Bare rock 90: MC8c 10	Maritime cliff	Low
254	Bare rock 100	Maritime cliff	Low

Abbreviation	**Species**	**Common name**
Aff	*Athyrium filix-femina*	Lady fern
Ag	*Alnus glutinosa*	Alder
Ao	*Anthoxanthum odoratum*	Sweet-vernal grass
As	*Angelica sylvestris*	Wild angelica
Car	*Cirsium arvense*	Field thistle
Cha	*Chamerion angustifolium*	Rosebay willowherb
Cm	*Crataegus monogyna*	Hawthorn
Crc	*Crepis capillaris*	Smooth hawk's-beard
Cv	*Calluna vulgaris*	Heather
Cxn	*Carex nigra*	Common sedge
En	*Empetrum nigrum*	Crowberry

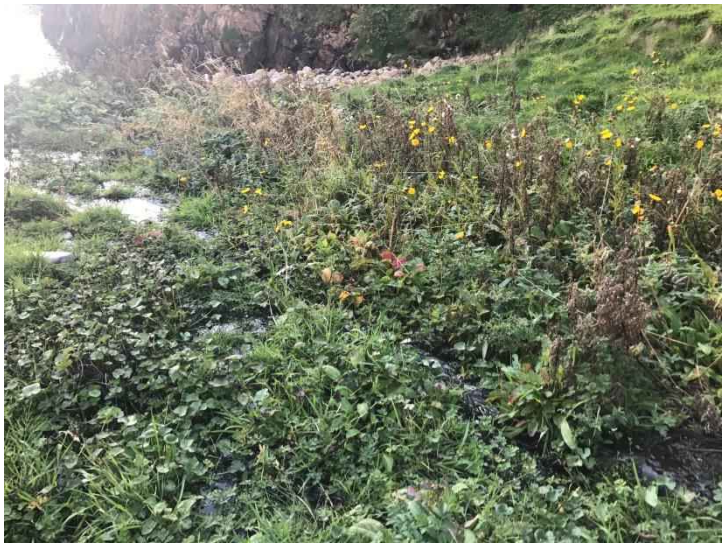
Je	*Juncus effusus*	Soft rush
Ju	*Juncus sp(p)*	Rush species
Lpc	*Lonicera periclymenum*	Honeysuckle
Ls	*Luzula sylvatica*	Greater woodrush
Pans	*Potentilla anserina*	Silverweed
Pt	*Pteridium aquilinum*	Bracken
Sxc	*Salix caprea*	Goat willow
Sxci	*Salix cinerea*	Grey willow
Tff	*Tussilago farfara*	Colt's foot
Ud	*Urtica dioica*	Common nettle
Ue	*Ulex europaeus*	European gorse

APPENDIX B: TARGET NOTES

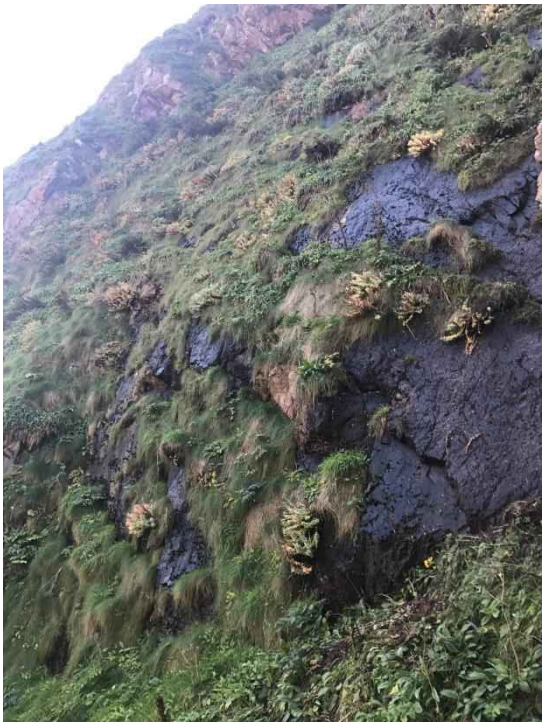
Target Note	Zone	Easting	Northing
1	NK	11900	40384
2	NK	12019	40368
3	NK	12023	40340
4	NK	12013	40382
5	NK	12069	40301
6	NK	12079	40128
7	NK	12021	40132
8	NK	12111	39691
9	NK	11496	38791
10	NK	11340	38702
11	NK	11417	39739
12	NK	11396	39886
13	NK	11467	39810
14	NK	11875	40373
15	NK	11451	39656



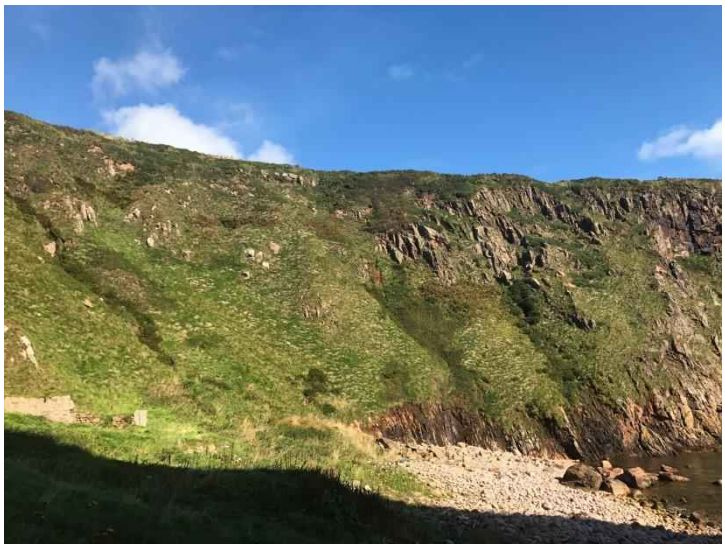
Target Note 1: Large expanse of M27 *Fillipendula ulmaria-Angelica sylvestris* tall-herb fen running downslope to Longhaven Bay. In upper areas the sward is dominated by a thick cover of meadowsweet *Filipendula ulmaria,* soft rush *Juncus effusus,* wild angelica *Angelica sylvestris* and grassy species including Yorkshire fog *Holcus lanatus.* Further downslope the sward becomes less grassy and more herb-rich with marsh-marigold *Caltha palustris*, marsh hawksbeard *Crepis paludosa,* marsh woundwort *Stachys palustris* and marsh thistle *Cirsium palustre*.



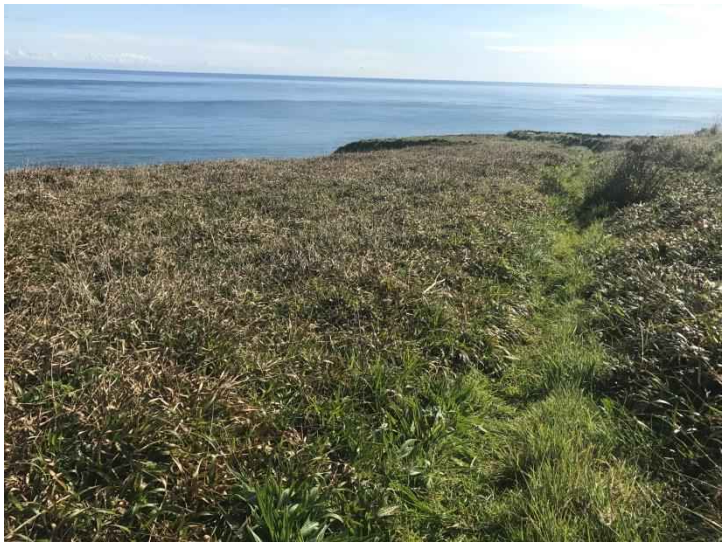
Target Note 2: As ground flattens above Longhaven Bay wetter areas dominated by wild angelica *Angelica sylvestris* and meadowsweet *Fililpendula ulmaria* have a more open sward with abundant marsh hawksbeard *Crepis paludosa,* marshy pennywort *Hydrocotlye vulgaris* and water mint *Mentha aquatica.*



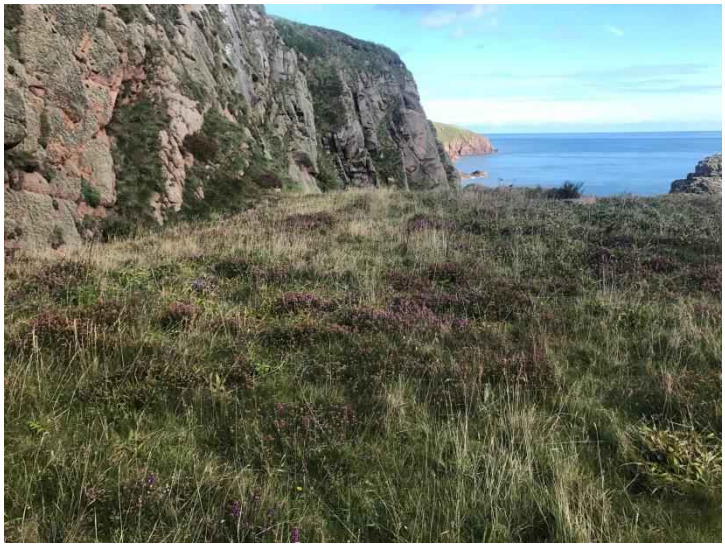
Target Note 3: Steep, wet cliffs in Longhaven Bay have scattered roseroot *Sedum rosea* amongst stands of greater woodrush *Luzula sylvatica,* lady-fern *Athyrium filix-femina* and red fescue *Festuca rubra.*



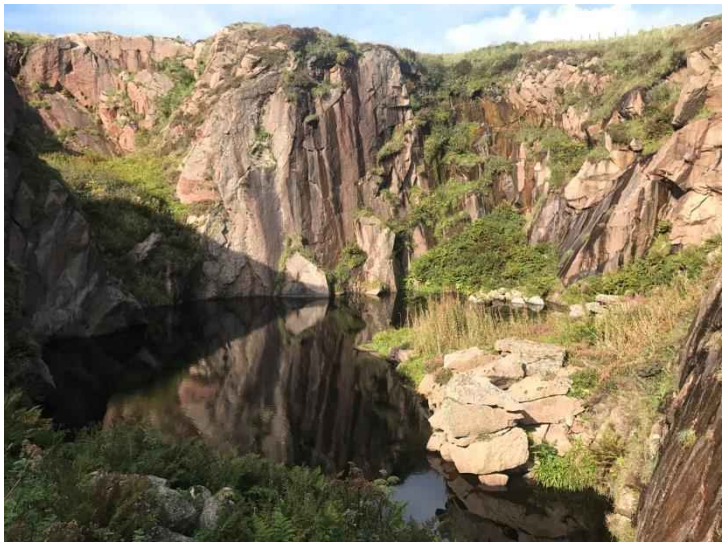
Target Note 4: View across to north slopes of Longhaven Bay displaying dominance of MC8 *Festuca rubra-Armeria maritima* maritime grassland on steep cliff slopes. Stands of M27 *Filipendula ulmaria-Angelica sylvestris* mire and U17x *Luzula sylvatica-Geum rivale* community – typically dominated by greater woodrush *Luzula sylvatica* and/or *Athyrium filix-femina* are present on lower slopes, likely where there is movement of water through the slope. On upper slope heathier maritime communities and gorse *Ulex europaeus* dominated scrub are more prevalent.



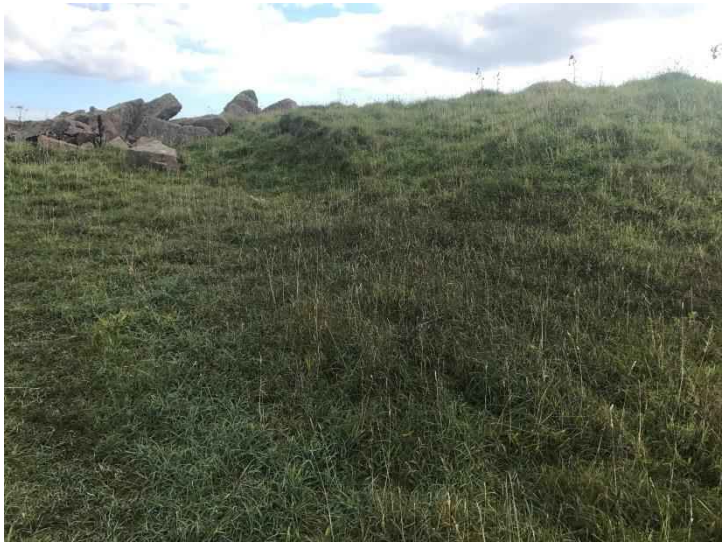
Target Note 5: Communities on cliff-tops around Longhaven Bay are frequently dominated by a thick carpet of greater woodrush *Luzula sylvatica* with little else in the sward. These communities have been coded as U17x *Luzula sylvatica-Geum rivale* community variant sub-community and are typically concentrated around Longhaven Bay.



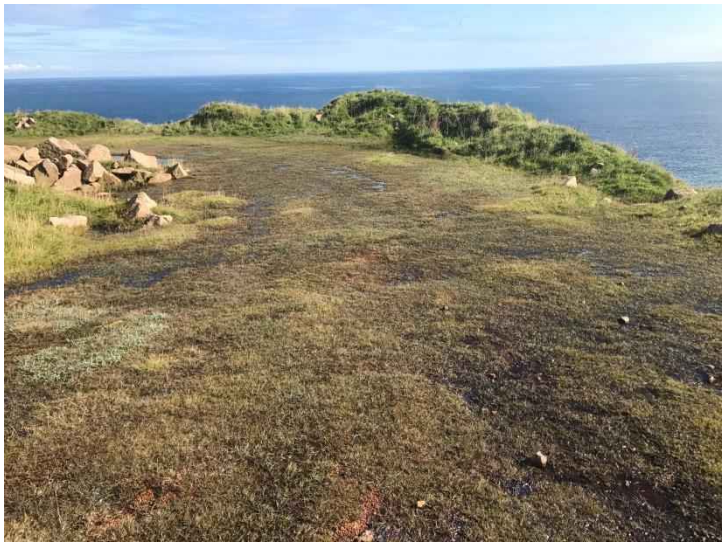
Target Note 6: Areas of coastal heathland are frequent throughout the SWT Reserve, typically dominated by bell heath *Erica cinerea,* heather *Calluna vulgaris* and crowberry *Empetrum nigrum*. The sward also contains a high cover of grasses, typically sheep's fescue *Festuca ovina*, heath grass *Danthonia decumbens* and sweet-vernal grass *Anthoxanthum odoratum.* Heath communities occupy cliff edges and ledges, flatter areas on shallow soils on cliff tops and are also found inland on peatier substrate. The dominant heath community across the site is H7d *Calluna vulgaris-Scilla verna* heath *Empetrum nigrum* ssp. *nigrum* sub-community where crowberry is co-dominant with dwarf shrubs.



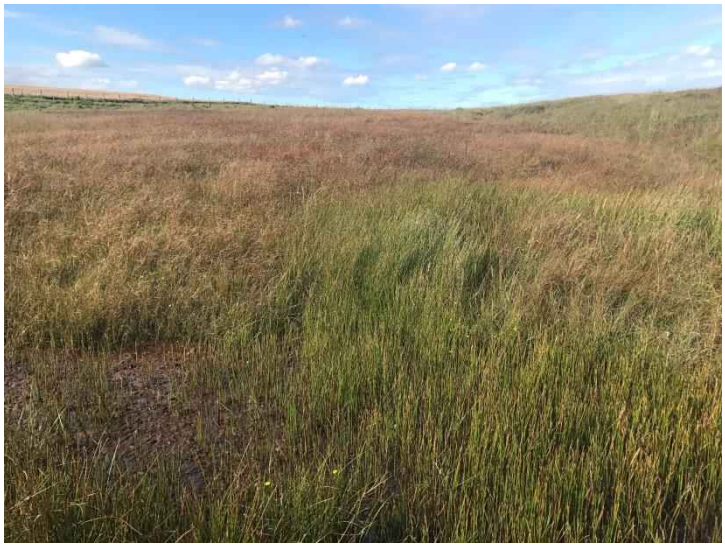
Target Note 7: Areas of quarrying (now abandoned) are present throughout the SWT Reserve, and there are several areas of open water within quarries. Vegetation communities around quarry cliffs is typically diverse – here reflecting a mosaic of mire, scrub, maritime grassland and tall herb and fern communities (M27, U17x, W23a, OV27b).



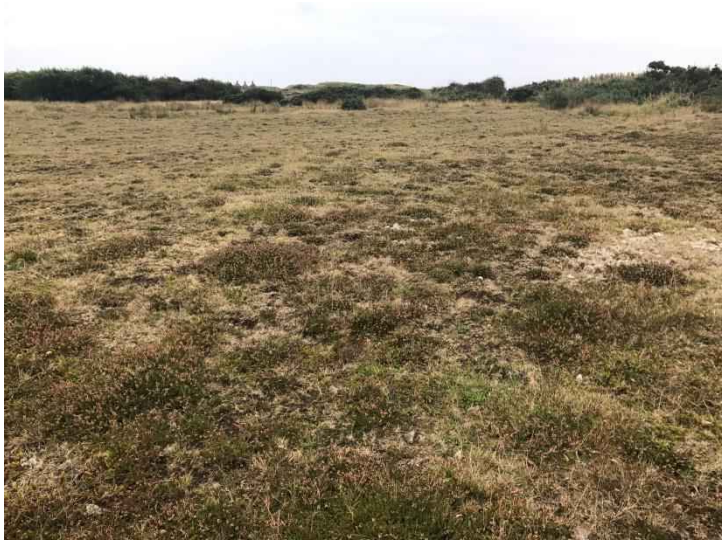
Target Note 8: Area of glaucous sedge *Carex flacca* in wetter depression within grassy coastal heath community. This reflects a variation of H7 *Calluna vulgaris-Scilla verna* heath and is described in the NVC where such sedges favour free-draining and more base-rich soils.



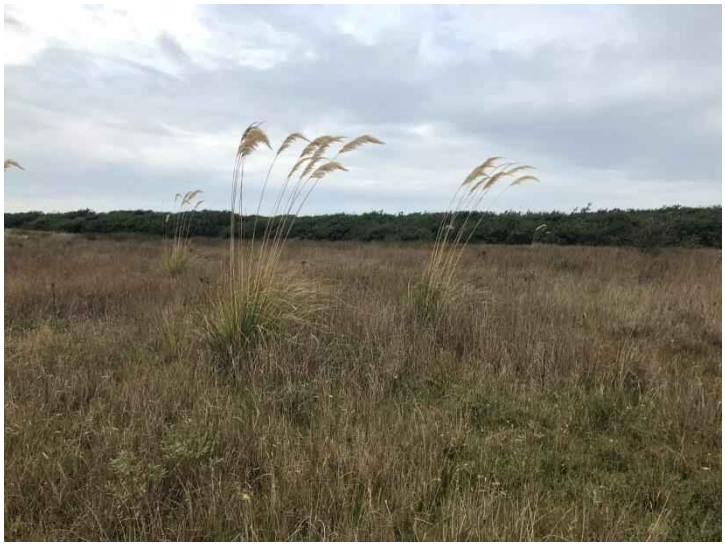
Target Note 9: Area of cliff-top dominated by common saltmarsh grass *Puccinellia maritima*, bare ground and pools of open water. This is not typical of saltmarsh communities described in NVC and has been accorded a SMx Saltmarsh community coding.



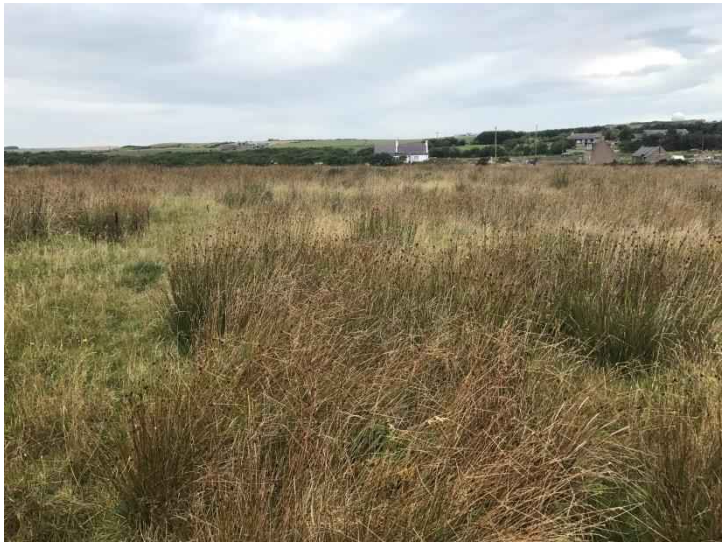
Target Note 10: Area of wet, flushed, saltmarsh community with abundant common cotton-grass *Eriophorum angustifolium* (in upper areas) and common spike-rush *Eleocharis palustris* (in lower areas), both frequently associating with marsh pennywort *Hydrocotyle vulgaris, bog* pondweed *Potamogeton polygonifolius*, saltmarsh rush *Juncus gerardii*, lesser spearwort *Ranunculus flammula* and wild angelica *Angelica sylvestris.* Grass of parnassus *Parnassia palustris,* sea arrowgrass *Triglochin maritima* and northern marsh-orchid *Dactylorhiza purpurella* are located in this area. These communities are not described in NVC and result from flushing of brackish water from a small lochan inland and to the west, and reflect some variant of saltmarsh communities. These have been coded as SMy (common cotton-grass dominated) and SMz (common spike-rush dominated) saltmarsh communities.



Target Note 11: In survey area 2 – inland area, expanses of H7d *Calluna vulgaris-Scilla verna* heath *Empetrum nigrum* ssp. *nigrum* sub-community are frequent in the southern half of the compartment. Dwarf shrub species are young, and short and reflect pioneer growth of heath. Often these are punctuated with pioneer grasses including Early hair grass *Aira praecox*.



Target Note 12: Marshy areas in survey area 2 – inland area are dominated by soft rush *Juncus effusus* rush-pastures. Here pampas grass *Cortaderia selloana* is present as a non-native species within the sward.



Target Note 13: The north and eastern areas of survey area 2 – inland area, are dominated by soft rush *Juncus effusus* rush-pasture communities, and are commonly species-poor. These areas are punctuated by areas of other grassland, heath and scrub communities too small to be mapped and often transitional rather than discrete communities. These communities are reflected in the NVC mosaic for the area.

Target Note 14: Monbretia *Crocosmia x crocosmiiflora* – single plant located by old ruin

Target Note 15: Cotoneaster *Cotoneaster* sp. scrub co-dominant with alder.

APPENDIX C: FLORAL SPECIES LISTS

Scientific name	Common name	Family	Origin
Achillea millefolium	Yarrow	Asteraceae	N
Achillea ptarmica	Sneezewort	Asteraceae	N
Agrostis canina	Velvet Bent	Poaceae	N
Agrostis capillaris	Common Bent	Poaceae	N
Agrostis stolonifera	Creeping Bent	Poaceae	N
Aira praecox	Early Hair-grass	Poaceae	N
Ajuga reptans	Bugle	Lamiaceae	N
Anemone nemorosa	Wood Anemone	Ranunculaceae	N
Angelica sylvestris	Wild Angelica	Apiaceae	N
Anthoxanthum odoratum	Sweet Vernal-grass	Poaceae	N
Anthriscus sylvestris	Cow Parsley	Apiaceae	N
Arctium minus	Lesser Burdock	Asteraceae	N
Armeria maritima ssp. maritima	Thrift	Plumbaginaceae	N
Arrhenatherum elatius	False Oat-grass	Poaceae	N
Athyrium filix-femina	Lady-fern	Woodsiaceae	N
Bellis perennis	Daisy	Asteraceae	N
Callitriche stagnalis	Common Water-starwort	Callitrichaceae	N
Calluna vulgaris	Heather	Ericaceae	N
Caltha palustris	Marsh-marigold	Ranunculaceae	N
Campanula rotundifolia	Harebell	Campanulaceae	N
Cardamine pratensis	Cuckooflower	Brassicaceae	N
Carex binervis	Green-ribbed Sedge	Cyperaceae	N
Carex demissa	Common Yellow-sedge	Cyperaceae	N
Carex echinata	Star Sedge	Cyperaceae	N
Carex flacca	Glaucous Sedge	Cyperaceae	N
Carex leporina	Oval Sedge	Cyperaceae	N
Carex panicea	Carnation Sedge	Cyperaceae	N
Centaurea nigra	Common Knapweed	Asteraceae	N
Cerastium glomeratum	Sticky Mouse-ear	Caryophyllaceae	N
Chamerion angustifolium	Rosebay Willowherb	Onagraceae	N
Cirsium arvense	Creeping Thistle	Asteraceae	N
Cirsium palustre	Marsh Thistle	Asteraceae	N
Cirsium vulgare	Spear Thistle	Asteraceae	N
Cochlearia officinalis	Common Scurvygrass	Brassicaceae	N
Conopodium majus	Pignut	Apiaceae	N
Cortaderia selloana	Pampas grass	Poaceae	IN
Cotoneaster sp.	Cotoneaster sp.	Rosaceae	IN
Crataegus monogyna	Hawthorn	Rosaceae	N
Crepis capillaris	Smooth Hawk's-beard	Asteraceae	N
Crepis paludosa	Marsh Hawk's-beard	Asteraceae	N
Crocosmia x crocosmiiflora	Monbretia	Ixioidaea	IN

Scientific name	Common name	Family	Origin
Cynosurus cristatus	Crested Dog's-tail	Poaceae	N
Cytisus scoparius ssp. scoparius	Broom	Fabaceae	N
Dactylis glomerata	Cock's-foot	Poaceae	N
Dactylorhiza purpurella	Northern Marsh-orchid	Orchidaceae	N
Danthonia decumbens	Heath-grass	Poaceae	N
Deschampsia cespitosa ssp. cespitosa	Tufted Hair-grass	Poaceae	N
Deschampsia flexuosa	Wavy Hair-grass	Poaceae	N
Digitalis purpurea	Foxglove	Veronicaceae	N
Dryopteris affinis	Golden-scaled Male-fern	Dryopteridaceae	N
Dryopteris filix-mas	Male-fern	Dryopteridaceae	N
Eleocharis palustris	Common Spike-rush	Cyperaceae	N
Empetrum nigrum ssp. nigrum	Crowberry	Ericaceae	N
Epilobium montanum	Broad-leaved Willowherb	Onagraceae	N
Epilobium palustre	Marsh Willowherb	Onagraceae	N
Equisetum arvense	Field Horsetail	Equisetaceae	N
Equisetum palustre	Marsh Horsetail	Equisetaceae	N
Equisetum sylvaticum	Wood Horsetail	Equisetaceae	N
Erica cinerea	Bell Heather	Ericaceae	N
Erica tetralix	Cross-leaved Heath	Ericaceae	N
Eriophorum angustifolium	Common Cottongrass	Cyperaceae	N
Euphrasia sp.	Eyebright	Orobanchaceae	N
Festuca ovina	Sheep's-fescue	Poaceae	N
Festuca rubra	Red Fescue	Poaceae	N
Filipendula ulmaria	Meadowsweet	Rosaceae	N
Galium aparine	Cleavers	Rubiaceae	N
Galium saxatile	Heath Bedstraw	Rubiaceae	N
Galium verum	Lady's Bedstraw	Rubiaceae	N
Glyceria fluitans	Floating sweet-grass	Poaceae	N
Heracleum sphondylium	Hogweed	Apiaceae	N
Hieracium agg.	Hawkweed	Asteraceae	N
Holcus lanatus	Yorkshire-fog	Poaceae	N
Holcus mollis	Creeping Soft-grass	Poaceae	N
Hydrocotyle vulgaris	Marsh Pennywort	Apiaceae	N
Hypericum pulchrum	Slender St John's-wort	Hypericaceae	N
Hypochaeris radicata	Cat's-ear	Asteraceae	N
Juncus articulatus	Jointed Rush	Juncaceae	N
Juncus bufonius	Toad Rush	Juncaceae	N
Juncus conglomeratus	Compact Rush	Juncaceae	N
Juncus effusus	Soft-rush	Juncaceae	N
Juncus gerardii	Saltmarsh Rush	Juncaceae	N
Juncus squarrosus	Heath Rush	Juncaceae	N
Lathyrus pratensis	Meadow Vetchling	Fabaceae	N
Leucanthemum vulgare	Oxeye Daisy	Asteraceae	N

Scientific name	Common name	Family	Origin
Ligusticum scoticum	Scot's Lovage	Apiaceae	N
Litorella uniflora	Shoreweed	Plantaginaceae	N
Lolium perenne	Perennial Rye-grass	Poaceae	N
Lonicera periclymenum	Honeysuckle	Caprifoliaceae	N
Lotus corniculatus	Common Bird's-foot-trefoil	Fabaceae	N
Luzula multiflora ssp. congesta	Heath Wood-rush	Juncaceae	N
Luzula multiflora ssp. multiflora	Heath Wood-rush	Juncaceae	N
Luzula sylvatica	Great Wood-rush	Juncaceae	N
Matricaria discoidea	Pineappleweed	Asteraceae	IN
Nardus stricta	Mat-grass	Poaceae	N
Parnassus palustris	Grass-of-Parnassus	Parnassiaceae	N
Pedicularis sylvatica	Lousewort	Orobanchaceae	N
Plantago lanceolata	Ribwort Plantain	Plantaginaceae	N
Plantago major	Greater Plantain	Plantaginaceae	N
Plantago maritima	Sea Plantain	Plantaginaceae	N
Poa humilis	Spreading Meadow-grass	Poaceae	N
Poa pratensis	Smooth Meadow-grass	Poaceae	N
Polygala serpyllifolia	Heath Milkwort	Polygalaceae	N
Polypodium vulgare	Polypody	Polypoiaceae	N
Potamogeton polygonifolius	Bog Pondweed	Potamogetonaeae	N
Potentilla anserina	Silverweed	Rosaceae	N
Potentilla erecta	Tormentil	Rosaceae	N
Primula vulgaris	Primrose	Primulaceae	N
Prunus spinosa	Blackthorn	Rosaceae	N
Pteridium aquilinum ssp. aquilinum	Bracken	Dennstaedtiaceae	N
Puccinellia maritima	Common Saltmarsh-grass	Poaceae	N
Quercus sp.	Oak sp.	Fagaceae	N
Ranunculus acris	Meadow Buttercup	Ranunculaceae	N
Ranunculus flammula ssp. flammula	Lesser Spearwort	Ranunculaceae	N
Ranunculus repens	Creeping Buttercup	Ranunculaceae	N
Rhinanthus minor	Yellow-rattle	Orobanchaceae	N
Rosa canina	Dog-rose	Rosaceae	N
Rubus fruticosus agg.	Bramble	Rosaceae	N
Rumex acetosa	Common Sorrel	Polygonaceae	N
Rumex acetosella	Sheep's Sorrel	Polygonaceae	N
Rumex crispus ssp. crispus	Curled Dock	Polygonaceae	N
Rumex obtusifolius	Broad-leaved Dock	Polygonaceae	N
Salix aurita	Eared Willow	Salicaceae	N
Salix caprea	Goat Willow	Salicaceae	N
Salix cinerea	Grey Willow	Salicaceae	N
Salix repens	Creeping Willow	Salicaceae	N
Scorzoneroides autumnalis	Autumn Hawkbit	Asteraceae	N
Sedum rosea	Roseroot	Crassulaceae	N

Scientific name	Common name	Family	Origin
Senecio jacobaea	Common Ragwort	Asteraceae	N
Senecio sylvaticus	Heath Groundsel	Asteraceae	N
Senecio vulgaris	Groundsel	Asteraceae	N
Silene dioica	Red Campion	Caryophyllaceae	N
Silene uniflora	Sea Campion	Caryophyllaceae	N
Solidago virgaurea	Goldenrod	Asteraceae	N
Sonchus asper	Prickly Sowthistle	Asteraceae	N
Stachys palustris	Marsh Woundwort	Lamiaceae	N
Stellaria alsine	Bog Stitchwort	Caryophyllaceae	N
Succisa pratensis	Devil's-bit Scabious	Dipsacaeae	N
Trifolium medium	Zigzag Clover	Fabaceae	N
Trifolium pratense	Red Clover	Fabaceae	N
Trifolium repens	White Clover	Fabaceae	N
Triglochin maritima	Sea Arrowgrass	Juncaginaceae	N
Tripleurospermum maritimum	Sea Mayweed	Asteraceae	N
Tussilago farfara	Colt's-foot	Asteraceae	N
Ulex europaeus	Gorse	Fabaceae	N
Urtica dioica ssp. dioica	Common Nettle	Urticaceae	N
Vicia cracca	Tufted Vetch	Fabaceae	N
Vicia sepium	Bush Vetch	Fabaceae	N
Viola palustris	Marsh Violet	Violaceae	N
Viola riviniana	Common Dog-violet	Violaceae	N

'N' – Native, 'IN' – Introduced

NB. No species of conservation concern were identified.

APPENDIX D: FIGURES

411000

412000

413000

840000

839000

Cottage

A90

Bullers of Buchan Coast SSSI

Long Haven

Buchan Ness to Collieston SAC

Buchan Ness to Collieston SPA

Mains Of
Coldwells

Station
Farm

Watery Ha...

49

Blackhill
Quarries

Kinnoul
Cottage

nleaves
ttage

Legend

- SWT Reserve Site Boundary
- Special Protection Area
- Special Area of Conservation
- Site of Special Scientific Interest

0 100 200 300 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_1:_Site_Location_3170

Title
Figure 1: Site Location

Location	Drawing Number	Sht No	Rev No
Peterhead	3170	1/1	A

412200 412400 412600 412800

840800 840600 840400

Cottage

Cave of Coffi

A90

Long Haven

ave of

Legend

- SWT Reserve Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2a:_NVC_Survey_Results_3171

Title
Figure 2a: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3171	1/1	A

412000 412200 412400

840400 840200 840000

Long Haven

ave of

Bo hoy

eathery

Legend

- SWT Reserve Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2b:_NVC_Survey_Results_3172

Title
Figure 2b: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3172	1/1	A

411800 412000 412200 412400

840000 839800 839600

Watery Ha… ch-Head

49 Quarry

Legend

- SWT Reserve Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2c:_NVC_Survey_Results_3173

Title
Figure 2c: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3173	1/1	A

411200 411400 411600 411800

840200

840000

839800

839600

Station Farm

19 18 4 7 20 12 26 C C 41 42 54 1 3 31 53 12 9 C 15 22 C 2 5 13 23 21 35 17 48 43 C 16 11 C 33 29 47 37 38 C 36 39 40 15

Legend

- SWT Reserve Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

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eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2d:_NVC_Survey_Results_3174

Title
Figure 2d: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3174	1/1	A

411400 411600 411800 412000

839600 839400 839200

Legend

- SWT Reserve Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C — Coastal grassland
- C — Coastal heathland
- Crevice/ledge vegetation
- A — Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI — Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q — Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

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Drawing Status

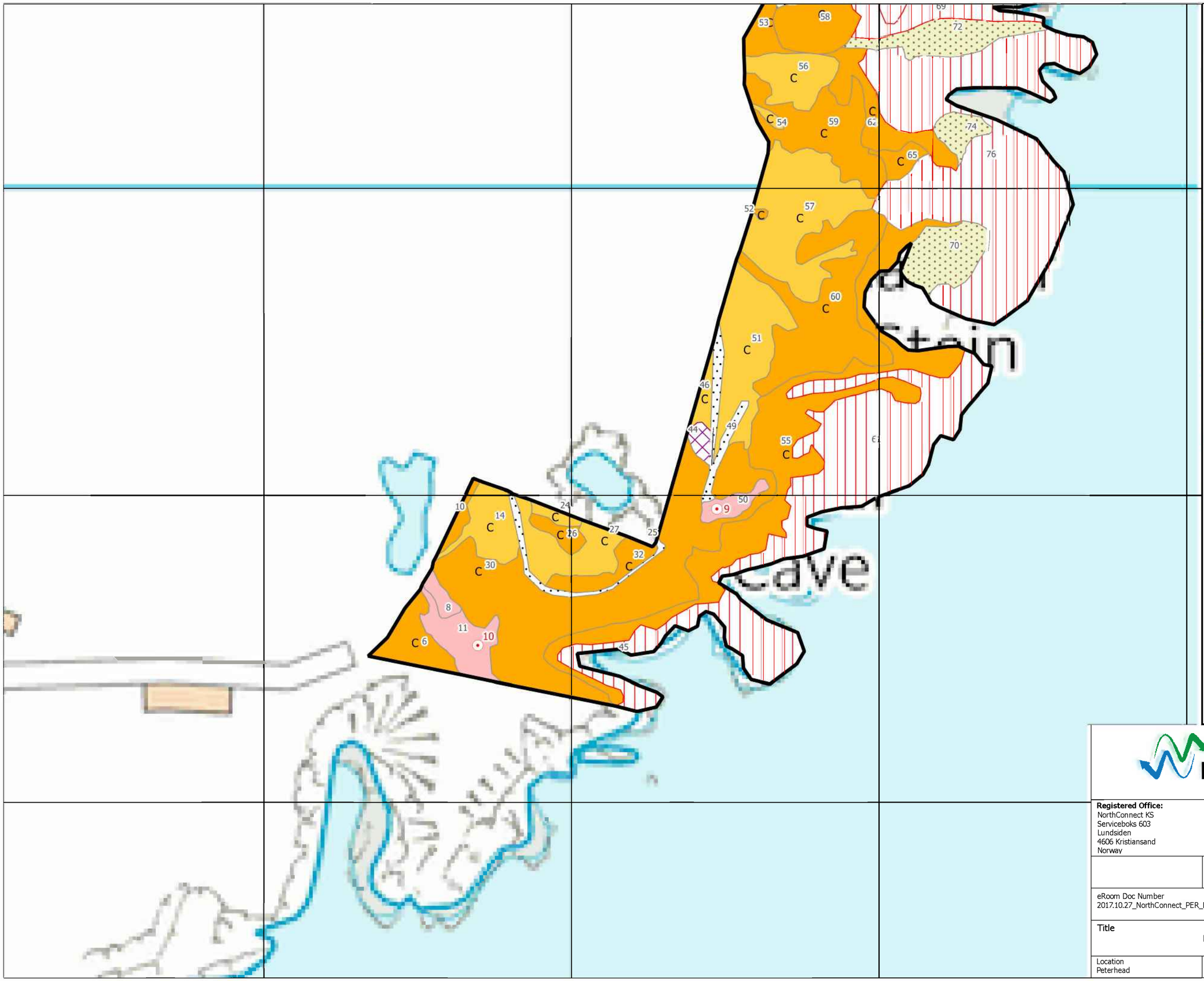
eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2e:_NVC_Survey_Results_3175

Title
Figure 2e: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3175	1/1	A

411200 411400 411600 411800

839000 838800 838600



Legend

- SWT Reserve Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 25 50 75 m

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2f:_NVC_Survey_Results_3176

Title
Figure 2f: NVC Survey Results

Location	Drawing Number	Sht No	Rev No
Peterhead	3176	1/1	A

411000 412000 413000

840000

839000

A90

Mains Of Coldwells

Station Farm

Long Haven

Yoags' Haven

Kinnoul Cottage

Cave of

Legend

- SWT Reserve Site Boundary
- Target Notes
- Access track
- Acid grassland - unimproved
- Bare ground
- Bare peat
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Broadleaved woodland/Scrub
- Buildings and gardens
- C Coastal grassland
- C Coastal heathland
- Crevice/ledge vegetation
- A Cultivated/disturbed land - arable
- Maritime cliff
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Open water
- Other tall herb and fern - non-ruderal
- Other tall herb and fern - tall ruderal
- Q Quarry
- Rock exposure
- Saltmarsh
- Scree
- Scrub - continuous
- Scrub - scattered
- Shingle/gravel above high-tide mark

0 100 200 300 m

N

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eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_2g:_NVC_Survey_Results_(Overview)_3177

Title
Figure 2g: NVC Survey Results (Overview)

Location	Drawing Number	Sht No	Rev No
Peterhead	3177	1/1	A

412200 412400 412600 412800

840800 840600 840400

Cottage

Cave of

Coff

A90

Long Haven

ave of

Legend

SWT Reserve Site Boundary

GWDTE Score

Low

Low-moderate

Moderate

Moderate-high

High

n/a

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3a:_GWDTE_Score_3178

Title
Figure 3a: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3178	1/1	A

412000
412200
412400
840400
840200
840000
Long Haven
ave of
Bon hoy
eathery

Legend
SWT Reserve Site Boundary
GWDTE Score
Low
Low-moderate
Moderate
Moderate-high
High
n/a

0 25 50 75 m

N

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eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3b:_GWDTE_Score_3179

Title
Figure 3b: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3179	1/1	A

411800 412000 412200 412400

840000

839800

839600

Watery Ha

49

ch-Head

Quarry

illarney

Legend

SWT Reserve Site Boundary

GWDTE Score

Low

Low-moderate

Moderate

Moderate-high

High

n/a

0 25 50 75 m

N

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eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3c:_GWDTE_Score_3180

Title
Figure 3c: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3180	1/1	A

411200 411400 411600 411800

840200

840000

839800

839600

Station Farm

Legend

SWT Reserve Site Boundary

GWDTE Score

- Low
- Low-moderate
- Moderate
- Moderate-high
- High
- n/a

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3d:_GWDTE_Score_3181

Title
Figure 3d: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3181	1/1	A

411400 411600 411800 412000

839600 839400 839200

Legend

SWT Reserve Site Boundary

GWDTE Score

- Low
- Low-moderate
- Moderate
- Moderate-high
- High
- n/a

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3e:_GWDTE_Score_3182

Title
Figure 3e: GWDTE Score

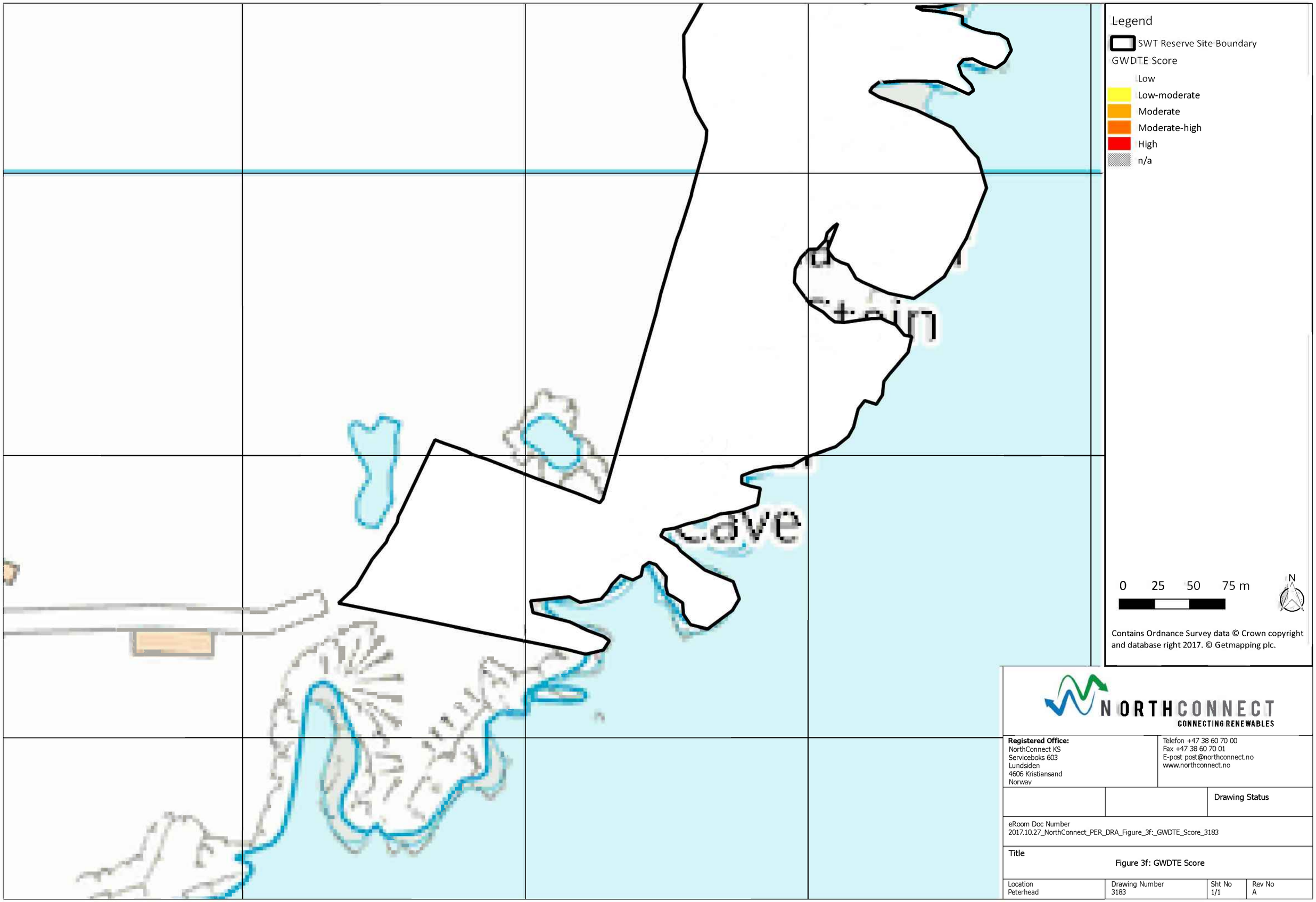
Location	Drawing Number	Sht No	Rev No
Peterhead	3182	1/1	A

411200 411400 411600 411800

839000

838800

838600



Legend

SWT Reserve Site Boundary

GWDTE Score

- Low
- Low-moderate
- Moderate
- Moderate-high
- High
- n/a

0 25 50 75 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3f:_GWDTE_Score_3183

Title
Figure 3f: GWDTE Score

Location	Drawing Number	Sht No	Rev No
Peterhead	3183	1/1	A

411000

412000

413000

840000

839000

A90

A90

Mains Of
Coldwells

Station
Farm

Long Haven

Yoags'
Haven

Kinnoul
Cottage

Legend

SWT Reserve Site Boundary

GWDTE Score

- Low
- Low-moderate
- Moderate
- Moderate-high
- High
- n/a

0 100 200 300 m

N

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eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_3g:_GWDTE_Score_(Overview)_3184

Title
Figure 3g: GWDTE Score (Overview)

Location	Drawing Number	Sht No	Rev No
Peterhead	3184	1/1	A

411000

412000

413000

840000

839000

Cottage

Cave of

A90

Long Haven

Mains Of
Coldwells

Station
Farm

Watery H

49

Yoags'
Haven

Kinnoul
Cottage

A90

Legend

SWT Reserve Site Boundary

Habitats of Conservation Concern

- H7 (dominant)
- H7 (sub-dominant)
- MC8 (dominant)
- MC8 (sub-dominant)
- MC9 (dominant)
- MC9 (sub-dominant)

0 100 200 300 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_4:_Habitats_of_Conservation_Concern_3185

Title
Figure 4: Habitats of Conservation Concern

Location	Drawing Number	Sht No	Rev No
Peterhead	3185	1/1	A

411000

412000

413000

840000

839000

A90

Monbretia

Pampas grass

Cotoneaster

Mains Of Coldwells

Station Farm

Kinnoul Cottage

Cottage

Cave of Coffin

Long Haven

Cave of Bomachoy

Heathery Haven

Watery Ha...

49

Murdoch Head Quarry

Cave of Gillamoy

Yoags' Haven

Blackhill Quarries

Cave of Stein

Bridal Cave

nleaves

ttage

Legend

SWT Reserve Site Boundary

Non-native Flora

0 100 200 300 m

N

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Drawing Status

eRoom Doc Number
2017.10.27_NorthConnect_PER_DRA_Figure_5:_Non-native_flora_3186

Title
Figure 5: Non-native flora

Location	Drawing Number	Sht No	Rev No
Peterhead	3186	1/1	A