Appendix 8.4 Habitats and Vegetation

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Appendix 8.4 Habitats and Vegetation

Introduction

This Technical Appendix has been prepared to accompany Chapter 8 in Volume 1 of the Knockcronal Wind Farm (hereafter the Proposed Development) EIA Report.

It presents detailed methodologies and results of desk studies and field surveys completed to establish baseline habitat conditions, to inform the design and assessment of the Proposed Development.

It should be read with reference to the following specific figures, presented in Volume 2 of the EIA Report:

- Figure 8.1: Non-Ornithological Statutory Designated Sites.
- Figure 8.6: Phase 1 Habitat Plan.
- Figure 8.7: National Vegetation Classification Plan.

Site Overview

Land within the site is shown in Figures 8.6 and 8.7 in Volume 2 of the EIA Report. The Proposed Development is located approximately 4.8 km south of Straiton, and 17.4 km east of Girvan, in South Ayrshire. There are no designated sites with habitat and/or botanical interest within 2 km of the Proposed Development, with the nearest such site greater than 4.5 km from the site boundary (Auchalton Site of Special Scientific Interest (SSSI)).

Habitats within the site boundary comprise a mosaic of rough pasture, including acid and marshy grassland, with areas of blanket mire and wet modified bog. Commercial conifer plantations border the Proposed Development to the west, south and east. There is also a small, isolated stand of mature conifers located on-site.

The lower lying northern extent of the site consists of gently sloping, to flat, farmland with improved and semi-improved grasslands. The southern extent of the site, on higher elevation, rises to an undulating plateau with prominent small hills, and supports a more complex association of upland plant communities.

Several small watercourses intersect the site, including the Sheil Burn and Knockoner Burn.

Habitats along the two proposed access roads are predominantly commercial conifer plantation, with both of these routes including sections of an existing forestry track but one will be progressed and utilised.

Methodology

The objectives of the baseline studies were to:

- Establish the spatial distribution of habitats and vegetation communities which may be impacted by the Proposed Development;
- Identify the presence and distribution of any habitat types listed on Annex 1 of the Habitats Directive, the Scottish Biodiversity List (SBL) or Ayrshire Local Biodiversity Action Plan (LBAP) and/or which represent potential Groundwater Dependent Terrestrial Ecosystems for (GWDTEs) for subsequent hydrological assessment; and

- Record the presence of any protected or non-native plant species listed on Schedule 8 and 9 of the Wildlife and Countryside Act 1981 (as amended) respectively.

Desk Study and Consultation

This section provides detailed methodologies of desk studies and consultation undertaken to establish baseline habitat and vegetation information to inform the design and assessment of the Proposed Development.

A desk study was undertaken to identify the proximity of the Proposed Development to any statutory or non-statutory designated site for nature conservation with habitat or botanical qualifying interest, and to obtain any existing records of protected and/or non-native flora within the site and the surrounding wider area.

The site was previously subject to a wind farm planning application called Linfairn Wind Farm (South Ayrshire Council Planning Reference 13/01130/DEEM) and for which baseline habitat and vegetation surveys were undertaken in 2013. Given the survey data is historic (7 years old) it is used to provide baseline context regarding those habitats likely to be present on-site. Reference is made in this report to the Environmental Impact Assessment (EIA) undertaken for that application.

Key desk study sources, search areas and information obtained is summarised in Table 8.1.

Table 8.1 - Desk Study Sources

Source	Information Obtained	Search Area
SiteLink	Designated sites for habitats and/or botanical interest.	Within 10 km of the site boundary.
South West Scotland Environmental Information Centre (SWSEIC)	Existing records of protected and notable habitats and plant species.	Within 2 km of the site boundary.
Linfairn Wind Farm Environmental Statement (ES) Chapter (and accompanying figures)	Existing records of protected and notable habitats and plant species.	Within the site boundary, and adjacent habitats.

Field Surveys

Field studies were undertaken to establish baseline habitat and vegetation information to inform the design and assessment of the Proposed Development.

The following field surveys have been completed:

- Phase 1 habitat survey; and
- National Vegetation Classification (NVC) survey.

Field Survey Methodology

Study Area

The Study Area within which baseline habitat and vegetation field surveys have been undertaken has comprised all terrestrial habitats within the site boundary, extended to include adjoining accessible habitats as access permissions and public rights of way allowed, out to a distance of 250 m from the site boundary. The Study Area also included the two proposed permanent access roads and approximately 20 m either side of each route.

Phase 1 Habitat Survey

A Phase 1 habitat survey was undertaken on the 20 July 2020, with a further survey undertaken along the routes of the two proposed permanent access roads on 5 May 2021.

The survey was undertaken in accordance with the UK industry standard Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology (JNCC, 2010).

During the survey all habitats within the Study Area were mapped according to industry standards and described using a series of 'target notes' (TNs).

NVC Survey

A NVC survey was undertaken on the 21 July 2020 following the guiding principles detailed within the 'National Vegetation Classification: User's Handbook' (Rodwell, 2006). A further survey was undertaken along rout of the two proposed permanent access roads on 5 May 2021.

The NVC Study Area comprised all noteworthy habitats within the site boundary, concentrating on those areas where plant communities were deemed likely to form Annex 1 habitats and/or represent potential GWDTEs.

During survey, square quadrats of size 2 m^2 were distributed throughout homogenous stands identified, with quadrat locations selected by the surveyor in the field, in order to provide a representative sample of the vegetation community present.

In each quadrat sample area, data were collected on the presence and abundance of vascular plant species using the DOMIN scale. Data were then analysed and classified to an NVC vegetation community, where possible, using the keys in Rodwell (various) British Plant Communities Volumes 1 to 4.

Personnel

Field surveys were conducted by Mr M. Wood; a competent botanist with considerable experience of undertaking Phase 1 Habitat and NVC surveys for proposed wind farm developments, across numerous comparable upland sites in Scotland.

NVC analysis was conducted by Ms S. Turner a competent botanist with experience of undertaking and analysing NVC surveys for similar upland sites across Scotland.

Results

Desk Study

This section provides details of existing habitat information and existing records of protected and notable plant species identified within and in proximity to the site from desk study sources listed in **Table 8.1**.

Statutory Designated Sites

This section should be read with reference to Figure 8.1 in Volume 2 of the EIA Report.

A review of Sitelink identifies that the site does not form part of any statutory designated site for nature conservation with qualifying habitat and/or botanical interest.

Table 8.2 summarises statutory designated sites with habitat and/or botanical features of interest located within 10 km of the site boundary.

Distances specified within Table 8.2 are taken from the site boundary to the designation boundary at its nearest point.

Table 8.2 - Designated Sites for Nature Conservation
SAC – Special Area of Conservation; SSSI – Site of Special Scientific Interest

Designated Site	Distance / Orientation	Qualifying Habitat and/or Botanical Interests
Auchalton SSSI	4.6 km, north-west of site boundary.	▪ Lowland neutral grassland.
Bogton Lochs SSSI	8.6 km, north-east of site boundary.	▪ Openwater transition fen.
Ness Glen SSSI	8.8 km, east of site boundary.	▪ Upland mixed ash woodland.
Dalmellington Moss SSSI	8.9 km, north-east of site boundary.	▪ Raised bog.
Merrick Kells SSSI	9.4 km, south-east of site boundary.	Multiple interests, including: ▪ Blanket bog; and ▪ Upland plants.
Merrick Kells SAC	9.4 km, south-east of site boundary.	Multiple interests, including: ▪ Blanket bog; ▪ Dry heaths; ▪ Montane acid grasslands; and ▪ Acidic scree.

Non-Statutory Designated Sites
In consultation with SWSEIC the site does not form part of any non-statutory designated site for nature conservation and no such sites are located within 2 km of the site. However, there are two Provisional Local Wildlife Sites (pLWS) within 2 km; the Straiton Hills pLWS located partially in north-east of the site, and the River Stinchar (Milton to Black Hill) pLWS located 625 m to the south of the site boundary. Straiton Hills pLWS is described as a large and highly rated area of diverse upland and wetland habitats, including moorgrass grassland, blanket bog and rushy pasture, with several lochs and wooded glens; all of botanical and ornithological interest. River Stinchar (Milton to Black Hill) pLWS is described as a rich stretch of upland habitats which contains a number of scarce plants and breeding birds, with blanket bog occurring on higher ground, the Ferly Burn having botanical interest and Linfern Loch being important for wildlife.

The site is also part of the Galloway and Southern Ayrshire Biosphere Reserve.

Existing Records of Protected and Non-native Botanical Species - SWSEIC
In consultation with SWSEIC, bluebell (*Hyacinthoides non-scripta*) was the only protected flora listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) identified within 2 km of the site boundary, and no existing records of non-native flora listed on Schedule 9 of the Act were identified within 2 km of the site boundary. Bluebell is only protected by Part 2(a) and 2(b) of the Wildlife and Countryside Act 1981 (as amended) which prevents selling and actions to sell.

Existing Records of Habitats and Protected and Non-native Botanical Species - Linfairn Wind Farm ES
Baseline habitat and vegetation surveys to inform the previously submitted Linfairn Wind Farm, which included the site, were completed in 2013. Detailed survey methodologies, Study Areas and results are presented within Chapter 7: 'Ecology', Technical Report: 'Linfairn Wind Farm Vegetation Survey' and Figures 7.4a-f: of the Linfairn Wind Farm ES.

Table 8.3 provides a summary of previously recorded baseline habitats within the Search Area for Linfairn Wind Farm ES together with corresponding NVC communities.

During surveys in 2013, meadow clary *Salvia pratensis* a nationally rare and endangered species, with a restricted distribution across Scotland, was recorded along the rides of the plantation near Cawin Hill, adjacent to one of the proposed permanent access roads for the Proposed Development.

Table 8.3 - Existing Habitat and NVC Communities Identified within the Defined Study Area – Linfairn Wind Farm ES.

Adapted from Table 1 of the Technical Report and Table 7-6 of the Linfairn Wind Farm ES.

Phase 1 Habitat and JNCC Code	Corresponding NVC Community
Semi-natural broadleaved woodland (A1.1.1)	N/A
Conifer plantation (A1.2.2)	N/A
Scattered scrub (A2.2)	N/A
Broad-leaved scattered trees (A3.1)	N/A
Unimproved acid grassland (B1.1)	U5/U6
Semi-improved acid grassland (B1.2)	U5/U6
Unimproved neutral grassland (B2.1)	U4
Semi-improved neutral grassland (B2.2)	U4
Unimproved calcareous grassland (B3.1)	CG10
Improved grassland (B4)	N/A
Marshy grassland (B5)	M23
Continuous bracken (C1.1)	U20
Scattered bracken (C1.2)	N/A
Dry dwarf shrub heath (D1)	H10
Wet dwarf shrub heath (D2)	M15
Wet heath acid grassland mosaic (D6)	M15/U4/U5
Blanket bog (E1.6.1)	M17
Wet modified bog (E1.7)	M25
Valley mire (E3.1)	M17/M25
Mire- Acid flush (E2.1)	M6
Mire- Basic flush (E2.2)	M10
Running water (G2)	N/A

Field Surveys

This section presents the results of baseline field surveys, including an overview of habitat types present within the Study Area and their distribution. It should be read with reference to Figures 8.6 and 8.7 in Volume 2 of the EIA Report.

Phase 1 habitat survey TNs are detailed in Annex 1, and detailed species list, NVC tables and NVC Target Notes are presented in Annex 2 and Annex 3, with photographic plates presented in Annex 4.

The north of the Study Area is bordered by the Palmullan Burn which joins the Girvan Water; the eastern side of the Study Area is flanked by Genoch Burn (G2.4). These watercourses have formed deep gullies which have facilitated the establishment of semi-natural broadleaved woodland (A1.1.1), largely comprised of ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*), hazel (*Corylus avellana*) and beech (*Fagus sylvatica*), with alder (*Alnus glutinosa*) predominantly occurring along the banks of the Girvan.

The southern and western boundaries of the Study Area are bordered by mature dense coniferous plantation woodland (A1.2.2), comprised of Sitka spruce (*Picea sitchensis*) and occasional Larch Larix sp.

The northern extent of the Study Area, in the vicinity of Linfairn Farm is generally quite flat or gently sloping and primarily supports improved grassland pasture (B4), comprising perennial ryegrass (*Lolium perenne*), crested dog's tail (*Cynosurus cristatus*), meadow foxtail (*Alopecurus pratensis*) and clovers (*Trifolium* spp.), and semi-improved acid grasslands.

Through the central and southern extent of the Study Area the land rises steeply, into a mix of bracken (Pteridium aquilinum) (C1) slopes, mosaics of acid grassland (B1) and rush (*Juncus* spp.) dominated marshy grassland (B5) until reaching an undulating plateau, punctuated by prominent small hilltops to a height of around 300 m. This southern extent of the Study Area supports a more complex mix of plant communities which is a reflection of the topography, and underlying drainage at that locality. Any 'low' or flat areas in this area have allowed peat to form blanket bogs. These are either deergrass (*Trichophorum germanicum*) dominated blanket bog (E1.6.1) or purple moor-grass (*Molinia caerulea*) dominated wet modified bog (E1.7). There are few drainage cuts and the whole area is heavily grazed by sheep and cattle.

Acid flushes and springs (E2.1) are scattered in several localities around the Study Area, usually on hillsides or along the edges of tracks. They occur where the soil is shallow and where water is seeping from underground and draining over exposed rocks and gravel. They are characterised by containing herbs and mosses not found elsewhere such as fountain apple-moss (*Philonotis fontana*), butterwort (*Pinguicula vulgaris*), lousewort (*Pedicularis palustris*), and concentrations of sundew. Due to their small size, the habitat type was not mapped where it occurred, however several areas containing acid flushes and springs are target noted in the NVC target notes (see Annex 3).

A restricted area of swamp (F1) is present in the south of the Study Area adjacent to a conifer plantation. It is characterised by tall stands of sedges, for example bottle sedge (*Carex rostrata*) and the surface is covered in dense cushions of the sphagnum moss (*S. fallax*) and sphagnum moss (*S. palustre*) with a scattering of bogbean (*Menyanthes trifoliate*).

Elsewhere, hollows on slopes or gullies and burn lines are rush dominated marshy grassland (B5), with patches of bracken on steeper slopes where the soil is shallow, and pockets of semi-improved (B1.2) or unimproved acid grassland (B1.1), usually on hill tops. Unimproved acid grassland forms pockets of mat grass (*Nardus stricta*) on the steepest slopes, or where the ground is steep and rocky, and inaccessible to grazing sheep, it is dominated by common bent (*Agrostis capillaris*) and sheep's fescue (*Festuca ovina*), and a large number of herbs, including wild thyme (*Thymus drucei*). Unimproved acid grassland is also present in areas of thin peat where heath rush (*Juncus squarrosus*) and tufted hair-grass (*Deschampsia flexuosa*) dominate. Semi-improved acid grassland is the most widespread grassland within the Study Area and contains some perennial ryegrass, crested dog's tail, frequent sweet vernal grass (*Anthoxanthum odoratum*), common bent and sheep's fescue.

No protected plant species on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) or non-native plant species on Schedule 9 of the Act were found within the Study Area.

The only buildings (J3.1) within the Study Area are large metal sheds, barns and the old stone farmhouse at Linfairn.

The two proposed permanent access roads pass through commercial conifer plantation before adjoining the site in open habitat in the north-west, mostly following existing tracks or rides within the plantations.

The plantation forestry is mostly composed of Sitka spruce with some larch. There are also many scattered clusters of planted broadleaf trees, mostly composed of birch, alder and rowan and averaging around 6 m in height.

The rides within the forestry are mostly a mix of bracken, rush-dominated marshy grassland and purple moor grass-dominated wet heath or modified bog communities.

Unimproved acid grassland is present around the south face of Cawin Hill, below the crags and around the screes, on a steep slope of dry, shallow, well-drained soil. Grazing seems to be limited to deer and as such the habitat supports a good range of grasses and herbs.

Unimproved neutral grassland is largely found along flat floodplains and gently sloping banks near streams and watercourses. The soil is often damp and poorly drained. The vegetation is dominated by tufted hair grass (*Deschampsia cespitosa*) tussocks.

Semi-improved acid grassland and neutral grasslands are present to in the east and south-east of the site. The vegetation here is short and well fertilised by the grazing livestock. Improved grassland is restricted to a few fields around Dyke Farm and Knockskae cottage.

The routes of the proposed access roads cross several small watercourses (details provided in target notes in Annex 1).

NVC Communities

Wet Heath
M15d *Trichophorum germanicum - Erica tetralix* wet heath, *Vaccinium myrtillus* sub-community

This community is found only along the routes of the proposed permanent access roads, within the commercial forestry rides and open areas. It is the main vegetation cover on areas of shallow peat, less than 50 cm deep, located on gently sloping ground and on flat plateaus and basins. Typically the peat surface is damp but with no surface water. Grazing appears limited to deer and is not particularly intense. The community often transitions into adjacent M23 and M25 communities.

The vegetation is heavily dominated by *Molinia caerulea* tussocks but with frequent *Erica tetralix* throughout and locally abundant *Calluna vulgaris*, *Myrica gale* and *Juncus squarrosus*.

Blanket Bogs and Wet Modified Bogs
M17a *Trichophorum cespitosum – Eriophorum vaginatum* blanket mire, *Dosera rotundifolia - Sphagnum spp*. sub-community.
M25 *Molinia caerulea-Potentilla erecta* mire
M25a *Molinia caerulea-Potentilla erecta* mire, *Erica tetralix* sub-community.

Blanket mire communities are mostly located in larger, flat basins, on the higher ground in the south of the Study Area. Drainage is relatively poor here, although some historic, small drainage ditches had been cut into parts of them. Almost all of the quadrats carried out in these communities were on peat over 2 m deep. The ground surface was generally damp. The two communities formed a mosaic within which areas with dominant *Trichophorum germanicum* were classified as M17 and those with dominant *Molinia caerulea* classified as M25.

Areas of M17 within the Study Area are characterised by constant *T. germanicum* with high levels of cover, along with numerous and diverse Sphagnum mosses, locally covering large areas of the surface and forming some large hummocks of *S. capillifolium* and *S. papilosum. Eriophorum vaginatum* was also constant but with much more variable levels of cover. The presence of constant *Drosera rotundifolia* and the range of Sphagnum species, sometimes with high levels of cover, suggest the M17a sub-community.

The areas of M25 within the Study Area are characterised by constant *Molinia caerulea* at high levels of cover, sometimes resulting in drier ground, and the absence of *Trichophorum germanicum.* Constant *Erica tetralix* suggests the M25a sub-community. However, these areas were close to being M17 communities, with the presence of a range of Sphagnums and subshrubs including *Erica tetralix* and *Calluna vulgaris*. These areas are likely to be where the blanket bog has been modified by heavy grazing; such grazing may also account for the overwhelming dominance of *T. germanicum* in the M17 parts of the mosaic.

Along the proposed permanent access road routes, the M25 community is mostly localised to flat open basins within the commercial forestry, forming on deep peat over 50 cm deep. Grazing appears limited. The water table is close to the surface; however the peat is subject to drainage from the nearby furrows for the commercial forestry, and by the trees themselves.

The vegetation is almost entirely *Molinia caerulea* tussocks, with very few other species being present, mostly hypnoid mosses or *Polytrichum spp*. *Potentilla erecta*, *Galium saxatile* and *Rumex acetosella* are the most regularly occurring herbs. As it is so species poor it is not possible to assign a subcommunity. The community transitions with adjacent M15 and M23 communities.

Marshy Grassland
M25 *Molinia caerulea-Potentilla erecta* mire.
M23 *Juncus effusus/acutiflorus - Galium palustre* rush pasture.
M23a *Juncus effusus/acutiflorus - Galium palustre* rush pasture, *Juncus acutiflorus* sub-community.
M23b *Juncus effusus/acutiflorus - Galium palustre* rush pasture, *Juncus effusus* sub-community.

Marshy grassland communities are widespread across the Study Area. The M25 mire community is characterised by constant *Molinia caerulea* with other constants including *Juncus acutiflorus*, *Holcus lanatus*, *Potentilla erecta* and *Cirsium palustre*, at lower levels of cover. M25 was typically found on gently sloping ground with shallow peat between 0.25 m and 0.6 m deep.

M23a *Juncus acutiflorus* communities typically grow along watercourses or in damp areas and are typified by constant *J. acutiflorus*, but can be quite diverse in the variety of herbs present, including constant *Galium palustre* and *Cirsium palustre*. In some areas, this community transitions gradually into adjacent M25 mires.

M23b *Juncus effusus* communities are largely on drier ground, often on hill slopes or tops where the soil was shallower and grazing levels apparently higher. This community is characterised by constant *J. effusus* and is typically very species poor, with other constants including *Holcus lanatus*, *Cirsium palustre* and *Rumex acetosa*, and high cover of *Deschampsia cespitosa* in places. It often forms complex mosaics with the short, intensively grazed acid grassland (U4).

In some areas *J. acutiflorus* and *J. effusus* were found to be co-dominant, these have been characterised as M23, with no sub-community assigned. This was particularly the case along the route of the proposed permanent access roads.

Acid Grasslands
U1 *Festuca ovina – Agrostis capillaris – Rumex acetosella* grassland
U4a *Festuca ovina – Agrostis capillaris – Galium saxatile* grassland, typical sub-community
U4b *Festuca ovina – Agrostis capillaris – Galium saxatile* grassland, *Holcus lanatus – Trifolium* repens sub-community
U6 *Juncus squarrosus – Festuca ovina* grassland

Elsewhere within the Study Area, grassland that is not marshy rush pasture tends to be a semi-improved U4b community with typical constants *Anthoxanthum odoratum* and *Festuca ovina*, and species such as *Cynosurus cristatus*, *Lolium perenne* and abundant *Trifolium repens* suggesting a degree of enrichment resulting from intensive grazing, forming a community close to MG6 in places. However the grassland is generally relatively species rich, and in a few places has a composition closer to the less improved U4a sub-community with *Potentilla erecta* and *Galium saxatile*.

In a few small localities where the bedrock substrate comes close to the surface *Thymus drucei* and *Campanula rotundifolia* become more common, see NVC target notes (TN1 and TN3 in Annex 3).

A U6 community also occurs in the Study Area, but often in small pockets that could not be mapped accurately. It is usually found in heavily grazed areas on small flat-topped hillocks or around drier edges of bog habitat where it grows on shallow peat, around 20 – 30 cm. It is characterised by constant *Juncus squarrosus* with high cover throughout, with other constants including *Festuca*

ovina, Molinia caerulea, *Deschampsia flexuosa* and *Potentilla erecta. Nardus Stricta, Vaccinium myrtillus and Calluna vulgaris* are only found occasionally.

Neutral Grasslands
MG1 *Arrhenatherum elatius* grassland
MG6 *Lolium perenne – Cynosurus cristatus* grassland
MG9a *Holcus lanatus – Deschampsia cespitosa* grassland*, Poa trivialis* sub-community

The MG1 community is found in a few fields in the southern part of the proposed permanent access road routes, and on the margins of the site. These are sheep farming areas; however, the fields appeared rank and overgrown at the time of survey, presumably left ungrazed for a season. The soil here is fairly shallow and well drained, on a gently sloping hill. The community quickly transitioned to M23 when the ground conditions became too wet.

The vegetation is dominated by a mix of grasses including *Dactylis glomerata, Arrhenatherum elatius, Holcus lanatus, Agrostis stolonif*era and *Cynosurus cristatus* but few herbs were present with the main ones being *Rumex crispus* and *Rumex acetosella* with some *Ranunculus acris*, *R. repens* and *Cardamine pratensis*.

The lower fields in the north of the main Study Area and along the proposed permanent access road routes have been improved with fertilizers and are cut for fodder. These fields are dominated by *Lolium perenne*, with some *Alopecurus pratensis* and *Cynosurus cristatus* and likely represent a MG6 community. No NVC quadrats were done here due to the improved nature of the grassland.

The MG9a community is only found along the eastern proposed permanent access road route, in the open rides of the conifer plantations, on flat damp ground, mostly along the banks of watercourses and small flood plains. It often transitions with neighbouring M23 and M15 communities. The soil is of variable depth and grazing appears limited to deer and not excessive. The vegetation is dominated by *Deschampsia cespitosa* tussocks with locally frequent *Anjelica sylvestris* and *Filipendula ulmaria*. *Holcus lanatus* and *Agrostis stolonifera* are also frequent between the *Deschampsia* tussocks and there is a fairly wide selection of herbs in some areas including *Primula vulgaris* and *Ficaria verna*.

Flushes and Swamp
M32 *Philonotis fontana – Saxifraga stellaris* spring
M4 *Carex rostrata – Sphagnum fallax* mire
S11 *Carex vesicaria* swamp

There are three small flushes within the Study Area (see NVC target notes TN2, TN4 and TN5 in Annex 3), consisting of water seeping from a spring and draining over gravelly rocks. They were not subject to an NVC quadrat survey due to their small size, but the species composition suggests an M32 community, with species including dominant moss *Philonotis fontana*, herbs present including *Pinguicula vulgaris*, *Pedicularis palustris*, *Drosera rotundifolia*, *Ranunculus flammula* and *Linum catharticum* present along with sedges and grasses including *Carex demissa*, *Briza media* and possibly *Eleocharis quinque flora*.

In the far south of the Study Area in a flat basin there is a quaking mire located within a small basin (see NVC target note TN6 in Annex 3). This very wet habitat is mostly dominated by *Carex rostrata* and with smaller area of dominant *Carex vesicaria*. Areas not under water had large swathes of *Sphagnum fallax* and *S. papillosum* forming some large hummocks and scattered *Menyanthes trifoliata*, with few other species present. This community was not subject to an NVC survey; however, it is likely to represent a mosaic of S11 swamp and M4 mire. A further small area of S11 swamp is present close to the eastern proposed permanent access road, along the banks of the Balbeg Burn.

Other Communities

There are two large areas of *Pteridium aquilinum* within the Study Area, on shallow soil on steep east facing slopes above watercourses in the east and west of the Study Area, and further frequent patches are present along the routes of the proposed permanent access roads. These were not subject to an NVC quadrat survey; however, the U4-like grass understory suggests a U20a community.

Broad-leaved semi-natural woodland within the Study Area is restricted to growing in steep, fenced off burn gullies. Locally there was a presence of *Mercurialis perennis* in the ground flora which suggests W9 *Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis* woodland community. This community is restricted to the Study Area periphery, mainly in the north and east.

A few scattered pockets of W1 *Salix cinerea-Galium palustre* woodland are found in a few scattered pockets, mostly in a large ride in the north of the commercial forestry along the eastern proposed permanent access road route. Here *Salix cinerea* grows in dense clumps on wet or boggy ground along the banks of the Cawin Burn, transitioning with adjacent M23b and MG9 communities.

NVC Summary

Vegetation communities present within the Study Area and included in the NVC survey are summarised in Table 8.4, along with corresponding Habitats Directive (92/43/EEC) Annex 1 Habitat types, SBL priority habitat type, LBAP priority habitat type and potential GWDTE status in accordance with SEPA guidance (2014) and SNH NVC / EUNIS / Annex 1 correspondence tables (2017).

Table 8.4 - Summary of Vegetation Communities

NVC Community	Principal Corresponding Habitats Directive Annex I Type(s)	Corresponding SBL Priority Habitat Type	Corresponding Ayrshire LBAP habitats	Likely Dependence of Community/Habitat on Groundwater* 1=High, 2=Moderate, 3=Low
M15d *Scirpus cespitosus-Erica tetralix* wet heath*, Vaccinium myrtillus* sub-community	H4010 Northern Atlantic wet heaths with *Erica tetralix*	Upland Heathland	Upland Heath	2
M17a *Trichophorum cespitosum – Eriophorum vaginatum* blanket mire, *Dosera rotundifolia - Sphagnum spp*. sub-community.	H7130 Blanket bog	Blanket bog	Blanket bog	3
M25a *Molinia caerulea-Potentilla erecta* mire, *Erica tetralix* sub-community	H7130 Blanket bog	Blanket bog	Blanket bog	3 as on deep peat
M25 *Molinia caerulea-Potentilla erecta* mire.	H7130 Blanket bog (only where on deep peat)	Blanket bog (only where on deep peat)	Blanket bog (only where on deep peat)	2 3 where on deep peat
M23 *Juncus effusus/acutiflorus - Galium palustre* rush pasture.	-	-	-	1
M23a *Juncus effusus/acutiflorus - Galium palustre* rush pasture, *Juncus acutiflorus* sub-community	-	Upland flushes, fens and swamps	-	1
M23b *Juncus effusus/acutiflorus - Galium palustre* rush pasture, *Juncus effusus* sub-community	-	-	-	1
U1 *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland	-	-	Acid grassland	3
U4a *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, typical sub-community	-	-	Acid grassland	3
U4b *Festuca ovina - Agrostis capillaris - Galium saxatile* grassland, *Holcus lanatus -Trifolium* repens sub-community	-	-	Acid grassland	3
U6 *Juncus squarrosus - Festuca ovina* grassland	-	*Juncus squarrosus-Festuca ovina* grassland	Acid grassland	2
MG1 *Arrhenatherum elatius* grassland	-	-	-	3

NVC Community	Principal Corresponding Habitats Directive Annex I Type(s)	Corresponding SBL Priority Habitat Type	Corresponding Ayrshire LBAP habitats	Likely Dependence of Community/Habitat on Groundwater* 1=High, 2=Moderate, 3=Low
MG6 *Lolium perenne-Cynosurus cristatus* grassland (suggested community)	-	-	-	3
MG9a *Holcus lanatus-Deschampsia cespitosa* grassland, *Poa trivialis* sub-community	-	-	-	2
M32 *Philonotis fontana – Saxifraga stellaris* spring (suggested community)	-	Upland flushes, fens and swamps	-	1
M4 *Carex rostrata – Sphagnum fallax* mire (suggested community)	H7140 Transition mires and quaking bogs	Upland flushes, fens and swamps	Blanket bog	3
S11 *Carex vesicaria* swamp (suggested community)	-	Upland flushes, fens and swamps	Blanket bog	1
U20 *Pteridium aquilinum – Galium saxatile* community	-	-	-	3
U20 *Pteridium aquilinum – Galium saxatile* community, *Anthoxanthum odoratum* sub – community (suggested community)	-	-	-	3
W1 *Salix cinerea-Galium palustre* woodland	-	Wet woodland	Wet woodland	2
W9 *Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis* woodland (suggested community)	-	Upland mixed ashwoods	Mixed ash wood	3

* As listed in Appendix 4 of SEPA (2014) LUPS Guidance Note 31. The categorisation of GWDTEs is preliminary and is based on vegetation communities present, and therefore confirmed GWDTE categorisation should be based on subsequent formal hydrological assessment.

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Annex 1 - Phase 1 Habitat Survey Target Notes

Target Notes presented in **Tables A1.1** and **A1.2** should be read with reference to **Figure 8.6** in Volume 2 of the EIA Report and photographic plates presented in **Annex 4**.

Table A1.1 - Phase 1 Habitat Survey Target Notes

Target Note	Grid Reference	Description	Photographic Plate (Annex 4)
TN1	NS 38209 01139	A row of mature ash specimens between 15-20 m tall at Linfairn farm. Some notable holes and cavities within the trunks and branches, with the potential for nesting birds and roosting bats.	1
TN2	NS 38471 00932	Semi-natural woodland along the burn line. Mostly comprised of ash and willows *Salix* spp., 10 – 15 m tall. The burn is steep, rocky and fast flowing here, approximately 1 m wide and <10 cm deep. Mostly grass understory but some patches of dog's mercury (*Mercurialis perennis*).	2
TN3	NS 38550 00990	Derelict stone chimney, with potential for roosting bats, to the south-east of Linfairn farm.	3
TN4	NS 38455 00918	Herb rich sharp-flowered rush (*Juncus acutiflorus*) dominated marshy grassland with ragged-robin (*Lychnis flos-cuculi*).	4
TN5	NS 38673 00745	Pocket of semi-natural woodland here, supporting a mix of mature ash, hazel, and willows (*Salix* spp.), 15-20 m tall.	5
TN6	NS 38795 00595	Derelict stone cottage along eastern Site boundary, with bat roost potential, adjacent to semi natural woodland. Scattered lemon-scented fern (*Oreopteris limbosperma*) also present.	6
TN7	NS 38825 00332	The top of the semi natural woodland upstream in the burn gully comprising mature ash and hazel, but rowan and bracken becoming more abundant.	7
TN8	NS38835 00332	Typical flush within sharp-flowered rush grassland, containing lesser spearwort (*Ranunculus flammula*) and lousewort *(Pedicularis sylvatica*).	8

Target Note	Grid Reference	Description	Photographic Plate (Annex 4)
TN10	NX 38341 99537	Area of *Molinia* dominated bog but also rich in sundews and sphagnums with *Trichophorum*. Being colonised by Sitka spruce trees between 1-4 m tall.	9
TN11	NX 38004 99366	Large valley of marshy grassland/wet modified bog, where quaking-grass (*Briza media*) is widespread and numerous. The channel in the valley bottom is very wet and muddy and contains interesting herbs like marsh arrowgrass (*Triglochin palustris*) and sneezewort (*Achillea ptarmica*).	10
TN12	NX 37496 99186	Stream, 0.5 m wide/deep. Bog pondweed (*Potamogeton polygonifolius*) present, and wet banks contains large amounts of *Sphagnum fallax* and bogbean.	11
TN13	NX 36751 99151	Stream, 0.5m wide, <20cm deep. Fast flowing and rocky. Some rocky outcrops here also with the moss (*Racomitrium lanuginosum*), and mature bilberry (*Vaccinium myrtillus*) and bell heather (*Erica cinerea*).	12
TN14	NX 36764 99188	Acid flush, typical of the Study Area, containing common butterwort (*Pinguicula vulgaris*), *Narthecium* sp., round-leaved sundew (*Drosera rotundifolia*) and sphagnums.	13
TN15	NX 36655 99429	Rocky outcrops and small waterfall feature. Noted flora included thyme around the rocks, mature remnants of common heather (*Calluna vulgaris*), devil's-bit scabious (*Succisa pratensis*), northern bedstraw (*Galium boreale*), dog-toothed lichen (*Peltigera canina*), eared willow (*Salix aurita*) and black spleenwort (*Asplenium adiantum-nigrum*).	14
TN16	NX 37058 99651	Rocky outcrop and waterfall feature. Plants found here not common elsewhere on Study Area include, an abundance of thyme, harebell (*Campanula rotundifolia*), eyebright (*Euphrasia* sp.), lady's bedstraw (*Galium verum*), devil's-bit scabious, maidenhair spleenwort (*Asplenium trichomanes*), broad buckler-fern (*Dryopteris dilatate*), mature common heather, bell heather, meadow vetchling (*Lathyrus pratensis*), beech fern (*Phegopteris connectilis*), heath speedwell (*Veronica officinalis*) and in the watercourse below the waterfall smooth lady's-mantle (*Alchemilla glabra*), marsh-marigold (*Caltha palustris*), opposite-leaved golden-saxifrage (*Chrysosplenium oppositifolium*) and water blinks (*Montia fontana*).	15

Target Note	Grid Reference	Description	Photographic Plate (Annex 4)
TN17	NX 36998 00147	Rocky outcrop with waterfall and plunge pool. A few rowan trees here, the only ivy (*Hedera helix*) within the Study Area, also a large variety of herbs and ferns, more mature common heather remnants and further down the valley large patches of bracken.	16
TN18	NS 37429 01207	Patch of Sitka spruce plantation around 20m in height. Some shorter larch, the understory needles, wood millet (*Milium effusum*) or marshy grassland.	-
TN19	NS 37794 01540	Glade in woodland by Palmullan burn, surrounded by mature broadleaved woodland, mostly ash, Norway spruce (*Picea abies*), hazel, elm (*Ulmus* sp.), hawthorn (*Crataegus monogyna*) and willows. Also some butterbur (*Petasites hybridus*) and knapweed (*Centaurea* sp.) here.	17
TN20	NS 37429 01207	Semi-natural broadleaved woodland along the Palmullan burn, mature, old growth and a good mix of species including ash, aspen (*Populus tremula*), sessile oak (*Quercus petraea*), alder (*Alnus glutinosa*), hazel, holly (*Ilex aquifoilum*), rowan, silver birch (*Betula pendula*), sycamore (*Acer pseudoplatanus*) and beech (*Fagus sylvatica*), trees up to 20 m tall. Well established ivy and honeysuckle (*Lonicera periclymenum*) growth here also. The river here is 2-4 m wide, generally shallow and flowing fast down steep slopes, exposed rock.	18

Table A1.2 - Phase 1 Habitat Survey Target Notes – Proposed Permanent Access Roads

Target Note	Grid Reference	Description	Photographic Plate (Annex 4)
ATN1	NS36086 03848	Typical interior of the Sitka Spruce plantations that cover the majority of the survey area.	34
ATN2	NS36205 03705	Burn; 0.5 – 1 m wide and around 20 cm deep with a steady flow of clear water and with a boulder and pebble bed. Banks are composed of rank grass and Meadowsweet.	35

Target Note	Grid Reference	Description	Photographic Plate (Annex 4)
ATN3	NS36275 03544	Burn; 0.5 m wide, 10 – 15 cm deep with a steady flow of clear water over a bed of pebbles and gravel. Banks are lined with rank Purple moorgrass and tufted hair grass.	-
ATN4	NS36391 03198	Area of old stone ruins and walls surrounded by mature sycamore trees and a small area of neutral grassland.	36
ATN5	NS36621 02912	Small burn; 20 cm wide and less than 10 cm deep, clear water flowing quickly downhill over a pebble and gravel bed before joining the Balbeg Burn.	-
ATN6	NS36705 02811	Balbeg Burn; 1 – 1.5 m wide, 20 – 30 cm deep, strong steady flow of clear water over a bed of pebbles and gravel. Banks are a mix of grass and rush.	37
ATN7	NS37454 01589	Burn; 1 m wide, 10 – 15 cm deep, with a steady flow of clear water over a bed of pebbles and gravel, banks a mix of rank grass, brambles and Gorse bushes.	-
ATN8	NS36426 03815	Burn; 0.5 m wide, 10 cm deep, strong flow of clear water over a bed of pebbles and gravel. Banks are a mix of nettles, willowherbs, grasses, rushes and gorse.	-
ATN9	NS37454 01589	A small barn on the edge of the survey area, is potentially suitable for roosting barn owl *Tyto alba*.	38
ATN10	NS36550 03852	Hawthorn scrub and the current forestry road works in the large ride along the side of the Balbeg Burn in the north of the site.	-
ATN11	NS37415 01324	Burn; 0.5 m wide, <10 cm deep, a steady flow of clear water over gravel and pebbles and with banks of short, sheep grazed grass and some hawthorns and mature ash trees.	-
ATN12	NS37397 01290	Palmullan Burn and attendant semi natural woodland; the burn is 3 – 4 m wide and 0.25 – 0.5 m deep in places. A strong flow of peat-stained water is carried over a bed of boulders and bedrock. The banks are mixed semi natural broadleaf woodland, composed mostly of ash, oak and birch. The river has cut a steep sided gully 2 – 3 m deep through the landscape here.	39

Target Note	Grid Reference	Description	Photographic Plate (Annex 4)
ATN13	NS37243 02767	Small remnant patch of juniper scrub on the south face of Cawin Hill.	-
ATN14	NS37178 02761	Some small scree slopes and small crags on the southern slopes of Cawin Hill. Wood sage is abundant within the screes and the area is covered in sheep's fescue dominated acid grassland, there is quite a high abundance of thyme locally here as well.	40
ATN15	NS36333 00826	Burn; 0.25 m wide and 10 cm deep, a steady trickle of clear water over a pebble and gravel bed. Banks of rank grass and rush.	-
ATN16	NS36022 00668	Burn; 20 cm wide and <10cm deep, water is clear but a slow trickle over a bed of pebbles and gravel, banks are a mix of rank tufted hair grass and rush.	41
ATN17	NS35898 00612	Burn; 25 – 30 cm wide and <10 cm deep, water is clear but a slow trickle over a bed of pebbles and gravel, banks are a mix of rank tufted hair grass and rush.	-
ATN18	NS35406 00440	Burn; 25 – 30 cm wide and <10 cm deep, water is clear but a slow trickle over a bed of pebbles and gravel, banks are a mix of rank tufted hair grass and rush.	-
ATN19	NS34846 00484	Burn; 25 – 30 cm wide and <10 cm deep, water is clear but a slow trickle over a bed of pebbles and gravel, banks are a mix of rank tufted hair grass and rush and grey willow.	-
ATN20	NS36086 03848	More recently planted Sitka spruce blocks in the south-west of the proposed permanent access road routes and the dense cover of soft rush that is currently carpeting the ground beneath.	-

Annex 2 - NVC Survey Results

Tables A2.1 and **A2.2** outline dominance (DOMIN) scales and scores for NVC survey results.

Table A2.1 - Dominance (DOMIN) Scale

Code	Approximate Percentage Cover in Quadrat
10	>90 %
9	75 – 90 %
8	51 – 75 %
7	34 – 50 %
6	26 – 33 %
5	11 – 25 %
4	5 – 10 %
3	<5 %, many individuals
2	<5 %, a few individuals
1	<5 %, one or two individuals

Table A2.2 - NVC Quadrat Tables

Phase 1 Habitat Type	**Blanket Bog**										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	
OS Grid Coordinates	NS 38100 00028	NX 38088 99602	NX 38134 99513	NX 38182 99506	NX 38257 99590	NX 36710 99761	NX 37386 99403	NX 38115 99222	NX 38043 99174	NX 36844 99130	
Approximate Peat Depths (cm)	200+	200+	200+	200+	200+	?	?	200+	200+	50	
Species	**Cover**										**CONSTANCY**
Trichophorum germanicum	8	8	5	8	6	4	6	7	8	7	**10**
Erica tetralix	4	4	3	4	3	3	3	3	3	4	**10**
Narthecium ossifragum	3	3	4	3	4	3	3	3	1	3	**10**
Racomitrium lanuginosum	4	1	-	-	3	-	-	-	-	4	**4**
Sphagnum capillifolium	3	5	5	7	8	6	4	8	8	7	**10**
Sphagnum magellanicum	3	3	5	-	-	-	-	-	-	-	**3**
Sphagnum cuspidatum	5	4	4	-	3	3	5	-	3	-	**7**
Sphagnum strictum	5	-	-	-	-	-	-	-	-	-	**1**
Sphagnum compactum	4	-	-	4	-	-	-	-	-	-	**2**
Sphagnum tenellum	3	-	-	-	-	-	-	-	-	-	**1**
Drosera rotundifolia	3	2	2	1	3	2	-	-	1	-	**7**
Carex rostrata	2	-	-	-	-	-	-	-	-	-	**1**
Eriophorum angustifolium	3	3	3	2	3	3	3	3	3	3	**10**
Molinia caerulea	3	3	3	2	4	3	3	4	3	4	**10**
Carex flacca	1	-	-	-	-	-	-	-	-	-	**1**
Carex panicea	3	-	-	-	-	-	-	-	-	-	**1**
Sphagnum papillosum	-	3	7	5	5	8	6	-	4	-	**7**
Pleurozium purpurea	-	4	-	-	-	-	-	-	-	-	**1**
Eriophorum vaginatum	-	-	5	-	4	8	6	5	4	3	**7**
Calluna vulgaris	-	-	-	4	-	3	6	3	3	3	**6**
Cladonia sp.	-	-	-	6	3	-	-	-	-	7	**3**

Phase 1 Habitat Type	**Blanket Bog**										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	
OS Grid Coordinates	NS 38100 00028	NX 38088 99602	NX 38134 99513	NX 38182 99506	NX 38257 99590	NX 36710 99761	NX 37386 99403	NX 38115 99222	NX 38043 99174	NX 36844 99130	
Approximate Peat Depths (cm)	200+	200+	200+	200+	200+	?	?	200+	200+	50	
Species	**Cover**										**CONSTANCY**
Vaccinium myrtillus	-	-	-	-	3	2	2	-	-	-	**3**
Empetrum nigrum	-	-	-	-	-	2	2	-	-	-	**2**
Pleurozium schreberi	-	-	-	-	-	-	-	3	-	-	**1**
Potentilla erecta	-	-	-	-	-	-	-	3	3	3	**3**
Sphagnum fallax	-	-	-	-	-	-	-	2	-	-	**1**
Deschampsia flexuosa	-	-	-	-	-	-	-	3	3	-	**2**
Agrostis canina	-	-	-	-	-	-	-	-	2	-	**1**
NVC Community	**Blanket Bog**										

Phase 1 Habitat Type	**Wet Modified Bog**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NX 38098 99920	NX 38098 99803	NX 38027 99238	NX 36648 99238	NX 36722 99378	
Approximate Peat Depths (cm)	200	200	200	80	130	
Species	**Cover**					**CONSTANCY**
Molinia caerulea	9	8	8	7	6	**5**
Narthecium ossifragum	3	3	-	-	3	**3**
Erica tetralix	3	3	3	3	3	**5**
Sphagnum capillifolium	7	6	5	4	6	**5**
Eriophorum angustifolium	3	3	3	1	2	**5**
Sphagnum denticulatum	4	-	-	-	-	**1**
Racomitrium lanuginosum	4	1	-	-	-	**2**

Phase 1 Habitat Type	**Wet Modified Bog**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NX 38098 99920	NX 38098 99803	NX 38027 99238	NX 36648 99238	NX 36722 99378	
Approximate Peat Depths (cm)	200	200	200	80	130	
Species	**Cover**					**CONSTANCY**
Sphagnum papillosum	4	4	-	-	4	**3**
Drosera rotundifolia	2	2	-	-	-	**2**
Potentilla erecta	2	3	2	3	3	**5**
Polygala serpyllifolia	1	-	-	-	-	**1**
Carex rostrata	1	-	-	-	-	**1**
Cladonia sp.	3	6	7	-	-	**3**
Calluna vulgaris	-	3	3	-	3	**3**
Carex flacca	-	2	-	-	-	**1**
Vaccinium myrtillus	-	-	3	-	3	**2**
Deschampsia flexuosa	-	-	2	-	3	**2**
Eriophorum vaginatum	-	-	-	7	7	**2**
Luzula multiflora	-	-	-	2	-	**1**
Sphagnum fallax	-	-	-	5	-	**1**
Pleurozium schreberi	-	-	-	4	5	**2**
Juncus squarrosus	-	-	-	-	2	**1**
Festuca ovina	-	-	1	2	2	**3**
Danthonia decumbens	-	-	-	1	-	**1**
Molinia caerulea	-	-	-	2	-	**1**
Carex pulicaris	-	-	-	2	3	**2**
Polygala serpyllifolia	-	-	-	2	-	**1**
Festuca vivipara	-	-	-	1	-	**1**
Ranunculus repens	-	-	-	1	-	**1**
Anthoxanthem odoratum	-	-	-	-	3	**1**

Phase 1 Habitat Type	**Wet Modified Bog**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NX 38098 99920	NX 38098 99803	NX 38027 99238	NX 36648 99238	NX 36722 99378	
Approximate Peat Depths (cm)	200	200	200	80	130	
Species	**Cover**					**CONSTANCY**
NVC Community	**M25a *Molinia caerulea-Potentilla erecta* mire, *Erica tetralix* sub-community**					

Phase 1 Habitat Type	**Marshy Grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS 37612 01056	NS 37655 00991	NS37717 00837	NS 37760 00709	NS 37484 00681	
Species	**Cover**					**CONSTANCY**
Molinia caerulea	8	8	9	9	8	**5**
Juncus acutiflorus	4	5	4	4	5	**5**
Holcus lanatus	3	3	3	2	3	**5**
Potentilla erecta	4	3	3	3	3	**5**
Succisa pratensis	5	5	4	-	3	**4**
Luzula multiflora	3	3	3	3	3	**5**
Ranunculus acris	2	2	-	-	2	**3**
Viola palustris	3	2	-	-	3	**3**
Epilobium palustre	2	-	-	-	-	**1**
Cirsium palustre	3	1	1	1	2	**5**
Galium palustre	3	3	2	-	3	**4**
Rhytidiadelphus squarrosus	7	6	5	4	5	**5**
Briza media	-	3	1	-	1	**3**
Prunella vulgaris	-	1	-	-	-	**1**
Narthecium ossifragum	-	3	3	3	3	**4**

Phase 1 Habitat Type	**Marshy Grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS 37612 01056	NS 37655 00991	NS37717 00837	NS 37760 00709	NS 37484 00681	
Species	**Cover**					**CONSTANCY**
Carex echinata	-	3	2	-	-	**2**
Carex panicea	-	3	1	2	2	**4**
Agrostis canina	-	1	3	3	3	**4**
Pleurozium schreberi	-	4	6	5	6	**4**
Dactylorhiza maculata	-	-	3	-	-	**1**
Euphrasia sp.	-	-	1	1	-	**2**
Linum catharticum	-	-	1	-	-	**1**
NVC Community	**M25 *Molinia caerulea-Potentilla erecta* mire**					

Phase 1 Habitat Type	**Marshy Grassland**					
Quadrat	Q6	Q7	Q8	Q9	Q10	
OS Grid Coordinates	NX 37598 99765	NX 37897 99507	NX 37993 99426	NX 38076 99390	NX 37521 99196	
Species	**Cover**					**CONSTANCY**
Molinia caerulea	7	8	8	9	9	**5**
Juncus acutiflorus	4	3	3	3	-	**4**
Holcus lanatus	3	3	3	3	3	**5**
Potentilla erecta	4	3	3	3	3	**5**
Succisa pratensis	-	-	-	-	3	**1**
Luzula multiflora	-	2	1	-	-	**2**
Ranunculus acris	3	1	1	-	-	**3**
Viola palustris	-	3	-	3	3	**3**
Epilobium palustre	1	-	3	3	3	**4**

Phase 1 Habitat Type	**Marshy Grassland**					
Quadrat	Q6	Q7	Q8	Q9	Q10	
OS Grid Coordinates	NX 37598 99765	NX 37897 99507	NX 37993 99426	NX 38076 99390	NX 37521 99196	
Species	**Cover**					**CONSTANCY**
Cirsium palustre	2	3	3	3	3	**5**
Galium palustre	1	-	-	2	1	**3**
Rhytidiadelphus squarrosus	-	-	4	4	4	**3**
Briza media	2	-	-	-	-	**1**
Carex echinata	-	-	-	-	3	**1**
Carex panicea	3	-	-	-	-	**1**
Agrostis canina	-	3	3	-	2	**3**
Pleurozium schreberi	6	8	7	7	-	**4**
Festuca ovina	-	3	3	-	-	**2**
Plantago lanceolata	3	-	-	-	-	**1**
Anthoxanthem odoratum	-	-	3	-	-	**1**
Carex flacca	1	-	-	-	-	**1**
Galium verum	3	-	-	-	-	**1**
Rumex acetosa	-	4	4	4	-	**3**
Galium saxatile	-	3	3	-	-	**2**
Deschampsia cespitosa	-	4	3	-	-	**2**
Ranunculus flammula	-	-	-	1	-	**1**
Sphagnum fallax	-	-	-	-	3	**1**
Sphagnum palustre	-	-	-	-	3	**1**
NVC Community	**M25 *Molinia caerulea-Potentilla erecta* mire**					

Phase 1 Habitat Type	Marshy Grassland										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	
OS Grid Coordinates	NS 38528 00744	NS 38734 00532	NS 38729 00377	NS 38596 00264	NX 36825 99940	NX 36800 99646	NS 38330 00183	NX 37934 99110	NX 37512 99087	NX 37101 99533	
Species	**Cover**										**CONSTANCY**
Juncus acutiflorus	8	8	9	8	8	8	8	7	9	8	**10**
Holcus lanatus	3	3	3	3	3	3	3	2	2	3	**10**
Ranunculus repens	4	3	2	4	2	2	4	-	3	-	**8**
Luzula multiflora	2	2	1	3	2	-	-	1	-	-	**6**
Anthoxanthem odoratum	3	1	2	4	-	-	1	-	-	-	**5**
Epilobium palustre	3	3	3	3	3	3	3	3	3	2	**10**
Cirsium palustre	3	3	3	3	3	3	1	5	3	3	**10**
Dactylorhiza fuchsii	3	2	-	-	-	-	-	-	3	-	**3**
Rumex acetosa	4	3	3	2	3	3	-	3	-	-	**7**
Galium palustre	3	3	3	2	3	4	3	3	3	3	**10**
Pleurozium schreberi	5	5	4	-	5	5	4	6	-	5	**8**
Deschampsia cespitosa	1	1	-	1	-	-	1	-	-	-	**4**
Potentilla erecta	2	3	3	3	3	2	-	-	2	3	**8**
Lychnis flos-cuculi	-	2	-	-	-	-	-	-	1	-	**2**
Filipendula ulmaria	-	4	4	-	-	-	-	-	-	-	**2**
Lysimachia nemorum	-	4	-	-	-	-	-	-	-	-	**1**
Hieracium sp.	-	3	-	-	-	-	-	-	4	-	**2**
Carex panicea	-	3	3	4	-	-	2	-	-	-	**4**
Molinia caerulea	-	4	2	-	3	5	-	-	-	-	**4**
Hylocomium splendens	-	4	-	-	-	3	-	4	-	4	**4**
Carex echinata	-	2	-	-	-	-	-	-	-	-	**1**
Viola palustris	-	-	2	3	3	-	-	3	3	3	**6**
Rhytidiadelphus squarrosus	-	-	-	7	3	-	-	4	-	4	**4**

Phase 1 Habitat Type	**Marshy Grassland**										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	
OS Grid Coordinates	NS 38528 00744	NS 38734 00532	NS 38729 00377	NS 38596 00264	NX 36825 99940	NX 36800 99646	NS 38330 00183	NX 37934 99110	NX 37512 99087	NX 37101 99533	
Species	**Cover**										**CONSTANCY**
Cynosurus cristatus	-	-	-	1	-	-	3	-	-	-	**2**
Agrostis capillaris	-	-	-	1	2	-	-	-	-	-	**2**
Briza media	-	-	-	1	-	-	-	-	-	-	**1**
Succisa pratensis	-	-	-	-	-	4	-	-	-	3	**2**
Cardamine flexuosa	-	-	-	-	-	-	3	-	-	3	**2**
Cerastium fontanum	-	-	-	-	-	-	2	-	-	-	**1**
Stellaria alsine	-	-	-	-	-	-	2	-	-	-	**1**
Peltigera canina	-	-	-	-	-	-	-	3	-	-	**1**
Equisetum palustre	-	-	-	-	-	-	-	2	-	-	**1**
Ranunculus acris	-	-	-	-	-	-	-	-	3	3	**2**
Angelica sylvestris	-	-	-	-	-	-	-	-	-	3	**1**
NVC Community	**M23a *Juncus effusus / acutiflorus - Galium palustre* rush pasture, *Juncus acutiflorus* sub-community**										

Phase 1 Habitat Type	**Marshy Grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS 38421 00238	NX 36734 99827	NX 36918 99414	NX 37580 99421	NX 37372 99857	
Species	**Cover**					**CONSTANCY**
Juncus effusus	7	8	8	9	9	**5**
Deschampsia cespitosa	7	-	-	4	1	**3**
Holcus lanatus	3	2	2	2	2	**5**
Galium palustre	3	-	-	-	-	**1**

Phase 1 Habitat Type	**Marshy Grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS 38421 00238	NX 36734 99827	NX 36918 99414	NX 37580 99421	NX 37372 99857	
Species	**Cover**					**CONSTANCY**
Rumex acetosa	4	3	2	1	4	**5**
Omphalodes verna	2	-	-	-	-	**1**
Ranunculus acris	4	-	-	-	-	**1**
Ranunculus repens	3	-	-	2	-	**2**
Cirsium palustre	2	3	4	5	3	**5**
Rhytidiadelphus squarrosus	9	6	4	6	8	**5**
Anthoxanthem odoratum	2	2	-	-	-	**2**
Cynosurus cristatus	1	-	-	-	-	**1**
Festuca ovina	2	-	-	-	-	**1**
Juncus acutiflorus	3	-	-	-	-	**1**
Cardamine flexuosa	2	-	2	3	1	**4**
Peltigera canina	-	2	-	-	-	**1**
Agrostis capillaris	-	1	-	-	-	**1**
Polytrichum commune	-	2	-	-	-	**1**
Hylocomium splendens	-	7	-	-	-	**1**
Pleurozium schreberi	-	-	5	4	4	**3**
Stellaria alsine	-	-	3	-	-	**1**
Epilobium palustre	-	-	3	3	3	**3**
Viola palustris	-	-	4	-	1	**2**
Atrichum undulatum	-	-	-	4	-	**1**
Dryopteris dilatata	-	-	-	1	1	**2**
NVC Community	**M23b *Juncus effusus / acutiflorus - Galium palustre* rush pasture, *Juncus effusus* sub-community**					

Phase 1 Habitat Type	Acid Grassland										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	
OS Grid Coordinates	NS 38504 00829	NS 38638 00630	NS 38225 00287	NS 38145 00115	NX 38061 99767	NS 38302 00493	NS 36952 00593	NX 36820 99843	NX 37575 99667	NS 37473 00217	
Species	**Cover**										**CONSTANCY**
Anthoxanthem odoratum	4	4	1	5	4	3	2	2	3	3	**10**
Cynosurus cristatus	8	6	8	-	-	6	6	4	3	3	**8**
Lolium perenne	3	-	4	-	-	4	5	4	-	2	**6**
Festuca ovina	3	2	-	4	5	3	1	3	2	4	**9**
Agrostis canina	3	3	-	5	4	3	3	4	5	4	**9**
Ranunculus acris	3	2	1	-	2	2	2	-	-	-	**6**
Cerastium fontanum	3	2	3	-	1	3	3	3	3	3	**9**
Trifolium repens	5	5	5	2	4	4	4	5	2	5	**10**
Prunella vulgaris	2	-	3	-	-	2	-	-	-	-	**3**
Campanula rotundifolia	1	-	-	1	2	-	-	-	-	1	**4**
Luzula multiflora	1	3	2	-	-	-	1	-	1	-	**5**
Veronica persica	3	-	1	-	-	3	-	-	3	-	**4**
Rhytidiadelphus squarrosus	7	7	5	7	8	7	6	4	7	5	**10**
Rumex acetosa	2	2	3	-	-	4	4	-	3	5	**7**
Pinguicula vulgaris	-	3	-	-	-	-	-	-	-	-	**1**
Plantago lanceolata	-	4	2	-	-	-	1	1	3	3	**6**
Danthonia decumbens	-	1	-	1	-	-	3	3	-	-	**4**
Potentilla erecta	-	3	-	5	4	-	3	-	-	-	**4**
Hieracium sp.	-	3	-	-	-	-	-	-	-	-	**1**
Pteridium aquilinum	-	1	-	-	-	-	-	-	-	-	**1**
Ranunculus repens	-	2	3	3	-	3	-	4	3	4	**7**
Conopodium majus	-	3	-	-	-	-	-	-	-	-	**1**

Phase 1 Habitat Type	**Acid Grassland**										
Quadrat	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	
OS Grid Coordinates	NS 38504 00829	NS 38638 00630	NS 38225 00287	NS 38145 00115	NX 38061 99767	NS 38302 00493	NS 36952 00593	NX 36820 99843	NX 37575 99667	NS 37473 00217	
Species	**Cover**										**CONSTANCY**
Achillea millefolium	-	2	3	-	4	-	2	3	3	3	**7**
Galium saxatile	-	3	-	3	3	-	-	-	-	-	**3**
Deschampsia cespitosa	-	-	5	2	-	3	-	5	-	-	**4**
Nardus stricta	-	-	-	4	3	-	-	-	-	-	**2**
Luzula multiflora	-	-	-	2	-	-	-	-	-	-	**1**
Viola tricolor	-	-	-	-	2	-	-	-	-	1	**2**
Cirsium arvense	-	-	-	-	-	2	-	-	-	-	**1**
Cirsium vulgare	-	-	-	-	-	1	-	-	-	-	**1**
Cardamine flexuosa	-	-	-	-	-	2	3	-	-	-	**2**
Holcus lanatus	-	-	-	-	-	-	3	-	3	5	**3**
Poa pratensis	-	-	-	-	-	-	-	-	-	4	**1**
NVC Community	**U4b *Festuca ovina - Agrostis capillaris - Galium saxatile* grassland, *Holcus lanatus -Trifolium* repens sub-community.**										

Phase 1 Habitat Type	**Acid Grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS 36756 00072	NX 38163 99946	NX 38010 99816	NX 36740 99378	NX 37253 99632	
Species	**Cover**					**CONSTANCY**
Festuca ovina	3	2	3	3	3	**5**
Anthoxanthem odoratum	3	-	-	-	2	**2**
Juncus squarrosus	7	7	7	7	6	**5**
Potentilla erecta	5	3	5	4	3	**5**
Agrostis canina	3	-	-	-	3	**2**

Phase 1 Habitat Type	**Acid Grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS 36756 00072	NX 38163 99946	NX 38010 99816	NX 36740 99378	NX 37253 99632	
Species	**Cover**					**CONSTANCY**
Molinia caerulea	4	3	4	4	6	**5**
Deschampsia flexuosa	3	2	5	5	5	**5**
Galium saxatile	3	-	3	1	3	**4**
Pleurozium schreberi	8	7	8	8	8	**5**
Polytrichum commune	3	2	5	-	-	**3**
Luzula multiflora	3	2	3	-	1	**4**
Hylocomium splendens	5	-	-	4	-	**2**
Nardus stricta	-	3	-	-	-	**1**
Calluna vulgaris	-	7	-	3	-	**2**
Vaccinium myrtillus	-	3	-	4	3	**3**
Sphagnum capillifolium	-	5	-	-	-	**1**
Trichophorum germanicum	-	5	3	3	3	**4**
Rhytidiadelphus squarrosus	-	-	6	5	5	**3**
Carex nigra	-	-	3	-	-	**1**
NVC Community	**U6 *Juncus squarrosus* - *Festuca ovina* grassland**					

Phase 1 Habitat Type	**Marshy Grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS37352 02225	NS36713 02809	NS36702 02765	NS 37431 02192	NS 37537 01978	
Soil Depth (cm)	40	75	100	85	80	
Species	**Cover**					**CONSTANCY**
Juncus acutiflorus	3	7	3	-	4	4
Juncus effusus	7	4	8	9	7	5
Rumex acetosella	5	-	5	4	3	4

Phase 1 Habitat Type	**Marshy Grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS37352 02225	NS36713 02809	NS36702 02765	NS 37431 02192	NS 37537 01978	
Soil Depth (cm)	40	75	100	85	80	
Species	**Cover**					**CONSTANCY**
Galium palustre	4	2	3	3	3	5
Hylocomium splendens	7	-	4	5	-	3
Pleurozium schreberi	3	-	6	4	3	4
Succisa pratensis	2	-	-	-	-	1
Viola palustre	-	3	-	4	-	2
Filipendula ulmaria	-	5	4	-	3	3
Ficaria Verna	-	3	-	-	-	1
Cirsium palustre	-	2	3	2	1	4
Angelica sylvestris	-	-	4	2	3	3
Ranunculus repens	-	-	4	2	4	3
NVC Community	**M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture**					

Phase 1 Habitat Type	**Wet Modified Bog**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS37470 01953	NS 36642 02763	NS36682 02815	NS37074 02641	NS 37265 02377	
Soil Depth (cm)	100+	100+	100+	100+	60	
Species	**Cover**					**CONSTANCY**
Molinia caerulea	10	10	9	10	9	5
Hylocomium splendens	6	6	5	6	4	5
Pleurozium schreberi	4	3	4	-	-	3
Polytrichum commune	2	-	-	-	-	1
Galium saxatile	-	3	2	-	-	2
Potentilla erecta	-	2	2	-	1	3

Phase 1 Habitat Type	**Wet Modified Bog**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS37470 01953	NS 36642 02763	NS36682 02815	NS37074 02641	NS 37265 02377	
Soil Depth (cm)	100+	100+	100+	100+	60	
Species	**Cover**					**CONSTANCY**
Carex nigra	3	4	-	-	-	2
Rumex acetosella	-	3	-	3	2	3
Agrostis stolonifera	-	-	3	-	-	1
Cirsium palustre	-	-	1	1	4	3
Myrica gale	-	-	-	4	-	1
Anjelica sylvestris	-	-	-	2	-	1
NVC Community	**M25 *Molinia caerulea-Potentilla erecta* mire**					

Phase 1 Habitat Type	**Semi-improved neutral grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS37554 01827	NS 37607 01768	NS 37610 01822	NS 37568 01883	NS 37556 01672	
Species	**Cover**					**CONSTANCY**
Holcus lanatus	8	5	4	6	4	5
Agrostis stolonifera	4	7	5	6	4	5
Dactylus glomerata	5	4	4	3	5	5
Cynosurus cristatus	3	3	3	3	2	5
Arrhenatherum elatius	3	4	6	3	6	5
Rumex acetosella	4	3	4	3	3	5
Rumex crispus	3	2	4	5	1	5
Cardamine pratensis	-	1	-	1	1	3
Ranunculus acris	-	2	3	-	2	3
Ranunculus repens	-	3	3	3	2	4
Rhytidiadelphus squarrosus	-	5	-	-	3	2

Phase 1 Habitat Type	Semi-improved neutral grassland					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS37554 01827	NS 37607 01768	NS 37610 01822	NS 37568 01883	NS 37556 01672	
Species	**Cover**					**CONSTANCY**
Pleurozian schreberi	-	-	3	3	-	2
Luzula multiflora	-	-	2	2	-	2
Polygala vulgaris	-	-	-	2	-	1
NVC Community	**MG1 *Arrhenatherum elatius* grassland**					

Phase 1 Habitat Type	Unimproved neutral grassland					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS37248 02504	NS 37230 02516	NS 37211 02533	NS 37275 02488	NS 37185 02557	
Soil Depth (cm)	80	75	90	100+	100+	
Species	**Cover**					**CONSTANCY**
Deschampsia cespitosa	8	8	8	7	7	5
Holcus lanatus	5	5	4	6	4	5
Agrostis stolonifera	4	5	5	5	5	5
Rumex acetosella	3	3	3	3	4	5
Angelica sylvestris	1	-	1	3	3	4
Filipendula ulmaria	-	2	3	-	3	3
Pleurozium schreberi	3	4	3	3	3	5
Hylocomium splendens	4	5	5	6	4	5
Cirsium palustre	-	2	3	3	3	4
Ficaria verna	-	4	4	4	5	4
Primula vulgaris	-	2	-	-	2	2
Vicia sepium	-	-	2	-	-	1
Urtica diocia	-	-	3	2	-	2
NVC Community	**MG9a *Holcus lanatus-Deschampsia cespitosa* grassland, *Poa trivialis* sub-community**					

Phase 1 Habitat Type	Acid Grassland					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS36943 02781	NS37174 02767	NS 37231 02778	NS 37325 02783	NS 37461 02779	
Soil Depth (cm)	10	10	10	10	10	
Species	**Cover**					**CONSTANCY**
Festuca ovina	8	6	8	7	8	5
Agrostis capillaris	4	4	4	5	4	5
Anthoxanthem odoratum	5	6	4	5	4	5
Holcus lanatus	3	3	3	3	3	5
Hypericum perforatum	1	-	-	-	1	2
Potentilla erecta	3	3	3	3	3	5
Galium saxatile	3	3	3	3	3	5
Luzula multiflora	3	3	3	3	3	5
Pteridium aquilinum	3	-	2	-	3	3
Calluna vulgaris	4	3	4	-	4	4
Rhytidiadelphus squarrosus	6	-	3	3	-	3
Pleurozium schreberi	6	4	3	3	3	5
Vicia sepium	4	-	-	-	3	2
Viola canina	2	3	2	3	3	5
Euphrasia nemorosa	-	3	-	3	-	2
Viola lutea	-	3	-	2	-	2
Potentilla reptans	4	-	5	3	-	3
Hylocomium splendens	-	7	5	5	3	4
Carex flacca	-	3	-	-	2	2
Erica cinerea	-	3	3	-	-	2
Taraxacum sp.	-	3	1	1	-	3
Plantago lanceolata	-	3	2	-	2	3

Phase 1 Habitat Type	**Acid Grassland**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS36943 02781	NS37174 02767	NS 37231 02778	NS 37325 02783	NS 37461 02779	
Soil Depth (cm)	10	10	10	10	10	
Species	**Cover**					**CONSTANCY**
Teucrium scorodonia	-	3	-	-	3	2
Rhytidiadelphus triquetrus	-	3	-	3	-	2
Thymus vulgaris	3	4	-	-	3	3
NVC Community	**U4a *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, typical sub-community**					

Phase 1 Habitat Type	**Wet Heath**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS 36489 02895	NS36462 03003	NS36627 03089	NS36666 03053	NS36637 02823	
Soil Depth (cm)	25	10	15	35	30	
Species						**CONSTANCY**
Molinia caerulea	7	8	6	7	7	5
Erica tetralix	3	-	3	3	3	4
Juncus squarrossus	3	-	3	3	-	3
Eriophorum angustifolium	3	-	3	2	3	4
Hylocomium splendens	8	7	6	7	7	5
Pleurozian schreberi	3	4	5	4	5	5
Vaccininum myrtillus	2	-	3	3	2	4
Aquillinum pteridium	1	-	-	-	-	1
Rhytidiadelphus squarrossus	3	-	-	-	-	1
Calluna vulgaris	1	-	4	4	5	4
Potentilla erecta	-	3	3	3	3	4
Anenome nemorosa	-	3	-	-	-	1
Sphagnum capillifolium	-	-	4	4	-	2

Phase 1 Habitat Type	**Wet Heath**					
Quadrat	Q1	Q2	Q3	Q4	Q5	
OS Grid Coordinates	NS 36489 02895	NS36462 03003	NS36627 03089	NS36666 03053	NS36637 02823	
Soil Depth (cm)	25	10	15	35	30	
Species						**CONSTANCY**
Juncus acutiflorus	-	-	3	3	3	3
Festuca ovina	-	-	3	3	-	2
Hypnum jutlandicum	-	-	-	-	3	1
Polytrichum commune	-	-	2	4	-	2
NVC Community	**M15d *Trichophorum germanicum-Erica tetralix* wet heath, *Vaccinium myrtillus* sub-community**					

Annex 3 - NVC Target Notes

Target Notes presented in **Table A3.1** should be read with reference to **Figure 8.7** in Volume 2 of the EIA Report and photographic plates presented in **Annex 4**.

Table A3.1 - NVC Target Notes

Target Note	Grid Reference	Description	Photographic Plate (Annex 4)
H1	NS 38042 00128	Rock outcrop on side of hill top with large quantities of *Thymus drucei.*	28
H2	NS 37095 00527	Trackside M32 spring.	29
H3	NX 36816 99619	Small hillock with shallow soil, large quantities of *Thymus drucei*, *Euphrasia* sp., *Nardus stricta* and *Succisa pratensis*.	30
H4	NX 37609 99756	M32 flush over rocks.	31
H5	NX 37730 99105	M32 flush; similar to others.	32
H6	NX 37550 99098	S11/M4 Swamp.	33

Annex 4 – Photographic Plates

Phase 1 Habitat Survey Target Notes (TNs)	
	**Plate 1** TN1.
	**Plate 2** TN2.

	**Plate 3** TN3.
	**Plate 4** TN4.
	**Plate 5** TN5.

	**Plate 6** TN6.
	**Plate 7** TN7.
	**Plate 8** TN8.

	**Plate 9** TN10.
	**Plate 10** TN11.
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	**Plate 12** TN13.
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	**Plate 14** TN15.
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	**Plate 17** TN19.
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