

BEAW FIELD PEAT DEPTH SURVEY



Blairbeg Consulting Ltd

February 2015

INTRODUCTION

In January 2015, Blairbeg Consulting Limited was commissioned by Peel Energy UK to undertake an assessment of peat depths across an area of land identified as a potential site for Beaw Field wind farm.

SCOPE OF WORKS

The aim of this report is to provide:

- a visual representation of peat depths across each site;
- information on the nature and condition of the peatland habitat across each site; and
- recommendations for further work.

SITE DESCRIPTION

Beaw field is located directly to the north-west of Burravoe on the southern shores of Yell, and the site extends from Arisdale in the west to Horse water in the east. The northern boundary of site runs east from Hill of Arisdale to Sukka mires. Site ranges from approximately 10m above sea level in the south, to a high point of 210m above sea level on the summit of Hill of Arisdale. Site is characterized by a gently sloping ridge running south from Hill of Arisdale, immediately west of Canis Dale, and a second ridge running south-west from Atlie's hill to Beaw field. East of the B9081 public road there is a complex of lochs and smaller knolls. Land use across the area is principally crofted rough grazings for sheep across an expanse of blanket bog and heather moorland, but there is also some peat cutting evident in accessible areas adjacent to roads. To the south of site, the boundary envelops some settlements at Hamnavoe and Houlland, and associated field systems. A larger loch – Loch of Kettlester – is present in the south of site.

METHODOLOGY

A site boundary was provided in advance of survey. Peat depths were sampled to full depth across a grid of 250 metre spacing within the site boundary. Additional information on the habitat type and composition, condition (erosion and presence of bare soils) and land management (drainage, burning, grazing pressure) was recorded. Characteristics relating to vegetation (habitat type, *Sphagnum* cover, *Calluna vulgaris* cover) were recorded within a 2m quadrat around the sampling point. Characteristics relating to land use or condition (hags/gullies, bare ground, grazing, drainage and burning) were recorded within a 20m quadrat around the sampling point.

Habitat type was recorded as both Phase1 category and National Vegetation Classification (NVC) community or sub-community, as appropriate. Cover of *Sphagna* was also recorded on the DAFOR scale, as a proxy for wetness and bog habitat integrity, with cover of *Calluna vulgaris* also recorded as a proxy for drying or freely draining ground. The DAFOR scale is defined by percentage cover within a given area – in this case a 2m quadrat - as follows:

Dominant	75%+
Abundant	51-75%
Frequent	26-50%
Occasional	11-25%
Rare	<10%

Erosion was recorded as the presence of hags or gullies in the vicinity of the recording location. Cover of bare soil, or bare rock was also recorded as being extensive, frequent or infrequent.

Grazing pressure was recorded as high, moderate or low and based on the following criteria:

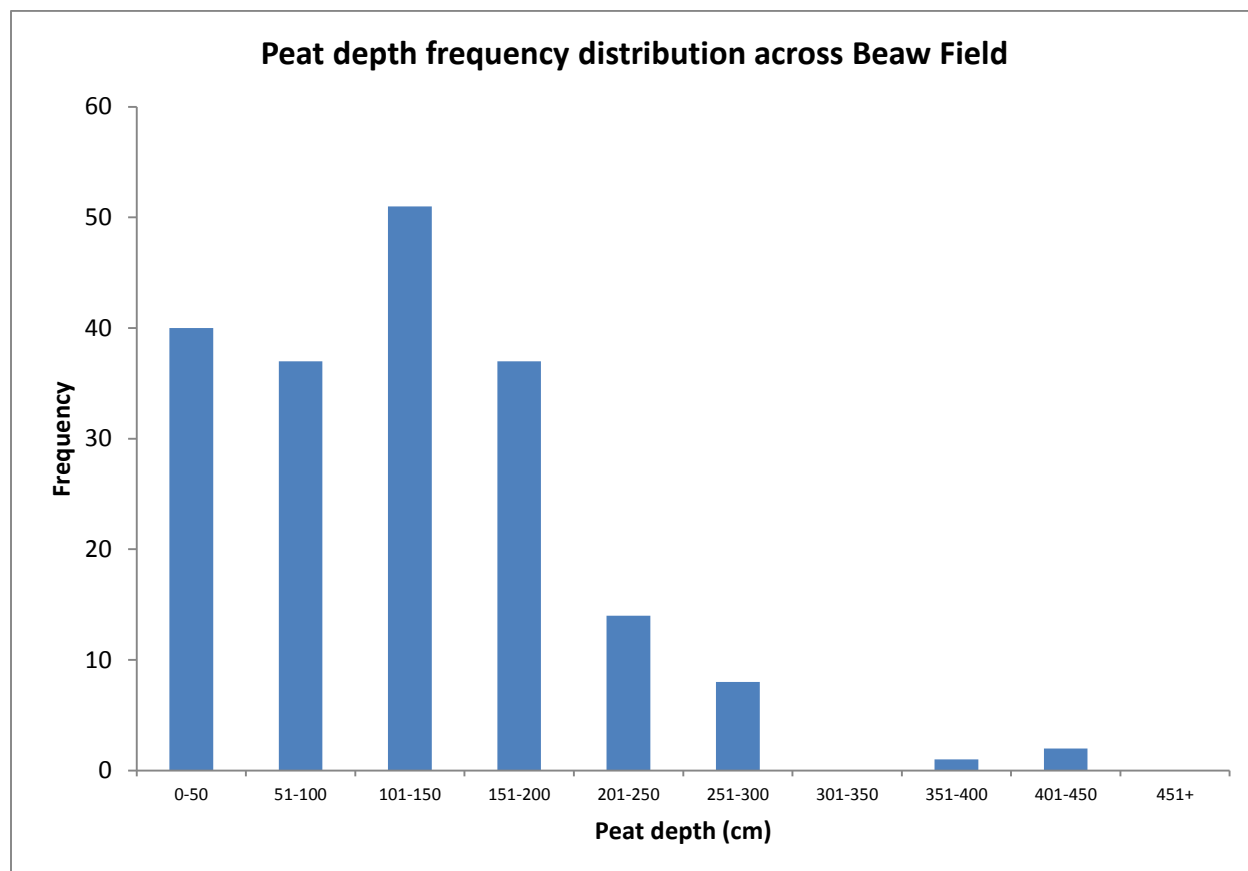
- High – tracks or trampled ground frequent with conspicuous dunging and evidence of vegetation being grazed;
- Moderate – some tracking or tracks present but evidence of dunging or grazing localised and infrequent;
- and
- Low – impacts scarce or absent.

Other land management impacts (drains, grips, peat cutting or burning) were recorded as being present or absent at each point. A photograph was also taken at each point.

RESULTS

PEAT DEPTH SURVEY

A total of 190 peat depths were recorded within the site boundary, and are presented on Figure 1: Peat Depth Survey. The frequency distribution of these depths is displayed in Chart 1 below:



Of the 190 measurements recorded, 77 were of depths of 100cm or less, of which 40 were under 50cm in depth. 88 depths were between 101 and 200cm and 25 depths recorded were deeper than 201cm. There were only two depths over 400cm, located to the south-east of the site.

Average depth (cm)	Median depth (cm)	Mode depth (cm)	Max depth (cm)	Min depth (cm)
123.52	122.5	140	435	1

Results from the peat depth surveys were amalgamated to create a heat map, interpolated from the depths recorded at each sampling point. The results are displayed in Figure 2: Peat Depth Survey (interpolation), and are intended to provide an indicative visual guide as to where concentrations of deeper peats are located within the site boundary. It should be noted that the interpolation process is vulnerable to a degree of inherent bias and as such the visualization is for guidance only rather than being a strictly accurate representation of peat profile across the compartment.



Photograph 1: Erosion along Burn of Hamnavoe – demonstrating peat depth profile.

HABITAT

Habitat types and NVC communities are presented on Figure 3: Habitats. Peatland communities are extensive across the majority of the site (143 of 191 points), but are restricted in extent in areas in and around settlements to the south, and adjacent to the B9081 public road where the influences of crofting management and peat cutting are more pronounced. Acid grassland, dry heath and wet heath communities are occasional throughout the site, but more commonly to the south. Acid flush and lichen heath habitats were also recorded at low frequency.

The majority of peatland habitats across site correspond to variants of blanket bog communities M17 *Trichophorum germanicum*-*Eriophorum vaginatum* blanket mire or M19 *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire. The most common sub-communities present are M17b *Trichophorum germanicum*-*Eriophorum vaginatum* blanket mire *Cladonia* sub-community, M19b *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire *Empetrum nigrum* ssp. *nigrum* sub-community and a community that is not reflected in the NVC but has been given the code of M19Y *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire.

COMMUNITY DESCRIPTIONS

M17b *Trichophorum germanicum*-*Eriophorum vaginatum* blanket mire *Cladonia* sub-community is present at 45 sampling points and the sole community at 28. It is typified by the presence of hags and gullies, often with a little bare peat or M3 *Eriophorum angustifolium* bog pool community. *Racomitrium lanuginosum* is generally abundant with *Cladonia* lichens scattered throughout. Often there is little *Sphagnum* and it is generally restricted to the base of hags or in pools and slow-flowing runnels. On hag tops, *Calluna vulgaris* is abundant, with *Erica cinerea* present on hag edges where localised drying has occurred. *Trichophorum germanicum* appears rare in this area of Shetland and is generally poorly represented in the sward. *Eriophorum vaginatum* is at best locally occasional to frequent, and generally replaced by *Eriophorum angustifolium* in the sward. The impacts of grazing and erosion pressures

mean the community is not typical of mainland M17b sub-communities, but the presence of deep peats (>100cm) and cotton grass species indicate that this community has been derived from blanket bog vegetation.



Photograph 2: Vegetation reflective of M17b *Trichophorum germanicum*-*Eriophorum vaginatum* blanket mire *Cladonia* sub-community with bare peat and M3 *Eriophorum angustifolium* bog pools.

M19b *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire *Empetrum nigrum* ssp. *nigrum* sub-community is a common sub-community across site (present at 34 points, and the sole community at 29). The community generally has more *Eriophorum vaginatum* than M17 communities, and a greater coverage of feather mosses and *Sphagna*. *Empetrum nigrum* is frequent and commonly there is some *Cladonia* scattered through the sward.

M19Y *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire is similar to M19 communities with the exception of the frequency of *Eriophorum vaginatum* in the sward, and so has been given a unique code to reflect this divergence from those communities represented in the NVC. Commonly *Eriophorum vaginatum* is replaced by *Eriophorum angustifolium* although *Sphagna* remain at moderate-high coverage. This community is present at 55 (41 of which it is the sole community present) points and is the most common community within the site. It is occasionally present in mosaic with M17b communities where erosion has caused haggling/gullying and *Racomitrium lanuginosum* becomes more frequent.

M19a *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire *Erica tetralix* sub-community and M19c *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire *Vaccinium myrtillus*-*Hylocomium splendens* sub-community are present at six and two points respectively and are relatively rare through the site. M19a communities reflect blanket bog in good condition with high coverage of *Sphagna*.

Bog pool communities M2 *Sphagnum cuspidatum* bog pools and M3 *Eriophorum angustifolium* bog pools are locally frequent across the site. M2 communities tend to form in areas where erosive processes are sufficiently low to permit the development of *Sphagna* within small areas of standing water which persist through the year. M3 communities are generally present in areas where erosion is active, but with greater coverage of *Eriophorum*

angustifolium at the fringes of hags and gullies, or in those hags and gullies where erosion pressures are reduced and colonization by cotton grass can occur. These communities are almost always in mosaic with blanket bog communities. In some areas no vegetation is present across areas of bare soils, and these are described as areas of bare peat (BP).



Photograph 3: Bog pool areas with rich lawns of *Sphagna*.

Dry heath and acid grassland communities tend to be scattered across the site at low frequencies and are present either in areas where erosion and drying of peatlands has permitted the dominance of *Calluna vulgaris* or grazing pressure has led to the dominance of unpalatable graminoid species - commonly *Juncus squarrosus*. The cutting of peat has also disturbed vegetation communities, and subsequent heavy grazing of these areas commonly leads to the dominance of U6 *Juncus squarrosus-Festuca ovina* grassland.

Hill to the south and east of site – Hamars of Houlland and Hill of Neapaback – appear to have thinner soils, and dry heath, lichen heath and the ‘dry’ form of wet heath (M15c *Trichophorum germanicum-Erica tetralix* wet heath *Cladonia* sub-community) are more common.

CONDITION

Erosion was identified at 102 points, with extensive haggings or gullies present, and results are displayed on Figure 4: Presence of eroding hags/gullies. There appears to be a slight north-south divide in the presence of erosion but this may be a reflection of the distribution of peatland habitats (see Figure 3) – with 91 of the 143 points at which blanket bog was recorded showing some level of erosion. Those peatland habitats that show limited erosion appear to be present on slopes - in particular on the eastern slopes of Atli’s hill, slopes to the west of Canis Dale and the western slopes of Hill of Arisdale. Bare ground, or bare rock, is scattered throughout the site but is particularly abundant on shoulder mires or exposed plateaus – see Figure 6: Extent of bare ground.



Photograph 4: Erosion at summit of Atli's hill with frequent bare peat and exposed hags.

Land management influences are for the most part a result of sheep grazing pressure across the site. There is some limited peat cutting, most notably along the B9081 and to the south-west of site along the track to Arisdale. Land drainage is rare and evidence of burning impacts was not recorded. Figure 5 displays the locations of these land management impacts with relation to sampling points.



Photograph 5: Peat cutting near Arisdale.

Grazing pressure was recorded as being high at 57 points across the site, moderate at 70 points and low at 63 points, and results are displayed on Figure 7: Grazing pressure. Of those points at which grazing pressure was considered low, only five were identified south of a line running west to east from Stouraclev across Mossy Hill and to the Loch of East Yell. North of this line, of 95 recording locations only seven were considered to have high grazing pressure and 29 with moderate grazing pressure. This indicates a north-south divide, reflective of the presence of crofting to the south of the site boundary.

Sphagnum cover is generally low across the site, and dominant only where bog pool or acid flush communities are present, see Figure 8: Sphagnum moss cover. In areas of blanket bog, 103 of 143 points had occasional or rare *Sphagna* and only 13 points at which blanket bog was recorded had abundant *Sphagna*. This is not an uncommon phenomenon in Shetland where erosive processes limit the ability of *Sphagna* to flourish. However, it appears there are notable concentrations of *Sphagna* are present around Green burn and upper Canis Dale. Cover of *Calluna vulgaris* is dominant in 16 blanket bog communities and abundant in 73 but there appears to be no obvious relationship to community, erosion or land management practices, see Figure 9: Calluna vulgaris cover.

SUMMARY

Peat depths are generally less than 200cm, and so considered relatively shallow for blanket bog communities. There is some indication from interpolation that pockets of deeper peats are confined to north-western and south-eastern areas of site – Stouraclev, upper Canis Dale, Horse water and Swarta Shun - and that there are distinct areas of shallow peats (<100cm) to the south of the site.

Peatland condition is considered to be generally in a state of degradation, with significant erosion evident throughout much of site and impacts of grazing particularly apparent in the southern half of the site.

FURTHER WORK

PEAT DEPTH SURVEY

For areas considered to be potential locations for infrastructure relating to the development, peat depth survey should be carried out at finer resolution (100m grid or closer spacing), to further inform possible avoidance of accumulations of peat, peat management during construction and possible micro-siting options for infrastructure.

POTENTIAL FOR HABITAT ENHANCEMENT

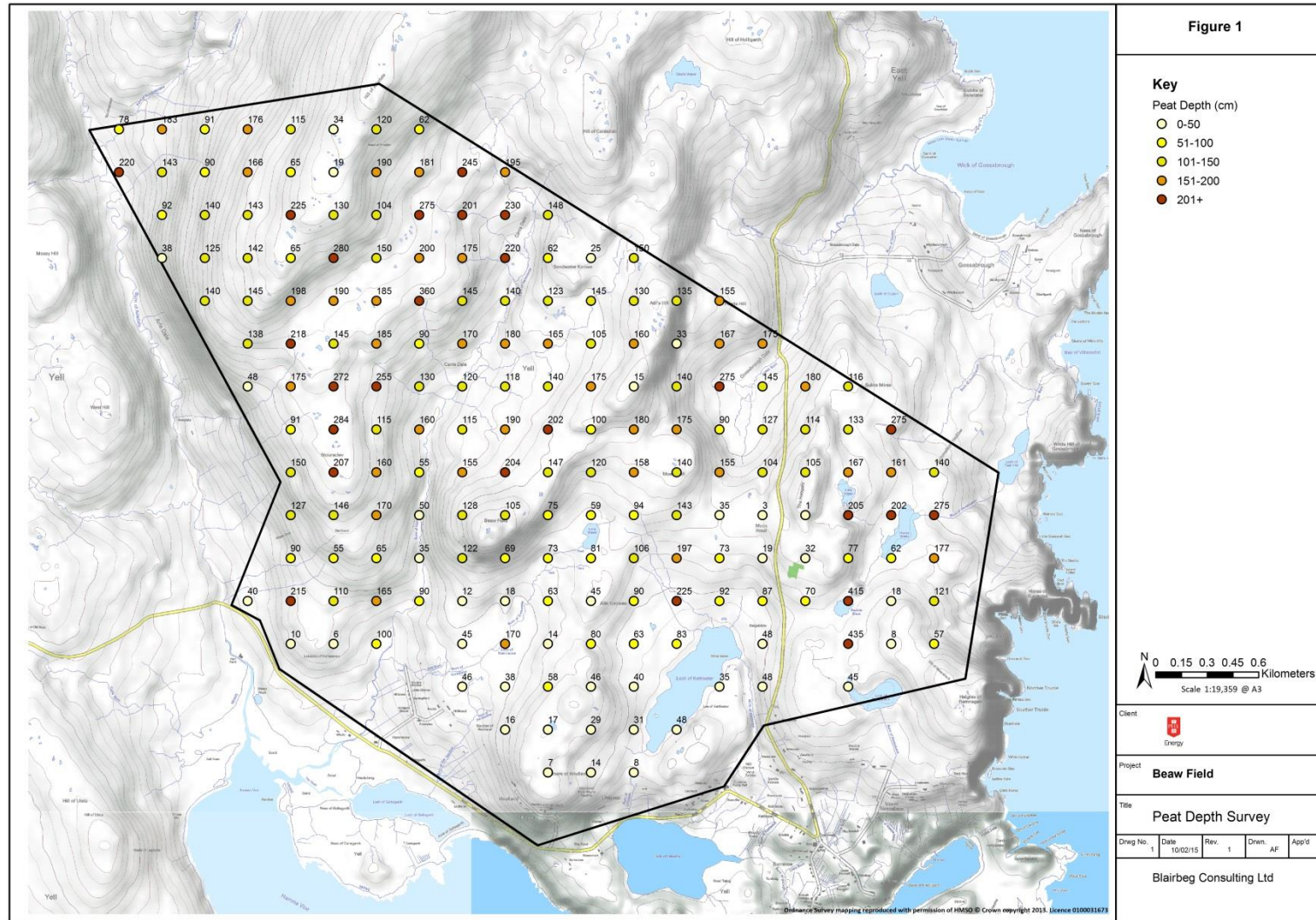
The levels of erosion across the site and influence of land management practices present opportunity to effect positive habitat enhancement measures in areas outwith a development footprint. Such measures may include the manipulation of stocking rates to reduce grazing pressure in key areas and so reduce erosion caused by livestock. Additionally some gully blocking may be possible to restore hydrology and increase coverage of *Sphagna* and other peat-forming vegetation.

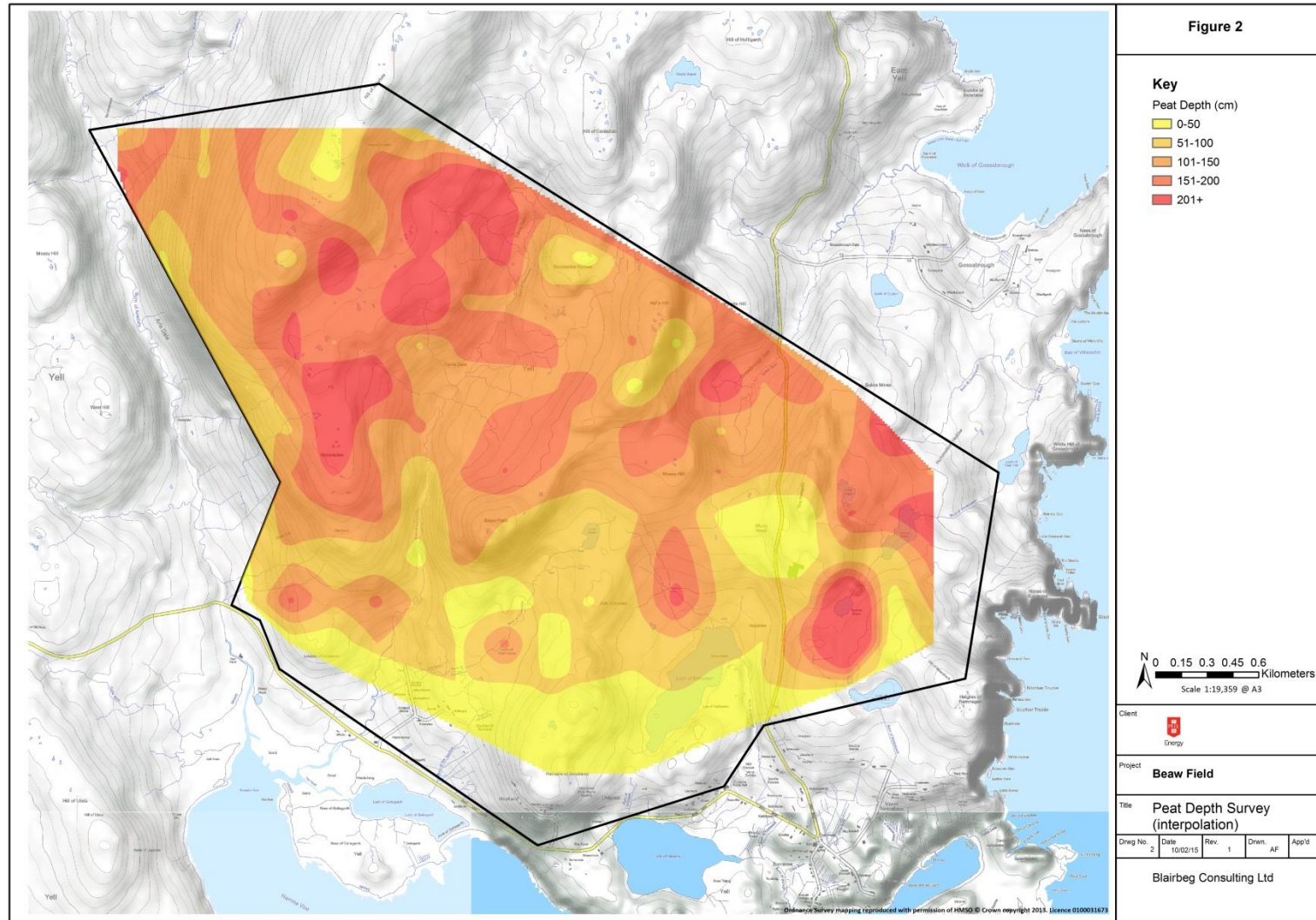
REFERENCES

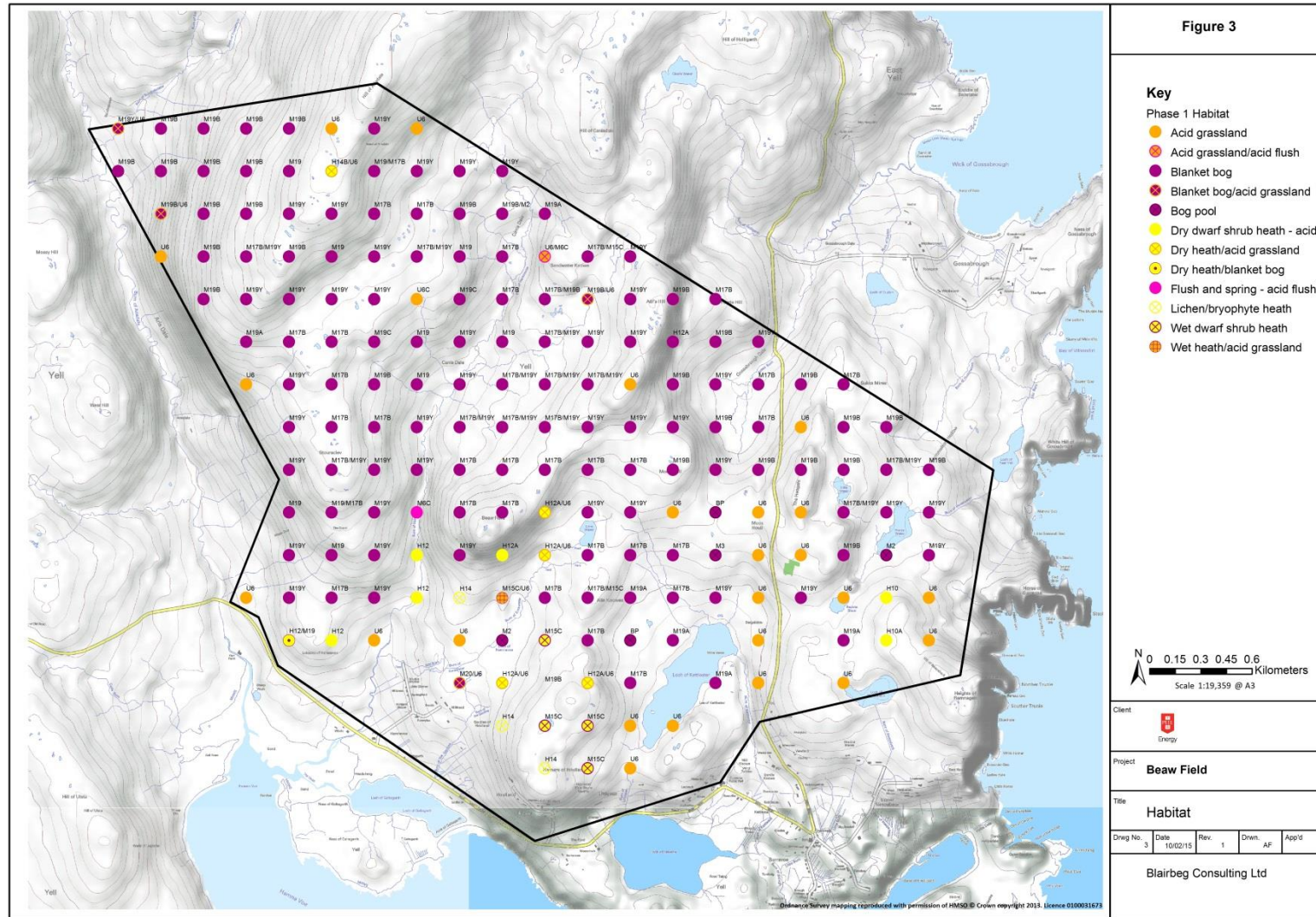
- Bellamy PE, Stephen L, Maclean IS and Grant MC (2012) *Response of blanket bog vegetation to drain-blocking*. Applied Vegetation Science 15: 129–135.
- Bonnett, S.A.F., Ross, S., Linstead, C. & Maltby, E. (2009). *A review of techniques for monitoring the success of peatland restoration*. University of Liverpool. Natural England Commissioned Reports, Number 086
- Cummins, R., Donnelly, D., Nolan, A., Towers, W., Chapman, S., Grieve, I. and Birnie, R.V. (2011). *Peat erosion and the management of peatland habitats*. Scottish Natural Heritage Commissioned Report No. 410
- DEFRA (2008). *A Compendium of UK Peat Restoration and Management Projects*. Research Project SP0556 Final Report. DEFRA, London.
- Evans, M. & Warburton, J. (2007). *Geomorphology of Upland Peat. Erosion, Form and Landscape Change*. Blackwell Publishing, Oxford.
- Evans, M., Allott, T., Holden, J., Flitcroft, C. & Bonn, A. (2005). *Understanding gully blocking in deep peat*. Moors For the Future. Report 4. Moors for the Future, Castleton, 105pp
- Hancock MH, Grant MC & Wilson JD (2009) *Associations between distance to forest and spatial and temporal variation in abundance of key peatland breeding bird species*. Bird Study 56: 53-64.
- Holden, J., Gascoigne, M. & Bosanko, N.R. (2007b). *Erosion and natural revegetation associated with surface land drains in upland peatlands*. Earth Surface Processes and Landforms, 32, 1547-1557
- JNCC (2007) *Handbook for Phase 1 habitat survey - a technique for environmental audit*, Revised reprint 2003, reprinted 2007.
- JNCC (2008) *Common standards monitoring guidance for upland habitat*. Joint Nature Conservation Committee, Peterborough.
- MacDonald, A.M., Armstrong H.M., Immirzi, P. & Reynolds, P. (1998). *A Guide to Upland Habitats: Surveying Land Management Impacts*. Scottish Natural Heritage, Edinburgh.
- Robinson, M. (1986). *Changes in catchment runoff following drainage and afforestation*. Journal of Hydrology, 86, 71-84
- Rodwell, J. S. (2006) *National Vegetation Classification: Users' Handbook*, JNCC.
- Rodwell, J.S. (1991) *British Plant Communities Volume 2. Mires and Heaths*. CUP, Cambridge.
- Scottish Environmental Protection Agency (2009). *Guidance for Applicants on Supporting Information Requirements for Hydropower Applications*. SEPA
- Scottish Environmental Protection Agency (2012) *Land Use Planning System: Guidance Note 4: Guidance on Windfarm Developments*.
- SNH (2014) *Guidance note for land managers on peat dams*. SNH Battleby.
- SNH (2006) *Natural Care South of Scotland bog scheme guidance for land managers – installing pile dams*. SNH Battleby.
- SNH *Constructed Tracks in the Scottish Uplands* www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=513
- Sim IW, Gregory RD, Hancock MH and Brown AF (2005) *Recent changes in the abundance of British upland breeding birds*. Bird Study 52: 261–275.
- Tallis, J.H. (1998). *Growth and degradation of British and Irish blanket mires*. Environmental Reviews, 6, 81–122.
- Tanneberger F and Wichtmann W (eds) (2011) *Carbon credits from peatland rewetting: climate, biodiversity, land use*. Schweizerbart Science Publishers, Stuttgart. 223pp.

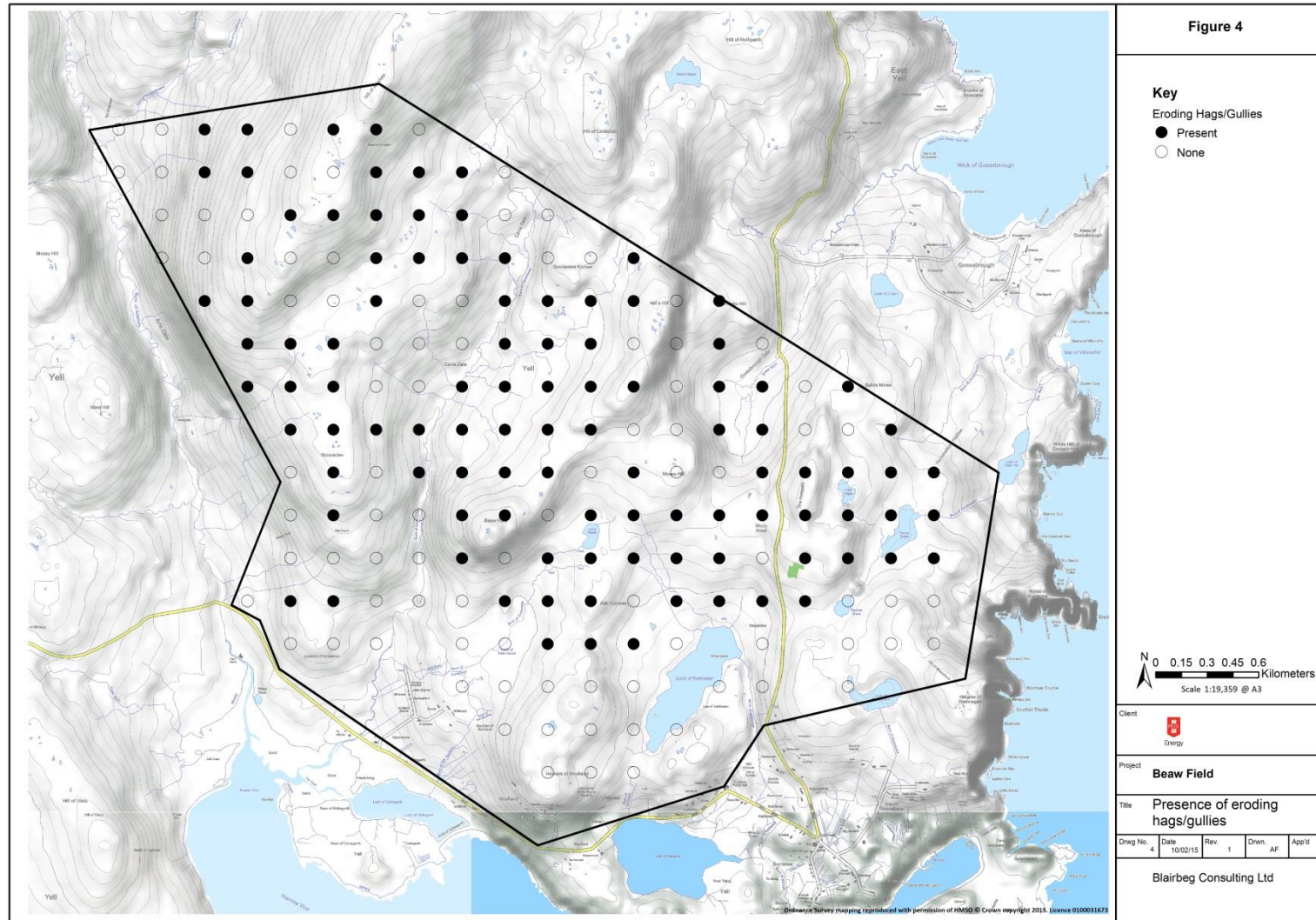
- Wilson JD, Anderson R, Bailey S, Chetcuti J, Cowie NR, Hancock MH, Quine C, Russell N, Stephen L and Thompson DBA (2013) *Modelling edge effects of mature forest plantations on peatland waders informs landscape-scale conservation*. Journal of Applied Ecology. doi: 10.1111/1365-2664.12173.
- Wilson L, Wilson J, Holden J, Johnstone I, Armstrong A and Morris M (2010) *Recovery of water tables in Welsh blanket bog after drain blocking: discharge rates, time scales and the influence of local conditions*. Journal of Hydrology 391: 377-386.
- Wilson L, Wilson JM, Johnstone I (2011) *The effect of blanket bog drainage on habitat condition and on sheep grazing, evidence from a Welsh upland bog*. Biological Conservation 144: 193-201.
- Wishart, D. & Warburton, J. (2001). *An assessment of blanket mire degradation and peatland gully development in the Cheviot Hills, Northumberland*. Scottish Geographical Journal, 117, 185-286.
- Worrall, F., Armstrong, A. & Adamson, J.K. (2007). *The effects of burning and sheep grazing on water table depth and soil water quality in an upland peat*. Journal of Hydrology, 339, 1-14.
- Yorkshire Peat Partnership (2011) *Technical Guidance Note 1 - Specification for grip blocking using peat dams*.

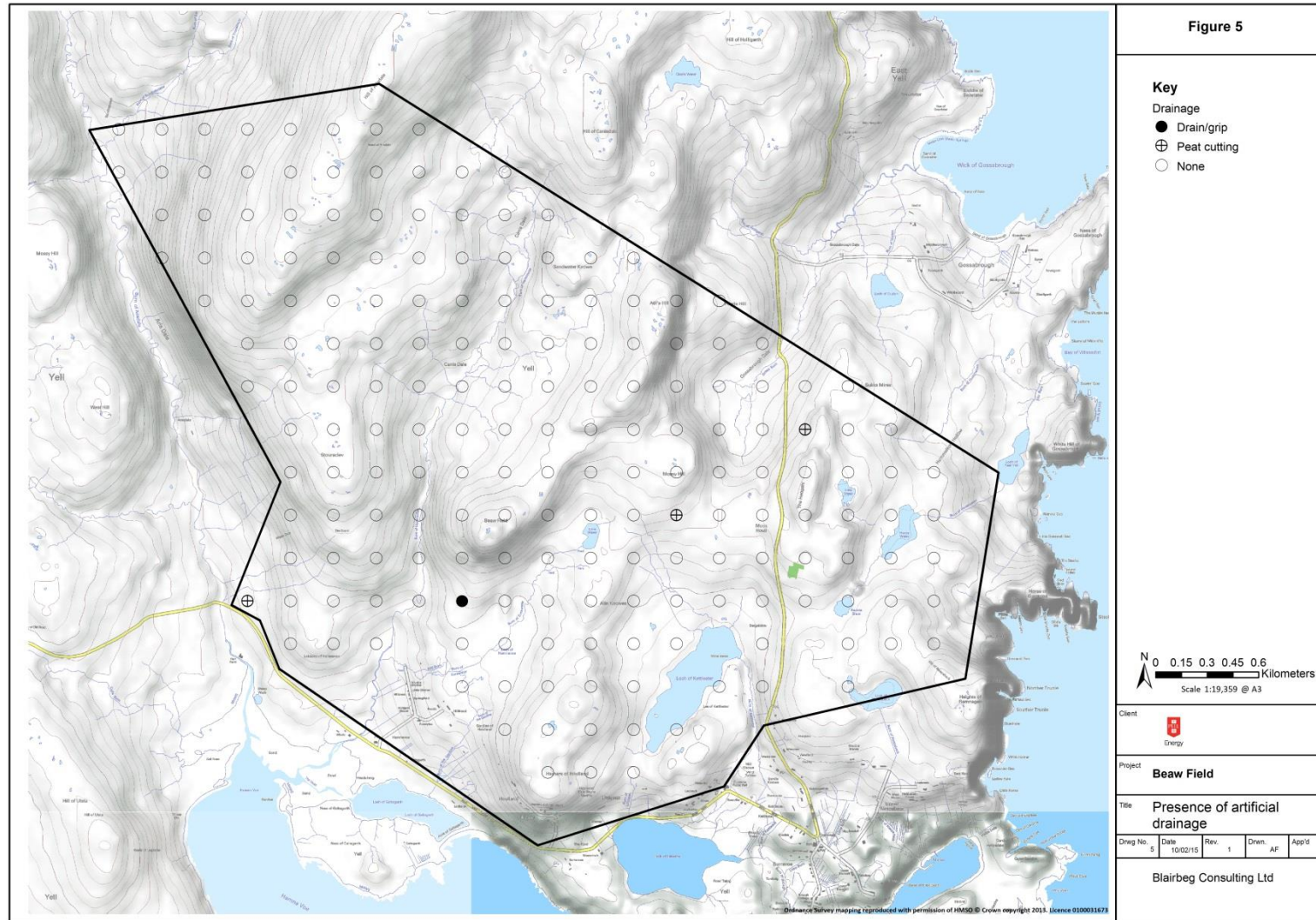
ANNEX 1: FIGURES

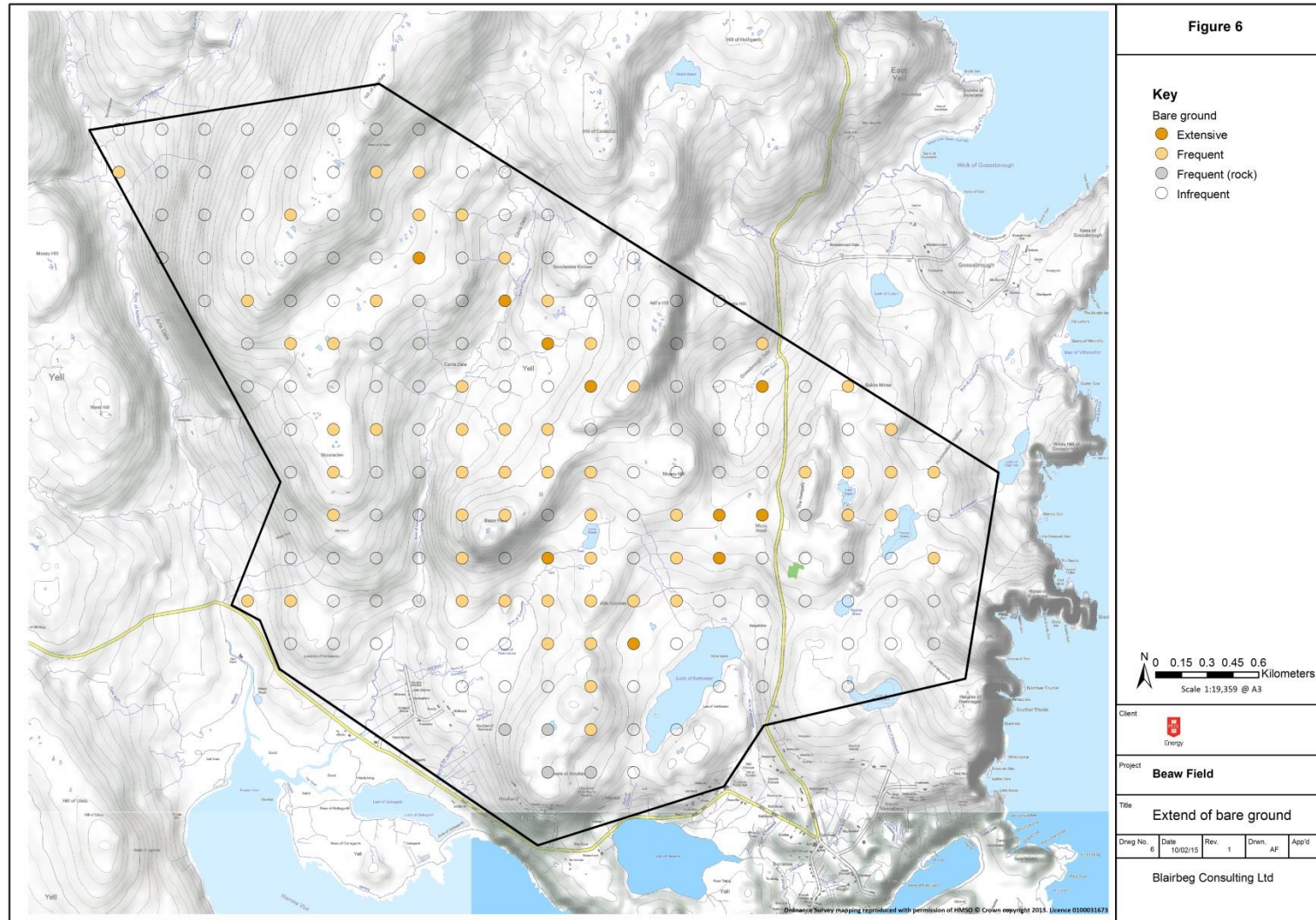


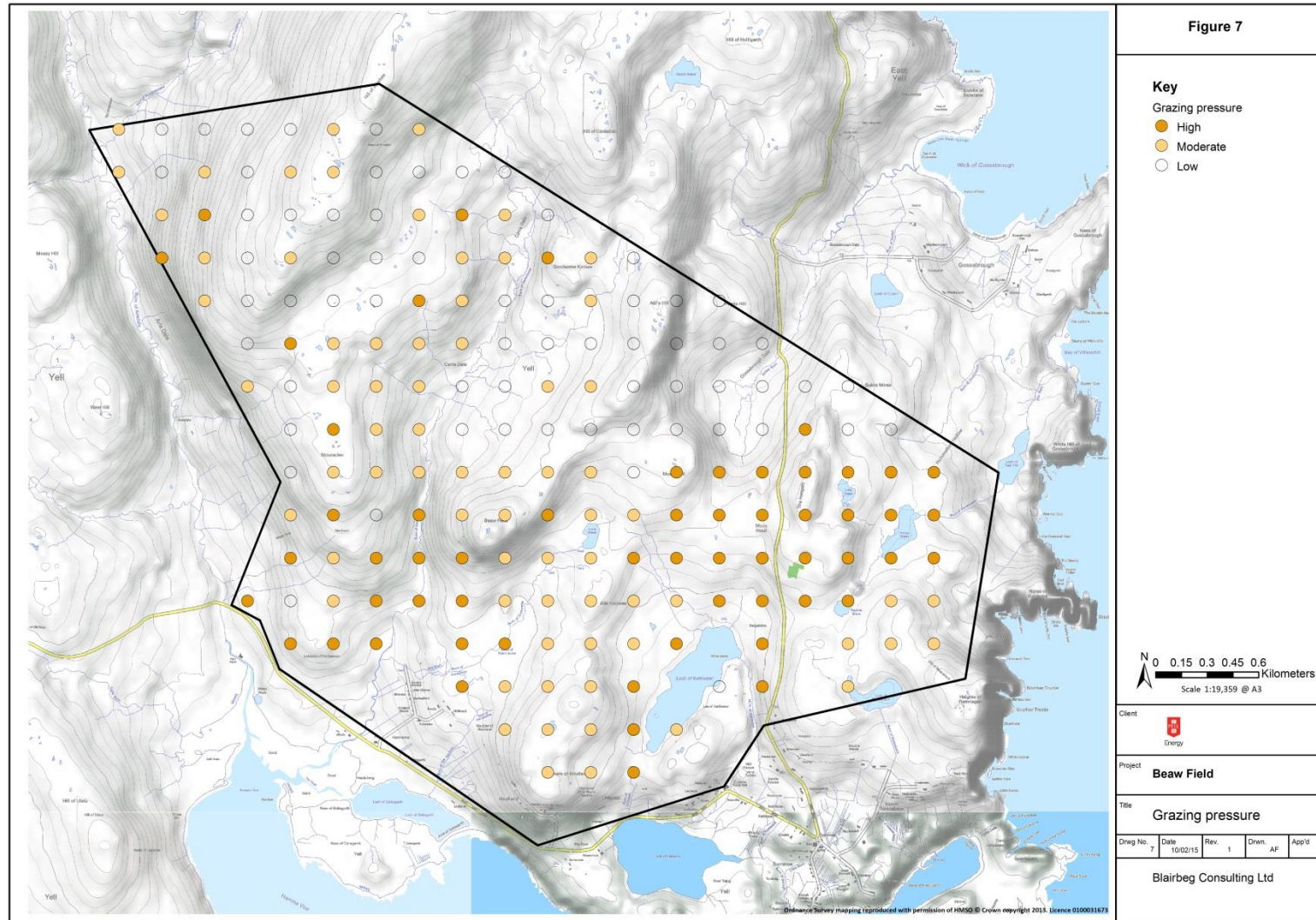


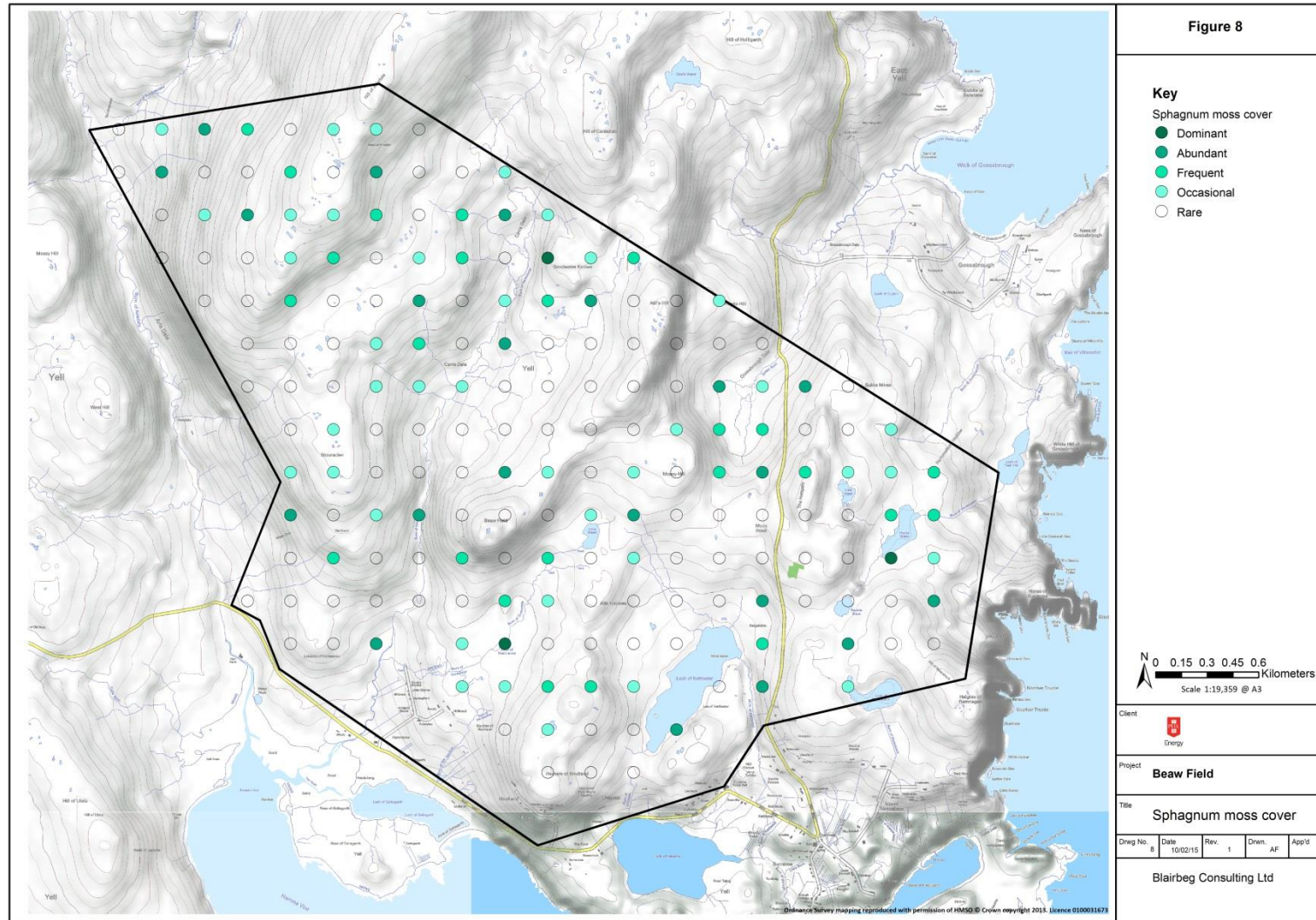


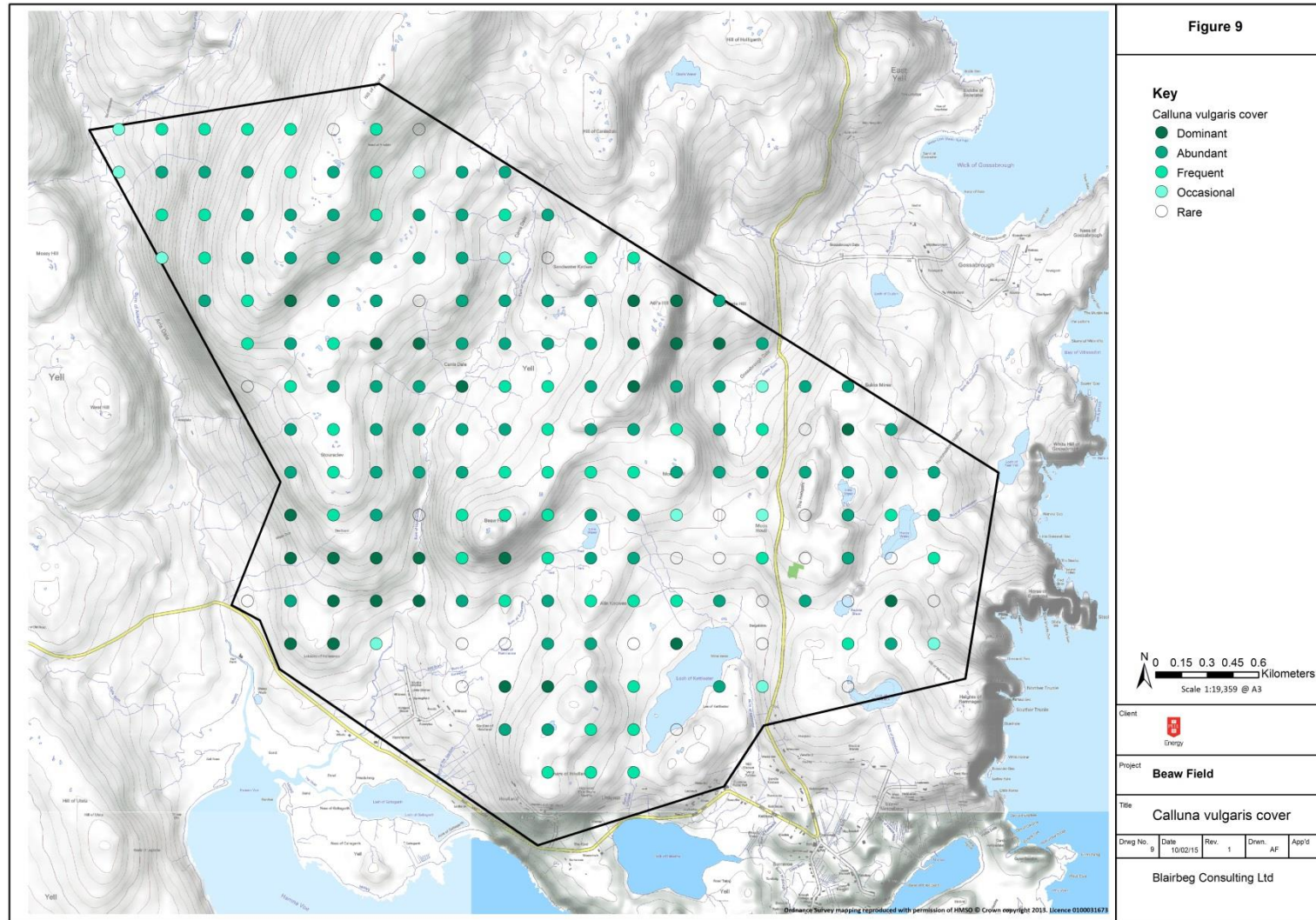












ANNEX 2: DATA

FID	X	Y	PeatDepth	Habitat	Phase1	Hags	Drainage	BarePeat	Burning	Grazing	Sphagnum	Calluna	Altitude
5	450446	1180230	7	H14	Lichen/bryophyte heath	N	N	FR	I	F	R	F	73
6	450696	1180230	14	M15C	Wet dwarf shrub heath	N	N	FR	I	F	R	F	52
7	450946	1180230	8	U6	Acid grassland	N	N	I	I	E	R	F	44
13	450196	1180480	16	H14	Lichen/bryophyte heath	N	N	FR	I	F	R	A	52
14	450446	1180480	17	M15C	Wet dwarf shrub heath	N	N	FR	I	F	O	A	73
15	450696	1180480	29	M15C	Wet dwarf shrub heath	N	N	F	I	F	R	F	71
16	450946	1180480	31	U6	Acid grassland	N	N	I	I	E	R	F	46
17	451196	1180480	48	U6	Acid grassland	N	N	I	I	F	A	R	45
22	449946	1180730	46	M20/U6	Blanket bog/acid grassland	N	N	I	I	E	O	R	43
23	450196	1180730	38	H12A/U6	Dry heath/acid grassland	N	N	I	I	F	O	D	41
24	450446	1180730	58	M19B	Blanket bog	N	N	I	I	F	F	D	62
25	450696	1180730	46	H12A/U6	Dry heath/acid grassland	N	N	F	I	F	F	A	71
26	450946	1180730	40	M17B	Blanket bog	N	N	I	I	E	O	F	46
27	451446	1180730	35	M19A	Blanket bog	N	N	I	I	I	R	A	41
28	451696	1180730	48	U6	Acid grassland	N	N	I	I	E	A	O	45
30	452196	1180730	45	U6	Acid grassland	N	N	I	I	F	O	R	68
31	448946	1180980	10	H12/M19	Dry heath/blanket bog	N	N	I	I	E	R	D	33
32	449196	1180980	6	H12	Dry dwarf shrub heath - acid	N	N	I	I	E	R	D	40
33	449446	1180980	100	U6	Acid grassland	N	N	I	I	E	A	O	16
35	449946	1180980	45	U6	Acid grassland	N	N	I	I	E	O	R	45
36	450196	1180980	170	M2	Bog pool	N	N	I	I	E	D	R	39
37	450446	1180980	14	M15C	Wet dwarf shrub heath	Y	N	F	I	F	R	A	54
38	450696	1180980	80	M17B	Blanket bog	Y	N	F	I	F	R	A	61
39	450946	1180980	63	BP	Bog pool	Y	N	E	I	F	R	R	49

FID	X	Y	PeatDepth	Habitat	Phase1	Hags	Drainage	BarePeat	Burning	Grazing	Sphagnum	Calluna	Altitude
40	451196	1180980	83	M19A	Blanket bog	N	N	I	I	E	R	D	49
41	451696	1180980	48	U6	Acid grassland	N	N	I	I	E	F	R	47
43	452196	1180980	435	M19A	Blanket bog	N	N	I	I	F	A	F	64
44	452446	1180980	8	H10A	Dry dwarf shrub heath - acid	N	N	I	I	F	R	A	76
45	452696	1180980	57	U6	Acid grassland	N	N	I	I	F	R	O	65
46	448696	1181230	40	U6	Acid grassland	N	C	F	I	E	R	R	9
47	448946	1181230	215	M19Y	Blanket bog	Y	N	F	I	I	R	A	36
48	449196	1181230	110	M17B	Blanket bog	Y	N	I	I	F	R	D	48
49	449446	1181230	165	M19Y	Blanket bog	N	N	I	I	E	R	D	42
50	449696	1181230	90	H12	Dry dwarf shrub heath - acid	N	N	I	I	E	R	D	29
51	449946	1181230	12	H14	Lichen/bryophyte heath	N	Y	F	I	E	R	A	58
52	450196	1181230	18	M15C/U6	Wet heath/acid grassland	Y	N	F	I	F	F	F	47
53	450446	1181230	63	M17B	Blanket bog	Y	N	F	I	F	O	A	49
54	450696	1181230	45	M17B/M15C	Blanket bog	Y	N	F	I	F	R	F	69
55	450946	1181230	90	M19A	Blanket bog	N	N	F	I	F	R	F	56
56	451196	1181230	225	M17B	Blanket bog	Y	N	F	I	F	R	F	51
57	451446	1181230	92	M19Y	Blanket bog	Y	N	I	I	E	R	A	47
58	451696	1181230	87	U6	Acid grassland	Y	N	I	I	E	A	R	48
59	451946	1181230	70	M19Y	Blanket bog	Y	N	I	I	E	R	A	77
60	452196	1181230	415	U6	Acid grassland	N	N	I	I	E	R	R	63
61	452446	1181230	18	H10	Dry dwarf shrub heath - acid	N	N	I	I	F	R	D	71
62	452696	1181230	121	U6	Acid grassland	N	N	I	I	F	A	R	57
63	448946	1181480	90	M19Y	Blanket bog	N	N	I	I	E	R	D	42
64	449196	1181480	55	M19	Blanket bog	N	N	I	I	F	F	D	71
65	449446	1181480	65	M19Y	Blanket bog	N	N	I	I	E	R	D	74
66	449696	1181480	35	H12	Dry dwarf shrub heath - acid	N	N	I	I	E	R	D	47
67	449946	1181480	122	M19Y	Blanket bog	Y	N	F	I	E	F	F	81
68	450196	1181480	69	H12A	Dry dwarf shrub heath - acid	N	N	I	I	F	R	D	82
69	450446	1181480	73	H12A/U6	Dry heath/acid grassland	Y	N	E	I	F	F	F	55

FID	X	Y	PeatDepth	Habitat	Phase1	Hags	Drainage	BarePeat	Burning	Grazing	Sphagnum	Calluna	Altitude
70	450696	1181480	81	M17B	Blanket bog	Y	N	F	I	F	R	A	65
71	450946	1181480	106	M17B	Blanket bog	Y	N	I	I	E	O	A	64
72	451196	1181480	197	M17B	Blanket bog	Y	N	F	I	E	R	R	61
73	451446	1181480	73	M3	Bog pool	Y	N	E	I	E	R	R	62
74	451696	1181480	19	U6	Acid grassland	N	N	I	I	E	R	F	66
75	451946	1181480	32	U6	Acid grassland	Y	N	I	I	E	R	R	80
76	452196	1181480	77	M19B	Blanket bog	Y	N	I	I	E	R	A	79
77	452446	1181480	62	M2	Bog pool	Y	N	I	I	E	D	R	53
78	452696	1181480	177	M19Y	Blanket bog	Y	N	F	I	E	O	F	63
79	448946	1181730	127	M19	Blanket bog	N	N	I	I	F	A	D	60
80	449196	1181730	146	M19/M17B	Blanket bog	Y	N	F	I	E	R	F	98
81	449446	1181730	170	M19Y	Blanket bog	N	N	I	I	I	O	A	88
82	449696	1181730	50	M6C	Flush and spring - acid flush	N	N	I	I	E	A	R	52
83	449946	1181730	128	M17B	Blanket bog	Y	N	F	I	F	R	F	101
84	450196	1181730	105	M17B	Blanket bog	Y	N	F	I	F	R	F	118
85	450446	1181730	75	H12A/U6	Dry heath/acid grassland	N	N	I	I	E	R	F	90
86	450696	1181730	59	M19Y	Blanket bog	Y	N	F	I	F	O	A	61
87	450946	1181730	94	M19Y	Blanket bog	Y	N	I	I	F	A	A	77
88	451196	1181730	143	U6	Acid grassland	Y	C	F	I	E	R	O	79
89	451446	1181730	35	BP	Bog pool	Y	N	E	I	E	R	R	71
90	451696	1181730	3	U6	Acid grassland	Y	N	E	I	E	R	O	74
91	451946	1181730	1	U6	Acid grassland	Y	N	FR	I	E	R	R	90
92	452196	1181730	205	M17B/M19Y	Blanket bog	Y	N	F	I	E	R	A	71
93	452446	1181730	202	M19Y	Blanket bog	Y	N	F	I	E	F	F	57
94	452696	1181730	275	M19Y	Blanket bog	Y	N	I	I	E	F	A	53
95	448946	1181980	150	M19Y	Blanket bog	N	N	I	I	I	O	A	88
96	449196	1181980	207	M17B/M19Y	Blanket bog	Y	N	F	I	F	O	F	119
97	449446	1181980	160	M19Y	Blanket bog	N	N	I	I	F	R	A	103
98	449696	1181980	55	M19Y	Blanket bog	Y	N	I	I	F	R	A	67

FID	X	Y	PeatDepth	Habitat	Phase1	Hags	Drainage	BarePeat	Burning	Grazing	Sphagnum	Calluna	Altitude
99	449946	1181980	155	M17B	Blanket bog	Y	N	F	I	F	R	A	83
100	450196	1181980	204	M17B	Blanket bog	Y	N	F	I	F	A	F	95
101	450446	1181980	147	M17B	Blanket bog	Y	N	F	I	F	O	F	110
102	450696	1181980	120	M17B	Blanket bog	N	N	F	I	F	R	F	85
103	450946	1181980	158	M17B	Blanket bog	Y	N	I	I	I	O	F	90
104	451196	1181980	140	M19B	Blanket bog	N	N	I	I	E	R	A	99
105	451446	1181980	155	M19Y	Blanket bog	N	N	I	I	E	F	A	71
106	451696	1181980	104	M19B	Blanket bog	Y	N	I	I	E	A	A	66
107	451946	1181980	105	M19B	Blanket bog	Y	N	F	I	E	F	A	87
108	452196	1181980	167	M19B	Blanket bog	Y	N	F	I	E	O	A	78
109	452446	1181980	161	M17B/M19Y	Blanket bog	Y	N	F	I	E	O	A	66
110	452696	1181980	140	M19B	Blanket bog	Y	N	F	I	E	F	A	54
111	448946	1182230	91	M19Y	Blanket bog	Y	N	I	I	I	R	A	104
112	449196	1182230	284	M17B	Blanket bog	Y	N	F	I	E	O	F	123
113	449446	1182230	115	M17B	Blanket bog	Y	N	F	I	F	R	A	99
114	449696	1182230	160	M19Y	Blanket bog	Y	N	I	I	F	R	A	65
115	449946	1182230	115	M17B/M19Y	Blanket bog	Y	N	F	I	I	R	A	83
116	450196	1182230	190	M17B/M19Y	Blanket bog	Y	N	F	I	I	R	A	87
117	450446	1182230	202	M17B/M19Y	Blanket bog	Y	N	F	I	I	R	F	103
118	450696	1182230	100	M19Y	Blanket bog	Y	N	I	I	I	R	A	114
119	450946	1182230	180	M19Y	Blanket bog	N	N	I	I	I	R	A	101
120	451196	1182230	175	M19Y	Blanket bog	N	N	I	I	I	O	F	89
121	451446	1182230	90	M19B	Blanket bog	Y	N	I	I	I	F	A	56
122	451696	1182230	127	M17B	Blanket bog	Y	N	I	I	I	F	F	52
123	451946	1182230	114	U6	Acid grassland	N	C	I	I	E	R	R	72
124	452196	1182230	133	M19B	Blanket bog	N	N	I	I	I	R	D	70
125	452446	1182230	275	M19B	Blanket bog	Y	N	F	I	I	O	A	64
126	448696	1182480	48	U6	Acid grassland	Y	N	I	I	F	R	R	97
127	448946	1182480	175	M19Y	Blanket bog	Y	N	I	I	I	R	F	115

FID	X	Y	PeatDepth	Habitat	Phase1	Hags	Drainage	BarePeat	Burning	Grazing	Sphagnum	Calluna	Altitude
128	449196	1182480	272	M17B	Blanket bog	Y	N	I	I	F	R	A	123
129	449446	1182480	255	M19B	Blanket bog	N	N	I	I	F	O	A	102
130	449696	1182480	130	M19	Blanket bog	N	N	I	I	F	O	A	78
131	449946	1182480	120	M19Y	Blanket bog	Y	N	F	I	I	O	D	73
132	450196	1182480	118	M17B/M19Y	Blanket bog	Y	N	I	I	I	R	F	83
133	450446	1182480	140	M17B/M19Y	Blanket bog	Y	N	I	I	F	R	F	94
134	450696	1182480	175	M17B/M19Y	Blanket bog	Y	N	E	I	F	R	A	106
135	450946	1182480	15	U6	Acid grassland	Y	N	F	I	I	R	D	127
136	451196	1182480	140	M19B	Blanket bog	N	N	I	I	I	R	A	82
137	451446	1182480	275	M19Y	Blanket bog	Y	N	I	I	I	A	A	54
138	451696	1182480	145	M17B	Blanket bog	Y	N	E	I	I	O	O	48
139	451946	1182480	180	M19B	Blanket bog	N	N	I	I	I	A	A	63
140	452196	1182480	116	M17B	Blanket bog	Y	N	F	I	I	R	A	76
141	448696	1182730	138	M19A	Blanket bog	Y	N	I	I	I	R	F	128
142	448946	1182730	218	M17B	Blanket bog	Y	N	F	I	E	R	A	132
143	449196	1182730	145	M17B	Blanket bog	Y	N	F	I	F	R	F	130
144	449446	1182730	185	M19C	Blanket bog	N	N	I	I	F	O	D	121
145	449696	1182730	90	M19	Blanket bog	N	N	I	I	F	F	D	99
146	449946	1182730	170	M19Y	Blanket bog	N	N	I	I	F	R	A	88
147	450196	1182730	180	M19	Blanket bog	Y	N	I	I	I	A	A	82
148	450446	1182730	165	M17B/M19Y	Blanket bog	Y	N	E	I	I	R	A	95
149	450696	1182730	105	M19Y	Blanket bog	Y	N	F	I	I	R	A	103
150	450946	1182730	160	M19Y	Blanket bog	N	N	I	I	I	R	D	119
151	451196	1182730	33	H12A	Dry dwarf shrub heath - acid	N	N	I	I	I	R	D	96
152	451446	1182730	167	M19B	Blanket bog	Y	N	I	I	I	R	D	72
153	451696	1182730	175	M19Y	Blanket bog	N	N	F	I	I	R	A	61
154	448446	1182980	140	M19B	Blanket bog	Y	N	I	I	F	R	A	124
155	448696	1182980	145	M19Y	Blanket bog	Y	N	F	I	I	R	F	158
156	448946	1182980	198	M19Y	Blanket bog	N	N	I	I	I	F	D	151

FID	X	Y	PeatDepth	Habitat	Phase1	Hags	Drainage	BarePeat	Burning	Grazing	Sphagnum	Calluna	Altitude
157	449196	1182980	190	M19Y	Blanket bog	N	N	I	I	I	R	A	137
158	449446	1182980	185	M19Y	Blanket bog	Y	N	F	I	I	R	A	139
159	449696	1182980	360	U6C	Acid grassland	N	N	I	I	E	A	R	120
160	449946	1182980	145	M19C	Blanket bog	N	N	I	I	F	R	A	112
161	450196	1182980	140	M17B	Blanket bog	Y	N	E	I	I	O	A	87
162	450446	1182980	123	M17B/M19B	Blanket bog	Y	N	F	I	I	F	A	97
163	450696	1182980	145	M19B/U6	Blanket bog/acid grassland	Y	N	I	I	F	A	A	100
164	450946	1182980	130	M19Y	Blanket bog	Y	N	I	I	I	R	D	118
165	451196	1182980	135	M19B	Blanket bog	N	N	I	I	I	R	D	123
166	451446	1182980	155	M17B	Blanket bog	Y	N	I	I	I	O	A	84
167	448196	1183230	38	U6	Acid grassland	N	N	I	I	E	R	O	67
168	448446	1183230	125	M19B	Blanket bog	N	N	I	I	F	R	F	126
169	448696	1183230	142	M17B/M19Y	Blanket bog	Y	N	I	I	I	R	A	159
170	448946	1183230	65	M19B	Blanket bog	N	N	I	I	F	O	A	180
171	449196	1183230	280	M19	Blanket bog	N	N	I	I	I	F	A	159
172	449446	1183230	150	M19Y	Blanket bog	Y	N	I	I	I	R	A	140
173	449696	1183230	200	M17B/M19Y	Blanket bog	Y	N	E	I	I	O	A	129
174	449946	1183230	175	M19	Blanket bog	Y	N	I	I	F	F	A	111
175	450196	1183230	220	M17B	Blanket bog	Y	N	F	I	F	R	O	86
176	450446	1183230	62	U6/M6C	Acid grassland/acid flush	N	N	I	I	E	D	R	103
177	450696	1183230	25	M17B/M15C	Blanket bog	N	N	I	I	F	O	F	111
178	450946	1183230	150	M19Y	Blanket bog	Y	N	I	I	I	F	F	108
179	448196	1183480	92	M19B/U6	Blanket bog/acid grassland	N	N	I	I	F	R	F	59
180	448446	1183480	140	M19B	Blanket bog	N	N	I	I	E	O	F	119
181	448696	1183480	143	M19B	Blanket bog	N	N	I	I	I	A	A	155
182	448946	1183480	225	M19Y	Blanket bog	Y	N	F	I	I	O	A	186
183	449196	1183480	130	M19Y	Blanket bog	Y	N	I	I	I	O	A	195
184	449446	1183480	104	M17B	Blanket bog	Y	N	I	I	I	F	F	157
185	449696	1183480	275	M17B	Blanket bog	Y	N	F	I	F	R	A	130

FID	X	Y	PeatDepth	Habitat	Phase1	Hags	Drainage	BarePeat	Burning	Grazing	Sphagnum	Calluna	Altitude
186	449946	1183480	201	M19B	Blanket bog	Y	N	F	I	E	F	A	110
187	450196	1183480	230	M19B/M2	Blanket bog	N	N	I	I	F	A	F	101
188	450446	1183480	148	M19A	Blanket bog	N	N	I	I	I	O	A	98
189	447946	1183730	220	M19B	Blanket bog	N	N	F	I	F	R	O	35
190	448196	1183730	143	M19B	Blanket bog	N	N	I	I	I	A	A	57
191	448446	1183730	90	M19B	Blanket bog	Y	N	I	I	F	R	A	108
192	448696	1183730	166	M19B	Blanket bog	Y	N	I	I	I	R	A	149
193	448946	1183730	65	M19	Blanket bog	N	N	I	I	F	F	F	176
194	449196	1183730	19	H14B/U6	Dry heath/acid grassland	N	N	I	I	F	R	A	197
195	449446	1183730	190	M19/M17B	Blanket bog	Y	N	F	I	I	A	F	164
196	449696	1183730	181	M19Y	Blanket bog	Y	N	F	I	I	R	O	141
197	449946	1183730	245	M19Y	Blanket bog	Y	N	I	I	I	R	A	121
198	450196	1183730	195	M19Y	Blanket bog	N	N	I	I	I	O	A	111
199	447946	1183980	78	M19Y/U6	Blanket bog/acid grassland	N	N	I	I	F	R	O	40
200	448196	1183980	183	M19B	Blanket bog	N	N	I	I	I	O	F	61
201	448446	1183980	91	M19B	Blanket bog	Y	N	I	I	I	A	F	90
202	448696	1183980	176	M19B	Blanket bog	Y	N	I	I	I	F	F	121
203	448946	1183980	115	M19B	Blanket bog	N	N	I	I	I	R	F	158
204	449196	1183980	34	U6	Acid grassland	Y	N	I	I	F	O	R	185
205	449446	1183980	120	M19Y	Blanket bog	Y	N	I	I	I	O	F	188
206	449696	1183980	62	U6	Acid grassland	N	N	I	I	F	R	R	155