Corkey Windfarm Repowering

Technical Appendix A7.1: Peat Slide Risk Assessment

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CORKEY WINDFARM REPOWERING

PEAT SLIDE RISK ASSESSMENT

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1 INTRODUCTION

1.1 Background

Arcus Consultancy Services were commissioned by ScottishPower Renewables to carry out a Peat Slide Risk Assessment (PSRA) for the proposed repowering of Corkey Wind Farm. The proposed development will consist of the following key infrastructure:

- Five turbines up to 137 m tip;
- Approximately 2.5km of new access tracks and 2.5 km of upgrade to existing tracks;
- Permanent compound, 55m x 35m, occupying substation and energy storage units;
- 2 x temporary compounds, one 90m x 90m and other 50m x 50m;

The proposed site layout is shown on **Figure 1** appended with this report.

1.2 Scope and Purpose

This PSRA provides factual information on the peat survey results relating to the proposed repowering turbine locations. The desk-based information and site surveys has been utilised to assess the potential risk of any peat slide. The methodology adopted and details on the assessment are outlined in Sections 3, 4 and 5. The assessment has been undertaken in accordance with Scottish Government, 2017 'Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments[1] in assessing the likelihood and consequence of such an event as recommended in Irish Wind Energy Association, 2012 Best Practice Guidance for the Irish Wind Energy Industry[2].

[1] Scottish Government, 2006. Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments.
[2] Irish Wind Energy Association, 2012. Best Practice Guidance for the Irish Wind Energy Industry. Available at: http://www.iwea.com/iweabestpracticeguidelines

2 SITE INFORMATION

2.1 Site Description and Topography

The Site is located on the western periphery of the Antrim Hills with the low-lying valley of the River Main to the west and the broader range of the Antrim Hills to the east. The Site is characterised by the steep upper slopes and distinctive ridgeline of Slievenahanaghan and its moorland land cover, approximately 25km south-east of Ballymoney at Irish National Grid Reference (INGR) 421744, 311346.

The levels mAOD range between 160m and 410m.

2.2 Published Geology

2.2.1 Superficial Soils

The online GSNI information indicates the majority of the Study Area to be underlain predominantly by peat with glacial till outcropping locally within the central regions and more frequently in the western underlying the western areas. Peat dominates the immediate southerly and easterly surroundings. Peat is identified within the vicinity of the Operational Corkey Windfarm infrastructure and is also prominent in the eastern face of Slievenahanaghan, while the remaining areas in the north and east where vacant of superficial soils. The western and south western parts of the site were shown to be underlain by till. **Figure 2** illustrates the 'Superficial Soils'

2.2.2 Solid Geology

The underlying bedrock was indicated to belong mainly to the Lower Basalt Formation comprising Paleocene aged Basalt. Within the Study Area, localised areas were recorded to belong to the Upper Basalt Formation and Interbasaltic Formations, comprising Basalt and Bauxites respectively. Shallow rock is anticipated in the upland slopes. **Figure 3** illustrates the 'Solid Geology'.

2.2.3 Hydrology and Hydrogeology

The Development is located in the overall catchments of the Killagan Water and Cloghmills Water which are in the Neagh Bann River Basin District and the Bush River, which is located in the North Eastern River Basin District. Killagan Water bisects the Study Area in the southwest and minor watercourses rising on the slopes to the southwest and northwest of the existing windfarm and flowing from northeast to southwest within the Study Area, connect to the Kilagan Water. Bush River is located approximately 1.2 km northeast of the Site boundary at its nearest point.

The groundwater body under the majority of the Study Area is classified by the DAERA as having 'Poor' Bedrock Overall Status. The Hydrogeological map of Northern Ireland identifies the bedrock underlying the Site as Tertiary Basalts which are locally important aquifers

2.2.4 Geomorphology

The geomorphological characteristics of the Site are typical of upland peat areas in Northern Ireland. The elevated terrain comprises relatively steep areas with a large flatter, and locally gently sloping, plateau. Blanket peat covers large sections of the landscape with exception of steeper ground and areas of disturbance and degraded peat. There was evidence of flushes on the down slope section on the western face of Slievenahanaghan.

2.3 Sources of Information

- Irish Wind Energy Association, 2012 – 'Best Practice Guidance for the Irish Wind Energy Industry' March 2012;
- Scottish Government (SG) - 'Peat Landslide Hazard and Risk Assessments' December 2017;
- The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017;
- NI Planning Service, 2009. Planning Policy Statement 18: Renewable Energy;
- Geological Survey of Northern Ireland - Online GeoIndex;
- Ordnance Survey (OS) topographical information;
- Assessments by other EIA specialists (specifically hydrology and ecology for data on sensitive receptors); and
- Aerial and Satellite photography.

3 GUIDANCE AND METHODOLOGY

3.1 General Guidance on Peat Failure

The SG guidance divides peat instability into two categories, 'peat slides' and 'bog bursts'. The guidance states that peat slides have a greater risk of occurrence in areas where:

- Peat is encountered at or near to ground surface level;
- The thicknesses are recorded in the region of 2.0m (above which, in general terms, peat instability would increase with peat thickness); and
- The slope gradients are steep (between 5° and 15°).

Bog bursts are considered to have a greater risk of occurrence in areas where:

- Peat depth is greater than 1.5m; and
- Slope gradients are shallow (between 2° and 10°).

Reports of bog bursts are generally restricted to the Republic of Ireland and Northern Ireland.

Preparatory factors which affect the stability of peat slopes in the short to medium-term include:

- Loss of surface vegetation (deforestation);
- Changes in sub-surface hydrology;
- Increase in the mass of peat through accumulation, increase in water content and growth of tree planting or
- Reduction in shear strength of peat or substrate due to chemical or physical weathering, progressive creep and tension cracking.

Triggering factors which can have immediate effect on peat stability and act on susceptible slopes include:

- Intensive rainfall or snow melt causing pressures along existing or potential peat/substrate interfaces;
- Snow melt;
- Alterations to drainage patterns, both surface and sub-surface;
- Peat extraction at the toe of the slope reducing the support of the upslope material;
- Peat loading (commonly due to stockpiling) causing an increase in shear stress; and
- Earthquakes or rapid ground accelerations such as blasting or mechanical movement.

Consideration of peat stability should form an integral part of the design of a windfarm development. While peat does not wholly provide a development constraint, areas of deep peat or peat deposits on steep slope should be either avoided through design and micro-siting or mitigation measures should be designed to avoid potential instability and movement.

3.2 Assessment Approach

This PSRA has been carried out in accordance with the Irish Wind Energy Association, 2012. Best Practice Guidance for the Irish Wind Energy Industry and Energy Consents Unit, Scottish Government (SG) guidance of 2017 titled 'Peat Landslide Hazard and Risk Assessments - Best Practice Guide for Proposed Electricity Generation Developments', Scottish Government.

The design of the Development is likely be influenced by the presence of peat, both as a physical consideration in terms of stability and engineering properties, and as a habitat resource. Active peatland is identified as a priority habitat in accordance with the EC Council Directive 92/43/EEC Conservation of Natural Habitats and Wild Fauna and Flora (the Habitats Directive) which is implemented by law in Northern Ireland through Article 3 of the Planning (Northern Ireland) Order 1991 and PPS18, August 2009 by Department of the Environment (DOENI). On this basis, the survey works undertaken comprised the following:

- Desk based assessment;
- Site visits;
- An initial enhanced phase 1 peat probing scheme;
- A second phase of probing comprising infrastructure specific probing; and
- A hazard and risk ranking assessment.

The area of the development subject to assessment was determined by the emerging development layout which considered initial findings from desk studies and anticipated peat deposits as well as other physical and environmental constraints in conjunction with the early stage ecological surveys and the potential for active peat.

3.3 Peat Probing Methodology

3.3.1 Phase 1

Acknowledging the influence that peat classification will have on Development design, an enhanced peat depth survey would form the basis for the preliminary probing. The enhanced peat survey would include a probing rationale provisionally defined active peat areas from aerial mapping and desk-based assessments by the project ecologist, as follows:

- Likely active peat areas: Probes at 50 m spacing at the boundary with possibly active peat/transition zones and further probes within the active peat zone for verification;
- Possibly active peat: 50 m peat probe and inspection grid; and
- Not active peat: 100 m peat probe and inspection grid.

The enhanced Phase 1 peat depth survey included a visual inspection of characteristics at or adjacent to each probe location, a photographic record, and recording of the following data:

- Peat depth;
- Proximity to shallow (less than 0.3 m) or deep (greater than 0.3 m) surface water drainage;
- Presence of common cottongrass (Eriophorum angustifolium) and categorising it as abundant, little or absent;

3.3.2 Phase 2

Following the design chill more intensive probing would be undertaken concentrated on the site layout design. The spacing of probing would be between 10m (at turbine locations) and 25m centres (along and adjacent to proposed tracks).

3.3.3 Development of Hazard Rank

The early stages of the PSRA includes desk study of existing data and considers site visits and peat probing were carried out in parallel with the assessment of wider constraints and the development of the windfarm extension layout. Following identification of peat depths within the site, the assessment was carried out to determine the potential effects on the peat resource of construction activities which would include:

- Construction of tracks;
- Excavation of turbine bases;
- Foundation construction;
- Construction of hardstanding; and
- Temporary Storage of Peat

An assessment of the peat probing data and a review against desk study information was undertaken and a hazard rank was calculated for different zones across the site reflecting risk of peat instability / constraint to construction.

Where practical, the development layout was progressed to avoid areas of a risk score above 'low'. Where this has not been achieved, areas effected have been discussed in both the EIA as having significant effect, with relative mitigation measures proposed to reduce this, and recorded on a risk register which sets out specific mitigation measures which are considered necessary to reduce the risk of inducing instability.

4 SITE SURVEYS

4.1 Introduction

Onsite surveys took place at a pre-scoping stage to ascertain the extent and nature of peat within the Study Area, through a robust investigation approach suitable to the identification of active peat characteristics. Initial desk-based researches and co-ordination with the project ecologist defined extents of active, possibly active and not-active peat. This approach informed an enhanced Phase 1 peat probing and National Vegetation Classifications (NVC) survey.

The Phase 1 peat survey was undertaken by NM Ecology in June 2017, totalling 331 probes with Phase 2 surveys being undertaken over several phases by Arcus and NM Ecology, through May, July, and November 2018, totalling a further 435. During the course of the peat probing investigations, a total of 766 probes were sunk.

4.2 Site Walkover

Largely the site was occupied by the existing wind farm infrastructure. Definitive areas of blanket bog were noted in the north and north eastern site area while the most southerly and westerly areas were open hillside and farmlands used for grazing.

Indications of man-made changes to the natural landscape as a result of historical management activities including peat cutting, livestock grazing and drainage was noted during the site walkover. Localised areas within the blanket bog areas were noted to be of a degraded nature.

4.3 Photographs from the site visit are included in Appendix B.Peat Depth

Peat was generally thickest in the flatter topographic areas at the top of Slievenahanaghan within the most eastern area of the existing windfarm where a maximum depth of 2.9m was recorded. Peat depths in this area generally exceeded 1.5m in depth consistently while generally thinner conditions were encountered in areas of steeper topography, namely towards the north-west and west where peat was in the region of 1.0m-1.5m and 0-0.5m respectively. The average peat depth across the entire site area was recorded as 1.03m.

Phase 2 peat probing supplemented Phase 1 covering the proposed infrastructure in this Table 1 indicates the average peat depths encountered at each proposed turbine locations while Table 2 summarises the total peat depths recorded.

Table 1 – Peat Depths at Turbines

Turbine No.	Easting	Northing	Average Peat Depth (m)
1	311506	422023	1.0
2	311146	422326	0.5
3	310713	422440	1.0
4	310671	421988	0.3
5	311046	421744	0.8

Table 2 – Peat Depth Summary

Peat Depth Range (m)	No of peat probes	Percentage of Total (%)
0 - 0.5m	264	34.5
0.51m - 1.0m	161	21.0
1.01m - 1.5m	135	17.6
1.51m - 2.0m	182	23.8
2.01m - 3.0m	24	3.1

The 'Peat Probe Locations' are shown on **Figure 4** while 'Interpolated Peat Depths' are shown on **Figure 5**. It is apparent that from Table 1 and the interpolated peat depths that approximately 50% of the study area returned peat depths 0.5m or less.

To assess the relationship between peat thicknesses and slope gradient, **Figure 6 –** 'Slope Gradient' has been prepared.

4.4 Substrate

Although there were some exposures of the substrate at ground level, there is insufficient data to accurately map the distribution and composition of the substrate beneath the peat. Typically, the peat soils will overlie one of the following; .

- Clay;
- Weathered Rock/Sand and Gravel; or
- Rock; and
- Not proven

For the purposes of this PSRA, the substrate parameters have been assessed as 'not proven' as the most conservative approach in the Hazard and Exposure Assessment in Section 5 of this report.

4.5 Peat Workings

There was evidence of peat workings in the eastern site area, where peat has been excavated from an area in the east of the Site, leaving approximately 1 ha of exposed bedrock and subsoil. The bedrock is entirely unvegetated, and surrounded by bare peat and dry modified bog habitat.

4.6 Ground Investigations

While habitat assessments indicated no signs of peatlands in this area of the site, trial pitting supported works associated with operational track upgrade works (located within Hazard Rank Zone H8). The trial pits recorded predominantly topsoil underlain by clay and then further underlain by rock or weathered rock with only peat recorded at surface up to 0.4m thick at two out of eighteen locations.

5 HAZARD AND EXPOSURE ASSESSMENT

5.1 Background

A 'Hazard Ranking' system has been applied across the site based on the analysis of risk of peat slide as outlined in the Scottish Government guidance. This is applied on the principle:

Hazard Ranking = Hazard x Exposure

Where 'Hazard' represents the likelihood of any peat slide event occurring and 'Exposure' being the impact or consequences that a peat slide may have on sensitive receptors that exist on and around the study area.

5.2 Methodology

The determination of Hazard and Exposure values is based on a number of variables which impact the likelihood of a peat slide (the Hazard), and the relative importance of these variables specific to the site.

Similarly, the consequences or Exposure to receptors is dependent on variables including the particular scale of a peat slide, the distance it will travel and the sensitivity of the receptor.

In the absence of a predefined system, the approach to determining and categorising Hazard and Exposure is determined on a site by site basis. The particular system adopted for the Proposed Development PSRA assessment is outlined in the following sub sections.

5.3 Hazard Assessment

The potential for a peat slide to occur during the construction of a windfarm depends on several factors, the importance of which can vary from site to site. The factors requiring considerations would typically include:

- Peat depth;
- Slope gradient;
- Substrate material;
- Evidence of instability or potential instability;
- Vegetation cover; and
- Hydrology.

Of these, peat depth and slope gradient are considered to be principal factors. Without a sufficient peat depth and a prevailing slope, peat slide hazard would be negligible. For the Development, the substrate material has been assessed as unknown, therefore a conservative approach in this regard has been adopted.

5.4 Hazard Rating

When several factors may impact on the Hazard potential, a relative ranking process is applied attributing different weighting to each factor as shown below.

Table 3: Coefficients for Slope Gradients

Slope Angle (degrees)	Slope Angle Coefficients
Slope < 2°	1
2° < Slope < 4°	2
4° < Slope < 8°	4
8° < Slope < 15°	6
Slope >15°	8

Table 4: Coefficients for Peat Thickness and ground conditions

Peat Thickness	Ground Conditions Coefficients
Peaty or organic soil (<0.5m)	1
Thin Peat (0.5 – 1.0m)	2
Deep Peat (>1.0m)	3*
Deep Peat (>3.0)	8

* - Note that thicker peat generally occurs in areas of shallow gradient and records indicate that thick peat does not generally occur on the steeper gradients.

Table 5: Coefficients for Substrate

Substrate Material	Substrate Coefficients
Sand/gravel	1
Rock	1.5
Clay	2
Not proven	2
Slip material (Existing materials)	5

The Hazard Rating Coefficient for a particular location is calculated using the following equation:

Hazard Rating Coefficient = Slope Gradient x Peat Thickness x Substrate

From the Hazard Rating Coefficient, the risk to stability can be ranked as set out in Table 6.

Table 6: Hazard Rating

Hazard Rating Co-efficient	Potential Stability Risk (Pre-Mitigation)
<5	Negligible
5 to 15	Low
16 to 30	Medium
31 to 50	High
> 50	Very High

5.5 Peat Stability Assessment

The likelihood of a particular slope or hillside failing can be expressed as a Factor of Safety. For any potential failure surface, there is a balance between the weight of the potential landslide (driving force or shear force) and the inherent strength of the soil or rock within the hillside (shear resistance).

The guidance states that the 'Infinite Slope' method of analysis, after Skempton and DeLory (1957), is the most well established and commonly applied method for the assessment of peat slope stability. The stability of a slope can be assessed by calculating the factor of safety F, which is the ratio of the sum of resisting forces (shear strength) and the sum of the destabilising forces (shear stress):

$$F = \frac{c' + (\gamma - m\gamma_w)z\cos^2\beta\tan\phi'}{\gamma z\sin\beta\cos\beta}$$

where c' is the effective cohesion, γ is the bulk unit weight of saturated peat, γ_w is the unit weight of water, m is the height of the water table as a fraction of the peat depth, z is the peat depth in the direction of normal stress, β is the angle of the slope to the horizontal and ϕ' is the effective angle of internal friction. Values of F < 1 indicate a slope would have undergone failure under the conditions modelled; values of F > 1 suggest conditions of stability.

Assumed geotechnical parameters have been utilised in the formula to inform the stability assessment, based on literature values to inform the stability analysis, as included in Table 7.

Table 7 – Literature For Geotechnical Parameters of Peat

Reference	Effective Cohesion C′ (kPa)	Effective Angle of Friction ϕ (°)	Unit Weight ϒ (kN/m2)	Comments
Hanrahan et al (1967)	5.5 – 6.1	36.6 - 43.5	-	Remoulded H4 Sphagnum peat
Hollingshead and Raymond (1972)	4.0	34	-	-
Hollingshead and Raymond (1972)	2.4 – 4.7	27.1 – 35.4	-	Sphagnum peat (H3, mainly fibrous)
Carling (1986)	6.52	0	10	-
Kirk (2001)	2.7 – 8.2	26.1 – 30.4		Ombrotrophic blanket peat
Warburton et al (2003)	5.0	23	9.68	Basal Peat
Warburton et al (2003)	8.74	21.6	9.68	Fibrous Peat
Dykes and Kirk (2006)	3.2	30.4	9.61	Acrotelm
Dykes and Kirk (2006)	4.0	28.8	9.71	Catotelm

C′ – effective cohesion (kPa), typically ranging from 2.5 to 8.5 therefore 5.0 has been adopted for the purposes of the assessment.

ϕ – effective angle of friction (°), typically ranging from 21.6 to 43.5 therefore 29.6 has been adopted for the purposes of the assessment.

ϒ – unit weight (kN/m2), typically ranging from 9.61 to 10, therefore 10 has been adopted for the purposes of the assessment.

In accordance with the best practice method, F values of <1.0 indicate slopes that would experience failure under the modelled conditions and as such are considered areas of high risk. However, Boylan et al (2008) indicate that a relatively high value of F=1.4 should be used to identify slopes with the potential for instability. Adopting this approach, high risk areas area indicated where F is <1.0, medium risk areas are indicated as 1.01 to 1.50 and >1.5 are low risk.

Using digital terrain modelling and GPS co-ordinates of each peat probe, a factor of Safety, F has been calculated for each probe locations which has been interpolated through ArcGIS Spatial Analyst tools. The 'Factor of Safety Plan' is shown on **Figure 7**.

5.6 Exposure Assessment

The main Exposure receptors identified within the site and surrounding area which could potentially be affected in the event of a peat slide were existing windfarm infrastructure, watercourses and associated tributaries.

The impact of a peat slide on receptors can be assessed on a relative scale based on the potential for loss of habitat, a historical feature or disruption/danger to the public. To effectively assess the impact, the assessment of Exposure effect must also consider the distance between the hazard and the receptor, and the relative elevation between the two.

5.7 Exposure Rating

Similar to the Hazard Rating, the Exposure Ratings were determined using relative ranking process by attributing the different weighting systems to each factor as shown below:

Table 8: Coefficients for Receptor Type

Receptor	Receptor Coefficients
Tracks/footpaths	2
Non-critical infrastructure, minor/private roads	3
Minor watercourses and tributaries, critical infrastructure (pipelines, motorways, dwellings, business properties).	6
Residential Properties/Community, Watercourses/Lochs, important habitat	8

Table 9: Coefficients for Distance from Receptor

Distance from Receptor	Distance Coefficients
> 1 km	1
100m to 1 km	2
10m to 100m	3
<10m	4

Table 10: Coefficients for Receptor Impact

Receptor Elevation	Impact Coefficients
Very Low (Unlikely, no significant effects, very	1

low potential to cause harm)	
Low (Minor damage or delay, indirect impact on unclassified unprotected area, very low repair costs, short term effect)	2
Moderate (Damage or delay with moderate repair costs, temporary measures required, impacts sensitive receptors requiring restoration.)	3
High (Major damage or delay with high repair costs, temporary measures required, impacts sensitive receptors)	4
Very High (Major damage to infrastructure likely to be serious, very costly, potential for loss of life, needs replacement and long-term measures)	5

The Exposure Rating Coefficient for a particular location is calculated using the following equation:

Exposure Rating Coefficient = Receptor x Distance x Impact

From the Exposure Rating Coefficient, the risk to stability can be ranked as set out in Table 11.

Table 11: Exposure Rating

Exposure Rating Co-efficient	Potential Stability Risk (Pre-Mitigation)
<10	Very Low
11 to 20	Low
21 to 30	High
31 to 50	Very High
>50	Extremely High

5.8 Rating Normalisation

In order to achieve an overall Hazard Ranking in accordance with the Scottish Government Guidance, the Hazard and Exposure Rating Coefficient derived from the coefficient tables are normalised as shown in Table 12.

Table 12: Rating Normalisation

Hazard Rating		Exposure Rating	
Current Scale	**Normalised Scale**	**Current Scale**	**Normalised Scale**
< 5 Negligible	1	<10 Very Low	1
5 to 15 Low	2	11 to 20 Low	2
15 to 31 Medium	3	21 to 30 High	3
31 to 50 High	4	31 to 50 Very High	4
>50 Very high	5	>50 Extremely High	5

The record of the Hazard Rank Assessment is included in Appendix C of this report.

6 HAZARD RANKING

Having identified the rating coefficients as defined in Section 5 of this report, it is possible to categorise areas of the site with a Hazard Ranking by multiplying the Hazard and Exposure Rating. Hazard Ranking and associated suggested actions matrix are shown in Tables 13 and 14 below:

Table 13- Hazard Ranking and Suggested Actions

Hazard Ranking		Action Suggested in the Scottish Executive Guidance
17-25	High	Avoid project development at these locations.
11-16	Medium	Project should not proceed unless hazard can be avoided or mitigated at these locations, without significant environmental impact, in order to reduce hazard ranking to low or less
5-10	Low	Project may proceed pending further investigation to refine assessment. Mitigation of hazards maybe required through micro-siting or re-design at these locations.
1-4	Negligible	Project should proceed with monitoring and mitigation of peat landslide hazards at these locations as appropriate.

Table 14 - Hazard Ranking Matrix

Hazard Rating	5	Low	Low	Medium	High	High
	4	Negligible	Low	Medium	Medium	High
	3	Negligible	Low	Low	Medium	Medium
	2	Negligible	Negligible	Low	Low	Low
	1	Negligible	Negligible	Negligible	Negligible	Low
		1	2	3	4	5
		Exposure Rating				

Receptor exposure was assessed for each of the eight hazard zones using the approach in Section 5. A summary of the Hazard Ranking result for each identified area is summarised in Table 15 and is presented in **Figure 8** 'Hazard Ranking Zonation Plan'.

7 SLIDE RISK AND MITIGATION

7.1 General

The PSRA has shown the site to be of generally low hazard ranking, with two isolated areas of negligible. A single area was recorded as medium risk; however, no infrastructure was proposed here. On this basis a Development specific risk register has been prepared below in Table 15.

Where the hazard ranking has been lowered through mitigation measures, the original ranking will remain in the overall hazard zoning plan and this should be acknowledged should there be future amendments to the infrastructure layout.

While the specific recommended mitigation in the low and medium ranked areas are proposed and are embedded in the design at EIA stage, it remains necessary for detailed design and construction of the development infrastructure to be undertaken in a competent and controlled manner.

The embedded mitigation and good practice measures are set out in Section 7.2. It should be noted that the mitigation measures defined are not exclusive and other forms of mitigation may well be required and should be developed by designers and implemented during construction of the scheme.

Table 15 - Risk Register

Hazard Area and Infrastructure		**Unmitigated Hazard**		**Mitigated Hazard**	
Hazard Area	**Infrastructure Affected**	**Ranking**	**Key Aspects**	**Specific Actions**	**Ranking**
H1	T2, T3, Tracks and associated Crane Hardstand, Construction Compound	Low.	Location and topography: north western face of Slievenahanaghan and hilltop plateau, steeper to the north-west. Hydrology: Small unnamed tributaries flowing in a south-west direction. Peat Depth: (min) 0.1m - (max) 1.90m. Generally, <1.50m Slope Gradient: 0° to 15° Exposure: Proposed turbine and associated infrastructure, water course minor.	Best Practice Measures for excavation, management and storage of peat and peaty soils. Compensation through localised peat bog restoration and implementation of remediation/compensation in line with the measures outlined with the Draft HMP. Where possible, micrositing onto thinner peat or shallower is recommended to further reduce any impact on peat and peaty soils. In areas where peat depths exceed 1m, it is recommended that floating track construction methods should be adopted.	Negligible
H2	No infrastructure proposed	Negligible	Location and topography: Western face of Slievenahanaghan – steeply sloping downward in a western direction. Hydrology: drain feature to the immediate north. Peat Depth: (min) 0.10m - (max) 0.70m. Generally, <0.40m Slope Gradient: 5° to 15° Exposure: Water course Minor	No specific actions for this area.	Negligible
H3	Proposed Windfarm Spine Road	Low	Location and topography: East of Slievenahanaghan. Hydrology: Unnamed tributaries. Peat Depth: (min) 0.60m - (max) 2.00m. Generally, <2.00 m Slope Gradient: 0° to 15° Exposure: Existing track, watercourse minor.	Best Practice Measures for excavation, management and storage of peat and peaty soils. Compensation through localised peat bog restoration and implementation of remediation/compensation in line with the measures outlined with the Draft HMP. Where possible, micrositing onto thinner peat or shallower is recommended to further reduce any impact on peat and peaty soils. In areas where peat depths exceed 1m, it is recommended that floating	Negligible

				track construction methods should be adopted.	
H4	No Infrastructure proposed	Medium	Location and topography: North eastern face of Slievenahanaghan. Hydrology: : No hydrological features within this area Peat Depth: (min) 0.0m - (max) 2.20m. Generally, <0.50m Slope Gradient: 5° to 15° Exposure: No exposure	No specific actions for this area.	Negligible
H5	T4, T5, Tracks and Hardstanding's	Low	Location and topography: Locally flatlying topographic area on the plateau of Slievenahanaghan. Gentaly and locally steep slope on south-western face of Slievenahanaghan. Hydrology: Drains and unnamed surface watercourse. Peat Depth: (min) 0.10m - (max) 2.00m. Generally, <2.00m Slope Gradient: 0° to 15° Exposure: Proposed turbines, associated infrastructure and water courses minor.	Best Practice Measures for excavation, management and storage of peat and peaty soils. Compensation through localised peat bog restoration and implementation of remediation/compensation in line with the measures outlined with the Draft HMP. Where possible, micrositing onto thinner peat or shallower is recommended to further reduce any impact on peat and peaty soils. In areas where peat depths exceed 1m, it is recommended that floating track construction	Negligible

				methods should be adopted.	
H6	T1 and associated infrastructure	Low	Location and topography: Flatlying topographic area on the eastern plateau of Slievenahanaghan. Hydrology: No hydrological features. Peat Depth: (min) 0.00 m - (max) 2.90m. Generally, <2.50 m Slope Gradient: 0° to 10° Exposure: Proposed infrastructure.	Best Practice Measures for excavation, management and storage of peat and peaty soils. Compensation through localised peat bog restoration and implementation of remediation/compensation in line with the measures outlined with the Draft HMP. Where possible, micrositing onto thinner peat or shallower is recommended to further reduce any impact on peat and peaty soils. In areas where peat depths exceed 1m, it is recommended that floating track construction methods should be adopted.	Negligible

H7	No infrastructure proposed	Negligible	Location and topography: South eastern face of Slievenahanaghan. Hydrology: No hydrological features. Peat Depth: (min) 0.00m - (max) 2.00m. Generally, <1.00m Slope Gradient: 0° to 10° Exposure: None noted	No specific actions for this area.	Negligible
H8	Existing access Track, new operational access track.	Negligible	Location and topography: Steeply sloping section of existing track in the central area, flat laying western site area. Hydrology: Watercourse. Peat Depth: Ground investigations for operational track recorded no significant peat and the habitat assessments indicated no signs of peatlands in this area of the site. Slope Gradient: 0° to 10° Exposure: Proposed infrastructure, watercourse minor	No specific actions for this area.	Negligible

7.2 Embedded Mitigation

Embedded mitigation includes measures taken during design of the Development to reduce the potential for peat slide risk. In summary the principal measures that have been taken are:

- Locating infrastructure on shallower slopes, where possible; and
- Locating infrastructure on areas of shallow peat (or no peat) where possible.

7.3 Peat Slide Mitigation Recommendations

The following mitigation measures should be adopted post consent stage to validate the PSRA and influence the detailed design of the Proposed Development:

- Ground investigations prior to detailed design;
- Identification of areas sensitive to changes in drainage regime prior to detailed design;
- Update the PSRA as necessary following detailed ground investigations;
- Development of a drainage strategy that will not create areas of concentrated flow and will not affect the current peatland hydrology;
- Design of a development drainage system for tracks and hardstanding that will require minimal ongoing maintenance during the operation of the windfarm;
- Inspection and maintenance of the drainage systems during construction and operation;
- Identification of suitable areas for stockpiling material during construction prior to commencement of works; and
- Consideration of specific construction methods appropriate for infrastructure in peat land (i.e. geogrids) as part of design development.

8 CONCLUSIONS

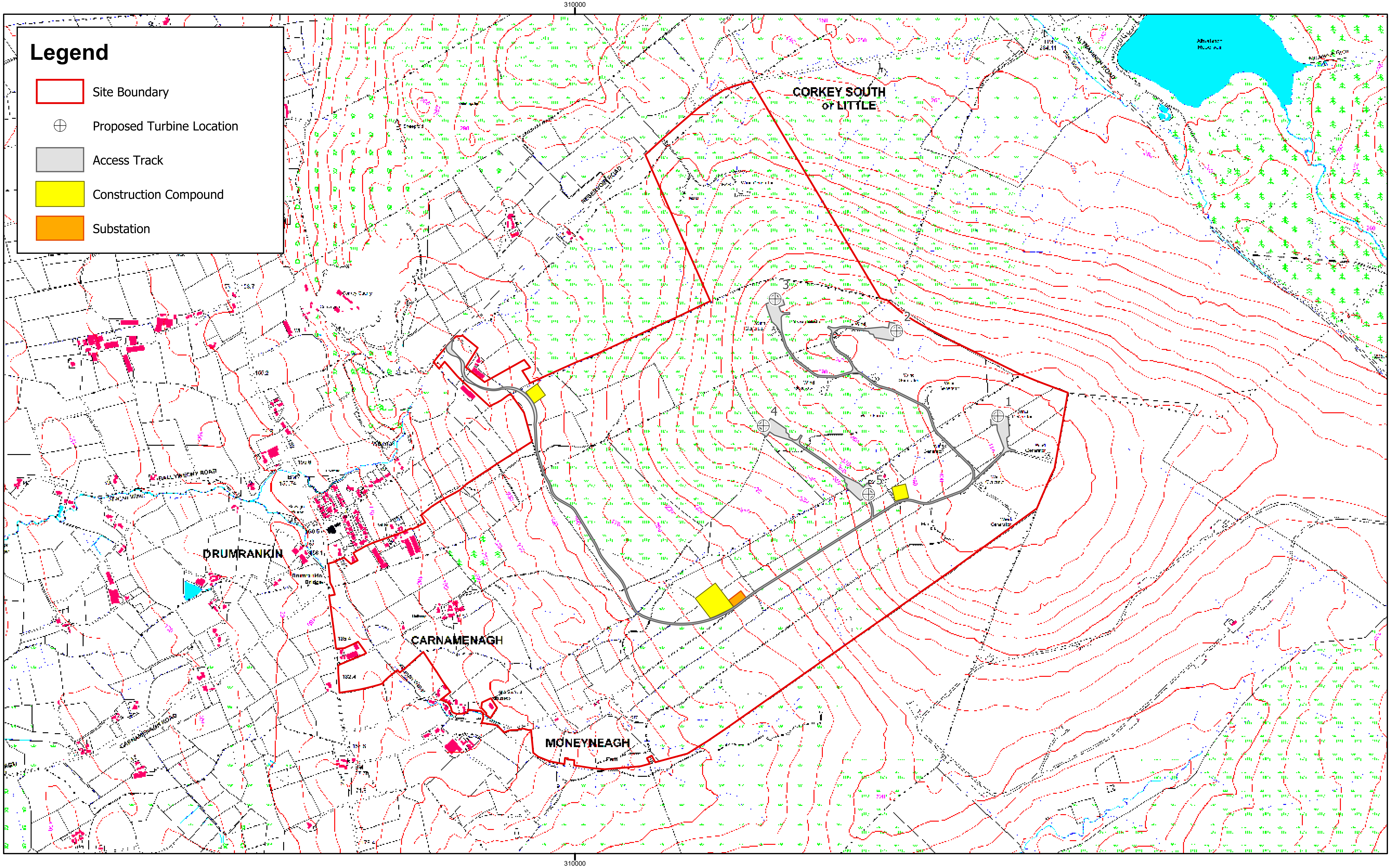
This PSRA has been undertaken for the proposed Corkey Windfarm Repowering in accordance with guidance. The early stages of the assessment included a desk study and site walkover followed by an Enhanced Phase 1 intrusive investigation exercise with peat probes sunk at 50 metre centres in areas where active Peat would likely exist/might have existed and at 100 meter (m) centres where active Peat did not exist, followed by a Phase 2 intrusive investigation exercise with peat probes sunk between 10 and 25m centres within the study area. The information gathered during this investigation was used to develop a Hazard Ranking across the Proposed Development site.

Through desk study site visit and peat depth survey, it has been demonstrated that peat was generally thickest in the flatter topographic areas at the top of Slievenahanaghan within the most eastern area of the existing windfarm where a maximum depth of 2.9m was recorded.

Based on the scope of the study, the PSRA shows the site to be generally of low hazard, with only one isolated area recorded as presenting a medium ranking, although this area was out with the proposed development footprint.

The Proposed Development has been designed where practicable to avoid areas with a hazard ranking above 'low'. Notwithstanding this, infrastructure should be checked on site and micrositing adopted if required in order to maintain the design objective of avoiding peat slide risk.

APPENDIX A - DRAWINGS



A	17/04/2019	SC	First Issue.
Rev	Date	By	Comment

SCOTTISHPOWER RENEWABLES

Km
0 0.13 0.25 0.5

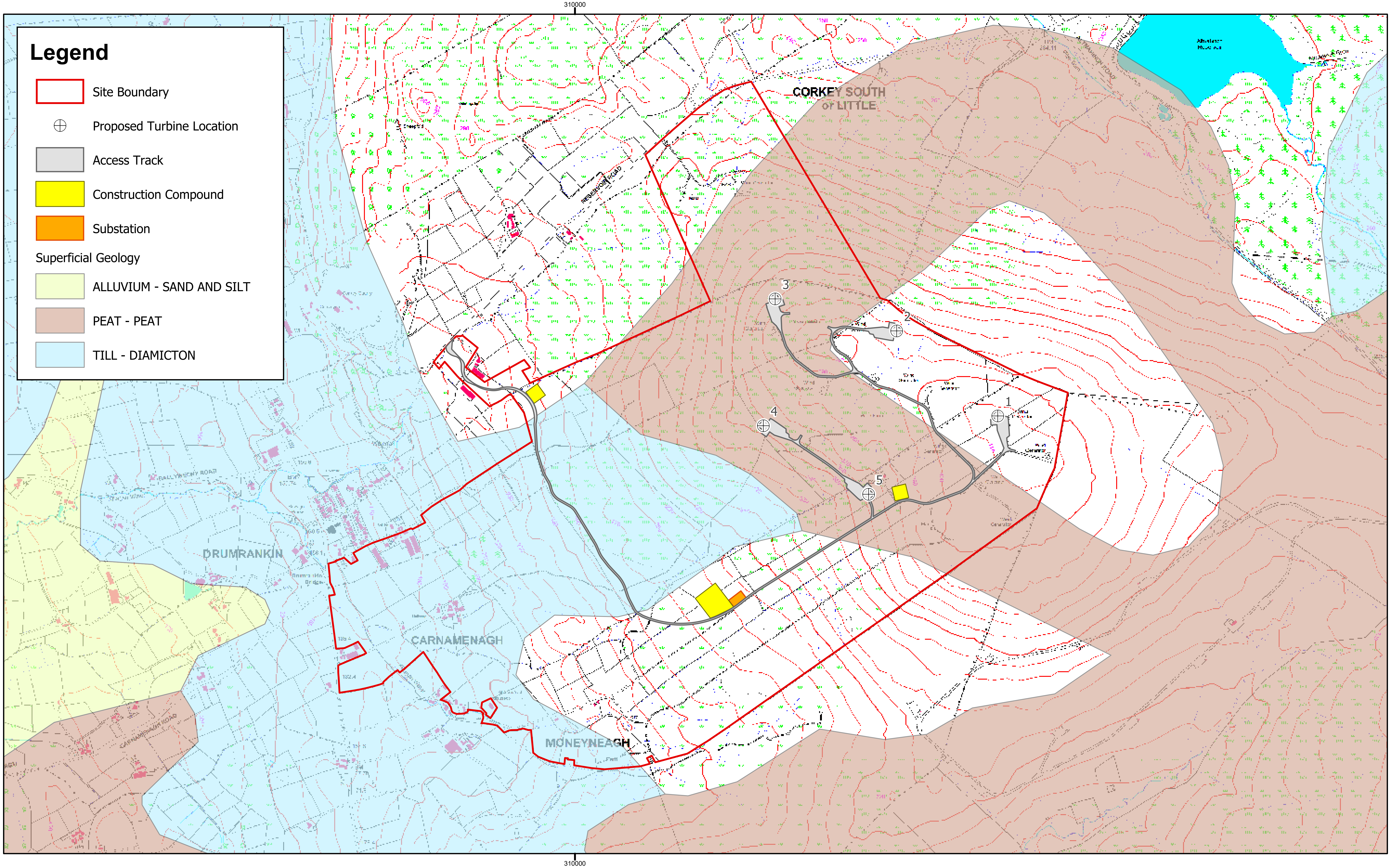
Corkey Windfarm Repowering

Site Layout Plan

Figure 1

Drawing Number: 2606-REP-074	Datum TM65	Projection TM
Scale @ A3 1:12,500	Drawing produced by Arcus Consultancy Services	

2606-REP-074 Fig01 Site Layout Plan



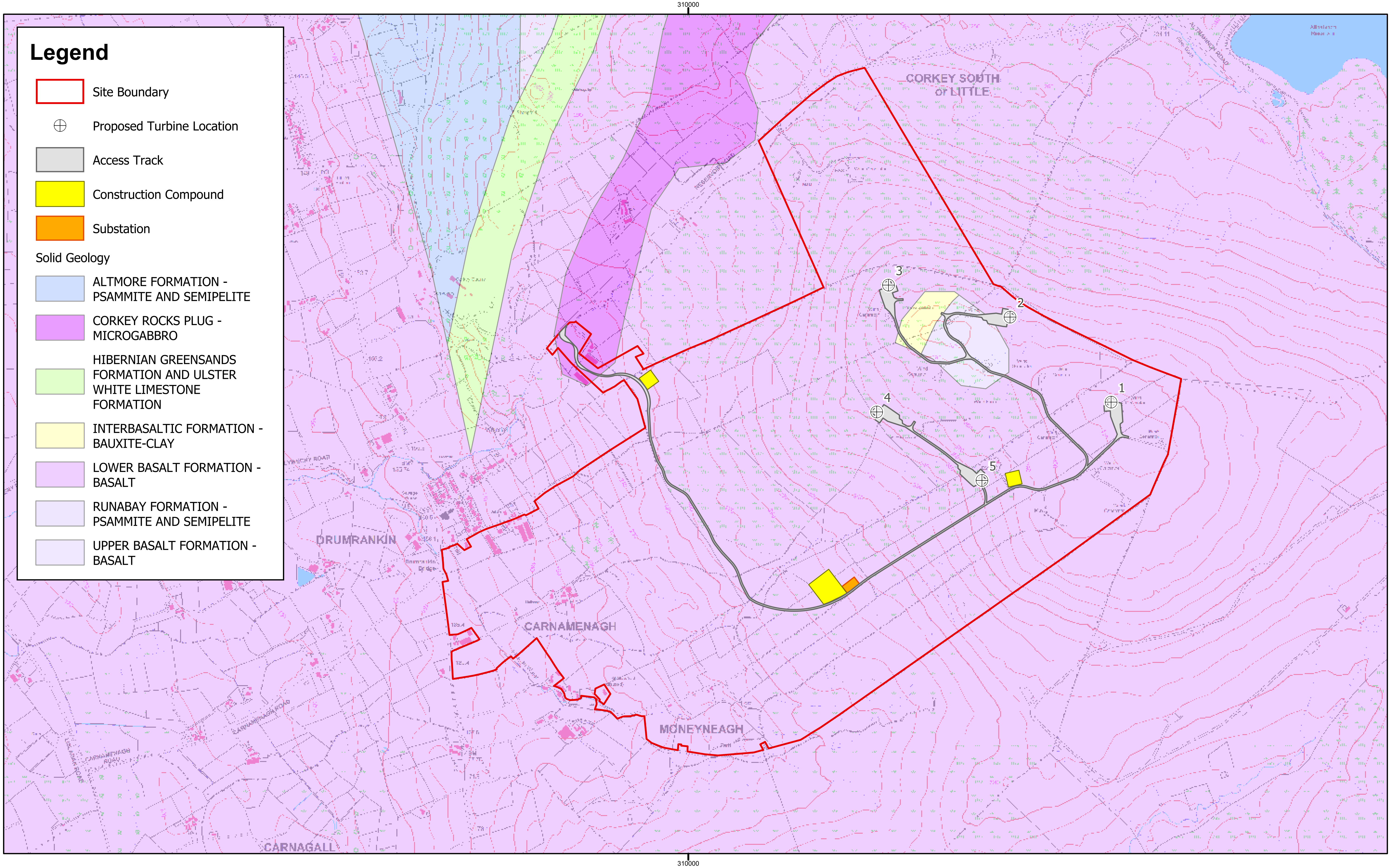
SCOTTISHPOWER RENEWABLES					
	A	17/04/2019	SC	First Issue.	
	Rev	Date	By	Comment	

0 0.13 0.25 0.5 Km

Corkey Windfarm Repowering
Superficial Soils
Figure 2

Drawing Number: 2606-REP-075	Datum TM65	Projection TM
Scale @ A3 1:12,500	Drawing produced by Arcus Consultancy Services	

2606-REP-075 Fig02 Superficial Soils



SCOTTISHPOWER RENEWABLES

Rev	Date	By	Comment
A	17/04/2019	SC	First Issue.

0 0.13 0.25 0.5 Km

Corkey Windfarm Repowering

Solid Geology

Figure 3

Drawing Number: 2606-REP-076

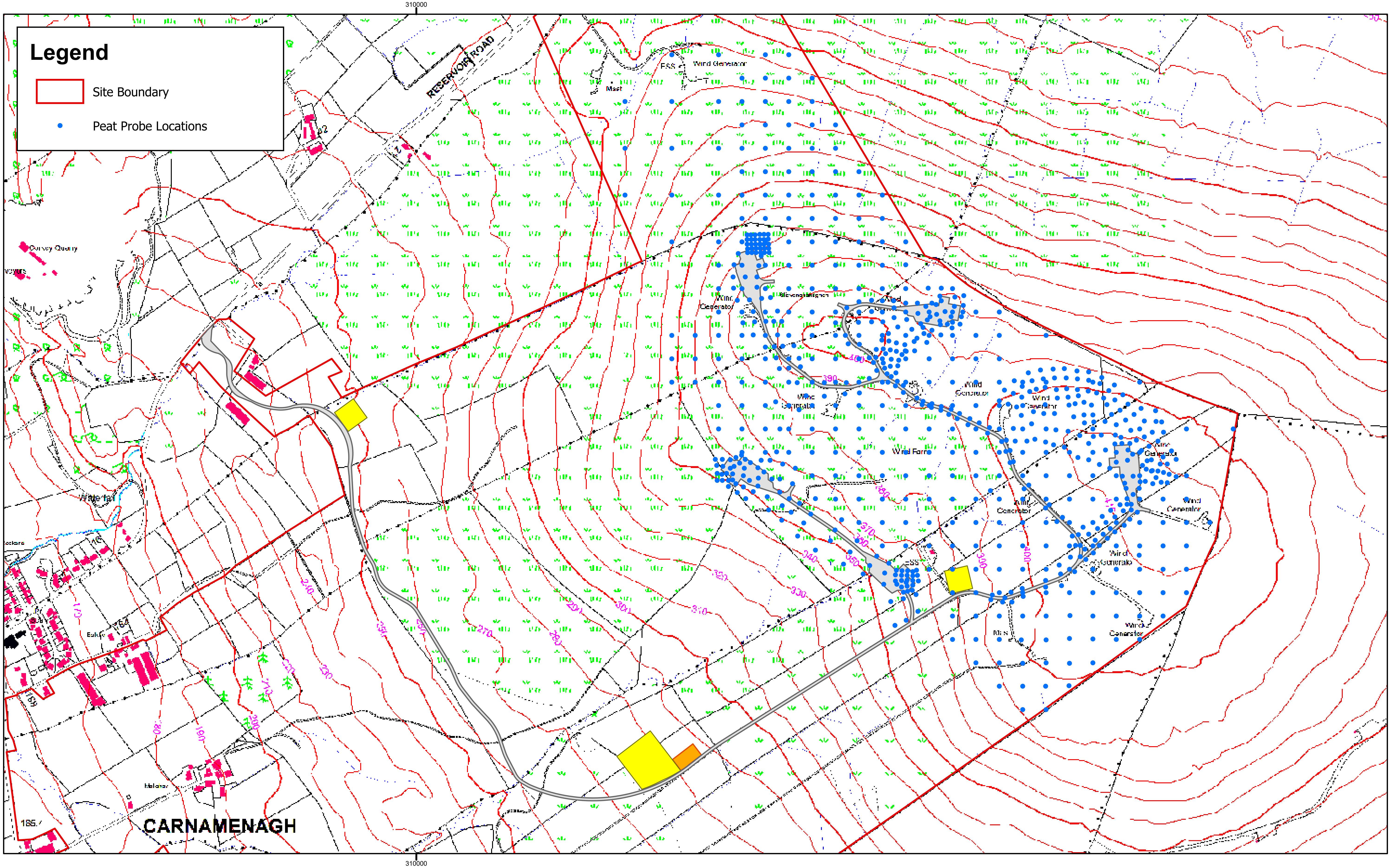
Datum TM65

Projection TM

Scale @ A3 1:12,500

Drawing produced by Arcus Consultancy Services

2606-REP-076 Fig03 Solid Geology



A	17/04/2019	SC	First Issue.
Rev	Date	By	Comment

0 0.13 0.25 0.5 Km

SCOTTISHPOWER RENEWABLES

Corkey Windfarm Repowering

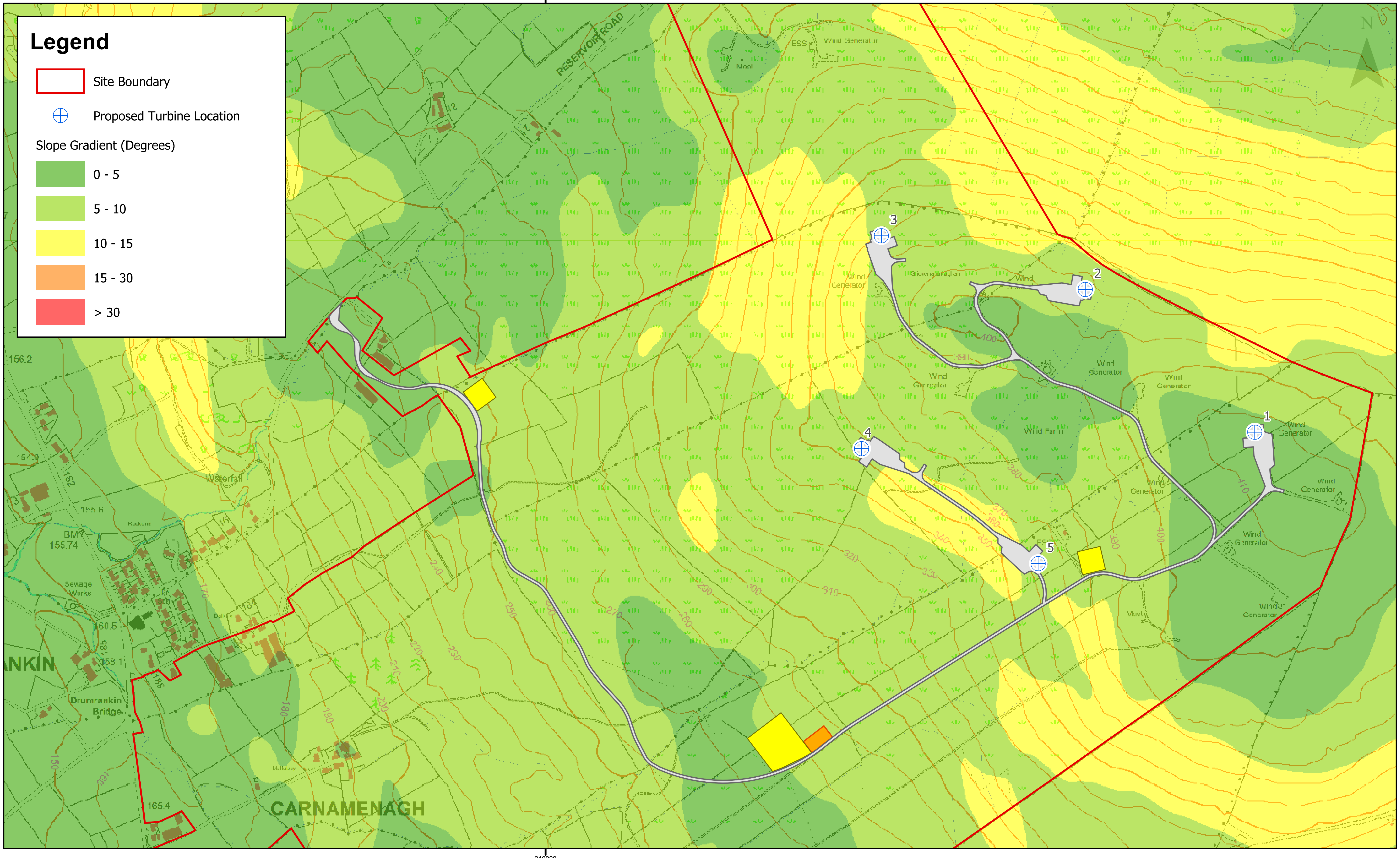
Peat Probe Locations

Figure 4

Drawing Number: 2606-REP-077	Datum TM65	Projection TM
Scale @ A3 1:7,500	**Drawing produced by Arcus Consultancy Services**	

2606-REP-077 Fig04 Peat Probe Locations

310000



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SCOTTISHPOWER RENEWABLES

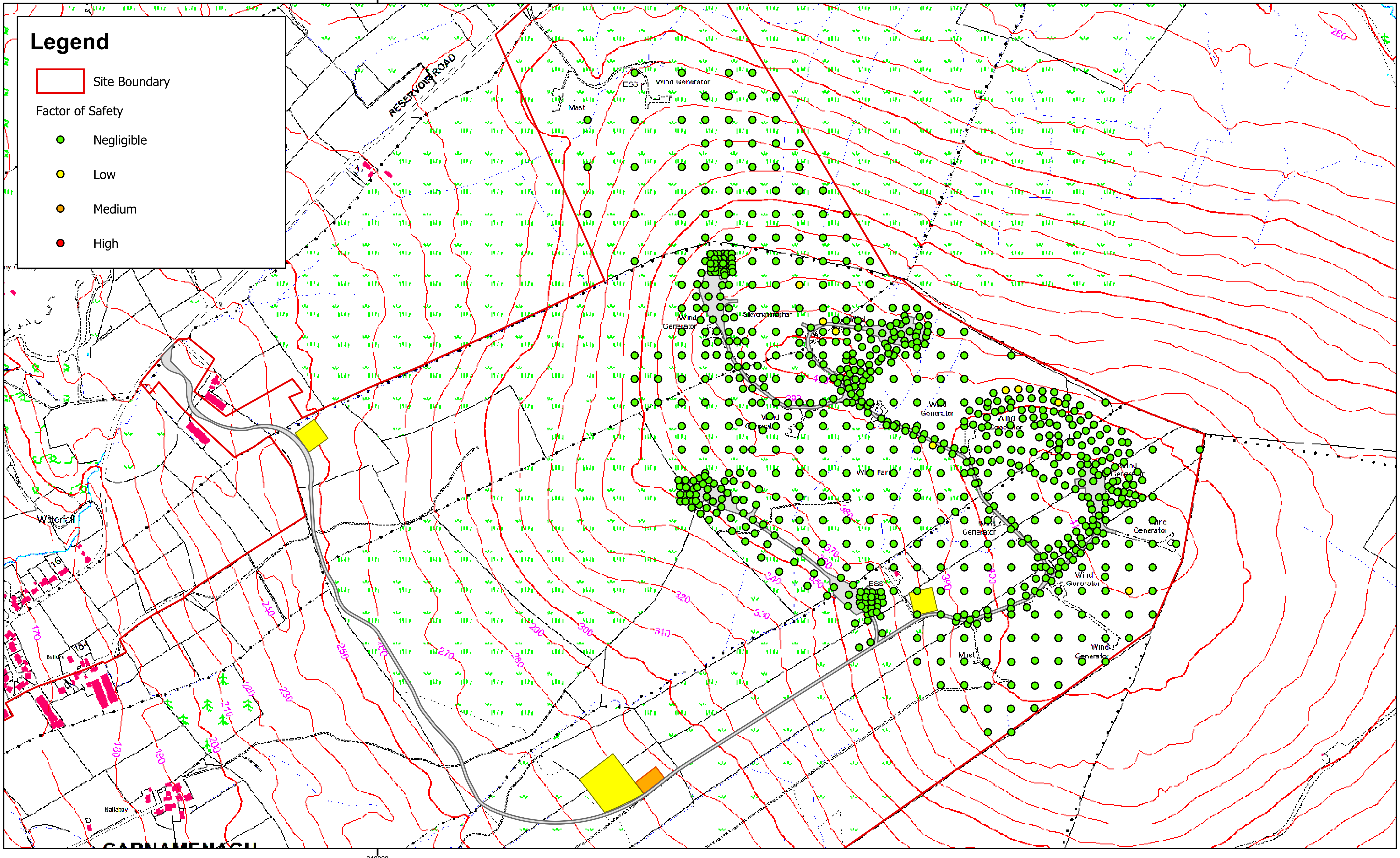
Rev	Date	By	Comment
A	17/04/2019	SC	First Issue.

0 0.13 0.25 0.5 Km

Corkey Windfarm Repowering
Slope Gradient
Figure 6

Drawing Number: 2606-REP-079
Datum TM65
Projection TM
Scale @ A3 1:7,500
Drawing produced by Arcus Consultancy Services

2606-REP-079 Fig06 Slope Gradient



A	17/04/2019	SC	First Issue.
Rev	Date	By	Comment

SCOTTISHPOWER RENEWABLES

Km 0 0.13 0.25 0.5

Corkey Windfarm Repowering

Indicative Factor of Safety Plan

Figure 7

Drawing Number: 2606-REP-081

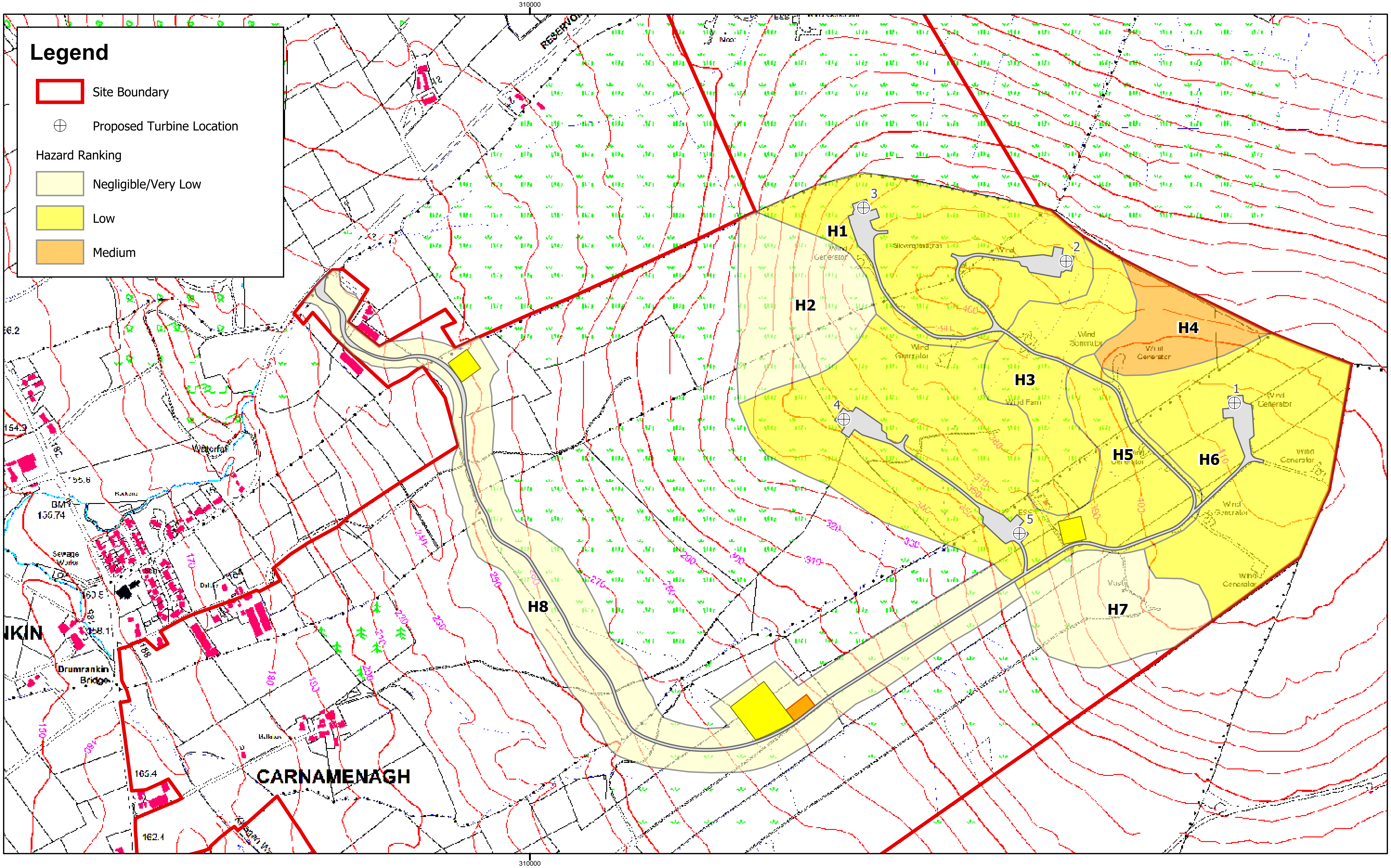
Datum TM65

Projection TM

Scale @ A3 1:7,500

Drawing produced by Arcus Consultancy Services

2606-REP-081 Fig07 Factor of Safety Plan



Rev	Date	By	Comment
A	17/04/2019	SC	First Issue.

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Corkey Windfarm Repowering

Hazard Ranking Zonation Plan

Figure 8

Drawing Number: 2606-REP-082	Datum TM65
Projection TM	Scale @ A3 1:7,500
Drawing produced by Arcus Consultancy Services	

SCOTTISHPOWER RENEWABLES

2606-REP-082 Fig08 Hazard Ranking Zonation Plan

APPENDIX B – SITE PHOTOGRAPHS

APPENDIX C - HAZARD RANK ASSESSMENT RECORDS

2606 - Corkey Wind Farm Repowering - PSRA - Tabulated Peat Probe Data

ARCUS

Hazard Ranking	
1 TO 4	Negligible
5 TO 10	Low
11 TO 16	Medium
17 TO 25	High

ID	X	Y	SLOPE	Slope Co-efficient	PEAT DEPTH	Peat Co-efficient	Gen Substrate	Substrate Co-eff.	Risk Rating Coefficient	Risk Rating Normalisation	Receptor	Receptor Co-eff.	Distance	Receptor Dist Co-eff.	Impact Rating	Impact Rating Normalisation	Hazard Ranking
1	310546	422873	7.13	4	0.20	1	not proven	2	8	2	Water Feature Minor	6	11.47	3	18	3	6
2	310646	422873	7.68	4	0.00	1	not proven	2	8	2	Water Feature Minor	6	36.31	3	18	3	6
3	310746	422873	11.01	6	0.70	2	not proven	2	24	3	Water Feature Minor	6	116.06	3	18	3	9
4	310446	422773	9.20	6	0.10	1	not proven	2	12	2	Water Feature Minor	6	7.09	4	24	3	6
5	310546	422773	5.91	4	0.30	1	not proven	2	8	2	Water Feature Minor	6	86.94	3	18	3	6
6	310646	422773	5.84	4	0.40	1	not proven	2	8	2	Water Feature Minor	6	117.40	3	18	3	6
7	310746	422773	8.49	6	0.50	1	not proven	2	12	2	Water Feature Minor	6	118.06	3	18	3	6
8	310846	422773	9.78	6	1.00	2	not proven	2	24	3	Water Feature Minor	6	19.61	3	18	3	9
9	310446	422673	9.90	6	0.50	1	not proven	2	12	2	Water Feature Minor	6	68.87	3	18	3	6
10	310546	422673	7.63	4	0.40	1	not proven	2	8	2	Water Feature Minor	6	128.97	3	18	3	6
11	310646	422673	7.43	4	0.60	2	not proven	2	16	3	Water Feature Minor	6	213.00	3	18	3	9
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13	310846	422673	10.43	6	0.80	2	not proven	2	24	3	Water Feature Minor	6	14.74	3	18	3	9
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107	310896	422723	11.62	6	1.20	2	not proven	2	24	3	Water Feature Minor	6	34.15	3	18	3	9
108	310696	422673	8.44	6	1.00	2	not proven	2	24	3	Water Feature Minor	6	163.85	3	18	3	9
109	310796	422673	9.26	6	0.40	1	not proven	2	12	2	Water Feature Minor	6	64.56	3	18	3	6
110	310896	422673	9.31	6	1.00	2	not proven	2	24	3	Water Feature Minor	6	34.91	3	18	3	9
111	310696	422623	9.42	6	0.30	1	not proven	2	12	2	Water Feature Minor	6	158.12	3	18	3	6
112	310746	422623	9.47	6	0.40	1	not proven	2	12	2	Water Feature Minor	6	108.16	3	18	3	6
113	310796	422623	9.50	6	0.40	1	not proven	2	12	2	Water Feature Minor	6	58.24	3	18	3	6
114	310846	422623	9.47	6	1.10	2	not proven	2	24	3	Water Feature Minor	6	9.19	4	24	3	9
115	310896	422623	9.98	6	1.20	2	not proven	2	24	3	Water Feature Minor	6	41.31	3	18	3	9
116	310946	422623	11.95	6	1.20	2	not proven	2	24	3	Water Feature Minor	6	15.24	3	18	3	9
117	310696	422573	10.57	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	116.86	3	9	2	4
118	310796	422573	9.56	6	0.50	1	not proven	2	12	2	Water Feature Minor	6	79.55	3	18	3	6
119	310896	422573	11.74	6	1.20	2	not proven	2	24	3	Water Feature Minor	6	53.93	3	18	3	9
120	310996	422573	11.46	6	1.30	2	not proven	2	24	3	Water Feature Minor	6	42.58	3	18	3	9
121	310696	422523	11.32	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	68.59	3	9	2	4
122	310746	422523	8.81	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	69.83	3	9	2	6
123	310796	422523	11.98	6	0.80	2	not proven	2	24	3	Wind Farm Layout	3	100.23	3	9	2	6
124	310846	422523	12.09	6	1.30	2	not proven	2	24	3	Water Feature Minor	6	97.91	3	18	3	9
125	310896	422523	11.68	6	1.20	2	not proven	2	24	3	Water Feature Minor	6	48.03	3	18	3	9

126	310946	422523	11.63	6	1.10	2	not proven	2	24	3	Water Feature Minor	6	1.18	4	24	3	9
127	310996	422523	11.70	6	1.40	2	not proven	2	24	3	Water Feature Minor	6	50.97	3	18	3	9
128	310696	422473	8.87	6	0.80	2	not proven	2	24	3	Wind Farm Layout	3	21.44	3	9	2	6
129	310796	422473	6.59	4	0.60	2	not proven	2	16	3	Wind Farm Layout	3	65.74	3	9	2	6
130	310896	422473	10.81	6	1.30	2	not proven	2	24	3	Water Feature Minor	6	66.05	3	18	3	9
131	310996	422473	10.39	6	1.40	2	not proven	2	24	3	Water Feature Minor	6	69.25	3	18	3	9
132	310646	422423	13.38	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	34.03	3	9	2	4
133	310696	422423	11.45	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	5.74	4	12	2	4
134	310746	422423	8.00	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	0.43	4	12	2	6
135	310796	422423	9.12	6	0.80	2	not proven	2	24	3	Wind Farm Layout	3	44.37	3	9	2	6
136	310846	422423	8.10	6	1.40	2	not proven	2	24	3	Wind Farm Layout	3	87.11	3	9	2	6
137	310896	422423	11.12	6	1.50	2	not proven	2	24	3	Wind Farm Layout	3	80.78	3	9	2	6
138	310946	422423	11.25	6	1.30	2	not proven	2	24	3	Wind Farm Layout	3	80.77	3	9	2	6
139	310996	422423	10.89	6	1.40	2	not proven	2	24	3	Water Feature Minor	6	74.97	3	18	3	9
140	310696	422373	10.67	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	0.34	4	12	2	4
141	310796	422373	8.98	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	33.47	3	9	2	4
142	310896	422373	8.60	6	1.30	2	not proven	2	24	3	Wind Farm Layout	3	31.24	3	9	2	6
143	310996	422373	9.75	6	1.20	2	not proven	2	24	3	Wind Farm Layout	3	34.49	3	9	2	6
144	310646	422323	15.34	8	0.20	1	not proven	2	16	3	Roads, Tracks, Paths	2	53.86	3	6	1	3
145	310696	422323	3.81	2	0.70	2	not proven	2	8	2	Roads, Tracks, Paths	2	9.28	4	8	2	4
146	310746	422323	4.70	4	1.20	2	not proven	2	16	3	Wind Farm Layout	3	7.62	4	12	2	6
147	310796	422323	12.48	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	55.46	3	9	2	4
148	310846	422323	8.30	6	0.10	1	not proven	2	12	2	Wind Farm Layout	3	56.00	3	9	2	4
149	310896	422323	8.98	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	14.50	3	9	2	6
150	310946	422323	9.66	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	11.09	3	9	2	4
151	310996	422323	11.98	6	1.30	2	not proven	2	24	3	Wind Farm Layout	3	8.98	4	12	2	6
152	311046	422323	9.80	6	1.10	2	not proven	2	24	3	Wind Farm Layout	3	0.22	4	12	2	6
153	311096	422323	6.23	4	1.80	3	not proven	2	24	3	Wind Farm Layout	3	16.77	3	9	2	6
154	311146	422323	7.09	4	0.30	1	not proven	2	8	2	Active Peat	6	13.72	3	18	3	6
155	311196	422323	7.94	4	1.40	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
156	311246	422323	10.10	6	1.30	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
157	310596	422273	17.90	8	0.30	1	not proven	2	16	3	Roads, Tracks, Paths	2	111.08	3	6	1	3
158	310696	422273	3.89	2	0.20	1	not proven	2	4	1	Roads, Tracks, Paths	2	41.38	3	6	1	1
159	310796	422273	8.14	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	35.61	3	9	2	4
160	310896	422273	2.96	2	0.80	2	not proven	2	8	2	Wind Farm Layout	3	20.35	3	9	2	4
161	310996	422273	7.46	4	1.30	2	not proven	2	16	3	Wind Farm Layout	3	45.50	3	9	2	6
162	311096	422273	5.59	4	1.20	2	not proven	2	16	3	Active Peat	6	15.48	3	18	3	9
163	311196	422273	7.68	4	1.30	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
164	310546	422223	14.40	6	0.50	1	not proven	2	12	2	Roads, Tracks, Paths	2	178.25	3	6	1	2
165	310596	422223	16.49	8	0.30	1	not proven	2	16	3	Roads, Tracks, Paths	2	137.71	3	6	1	3
166	310646	422223	10.35	6	0.30	1	not proven	2	12	2	Roads, Tracks, Paths	2	105.60	3	6	1	2
167	310696	422223	7.38	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	68.95	3	9	2	4
168	310746	422223	8.25	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	28.22	3	9	2	4
169	310796	422223	8.57	6	0.70	2	not proven	2	24	3	Roads, Tracks, Paths	2	2.72	4	8	2	6
170	310846	422223	8.95	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	33.83	3	9	2	4
171	310896	422223	9.58	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	47.49	3	9	2	4
172	310946	422223	6.73	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	18.58	3	9	2	4
173	310996	422223	6.67	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	12.90	3	9	2	4
174	311046	422223	3.97	2	1.50	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
175	311096	422223	2.74	2	0.80	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
176	311146	422223	3.12	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
177	311196	422223	4.76	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
178	310596	422173	14.59	6	0.10	1	not proven	2	12	2	Roads, Tracks, Paths	2	174.89	3	6	1	2
179	310696	422173	7.12	4	0.60	2	not proven	2	16	3	Wind Farm Layout	3	98.04	3	9	2	6
180	310796	422173	9.52	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	30.25	3	9	2	4
181	310896	422173	10.13	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	6.74	4	12	2	4
182	310996	422173	6.89	4	0.80	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
183	311096	422173	1.26	1	1.20	2	not proven	2	4	1	Active Peat	6	0.00	4	24	3	3
184	311196	422173	5.24	4	1.40	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
185	311296	422173	9.64	6	1.30	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
186	310646	422123	6.56	4	0.20	1	not proven	2	8	2	Wind Farm Layout	3	113.21	3	9	2	4
187	310696	422123	8.70	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	108.83	3	9	2	4
188	310746	422123	4.50	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	100.33	3	9	2	4
189	310796	422123	4.28	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	69.95	3	9	2	4
190	310846	422123	3.21	2	0.90	2	not proven	2	8	2	Roads, Tracks, Paths	2	27.62	3	6	1	2
191	310896	422123	4.49	4	0.60	2	not proven	2	16	3	Roads, Tracks, Paths	2	0.14	4	8	2	6
192	310946	422123	4.96	4	0.30	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
193	310996	422123	5.34	4	1.90	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
194	311046	422123	4.43	4	1.50	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
195	311096	422123	2.12	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
196	311146	422123	3.69	2	1.30	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
197	311196	422123	8.17	6	1.30	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
198	311246	422123	6.99	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
199	311296	422123	9.30	6	0.40	1	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
200	310696	422073	5.16	4	0.20	1	not proven	2	8	2	Wind Farm Layout	3	58.84	3	9	2	4
201	310796	422073	5.52	4	0.30	1	not proven	2	8	2	Roads, Tracks, Paths	2	78.65	3	6	1	2
202	310896	422073	3.10	2	0.70	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
203	310996	422073	4.30	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
204	311096	422073	1.50	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
205	311196	422073	10.72	6	1.10	2	not proven	2	24	3	Wind Farm Layout	3	5.43	4	12	2	6
206	311296	422073	3.31	2	0.70	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
207	310696	422023	13.29	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	8.86	4	12	2	4
208	310746	422023	4.63	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	34.52	3	9	2	4
209	310796	422023	5.72	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	63.78	3	9	2	4
210	310846	422023	10.18	6	0.20	1	not proven	2	12	2	Active Peat	6	17.86	3	18	3	6
211	310896	422023	9.60	6	1.30	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
212	310946	422023	3.00	2	1.60	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
213	310996	422023	3.80	2	0.60	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
214	311046	422023	2.34	2	1.50	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
215	311096	422023	2.88	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
216	311146	422023	2.45	2	1.40	2	not proven	2	8	2	Water Feature Minor	6	17.28	3	18	3	6
217	311196	422023	9.17	6	1.10	2	not proven	2	24	3	Wind Farm Layout	3	50.23	3	9	2	6
218	311246	422023	10.18	6	1.50	2	not proven	2	24	3	Wind Farm Layout	3	15.07	3	9	2	6
219	311296	422023	2.35	2	1.40	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
220	311346	422023	2.24	2	1.90	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
221	311396	422023	2.83	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
222	311446	422023	3.63	2	0.70	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
223	311496	422023	4.33	4	0.30	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
224	311546	422023	6.83	4	1.10	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
225	310896	421973	7.11	4	1.30	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
226	310996	421973	4.04	4	0.40	1	not proven	2	8	2	Active Peat	6	3.47	4	24	3	6
227	311096	421973	4.72	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
228	311196	421973	8.10	6	1.20	2	not proven	2	24	3	Active Peat	6	37.79	3	18	3	9
229	311296	421973	1.75	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
230	311396	421973	4.92	4	1.70	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
231	311496	421973	1.51	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
232	311597	421980	6.05	4	0.30	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
233	310896	421923	10.02	6	0.50	1	not proven	2	12	2	Water Feature Minor	6	15.63	3	18	3	6
234	310946	421923	5.87	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
235	310996	421923	5.22	4	0.40	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
236	311046	421923	2.77	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
237	311096	421923	6.67	4	0.80	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
238	311146	421923	4.53	4	1.80	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
239	311196	421923	7.63	4	1.70	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
240	311246	421923	10.43	6	1.30	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
241	311296	421923	6.78	4	1.40	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
242	311346	421923	2.81	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
243	311396	421923	2.08	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
244	311446	421923	4.91	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
245	311496	421923	5.82	4	1.90	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
246	311546	421923	0.71	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
247	311596	421923	2.75	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
248	311646	421923	4.30	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
249	310996	421873	6.26	4	0.40	1	not proven	2	8	2	Active Peat	6	29.68	3	18	3	6
250	311096	421873	6.43	4	1.70	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
251	311196	421873	7.22	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
252	311296	421873	5.97	4	1.40	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
253	311396	421873	2.44	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
254	311496	421873	5.09	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
255	311596	421873	1.64	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6

256	311696	421873	4.87	4	2.00	3	not proven	2	24	3	Roads, Tracks, Paths	2	0.24	4	8	2	6
257	310996	421823	16.47	8	0.30	1	not proven	2	16	3	Wind Farm Layout	3	28.85	3	9	2	6
258	311046	421823	9.16	6	0.40	1	not proven	2	12	2	Water Feature Minor	6	22.94	3	18	3	6
259	311096	421823	8.03	6	2.00	3	not proven	2	36	4	Roads, Tracks, Paths	2	2.68	4	8	2	8
260	311146	421823	6.88	4	1.90	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
261	311196	421823	11.61	6	1.40	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
262	311246	421823	5.58	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
263	311296	421823	3.98	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
264	311346	421823	2.54	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
265	311396	421823	1.87	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
266	311446	421823	3.23	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
267	311496	421823	2.78	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
268	311546	421823	1.77	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
269	311596	421823	1.49	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
270	311646	421823	3.32	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
271	311096	421773	7.69	4	0.00	1	not proven	2	8	2	Roads, Tracks, Paths	2	7.26	4	8	2	4
272	311196	421773	8.90	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	16.23	3	9	2	4
273	311296	421773	10.95	6	0.80	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
274	311396	421773	1.27	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
275	311496	421773	3.33	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
276	311596	421773	9.12	6	2.00	3	not proven	2	36	4	Active Peat	6	0.00	4	24	3	12
277	311146	421723	7.18	4	0.00	1	not proven	2	8	2	Wind Farm Layout	3	1.22	4	12	2	4
278	311196	421723	10.30	6	0.00	1	not proven	2	12	2	Roads, Tracks, Paths	2	0.78	4	8	2	4
279	311246	421723	7.28	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	8.80	4	12	2	4
280	311296	421723	3.68	2	2.00	3	not proven	2	12	2	Roads, Tracks, Paths	2	1.22	4	8	2	4
281	311346	421723	4.25	4	1.80	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
282	311396	421723	0.87	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
283	311446	421723	0.33	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
284	311496	421723	1.60	1	1.40	2	not proven	2	4	1	Active Peat	6	0.00	4	24	3	3
285	311546	421723	3.85	2	1.60	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
286	311596	421723	2.00	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
287	311646	421723	1.80	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
288	311196	421673	10.51	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	45.34	3	9	2	4
289	311296	421673	2.94	2	0.60	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
290	311496	421673	1.23	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
291	311596	421673	2.69	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
292	311146	421623	12.55	6	0.40	1	not proven	2	12	2	Roads, Tracks, Paths	2	72.45	3	6	1	2
293	311196	421623	13.79	6	0.50	1	not proven	2	12	2	Roads, Tracks, Paths	2	57.36	3	6	1	2
294	311246	421623	3.44	2	1.00	2	not proven	2	8	2	Roads, Tracks, Paths	2	21.76	3	6	1	2
295	311496	421623	2.07	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
296	311546	421623	1.78	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
297	311196	421573	11.42	6	0.30	1	not proven	2	12	2	Roads, Tracks, Paths	2	7.65	4	8	2	4
298	311246	421523	15.34	8	0.50	1	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
299	311296	421523	2.51	2	0.00	1	not proven	2	4	1	Active Peat	6	0.02	4	24	3	3
300	311296	421473	9.46	6	0.90	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
301	311345	421523	2.19	2	1.30	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
302	311296	421572	3.49	2	0.00	1	not proven	2	4	1	Roads, Tracks, Paths	2	0.84	4	8	2	2
303	311397	421674	2.06	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
304	311293	421622	4.85	4	0.50	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
305	311346	421622	3.29	2	0.00	1	not proven	2	4	1	Active Peat	6	11.43	3	18	3	3
306	311396	421625	2.80	2	0.00	1	not proven	2	4	1	Active Peat	6	20.17	3	18	3	3
307	311446	421624	8.32	6	0.00	1	not proven	2	12	2	Active Peat	6	8.18	4	24	3	6
308	311396	421572	3.59	2	0.00	1	not proven	2	4	1	Active Peat	6	38.11	3	18	3	3
309	311395	421524	2.33	2	0.40	1	not proven	2	4	1	Active Peat	6	4.56	4	24	3	3
310	311046	422424	11.71	6	1.00	2	not proven	2	24	3	Water Feature Minor	6	30.15	3	18	3	9
311	311094	422374	8.43	6	1.80	3	not proven	2	36	4	Water Feature Minor	6	27.76	3	18	3	12
312	311246	422223	6.76	4	1.40	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
313	311344	422125	6.65	4	1.80	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
314	311545	421803	3.93	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
315	311092	422306	5.42	4	1.50	2	not proven	2	16	3	Wind Farm Layout	3	7.79	4	12	2	6
316	311112	422318	5.54	4	1.50	2	not proven	2	16	3	Wind Farm Layout	3	18.87	3	9	2	6
317	311102	422342	7.28	4	1.40	2	not proven	2	16	3	Wind Farm Layout	3	2.99	4	12	2	6
318	311122	422347	7.86	4	0.90	2	not proven	2	16	3	Wind Farm Layout	3	3.67	4	12	2	6
319	311130	422324	6.68	4	0.60	2	not proven	2	16	3	Wind Farm Layout	3	18.32	3	9	2	6
320	311150	422335	7.59	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	3.44	4	12	2	4
321	311151	422355	7.85	4	0.70	2	not proven	2	16	3	Wind Farm Layout	3	11.34	3	9	2	6
322	311170	422358	7.94	4	0.30	1	not proven	2	8	2	Active Peat	6	11.85	3	18	3	6
323	311169	422337	7.03	4	1.60	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
324	311168	422323	7.10	4	1.50	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
325	311165	422313	6.88	4	1.50	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
326	311162	422297	7.19	4	1.30	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
327	311146	422301	6.72	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	4.96	4	12	2	4
328	311143	422313	6.47	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	6.75	4	12	2	4
329	311135	422297	6.52	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	0.29	4	12	2	4
330	311120	422296	6.26	4	0.80	2	not proven	2	16	3	Wind Farm Layout	3	2.89	4	12	2	6
331	311102	422284	5.77	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	12.10	3	9	2	4
332	311085	422277	6.04	4	1.60	3	not proven	2	24	3	Wind Farm Layout	3	21.98	3	9	2	6
333	311064	422260	5.95	4	0.90	2	not proven	2	16	3	Active Peat	6	9.64	4	24	3	9
334	311047	422239	4.44	4	1.40	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
335	311029	422208	3.80	2	0.40	1	not proven	2	4	1	Active Peat	6	17.12	3	18	3	3
336	311023	421653	9.35	6	0.80	2	not proven	2	24	3	Wind Farm Layout	3	11.06	3	9	2	6
337	311047	421664	9.19	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	7.44	4	12	2	4
338	311072	421683	10.23	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	8.94	4	12	2	6
339	311068	421719	9.51	6	1.10	2	not proven	2	24	3	Wind Farm Layout	3	13.08	3	9	2	6
340	311041	421710	9.63	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	9.17	4	12	2	4
341	311014	421704	10.27	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	18.16	3	9	2	6
342	310999	421741	10.01	6	1.20	2	not proven	2	24	3	Wind Farm Layout	3	2.57	4	12	2	6
343	311027	421741	8.79	6	1.40	2	not proven	2	24	3	Wind Farm Layout	3	13.13	3	9	2	6
344	311047	421745	8.48	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	11.58	3	9	2	6
345	311049	421750	8.46	6	1.10	2	not proven	2	24	3	Wind Farm Layout	3	6.58	4	12	2	6
346	311049	421760	8.52	6	1.40	2	not proven	2	24	3	Wind Farm Layout	3	0.70	4	12	2	6
347	311050	421770	8.61	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	3.93	4	12	2	6
348	311061	421768	8.67	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	5.72	4	12	2	4
349	311061	421759	8.65	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	8.20	4	12	2	4
350	311061	421749	8.68	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	0.93	4	12	2	6
351	311073	421748	8.91	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	8.65	4	12	2	4
352	311071	421760	8.67	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	15.79	3	9	2	4
353	311069	421771	8.92	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	13.17	3	9	2	4
354	311038	421770	8.46	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	7.34	4	12	2	6
355	311037	421760	8.42	6	0.90	2	not proven	2	24	3	Wind Farm Layout	3	9.97	4	12	2	6
356	311037	421749	8.45	6	0.80	2	not proven	2	24	3	Wind Farm Layout	3	15.54	3	9	2	6
357	311037	421735	8.52	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	7.12	4	12	2	6
358	311041	421724	8.71	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	0.18	4	12	2	6
359	311050	421726	8.62	6	1.10	2	not proven	2	24	3	Wind Farm Layout	3	0.41	4	12	2	6
360	311049	421737	8.57	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	8.47	4	12	2	6
361	311061	421739	8.92	6	0.90	2	not proven	2	24	3	Wind Farm Layout	3	0.84	4	12	2	6
362	311060	421728	9.18	6	1.60	3	not proven	2	36	4	Wind Farm Layout	3	5.72	4	12	2	8
363	311026	421771	8.82	6	0.90	2	not proven	2	24	3	Wind Farm Layout	3	0.92	4	12	2	6
364	311024	421761	8.59	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	8.42	4	12	2	6
365	311024	421748	8.75	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	20.49	3	9	2	4
366	311001	421765	10.65	6	1.00	2	not proven	2	24	3	Water Feature Minor	6	13.06	3	18	3	9
367	311010	421786	10.81	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	1.97	4	12	2	4
368	310984	421801	12.17	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	3.81	4	12	2	4
369	310969	421781	11.23	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	1.08	4	12	2	4
370	310955	421763	14.09	6	0.50	1	not proven	2	12	2	Water Feature Minor	6	9.87	4	24	3	6
371	310913	421784	11.98	6	0.30	1	not proven	2	12	2	Water Feature Minor	6	28.44	3	18	3	6
372	310927	421810	12.21	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	12.77	3	9	2	4
373	310942	421834	15.49	8	0.40	1	not proven	2	16	3	Wind Farm Layout	3	9.22	4	12	2	6
374	310909	421879	13.53	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	24.62	3	9	2	4
375	310895	421857	11.80	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	1.43	4	12	2	4
376	310885	421834	11.22	6	0.20	1	not proven	2	12	2	Water Feature Minor	6	3.58	4	24	3	6
377	310853	421814	12.76	6	0.30	1	not proven	2	12	2	Water Feature Minor	6	29.54	3	18	3	6
378	310815	421844	12.73	6	0.10	1	not proven	2	12	2	Water Feature Minor	6	42.85	3	18	3	6
379	310828	421872	11.22	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	20.71	3	9	2	4
380	310843	421891	10.71	6	0.90	2	not proven	2	24	3	Wind Farm Layout	3	2.57	4	12	2	6
381	310853	421924	9.16	6	0.50	1	not proven	2	12	2	Water Feature Minor	6	25.47	3	18	3	6
382	310804	421956	11.81	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	0.91	4	12	2	4
383	310810	421989	6.17	4	0.50	1	not proven	2	8	2	Wind Farm Layout	3	34.42	3	9	2	4
384	310783	421998	5.53	4	0.70	2	not proven	2	16	3	Wind Farm Layout	3	37.52	3	9	2	6
385	310777	421966	12.45	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	17.17	3	9	2	4

386	310777	421938	12.13	6	0.10	1	not proven	2	12	2	Wind Farm Layout	3	0.62	4	12	2	4
387	310782	421909	10.49	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	15.85	3	9	2	4
388	310781	421878	12.17	6	0.10	1	not proven	2	12	2	Wind Farm Layout	3	42.08	3	9	2	4
389	310753	421900	14.86	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	38.92	3	9	2	4
390	310750	421928	11.55	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	13.20	3	9	2	4
391	310720	421939	13.66	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	11.97	3	9	2	4
392	310704	421924	12.99	6	0.10	1	not proven	2	12	2	Wind Farm Layout	3	31.16	3	9	2	4
393	310683	421956	11.92	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	2.89	4	12	2	4
394	310643	421963	4.69	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	22.35	3	9	2	4
395	310643	421978	5.77	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	11.42	3	9	2	4
396	310642	421995	8.72	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	12.81	3	9	2	4
397	310639	422008	9.70	6	0.90	2	not proven	2	24	3	Wind Farm Layout	3	22.69	3	9	2	6
398	310655	421993	10.27	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	0.99	4	12	2	4
399	310653	421976	6.80	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	7.12	4	12	2	4
400	310654	421963	5.24	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	11.51	3	9	2	4
401	310667	421963	8.91	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	0.02	4	12	2	4
402	310663	421978	10.66	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	0.22	4	12	2	4
403	310654	422008	10.82	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	10.37	3	9	2	4
404	310671	422007	14.27	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	3.39	4	12	2	4
405	310683	422012	13.87	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	5.93	4	12	2	4
406	310695	422017	13.79	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	3.21	4	12	2	6
407	310703	422008	15.10	8	0.50	1	not proven	2	16	3	Wind Farm Layout	3	2.05	4	12	2	6
408	310691	422000	14.10	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	4.51	4	12	2	6
409	310679	421993	14.38	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	12.32	3	9	2	4
410	310671	421989	14.80	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	13.82	3	9	2	4
411	310676	421977	15.05	8	0.20	1	not proven	2	16	3	Wind Farm Layout	3	6.82	4	12	2	6
412	310676	421964	12.79	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	6.80	4	12	2	6
413	310699	421973	15.70	8	0.40	1	not proven	2	16	3	Wind Farm Layout	3	8.65	4	12	2	6
414	310701	421989	14.97	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	19.06	3	9	2	4
415	310714	422001	14.51	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	1.79	4	12	2	4
416	310731	421968	16.53	8	0.20	1	not proven	2	16	3	Wind Farm Layout	3	19.00	3	9	2	6
417	310760	421966	17.21	8	0.30	1	not proven	2	16	3	Wind Farm Layout	3	5.70	4	12	2	6
418	310756	422006	4.49	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	26.27	3	9	2	4
419	310737	422006	5.53	4	0.50	1	not proven	2	8	2	Wind Farm Layout	3	15.43	3	9	2	4
420	310770	422024	4.80	4	0.50	1	not proven	2	8	2	Wind Farm Layout	3	49.03	3	9	2	4
421	310768	422131	7.69	4	0.50	1	not proven	2	8	2	Wind Farm Layout	3	80.61	3	9	2	4
422	310777	422073	13.07	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	93.26	3	9	2	4
423	310818	422114	4.20	4	0.50	1	not proven	2	8	2	Roads, Tracks, Paths	2	50.22	3	6	1	2
424	310833	422144	5.18	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	30.99	3	9	2	4
425	310814	422172	11.00	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	20.11	3	9	2	4
426	311227	421941	9.65	6	0.50	1	not proven	2	12	2	Water Feature Minor	6	6.73	4	24	3	6
427	311280	422047	2.30	2	1.60	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
428	311276	422074	3.42	2	0.50	1	not proven	2	4	1	Active Peat	6	0.00	4	24	3	3
429	311305	422047	2.32	2	1.20	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
430	311293	422102	4.78	4	1.70	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
431	311319	422110	4.27	4	0.30	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
432	311315	422084	2.72	2	1.60	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
433	311322	422051	2.27	2	1.70	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
434	311345	422045	2.20	2	0.70	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
435	311341	422106	5.04	4	1.10	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
436	311364	422106	4.90	4	1.80	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
437	311367	422071	2.94	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
438	311362	422039	2.82	2	1.60	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
439	311385	422034	2.59	2	2.10	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
440	311393	422068	4.24	4	1.60	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
441	311405	422099	4.19	4	1.60	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
442	311428	422086	4.63	4	1.80	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
443	311418	422059	3.80	2	1.60	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
444	311437	422042	4.26	4	1.40	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
445	311414	422012	4.48	4	1.70	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
446	311437	422007	3.06	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
447	311464	422060	5.99	4	0.60	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
448	311473	422028	4.82	4	1.90	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
449	311460	421997	1.73	1	1.90	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
450	311482	421989	1.29	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
451	311520	422006	4.50	4	0.00	1	not proven	2	8	2	Roads, Tracks, Paths	2	1.99	4	8	2	4
452	311494	422060	9.06	6	1.60	3	not proven	2	36	4	Active Peat	6	0.00	4	24	3	12
453	311525	422042	7.39	4	0.90	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
454	311552	421995	2.79	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
455	311571	422007	6.11	4	0.90	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
456	311596	422013	6.04	4	1.80	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
457	311590	421998	6.13	4	1.00	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
458	311585	421983	5.84	4	1.00	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
459	311571	421983	4.65	4	1.90	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
460	311560	421987	2.98	2	2.30	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
461	311558	421961	2.52	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
462	311574	421956	2.91	2	2.90	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
463	311592	421959	3.01	2	2.20	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
464	311581	421969	3.11	2	1.80	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
465	311605	421958	3.52	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
466	311609	421976	4.74	4	1.40	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
467	311605	421998	5.39	4	2.10	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
468	311006	422191	7.72	4	0.50	1	not proven	2	8	2	Wind Farm Layout	3	4.06	4	12	2	4
469	310998	422214	6.52	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	10.38	3	9	2	4
470	310983	422243	7.38	4	0.10	1	not proven	2	8	2	Wind Farm Layout	3	14.56	3	9	2	4
471	310995	422263	6.76	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	37.24	3	9	2	4
472	311013	422242	7.43	4	0.70	2	not proven	2	16	3	Active Peat	6	23.68	3	18	3	9
473	311031	422220	4.11	4	0.40	1	not proven	2	8	2	Active Peat	6	9.52	4	24	3	6
474	311045	422240	4.48	4	1.20	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
475	311026	422257	5.16	4	0.70	2	not proven	2	16	3	Active Peat	6	21.45	3	18	3	9
476	311009	422277	10.63	6	0.50	1	not proven	2	12	2	Active Peat	6	46.98	3	18	3	6
477	311029	422291	9.53	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	32.82	3	9	2	4
478	311048	422307	10.02	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	9.05	4	12	2	6
479	311059	422286	9.11	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	18.57	3	9	2	4
480	311078	422298	5.54	4	1.30	2	not proven	2	16	3	Wind Farm Layout	3	2.55	4	12	2	6
481	311072	422320	6.59	4	1.20	2	not proven	2	16	3	Wind Farm Layout	3	11.50	3	9	2	6
482	311089	422335	6.94	4	1.70	3	not proven	2	24	3	Wind Farm Layout	3	4.16	4	12	2	6
483	311111	422339	7.23	4	0.90	2	not proven	2	16	3	Wind Farm Layout	3	1.63	4	12	2	6
484	311098	422313	5.55	4	1.60	3	not proven	2	24	3	Wind Farm Layout	3	15.74	3	9	2	6
485	310707	422488	7.64	4	1.20	2	not proven	2	16	3	Wind Farm Layout	3	31.93	3	9	2	6
486	310715	422488	6.97	4	0.70	2	not proven	2	16	3	Wind Farm Layout	3	29.84	3	9	2	6
487	310724	422488	6.87	4	0.70	2	not proven	2	16	3	Wind Farm Layout	3	29.90	3	9	2	6
488	310734	422489	7.85	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	33.89	3	9	2	4
489	310743	422489	8.48	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	38.66	3	9	2	6
490	310752	422489	8.70	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	44.74	3	9	2	6
491	310707	422478	8.10	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	22.50	3	9	2	6
492	310716	422478	7.95	4	1.40	2	not proven	2	16	3	Wind Farm Layout	3	19.80	3	9	2	6
493	310724	422478	8.30	6	1.20	2	not proven	2	24	3	Wind Farm Layout	3	20.09	3	9	2	6
494	310734	422478	8.86	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	24.45	3	9	2	6
495	310743	422478	8.85	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	30.72	3	9	2	4
496	310752	422479	8.73	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	38.62	3	9	2	6
497	310707	422468	10.74	6	1.40	2	not proven	2	24	3	Wind Farm Layout	3	13.07	3	9	2	6
498	310716	422468	11.07	6	1.30	2	not proven	2	24	3	Wind Farm Layout	3	10.08	3	9	2	6
499	310725	422468	11.15	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	11.12	3	9	2	6
500	310734	422468	11.06	6	1.40	2	not proven	2	24	3	Wind Farm Layout	3	17.53	3	9	2	6
501	310743	422468	10.67	6	0.90	2	not proven	2	24	3	Wind Farm Layout	3	25.56	3	9	2	6
502	310753	422468	9.88	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	32.38	3	9	2	6
503	310708	422458	12.99	6	1.10	2	not proven	2	24	3	Wind Farm Layout	3	3.31	4	12	2	6
504	310717	422459	12.77	6	1.10	2	not proven	2	24	3	Wind Farm Layout	3	1.26	4	12	2	6
505	310726	422459	12.74	6	0.80	2	not proven	2	24	3	Wind Farm Layout	3	6.51	4	12	2	6
506	310735	422459	12.73	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	15.00	3	9	2	6
507	310744	422459	12.51	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	21.09	3	9	2	4
508	310753	422459	11.80	6	0.90	2	not proven	2	24	3	Wind Farm Layout	3	24.38	3	9	2	6
509	310708	422450	13.12	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	4.24	4	12	2	6
510	310717	422450	12.74	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	4.96	4	12	2	6
511	310726	422450	12.62	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	3.53	4	12	2	6
512	310736	422450	12.77	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	12.46	3	9	2	6
513	310744	422450	12.51	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	12.35	3	9	2	6
514	310754	422450	11.89	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	18.13	3	9	2	6
515	310688	422448	12.72	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	1.10	4	12	2	4

516	310737	422443	12.62	6	1.20	2	not proven	2	24	3	Wind Farm Layout	3	5.53	4	12	2	6
517	310679	422424	12.85	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	1.91	4	12	2	4
518	310732	422422	9.40	6	1.30	2	not proven	2	24	3	Wind Farm Layout	3	7.38	4	12	2	6
519	310703	422398	10.30	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	14.56	3	9	2	6
520	310678	422374	12.99	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	16.98	3	9	2	4
521	310728	422376	6.16	4	0.90	2	not proven	2	16	3	Wind Farm Layout	3	7.16	4	12	2	6
522	310686	422348	8.95	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	18.79	3	9	2	6
523	310712	422349	3.26	2	0.00	1	not proven	2	4	1	Wind Farm Layout	3	0.03	4	12	2	2
524	310738	422352	5.59	4	0.30	1	not proven	2	8	2	Wind Farm Layout	3	2.51	4	12	2	4
525	310720	422324	2.40	2	0.00	1	not proven	2	4	1	Roads, Tracks, Paths	2	0.18	4	8	2	2
526	310698	422300	2.95	2	0.30	1	not proven	2	4	1	Roads, Tracks, Paths	2	14.31	3	6	1	1
527	310723	422302	4.93	4	0.50	1	not proven	2	8	2	Roads, Tracks, Paths	2	9.27	4	8	2	4
528	310747	422303	4.86	4	0.70	2	not proven	2	16	3	Wind Farm Layout	3	2.77	4	12	2	6
529	311415	421847	2.56	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
530	311437	421848	3.24	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
531	311456	421860	3.44	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
532	311474	421873	3.50	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
533	311493	421885	5.86	4	1.70	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
534	311511	421898	6.14	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
535	311528	421912	2.78	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
536	311532	421933	2.09	2	2.00	3	not proven	2	12	2	Active Peat	6	0.02	4	24	3	6
537	311265	422126	5.64	4	0.00	1	not proven	2	8	2	Active Peat	6	1.51	4	24	3	6
538	311276	422149	6.56	4	1.30	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
539	311295	422164	8.75	6	1.20	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
540	311316	422176	9.60	6	1.50	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
541	311340	422180	9.84	6	1.10	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
542	311364	422182	10.62	6	1.30	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
543	311389	422182	10.80	6	1.20	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
544	311413	422180	11.59	6	1.20	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
545	311437	422177	12.61	6	1.10	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
546	311461	422170	15.20	8	0.90	2	not proven	2	32	4	Active Peat	6	0.00	4	24	3	12
547	311480	422155	15.63	8	0.50	1	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
548	311493	422135	9.69	6	0.60	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
549	311504	422113	6.32	4	0.60	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
550	311516	422092	5.95	4	2.50	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
551	311527	422070	5.08	4	1.60	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
552	311539	422049	7.45	4	1.80	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
553	311550	422027	7.71	4	1.10	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
554	311562	422005	5.65	4	1.60	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
555	311573	421984	4.99	4	1.70	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
556	311246	422133	8.57	6	1.90	3	not proven	2	36	4	Active Peat	6	0.00	4	24	3	12
557	311283	422120	7.39	4	1.00	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
558	311294	422141	6.96	4	1.30	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
559	311257	422156	8.25	6	0.90	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
560	311278	422176	10.05	6	0.80	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
561	311311	422153	8.49	6	1.50	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
562	311308	422193	9.76	6	1.30	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
563	311325	422158	9.67	6	1.60	3	not proven	2	36	4	Active Peat	6	0.00	4	24	3	12
564	311344	422162	9.96	6	1.60	3	not proven	2	36	4	Active Peat	6	0.00	4	24	3	12
565	311334	422199	10.47	6	1.60	3	not proven	2	36	4	Active Peat	6	0.00	4	24	3	12
566	311361	422201	10.65	6	1.60	3	not proven	2	36	4	Active Peat	6	0.00	4	24	3	12
567	311368	422157	11.37	6	1.30	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
568	311385	422202	11.51	6	0.80	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
569	311390	422159	13.51	6	0.80	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
570	311413	422157	14.10	6	0.90	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
571	311412	422197	11.60	6	0.90	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
572	311437	422195	11.67	6	1.00	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
573	311436	422154	14.18	6	1.10	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
574	311465	422183	13.04	6	0.90	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
575	311454	422150	14.21	6	0.30	1	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
576	311469	422139	8.20	6	0.40	1	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
577	311492	422167	15.00	6	0.40	1	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
578	311510	422146	14.68	6	0.40	1	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
579	311476	422125	6.16	4	0.20	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
580	311486	422104	5.95	4	2.50	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
581	311521	422126	10.41	6	0.70	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
582	311534	422104	6.36	4	0.10	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
583	311496	422082	3.70	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
584	311506	422055	7.99	4	1.80	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
585	311556	422056	6.87	4	1.30	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
586	311566	422036	6.54	4	1.00	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
587	311585	422047	5.96	4	1.00	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
588	311573	422066	7.01	4	2.50	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
589	311614	422026	4.85	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
590	311624	422008	5.16	4	2.50	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
591	311531	422019	6.86	4	1.30	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
592	311395	422124	5.32	4	0.20	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
593	311443	422124	5.67	4	2.50	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
594	311519	421924	2.69	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
595	311504	421911	5.86	4	1.90	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
596	311484	421899	6.19	4	2.50	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
597	311466	421886	3.63	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
598	311425	421863	3.28	2	2.50	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
599	311624	421971	4.51	4	2.50	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
600	310677	422398	12.69	6	0.70	2	not proven	2	24	3	Wind Farm Layout	3	9.96	4	12	2	6
601	310728	422398	6.61	4	1.10	2	not proven	2	16	3	Wind Farm Layout	3	3.86	4	12	2	6
602	310735	422468	11.03	6	1.20	2	not proven	2	24	3	Wind Farm Layout	3	18.38	3	9	2	6
603	311556	422090	5.48	4	2.50	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
604	311549	422117	9.45	6	1.40	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
605	311580	422112	9.40	6	0.20	1	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
606	311581	422089	4.07	4	2.50	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
607	311593	422088	4.48	4	0.20	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
608	311597	422066	5.88	4	0.60	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
609	310757	422354	6.57	4	0.60	2	not proven	2	16	3	Wind Farm Layout	3	21.58	3	9	2	6
610	310772	422325	6.91	4	0.70	2	not proven	2	16	3	Wind Farm Layout	3	33.08	3	9	2	6
611	310781	422303	9.16	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	35.30	3	9	2	6
612	310764	422303	8.18	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	19.03	3	9	2	4
613	310720	422274	5.15	4	0.90	2	not proven	2	16	3	Roads, Tracks, Paths	2	24.88	3	6	1	3
614	310772	422274	11.98	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	16.42	3	9	2	4
615	310807	422251	4.12	4	0.50	1	not proven	2	8	2	Roads, Tracks, Paths	2	25.01	3	6	1	2
616	310783	422250	11.30	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	11.58	3	9	2	4
617	310765	422249	12.43	6	0.00	1	not proven	2	12	2	Roads, Tracks, Paths	2	0.93	4	8	2	4
618	310746	422248	7.41	4	0.50	1	not proven	2	8	2	Wind Farm Layout	3	13.52	3	9	2	4
619	310769	422225	13.65	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	8.44	4	12	2	4
620	310818	422224	7.45	4	0.60	2	not proven	2	16	3	Wind Farm Layout	3	17.61	3	9	2	6
621	310821	422206	10.97	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	5.14	4	12	2	6
622	310796	422203	13.49	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	6.43	4	12	2	4
623	310776	422202	13.61	6	0.30	1	not proven	2	12	2	Wind Farm Layout	3	19.38	3	9	2	4
624	310872	422143	4.26	4	0.90	2	not proven	2	16	3	Wind Farm Layout	3	18.51	3	9	2	6
625	310872	422172	10.15	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	4.31	4	12	2	6
626	310919	422172	9.49	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	6.70	4	12	2	4
627	310916	422148	7.29	4	0.40	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
628	310947	422150	7.86	4	0.50	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
629	310968	422181	7.24	4	0.70	2	not proven	2	16	3	Wind Farm Layout	3	4.05	4	12	2	6
630	310984	422198	8.66	6	0.00	1	not proven	2	12	2	Wind Farm Layout	3	3.54	4	12	2	4
631	311001	422203	7.24	4	0.50	1	not proven	2	8	2	Wind Farm Layout	3	7.47	4	12	2	4
632	311013	422207	4.82	4	0.20	1	not proven	2	8	2	Wind Farm Layout	3	19.70	3	9	2	4
633	311015	422222	3.96	2	0.70	2	not proven	2	8	2	Active Peat	6	22.48	3	18	3	6
634	310977	422215	11.45	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	1.51	4	12	2	4
635	310968	422225	6.00	4	1.20	2	not proven	2	16	3	Wind Farm Layout	3	2.69	4	12	2	6
636	310982	422226	8.90	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	2.91	4	12	2	4
637	311003	422234	7.23	4	0.50	1	not proven	2	8	2	Wind Farm Layout	3	24.58	3	9	2	4
638	310998	422244	7.72	4	0.20	1	not proven	2	8	2	Wind Farm Layout	3	26.49	3	9	2	4
639	311026	422239	4.92	4	0.70	2	not proven	2	16	3	Active Peat	6	10.81	3	18	3	9
640	311038	422232	4.52	4	1.30	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
641	310947	422254	3.10	2	1.60	3	not proven	2	12	2	Wind Farm Layout	3	2.94	4	12	2	4
642	310923	422255	3.04	2	0.60	2	not proven	2	8	2	Wind Farm Layout	3	6.07	4	12	2	4
643	310917	422273	2.44	2	1.20	2	not proven	2	8	2	Wind Farm Layout	3	1.99	4	12	2	4
644	310896	422300	7.07	4	1.60	3	not proven	2	24	3	Wind Farm Layout	3	13.92	3	9	2	6
645	310945	422301	6.28	4	1.20	2	not proven	2	16	3	Roads, Tracks, Paths	2	12.36	3	6	1	3

646	310920	422332	10.20	6	0.00	1	not proven	2	12	2	Wind Farm Layout	3	5.18	4	12	2	4
647	310946	422345	13.36	6	1.30	2	not proven	2	24	3	Wind Farm Layout	3	3.81	4	12	2	6
648	310973	422348	9.39	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	6.43	4	12	2	4
649	310973	422324	11.39	6	1.90	3	not proven	2	36	4	Wind Farm Layout	3	11.31	3	9	2	8
650	310973	422302	7.33	4	1.10	2	not proven	2	16	3	Wind Farm Layout	3	33.08	3	9	2	6
651	310997	422302	11.66	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	29.61	3	9	2	6
652	310996	422347	9.81	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	8.77	4	12	2	6
653	311020	422347	10.12	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	12.24	3	9	2	4
654	311021	422332	10.35	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	2.46	4	12	2	4
655	311021	422311	10.76	6	0.90	2	not proven	2	24	3	Wind Farm Layout	3	17.23	3	9	2	6
656	311010	422261	10.93	6	0.40	1	not proven	2	12	2	Active Peat	6	36.72	3	18	3	6
657	311071	422342	7.15	4	1.20	2	not proven	2	16	3	Wind Farm Layout	3	4.50	4	12	2	6
658	311046	422342	10.04	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	6.86	4	12	2	6
659	311122	422374	9.87	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	17.05	3	9	2	4
660	311119	422357	7.76	4	0.70	2	not proven	2	16	3	Wind Farm Layout	3	1.04	4	12	2	6
661	311119	422304	6.11	4	0.40	1	not proven	2	8	2	Wind Farm Layout	3	10.58	3	9	2	4
662	311145	422289	7.12	4	1.10	2	not proven	2	16	3	Active Peat	6	7.29	4	24	3	9
663	311121	422274	4.75	4	0.50	1	not proven	2	8	2	Active Peat	6	4.03	4	24	3	6
664	311083	422290	5.89	4	1.70	3	not proven	2	24	3	Wind Farm Layout	3	9.54	4	12	2	6
665	311091	422258	5.29	4	1.20	2	not proven	2	16	3	Active Peat	6	4.89	4	24	3	9
666	311070	422267	5.91	4	1.20	2	not proven	2	16	3	Active Peat	6	17.64	3	18	3	9
667	311065	422240	2.89	2	1.50	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
668	311044	422253	4.47	4	0.50	1	not proven	2	8	2	Active Peat	6	4.57	4	24	3	6
669	311025	422193	6.22	4	0.60	2	not proven	2	16	3	Active Peat	6	7.14	4	24	3	9
670	311015	422185	6.90	4	0.40	1	not proven	2	8	2	Water Feature Minor	6	3.58	4	24	3	6
671	311008	422173	6.13	4	0.70	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
672	311024	422165	3.09	2	1.60	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
673	311028	422175	3.64	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
674	311041	422166	1.87	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
675	311041	422151	2.12	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
676	311070	422139	3.00	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
677	311083	422132	2.47	2	1.10	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
678	311081	422125	2.83	2	1.40	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
679	311102	422127	1.77	1	1.70	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
680	311101	422119	2.09	2	1.60	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
681	311122	422121	2.99	2	1.60	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
682	311121	422113	3.13	2	1.70	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
683	311138	422104	4.77	4	1.00	2	not proven	2	16	3	Water Feature Minor	6	0.35	4	24	3	9
684	311143	422115	3.98	2	1.30	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
685	311161	422106	4.70	4	0.60	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
686	311156	422095	5.99	4	0.50	1	not proven	2	8	2	Wind Farm Layout	3	3.47	4	12	2	4
687	311179	422082	10.06	6	1.80	3	not proven	2	36	4	Wind Farm Layout	3	4.91	4	12	2	8
688	311183	422095	8.17	6	1.40	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
689	311203	422086	9.55	6	1.00	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
690	311221	422064	10.60	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	2.40	4	12	2	6
691	311225	422076	8.04	6	1.00	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
692	311261	422049	3.87	2	1.30	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
693	311251	422046	9.01	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	0.40	4	12	2	6
694	311260	422025	9.44	6	0.60	2	not proven	2	24	3	Wind Farm Layout	3	1.13	4	12	2	6
695	311269	422027	3.61	2	1.00	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
696	311276	422003	4.39	4	1.50	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
697	311269	422001	7.92	4	1.60	3	not proven	2	24	3	Wind Farm Layout	3	0.09	4	12	2	6
698	311309	421953	3.64	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
699	311299	421945	6.85	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
700	311353	421911	2.16	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
701	311345	421904	2.36	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
702	311381	421884	2.43	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
703	311369	421875	2.53	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
704	311402	421844	1.50	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
705	311409	421824	1.96	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
706	311419	421824	2.01	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
707	311429	421816	2.53	2	0.00	1	not proven	2	4	1	Active Peat	6	0.00	4	24	3	3
708	311419	421800	2.51	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
709	311398	421799	1.63	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
710	311374	421782	1.51	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
711	311451	421835	3.35	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
712	311468	421848	3.37	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
713	311483	421860	3.74	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
714	311528	421900	3.55	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
715	311519	421912	3.22	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
716	311547	421960	1.52	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
717	311545	421946	1.18	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
718	311517	421946	2.10	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
719	311532	421972	0.90	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
720	311514	421957	1.47	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
721	311509	421972	1.72	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
722	311496	422002	1.80	1	0.60	2	not proven	2	4	1	Active Peat	6	0.00	4	24	3	3
723	311493	422041	6.65	4	0.50	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
724	311508	422042	7.00	4	0.50	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
725	311521	422028	6.98	4	0.40	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
726	311447	422057	5.06	4	1.40	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
727	311472	422089	3.47	2	1.90	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
728	311448	422088	3.71	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
729	311446	422103	5.42	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
730	311427	422103	5.39	4	1.60	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
731	311427	422130	5.42	4	0.40	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
732	311415	422144	8.70	6	1.00	2	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
733	311408	422127	5.18	4	0.30	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
734	311393	422141	6.67	4	0.90	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
735	311370	422139	8.54	6	0.50	1	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
736	311407	421768	1.53	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
737	311379	421738	1.83	1	2.00	3	not proven	2	6	2	Active Peat	6	0.00	4	24	3	6
738	311377	421763	2.32	2	0.00	1	not proven	2	4	1	Active Peat	6	0.00	4	24	3	3
739	311345	421749	2.32	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
740	311345	421735	2.58	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
741	311295	421732	6.02	4	1.50	2	not proven	2	16	3	Active Peat	6	0.00	4	24	3	9
742	311297	421715	3.37	2	1.70	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
743	311273	421703	5.12	4	0.30	1	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
744	311271	421724	9.61	6	1.00	2	not proven	2	24	3	Wind Farm Layout	3	6.03	4	12	2	6
745	311258	421712	9.07	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	2.82	4	12	2	4
746	311253	421703	9.24	6	0.00	1	not proven	2	12	2	Roads, Tracks, Paths	2	4.66	4	8	2	4
747	311228	421708	7.81	4	0.00	1	not proven	2	8	2	Wind Farm Layout	3	2.83	4	12	2	4
748	311231	421718	8.02	6	0.00	1	not proven	2	12	2	Wind Farm Layout	3	1.60	4	12	2	4
749	310667	421950	8.06	6	0.50	1	not proven	2	12	2	Wind Farm Layout	3	7.49	4	12	2	4
750	310686	421937	11.69	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	12.73	3	9	2	4
751	310699	421949	12.97	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	11.06	3	9	2	4
752	310712	421963	15.50	8	0.20	1	not proven	2	16	3	Wind Farm Layout	3	7.85	4	12	2	6
753	310730	421990	15.09	8	0.50	1	not proven	2	16	3	Wind Farm Layout	3	1.70	4	12	2	6
754	310743	421981	15.66	8	0.30	1	not proven	2	16	3	Wind Farm Layout	3	1.68	4	12	2	6
755	310730	421951	13.83	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	2.52	4	12	2	4
756	310819	421914	10.47	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	3.02	4	12	2	4
757	310797	421924	10.38	6	0.20	1	not proven	2	12	2	Wind Farm Layout	3	4.25	4	12	2	4
758	310801	421895	11.11	6	0.40	1	not proven	2	12	2	Wind Farm Layout	3	16.80	3	9	2	4
759	311431	421794	2.60	2	1.40	2	not proven	2	8	2	Active Peat	6	0.00	4	24	3	6
760	311447	421808	2.97	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
761	311460	421824	3.64	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
762	311477	421839	3.70	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6
763	311493	421853	4.36	4	1.90	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
764	311513	421867	4.53	4	2.00	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
765	311525	421880	6.20	4	1.80	3	not proven	2	24	3	Active Peat	6	0.00	4	24	3	9
766	311541	421895	2.12	2	2.00	3	not proven	2	12	2	Active Peat	6	0.00	4	24	3	6

Corkey Windfarm Repowering

Technical Appendix A7.2: Outline Water Construction Environmental Management Plan

Volume 3 – Technical Appendices
June 2019

SCOTTISHPOWER RENEWABLES

TECHNICAL APPENDIX A7.2

WATER CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN FOR CORKEY WINDFARM REPOWERING

SCOTTISHPOWER RENEWABLES

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1 INTRODUCTION

This outline Water Construction Environmental Management Plan (WCEMP) forms an appendix to the Environmental Impact Assessment Report (EIA Report) for Corkey Windfarm Repowering ("the Development"). This WCEMP will be incorporated into the overall Decommissioning/Construction Environmental Management Plan (DCEMP) that will be maintained and updated throughout the decommissioning/construction process as a live document. The DCEMP will be augmented by design specifications and construction documentation and will provide comprehensive information on environmental management appropriate to the stage of development.

Whilst the preparation of the DCEMP is the responsibility of the construction contractor, the outline WCEMP presented in this document is intended to demonstrate measures that will be used across the Development to adequately protect the hydrological environment and related resources. Detailed proposals for such measures will be documented prior to construction and will provide the same or greater protection for the water environment as those described in this document. The measures are proportionate to the risk and, where greater risk is highlighted at specific locations prior to construction, specific measures would be agreed for those locations. This document provides a high level outline WCEMP, and as part of the iterative process, it would be further developed into a CEMP throughout the decommissioning/construction programme, which will detail the exact location of measures to protect the hydrological environment.

The methods set out in the WCEMP are based on good practice measures for several constructed wind farms and the following guidance:

- Forestry Commission, 'The UK Forestry Standard, 2017[1]';
- Scottish Renewables (SR) and SEPA. Guidance on the Assessment of Peat volumes, Reuse of Excavated Peat and the Minimisation of Waste (2012)[2];
- Scottish Natural Heritage, Good Practice During Wind Farm Construction, (2013)[3];
- The Construction Industry Research and Information Association (CIRIA), 'Environmental Good Practice On Site (C741)' (2015)[4];
- CIRIA, 'Control of Water Pollution from Construction Sites (C532)' (2001)[5]; and
- Best Practice Guidelines for the Irish Wind Energy Industry[6].

The WCEMP takes into account specific activities during the decommissioning/construction and operational phases of the Development, including:

- Access roads;
- Turbine foundations; and
- Hardstanding areas and buildings (including crane hardstanding, construction compounds and associated infrastructure).

The appropriate methodologies to cover water control and the means of drainage from all hard surfaces and structures within the site are described in the following sections.

[1] The UK Forestry Standard: Forests and Water [online] Available at: https://www.forestry.gov.uk/pdf/FCFC001.pdf/$FILE/FCFC001.pdf [Accessed 10/01/2019].
[2] SR and SEPA (2012). Guidance on the Assessment of Peat volumes, Reuse of Excavated Peat and the Minimisation of Waste [online] Available at: http://www.scottishrenewables.com/media/uploads/publications/a4_developments_on_peatland.pdf [Accessed 10/01/2019].
[3] SNH (2013) Good Practice During Windfarm Construction, [online] Available at: http://www.snh.gov.uk/docs/A1168678.pdf [Accessed 10/01/2019].
[4] The Construction Industry Research and Information Association (CIRIA), (2015), Environmental Good Practice on Site Guide (C741), CIRIA: London
[5] CIRIA, (2001), Control of Water Pollution from Construction Sites (C532), CIRIA: London.
[6] Irish Wind Energy Association, 2012. Best Practice Guidance for the Irish Wind Energy Industry. Available at: http://www.iwea.com/iweabestpracticeguidelines. [Accessed on 10/01/2019].

2 THE MANAGEMENT OF SEDIMENT AND SURFACE WATERS

This section addresses the management of sediment and surface water run-off generated during the decommissioning/construction phase of the Development, through good practice construction techniques.

Major works will be minimised during heavy precipitation events.

Drainage from the site will include elements of Sustainable Drainage Systems (SuDS) design, where appropriate. SuDS replicate natural drainage patterns and have a number of benefits:

- SuDS will attenuate run-off, thus reducing peak flow and any flooding issues that might arise downstream;
- SuDS will treat run-off, which can reduce sediment and pollutant volumes in run-off before discharging back into natural drainage network; and
- SuDS measures, such as lagoons or retention ponds, correctly implemented will produce suitable environments for wildlife.

2.1 LOCATION OF SILT TRAPS AND SILT MATTING

Silt traps may be utilised to trap and filter sediment-laden run-off from excavation works at the Development, including turbine bases and access roads. They will be installed in drainage ditches but will be sited to avoid slopes with a gradient greater than 1 in 20.

Good practice will be followed prior to placement of silt traps adjacent to watercourses. Silt matting may be placed at the outfall of settlement lagoons to filter sediment during times of heavy rainfall.

The silt traps and silt matting will be monitored by the Ecological Clerk of Works (ECoW) and replaced when necessary.

Plates 1, 2 and 3 of this document display typical silt fencing, silt traps and silt matting.

Plate 1: Typical silt fencing

Plate 2: Typical silt traps

Plate 3: Typical silt mat to be placed at lagoon outfalls

2.2 LOCATION OF CHECK DAMS

Check dams will be installed within drainage ditches at regular intervals, where appropriate. Check dams will facilitate the settlement of suspended solids by slowing the flow of water within the drainage ditches. Appropriately sized stone pitching will be used within the dam in order to provide a rough surface for water within the drainage ditch to pass over.

Plate 4 of this document displays a typical check dam.

Plate 4: Typical check dams - to be installed in drainage ditches adjacent to the access track

2.3 LOCATION OF SETTLEMENT LAGOONS

Settlement lagoons will be implemented, where appropriate, at turbine excavations.

All settlement lagoons will be actively managed to control water levels and ensure that any runoff is contained, especially during times of rainfall. If required to achieve the necessary quality of the final run-off, further measures may include the use of flocculent to further facilitate the settlement of suspended solids. The appropriateness of flocculent use would be discussed with the Northern Ireland Environment Agency (NIEA) prior to its introduction into settlement lagoons

Plate 5 of this document displays a typical settlement lagoon and flocculent station.

Plate 5: Typical lagoon and flocculent station

2.4 OUTFLOW MONITORING FROM SETTLEMENT LAGOONS

Settlement lagoon outflow will be regularly inspected and discharge may be pumped, when required, for maintenance purposes. Any pumping activities will be supervised and authorised by the Infrastructure Contractor’s Project Manager.

Treated water will be discharged onto vegetated surfaces and directed away from surface watercourses. Within all the catchments, irrigation techniques, which may include the use of perforated discharge hoses or similar, will be employed to rapidly distribute discharge across a vegetated slope. This will be carried out in consultation with the ECoW.

Plate 6 of this document displays typical pumping operations.

Plate 6: Typical 'Siltbuster' and settlement lagoon

2.5 PROVISION FOR STORM EVENTS

The site itself is not considered to be at risk from flooding. In extreme storm events, there would be elevated levels of run-off from the hardstanding elements of the Development relative to greenfield flow rates, which has the potential to contribute to down-stream, off-site, flood risk. The areas of new hardstanding, in terms of the percentage of the relevant catchments that may be affected, are small.

In the baseline scenario, the water table is not at the ground surface, and hence some infiltration would be expected. The Development proposals could raise the water table, and therefore infiltration would reduce. Notwithstanding this, measures are proposed in this document that would limit run-off rates.

Temporary storage volume for storm run-off from the turbine foundations and crane hardstanding areas would be provided via settlement lagoons.

Along the access tracks, drainage channels on the down-slope would shed track run-off to adjacent rough ground approximately every 30 m, to attenuate flow and allow natural filtration to remove sediments. In areas within 50 m of a watercourse marked on an Ordnance Survey of Northern Ireland 1:50,000 scale map or where cross-slopes exceed 1 in 20, drainage channels will be bunded and outflow will be monitored daily in areas with on-going decommissioning/construction activity.

2.6 FOUL DRAINAGE

The substation building may house a single toilet facility and / or hand basin for visiting maintenance staff during the operational phase. Should this facility be required rainwater will be collected from the roof of the building via a gutter and inlet pipe to fill a rain water harvesting tank. Waste will be held in a closed system or a septic tank and pumped out as necessary via a tanker. The system shall be designed and approved by NIEA prior to decommissioning/construction.

Effluent and waste from onsite construction personnel will be treated at a package sewage treatment plant or a septic tank and discharged into a properly designed and sized drainage field, in accordance with GPP4. The system will be designed prior to the decommissioning/construction phase of the Development.

3 THE MANAGEMENT AND MOVEMENT OF FRESH CONCRETE

If concrete batching is carried out on-site, rather than being imported to the site ready-mixed, the following management measures are proposed.

3.1 ACCIDENTAL SPILLAGE WITHIN CONSTRUCTION COMPOUNDS

The construction compound will have a bunded area and this area will be underlain by an impermeable ground membrane layer. The bund will have a 110 % capacity to attenuate stored liquids (including fresh concrete). This will reduce the potential for accidental spillages to contaminate surface water or groundwater. An appropriately sized spill kit(s) will be provided and maintained on site. This will contain materials, such as absorbent granules and pads, absorbent booms and collection bags. These are designed to halt the spread of spillages and will deployed, as necessary, should a spillage occur elsewhere within the construction compounds.

3.2 ACCIDENTAL SPILLAGE OUTSIDE CONSTRUCTION COMPOUNDS

Speed limits for vehicles transporting concrete will be set at a maximum of 15 miles per hour (mph) and will be monitored. Maximum vehicle load capacities will not be exceeded. Although tracks will be maintained in good condition, vehicle loads will be reduced when a rougher surface is identified prior to track maintenance.

Spill kits will also be located at strategic points across the site, as displayed in Plate 7.

Plate 7: Spill Kits to be located across the Development

Measures to manage fresh concrete during pouring operations are described in Section 4.4: Concrete Pouring for Turbine Foundations.

3.3 VEHICLE WASHING

There will be a wash-out facility within the construction area consisting of a sump overlain with an impermeable geosynthetic membrane. The geosynthetic membrane will filter out the concrete fines leaving clean water to pass through to the sump. The sump water will be pumped to a licenced carrier and taken off-site for approved disposal.

No washing of concrete-associated vehicles will be undertaken outside the wash out facilities, and the area will be signposted, with all site contractors informed of the locations.

The frequency of concrete plant washout may also be reduced through the use of retarders.

Plate 8 displays a typical concrete wash-out facility.

Plate 8: Typical concrete washout facility

In the event that plant and wheel washing is required, dry wheel wash facilities and road sweepers will be provided to prevent (as far as is practicable) mud and debris being carried from within the site onto the public road.

Signage will be put in place to direct all vehicles to use wheel wash facilities. The track section between the wash facility and the public road will be surfaced with tarmac or clean hardcore and the area surrounding the facilities will be kept clean and in good condition.

The wheel wash facility, which will work on a closed cycle, shall be operated throughout the decommissioning/construction period. Wheel wash facilities will be located within a designated area of hardstanding at least 50 m from the nearest watercourse or 20 m from the nearest surface drain. It is expected that these facilities shall be sited adjacent to the site entrance, as shown in Plate 9.

Should debris be spread onto the site access or public road adjacent to the wind farm, then road sweepers will be quickly utilised to clean affected areas. Loose debris will also be periodically removed from on-site tracks. Also, all HGVs taking materials to and from the site will be sheeted to prevent the spillage or deposit of material on the highway.

Plate 9: Example of a dry ramp wheel wash facility

3.4 CONCRETE POURING FOR TURBINE FOUNDATIONS

Methods to protect surface and groundwater from the batching and transportation of concrete are considered above.

To prevent pollution it is important that all concrete pours are planned and that specific procedures are adopted where there may be a risk of surface water or groundwater contamination, in accordance with CIRIA C532. These procedures will include:

- Ensuring that all excavations are sufficiently dewatered before concrete pours begin and that dewatering continues while the concrete cures. However, construction good practice will be followed to ensure that fresh concrete is isolated from the dewatering system; and
- Ensuring that covers are available for freshly placed concrete to avoid the surface of the concrete washing away during heavy precipitation.

Typical foundation shuttering is shown in Plate 10 of this document.

Plate 10: Typical wooden shuttering – to be deployed around the turbine foundations during concrete pours

The excavated area will be back-filled with compacted layers of graded material from the original excavation, where this is suitable, and capped with peat or soil. Locally, around the turbines, the finished surface will be capped with crushed aggregate to allow for safe personnel access around the base of the turbine. The management of run-off from these areas is described in Section 3: The Management of Sediment and Surface Waters.

4 HYDROCARBON CONTAMINATION

4.1 VEHICLE MAINTENANCE

During the operation of the excavations, excavation machinery will be regularly maintained to ensure that there is minimal potential for fuel or oil leaks / spillages to occur. All maintenance will be conducted on suitable absorbent spill pads to minimise the potential for groundwater and surface water pollution. All machinery will be equipped with drip pans to contain minor fuel spillage or equipment leakages.

Appointed refuelling personnel will be trained in the correct methods of refuelling on site to ensure that pollution incidents are prevented and a quick response plan is implemented, should a spill occur, to minimise the impact of spills.

Plates 11 and 12 of this document display examples of dip pans and bunds.

Plates 11 and 12: examples of drip trays and bunds

4.2 CHEMICAL STORAGE

Potentially contaminating chemicals stored on site will be kept within a secure bunded area to prevent any accidental spills from affecting hydrological resources. The bunded area will be within the construction compound and will be underlain by an impermeable ground membrane layer to reduce the potential pathways for contaminants to enter watercourses and groundwater. Fuel storage on site will be bunded to 110% capacity.

Oil storage areas will be covered in order to prevent rainwater collecting within the bunded area.

Further detail is presented in Section 4.1: Accidental Spillage within Construction Compounds.

The chemicals storage area would be kept secure to prevent theft of vandalism. A safe system for accessing the storage area would be implemented by the Construction Contractor.

5 EARTHWORKS DRAINAGE

5.1 PRE EARTHWORKS DRAINAGE

Temporary interception bunds and cut-off drainage ditches ('clean water drains') will be constructed upslope of excavations and cuts to prevent surface water runoff entering the excavation.

SuDS measures, such as swales or retention ponds, will be implemented to convey and attenuate excess surface water flow away from cuts and excavations. Swales will be kept to a minimum length, depth and gradient with check dams, silt traps and buffer strips also utilised to minimise erosion, sedimentation at peak flows, where appropriate.

Swales to collect runoff will be placed on the downslope of excavations and overburden / stockpiles and will be designed to treat potentially silty runoff before discharging back into the drainage system.

The use of peat and soil stockpiles will be minimised by earthworks planning. However, where stockpiles are used, silt fences and straw bales wrapped in hessian or semi-permeable lining can be used to intercept sediment laden surface runoff in addition to swales and infiltration trenches.

5.2 EARTHWORKS DRAINAGE

Due to the low permeability of the overlying peaty soil deposits, it is unlikely that groundwater ingress from peat will be significant in borrow pit or earthworks areas. However, the bases of borrow pits and earthworks will have a gravity drainage system and all water will drain to an adequately sized sump.

If dewatering of borrow pits or excavations is necessary, waste water will be treated by designed settlement lagoons and retention ponds. 'Siltbusters' will be used to treat pumped / surplus water from lagoons or retention ponds during periods of heavy or persistent rainfall.

Flocculent could be employed in settlement lagoons and retention ponds to further facilitate the settlement of fine suspended solids before waste water is discharged to rough vegetation.

Waste water discharge onto vegetated surfaces from borrow workings and earthworks areas will be directed away from watercourses and drainage ditches to avoid direct and extended the treatment phases. Any sediment suspended within the treated water will be deposited amongst the rough surface vegetation. The Contractor's site manager will ensure that excessive sediment on vegetated surfaces does not accumulate.

Silt mats may be used at the outfalls of settlement lagoons and retention ponds to further aid the settlement of sediment from earthworks drainage.

During the operation of the borrow workings and during earthworks operations, excavation machinery will be regularly maintained to ensure that there is minimal potential for fuel or oil leaks / spillages to occur. All maintenance will be conducted on a bunded geotextile layer to reduce the potential for groundwater and surface water pollution.

5.3 MANAGEMENT OF DRAINAGE FROM SURPLUS MATERIALS

Careful consideration will be given to the location of topsoil and subsoil storage areas for all areas of the Development during decommissioning/construction. Storage areas will be either in a flat dry area away from watercourses, or be protected by the addition of cut off drains above the storage areas to minimise the ingress of water.

Mineral soils will not be allowed to dry out and silt fences and mats will be employed to minimise sediment levels in run-off.

All stockpiled material will be stored at least 50 m from watercourses in order to reduce the potential from sediment to be transferred into the wider surface water system and will be regularly inspected to ensure that erosion of the material is not taking place.

5.4 DUST SUPPRESSION AND CONTROL

Water needed for dust suppression on the haul roads during periods of dry weather and the compound vehicle wash will be clean water. Clean water may be obtained from re-circulated clean or treated drainage waters.

Where required, water may be extracted from local watercourses or groundwater. In these instances, the Contractor will liaise with NIEA beforehand to agree abstraction locations, rates and authorisation requirements.

Good practice measures will be adopted during decommissioning/construction to control the generation and dispersion of dust such that significant impacts on neighbouring habitats will not occur. The hierarchy for mitigation will be prevention, suppression then containment.

The following mitigation measures will be implemented to control the movement of dust within the Development site:

- Excavation and earthworks areas will be stripped as required in order to minimise exposed areas;
- During excavation works, drop heights from buckets will be minimised to control the fall of materials reducing dust escape;
- Completed earthworks and other exposed areas will be covered with topsoil and re-vegetated as soon as it is practical in order to stabilise surfaces.
- During stockpiling of loose materials, stockpiles shall exist for the shortest possible time;
- Material stockpiles will be low mounds without steep sides or sharp changes in shape;
- Material stockpiles will be located away from the site boundary, sensitive receptors, watercourses and surface drains;
- Material stockpiles will be sited to account for the predominant wind direction and the location of sensitive receptors;
- Water bowsers will be available on site and utilised for dust suppression during roadworks/ vehicle movements when and where required;
- Daily visual inspections will be undertaken to assess need for use of water bowsers; and
- Daily visual inspections will be undertaken to assess the condition of the junction of the site track with the A26 and its approaches.

6 ACCESS TRACK CONSTRUCTION AND USE

Prior to access track construction, site operatives will identify flush areas, depressions or zones which may concentrate water flow so that site drainage design will maintain hydrological connectivity. Site drainage design will be produced in advance of construction.

6.1 MANAGEMENT OF SURFACE WATER

Access tracks will be designed to have adequate cross fall to avoid ponding of rainwater and surface run-off. Run-off from the access tracks and existing drainage ditches will be directed into swales that will be designed to intercept, filtrate and convey the runoff.

Check dams will be installed within the swales and existing drainage ditches in order to increase the attenuation of run-off.

Permanent swales and drainage ditches adjacent to access tracks will have outlets at specified intervals to reduce the volume of water collected in a single channel and, therefore, reduce the potential for erosion. Further measures could include the use of settlement ponds or possibly flocculent to further facilitate the settlement of suspended solids.

The Infrastructure Contractor would be responsible for the management of all surface water run-off, including the design and management of a drainage scheme compliant with SuDS principles. This may include settlement lagoons and retention ponds, incorporating natural or assisted attenuation.

6.2 LOOSE TRACK MATERIAL

Loose material from the use of access tracks will be prevented from entering watercourses by utilising the following measures:

- Silt fences will be erected between areas at risk of erosion and watercourses;
- Silt fences and swales will be inspected daily and cleaned out as required to ensure their continued effectiveness;
- Silt matting if required will be checked daily and replaced as required;
- Excess silt will be disposed of in designated areas at least 50 m away from any watercourses or drainage ditches;
- Cut off ditches will be implemented on slopes greater than 1 in 20;
- Swales and drains will be checked after periods of heavy precipitation;
- The inlets and outlets of settlement lagoons, retention basins and extended detention basins will be checked on a daily basis for blockages;
- The access tracks will be inspected on a daily basis for areas where water collects and ponds; and
- An example of a semi-permeable geotextile layer is shown in Plate 13 of this document.

Plate 13: semi-permeable geotextile layer

6.3 MATERIAL EXCAVATED DURING TRACK CONSTRUCTION

Material excavated during track construction will either be stored adjacent to the track or within agreed spoil deposition areas and compacted in order to limit instability and erosion potential. Peat will not be allowed to dry out and silt fences will be employed if required to minimise sediment levels in run-off. Material will be stored at least 50 m from watercourses in order to reduce the potential for sediment to be transferred into the wider hydrological system.

Typical overburden stockpile measures are shown in Plate 14 of this document.

Plate 14: Typical overburden stockpile measures

6.4 WATERCOURSE CROSSINGS

The use of in-situ fresh concrete in the construction of watercourse crossings will be avoided where possible by the use of pre-cast elements. Existing culverts may be upgraded and anticipated to be replaced with suitable pre-cast culvert designs. Ready-made concrete 'box style' or bottomless arched concrete or plastic culverts will be used.

Prior to access track construction, site operatives will identify flush areas, depressions or zones which may concentrate water flow. These sections may be spanned with plastic pipes if required to ensure hydraulic conductivity under the road, and reduce water flow over the road surface during heavy precipitation.

Culverts will be designed based on best practice[7],[8],[9] in order to minimise effects of developments on the natural integrity and continuity of water courses. The design will incorporate the following criteria:

- Culverts will be well bedded to avoid settlement and protected by an adequate cover of road material;
- The substrate and side/ head walls will be reinforced in order to prevent erosion;
- The culverts will be designed such that it does not cause a barrier to movement of fish or other aquatic fauna;
- Culvert floors will have the same gradient (not exceeding a slope of 3 %) and level, and carry similar bed material and flow, as the original stream;
- There shall be no hydraulic drop at the culvert inlet or outlet;
- The width of the culvert will be greater than the active channel width of the watercourse;
- Culverts will be used to conduct water under the wind farm tracks; and
- Any fences or screens fitted on the inlet or outlet of the culvert will be designed to allow at least 230 mm of space between the bars of the screen of fence, up to the high water level.

Where infrastructure works (other than watercourse crossings) are required within or near watercourses the watercourse will be diverted or overpumped for the duration of the works. Diverting or overpumping will minimise the potential for sedimentation and erosion as well as minimising bed disturbance. Works will be carried out during dry

[7] *Forest and Water Guidelines, 5th Edition,* Forestry Commission, 2011. [online] Available at: http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8bvgx9 [Accessed 10/01/2015].
[8] *Construction of River Crossings,* SEPA, 2008. [online] Available at: http://www.sepa.org.uk/planning.aspx [Accessed 10/01/2019].
[9] Culverting of Water courses: Position Statement, SEPA, 2006. [online] Available at: http://www.sepa.org.uk/planning/engineering-water_environments.aspx [Accessed 10/01/2019].

periods and be stopped in the event of significant rainfall. All works will be carried out in line with GPP5 and in conjunction with best practice surface water management measures.

7 HANDLING OF MINERAL SOILS

7.1 GENERAL GOOD PRACTICE MEASURES

The excavation of each turbine foundation will generate excess material, the majority of which will typically be mineral soils. Excess material from other infrastructure will also be predominantly mineral soils.

As mentioned in Section 7: Access Track Construction and Use of this WCEMP, floating roads are unlikely to be used at the Development, as peat depth is generally less than 0.5 m in track areas and existing wind farm tracks have been use where possible.

At turbine foundations topsoil will be stripped separately to sub soils, where possible aiming to keep the top layer of turf intact. This material will be stored adjacent to the base working area and will be limited in height to 2 m to minimise the risk of overheating. Subsoil will then be stripped and stored, keeping this material separate from the topsoil in accordance with guidance by SNH and SEPA.

In accordance with BS 3882 'Specification for Topsoil and Requirements for Use', any long term stockpiling of topsoil should not exceed 2.0 m in height with a maximum side slope of 1 in 2. In its dry non plastic state, topsoil can be stockpiled in a 'loose tipped' manner and tracked in a compactive method reducing water ingress. Wetter soils can be stored in windrows for drying and later stockpiled for re-use. The re-wetting of peat will be carried out, if there is a potential risk of the peat drying out.

7.2 MEASURES TO PROTECT WETLAND HABITATS AND ABSTRACTIONS

The following measures will ensure that water quality and the flow supply of groundwater and near-surface water are maintained during the decommissioning/construction and operational phase of the Development. Key measures include:

- Silt traps may be deployed to trap and filter sediment-laden run-off throughout the decommissioning/construction phase of the Development;
- Settlement lagoons may be constructed and actively managed to control water levels and ensure that any runoff is contained, especially during times of rainfall. The location and management of the settlement lagoons is essential and will not be sited within vulnerable wetland areas where they may cause drying out and direct loss of habitat;
- Flush areas, depressions or zones which may concentrate water flow, will be identified in advance of decommissioning/construction and a suitable drainage design shall be developed to address each location, to ensure hydraulic connectivity
- Site drainage design will avoid any severance of saturated areas to ensure hydrological connectivity is maintained. Site drainage design will be produced in advance of decommissioning/construction;
- The length of time excavations are kept open and the duration of any dewatering will be minimised;
- All excavations will be sufficiently dewatered before concrete pours begin and that dewatering continues while the concrete cures. However, construction good practice will be followed to ensure that fresh concrete is isolated from the dewatering system; and
- Water from dewatering activities are generally treated by settlement lagoons and will be discharged onto vegetated surfaces, ensuring no net loss of water from the hydrological system. If ponding of water is observed during the discharge onto vegetated surfaces, additional measures may be employed.

8 DISPOSAL OF WASTE MATERIALS

Waste such as timber, metal, general waste *etc*. will be segregated on-site, and disposed of in a licenced waste facility off-site.

9 MONITORING PROGRAMME

A surface water and groundwater monitoring programme will be established prior to the decommissioning/construction phase of the Development. An indicative monitoring programme is set out below.

9.1 SURFACE WATER MONITORING

Surface water monitoring would be undertaken at locations on the principal watercourses downstream of the Development infrastructure and upstream of other non-natural influences, where possible.

Regular visual inspections of surface watercourses are proposed, especially during major excavation works, as these allow rapid identification of changes in levels of suspended solids that could indicate decommissioning/construction related effects are occurring upstream. Potential effects can then be investigated and remedial action taken to prevent further effects, if necessary.

To supplement the visual inspections, it is anticipated that there would be a number of surface water monitoring points for extractive sampling and analysis, Details will be agreed in advance of decommissioning/construction.

The following sampling frequency is proposed in order to establish baseline hydrochemical conditions of surface water constituents:

- Once every month for twelve months prior to the decommissioning/construction phase.

The following sampling frequencies are proposed in order to monitor surface water conditions against baseline conditions:

- Once a week during ground breaking works and concrete works, e.g., access track construction, turbine foundations;
- Twice a month during minor construction works; and
- Twice a month for three months then once a month for a further 3 months during the post construction phase.

Establishing baseline conditions for surface waters will enable any trends in levels of critical parameters to be assessed and deviations from the norm identified and rectified through water management measures.

9.2 MONITORING REPORTING

The results of all laboratory analysis of water samples will be tabulated and reports submitted to the client and contractor on a monthly basis.

9.3 OPERATIONAL PHASE MONITORING

Sampling and testing will be carried out during the operational phase when any major maintenance or construction works are undertaken that may give rise to pollution of surface water.

9.4 MONITORING PROGRAMME SUMMARY

Any activity proving detrimental to water quality will be detected at the earliest opportunity during the decommissioning/construction and operational phases of the

Development. This will allow action to be taken to prevent any further effect on water quality.

10 DECOMMISSIONING

Decommissioning activities will be undertaken in accordance with good practice at the time, and agreed with the relevant consultees in advance of the works commencing.

11 CONCLUSIONS AND RECOMMENDATIONS

The purpose of this outline WCEMP is to detail appropriate water management measures to control surface water run-off, and drain infrastructure during the decommissioning/construction and operation of Corkey Windfarm. The measures detailed throughout this report would ensure that any effects on the surface and groundwater environment are minimised.

This document would be adapted to meet the additional requirements of the construction contractor and Ecological Clerk of Works, when appointed, to ensure that all measures implemented are effective and site-specific.

The WCEMP is considered to be a live document, such that modifications can be made following additional information and advice from consultees.

Corkey Windfarm Repowering

Technical Appendix A7.3: Dipwell Monitoring Results

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TECHNICAL APPENDIX A7.3

DIPWELL MONITORING RESULTS
CORKEY WINDFARM REPOWERING

SCOTTISHPOWER RENEWABLES

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1 INTRODUCTION

This Technical Appendix outlines the results of Dipwell monitoring carried out at Corkey Windfarm ('The Development').

Dipwells were installed by ScottishPower Renewables ('the Applicant') during June 2017 in order to measure water levels in peat as part of the active peat assessment detailed in Chapter 8: Ecology.

Dipwell data as provided by the Applicant is detailed in Table 1 and shown graphically in Chart 1.

2 METHODOLOGY

Dipwells have been monitored at the Development by the Applicant during two 'wet' periods (28/06/2017 and 07/05/2018) where significant precipitation was recorded in the preceding 30 days and a dry period (10/07/2018) where minimal precipitation was recorded in the preceding 30 days.

Results are presented as the relative water depth below ground level where the depth to water from the top of the dipwell is subtracted from the height of the dipwell.

The characteristics of the area immediately surrounding the dipwell are detailed as either bog, sloping bog, new cut, old cut, hag or gully.

3 DIPWELL DATA

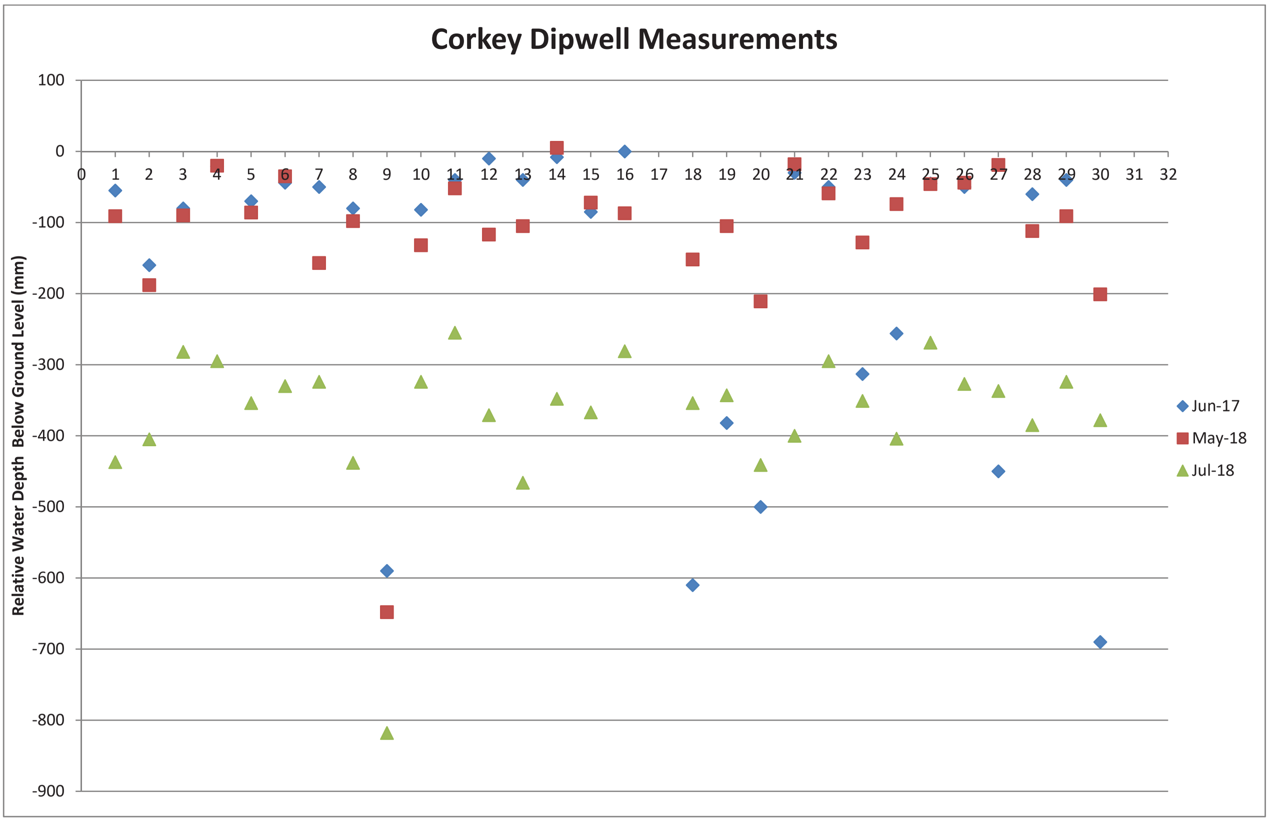
Table 1: Dipwell Data Supplied by the Applicant

Year	Wet Period or Dry Period	Date	14 day mean rainfall percentile	30 day mean rainfall percentile	Dipwell ID	Dipwell Height (mm)	Water Depth (mm)	Relative Water Depth Below Ground Level (mm)	Description of Area
2017	Wet	28/06/2017	16	61	1	125	180	-55	Bog
2017	Wet	28/06/2017	16	61	2	60	220	-160	Bog
2017	Wet	28/06/2017	16	61	3	100	180	-80	Bog
2017	Wet	28/06/2017	16	61	4	119	140	-21	Bog
2017	Wet	28/06/2017	16	61	5	75	145	-70	Bog
2017	Wet	28/06/2017	16	61	6	116	160	-44	Bog
2017	Wet	28/06/2017	16	61	7	70	120	-50	Bog
2017	Wet	28/06/2017	16	61	8	75	155	-80	Bog
2017	Wet	28/06/2017	16	61	9	80	670	-590	Bog
2017	Wet	28/06/2017	16	61	10	110	192	-82	New cut
2017	Wet	28/06/2017	16	61	11	120	160	-40	Bog
2017	Wet	28/06/2017	16	61	12	110	120	-10	Bog
2017	Wet	28/06/2017	16	61	13	90	130	-40	Sloping bog
2017	Wet	28/06/2017	16	61	14	72	80	-8	Sloping bog
2017	Wet	28/06/2017	16	61	15	100	185	-85	Sloping bog
2017	Wet	28/06/2017	16	61	16	115	115	0	Old cut
2017	Wet	28/06/2017	16	61	18	140	750	-610	Sloping bog
2017	Wet	28/06/2017	16	61	19	88	470	-382	Gully
2017	Wet	28/06/2017	16	61	20	250	750	-500	Hag
2017	Wet	28/06/2017	16	61	21	120	150	-30	Sloping bog

2017	Wet	28/06/2017	16	61	22	120	170	-50	Sloping bog
2017	Wet	28/06/2017	16	61	23	142	455	-313	Sloping bog
2017	Wet	28/06/2017	16	61	24	114	370	-256	Sloping bog
2017	Wet	28/06/2017	16	61	25	115	160	-45	Bog
2017	Wet	28/06/2017	16	61	26	90	140	-50	Bog
2017	Wet	28/06/2017	16	61	27	90	540	-450	Bog
2017	Wet	28/06/2017	16	61	28	140	200	-60	Bog
2017	Wet	28/06/2017	16	61	29	120	160	-40	Bog
2017	Wet	28/06/2017	16	61	30	60	750	-690	Bog
2018	Wet	07/05/2018	22	5	1	131	222	-91	Bog
2018	Wet	07/05/2018	22	5	2	66	254	-188	Bog
2018	Wet	07/05/2018	22	5	3	106	196	-90	Bog
2018	Wet	07/05/2018	22	5	4	128	148	-20	Bog
2018	Wet	07/05/2018	22	5	5	99	185	-86	Bog
2018	Wet	07/05/2018	22	5	6	135	170	-35	Bog
2018	Wet	07/05/2018	22	5	7	84	241	-157	Bog
2018	Wet	07/05/2018	22	5	8	74	172	-98	Bog
2018	Wet	07/05/2018	22	5	9	102	750	-648	Bog
2018	Wet	07/05/2018	22	5	10	117	249	-132	New cut
2018	Wet	07/05/2018	22	5	11	130	182	-52	Bog
2018	Wet	07/05/2018	22	5	12	134	251	-117	Bog
2018	Wet	07/05/2018	22	5	13	104	209	-105	Sloping bog
2018	Wet	07/05/2018	22	5	14	77	72	5	Sloping bog
2018	Wet	07/05/2018	22	5	15	110	182	-72	Sloping bog
2018	Wet	07/05/2018	22	5	16	130	217	-87	Old cut

2018	Wet	07/05/2018	22	5	18	129	281	-152	Sloping bog
2018	Wet	07/05/2018	22	5	19	95	200	-105	Gully
2018	Wet	07/05/2018	22	5	20	149	360	-211	Hag
2018	Wet	07/05/2018	22	5	21	146	164	-18	Sloping bog
2018	Wet	07/05/2018	22	5	22	140	199	-59	Sloping bog
2018	Wet	07/05/2018	22	5	23	149	277	-128	Sloping bog
2018	Wet	07/05/2018	22	5	24	109	183	-74	Sloping bog
2018	Wet	07/05/2018	22	5	25	121	167	-46	Bog
2018	Wet	07/05/2018	22	5	26	102	146	-44	Bog
2018	Wet	07/05/2018	22	5	27	105	124	-19	Bog
2018	Wet	07/05/2018	22	5	28	140	252	-112	Bog
2018	Wet	07/05/2018	22	5	29	131	222	-91	Bog
2018	Wet	07/05/2018	22	5	30	59	260	-201	Bog
2018	Dry	10/07/2018	0	9	1	131	568	-437	Bog
2018	Dry	10/07/2018	0	9	2	66	471	-405	Bog
2018	Dry	10/07/2018	0	9	3	106	388	-282	Bog
2018	Dry	10/07/2018	0	9	4	128	423	-295	Bog
2018	Dry	10/07/2018	0	9	5	99	453	-354	Bog
2018	Dry	10/07/2018	0	9	6	135	465	-330	Bog
2018	Dry	10/07/2018	0	9	7	84	408	-324	Bog
2018	Dry	10/07/2018	0	9	8	74	512	-438	Bog
2018	Dry	10/07/2018	0	9	9	102	920	-818	Bog
2018	Dry	10/07/2018	0	9	10	117	441	-324	New cut
2018	Dry	10/07/2018	0	9	11	130	385	-255	Bog
2018	Dry	10/07/2018	0	9	12	134	505	-371	Bog

2018	Dry	10/07/2018	0	9	13	104	570	-466	Sloping bog
2018	Dry	10/07/2018	0	9	14	77	425	-348	Sloping bog
2018	Dry	10/07/2018	0	9	15	110	477	-367	Sloping bog
2018	Dry	10/07/2018	0	9	16	130	411	-281	Old cut
2018	Dry	10/07/2018	0	9	18	129	483	-354	Sloping bog
2018	Dry	10/07/2018	0	9	19	95	438	-343	Gully
2018	Dry	10/07/2018	0	9	20	149	590	-441	Hag
2018	Dry	10/07/2018	0	9	21	146	546	-400	Sloping bog
2018	Dry	10/07/2018	0	9	22	140	435	-295	Sloping bog
2018	Dry	10/07/2018	0	9	23	149	500	-351	Sloping bog
2018	Dry	10/07/2018	0	9	24	109	513	-404	Sloping bog
2018	Dry	10/07/2018	0	9	25	121	390	-269	Bog
2018	Dry	10/07/2018	0	9	26	102	429	-327	Bog
2018	Dry	10/07/2018	0	9	27	105	442	-337	Bog
2018	Dry	10/07/2018	0	9	28	140	525	-385	Bog
2018	Dry	10/07/2018	0	9	29	131	455	-324	Bog
2018	Dry	10/07/2018	0	9	30	59	437	-378	Bog


Corkey Dipwell Measurements
Relative Water Depth Below Ground Level (mm)
100
0
-100
-200
-300
-400
-500
-600
-700
-800
-900
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Jun-17
May-18
Jul-18

Corkey Windfarm Repowering

Technical Appendix A7.4: Outline Peat Management Plan

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CORKEY WINDFARM REPOWERING

OUTLINE PEAT MANAGEMENT PLAN

JUNE 2019

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1 INTRODUCTION

1.1 Preparation of the Peat Management Plan

This outline Peat Management Plan (oPMP) for Corkey Windfarm Repowering (the Proposed Development) has been prepared initially to inform the Causeway Coast and Glens Borough Council and statutory consultees of the proposed peat and soils management methodologies to be employed during construction.

The purpose of the oPMP is to:

- Define the materials that will be excavated as a result of the Development, focusing specifically on the excavation of peat;
- Report detailed investigations into peat depths within the Development Site;
- Detail proposals for the management of excavated peat and other soils;
- Consider the potential impact of the Development on Ground Water Dependent Ecosystems (GWDTEs);
- Determine volumes of excavated arisings, the cut/fill balance of the Development and proposals for re-use or reinstatement using excavated materials; and
- Detail management techniques for handling, storing and depositing peat for reinstatement.

The oPMP has been produced in accordance with Scottish Renewables (SR) and the Scottish Environment Protection Agency (SEPA) Guidance on Peat Excavations and Management[1]. This oPMP is intended to be a document that will evolve during the different phases of the project and as such will be subject to continued review to address:

- Requirements to discharge future Planning Conditions;
- Detailed ground investigations and design development;
- Unforeseen conditions encountered during construction;
- Changes in best practice during the life of the wind farm; and
- Changes resulting from the construction methods used by the contractor(s).

Whilst this oPMP provides a base standard for good practice, where avoidance or further minimisation of risks to the environment can be demonstrated through use of alternative methods or improvements to current practices, the Contractor will implement these wherever possible and will correspond with SEPA and Causeway Coast and Glens Borough Council.

1.2 The Development Site

The Development is located near Loughguile and lies approximately 25km south-east of Ballymoney, close to Corkey. The Development will comprise of 5 turbines and the 'Site Layout Plan' is detailed in Figure 1.

Published geological mapping of superficial soils indicates the site to be underlain mainly by peat with till deposits typically comprising gravel, sand and silt found nearer the site entrance in the west.

Published bedrock geology mapping indicates the site to be underlain by Lower Basalt Formation comprising Paleocene aged Basalt. Within the Study Area, localised areas were recorded to belong to the Upper Basalt Formation and Interbasaltic Formations, comprising Basalt and Bauxites respectively.

No faults are recorded within the development site.

[1] SR and SEPA (2012) Guidance on the Assessment of Peat volumes, Re-use of Excavated Peat and the Minimisation of Waste [Online] Available at: http://www.scottishrenewables.com/media/uploads/publications/a4_developments_on_peatland.pdf (Accessed 18/10/2018])

1.3 Consultation

Peat management within the Development Site was considered throughout the Environmental Impact Assessment (EIA) for the Development and the outcomes of studies are reported in the EIA Report. The EIA Report formed part of the planning application and will be made available to the Causeway Coast and Glens Borough Council and its consultees including NIEA and GSNI.

This oPMP considers assessments included in the EIA Report and responds to the consultees scoping opinions.

2 OBJECTIVES

2.1 Introduction

2.1.1 Background

The preparation of an oPMP responds both to the scoping responses from April 2017 and the intent to deliver a construction project that complies with good practice in accordance with regional and national guidance.

By undertaking detailed peat survey work and carrying out assessments such as Peat Slide Risk Assessment (PSRA) for the EIA, a consistent approach to the management of peat across the Development Site can be achieved.

The overall objective of the outline design has been to minimise the excavation of peat where possible, and achieve as close as practicable an overall material balance within the Development Site. This is considered to give the best opportunity to achieve reinstatement or restoration in accordance with good practice, and remove the need for waste management controls.

This objective is achieved through:

- Ensuring the characteristics of the Development Site are understood through extensive peat probing and assessing the sites topography;
- Understand the extents of the site layout and how excavations will take place; and
- Modelling the peat depth profile based on probing and digital terrain model in 3D.

2.1.2 Approach to Minimising Peat Excavation

The following steps have been taken during the outline design stage of the Proposed Development to minimise the impact on peat:

- The development of an access track design which avoids deep or active peat where practicable; and
- The design and orientation of turbines and crane hardstandings considers local topographical and peat constraints;

At detailed design and construction stage these steps will be further supplemented by taking the following measures to minimise disturbance:

- Maximisation of batter angles in cuttings;
- Consideration of floating tracks, if possible; and
- The use of appropriate construction plant to avoid unnecessary disturbance of the ground surface.

The fundamental principle upon which this oPMP is based is that achieving a successful materials strategy is contingent on gaining a thorough understanding of the Development Site through investigation and developing a design that achieves the materials management objectives. For the Proposed Development, this principle is achieved by undertaking significant peat investigation works prior to preparing this oPMP.

2.2 Aims and Objectives

2.2.1 Need for a Peat Management Plan

This oPMP is prepared to demonstrate to the planning authority, NIEA and other consultees that the construction of the Development will progress in a manner that is planned, is in accordance with good practice and achieves the aim of being environmentally sustainable.

The oPMP defines:

- How the Development has been structured and designed so far as practicably possible to reduce the volumes of peat excavated;
- How volumes of peat excavated during the course of the works have been considered in the design; and
- How excavated peat will be managed.

2.2.2 Objectives of the outline Peat Management Plan

The main objectives of the oPMP is to outline how any peat expected to be excavated will be managed and re-used during the construction of the Development.

This is achieved through responding of the following objectives:

- Providing a description of peat conditions on site and how this was determined;
- Estimation of peat volumes to be excavated and re-used;
- Classification of excavated material;
- Consideration of the use of appropriate peat(s);
- Describing how excavated peat will be handled to ensure suitability for re-use;
- Determining if temporary storage of peat will be required during construction and how this will be done to ensure suitability for re-use; and
- Considering the potential volume of peat which may not be suitable for re-use and any requirement for a Waste Management Plan for the Development.

The response to these objectives is provided in the following sections.

3 PEAT MANAGEMENT

3.1 Investigations

The existing peat depths across the Development Site have been determined through a phased survey approach undertaken during EIA. The survey was initiated to inform the EIA and site design work while supporting the PSRA. The survey comprised a total of 766 probes.

Peat depths ranged from zero to 2.9 m thickness across the Development with peat of 2m depth concentrated mainly in the eastern area. This was consistent with the GSNI mapping.

Initial peat depth surveys were undertaken in April and August 2017 comprising 100 m grid coverage across the Development Site, where accessible. This rationale of probing is in accordance with the Phase 1 approach as detailed in the Scottish Government guidance for investigating peat as referred to in the Irish Wind Energy Association, 2012 documents 'Best Practice Guidance for the Irish Wind Energy Industry.

Further peat depth surveys (Phase 2) was undertaken in June 2018. The probe positions for this visit were focussed on the proposed turbine, access tracks and other key infrastructure. Peat depths were measured along the proposed access tracks at 50 m centres with offsets of 25 m on either side of the centre line, with 10 m grid spacing at turbines east of the existing wind farm spine road where deeper peat had previously been recorded, and 10 m cross-hair at turbines west of the spine road.

The peat depths are illustrated in Figure 2 'Recorded Peat Depth'.

3.2 Summary of Peat Depths

Throughout the peat surveys to date, a total 766 probes were progressed. Just under 35% of these recorded no peat or peat less than 0.5 m while 21% of probes recorded peat between 0.5 m and 1.0 m. Thick peat (where the depth was greater than >1.0 m) was recorded in over 44% of locations.

Deep peat was confirmed in flatter topographic areas of Slievenahanaghan Hill, particularly the most north easterly area part of the Study Area, in the vicinity of the proposed T1. Pockets of deep peat, 1.5 m or greater, were recorded across the upper regions of the hill upward of the 380 m AOD contour, with peat thinning on the steeper topographic areas. Peat was generally varying across the remainder of the proposed development with thicknesses in the region of 0.5 m or less dominating the western site area and the tracks section between the site entrance and the existing site track.

A section of operational track between the south-western area and the existing site tracks were investigated with trial pits and associated geotechnical testing. No significant peat was recorded in this section of the site as anticipated from desk studies and initial site walkovers.

Prior to commencing works on site, the Contractor as part of any floating road design will undertake further ground investigation to establish peat characteristics and surcharging strategies.

The peat depths are illustrated in Figure 3 'Interpolated Peat Depth'.

3.2.1 General Peat Classification

Acrotelmic peat is the upper layer of peat consisting of living and partially decayed material with a higher hydraulic conductivity and a variable water table. These deposits are generally found to exist in the upper 0.5 m of peat deposits and is typically suitable

for re-instatement because it contains viable plant life to assist in the regeneration of peatland vegetation and carbon sequestration.

Catotelmic peat is variable in characteristics, with decomposition of fibres generally increasing with depth. Water content can be highly variable and affects the structural strength of the material. Suitability for re-use generally depends on fibre and water content. The upper catotelm is commonly deemed as being appropriate for re-use in restoration due to its relatively high fibre content.

Generally excavated semi fibrous catotelmic peat from the Development Site will have sufficient structural strength to be able to be used in the lower layers of verge restoration as it will not be 'fluid'.

The catotelmic peat would be capped with a surface layer of actrotelm to re-establish the peat vegetation. If any fluid like wet catotelmic peat is encountered then it would be placed in more appropriate locations such as obvious concave deposition areas.

The following assumptions have been made in classifying peat excavated during the construction work:

- Where the total peat depth was found to be less than 0.5 m, this peat material is assumed to be 100% acrotelmic;
- Where the total peat depth is between 0.5 m and 1.0 m, the upper acrotelmic peat is at least 0.5 m deep; and
- Where the total peat depth as found to be greater than 1.0 m, acrotelmic peat is assumed to account for at least 30% of total depth but generally applying minimum of 0.5 m thick.

Existing topography and permitted track gradients drive the design of the infrastructure with due consideration given to potential construction risk and effects on environmentally sensitive receptors including deep/active peat, watercourse buffers and any GWDTEs. Further micro-siting post-consent would take place in such a way as to avoid where possible the excavation of deep peat where possible.

3.2.2 Excavation Calculation

An estimate of excavated volumes against access track lengths, turbines and crane hardstandings in line with the outline design stage has been undertaken. This was completed by assessing the 2D layout against the 3D interpolated peat data. Detailed earthworks volumes were not available for the project at this stage.

Volumes of excavation and an estimate on the excavated material compositions, be this non-peat superficial soils, peat or other materials is included in Table 3.1 using the anticipated construction activities that will generate excavated soils.

Table 3.1 Peat excavation volumes based on construction activity

Development Component	Anticipated Volume of Excavated Peat (m^3)	Anticipated Volume of Acrotelmic Peat (m^3)	Anticipated Volume of Catotelmic Peat (m^3)
General earthworks associated with widening/upgrade of existing tracks, new access tracks, turning heads, passing places and road shoulders	17,071	7,409	9,662

Crane Pad, Laydown Areas and Foundations	29,896	13,548	16,348
Construction compounds	7,033	7,033	0
Substation	825	413	412
TOTAL	**54,825**	**28,403**	**26,422**

3.2.3 Peat Re-use Requirements

The principles of re-instating peat and peat soils should be adhered to for all elements of the infrastructure, comprising the below:

- Peat and peaty soils will be reinstated on track and infrastructure verges with turves placed on the upper horizons encouraging re-vegetation;
- All peat, soil and turves excavated from beneath infrastructure (excluding any floating track section) will be re-instated in the vicinity of its original location;
- Any wet catotelmic peat will be placed at the bottom of any restoration profile, followed by semi fibrous catotelmic peat and then acrotelmic should be placed on top; and
- Restoration activities will be overseen by the Ecological Clerk of Works to ensure methods are properly adhered to and in accordance with the recommendation in the HMP.

Table 3.2 shows the opportunities for re-use of peat with the Development Site including the demand for acrotelm and catotelm peat. Table 4.3 summarises the total peat balance estimated during construction of the Proposed Development.

Table 3.2 Peat Re-use volumes based on construction activity

Development Area	**Total Demand Estimate (m³)**	**Acrotelm Demand (m³)**	**Catotelm Demand (m³)**	**Estimated Reinstatement Thickness (max) where gradient permits (m)**	**Assumptions**
General earthworks associated with widening/upgrade of existing tracks, new access tracks, turning heads, passing places and road shoulders	27,721	15,511	12,211	Up to 0.5 m	Earthworks surface area/non-hardstanding of approximately 53,000m2 – assume up to 0.5m reinstatement on verge and earthwork banks, both sides of tracks.
Crane Pad, Laydown Areas and Foundations	20,370	8,148	12,222	Up to 0.8 m	Earthworks surface area/non-hardstanding of approximately 27,000 m2 – assume up to 0.8 m reinstatement on verge and earthwork banks, dressing off and landscaping of 5 turbines foundations
Construction Compounds/ Substation	7,585	4,866	2,719	0.50 m	Full reinstatement of construction compound and dressing off of side slopes at sub-station compound at thicknesses of up to 0.8m and 0.5 m respectively.
Total	**55,676**	**28,525**	**27,152**		

Table 3.2 is presented as a summary of the assessment of peat reinstatement volumes.

The following assumptions have been made in assessing peat re-use:

- New access track sections assume verges on both sides at widths up to 1.0 m. As the access track edges will have graded slopes, peat depths will vary across the profile to tie into existing ground levels;
- Upgraded track sections assume a verge on the upgraded side 0.5 m wide. As the access track edges will have graded slopes, peat depths will vary across the profile to tie into existing ground levels;
- Verges along the access tracks could consist of up to 0.5 m thick peat. Where possible catotelmic peat will be reinstated along verges in flatter areas;
- No peat will be placed on access track verges where the local topography is steep and/or a watercourse is in close proximity. This has been reflected in the volumes generated for access track sections;
- Peat will be laid only to a thickness that maintains hydrological conditions and to avoid drying out. Peat will not be used as a thin layer or on steeper non-peat slopes. Low verges and landscaping will be formed to permit surface water to drain off the access tracks; and
- Catotelmic soils will only be used if it is suitable for purpose.

Table 3.3 - Peat Balance Calculations

Peat Description	Total Peat Demand Estimate for Reinstatement (m^3)	Total Peat Supply from Excavation (m^3)	Surplus (+) or Deficit (-) (m^3)
Acrotelm	28,525	28,403	-122
Catotelm	27,152	26,422	-730
Total	**55,676**	**54,825**	**-851**

Table 3.3 demonstrates that there will be a small deficit of peat. These volumes should be considered in the context of the total excavated peat during construction. It is likely that balance would be achieved once total excavated peat is established by the Contractor and reinstatement depths are adjusted accordingly.

3.2.4 Handling and Storage of Peat

It will be necessary for the Contractor to prescribe methods and timing involved in excavating, handling and storing peat for use in reinstatement. The contractor will be responsible for appointing a chartered geotechnical engineer, as discussed in the Outline Decommissioning & Construction Environmental Management Plan (DCEMP), who will monitor any potential stability risks. Construction methods will be based on the following principles:

- The surface layer of peat (acrotelm) and vegetation will be stripped separately from the catotelmic peat. This will typically be an excavation depth of up to 0.5 m;
- Acrotelmic material will be stored separately from catotelmic material;
- Careful handling is essential to retain any existing structure and integrity of the excavated materials and thereby maximise the potential for excavated material to be re-used;
- Less humified catotelmic peat which maintains its structure upon excavation should be kept separate from any highly humified amorphous or wet catotelmic peat;
- Acrotelmic material will be replaced as intact as possible once construction progresses / as it is complete;
- To minimise handling and transportation of peat, acrotelmic and catotelmic will be replaced, as far as is reasonably practicable, in the locality from which it was removed. Acrotelmic material is to be placed on the surface of reinstatement areas;
- Temporary storage of peat will be minimised, with restoration occurring in parallel with other works;
- Suitable areas should be sited in locations with lower ecological value, low stability risk and at a suitable distance from water courses;
- Reinstatement will, in all instances, be undertaken at the earliest opportunity to minimise storage of turves and other materials;
- Managing the construction work as much as possible to avoid periods when peat materials are likely to be wetter i.e. high rainfall events; and
- Transport of peat on site from excavation to temporary storage and restoration site should be minimised.

3.2.5 Waste Management Plan Requirements

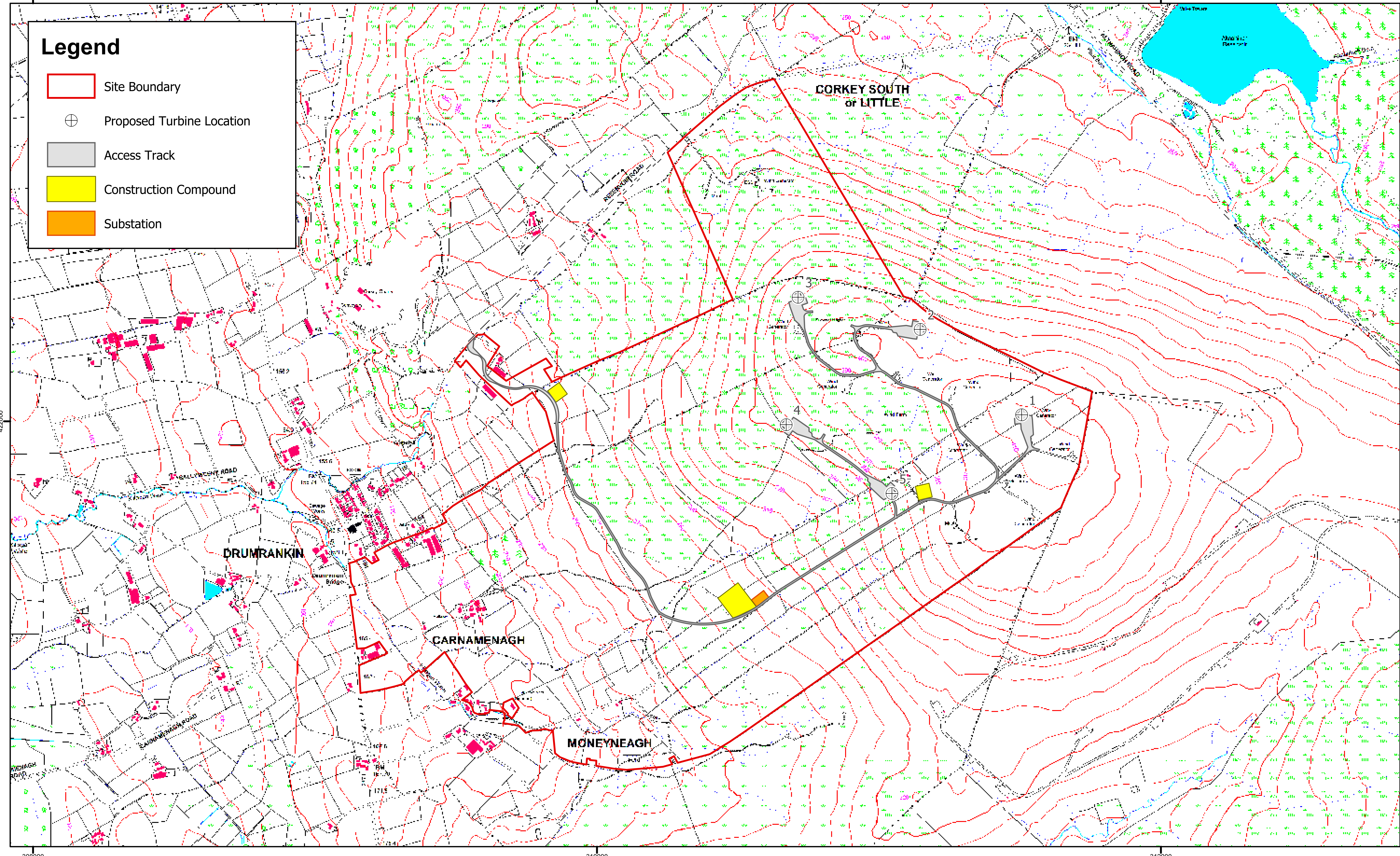
The DCEMP contains details relating to the waste management requirements. Based on the calculations carried out, the total peat volumes excavated will be fully incorporated in to the re-instatement works, therefore is unlikely to require a waste management licence.

4 CONCLUSIONS

The following conclusions are drawn regarding the management of peat and excavated materials within the Proposed Development Site:

- As a result of the peat excavation and re-use estimates, it is demonstrated that all excavated peat can be suitably re-used on site;
- Excavated peat will be used for the reinstatement of access track verges, cut and fill embankment slopes, reinstatement of turbine hardstandings, reinstatement of compound areas;
- The estimates of excavated peat provided in this report are likely to be higher than actually occur, as micro-siting during construction will allow for the avoidance of localised pockets of deeper peat;
- Sufficient methods have been defined to ensure that peat can be sensitively handled and stored on site to allow for effective re-use; and

APPENDIX 1 - DRAWINGS



Rev	Date	By	Comment
A	17/04/2019	SC	First Issue.

0 0.15 0.3 0.6 km

Corkey Windfarm Repowering

Site Layout Plan

Figure 1

Drawing Number: 2606-REP-083

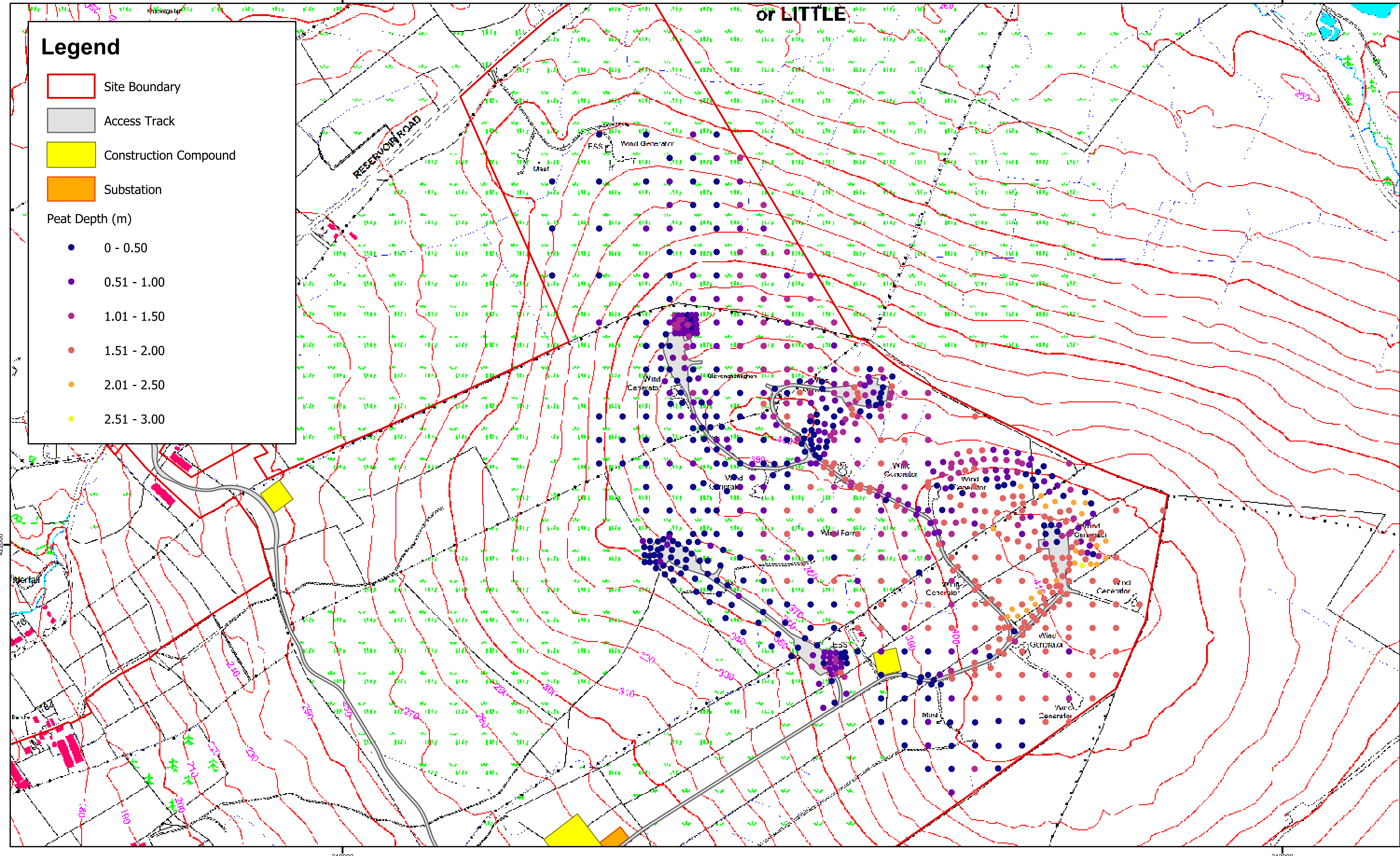
Datum TM65

Projection TM

Scale @ A3 1:12,500

Drawing produced by Arcus Consultancy Services

2606-REP-083 Fig01 Site Layout Plan



SCOTTISHPOWER RENEWABLES

Rev	Date	By	Comment
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0 0.13 0.25 0.5 km

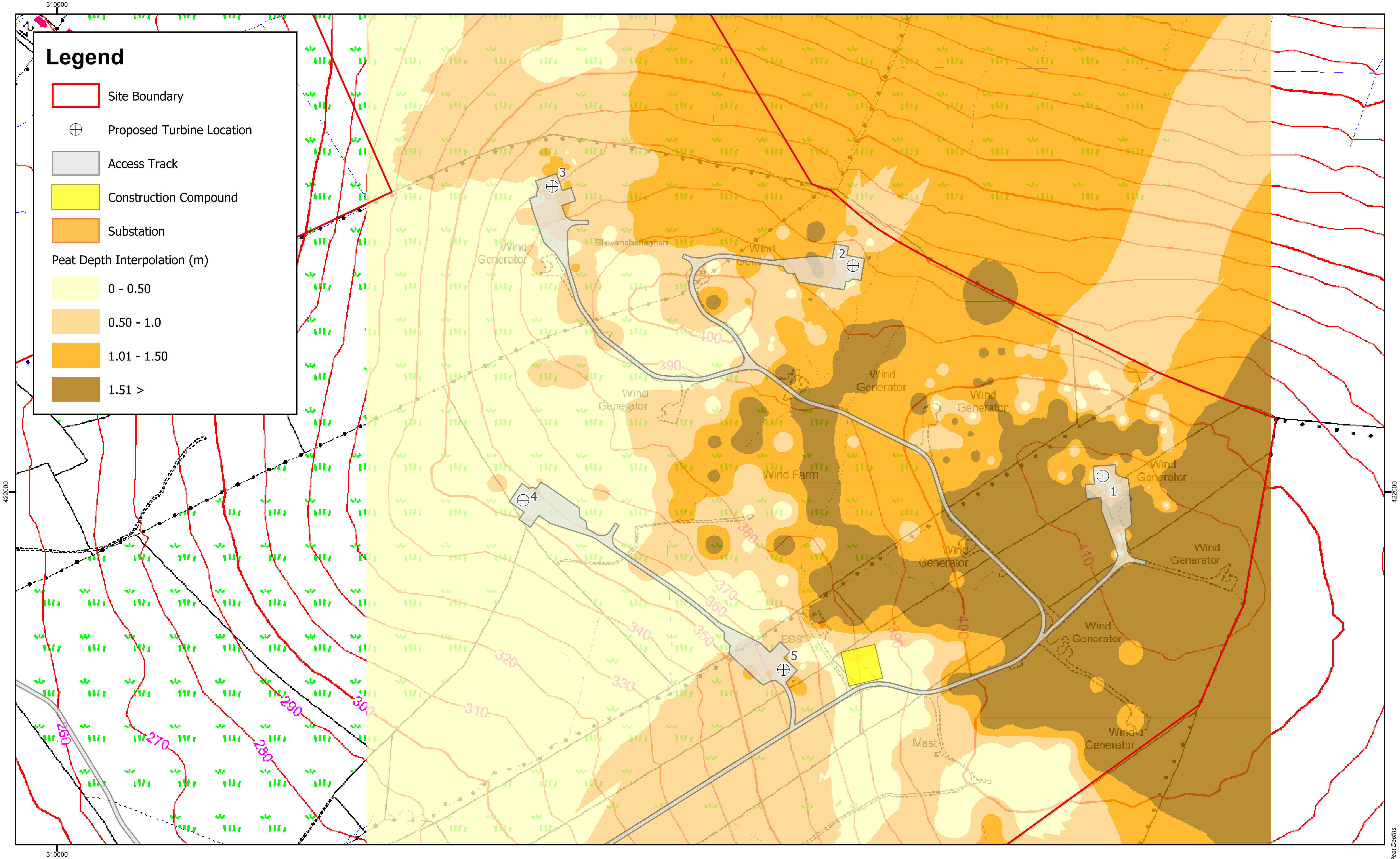
Corkey Windfarm Repowering

Recorded Peat Depths

Figure 2

Drawing Number: 2606-REP-084	Datum TM65	Projection TM
Scale @ A3 1:7,500	Drawing produced by Arcus Consultancy Services	

2606-REP-084 Fig02 Recorded Peat Depths



Rev	Date	By	Comment
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0 0.05 0.1 0.2 km

SCOTTISHPOWER RENEWABLES

Corkey Windfarm Repowering

Interpolated Peat Depths

Figure 3

Drawing Number: 2606-REP-085	Datum TM65	Projection TM
Scale @ A3 1:5,000	Drawing produced by Arcus Consultancy Services	

2606-REP-085 Fig03 Interpolated Peat Depths