Gordonbush Extension Wind Farm

Appendix 9.1

Peat Landslide Hazard and Risk Assessment

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EXECUTIVE SUMMARY

SLR Consulting Ltd (SLR) was commissioned by SSE Renewables Developments (UK) Ltd to undertake a Peat Landslide Hazard and Risk Assessment (PLHRA) for the proposed Gordonbush Extension Wind Farm. SLR supplemented the available data, supplied by SSE Renewables Developments (UK) Ltd with site investigation and geomorphological mapping data to facilitate an initial peat slope instability risk assessment.

The Development is located on Gordonbush Estate, adjacent to the operational Gordonbush Wind Farm and approximately 9.5 kilometres (km) to the north-west of Brora.

Based on the available information, gathered as part of a review process and from recent site survey work carried out during March and November 2014, the following PLHRA has been compiled. The purpose of the report was to consider the extent of peat occurring at the site such that suitable controls and appropriate methodologies can be employed during design, construction and commissioning of the Development to mitigate against any potential risks from peat.

Throughout the layout design process any area where peat stability was considered a risk, the design of the layout has been modified to avoid these areas where possible. The risk assessment identified a limited number of locations where there was considered to be sufficient risk that a hazard assessment should be undertaken to identify appropriate mitigation measures. Areas where a risk of peat instability was identified relate only to access tracks and two areas located away from proposed infrastructure.

The methodology adopted in this risk and hazard assessment closely follows the guidance prepared by the Scottish Executive[1] (now the Scottish Government). The methods are aimed specifically at assessing the risk and consequences of peat instability and consider the impact of failure on a number of receptors including the general public, on and off-site infrastructure and the environment, including watercourses. The site was investigated initially on a 100m grid, with peat probes taken on every wind turbine location, at the infrastructure locations and along access tracks.

The purpose of the assessment was to determine the risk of peat slope instability resulting from construction activities associated with the entire wind farm infrastructure. The Scottish Executive guidance requires the risk of instability to be determined and subsequently the possible impact of any instability to be assessed. The hazard is determined in terms of the impact on potential receptors such as infrastructure, communities and environment.

The investigation has shown that of the 16 wind turbine locations; 6 are located on peaty soil and are not at risk from peat instability; 10 are located on peat (>0.50m) with no wind turbines having a risk rating greater than negligible risk for peat instability.

A number of locations along the access track were assessed as having a ‘medium’ risk of instability; these were located along the existing Gordonbush Wind Farm access track so no further consideration is required. Two areas of medium risk were also identified but are located north and away from the Development infrastructure so no further consideration is required.

[1]Scottish Executive. Peat Landslide Hazard and Risk Assessment. December 2006

Mitigation measures have been discussed and recommendations for further work made. It is important to note that this risk assessment is the first phase in the development of a fundamental understanding of the sub-strata relationships at the Development site. This risk assessment should be further informed by more detailed site investigations and used to ensure the appropriate detailed design of access tracks, hard standings and wind turbine foundations.

It is concluded that construction of the Development based on the final wind turbine positions and access track alignment presented in this ES would not result in any unacceptable hazards from potential peat instability.

1.0 INTRODUCTION

SLR Consulting Ltd (SLR) was commissioned by SSE Renewables Developments (UK) Ltd to undertake a Peat Landslide Hazard and Risk Assessment (PLHRA) at the proposed Gordonbush Extension Wind Farm near Brora, Highland Region, Scotland.

The purpose of this report was to consider the potential risk of peat landslides occurring at the Development site such that suitable controls and appropriate methodologies can be employed during construction of the wind farm to mitigate against these risks. This report presents the findings of the peat depth probing and site reconnaissance surveys which were undertaken following a desk study review of existing literature and map information for the site.

The methods adopted for the assessment follow the best practice guidance[2] issued by the Scottish Executive (now the Scottish Government) for the investigation, assessment and reporting for wind farms in peat areas. Where deviations from this guidance have occurred, this is highlighted in the text.

This report has been compiled to reflect SLR's understanding of the potential effect the peat may have on the development of Gordonbush Extension Wind Farm.

The importance of assessing the stability of peat deposits in relation to wind farm development came to the fore as a result of peat failures during the construction of the Derrybrien Wind Farm[3] in Ireland in 2003. Although no fatalities were associated with these failures, there was a significant environmental impact. Wind farms tend to be constructed in high moorland areas, which are commonly associated with significant peat deposits (typically blanket bogs). There is a potential for peat instability to occur, particularly where deposits are in excess of 1m deep. Peat instability is a natural occurrence which is influenced by many factors including, but not limited to, peat thickness, hill slope gradient, underlying geology and subsurface hydrology.

1.1 Objectives of Report

This PLHRA is primarily concerned with the influence of the peat stability as a result of the Development.

The principal objective of the report was to assess the extent of organic peat (>0.5m) and peaty soils (<0.5m) found at the site, with the purpose of identifying the peat stability, any areas of potential concern and any mitigation measures required to ensure the maintenance of peat stability before, during and after construction of the Development.

All aspects of construction would be based on ensuring minimum disruption to peat areas, by avoidance of deeper peat in the first instance during the iterative layout design process for the Development, and secondly if peat cannot be avoided, minimising disturbance through good construction practice.

[2] Scottish Executive. Peat Landslide Hazard and Risk Assessment. December 2006

[3] Lindsay, R.A. and Bragg, O., (2004), 'Windfarm and Blanket Peat, The Bog Slide of 16th October 2003 at Derrybrien, Co. Galway, Ireland'. University of East London

The objectives would be achieved by completion of the following:

- a desk study of available reports which include geological, hydrological and topographical information;
- geomorphological mapping of the site to identify the prevailing conditions influencing the potential for, or any evidence of, active, incipient or relict peat instability, including identification of the location and photographic record, as appropriate;
- Reporting on evidence of any active, incipient or relict peat instability, and the potential risk of future instability, describing the likely causes and contributory factors;
- Identification potential controls to be imposed on the contractors for the construction works to minimise the risk of peat instability occurring at the Development site; and
- Provide recommendations for further work or specific construction methodologies to suit the ground conditions at the Development site to mitigate any unacceptable risk of potential peat instability.

This report summarises the findings of the desk study and site reconnaissance surveys and provides an assessment of the prevailing ground conditions as they relate to peat stability issues.

1.2 Site Location and Description

The Development is located on Gordonbush Estate, adjacent to the operational Gordonbush Wind Farm and approximately 9.5 kilometres (km) to the north-west of Brora. Access to the Development would be gained by utilising the existing access track infrastructure development as part of the operational Gordonbush Wind Farm where possible.

The operational wind farm would include the following key components, which are described in full in Chapter 4: Description of Development, of this ES:

- 16 wind turbines in total comprising:
  - 13 wind turbines at up to 130m tip height; and
  - 3 wind turbines at up to 115m tip height;
- crane hardstanding area at each wind turbine location with a maximum area of 1900m^2;
- one permanent meteorological mast at up to 90m in height and associated hardstand with a maximum area of 840m^2;
- an operations building with parking for operational and maintenance staff;
- on site access tracks (of which approximately 7.96km are new access tracks and approximately 11km are existing tracks where upgrades may be undertaken to facilitate delivery of the wind turbine components; a network of underground cabling to connect each wind turbine to the existing onsite substation;
- Modifications to the existing on site control building and grid substation to accommodate additional cables and equipment; and
- Any associated ancillary works required.

In addition to the above components of the operational wind farm, the construction phase would comprise the following:

- a temporary concrete batching plant;
- temporary telecoms infrastructure;
- a temporary meteorological mast;
- a temporary construction compound and storage area; and
- reopening and extension to two of the original borrow pits developed as part of the Gordonbush Wind Farm.

Existing infrastructure from the operational Gordonbush Wind Farm would be utilised for the Development where possible and is therefore included within the site boundary. This includes the use of the existing operations building; control building and grid substation for the grid connection; existing access tracks; and two of the original borrow pits. Figure 1 illustrates the existing infrastructure in place at Gordonbush Wind Farm.

The majority of the site is underlain by shallow peaty soils and peat overlying predominantly Glacial Till comprising, sand and gravels derived from weathered bedrock (see Photo 1) and in places bedrock which is found at or near the surface in a few localised areas. The rocks of the area were deposited during late Precambrian times and comprise metamorphosed, arenaceous (psammites) metasedimentary units.

Photo 1: Peat overlying glacial till (comprising sands and gravels) (NGR 230545 597757)

1.3 Extent of Peat Coverage

The extent of peat coverage across the site is presented in Figures 2 & 3, taken from the available British Geological Survey (BGS) 1:50,000 maps, site data and photo interpretation of the site. Peat is mapped locally and accumulations are not extensive.

A comprehensive programme of peat depth probing has confirmed that over much of the site, the peat thickness is most likely dictated by bedrock topography, with pockets of thicker peat (in excess of two metres) confined to local topographic hollows.

All other areas of identified peat on inspection are generally less than 2m thick, with very localised thicker areas of peat.

1.4 Desk Review and Field Study Scope

A desktop review was undertaken to assess available information for the site. The scope of the desktop review comprised the following (full details of the desktop review and the sources of information used are presented in Section 2.0 of this Technical Appendix):

- review topographical surveys;
- review preliminary layout of the Development;
- review historical and geological maps and publications;
- review of onsite hydrology and hydrogeology;
- review of onsite land use;
- review of aerial photographs;
- review of peat stability issues in the surrounding area;
- review of potential impact receptors; and
- review of experience gained on the adjacent Gordonbush Wind Farm site during construction.

The site reconnaissance was undertaken in March 2014 to gain a preliminary understanding of the site and to verify the information gathered during the initial desk study phase. Subsequent visits were undertaken in November 2014 to assess initially the extent and type of peat developed, and to review the access track and wind turbine layout options. The following aspects were investigated:

- features identified from the aerial photographs were visited (primarily steep slopes);
- the relationship between gradients and peat depth was reviewed and addressed;
- areas of shallow or non-existent peat were determined;
- cross-checks between anticipated and actual ground conditions; and
- areas of erosion and hagging.

Following the site reconnaissance visit in March 2014, in order to establish the ground conditions, a comprehensive peat probing survey was undertaken across the site. This included a phased approach of peat probing to determine extent of peat, followed by more detailed and targeted studies to determine conditions at the proposed infrastructure.

Peat probing forms an essential element of any PLHRA and SLR undertook probing during the preliminary reconnaissance, as part of the site wide investigation and as a supplementary investigation following the repositioning of some of the wind turbines. The results have been used to produce a peat thickness and stability risk plan.

The development of the wind turbine and access track layout is an iterative process with adjustments made to the design to accommodate issues revealed by the peat data, in combination with other significant constraints.

A visual assessment of the condition and extent of the peat was made during the various reconnaissance and investigation visits in March and November 2014; further details are given in subsequent sections of this Technical Appendix.

Peat samples were recovered by SLR using a ‘Russian’ auger for sample description.

1.5 Peat Landslide Hazard and Risk Assessment (PLHRA)

The purpose of a PHLRA is to identify those parts of the site that are naturally susceptible to a higher risk of instability so that they can be avoided or accommodated. It should be noted that all peat slopes have a risk of instability and the vast majority of peat slope failures occur naturally.

Construction of a wind farm would only increase the risk of peat slope instability if good geotechnical construction practice is ignored and it is a requirement of all wind farm developments to follow a very carefully worded and designed Construction and Environmental Management Plan (CEMP) which uses many of the recommendations of the PLHRA.

Without the guidance contained in a Construction Method Statement or CEMP, the following factors would increase the risk of instability:

- construction of access tracks;
- excavation and stockpiling for foundations;
- construction of hard standing areas;
- blocking of natural drainage, inappropriate new drainage or drainage discharge; and
- excavation of borrow pits.

It is important to note that peat instability and the impacts of any instability are not constrained by artificial site or ownership boundaries but by topographic and geomorphologic boundaries. It is therefore important to ensure that the breadth of scope of any assessment adequately covers the areal extent of possible impact.

The risk assessment is based on ground models developed using a Geographical Information System (GIS) specifically for this site. A numerical analysis was undertaken in which coefficients were allocated for each of the factors influencing peat stability and their impact on possible receptors. This aspect is described in greater detail in Section 4 of this Technical Appendix.

The conceptual layout of the wind turbines and access track routes, the findings from the desk study, peat probing and its analysis were used to optimise the Development design and to avoid or mitigate areas of unacceptable peat slide risk. The layout presented in Figure 1 represents the final iteration of the Development layout.

This system outlined above was developed in accordance with the guidelines on PLHRA by the Scottish Executive (SE) for the investigation, assessment, and reporting for wind farms in peat areas. The analysis and interpretation is based upon the results obtained from this process as well as previous experience and the results of case studies elsewhere. Where deviations from this guidance have occurred, this is highlighted and explained in the text.

2.0 DESK STUDY REVIEW

This section summarises the findings of the desk study and provides an assessment of the prevailing ground conditions as they relate to peat stability issues at the site. Desktop data was provided to SLR by SSE Renewables Developments (UK) Ltd., including aerial photographs and Ordnance Survey (OS) 1:25,000 scale mapping of the site which included a 5 m Digital Terrain Model (DTM). The aerial photography consisted of ortho-rectified colour images; no stereoscopic aerial photographs were available for the site. The desk study methodology is outlined in Section 1.4 of this report.

2.1 Site History

The existing Gordonbush Wind Farm is located to the north of the Development.

The Development site occupies an area of upland sheep farm, moorland plateau and limited areas of commercial forestry located to the north of Strath Brora.

The ground elevation ranges from approximately 150m Above Ordnance Datum (AOD) in the south-west of the site to approximately 330m AOD in the north-east of the site.

The topography is hilly with small valleys and broad areas of rough grazing ground. The landforms on the higher ground have some shallow bedrock at or close to surface on the majority of the hills. There is very little outcropping bedrock on the hills, outcrop occurs most notably along valley bases along the Allt nan Nathraichean, the Ristocky Burn and at the two exposed borrow pits used for construction of the operational Gordonbush Wind Farm scheme.

There are no active mining or quarrying activities within the site application area, although locally quarrying activity has been undertaken for both prior use to the wind farm and for the operational wind farm.

2.2 Preliminary Layout

Initially a core development area was established whereby all environmental studies were focused. Review of the preliminary layout utilised available mapping data and aerial photographs with initial findings suggesting that slope was not going to be a key factor in developing the site, with the majority of the core development area located on slopes less than 8% (4-5°). The topographic plan was used to address areas where slopes were excessive and allowed clear definition of developable areas during further design iterations.

2.3 Topographic Surveys

All of the surveys were based on 5 m DTM data which was used to determine slopes across the site and to determine slope coefficient (score) factors at each peat probe location. The site has been characterised into slope classes and a slope plan produced to identify slope areas where potential gradients are more or less susceptible to slope failure mechanisms.

2.4 Aerial Photo Interpretation

The aerial photography reviewed indicates changes in vegetation on the ground, and it is also possible to identify stream courses, ditches, and roads/tracks. The aerial photographs were used in conjunction with the site DTM data to identify the major geomorphological features such as the breaks of slope and landslips. These were inspected where identified during site visits when more detailed assessment of the site was undertaken.

Interpretation of available aerial photographs was undertaken to assess and identify evidence of historic peat instability. The photographs were examined to highlight features of interest, including:

- possible extension and/or compression features;
- areas of historic failure scars and debris;
- evidence of peat creep;
- areas with apparently poor drainage;
- areas with concentrations of surface drainage networks; and
- steeply incised stream cuttings within peat deposits.

From the aerial photograph and topographic survey interpretation, no significant features of interest were identified that indicate evidence of peat instability which warranted further attention.

The reconnaissance survey and peat probing survey confirmed that there were no significant features of this nature in the vicinity of the proposed development. Only limited aerial photography was available, dating back to 2004, with more recent data used from 2013 (see Figure 4).

2.5 Soils and Geology

The assessment has been completed through a largely desk based review of soil and geological maps and OS contour data.

Data Sources

The following sources of information have been reviewed and assessed:

- British Geological Survey Scotland Sheets 103W – Golspie - Solid & Drift Edition. 1:50,000 series;
- The Macaulay Institute for Soil Research Soil Survey of Scotland Sheet 3 – Northern Scotland, Land Capability for Agriculture Map. 1:250,000 scale, 1982; and
- The Macaulay Institute for Soil Research Soil Survey of Scotland Sheet 8 and part of Sheet 7 – Golspie, Soil Map. 1:63,360 scale, 1965.
- BGS Map and Map data viewers (www.bgs.ac.uk/data/mapViewers/home.html)
- Scotland's Environment (www.environment.scotland.gov.uk)

2.5.1 Soils

Published soils mapping indicates that the western boundary and south-east of the site is underlain by peaty gleyed podzols of the Arkaig soil association, with parent material derived from schists, gneisses, granulites and quartzites principally of the Moine Series. The far north of the site is underlain by dystrophic deep blanket peat soils. The soil type across the centre of the site has not been recorded.

2.6 Site Geology

The geology of the superficial deposits and bedrock at the Development site has been determined by a review of existing geological information published by the British Geological Society (BGS), and site inspection of the ground.

Extracts from the BGS Superficial and Bedrock Geological maps are shown as Figures 2 & 3.

2.6.1 Superficial Geology

The geological information presented in this report has been obtained from various sources. The area was originally mapped in 1925 and re-mapped in the 2002, by the BGS; the BGS Memoir Geology of the Golspie District (1925) is no longer published.

The BGS Sheet 103W (Golspie) confirms that the superficial geology at the site is recorded as being predominantly Glacial Till of Late Devensian age. Peat is present and is developed over the Development site, overlying the Glacial Till predominantly in the flatter lying areas. Three areas were identified from the BGS Geological Sheet as having peat present to the north west and south east of Allt nan Nathraichean, and to the south west of the site towards the existing access road. However, following detailed peat probing, design iterations have avoided the deepest areas of peat present, where possible. A number of short lengths of access track are proposed to 'float' over thicker peat where it could not be avoided.

Superficial deposits are common throughout the region. The superficial deposits occur most often as Glacial Till which covers a large extent of the lower ground, however it is generally less prevalent on the hill tops, where shallow soils predominate over bedrock. Peat accumulations occur on both the site and regionally and are quite extensive occurring as flat lying deposits.

2.6.2 Bedrock Geology

The BGS 1:50,000 solid geology map (see Figure 3) indicates that the solid geology beneath the majority of the site comprises psammite and micaceous psammite of the Kildonan Psammite Formation, which is part of the Loch Eil Group and Moine Supergroup. The psammite is a metamorphosed sedimentary rock.

The psammite and pelites of the Loch Eil Group all occur in thick formations as well as in striped or banded units characterised by rapid alterations of lithology on centimetric scales. The area has been extensively glaciated with a general movement of the ice to the north. Much of the higher ground consists of glacially rounded hills with intervening peat filled hollows. Solid rock is exposed sporadically on the hills and in the numerous streams. The lowermost ground along river channels is mostly underlain by fluvio-glacial gravelly sands and alluvium.

The Moine Supergroup consists of beds of psammite and pelite, commonly 2-30cm thick intercalated with thinner layers of micaceous psammite. Sedimentary structures are often present in areas of tectonic strain, although cross bedding is still preserved, the original sedimentary grains have been completely recrystallised. Calc-silicates are the most prominent metamorphic mineral, which forms hornblende/plagioclase assemblages which are partially replaced by aggregates of white mica.

A granitic intrusive is recorded outcropping along the Allt nan Nathraichean, orientated in a north north-west to south south-east orientation.

The geological strata is summarised in Table 2.1 (Site Stratigraphy) below.

Table 2.1
Site Stratigraphy

Age	Unit	Typical Description
Quaternary	Peat	Accumulations of wet, dark brown, partially decomposed vegetation.
	Glacial Till	Well consolidated deposits of silty clay or sandy clay, containing numerous rounded pebbles and boulders.
Moine	Loch Eil Group	Psammite and micaceous psammite of the Kildonan Psammite Formation

2.7 Geomorphology

Ground elevations range from approximately 150m Above Ordnance Datum (AOD) in the south-west of the site to approximately 330m AOD in the north-east of the site.

. The centre of the site comprises a flat gently sloping plateau, which falls off towards the south-west and south-east of the site.

The existing land use of the site is predominantly open moorland. There are two small coniferous forestry plantations in the south-east of the site and the operational Gordonbush Wind Farm is located adjacent to the Development to the north-east. Parts of the plateau area have been subject to grip cutting, the majority taking place in the 1950s (NES, 2010) (Photo 2 & 3).

Photograph 2: Looking south, showing plateau area where majority of turbines are proposed, with Kilbruar Wind Farm to the south

Photograph 3: Looking north, showing plateau area where majority of turbines are proposed, with Gordonbush Wind Farm immediately north

2.8 Hydrology

The site and surrounding area can be split into two catchment areas based on the surface topography and drainage patterns. These are the Allt a' Mhuilinn catchment, draining the west of the site and the Allt Smeorail catchment, draining the east of the site. Both catchments are tributaries of the River Brora to the south, which flows in an easterly direction and discharges into the Moray Firth at Brora. The River Brora is an important salmonid fishery and has good overall water quality. The Allt nan Nathraichean cuts the north western portion of the site and flows into the Allt a' Mhuilinn (Photo 4).

Photo 4: Allt nan Nathraichean

2.9 Hydrogeology

The solid geology underlying the site is psammite and micaceous psammite of the Kildonan Psammite Formation, which is classified as a low productivity aquifer and is generally without groundwater except at shallow depth. The solid geology is overlain by peat deposits and Glacial Till across much of the site.

3.0 PEAT INSTABILITY

This section reviews the nature of peat and how current and past activities can influence stability.

The factors which are likely to influence the potential for peat instability are:

- Significant peat depths over impermeable bedrock or minimal soil;
- The presence of slope gradients greater than 4^{o} (approximately) and general topography;
- Natural drainage paths;
- Evidence of past failures, including soil creep;
- Drainage features at the base of slopes which could lead to undercutting;
- Forestry plantations and artificial drainage; and
- Recent climate patterns.

It should be noted that peat instability is not a recent phenomenon and there is documentary evidence of peat landslides dating back over 500 years[4]. Many landslides that involve peat have no human interference that could be considered as a trigger and this should be borne in mind when considering the susceptibility of a site to potential instability.

3.1 Background Information Regarding Peat

Peat is found in extensive areas in the upland and lowland regions of the UK and is defined as the partly decomposed plant remains that have accumulated in-situ, rather than being deposited by sedimentation. When peat forming plants die, they do not decay completely as their remains become water logged due to regular rainfall. The effect of water logging is to exclude air and hence limit the degree of decomposition. Consequently, instead of decaying to carbon dioxide and water, the partially decomposed material is incorporated into the underlying material and the peat 'grows' in-situ.

Peat is characterised by low density, high moisture content, high compressibility and low shear strength, all of which are related to the degree of decomposition and hence residual plant fabric and structure. To some extent, it is this structure that affects the retention or expulsion of water in the system and differentiates one peat from another.

Lindsay[5] defined two main types of peat bog, raised bog and blanket bog, which are prevalent on the west coast of Europe along the Atlantic seaboard. In Britain the dominant peat land is blanket bog which occurs on the gentle slopes of upland plateaux, ridges and benches and is predominantly supplied with water and nutrients in the form of precipitation. Blanket peat is usually considered to be hydrologically disconnected from the underlying mineral layer.

There are two distinct layers within a peat bog, the upper acrotelm and the lower catotelm. The acrotelm is the fibrous surface to the peat bog[6], typically less than 0.3 m thick; which

[4] Smith, L.T., (Ed) (1910), 'The literary of John Leland in or about the years 1535-1543.' Vol.5, Part IX. London: AF Bell and Sons.

[5] Lindsay, R.A., (1995), 'Bogs: The ecology, classification and conservation of Ombrotrophic Mires.' Scottish Natural Heritage, Perth

[6] Ingram, H.A.P., (1978), 'Soil layers in mires: function and terminology'. Journal of Soil Science, 29, 224-227.

exists between the growing bog surface and the lowest position of the water table in dry summers. Below this are various stages of decomposition of the vegetation as it slowly becomes assimilated into the body of the peat.

For geotechnical purposes the degree of decomposition (humification) can be estimated in the field by applying the 'squeezing test' proposed by von Post and Grunland[7] (1926). The humification value ranges from H1 (no decomposition) to H10 (highly decomposed). The extended system set out by Hobbs[8] provides a means of correlating the types of peat with their physical, chemical and structural properties.

The relative position of the water table within the peat controls the balance between accumulation and decomposition and therefore its stability, hence artificial adjustment of the water table by drainage requires careful consideration.

3.1.1 Peat Shear Strength

In geotechnical terms, the shear strength of a soil is the physical characteristic that provides stability and coherence to a body of soil. For mineral soils such as clays or sands, such strength is variously given by an inter-particle friction value and cohesion. Depending whether the mineral soil is predominantly cohesive (clay) or non-cohesive (sand) governs which of the components of strength control the behaviour of the soil.

For peat soils, where the major constituent is organic and there is likely to be little or no mineral component, the geotechnical definition of shear strength does not strictly apply. At present there is no real alternative method for defining the shear strength of peat, therefore the geotechnical definition is generally adopted, in the knowledge that it should be used with great caution.

As noted before, the acrotelm or near surface peat comprises a tangle of fresh and slightly rotted roots and vegetable fibres. These roots and fibres impart a significant tensile shear strength capacity to the material which provides it with a significant load carrying capacity. The acrotelm is, in effect, a fibre reinforced soil.

In the more decomposed catotelm, the tensile shear strength is reduced as the roots and fibres become more rotted. However, the loss in strength due to decomposition is off-set to a limited degree, by a gain in strength due to the overburden pressure. In geotechnical engineering there is an established relationship for recently deposited soils, between the shear strength of a sample and the thickness of overburden above it.

Consequently it is almost impossible to predict a shear strength profile in peat and attempts to measure the shear strength using normal geotechnical methods can be misleading. Typical values of shear strength from hand shear vanes would be in the range 20-60 kPa although values over 100 kPa have been recorded in peat elsewhere. The higher strengths are almost certainly the influence of roots or other non-decomposed material. It is believed that the strength of peat should be quoted as a cohesion value as there are few, if any, discrete particles to give the material a significant frictional resistance. It should be noted, however, that any quotation of shear strength for peat should be treated with extreme caution.

[7] Von Post, L. and Grunland, E., (1926), 'Sodra Sveriges torvillganger 1' Sverges Geol. Unders. Avh., C335, 1-127.

[8] Hobbs, N.B., (1986), 'Mire morphology and the properties and behaviour of some British and foreign peats.' Quarterly Journal of Engineering Geology, London, 19, 7-80.

3.2 Peat Stability – Factors to be considered

There is considerable observational information relating to debris and peat flows although the actual mechanisms involved in peat instability are not fully understood. The main influences on slope stability are geological, geotechnical, geomorphic, hydrological, topographic, climatic, agricultural and human influences such as drainage and construction activity. Peat is affected to a degree by changes in any of the above list and it is vital to appreciate that changes to the existing equilibrium would affect the level of slope stability during construction and operation of the scheme.

Some of the contributory factors to peat instability are summarised below:

1. The geographical limits which could be affected by potential instability are not confined to the artificial boundaries imposed by land ownership; landslip occurring above a site could affect the site and property down slope or downstream of the site for several kilometres.

2. Agriculture and grazing has a significant effect on peat areas and this can be compounded in areas that have been managed to improve grazing. Grazing compacts the peat surface reducing the rainwater infiltration and the additional nutrients change the ecological balance of the original peat bog. Agricultural management can include surface drainage and periodic burning, both of which can leave the surface of the peat bare for a period of time resulting in temporary desiccation of the surface. Subsequent wetting of the peat and resumption of peat accumulation results in the former desiccated and possibly ash covered surface being incorporated into the body of the peat which introduces a weak discontinuity in the profile; this in turn becomes another unknown factor in the stability assessment.

3. Forestry has a significant effect on slope stability particularly in the early stages as the creation of a forest involves disruption of the natural equilibrium and drainage of the slopes and the installation of artificial drains by deep ploughing. The construction of access tracks further disrupts the drainage and concentrates groundwater flow into narrow, fast flowing erosive streams. The work by Winter el al[9] noted that forest tracks can act to retard or concentrate the down slope flow of water and thus aid its penetration into the slope below. Such a mechanism has been observed at a number of recent landslips that have affected the road network in Scotland.

4. Natural Drainage – some of the precipitation falling onto a natural upland peat bog would be absorbed into the low permeability catotelm peat. However, most of the water would run-off as sheet flow through upper, high permeability acrotelm. Thus the water is transmitted to the lower slopes in a reasonably controlled manner through a range of interconnections that operate at different scales and speed. Failure to understand this and to disrupt the transmission process for the groundwater could result in instability.

5. Artificial Drainage - Where agricultural drainage has been used to improve the quality of the grazing or to promote forestry it reduces the overall volume of water entering the bog and transfers this water to the edges more rapidly. This can result in ditches and streams becoming enlarged, causing increased erosion and a greater silt burden in the stream water.

[9] Winter, M.R., Macgregor, F. and Shackman, L. (2005a), 'Scottish tracks networks landslide study' Trunk tracks: network management division, published report series. The Scottish Executive.

3.3 Peat Mass Stability

The principal surface indicator of peat slide potential is cracking of the peat land surface and it is the identification of crack patterns in the field and the attendant causes of the cracking that is fundamental to a peat stability assessment.

Sites that have exhibited natural instability in the past are likely to be more susceptible to future instability during and following construction of a wind farm, therefore it is important to identify such instability as part of the Peat Stability Assessment (PSA).

3.3.1 Types of failure

The result of instability in peat is the down-slope mass movement of the material; there are a number of definitions of peat instability which are used to characterise the type of failure. A brief description is given below:

- Bog Bursts or Bog Flows – the emergence of a fluid form of well humified, amorphous peat from the surface of a bog, followed by the settling of the residual peat, in-situ[10].
- Peat Slides – the failure of the peat at or below the peat/ substratum interface leading to translational sliding of detached blocks of surface vegetation together with the whole underlying peat stratum.
- Bog slide – an intermediate form of instability where failure occurs on a surface within the peat mass with rafts of surface vegetation being carried by the movement of a mass of liquid peat.

3.3.2 Bog Bursts

Accounts of bog bursts are generally associated with very wet climates or areas which have received storm rainfall events. Bog bursts can be associated with particularly wet peat landscapes; therefore it is possible to identify broad regions of a higher susceptibility to these failures. The constraints used to identify the areas of higher susceptibility to bog burst failure are given below:

- Peat thickness in excess of 1.5 m with no upper limit
- Shallow gradients from 2^{o} to 10^{o} (peat thicker than 1.5 m is generally not observed on slopes steeper than 10^{o}, also moisture content is generally reduced on steeper slopes due to drainage);
- Ground which is annually waterlogged to within the upper 1 m below ground level, (the groundwater level may rise above this but rarely falls below)[11];
- Greater humification of the lower catotelm within the waterlogged ground;
- Lower surface tensile strength of the fibrous peat and vegetation.

The humified mass can be considered as analogous to a heavy liquid and the stability of this mass is maintained by the strength of the surface or acrotelm peat. Should the surface become weakened through erosion or desiccation or the construction of a surface drainage ditch for agricultural or forestry reasons or through turbary (peat cutting), failure is made more likely.

[10] Dykes, A.P and Kirk, K.J., (2001), 'Initiation of a multiple peat slide on Cuilcagh Mountain, Northern Ireland.' Earth Surface Processes and Landforms, 26, 395-408.

[11] Crisp, D.T., Dawes, M. & Welch, D. (1964), 'A Pennine Peat Slide', The Geographical Journal, Vol 130, No4, pp519-524.

There is evidence to indicate that periods of relative drought can predispose the peat mass to a bog burst failure as desiccated peat appears less able to re-absorb moisture, resulting in failure due, in part, to buoyancy.

A heavy rainfall event can lead to a surge in the volume of water retained in the bog, resulting in high water pressures and an effective bursting of the peat surface. These types of failure have only been described in Ireland.

3.3.3 Peat Slides

Peat slides tend to be translational failures with a defined shear surface at or close to the interface with the substrate.

The factors generally considered to influence susceptibility to peat slide failures are listed below:

- Peat depth up to 2m;
- Slope gradients between 5^{o} and 15^{o};
- Natural or artificial drainage cut into the surrounding peat landscape;
- Greater humification of the lower catotelm within the waterlogged ground;
- Lower surface tensile strength of the fibrous peat and vegetation.

It will be noted that some of the factors causing instability are common to both bog bursts and peat slides.

The peat – substrate interface is the primary zone of failure and is enhanced by elevated water content at this boundary and softening or weathering of the lower mineral surface. For this reason, any investigation or probing should try to distinguish the nature of the lower mineral substrate.

3.3.4 Bog Slides

A variation on a peat slide where part of the peat mass is subject to movement, usually on an internal layer of material, which may be more prone to movement, such as an interface between the acrotelmic and catotelmic layer.

3.3.5 Natural Instability

The stability of a peat mass is maintained by a complex interrelationship of many factors, some of which may not be immediately obvious. Significant factors include sloping rock head and proximity to a water body. Rainfall often acts as the trigger after the slope has already been conditioned to fail by natural processes.

It should also be remembered that peat bogs are growing environments and that there would come a time, on sloping ground, where the forces causing instability, i.e. the weight of the bog, can no longer be resisted by the internal strength of the peat and its interface with the underlying mineral surface. At this point, failure would occur.

The weight of the peat bog or any soils mantling steep hill slopes would be increased during periods of very heavy rain and it is common to see landslips occurring following extreme rain events. This may be a concern for future developments where one of the predicted effects of global warming will be a greater frequency of extreme weather, intense storms being one element.

4.0 SITE RECONNAISSANCE AND GEOMORPHOLOGICAL MAPPING

A programme of site reconnaissance and investigation (peat probing) was undertaken by SLR geotechnical engineers to verify the conditions indicated by the desk study, and allow observation of the features highlighted by the aerial photography and those areas identified from the preliminary assessment as being potentially susceptible to instability. The initial reconnaissance was undertaken in March 2014 to establish areas of potential concern from a number of constraints including ecological, landscape, hydrogeological and peat risk. The potential risk to these receptors is mainly from the construction of wind turbine locations, access tracks and associated infrastructure.

The reconnaissance also provided the opportunity to record any visible feature of historic peat instability, drainage features, changes in vegetation, land management practices and general geomorphological features. Based on a combination of physical constraints, (mainly ecological and hydrogeological) potential areas were investigated to establish suitable development areas. These were areas where the peat was either not present, or if present not extensively hagged, avoiding steep slopes or away from thick localised valley mire type deposits. The aerial imagery illustrates the geomorphological interpretation (see Figure 4) which shows areas which were avoided as part of the site design. The site was viewed in context with Gordonbush Wind Farm and many of the issues such as slope, extent of peat, geology and hydrology were all reviewed.

4.1 Site Work

All the identified peat areas were inspected and confirmation peat probing was undertaken. The inspection was extensive over the entire Development site, due to the open nature of the moorland. The site is quite variable with a few steep sided valleys and moderate slopes, however the majority of the site is a flatter lying plateau type feature. As can be seen from Figure 5, the predominant slopes on site are located along river valleys with the majority of slopes in excess of 8^{o} and along valley sides in excess of 12^{o} and therefore are significantly steep. However, the majority of the site is dominated by shallow slopes around 4^{o} with associated peat.

4.2 Methodology

The thickness of the peat was assessed using a graduated aluminium rod, approximately 6mm diameter and 225cm long (Avalanche Probe) as well as using a graduated fibre glass peat probe, which can be extended to over 10m depth. This was pushed vertically into the peat to refusal and the depth recorded, together with a unique location number and the co-ordinates from a handheld Global Positioning System instrument (GPS). The accuracy of the GPS was quoted as ±4 m, which was considered sufficiently accurate for this preliminary reconnoitre. All data was uploaded to ArcGIS for modelling and analysis.

Where the peat probing met refusal on a hard substrate, the 'feel' of the refusal can provide an insight into the nature of the substrate. The following criteria were used to assess likely material:

- Solid and abrupt refusal – rock;
- Solid but less abrupt refusal with grinding or crunching sound – sand or gravel;
- Rapid and firm refusal – clay; and
- Gradual refusal – dense peat or soft clay.

An assessment of the substrate was made and recorded at each probe hole.

The relative stiffness of the peat was also assessed from the resistance to penetration of the probe and in particular to the effort required to extract the probes (retrieval of the probe was often impossible for one person). Some areas, especially on slopes, were a little drier, resulting in the peat being stiffer and more difficult to fully penetrate. In all instances refusal was met on obstructions allowing identification of subsurface geology.

Over 620 peat probes have been carried out within the Development site by SLR; a total of 350 probes undertaken in March 2014 as part of the Phase 1 100m grid, with a further 280 undertaken in November 2014, as a detailed follow up survey. This was supplemented with an addition 500 points used as part of the original Gordonbush Wind Farm scheme carried out by URS around 2009. The location of the detailed probing survey was chosen based on final design of the proposed turbine locations and access tracks. The positions were verified on site by the use of a GPS. A total of 1170 peat probes have been used in the subsequent analysis used to complete the peat assessment.

Photograph 5: Thin peat overlying glacial till (NGR 230439 598170)

4.3 Phase 1 Peat Probing Survey

The initial Phase 1 Peat Probing Site Survey was designed and undertaken in March 2014 by experienced geotechnical engineers.

The main survey areas of the Phase 1 Peat Survey were located within the core development area.

The extent of the Peat Probing Survey is illustrated on Figures 6, 7a and 7b. The areas extend over the developable section of the site, extending to the site boundary. A combination of exposed shallow bedrock, steep slopes to the east and west defined the extent of the site survey at this stage. The survey undertaken allowed the site design iterations to be modified and accommodated within the surveyed areas. Where outcrop or significant exposure was present this was noted as part of the survey. The data was recorded on Trimble GPS hand held equipment, with peat depth, substrate type and composition of peat all recorded. Any significant features such as water courses, drainage, outcrop etc. were recorded in the note section.

4.4 Phase 2 Peat Probing Survey

The initial reconnaissance visit identified areas or localised 'pockets' of peat which warranted further attention or avoidance and were further investigated as part of the Phase 2 survey.

The Phase 2 Peat Probing Survey visit in November 2014 was undertaken to further assess the potential extent of peat on the site, to address potential areas of concern and to determine extent of peat at proposed infrastructure locations, with particular reference to establishing the extent of drift cover at wind turbines, borrow pits and associated infrastructure including compounds and along new access tracks. The probe positions were verified on site by the use of GPS and downloaded directly into ArcGIS for modelling. The probing is illustrated in Figure 6.

The key findings from the field surveys are discussed in Section 5 below.

5.0 SLOPE STABILITY/GROUND CONDITIONS

The stability of slopes is dependent upon the shear strength of the soil to resist the disturbing forces due to the weight of the soil, the effects of the groundwater and other disturbing influencing forces.

The level of stability of a slope is normally assessed by reference to the factor of safety which is expressed, numerically, as the degree of confidence that exists, for a given set of conditions, against a particular failure mechanism occurring. It is commonly expressed as the ratio of the load or action which would cause failure against the actual load or actions likely to be applied during service. This is readily determined for some types of analysis (e.g. limit equilibrium slope stability analyses).

5.1 Shear Strength

The shear strength of the peat was assessed from visual inspection from vane penetrometers to be in the range very soft to firm (20-60kPa).

The strength of the peat in the upper acrotelm is significantly influenced by the root and fibres that are abundant in this layer. There are many influences on the stability of the peat and observing or measuring high shear strength should not be used to assume a high degree of stability.

5.2 Stability Risk Assessment

It is apparent that the stability of peat is complex and the numerous inter-relationships that affect the stability are not fully understood.

The problem with a quantitative assessment is that it requires a numerical input and the analysis cannot account for the unquantifiable input required for a comprehensive peat stability assessment. For this reason a purely quantitative should only be considered as a guide and that a qualitative assessment of stability should be used to provide the final recommendations.

A stability risk assessment was undertaken to evaluate the risk of instability occurring associated with the construction of the wind turbine bases and access tracks at the Development site. As noted, the main factors controlling the stability of the peat mass are the surface gradients and the depth and condition of the peat at each location.

The ground conditions and slope gradients were identified at all locations and a coefficient applied from which slope stability risk rating is derived to define the potential significance.

The peat found across the Development site was classified based on the von Post classification as ranging from an H_3 to H_4 peat ranging from very slightly decomposed to slightly decomposed. The deeper isolated pockets demonstrated a higher degree of decomposition and water content, ranging from H_5 to H_7 as expected for deeper valley mire type peat.

5.3 Results

As part of the initial baseline studies the assessment of the depth of soils/peat at the site has been undertaken. The ground conditions were assessed from the probing exercise, and descriptions of in-situ peat observed in streams and drainage ditches across the site.

5.4 Peat/Peaty Soils

The peat was found to vary across the site in terms of thickness and coverage. The majority of probes intersected peaty soils or peat with 168 of 1170 probes reaching soils in excess of 1.5m. Accumulations of peat up to 0.5m thick are considered to be too thin to be classified as true peat deposits and are often classified as organic soils or peaty soils.

The peat thickness identified on this site falls within the range that requires a formal risk and hazard assessment as defined in the Scottish Executive guidance. The peat thickness was examined by review of the peat probe information from the investigation and is discussed below.

The geomorphology of the peat areas varies between localised flat expanses of apparently thick peat with high moisture content and smaller areas of thinner drier deposits blanketing the moderate undulating slopes. The steep slopes have little or no peat, where bedrock is close to surface, however this is very limited in extent.

Table 5.1
Peat Probing Data

Number of Probes	Peat Thickness		% of total
549	<0.5 metres	Peaty Soil	47.0
363	0.5-1.0 metres	Thin Peat	31.0
90	1.0-1.5 metres	Thin Peat	7.7
93	1.5-2.0 metres	Thick Peat	7.9
75	2.0-2.5 metres	Thick Peat	6.4

In summary the peat depth probing has shown that:

- There is significant coverage of peaty soil and peat over most of the site. The depth of the underlying soils <0.5m and therefore classed as peaty soil (peaty gleys/podzols), is developed over approximately 47% of the site, which indicates that over 53% is peat.

The probing was extended down slope around the development area until shallow rock was located or proved at surface.

The underlying soil thickness at each location was recorded and the data used to draw the interpreted peat thickness map, presented on Figures 7a and 7b. Figure 7a demonstrates full extent of organic soils, while Figure 7b demonstrates the actual extent of the peat (in excess of 0.5 m thick). The colour scale was selected to aid the identification of areas of similar peat thickness.

5.5 Substrate

Where possible, an assessment of the substrate was made at each peat probe location. From the evidence of the probing and sampling, the substrate falls into one of two principal categories. These are:

- Sand and/or gravel, of glacial origin (Glacial Till) and occasionally interbedded with silty sands; and

- Rock, no rock samples were recovered from the probe locations although where exposed, the rock was seen to be strong sedimentary rocks ranging from wacke sandstones, to siltstones and shales. The bedding dip and discontinuity spacing could not be determined at this stage, but evidence from desk based studies and occasional outcrops confirms the sediments are steeply dipping and should be subject to further investigation prior to construction for the design of the turbine foundations.

- No clay horizons were encountered and evidence from the site walkovers did not encounter cohesive clay materials on site.

In summary the peat depth probing has shown that there is no significant coverage of peat across the site. 47% of the underlying soils probed have a depth of <0.5 m, and therefore classified as a peaty soil (peaty gleys/podzols).

5.6 Description of Ground Conditions at Turbine Locations

Table 5-2 outlines the ground conditions found at each proposed turbine location, characterising the general site condition's slope and peat classification.

Table 5.2:
Ground Conditions at Turbine Locations

Turbine No.	Peat Thickness	Peat Conditions	Evidence of Instability	Proximity to nearest Watercourse (m)
1	0.8	Peaty Soil	None, site on moderate slope (4-8^o)	221
2	1.7	Thick Peat	None, site on moderate slope (4-8^o)	211
3	0.8	Thin Peat	None, site on shallow slope (2-4^o)	268
4	0.4	Peaty Soil	None, site on moderate slope (4-8^o)	148
5	0.4	Peaty Soil	None, site on moderate slope (4-8^o)	112
6	1.0	Thin Peat	None, site on shallow slope (2-4^o)	199
7	0.3	Peaty Soil	None, site on moderate slope (4-8^o)	208
8	0.6	Thin Peat	None, site on very shallow slope (<2^o)	239
9	1.0	Thin Peat	None, site on moderate slope (4-8^o)	221
10	1.9	Thick Peat	None, site on moderate slope (4-8^o)	227
11	0.7	Thin Peat	None, site on shallow slope (2-4^o)	61
12	0.9	Thin Peat	None, site on shallow slope (2-4^o)	190
13	0.3	Peaty Soil	None, site on moderate slope (4-8^o)	124
14	0.2	Peaty Soil	None, site on shallow slope (2-4^o)	136
15	0.4	Peaty Soil	None, site on very shallow slope (<2^o)	131
16	0.6	Thin Peat	None, site on moderate slope (4-8^o)	88

6.0 PEAT LANDSLIDE HAZARD AND RISK ASSESSMENT

Notwithstanding the overall shallow depth of peaty soils and the avoidance of deep soils at the site, a preliminary peat risk assessment has been undertaken. Following the initial site visit, by an experienced SLR wind farm geotechnical engineer, and appraisal of the available data, the potential for a peat slide occurring at the site was initially assessed as negligible to low. This was based on the fact that there was:

- No evidence of historical or current peat slide activity at the site (no historical images) and current photographs (2004 and 2011);
- Completion of a detailed site walkover and 1170 peat probe points across the site; and
- Avoidance of locating proposed infrastructure on thick peat (with a depth of >1.5m) during design iteration, where practicable.

To further quantify this initial assessment, analysis of the terrain at site utilising GIS data has been undertaken to analyse slopes and gradients. Figure 5 confirms that the slopes at site in the vicinity of the Development are generally less than 8^{o}. The site specific slope data has been combined with the site specific peat depth data and using Scottish Executive guidance for the assessment of the risk of instability in peat, an assessment of peat slide risk has been completed.

Key factors which may have an effect on the stability of the peat deposits have been identified leading to an assessment of the RISK of instability. The potential impact of any instability, the HAZARD, was then considered for identified potential receptors. Scores were attributed to the key factors that have the greatest influence on peat stability. Risk scores were determined, which, when combined with an assessment of vulnerability of potential targets, were developed into an assessment of the hazard.

In order to differentiate between risk and hazard, the following nomenclature has been adopted (Table 6.1).

Table 6.1
Risk v Hazard

Risk	Hazard
Negligible	Insignificant
Low	Significant
Medium	Substantial
High	Serious

This section outlines the approach taken and the scores allocated for various factors relevant to peat stability.

At this stage, the objective is to determine the areas of peat that would be potentially affected by the Development, and to set out the mitigation that could be adopted and incorporated to ensure that due cognisance is taken in this regard.

The level of slope is normally assessed by reference to the factor of safety which is expressed, numerically, as the degree of confidence that exists, for a given set of conditions, against a particular failure mechanism occurring. It is commonly expressed as the ratio of the load or action which would cause failure against the actual load or actions likely to be applied during service. This is readily determined for some types of analysis (e.g. limit equilibrium slope stability analyses). The following sections present a brief discussion on some of the issues relating to stability and risk assessment.

The stability of peat is a complex subject and there are numerous inter-relationships that affect the stability.

A quantitative assessment requires a numerical input and such an analysis cannot account for the unquantifiable input required for a comprehensive peat stability assessment. For this reason a purely quantitative assessment should only be considered as a guide and a qualitative assessment of stability should be used to inform the final recommendations.

The characteristics of the peat failure phenomena have been incorporated in a stability risk assessment to evaluate the risk of instability occurring within the peat areas. The main factors controlling the stability of the peat mass are the surface gradients, the depth and condition of the peat at each location and the type of substrate.

The natural moisture content and undrained shear strength of the peat are important; however, it is generally accepted that where present, the peat would be saturated and have a very low strength. It is believed to be unrealistic to rely on specific values of shear strength to maintain stability when back analysis of failed slopes indicates that there is often a significant discrepancy between measured strength in peat and stability. Therefore shear strength has been assumed to be constant and worst case, throughout this assessment. It has also been assumed, as a worst case, that the groundwater level is coincident with the ground surface.

The key factors identified as being critical to stability and the development of a risk rating system is:

- A – Slope gradient
- B – Peat thickness
- C – Substrate type or condition
- D – Historic instability

The risk scores are multiplied together to generate a risk rating which is a measure of the likelihood of peat instability.

6.1 Slope Gradients

The slope gradients were assessed by reference to the mapping and particularly the Digital Terrain Model which was used to generate a slope map (see Figure 5), from which the gradient at each probe location could be determined and input into the risk rating spread sheet (Appendix A). The gradient quoted at each location was based on the average gradient over a 5 m grid. Significant effort has gone into reducing slopes along routes and at turbine bases and positioning infrastructure on flat areas, it is evident from the Slope Plan that the majority of the tracks and turbines are on areas with flatter gradients (2-8^{o}).

Table 6.2
Coefficients for Slope Gradients

SLOPE ANGLE (^{o})	SLOPE ANGLE COEFFICIENTS
Slope <2^0	1
$2^0\leq$ Slope <4^0	2
$4^0\leq$ Slope <8^0	4
$8^0\leq$ Slope <12^0	6
>12^o Slope	8

Coefficients for slope gradient have been assigned to ensure the potential for both peat slides (gradients of 5-15^0) and bog slides (gradients of 2-10^0) are addressed.

By simple inspection it is clear that steeper slopes pose a greater risk of instability than shallow gradients. Therefore, a graduated gradient scale from 0^0 to >12^0 (the practical maximum gradient on which peat is commonly observed) has been applied.

6.2 Peat Thickness and Ground Conditions

The ground conditions were assessed by using peat depths recorded during peat probing. Thin peat was classed as being 0.5m to 1.5m thick, with deposits in excess of this being classed as thick. The thickness ranges used are intended to reflect the risk of instability associated with both peat slides (in thin peat) and bog slides. Where the probing recorded peat less than 0.5 m thick, this has been considered to be an organic soil rather than peat. Table 6.3, gives the coefficients applied to the various ground conditions.

In addition to peat thickness, the presence of existing landslip debris or indicators of meta-stable conditions such as tension cracks or slumping in the peat suggest the material is likely to become even less stable should the existing ground conditions change. Where evidence of historical slips, collapses, creep or flows is seen, a separate coefficient has been applied

Table 6.3:
Coefficients for Peat Thickness and ground conditions

GROUND CONDITIONS	GROUND CONDITION COEFFICIENTS
Peaty or organic soil (<0.5 m)	1
Thin Peat (0.5 – 1.5 m)	2
Thick Peat (>1.5 m)	3*
Slips /collapses / creep / flows	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.

Based on the aerial photo interpretation and site survey, evidence of historic instability is not present across the Development site.

6.3 Substrate

As noted above, most failures in thin peat layers occur at the interface with the underlying substrate; the nature of the substrate has a very large influence on the probable level of stability.

Where sand and/or gravel (derived from Glacial Till) form the substrate, the effective strength of the interface can be considered to be good with comparatively high friction values. Under these conditions, failure is likely to occur in a zone within the peat, just above the interface. Further factors are necessary to cause a failure of this nature (increased pore pressures within the peat) and occurrence of such events is rare.

Where clay forms the interface, there is likely to be a significant zone of softening in the clay (due to saturation at low normal stresses, poor or none existent vertical drainage and the effect of organic acids), resulting in either very low undrained shear strength or low effective shear strength parameters. The result is that potential shearing could occur either in the peat, on the interface or in the clay; all three possibilities have been documented in the past.

A rock substrate provides a high strength stratum, however, the rock surface can be smooth, and, depending on the dip orientation of the strata, it can provide a very weak interface. For these reasons, at this stage, a rock interface has been given the same risk rating as clay. However, at the Gordonbush site the rock strata is steeply dipping and is dipping into the hillside at surface, it is therefore an overly conservative coefficient for this site, but as there is insufficient exposure to warrant a change to the coefficient we have maintained the same coefficient.

Table 6.4:
Coefficients for Substrate

SUBSTRATE CONDITIONS	SUBSTRATE COEFFICIENTS
Sand/gravel	1
Clay	2
Rock	2
Not proven	3
Slip material (Existing materials)	5

If the overall thickness of the peat had not been proven, the risk associated with the significant thickness and the unknown substrate would have been given a high rating to accommodate the unknown factors.

6.4 Risk Rating

The risk rating coefficient (score) was derived by multiplying the coefficients for the four key factors (with historic instability as 0) identified in Section 6.1 to 6.3 together to produce a risk rating which is a measure of the likelihood of peat instability, and this enables potential areas of concern to be highlighted.

For the stability risk assessment, the following Potential Stability Risk classes were applied as shown in Table 6.5:

Table 6.5:
Risk Rating

RISK RATING COEFFICIENT	POTENTIAL STABILITY RISK (PRE-MITIGATION)	ACTION
<5	NEGLIGIBLE	No mitigation action required
5 - <15	LOW	As for negligible condition plus development of a site specific construction and management plan for peat areas
15 - <31	MEDIUM	As for Low condition plus may require mitigation to improve site conditions.
>31	HIGH	Unacceptable level of risk, the area should be avoided. If unavoidable, detailed investigation and quantitative assessment required to determine stability and sensitivity to minor changes in strength and groundwater regime combined with long term monitoring.

The rating system outlined above differs slightly from that proposed in the Scottish Executive Guidance as the system adopted here incorporates three inputs compared to two in the guidance, with the potential impact of substrate added in this section.

The table of results, included in Appendix A shows that 1170 probe locations were identified within the extent of the Digital Terrain Model where peat/peaty soil was present (see Figure 8). The stability risk rating identified the following:

- Negligible risk at 614 probe locations;
- Low risk at 539 probe locations;
- Medium risk at 17 probe locations;
- High risk at 0 probe locations; and
- No peat was recorded at 12 locations, hence no risk.

Figure 8 presents the interpreted risk of peat instability based on the multiplication of the risk coefficients discussed above in Tables 6.1 to 6.3 and using the detailed mitigation in Table 6.5. Risk of peat instability is identified across all areas of infrastructure for the Development. The Peat Stability Risk Rating for each proposed wind turbine is summarised in Table 6.6.

Table 6.6:
Stability Risk Rating for each wind turbine

TURBINE NO.	STABILITY RISK RATING	COMMENTS	ACCEPTABLE LOCATION
1	Negligible	Peaty Soil	Yes
2	Negligible	Thick Peat	Yes
3	Negligible	Thin Peat	Yes
4	Negligible	Peaty Soil	Yes
5	Negligible	Peaty Soil	Yes
6	Negligible	Thin Peat	Yes
7	Negligible	Peaty Soil	Yes
8	Negligible	Thin Peat	Yes
9	Negligible	Thin Peat	Yes
10	Negligible	Thick Peat	Yes
11	Negligible	Thin Peat	Yes
12	Negligible	Thin Peat	Yes
13	Negligible	Peaty Soil	Yes
14	Negligible	Peaty Soil	Yes
15	Negligible	Peaty Soil	Yes
16	Negligible	Thin Peat	Yes

As can be seen from Table 6-6, all of the proposed wind turbine positions fall within the 'negligible' classification with a number of turbines influenced by slightly thicker peat which is primarily located on flatter areas.

The majority of the proposed new access track falls within the 'negligible' or 'low' classification. There are a limited number of sections of the existing track, where the risk of instability has been classed as 'medium' and as such may warrant further consideration.

There are a number of localised areas of 'medium' risk identified across the site, generally associated with steeper slopes. Where the access track crosses the 'medium' risk areas, it is on the existing wind farm tracks so further assessment is not required. The proposed construction compound is however located upgradient of one of these 'medium' risk sites and may warrant further consideration at construction stage.

6.5 Turbine Sites

The table of results shows that the following potential stability risks exist at the turbine locations:

- NEGLIGIBLE risk at sixteen locations
- No LOW risk locations identified
- No MEDIUM risk locations identified
- No HIGH risk locations were identified

There were no locations where no peat was actually present.

6.6 Access Track

The table of results shows that the following potential stability risks exist across the site at all probing locations:

- NEGLIGIBLE risk at 614 No. locations;
- LOW risk at 539 No. locations;
- MEDIUM risk at 17 No. locations;
- HIGH risk at 0 No locations;

There were 12 No. locations where no peat was present; hence the peat stability risk assessment is not applicable at these locations.

Impact of the medium risk areas is discussed in Section 6.12.

6.7 Hazard Score Development

Following assessment of the risk of peat instability within a particular area as outlined in Section 6.5, a further assessment of the likely impacts of a failure is necessary. It should be noted that the impact assessment is primarily concerned with impacts that affect the environment, ecology, public or infrastructure associated with the Development, both on site and potentially off-site. These assessments do not consider the detailed ecological impact of construction induced peat instability; however, the majority of the sensitive on-site receptors are the watercourses and thus the inferred ecological and environmental issues are addressed. The proposed mitigation measures in Section 7 would limit the potential for any slope failures into water courses and drainage features hence limit such impacts.

The effect a slope failure may have on the construction site and infrastructure can be easily identified. However the effect of an instability event on features impacted by an event not associated with the Development is harder to predict.

In order to address this effect it is not considered appropriate to assess the effect at every potential receptor location close to a site; but rather to assess the effect a particular infrastructure feature (track, turbine, substation, etc.) would have on the structures or features surrounding it. By adopting such an approach, the assessment of infrastructure features where a risk ranking of ‘negligible’ or ‘low’ has been assessed in the stability risk assessments, are discounted from further assessment.

6.8 Receptor Ranking

Now the infrastructure features with a ‘medium’ or higher risk rating for instability have been identified it is necessary to identify potential impact receptors. These are nearby structures or features that may be affected by peat movements caused during or following construction. Generally, only receptors immediately down gradient of the infrastructure feature could be affected by peat instability therefore the first phase of feature ranking requires topographic ridges and valleys to be identified across the site and surrounding area. From this, receptors at risk from particular infrastructure features can be identified. However, should instability occur on a steep slope, there is the risk of the back scarp of the instability migrating up-slope, there-by affecting areas previously considered to be not at risk.

Following identification of receptors at risk, these are ranked according to their size and sensitivity. Table 6.7 presents the coefficients placed on particular receptor types.

At the site, only watercourses are deemed significant receptors potentially at risk from peat slides. Communities have been discounted due to distance from infrastructure, the impact therefore, should a slide occur is directly to water courses.

Table 6.7:
Coefficients for Impact Receptor Ranking

Nature of Feature	Feature Coefficient
Non-critical infrastructure (minor/private roads, tracks)	1
Watercourses and critical infrastructure (pipelines, motorways, dwellings and business properties etc.)	3
Sub-Community (settlement 1-10 residents)	6
Community (settlement of >10 residents)	8

6.9 Receptor Proximity

The proximity of an impact receptor is also critical in assessing the likely level of disruption it may suffer following an instability event. Based on this, two further coefficients – distance from infrastructure feature and relative elevation differences between the infrastructure feature and impact receptor - are applied in deriving an impact ranking.

Table 6.8 and Table 6.9 present the coefficients derived for distance and elevation of impact receptors.

Table 6.8:
Coefficients for Impact Feature Distance

Distance from Construction Feature	Distance Coefficient
>1 km	1
100 m-1 km	2
10-100 m	3
0-10 m	4

Table 6.9:
Coefficients for Impact Feature Elevation

Relative Elevation of Feature	Elevation Coefficient
0-10 m	1
10-50 m	2
50-100 m	3
>100 m	4

6.9.1 Impact Rating

The impact rating coefficient (score) is derived by multiplying the receptor ranking coefficient (score) by the distance coefficient (score) and the elevation coefficient (score) for each impact receptor associated with a particular infrastructure feature.

Based on distance to impact receptors, in this instance we have identified water courses (which are the most sensitive receptor near the site). The other receptors have been discounted, either they are not present or distance to receptor mitigates risk. Water courses are the principal receptor as they are at risk of not only direct impact from a peat slide but potentially the water course creates a pathway to impact other receptors indirectly, either ecological or potential water users downstream. Based on Table 6.7 the water courses would have an impact receptor coefficient (score) of 3 and then considering the distance to the receptor and the relative elevation differences on site of receptors, a potential impact can be derived. Obviously the closer a water course is to a potential risk area is the key

determining factor. All 17 medium risk infrastructure features (grouped as 5 features) identified in Figure 8 have a 'low' or 'very low' impact rating coefficient (score), based on distance coefficient to water courses of between 50m to 1km and relative elevation coefficient differences of 0 to 75m. This equates to an Impact Rating Coefficient considered as Very Low or Low Impact. Based on the results of this assessment the following Potential Impact classes are applied:

Table 6.10
Potential Impact Rating

Risk Area	Water Course Score	Distance to Water Course (m)	Difference in Elevation (m)	Impact Rating	Potential Impact
1	3	Discounted as location is on existing road			
2	3	2 (150m)	2 (10m)	3x2x2=12	**Low Impact**
3	3	Discounted as location is on existing road			
4	3	Discounted as location is not on any infrastructure			
5	3	Discounted as location is not on any infrastructure			

Impact Rating Coefficient	Potential Impact (Pre-Mitigation)	Expected Impact of Instability Event
<10	VERY LOW IMPACT	Little or no effect on surrounding features due to an instability event.
11 - 20	LOW IMPACT	Effect would be minimal – remediation costs low minimal disruption to on- and off-site activities.
21 - 50	HIGH IMPACT	An instability event has the potential to cause damage or disruption resulting in remediation costs that are significant – 10-100% of total project budget.
>51	VERY HIGH IMPACT	Major effect caused by an instability event. Extensive disruption to off-site activities with remediation costs in excess of the total budget of the project.

6.10 Hazard Ranking

The Scottish Executive Guidance recommends that the hazard ranking is assessed using the following formula:

Hazard Ranking = Hazard x Exposure

This philosophy can be applied to the assessment carried out so far in the following approach:

Hazard Ranking = Risk Rating x Impact Rating

In order to achieve a meaningful and manageable result from the hazard ranking, the results of the Stability Risk Assessment and Impact Assessment have been normalised to a standard numerical scale (below).

Table 6.11:
Rating Normalisation

Risk Rating	
Current Scale	**Normalised Scale**
Negligible <5	1
Low 5 - <15	2
Medium <15 - 30	3
High 31 - 50	4
Very High >51	5

Impact Rating	
Current Scale	**Normalised Scale**
Very Low <10	1
Low 11 - 20	2
High 21 - 30	3
Very High 31-50	4
Extremely High >51	5

The method of assessing risk, impact and hazard developed by SLR Consulting incorporates additional critical elements such as the substrate interface and coefficients for the receptor position, distance and elevation and as such is considered to be more rigorous than the assessment scheme proposed by the Scottish Executive. Whilst the scales used in the SLR method deviate from the Scottish Executive Guidance (with risk and impact rating scales from 1-4 rather than 1-5), the ultimate Hazard Ranking scale does equate to the Scottish Executive scale, with hazard rankings divided over four zones.

A simple multiplication of these coefficients would result in potentially large and unwieldy risk and impact rating numbers. We have therefore opted to normalise these values to bring them in line with the values used in the Scottish Executive Guidance, as illustrated in 6.10 above.

Table 6.12:
Hazard Ranking

Hazard Ranking	Hazard Ranking Zone	Action
1-4	INSIGNIFICANT	No mitigation action required although slide management and monitoring shall be employed. Slide management shall include the development of a site specific construction plan for peat areas.
5 - 10	SIGNIFICANT	As for Insignificant condition plus Further investigation to refine the assessment combined with detailed quantitative risk assessment to determine appropriate mitigation through relocation or re-design.
11 - 16	SUBSTANTIAL	Consideration of avoiding project development in these areas should be made unless hazard mitigation can be put in place without significant environmental effect.
17-25	SERIOUS	Unacceptable level of hazard; development within the area should be avoided.

6.11 Results

The stability risk assessment has demonstrated that the majority of the Development lies within an area of negligible to low risk with regards to stability based on Figure 8. Those areas that have been identified as being at medium risk of instability have been considered in a hazard impact assessment.

There are no communities of any description within the site boundary, however there are properties within 1km of the down slope regions of the Development. The Allt a' Mhuillinn and its tributaries in the west, with Strath Brora to the south are located close to the Development site and there are sporting activities in the form of stag hunting as well as public access rights within the site boundary. Limited forestry extends over parts of the site.

Elevations range within the site with the highest turbine (T1) at an elevation of ~260m AOD to the lowest (T14) at ~200m AOD, although local height differences between the various items of infrastructure and possible on-site receptors are typically less than 70m. The proposed infrastructure within the site is limited to the wind turbines, access tracks; borrow pits, cable routes, the operations building, substation and the construction compound (temporary). Local receptors include the various rivers; there are no other major receptors in this part of the site.

Table 6.12 shows the calculated hazard ranking associated with every location where there is a stability risk of medium or above. The particular mitigation measures to reduce the risk of instability occurring are dependent upon location and the type of proposed structure. Proposed mitigation measures and actions already undertaken to reduce the risk of peat instability occurring are also identified in Tables 6-13 and 6-14, together with the associated, revised hazard ranking. A more detailed discussion of the possible mitigation measures are presented in Section 7.0.

There are no high risk areas of peat instability within influencing distance of the 16 proposed turbines.

A total of 17 Medium risk probe locations were identified which translates into 5 zones or areas which are considered to have either a potential impact on the wind farm infrastructure or could have an impact on the local watercourses. Four of the medium risk areas were disregarded as they either did not potentially impact any infrastructure or the risk areas were adjacent to the existing roads and already mitigated by construction so had been discounted. These areas are shown on Figure 8 and listed in Table 6-13 and 6-14 and have been considered further.

6.12 Hazard Rated Locations

As noted in Figure 8, where the risk assessment has identified a negligible or low risk of peat instability, no specific mitigation measures are necessary. However, in order to ensure best practise is employed, there would be a need for careful monitoring and the construction management must include careful design of both the permanent and temporary works appropriate for peat soils; these are discussed further in Section 7.0.

The procedure adopted was to review Figure 8 and identify those areas with a medium risk or greater, that were in close proximity or influencing distance of any of the proposed infrastructure or water courses. Those risk areas where there is no development would not affect the natural stability of the peat. The risk areas and receptors are presented in Table 6-13 and 6-14. The access track within the site is largely constrained by visibility and existing layout. The consequence is that there is little room to adjust the position of the route to

mitigate potentially unacceptable risk areas, the thicker peat has a negligible to low stability rating, however, it is environmentally sensitive. Therefore where crossing thick peat is the only practicable option, the option to 'float' tracks has been selected.

Table 6.13:
Stability Hazard Ranking

LOCATION	RISK RATING	IMPACT RATING	HAZARD RANKING	COORDINATES		MITIGATION		REVISED HAZARD RANKING (Post mitigation)
				X	Y			
1	Medium (3)	Low Impact (2)	Significant (3 x 2)	226867	596546	Required – see section 7.0 below.	Existing Track	Not applicable
2	Medium (3)	Low Impact (2)	Significant (3 x 2)	227163	596516	Required – see section 7.0 below.	Existing Track, with new construction compound and operations building on east side	Insignificant
3	Medium (3)	Low Impact (2)	Significant (3 x 2)	227212	596767	Required – see section 7.0 below.	Existing Track	Not applicable
4	Medium (3)	Low Impact (2)	Significant (3 x 2)	227405	596823	Required – see section 7.0 below.	Not on any infrastructure	Not applicable
5	Medium (3)	Low Impact (2)	Significant (3 x 2)	227855	596649	Required – see section 7.0 below.	Not on any infrastructure	Not applicable

Table 6.14
Summary Hazard Assessment

HAZARD RANKING	LOCATIONS	POST MITIGATION ACTION
Insignificant	All the areas identified as 'at risk' can all be mitigated to an insignificant hazard by appropriate design and construction methods.	No further specific mitigation action required although slide management and monitoring shall be employed as a good construction practice. Slide management shall include the development of a site specific construction plan for peat areas.
Significant	None	As for Insignificant condition plus- Further investigation to refine the assessment combined with detailed quantitative risk assessment to determine appropriate mitigation to reduce the risk.
Substantial	None	As for Significant condition plus- Develop long term site monitoring regime.
Serious	None	Unacceptable level of risk, the area should be avoided. If unavoidable, detailed investigation and quantitative assessment required to determine together with long term monitoring.

Based on the assessment of peat slide risk, all of the turbines are located in areas of negligible risk. On that basis, the turbine locations with negligible risk have not been considered further in the assessment of hazard ranking.

Note that although the potential hazards identified in Table 6-14 can be mitigated to 'insignificant' it is believed that Hazards should be subject to further post consent investigation and on-going monitoring to ensure that the anticipated design assumptions regarding groundwater and drainage remain valid. The one area of concern is location 2, primarily due to the slope gradient close to the operations building (rather than excessive peat) which is main issue. This may require further investigative work, prior to construction.

7.0 CONSTRUCTION ISSUES AND MITIGATION MEASURES

It has been shown that excavation, drainage and general construction activities can have a destabilising influence on peat and that design should allow for the delicate and susceptible condition of the peat. There is no extensive evidence for past peat instability at the site, however the areas highlighted on Figure 8 should be carefully considered and the appropriate good practice measures and mitigation employed to minimise the risk of adverse effects on peat and hydrological receptors.

The following sections highlight the construction issues that should be considered for each general area of construction. Many of the issues raised should be incorporated into the CEMP and construction method statement for the site. These would be considered along with the good practice measures outlined in Chapter 9: Hydrology, Hydrogeology and Geology.

The following is a list of controls that should be considered for incorporation into the development of construction methodologies for the works in all areas of peat during detailed design stage: -

- appropriately experienced and qualified engineering geologist/geotechnical engineer is appointed during the construction phase, to provide advice during the setting out, micro-siting and construction phases of the works;
- Geotechnical Risk Register is developed and maintained by the appointed geotechnical engineer;
- a minimisation of “undercutting” of peat slopes, but where this cannot be avoided, a more detailed assessment of the area of concern by the geotechnical engineer would be required;
- careful micro-siting of turbine bases, crane hardstandings and access track alignments to minimise effects on the prevailing hydrology;
- although the risk of a peat slide is considered to be low for the majority of the Development, it is recommended that methodologies should be developed as a contingency to minimise the effects to watercourses in the unlikely event of peat instability;
- potential use of floating track in the few very small areas of deeper peat; and
- the stripping of superficial deposits (peat, topsoil and subsoil) to expose a suitable formation level such as Glacial Till or rock, where necessary. Storage of material removed for future reinstatement.

Notwithstanding any of the above comments, detailed design and construction practices would need to take into account the particular ground conditions and the specific works at each location throughout the construction period.

The following list of mitigation measures is provided in an attempt to minimise the risk of potentially inducing peat landslides during construction of the proposed Development:

7.1 General

- raise Health and Safety awareness of the peat environment at the Development for construction staff by incorporating the issue into the Site Induction. Include peat slide risk assessment information (e.g. peat instability indicators, best practice and emergency procedures) in tool box talks with relevant operatives e.g. plant drivers;
- introduce a ‘Peat Hazard Emergency Plan’ to provide instructions for site staff in the event of a peat slide or discovery of peat instability indicators;

- for sections of access track that require track side cuttings into peat, suitable support measures would need to be designed to maintain the stability of the adjacent peat terrain;
- refine/optimise the design through the pre-construction phase following completion of a detailed ground investigation; and
- develop methodologies to ensure that accelerated degradation and erosion of exposed peat deposits does not occur as the break-up of the peat top mat has significant implications for the morphology, and thus hydrology, of the peat (e.g. minimise off-track plant movements within areas of peat).

7.2 Drainage Measures

Drainage design for the Development is a critical mitigation measure in maintaining the hydrological conditions. In order to maintain hydrological conditions the following requirements of the drainage measures should to be met;

- development of drainage systems that would not create areas of concentrated flow or cause over-, or under-, saturation of peat habitats;
- development of robust drainage systems that would require minimal maintenance;
- a robust design of drainage systems and associated measures (i.e. silt traps, etc.) to minimise sedimentation into natural watercourses. Method statements should be prepared in advance to mitigate against a slide occurring and should include, but not be limited to, the use of check dams and erosion protection to limit flows and prevent contamination of watercourses; and
- measures shall be put in place to ensure drainage systems are well maintained, to include the identification and demarcation of zones of sensitive drainage or hydrology in areas of construction, e.g. inclusion of maintenance regimes for drainage systems into a construction management plan or similar.

7.3 Construction Recommendations

A summary of recommendations for site specific infrastructure is provided in the following sections.

The complexity of peat stability has been discussed in this report and by Lindsay and Bragg[12], amongst others. Following a review of published work and the observation and analysis undertaken for the Development, there would be a negligible hazard from peat instability if the recommendations contained in this report are adopted.

Suitable guidance and documentation in the form of a construction method statement/CEMP would be established before work commences to ensure good construction practices. Due to the complex inter-reactions affecting peat stability it is proposed that the recommendations given below are used as a set of guidelines to generate a detailed design concept. The concept should include the range of potential risks discussed in this report and the design should be sufficiently flexible to allow for continual modification and up-dating as construction progresses.

[12] Lindsay, R.A. and Bragg, O., (2004), 'Wind farm and Blanket Peat, The Bog Slide of 16th October 2003 at Derrybrien, Co. Galway, Ireland'. University of East London

7.4 Turbine Locations and Crane Pads

There is a presumption that all foundations for the wind turbines and heavy lift locations would be pad foundations bearing on a hard stratum at depth below the base of the peat. Alternative foundations may be required should ground conditions dictate, this can only be determined following ground investigation.

It is the objective of this assessment to consider the potential risk from peat instability and to recommend solutions and mitigation measures to eliminate, or at least reduce the risk to a manageable level. Risk reduction can best be achieved by minimising the effect of any construction works and an appropriate CEMP/construction method statement is an integral element in ensuring that all parties understand and acknowledge the potential consequences of a peat slide.

The preferred foundation solution for all areas would be a gravity pad foundation bearing on a sound stratum, alternative foundations may be considered subject to ground investigation. The side slopes of the excavation in the peaty soils or peat should be maintained in a stable condition throughout the construction process.

In general, the bearing stresses imposed by a turbine are relatively low and the main requirement of the base is to resist the overturning moments generated by the wind acting on the turbine. Gravity base foundations are designed to control bearing pressures to a level appropriate to the local ground conditions and provide stability against turbine loading.

The excavations for turbine bases and crane pads should be kept to a minimum but it is likely that the required hard stratum would be typically 1m below the base of the superficial geology, removing any weathered or soft materials, unless directly on rock. The very soft nature of peat means that unsupported cut or excavated slopes could be unstable unless shallow gradients are used. The overall width of such an excavation would be up to 28m diameter at the original ground surface, depending on the thickness of the peaty soil/peat and Glacial Till and appropriate methods of stabilising the temporary slopes should be considered. In general, areas of thicker peat have been avoided and the average depth of peat at turbine locations is 0.75 metres, with only 2 turbines (Turbine 2 and Turbine 10) considered thick peat. Foundation excavation would produce a small volume of peat and this should be reused across the site in an environmentally acceptable manner for restoration. Peat would not be used to back fill the excavation void within the footprint of the foundation as it would have a very low strength. Peat could be used as backfill outside the foundation footprint and also to dress verges to tracks and around turbine bases, in line with current Waste Management guidance[13].

Specific Locations

All of the turbine locations have been identified as either negligible risk resulting in an insignificant hazard assessment and would be constructed on rock following confirmatory detailed site investigation.

[13] Scottish Renewables and SEPA, Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste, 2012;

7.5 Access Tracks

The general principles regarding the construction of the access tracks in peat that minimises the risk of instability and environmental effects are discussed below.

In order to maintain the current level or improve the stability of the peat mass on the slopes around the access track, it is necessary to ensure that the construction methods do not seriously disrupt the established drainage and that no areas are surcharged, either by water discharge or spoil.

Wherever possible, the following principles should be adopted:

- maintenance of existing drainage is critical, therefore all existing drainage ditches must be maintained and where necessary, channelled below the proposed track construction. Upslope side drainage ditches to the track would be required on side-long ground; the ditches should be constructed with small dams and cross drains where necessary so that:
    - water can pass below the track at regular intervals; and
    - scour and erosion is avoided in the side ditches due the limited volume and velocity, concentrated discharges to the peat on the down slope side of the track are avoided;
- the camber of the track should encourage surface water to drain to the up slope side drainage ditch;
- identify and mark all existing drainage features within the access track corridors; these drainage features should be maintained (not enhanced) during the construction and operational phases of the Development;
- install cross drains at regular intervals to maintain interstitial groundwater flow through the peat mass below the tracks where track settlement could reduce the natural permeability;
- install additional drainage in areas up-slope to any track, where practicable, to prevent ponding and possible instability;
- install check dams at regular intervals along the track side drains to prevent significant water velocities in the side drains causing deep erosion in the peat;
- where track construction is required over peat areas in excess of 1m deep, this may be undertaken with a floating track construction, where the integrity of the peat allows;
- cut and fill should be avoided in peat greater than 1.0m deep if possible; if not, the following requirements on side long ground (across contours) should be adopted;
    - excavate to a sound stratum;
    - the majority of construction surface's to be essentially horizontal with a slight fall to aid drainage;
    - where the depth of cut is deemed unstable, employ a stepped or benched surface with the intention of minimising the exposed surface of the up-slope cut face;
    - protect all exposed peat surfaces from erosion and desiccation, by ensuring the integrity and moisture content of the peat is maintained; and

- the top of cut slopes should be provided with a small bund to retain the peat to prevent desiccation and maintain the local stability of the peat.

7.6 Cable Routes

The general principles regarding the construction of the cable trenches in peat that minimises the risk of instability and environmental effects are discussed below.

In order to maintain the current level or improve the stability of the peat mass on the slopes around the cable route, it is necessary to ensure that the construction methods do not seriously disrupt the established drainage and that no areas are surcharged, either by water discharge or spoil.

The majority of the cable routes would be likely located on Glacial Till or close to bedrock, with only a small section crossing peat. The construction of the cable route would minimise disturbance to drainage by taking cable route alongside existing access track and around the wind turbines adjacent to new access tracks. Much of the cable routes are over shallow peaty soils and Glacial Till where complete re-use of the materials on site is proposed.

7.7 Crossing Watercourses

The access tracks would cross a number of existing minor water courses and particular care would be required to ensure conformity in the settlement characteristics between the crossing structure and the approaches to avoid undue settlement. Due to the use of existing tracks and careful design no major water course crossing will be required.

7.8 Existing Operation/Welfare Building, and Meteorological Mast

These would be located in an area with limited or no peat and requires excavation onto Glacial Till or bedrock. There is no significant peat issues associated with the proposed operations/welfare building, substation location and it is planned to be excavated to a flat excavated surface on either Glacial Till or bedrock, similarly the meteorological mast location would be excavated to Glacial Till or bedrock.

7.9 Temporary Construction Compound and Operations Building/ Batching Plant

The proposed locations for the construction compound and batching plant are located on areas of either no peat (Glacial Till) or peaty soils, however peat is not considered an issue at these sites.

The position of the proposed locations for the temporary construction compound and the batching plant are, by design, in an area of low risk.

7.10 Borrow pits

7.11 The borrow pits would be required to comply with appropriate construction and quarrying regulations. They have been deliberately sited as extensions to the former borrow pits to avoid excavating significant peat and no significant construction mitigation in regards to peat would be required.**Further Work**

This report should be considered as the first stage in the development of a fundamental understanding of the various inter-relationships that govern and control the peat lands at the site.

The commissioned assessment has purposefully kept the extent of physical intrusion into the sensitive peat areas to an absolute minimum. The results are considered appropriate for the planning application.

More detailed ground investigations would be required to facilitate the geotechnical design of the various foundations and access track, particularly the vertical and horizontal alignment. These are incorporated into the CEMP which would be submitted to the Highland Council for approval as part of the condition compliance prior to any site works commencing.

It is not the purpose of this report to provide a detailed scope for the investigation.

8.0 CONCLUSIONS

8.1 Conclusions

The site has been assessed for potential hazards associated with peat instability; the assessment has been based on:

- a walk-over survey by a geologist of 30 years' experience;
- a thorough inspection of the digital terrain map at a scale of 1:25,000;
- review of historical and geological maps and publications and aerial photography; and
- a detailed geotechnical probing exercise at 1170 locations in areas of identified peaty soil/peat to determine the thickness thereof.

The overall conclusion regarding peat stability is that there is a negligible to low risk of peat instability over most of the site although some limited areas of medium risk have been identified.

For the medium risk areas, a hazard impact assessment was completed which concluded that, subject to the employment of appropriate mitigation measures, all these areas can be considered as an insignificant risk. Additional mitigation measures have been identified in areas where hazards are already considered insignificant to further reduce the risk of potential hazards occurring.

The site is generally covered in peaty soils and peat, therefore avoidance of thicker flat lying peat areas has been avoided where possible. No evidence of significant peat instability was noted on the site, primarily as it is very flat lying. The area is open moorland, with quite extensive organic peaty soil and peat coverage. The layout has been carefully designed to minimise excavating or disturbing thick peat, where possible, and where this cannot be avoided, mitigated by the use of floating roads.

FIGURES

N
W E
S

LEGEND

- SITE BOUNDARY
- PROPOSED TURBINE
- EXISTING TRACK
- PROPOSED NEW TRACK
- PERMANENT MET MAST
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND AND OPERATIONS BUILDING
- CONTROL BUILDING
- POTENTIAL BORROW PIT
- BATCHING PLANT

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GORDONBUSH EXTENSION WIND FARM

APPENDIX 9.1

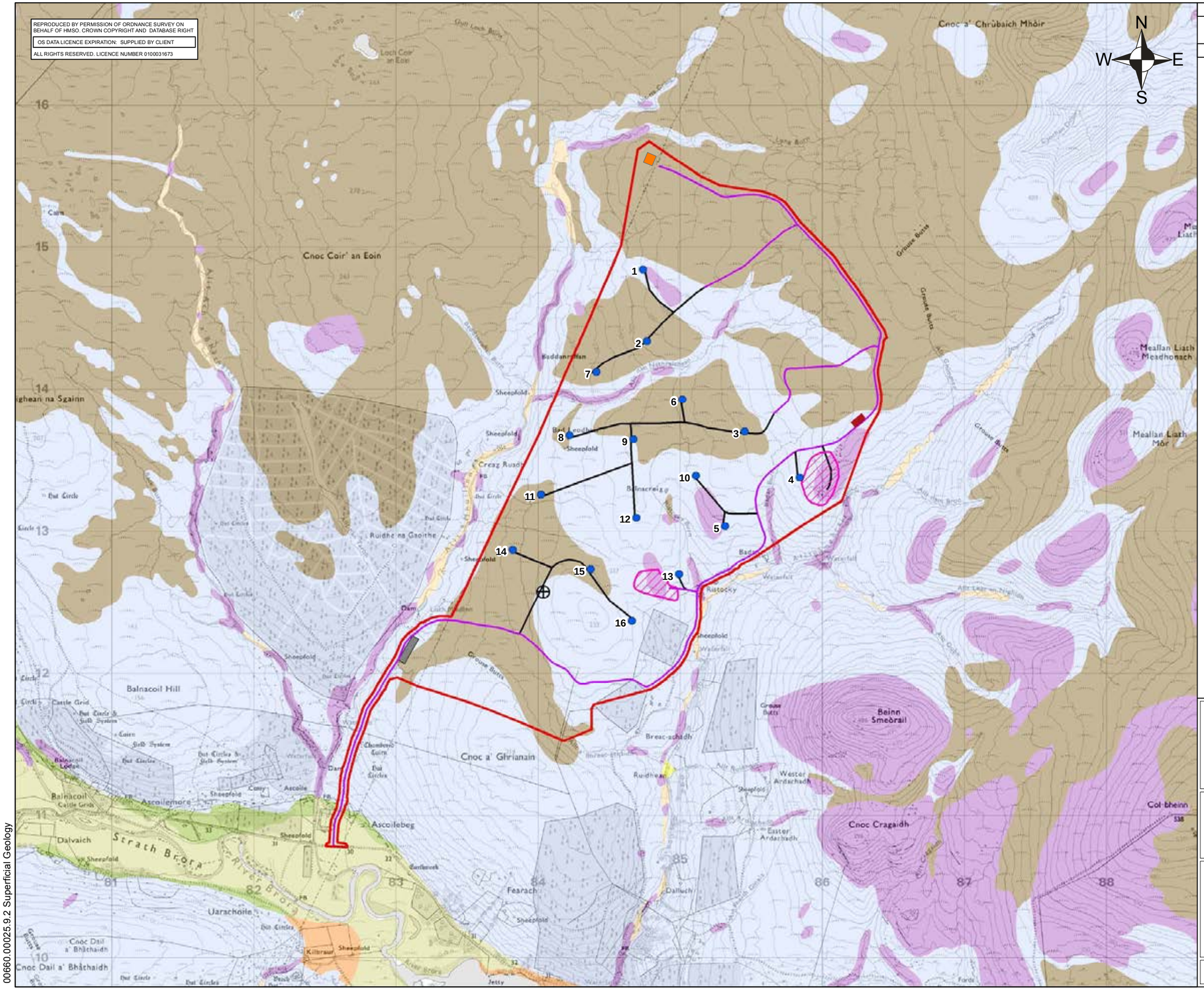
SITE LAYOUT

1

Scale 1:20,000 @ A3

Date MARCH 2015

00660.00025.9.1 Site Layout



NOTES

1. BGS DIGITAL GEOLOGY LICENCE NO.2011/3PDL/213517 BRITISH GEOLOGICAL SURVEY © NERC.

LEGEND

- SITE BOUNDARY
- PROPOSED TURBINE
- EXISTING TRACK
- PROPOSED NEW TRACK
- PERMANENT MET MAST
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND AND OPERATIONS BUILDING
- CONTROL BUILDING
- POTENTIAL BORROW PIT
- BATCHING PLANT

DRIFT GEOLOGY

- ALLUVIAL FAN DEPOSITS
- ALLUVIUM
- LACUSTRINE DELTAIC DEPOSITS
- LACUSTRINE DEPOSITS
- PEAT
- RIVER TERRACE DEPOSITS
- TILL, DEVENSIAN - DIAMICTON
- BEDROCK AT OR NEAR SURFACE

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GORDONBUSH EXTENSION WIND FARM

APPENDIX 9.1

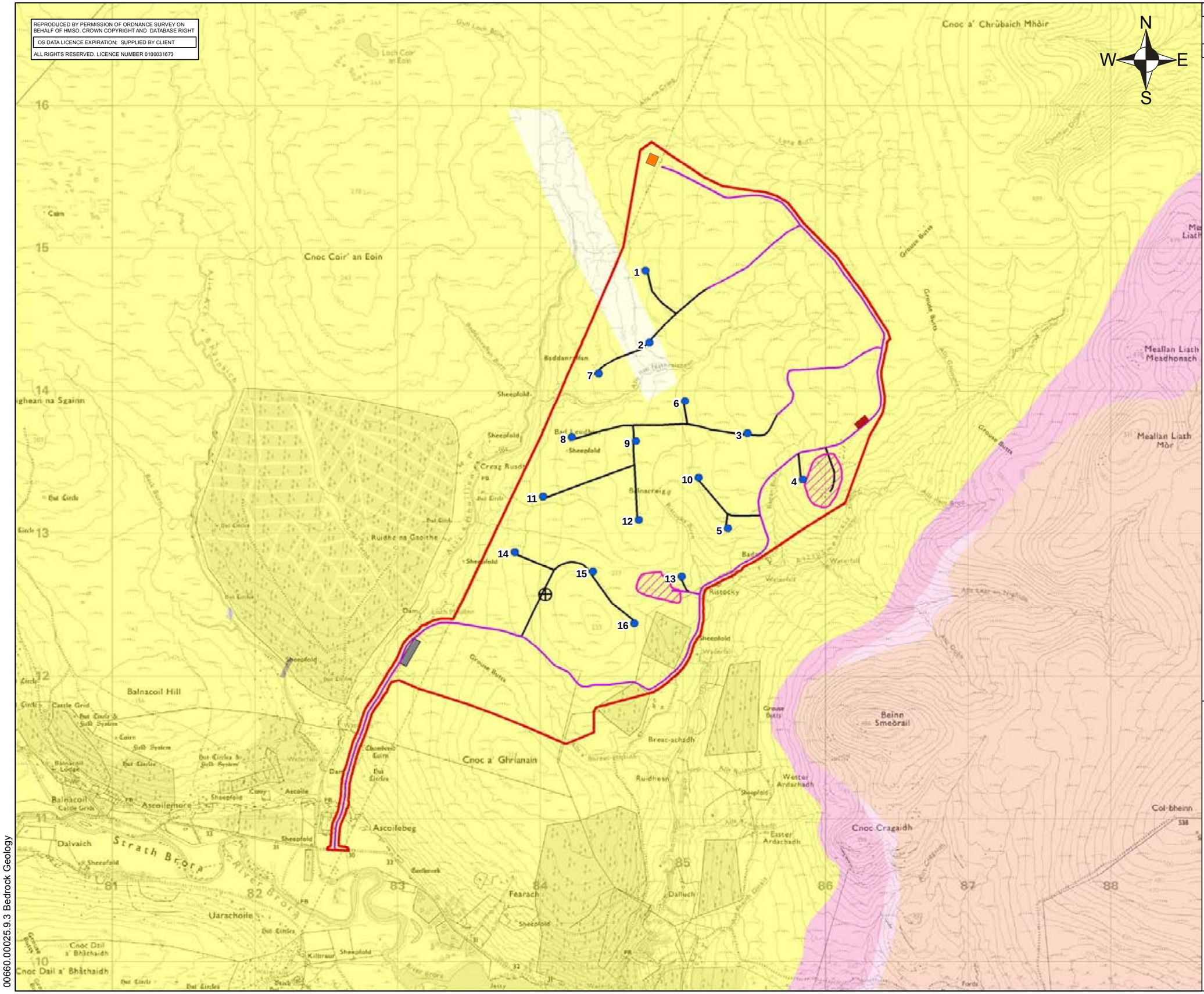
SUPERFICIAL GEOLOGY

2

Scale 1:25,000 @ A3

Date MARCH 2015

00660.00025.9.2 Superficial Geology



NOTES

1. BGS DIGITAL GEOLOGY LICENCE NO.2011/3PDL/213517 BRITISH GEOLOGICAL SURVEY © NERC.

LEGEND

- SITE BOUNDARY
- PROPOSED TURBINE
- EXISTING TRACK
- PROPOSED NEW TRACK
- PERMANENT MET MAST
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND AND OPERATIONS BUILDING
- CONTROL BUILDING
- POTENTIAL BORROW PIT
- BATCHING PLANT

SOLID GEOLOGY

- UNNAMED METAMORPHOSED IGNEOUS ROCKS, PRE-CALEDONIAN TO CALEDONIAN
- ROGART PLUTON, ARGYLL AND NORTHERN HIGHLANDS GRANITIC SUITE, CALEDONIAN SUPERSUITE
- MOINE SUPERGROUP
- KILDONAN PSAMMITE FORMATION, LOCH EIL GROUP, MOINE SUPERGROUP
- BERRIEDALE SANDSTONE FORMATION, CAITHNESS FLAGSTONE GROUP, OLD RED SANDSTONE SUPERGROUP
- OUSDALE ARKOSE FORMATION, SARCLET GROUP, OLD RED SANDSTONE SUPERGROUP
- ULBSTER SANDSTONE FORMATION, SARCLET GROUP, OLD RED SANDSTONE SUPERGROUP

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GORDONBUSH EXTENSION WIND FARM

APPENDIX 9.1

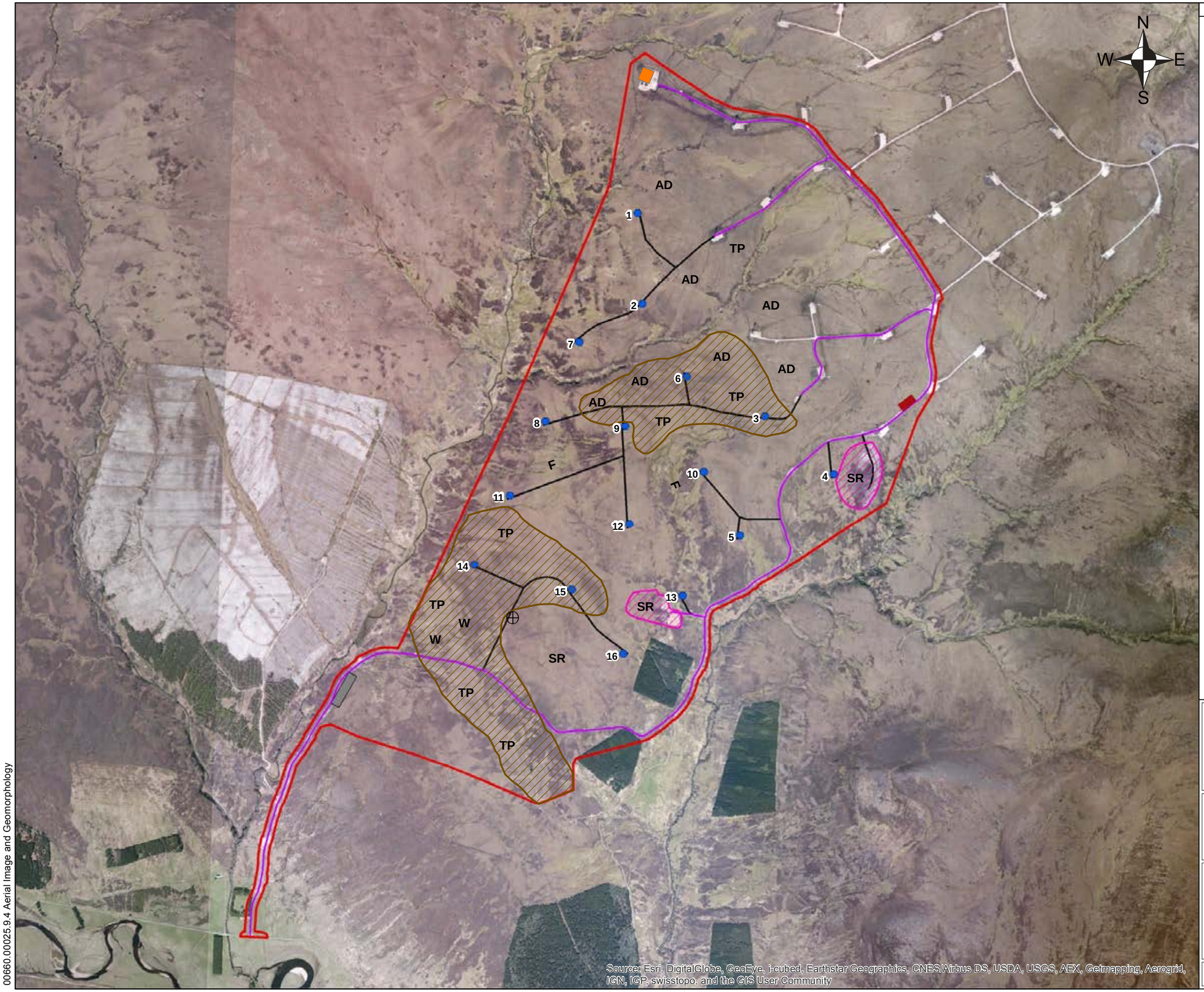
BEDROCK GEOLOGY

3

Scale 1:25,000 @ A3

Date MARCH 2015

00660.00025.9.3 Bedrock Geology



LEGEND

- SITE BOUNDARY
- PROPOSED TURBINE
- EXISTING TRACK
- PROPOSED NEW TRACK
- PERMANENT MET MAST
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND AND OPERATIONS BUILDING
- CONTROL BUILDING
- POTENTIAL BORROW PIT
- BATCHING PLANT
- THICK PEAT AREA
- TP — THICK PEAT
- AD — ARTIFICIAL DRAINAGE
- SR — SHALLOW ROCK
- W — WORKED PEAT
- F — FLUSH

SSE Renewables

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GORDONBUSH EXTENSION WIND FARM

APPENDIX 9.1

AERIAL IMAGE AND GEOMORPHOLOGY

4

Scale 1:20,000 @ A3

Date MARCH 2015

00660.00025.9.4 Aerial Image and Geomorphology

N
W
E
S

Cnoc Coir' an Eoin
Lone Burn
Grouse Butts
Baddanrioffan
Sheepfolds
Bad Leodhais
Creag Ruadh
Balnacreigg
Ruidhe na Gaoithe
Loch Maullinn
Dam
Ristrocky
Waterfall
Cnoc a' Ghrianain
Breac-achadh
Ruidhean
Wester Ardachadh
Easter Ardachadh
Beinn Smeòrail
Cnoc Cragaidh
Ascoilebeg
Ascoilemore
Chambered Cairn
Earthwork
Hut Circles
Sheepfold
Cairn
Ceiny
Ascoile
Allt nan Nathrachean
Allt a' Bhuiridh
Allt Ruidhean
Allt Ghrianain
Allt Breac-achaidh
Allt Ardachadh
Allt Craigaidh
Allt Dubh
Allt Leac an Nighinn
Allt Snaodrail
Allt dam Broc
Burn of Ristrocky
River Brora
83
84
85
86
87

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16

NOTES

1. SLOPE CALCULATED FROM 5m DTM.

LEGEND

- SITE BOUNDARY
- PROPOSED TURBINE
- EXISTING TRACK
- PROPOSED NEW TRACK
- PERMANENT MET MAST
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND AND OPERATIONS BUILDING
- POTENTIAL BORROW PIT
- BATCHING PLANT

SLOPE (DEGREES)

- 0 - 2
- 2 - 4
- 4 - 8
- 8 - 12
- >12

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GORDONBUSH EXTENSION WIND FARM

APPENDIX 9.1

SLOPE

5

Scale 1:20,000 @ A3

Date MARCH 2015

00660.00025.9.5 Slope

N
W E
S

LEGEND

- SITE BOUNDARY
- PROPOSED TURBINE
- EXISTING TRACK
- PROPOSED NEW TRACK
- PERMANENT MET MAST
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND AND OPERATIONS BUILDING
- CONTROL BUILDING
- POTENTIAL BORROW PIT
- BATCHING PLANT
- SLR PEAT PROBE LOCATION
- URS PEAT PROBE LOCATION

SSE Renewables

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GORDONBUSH EXTENSION WIND FARM

APPENDIX 9.1

PEAT PROBING LOCATIONS

6

Scale 1:20,000 @ A3

Date MARCH 2015

00660.00025.9.6 Peat Probing Locations

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NOTES

1. PEAT INTERPOLATED TO A DISTANCE OF 100m FROM PEAT PROBE POINT.

LEGEND

- SITE BOUNDARY
- PROPOSED TURBINE
- EXISTING TRACK
- PROPOSED NEW TRACK
- PERMANENT MET MAST
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND AND OPERATIONS BUILDING
- CONTROL BUILDING
- POTENTIAL BORROW PIT
- BATCHING PLANT
- SLR PEAT PROBE LOCATION
- URS PEAT PROBE LOCATION

PEAT DEPTH (m)

	0		1.5 - 2
	0 - 0.5		2 - 2.5
	0.5 - 1		2.5 - 3
	1 - 1.5		> 3

SSE Renewables

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GORDONBUSH EXTENSION WIND FARM

APPENDIX 9.1

INTERPRETED PEAT THICKNESS - FULL THICKNESS

7a

Scale 1:20,000 @ A3

Date MARCH 2015

00660.00025.9.7a Interpreted Peat Thickness - Full Thickness

N
W E
S

NOTES

1. PEAT INTERPOLATED TO A DISTANCE OF 100m FROM PEAT PROBE POINT.

LEGEND

- SITE BOUNDARY
- PROPOSED TURBINE
- EXISTING TRACK
- PROPOSED NEW TRACK
- PERMANENT MET MAST
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND AND OPERATIONS BUILDING
- CONTROL BUILDING
- POTENTIAL BORROW PIT
- BATCHING PLANT
- SLR PEAT PROBE LOCATION
- URS PEAT PROBE LOCATION

PEAT DEPTH (m)

0.5 - 1	2.5 - 3
1 - 1.5	3 - 3.5
1.5 - 2	3.5 - 4
2 - 2.5	

SSE Renewables

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GORDONBUSH EXTENSION WIND FARM

APPENDIX 9.1

INTERPRETED PEAT THICKNESS - PEAT ONLY (>0.5M)

7b

Scale 1:20,000 @ A3

Date MARCH 2015

00660.00025.9.7b Interpreted Peat Thickness - Peat Only (greater than 0.5m)

N
W
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NOTES

1. RISK INTERPOLATED TO A DISTANCE OF 100m FROM PEAT PROBE POINT.

LEGEND

- SITE BOUNDARY
- PROPOSED TURBINE
- EXISTING TRACK
- PROPOSED NEW TRACK
- PERMANENT MET MAST
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND AND OPERATIONS BUILDING
- CONTROL BUILDING
- POTENTIAL BORROW PIT
- BATCHING PLANT

STABILITY RISK

- NEGLIGIBLE
- LOW
- MEDIUM
- HIGH
- RISK AREAS
- DIRECTION OF POTENTIAL SLIDE

SSE Renewables

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GORDONBUSH EXTENSION WIND FARM

APPENDIX 9.1

STABILITY RISK RATING

8

Scale 1:20,000 @ A3

Date MARCH 2015

00660.00025.9.8 Stability Risk Rating

Appendix A
PROBE LOCATIONS, PEAT THICKNESS AND RISK RATING

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
1	Probe Location	285460	913954	0.8	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
2	Probe Location	285539	913863	0.4	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
3	Probe Location	285645	913748	1.0	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
4	Probe Location	285748	913708	1.4	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
5	Probe Location	285666	913562	1.8	3.10	2	Sand or Gravel	Thick Peat	3	1	6	Low
6	Probe Location	285572	913439	0.4	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
7	Probe Location	285468	913328	0.3	4.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
8	Probe Location	285477	913435	0.6	2.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
9	Probe Location	285574	913530	1.8	2.10	2	Sand or Gravel	Thick Peat	3	1	6	Low
10	Probe Location	285582	913637	0.9	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
11	Probe Location	285546	913746	2.3	3.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
12	Probe Location	285469	913844	0.5	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
13	Probe Location	285438	913741	0.7	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
14	Probe Location	285433	913619	2.7	1.50	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
15	Probe Location	285449	913539	1.8	1.50	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
16	Probe Location	285337	913521	1.9	2.50	2	Sand or Gravel	Thick Peat	3	1	6	Low
17	Probe Location	285336	913592	1.8	2.50	2	Sand or Gravel	Thick Peat	3	1	6	Low
18	Probe Location	285357	913649	2.7	2.50	2	Sand or Gravel	Thick Peat	3	1	6	Low
19	Probe Location	285353	913744	1.9	2.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
20	Probe Location	285372	914045	0.6	3.40	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
21	Probe Location	285360	913927	3.0	3.10	2	Sand or Gravel	Thick Peat	3	1	6	Low
22	Probe Location	285365	913843	1.8	4.50	4	Sand or Gravel	Thick Peat	3	1	12	Low
23	Probe Location	285252	913856	2.7	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
24	Probe Location	285261	913742	1.9	4.30	4	Sand or Gravel	Thick Peat	3	1	12	Low
25	Probe Location	285250	913652	1.7	2.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
26	Probe Location	285249	913544	2.1	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
27	Probe Location	285252	913445	3.3	4.40	4	Sand or Gravel	Thick Peat	3	1	12	Low
28	Probe Location	285249	913343	1.9	6.40	4	Sand or Gravel	Thick Peat	3	1	12	Low
29	Probe Location	285247	913326	3.8	2.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
30	Probe Location	285249	913215	0.8	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
31	Probe Location	285257	913137	0.6	4.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
32	Probe Location	285247	913050	0.3	5.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
33	Probe Location	285151	913050	0.2	6.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
34	Probe Location	285152	913150	0.7	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
35	Probe Location	285164	913251	0.7	6.00	4	Sand or Gravel	Thin Peat	2	1	8	Low
36	Probe Location	285158	913349	0.7	6.00	4	Sand or Gravel	Thin Peat	2	1	8	Low
37	Probe Location	285150	913450	3.0	5.70	4	Sand or Gravel	Thick Peat	3	1	12	Low
38	Probe Location	285156	913545	2.8	2.50	2	Sand or Gravel	Thick Peat	3	1	6	Low
39	Probe Location	285155	913750	1.6	6.90	4	Sand or Gravel	Thick Peat	3	1	12	Low
40	Probe Location	285152	913854	1.8	1.50	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
41	Probe Location	285152	913954	3.0	2.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
42	Probe Location	285152	914053	3.1	5.30	4	Sand or Gravel	Thick Peat	3	1	12	Low
43	Probe Location	285153	914150	1.9	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
44	Probe Location	285262	914151	1.3	4.90	4	ROCK	Thin Peat	2	2	16	Medium
45	Probe Location	285247	914046	3.9	3.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
46	Probe Location	285239	913937	1.8	6.30	4	Sand or Gravel	Thick Peat	3	1	12	Low
47	Probe Location	285064	913737	1.0	3.20	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
48	Probe Location	285041	913853	0.7	4.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
49	Probe Location	285051	913950	1.3	7.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
50	Probe Location	285056	914040	1.7	2.90	2	Sand or Gravel	Thick Peat	3	1	6	Low
51	Probe Location	284954	914049	1.7	4.40	4	Sand or Gravel	Thick Peat	3	1	12	Low
52	Probe Location	284944	913943	0.4	9.90	6	Sand or Gravel	Peaty soil	1	1	6	Low

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
53	Probe Location	284958	913844	0.8	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
54	Probe Location	284946	913748	2.1	9.80	6	Sand or Gravel	Thick Peat	3	1	18	Medium
55	Probe Location	284941	913625	3.6	3.90	2	Sand or Gravel	Thick Peat	3	1	6	Low
56	Probe Location	285056	913639	1.6	5.70	4	Sand or Gravel	Thick Peat	3	1	12	Low
57	Probe Location	284856	913639	3.6	4.40	4	Sand or Gravel	Thick Peat	3	1	12	Low
58	Probe Location	284867	913752	1.6	7.20	4	Sand or Gravel	Thick Peat	3	1	12	Low
59	Probe Location	284851	913833	3.0	5.50	4	Sand or Gravel	Thick Peat	3	1	12	Low
60	Probe Location	284852	912741	0.3	5.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
61	Probe Location	284886	912725	0.8	4.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
62	Probe Location	284947	912734	0.6	3.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
63	Probe Location	284742	912734	1.0	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
64	Probe Location	284649	912748	1.0	0.90	1	Rock	Thin Peat	2	2	4	Negligible
65	Probe Location	284550	912753	0.7	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
66	Probe Location	284449	912729	1.9	5.30	4	Sand or Gravel	Thick Peat	3	1	12	Low
67	Probe Location	284346	912752	0.4	2.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
68	Probe Location	284386	912779	1.2	6.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
69	Probe Location	284253	912752	1.4	2.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
70	Probe Location	284144	912746	0.5	4.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
71	Probe Location	284050	912740	0.5	3.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
72	Probe Location	283938	912757	0.5	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
73	Probe Location	283849	912748	0.2	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
74	Probe Location	283740	912754	0.6	3.30	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
75	Probe Location	283640	912734	0.8	5.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
76	Probe Location	283765	912850	0.5	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
77	Probe Location	283760	912950	0.5	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
78	Probe Location	283855	912954	1.5	7.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
79	Probe Location	283857	912838	0.5	4.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
80	Probe Location	283953	912944	1.8	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
81	Probe Location	284059	912943	2.3	3.50	2	Sand or Gravel	Thick Peat	3	1	6	Low
82	Probe Location	284057	912845	2.0	3.20	2	Sand or Gravel	Thick Peat	3	1	6	Low
83	Probe Location	284155	912840	1.5	3.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
84	Probe Location	284272	912840	1.7	2.50	2	Sand or Gravel	Thick Peat	3	1	6	Low
85	Probe Location	284365	912851	2.9	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
86	Probe Location	284559	912851	0.4	3.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
87	Probe Location	284652	912847	0.5	3.60	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
88	Probe Location	284754	912831	0.5	5.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
89	Probe Location	284949	912850	0.5	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
90	Probe Location	284946	912948	0.5	5.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
91	Probe Location	284859	912948	1.8	4.80	4	Sand or Gravel	Thick Peat	3	1	12	Low
92	Probe Location	284843	912849	0.7	4.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
93	Probe Location	284755	912954	0.4	4.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
94	Probe Location	284659	912959	0.5	5.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
95	Probe Location	284542	912949	0.1	3.10	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
96	Probe Location	284450	912947	0.3	5.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
97	Probe Location	284351	912949	1.0	1.70	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
98	Probe Location	284340	913037	2.1	4.20	4	Sand or Gravel	Thick Peat	3	1	12	Low
99	Probe Location	284450	913043	0.4	8.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
100	Probe Location	284550	913051	0.6	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
101	Probe Location	284656	913038	0.5	2.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
102	Probe Location	284764	913049	1.0	2.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
103	Probe Location	284859	913055	0.8	4.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
104	Probe Location	284956	913055	0.6	2.40	2	Sand or Gravel	Thin Peat	2	1	4	Negligible

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
105	Probe Location	284859	913145	0.6	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
106	Probe Location	284751	913147	1.2	3.30	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
107	Probe Location	284650	913157	0.9	5.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
108	Probe Location	284632	913235	0.3	3.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
109	Probe Location	284676	913254	0.7	6.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
110	Probe Location	284552	913156	0.6	1.80	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
111	Probe Location	284445	913155	0.4	4.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
112	Probe Location	284355	913145	0.6	4.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
113	Probe Location	284252	913145	2.9	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
114	Probe Location	284257	913043	4.1	3.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
115	Probe Location	284156	913052	4.3	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
116	Probe Location	285228	914369	0.7	3.40	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
117	Probe Location	285179	914449	0.4	3.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
118	Probe Location	285050	914531	1.5	9.00	6	Sand or Gravel	Thin Peat	2	1	12	Low
119	Probe Location	284967	914640	0.3	1.10	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
120	Probe Location	284868	914749	0.9	4.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
121	Probe Location	284766	914838	0.4	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
122	Probe Location	284657	914851	0.8	1.20	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
123	Probe Location	284637	914744	0.3	2.60	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
124	Probe Location	284764	914748	0.5	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
125	Probe Location	284641	914645	0.8	6.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
126	Probe Location	284754	914653	0.7	3.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
127	Probe Location	284640	914542	0.7	4.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
128	Probe Location	284636	914452	0.2	3.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
129	Probe Location	284550	914449	0.4	5.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
130	Probe Location	284544	914345	0.3	1.90	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
131	Probe Location	284452	914339	0.3	2.10	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
132	Probe Location	284555	914251	0.8	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
133	Probe Location	284545	914137	0.6	1.00	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
134	Probe Location	284453	914159	0.3	1.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
135	Probe Location	284353	914138	0.3	4.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
136	Probe Location	284304	914041	0.3	0.40	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
137	Probe Location	284364	914008	0.3	3.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
138	Probe Location	284354	913946	0.3	0.80	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
139	Probe Location	284459	914039	0.3	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
140	Probe Location	284547	914020	0.3	1.10	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
141	Probe Location	284627	914042	0.5	1.10	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
142	Probe Location	284661	914128	0.8	4.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
143	Probe Location	284671	914243	0.4	6.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
144	Probe Location	284643	914335	0.2	4.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
145	Probe Location	284755	914244	0.3	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
146	Probe Location	284765	914362	1.2	4.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
147	Probe Location	284758	914445	2.1	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
148	Probe Location	284778	914557	0.9	4.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
149	Probe Location	284850	914662	0.6	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
150	Probe Location	284876	914455	0.5	4.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
151	Probe Location	284973	914432	0.9	5.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
152	Probe Location	284946	914551	0.3	4.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
153	Probe Location	285078	914442	0.4	6.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
154	Probe Location	285033	914339	2.3	5.00	4	Sand or Gravel	Thick Peat	3	1	12	Low
155	Probe Location	285154	914351	1.8	6.10	4	Sand or Gravel	Thick Peat	3	1	12	Low
156	Probe Location	284922	914358	2.5	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
157	Probe Location	284855	914358	1.5	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
158	Probe Location	284846	914241	1.8	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
159	Probe Location	284945	914233	1.8	5.20	4	Sand or Gravel	Thick Peat	3	1	12	Low
160	Probe Location	285048	914238	1.5	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
161	Probe Location	285059	914190	0.2	4.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
162	Probe Location	284997	914131	0.0	8.30	6	Sand or Gravel	No Peat	0	1	0	Negligible
163	Probe Location	285036	914102	1.0	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
164	Probe Location	285152	914153	1.8	4.70	4	Sand or Gravel	Thick Peat	3	1	12	Low
165	Probe Location	284949	914049	0.3	4.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
166	Probe Location	285238	914127	0.3	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
167	Probe Location	285138	914048	2.3	3.20	2	Sand or Gravel	Thick Peat	3	1	6	Low
168	Probe Location	285048	914039	1.9	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
169	Probe Location	285142	913961	3.5	1.80	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
170	Probe Location	284753	914052	0.5	2.20	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
171	Probe Location	284849	914054	1.4	1.80	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
172	Probe Location	285054	913935	1.8	2.10	2	Sand or Gravel	Thick Peat	3	1	6	Low
173	Probe Location	284961	913954	0.5	2.20	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
174	Probe Location	284862	913938	0.3	2.00	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
175	Probe Location	284752	913943	0.3	2.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
176	Probe Location	284661	913922	0.4	6.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
177	Probe Location	284554	913870	0.3	4.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
178	Probe Location	284662	913839	0.4	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
179	Probe Location	284775	914118	0.9	7.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
180	Probe Location	284807	913812	1.3	5.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
181	Probe Location	284837	912665	1.4	5.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
182	Probe Location	284760	912637	0.3	1.20	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
183	Probe Location	284653	912626	0.3	4.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
184	Probe Location	284544	912633	1.7	5.30	4	Sand or Gravel	Thick Peat	3	1	12	Low
185	Probe Location	284455	912627	0.4	2.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
186	Probe Location	284363	912632	0.4	5.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
187	Probe Location	284245	912647	0.9	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
188	Probe Location	284158	912654	0.5	8.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
189	Probe Location	284044	912646	0.3	4.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
190	Probe Location	283931	912645	0.5	3.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
191	Probe Location	283847	912642	0.3	4.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
192	Probe Location	283753	912637	0.3	1.20	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
193	Probe Location	283659	912639	1.8	2.30	2	Sand or Gravel	Thick Peat	3	1	6	Low
194	Probe Location	283548	912630	1.5	5.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
195	Probe Location	283540	912539	1.2	2.40	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
196	Probe Location	283647	912539	2.1	1.40	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
197	Probe Location	283733	912542	0.5	2.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
198	Probe Location	283843	912538	0.3	2.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
199	Probe Location	283939	912543	0.3	4.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
200	Probe Location	284044	912560	0.3	1.90	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
201	Probe Location	284056	912456	0.4	3.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
202	Probe Location	284169	912560	0.2	5.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
203	Probe Location	284113	912718	0.3	4.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
204	Probe Location	284251	912440	0.2	4.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
205	Probe Location	284248	912540	0.8	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
206	Probe Location	284371	912452	0.5	6.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
207	Probe Location	284369	912528	0.8	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
208	Probe Location	284450	912525	0.5	4.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
209	Probe Location	284463	912450	0.6	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
210	Probe Location	284556	912466	0.8	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
211	Probe Location	284595	912537	1.0	4.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
212	Probe Location	284539	912540	1.5	5.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
213	Probe Location	284653	912546	1.5	5.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
214	Probe Location	284784	912564	0.6	5.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
215	Probe Location	284866	912446	0.7	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
216	Probe Location	284457	912154	0.5	2.20	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
217	Probe Location	284348	912156	0.6	1.50	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
218	Probe Location	284248	912162	0.3	4.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
219	Probe Location	284159	912158	0.3	4.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
220	Probe Location	284036	912264	0.3	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
221	Probe Location	284163	912268	0.5	2.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
222	Probe Location	284273	912256	0.7	2.40	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
223	Probe Location	284405	912346	0.4	1.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
224	Probe Location	284361	912074	0.6	1.90	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
225	Probe Location	283350	912241	0.3	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
226	Probe Location	283350	912144	0.7	1.60	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
227	Probe Location	283352	912046	0.4	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
228	Probe Location	283452	911948	0.4	1.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
229	Probe Location	283455	912050	0.6	5.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
230	Probe Location	283448	912154	0.3	2.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
231	Probe Location	283454	912247	1.1	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
232	Probe Location	283553	912242	0.9	6.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
233	Probe Location	283584	912180	0.5	5.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
234	Probe Location	283551	912141	0.6	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
235	Probe Location	283559	912045	0.5	0.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
236	Probe Location	283563	911944	0.3	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
237	Probe Location	283652	911845	0.6	2.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
238	Probe Location	283657	911944	0.7	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
239	Probe Location	283652	912051	0.5	6.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
240	Probe Location	283652	912141	1.2	5.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
241	Probe Location	283646	912209	1.6	7.60	4	Sand or Gravel	Thick Peat	3	1	12	Low
242	Probe Location	283650	912251	2.4	0.40	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
243	Probe Location	285457	913246	0.5	5.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
244	Probe Location	285352	913150	0.9	5.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
245	Probe Location	285359	913243	0.4	2.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
246	Probe Location	285356	913351	0.8	5.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
247	Probe Location	285351	913444	1.0	5.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
248	Probe Location	284559	913244	0.9	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
249	Probe Location	284448	913243	0.8	5.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
250	Probe Location	284336	913260	0.9	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
251	Probe Location	284250	913247	1.7	6.60	4	Sand or Gravel	Thick Peat	3	1	12	Low
252	Probe Location	284150	913264	1.0	7.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
253	Probe Location	284054	913246	0.4	4.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
254	Probe Location	283956	913247	0.9	3.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
255	Probe Location	283852	913246	2.4	2.50	2	Sand or Gravel	Thick Peat	3	1	6	Low
256	Probe Location	283848	913142	1.4	1.40	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
257	Probe Location	283955	913137	1.5	0.40	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
258	Probe Location	284018	913121	1.6	3.10	2	Sand or Gravel	Thick Peat	3	1	6	Low
259	Probe Location	284051	913146	1.8	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
260	Probe Location	283947	913055	2.7	4.90	4	Sand or Gravel	Thick Peat	3	1	12	Low

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
261	Probe Location	284153	913139	3.0	4.10	4	Sand or Gravel	Thick Peat	3	1	12	Low
262	Probe Location	284161	913174	1.7	2.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
263	Probe Location	283952	913348	0.3	4.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
264	Probe Location	284083	913364	0.4	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
265	Probe Location	284154	913332	1.0	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
266	Probe Location	284247	913348	2.5	2.90	2	Sand or Gravel	Thick Peat	3	1	6	Low
267	Probe Location	284351	913346	0.7	7.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
268	Probe Location	284454	913351	0.4	2.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
269	Probe Location	284556	913342	0.3	1.90	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
270	Probe Location	284660	913350	0.9	6.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
271	Probe Location	284764	913332	0.5	5.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
272	Probe Location	284743	913248	1.1	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
273	Probe Location	284757	913341	0.8	1.80	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
274	Probe Location	284745	913447	0.9	4.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
275	Probe Location	284654	913455	0.5	5.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
276	Probe Location	284555	913445	0.4	2.10	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
277	Probe Location	284448	913437	0.4	1.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
278	Probe Location	284362	913451	1.1	2.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
279	Probe Location	283758	912239	2.4	4.10	4	Sand or Gravel	Thick Peat	3	1	12	Low
280	Probe Location	283767	912156	1.8	2.30	2	Sand or Gravel	Thick Peat	3	1	6	Low
281	Probe Location	283760	912048	1.8	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
282	Probe Location	283748	911957	0.9	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
283	Probe Location	283747	911858	0.8	2.40	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
284	Probe Location	283825	911750	0.7	1.80	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
285	Probe Location	283948	911717	0.3	2.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
286	Probe Location	284057	911712	1.8	2.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
287	Probe Location	284138	911640	0.3	4.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
288	Probe Location	284206	911943	1.3	3.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
289	Probe Location	284200	911735	0.4	1.20	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
290	Probe Location	284297	911761	0.3	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
291	Probe Location	284134	911869	1.3	1.20	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
292	Probe Location	284041	911876	0.4	6.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
293	Probe Location	283945	911877	2.0	2.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
294	Probe Location	283879	911925	2.0	5.00	4	Sand or Gravel	Thick Peat	3	1	12	Low
295	Probe Location	283879	911983	1.9	3.10	2	Sand or Gravel	Thick Peat	3	1	6	Low
296	Probe Location	283916	912021	0.0	2.70	2	Sand or Gravel	No Peat	0	1	0	Negligible
297	Probe Location	283840	911849	0.3	4.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
298	Probe Location	283961	912016	0.0	2.10	2	Sand or Gravel	No Peat	0	1	0	Negligible
299	Probe Location	283952	911940	0.0	5.20	4	Sand or Gravel	No Peat	0	1	0	Negligible
300	Probe Location	285068	913141	0.2	2.20	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
301	Probe Location	285038	913237	0.7	5.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
302	Probe Location	284937	913276	0.1	5.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
303	Probe Location	284946	913166	0.7	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
304	Probe Location	284904	913356	0.2	7.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
305	Probe Location	285038	913340	0.3	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
306	Probe Location	285193	913415	0.6	2.40	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
307	Probe Location	284836	913443	1.4	2.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
308	Probe Location	284833	913347	1.2	7.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
309	Probe Location	284936	913443	1.2	2.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
310	Probe Location	284933	913518	1.4	2.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
311	Probe Location	285026	913446	1.4	8.00	4	Sand or Gravel	Thin Peat	2	1	8	Low
312	Probe Location	285002	913577	2.4	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
313	Probe Location	284469	913125	2.1	1.40	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
314	Probe Location	284753	913528	2.1	3.30	2	Sand or Gravel	Thick Peat	3	1	6	Low
315	Probe Location	284723	913661	1.9	2.90	2	Sand or Gravel	Thick Peat	3	1	6	Low
316	Probe Location	284717	913767	1.2	2.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
317	Probe Location	284631	913760	0.4	2.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
318	Probe Location	284532	913756	0.4	5.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
319	Probe Location	284405	913743	0.8	5.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
320	Probe Location	284333	913854	0.6	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
321	Probe Location	284450	913863	0.5	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
322	Probe Location	284232	913875	0.9	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
323	Probe Location	284132	913853	0.2	0.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
324	Probe Location	284113	913761	0.2	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
325	Probe Location	284234	913750	0.4	1.50	1	Rock	Peaty soil	1	2	2	Negligible
326	Probe Location	284309	913748	0.9	3.30	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
327	Probe Location	284024	913669	0.2	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
328	Probe Location	284150	913643	0.4	3.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
329	Probe Location	284241	913687	0.2	5.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
330	Probe Location	284248	913643	0.4	2.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
331	Probe Location	284321	913643	0.3	0.90	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
332	Probe Location	284402	913631	0.4	2.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
333	Probe Location	284453	913644	0.3	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
334	Probe Location	284547	913646	0.4	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
335	Probe Location	284648	913650	1.0	7.00	4	Sand or Gravel	Thin Peat	2	1	8	Low
336	Probe Location	284660	913547	1.5	1.20	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
337	Probe Location	284542	913556	0.2	5.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
338	Probe Location	284442	913569	0.2	1.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
339	Probe Location	284328	913559	0.4	4.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
340	Probe Location	284226	913557	0.3	2.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
341	Probe Location	284137	913568	0.4	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
342	Probe Location	284032	913578	0.4	2.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
343	Probe Location	283961	913469	0.4	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
344	Probe Location	284025	913446	0.6	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
345	Probe Location	284087	913439	0.3	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
346	Probe Location	284163	913449	0.6	3.30	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
347	Probe Location	284240	913456	0.3	2.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
348	Probe Location	284337	913461	0.6	3.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
349	Probe Location	285048	914632	1.1	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
350	Probe Location	285009	914597	1.9	3.30	2	Sand or Gravel	Thick Peat	3	1	6	Low
351	Probe Location	284976	914553	0.5	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
352	Probe Location	284933	914518	1.0	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
353	Probe Location	284892	914531	1.1	4.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
354	Probe Location	284840	914530	0.6	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
355	Probe Location	284798	914564	2.1	5.70	4	Sand or Gravel	Thick Peat	3	1	12	Low
356	Probe Location	284775	914607	2.1	5.80	4	Sand or Gravel	Thick Peat	3	1	12	Low
357	Probe Location	284800	914633	0.4	5.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
358	Probe Location	284766	914650	2.0	6.00	4	Sand or Gravel	Thick Peat	3	1	12	Low
359	Probe Location	284751	914700	1.0	5.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
360	Probe Location	284740	914748	0.9	5.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
361	Probe Location	284725	914795	0.9	4.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
362	Probe Location	284715	914845	0.5	4.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
363	Probe Location	284742	914843	0.6	4.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
364	Probe Location	284751	914865	1.7	4.60	4	Sand or Gravel	Thick Peat	3	1	12	Low

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365	Probe Location	284748	914888	0.7	4.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
366	Probe Location	284779	914803	1.4	6.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
367	Probe Location	284800	914753	0.1	6.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
368	Probe Location	284815	914700	0.2	4.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
369	Probe Location	284837	914648	0.2	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
370	Probe Location	284857	914591	0.5	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
371	Probe Location	284959	914529	0.5	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
372	Probe Location	284919	914490	0.6	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
373	Probe Location	284875	914450	0.7	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
374	Probe Location	284855	914422	2.1	4.20	4	Sand or Gravel	Thick Peat	3	1	12	Low
375	Probe Location	284825	914385	3.1	3.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
376	Probe Location	284805	914372	3.1	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
377	Probe Location	284767	914350	1.8	3.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
378	Probe Location	284727	914308	0.7	8.10	6	Sand or Gravel	Thin Peat	2	1	12	Low
379	Probe Location	284696	914272	0.7	5.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
380	Probe Location	284651	914225	0.9	5.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
381	Probe Location	284617	914222	1.0	4.20	4	Rock	Thin Peat	2	2	16	Medium
382	Probe Location	284566	914192	1.0	4.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
383	Probe Location	284535	914168	0.3	2.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
384	Probe Location	284488	914146	0.3	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
385	Probe Location	284437	914117	0.5	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
386	Probe Location	284405	914121	0.3	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
387	Probe Location	284373	914121	0.9	5.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
388	Probe Location	284341	914105	0.5	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
389	Probe Location	284381	914086	0.4	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
390	Probe Location	284446	914083	0.6	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
391	Probe Location	284505	914106	0.5	3.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
392	Probe Location	284603	914146	0.7	2.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
393	Probe Location	284671	914172	1.1	5.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
394	Probe Location	284735	914197	1.0	4.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
395	Probe Location	284782	914234	0.6	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
396	Probe Location	284817	914280	2.2	3.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
397	Probe Location	284846	914295	2.0	4.60	4	Sand or Gravel	Thick Peat	3	1	12	Low
398	Probe Location	284883	914315	1.7	4.80	4	Sand or Gravel	Thick Peat	3	1	12	Low
399	Probe Location	284922	914352	1.7	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
400	Probe Location	284958	914404	3.5	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
401	Probe Location	285000	914469	0.3	3.60	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
402	Probe Location	285747	913488	0.1	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
403	Probe Location	285765	913443	0.4	8.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
404	Probe Location	285787	913393	0.5	7.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
405	Probe Location	285818	913348	0.7	7.00	4	Sand or Gravel	Thin Peat	2	1	8	Low
406	Probe Location	285873	913331	0.5	7.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
407	Probe Location	285950	913331	0.0	6.20	4	Sand or Gravel	No Peat	0	1	0	Negligible
408	Probe Location	285941	913422	0.9	5.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
409	Probe Location	285907	913395	0.6	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
410	Probe Location	285902	913374	0.4	5.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
411	Probe Location	285899	913362	0.9	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
412	Probe Location	285877	913397	0.2	5.80	4	Rock	Peaty soil	1	2	8	Low
413	Probe Location	285867	913430	0.1	6.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
414	Probe Location	285853	913481	0.5	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
415	Probe Location	285842	913523	0.1	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
416	Probe Location	284933	912708	0.2	4.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible

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417	Probe Location	284965	912708	0.6	5.00	4	Sand or Gravel	Thin Peat	2	1	8	Low
418	Probe Location	284992	912695	0.3	6.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
419	Probe Location	285002	912653	0.4	2.20	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
420	Probe Location	285020	912620	0.1	6.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
421	Probe Location	284631	911971	0.4	4.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
422	Probe Location	284629	912019	0.9	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
423	Probe Location	284635	912066	0.8	4.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
424	Probe Location	284663	912109	0.7	4.50	4	ROCK	Thin Peat	2	2	16	Medium
425	Probe Location	284681	912155	0.5	5.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
426	Probe Location	284687	912209	0.9	6.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
427	Probe Location	284681	912255	0.6	6.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
428	Probe Location	284680	912310	0.6	7.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
429	Probe Location	284683	912348	0.8	7.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
430	Probe Location	284656	912375	0.6	7.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
431	Probe Location	284680	912371	0.5	7.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
432	Probe Location	284662	912406	0.8	7.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
433	Probe Location	284633	912438	1.3	6.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
434	Probe Location	284616	912433	0.4	5.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
435	Probe Location	284591	912464	0.8	7.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
436	Probe Location	284541	912484	0.7	7.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
437	Probe Location	284507	912508	0.5	7.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
438	Probe Location	284470	912547	0.8	6.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
439	Probe Location	284440	912587	0.7	6.00	4	Sand or Gravel	Thin Peat	2	1	8	Low
440	Probe Location	284422	912629	0.2	5.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
441	Probe Location	284381	912669	0.6	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
442	Probe Location	284348	912713	0.3	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
443	Probe Location	284331	912755	0.6	1.10	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
444	Probe Location	284367	912728	0.4	0.80	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
445	Probe Location	284370	912732	0.4	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
446	Probe Location	284392	912753	1.0	1.20	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
447	Probe Location	284288	912804	0.7	1.10	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
448	Probe Location	284250	912820	0.6	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
449	Probe Location	284209	912825	1.1	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
450	Probe Location	284158	912829	0.7	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
451	Probe Location	284107	912836	1.8	2.50	2	Rock	Thick Peat	3	2	12	Low
452	Probe Location	284059	912849	1.8	2.00	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
453	Probe Location	284002	912855	0.9	1.60	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
454	Probe Location	283959	912861	0.3	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
455	Probe Location	283908	912878	0.6	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
456	Probe Location	283869	912888	0.9	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
457	Probe Location	283817	912873	0.2	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
458	Probe Location	283805	912855	0.3	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
459	Probe Location	283782	912863	0.1	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
460	Probe Location	283797	912891	0.8	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
461	Probe Location	283847	912868	0.2	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
462	Probe Location	283900	912848	0.3	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
463	Probe Location	283950	912830	0.4	3.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
464	Probe Location	284003	912803	0.3	1.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
465	Probe Location	284064	912784	0.5	3.10	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
466	Probe Location	284112	912774	0.3	3.60	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
467	Probe Location	284158	912764	0.7	3.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
468	Probe Location	284118	912711	0.4	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible

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469	Probe Location	284094	912662	0.4	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
470	Probe Location	284081	912617	0.4	4.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
471	Probe Location	284033	912553	0.2	4.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
472	Probe Location	284002	912499	0.3	4.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
473	Probe Location	283982	912439	0.5	8.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
474	Probe Location	283970	912378	0.4	8.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
475	Probe Location	283942	912329	0.4	5.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
476	Probe Location	283907	912280	0.4	5.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
477	Probe Location	285307	913164	0.5	3.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
478	Probe Location	285309	913104	0.5	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
479	Probe Location	285323	913035	0.8	7.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
480	Probe Location	285302	913029	0.6	7.00	4	Sand or Gravel	Thin Peat	2	1	8	Low
481	Probe Location	285315	913035	0.4	7.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
482	Probe Location	285301	913054	0.8	4.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
483	Probe Location	285312	913204	1.5	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
484	Probe Location	285307	913256	2.2	2.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
485	Probe Location	285322	913308	3.1	2.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
486	Probe Location	285331	913352	2.2	2.50	2	ROCK	Thick Peat	3	2	12	Low
487	Probe Location	285350	913416	0.5	2.00	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
488	Probe Location	285331	913440	0.9	1.50	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
489	Probe Location	285262	913419	3.6	2.00	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
490	Probe Location	285223	913413	1.1	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
491	Probe Location	285177	913411	0.8	4.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
492	Probe Location	285128	913408	1.5	4.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
493	Probe Location	285112	913389	1.9	4.90	4	Sand or Gravel	Thick Peat	3	1	12	Low
494	Probe Location	285133	913380	0.4	4.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
495	Probe Location	285156	913336	0.4	5.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
496	Probe Location	285178	913289	0.4	5.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
497	Probe Location	285213	913252	0.7	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
498	Probe Location	285257	913215	0.6	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
499	Probe Location	285294	913279	1.8	2.60	2	Rock	Thick Peat	3	2	12	Low
500	Probe Location	285266	913310	1.2	2.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
501	Probe Location	285232	913321	0.7	3.60	2	Rock	Thin Peat	2	2	8	Low
502	Probe Location	285296	913348	3.0	2.50	2	Sand or Gravel	Thick Peat	3	1	6	Low
503	Probe Location	285296	913399	3.3	2.00	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
504	Probe Location	285370	913449	1.1	2.70	2	Rock	Thin Peat	2	2	8	Low
505	Probe Location	285411	913479	1.7	2.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
506	Probe Location	285449	913512	0.9	1.70	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
507	Probe Location	285483	913547	1.0	1.50	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
508	Probe Location	285521	913588	2.0	2.10	2	Sand or Gravel	Thick Peat	3	1	6	Low
509	Probe Location	285534	913619	1.7	2.20	2	Sand or Gravel	Thick Peat	3	1	6	Low
510	Probe Location	285585	913659	0.8	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
511	Probe Location	285605	913723	0.9	4.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
512	Probe Location	285585	913694	0.9	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
513	Probe Location	285542	913689	1.1	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
514	Probe Location	285485	913695	1.2	2.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
515	Probe Location	285454	913702	0.8	2.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
516	Probe Location	285463	913719	1.0	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
517	Probe Location	285487	913706	1.5	3.00	2	Rock	Thin Peat	2	2	8	Low
518	Probe Location	285477	913671	0.9	2.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
519	Probe Location	285438	913693	0.8	2.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
520	Probe Location	285391	913720	1.3	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
521	Probe Location	285345	913743	2.3	2.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
522	Probe Location	285300	913771	3.0	2.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
523	Probe Location	285252	913791	3.0	2.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
524	Probe Location	285210	913813	2.9	2.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
525	Probe Location	285167	913836	2.5	2.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
526	Probe Location	285123	913864	1.6	2.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
527	Probe Location	285079	913882	1.5	4.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
528	Probe Location	285064	913886	0.9	4.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
529	Probe Location	285035	913907	1.0	4.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
530	Probe Location	285015	913925	1.0	2.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
531	Probe Location	284985	913931	0.8	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
532	Probe Location	284991	913948	0.6	4.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
533	Probe Location	285017	913959	0.8	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
534	Probe Location	285021	913944	0.7	2.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
535	Probe Location	285004	913898	0.9	2.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
536	Probe Location	285055	913832	0.1	4.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
537	Probe Location	285096	913836	0.2	3.10	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
538	Probe Location	285029	913823	0.8	4.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
539	Probe Location	284993	913817	0.4	2.60	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
540	Probe Location	284948	913810	1.9	2.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
541	Probe Location	284900	913802	2.9	3.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
542	Probe Location	284852	913792	1.9	2.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
543	Probe Location	284799	913784	1.6	2.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
544	Probe Location	284750	913779	1.4	2.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
545	Probe Location	284712	913773	1.8	1.80	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
546	Probe Location	284667	913759	1.1	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
547	Probe Location	284620	913752	0.9	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
548	Probe Location	284564	913742	0.4	4.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
549	Probe Location	284514	913738	0.3	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
550	Probe Location	284466	913724	0.4	5.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
551	Probe Location	284418	913715	0.4	5.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
552	Probe Location	284371	913703	0.5	4.00	2	Rock	Peaty soil	1	2	4	Negligible
553	Probe Location	284328	913687	0.3	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
554	Probe Location	284277	913674	1.3	1.80	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
555	Probe Location	284228	913654	0.6	1.40	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
556	Probe Location	284222	913675	0.6	1.40	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
557	Probe Location	284216	913697	0.5	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
558	Probe Location	284192	913676	0.7	3.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
559	Probe Location	284210	913650	0.2	1.40	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
560	Probe Location	284236	913649	0.3	1.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
561	Probe Location	284291	913651	1.1	2.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
562	Probe Location	284353	913663	0.3	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
563	Probe Location	284397	913664	0.8	5.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
564	Probe Location	284461	913672	0.4	5.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
565	Probe Location	284531	913694	0.4	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
566	Probe Location	284599	913715	0.4	2.50	2	DEPTH NOT PROVEN	Peaty soil	1	FALSE	0	Negligible
567	Probe Location	284668	913705	1.5	1.90	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
568	Probe Location	284631	913696	0.9	3.20	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
569	Probe Location	284610	913695	0.8	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
570	Probe Location	284611	913653	0.7	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
571	Probe Location	284653	913619	0.9	1.30	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
572	Probe Location	284670	913650	1.0	2.20	2	Sand or Gravel	Thin Peat	2	1	4	Negligible

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573	Probe Location	284655	913676	0.9	1.60	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
574	Probe Location	284655	913572	1.7	1.20	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
575	Probe Location	284649	913537	1.8	1.50	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
576	Probe Location	284659	913501	0.5	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
577	Probe Location	284661	913475	0.5	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
578	Probe Location	284632	913469	0.8	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
579	Probe Location	284597	913458	0.3	3.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
580	Probe Location	284562	913440	0.3	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
581	Probe Location	284512	913421	0.4	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
582	Probe Location	284462	913410	0.4	3.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
583	Probe Location	284415	913399	0.4	3.30	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
584	Probe Location	284372	913376	0.7	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
585	Probe Location	284323	913357	0.6	2.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
586	Probe Location	284280	913338	1.7	2.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
587	Probe Location	284233	913322	1.8	2.80	2	Rock	Thick Peat	3	2	12	Low
588	Probe Location	284190	913303	1.7	2.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
589	Probe Location	284139	913291	1.6	2.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
590	Probe Location	284087	913271	0.9	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
591	Probe Location	284044	913252	0.3	3.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
592	Probe Location	284020	913259	0.7	3.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
593	Probe Location	284015	913281	0.9	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
594	Probe Location	283992	913259	1.5	3.10	2	Rock	Thin Peat	2	2	8	Low
595	Probe Location	284004	913236	0.7	3.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
596	Probe Location	284030	913243	0.5	3.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
597	Probe Location	284152	913256	0.9	2.80	2	Rock	Thin Peat	2	2	8	Low
598	Probe Location	284211	913271	2.4	2.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
599	Probe Location	284275	913267	1.5	2.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
600	Probe Location	284324	913281	0.9	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
601	Probe Location	284388	913279	0.4	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
602	Probe Location	284462	913271	0.5	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
603	Probe Location	284526	913269	0.6	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
604	Probe Location	284582	913282	0.4	4.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
605	Probe Location	284646	913310	0.6	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
606	Probe Location	284666	913333	0.9	1.10	1	Rock	Thin Peat	2	2	4	Negligible
607	Probe Location	284663	913437	0.8	1.50	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
608	Probe Location	284663	913385	0.5	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
609	Probe Location	284676	913280	0.8	2.00	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
610	Probe Location	284673	913229	0.4	2.20	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
611	Probe Location	284677	913174	0.7	2.30	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
612	Probe Location	284680	913127	0.9	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
613	Probe Location	284681	913090	0.9	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
614	Probe Location	284742	913054	0.9	3.40	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
615	Probe Location	284695	913095	0.9	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
616	Probe Location	284691	913102	0.9	2.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
617	Probe Location	284685	913124	0.9	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
618	Probe Location	284715	913110	0.8	1.70	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
619	Probe Location	284688	913077	0.9	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
620	Probe Location	284696	913016	0.4	2.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
621	Probe Location	284711	912955	0.5	2.60	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
622	Probe Location	284733	912900	0.4	1.00	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
623	Probe Location	284776	912797	0.4	5.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
624	Probe Location	284817	912752	0.7	5.20	4	Sand or Gravel	Thin Peat	2	1	8	Low

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625	Probe Location	284881	912709	1.1	6.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
626	Probe Location	283104	912209	0.4	3.20	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
627	Probe Location	283134	912193	0.9	2.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
628	Probe Location	283108	912117	0.4	2.10	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
629	Probe Location	285110	912350	0.7	10.00	6	Sand or Gravel	Thin Peat	2	1	12	Low
630	Probe Location	285123	912558	0.3	13.90	8	Sand or Gravel	Peaty soil	1	1	8	Low
631	Probe Location	285286	912669	0.3	8.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
632	Probe Location	285436	912792	0.3	8.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
633	Probe Location	285606	912792	0.3	12.50	8	Sand or Gravel	Peaty soil	1	1	8	Low
634	Probe Location	285608	912987	0.5	8.20	6	Sand or Gravel	Peaty soil	1	1	6	Low
635	Probe Location	285535	913240	0.4	5.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
636	Probe Location	285631	913346	0.7	4.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
637	Probe Location	285676	913380	0.8	7.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
638	Probe Location	285694	913392	0.7	4.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
639	Probe Location	285770	913510	0.5	5.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
640	Probe Location	285832	913558	0.8	5.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
641	Probe Location	286015	913590	0.1	5.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
642	Probe Location	283363	912501	1.3	4.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
643	Probe Location	283261	912391	0.7	1.50	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
644	Probe Location	283212	912350	0.8	4.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
645	Probe Location	283295	912341	1.0	0.70	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
646	Probe Location	283356	912363	1.9	3.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
647	Probe Location	283409	912375	0.9	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
648	Probe Location	283458	912364	0.6	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
649	Probe Location	283526	912356	0.9	3.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
650	Probe Location	283533	912356	1.7	3.50	2	Sand or Gravel	Thick Peat	3	1	6	Low
651	Probe Location	283599	912350	1.9	3.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
652	Probe Location	283635	912338	1.7	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
653	Probe Location	283706	912389	1.8	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
654	Probe Location	283805	912336	0.6	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
655	Probe Location	283891	912338	0.3	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
656	Probe Location	283962	912338	0.6	5.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
657	Probe Location	284065	912337	0.4	5.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
658	Probe Location	284163	912341	0.5	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
659	Probe Location	284186	912335	0.5	4.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
660	Probe Location	284357	912297	0.6	3.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
661	Probe Location	284443	912255	0.7	3.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
662	Probe Location	284537	912192	0.7	4.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
663	Probe Location	284577	912157	0.8	4.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
664	Probe Location	284626	912128	0.6	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
665	Probe Location	284697	912080	0.8	4.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
666	Probe Location	284737	912055	2.1	4.10	4	Sand or Gravel	Thick Peat	3	1	12	Low
667	Probe Location	284767	912044	0.5	15.50	8	Sand or Gravel	Peaty soil	1	1	8	Low
668	Probe Location	284809	912027	0.6	9.60	6	Sand or Gravel	Thin Peat	2	1	12	Low
669	Probe Location	284847	912000	0.8	5.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
670	Probe Location	284870	911999	0.8	1.40	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
671	Probe Location	284887	911983	0.6	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
672	Probe Location	284946	911983	0.3	9.10	6	Sand or Gravel	Peaty soil	1	1	6	Low
673	Probe Location	284991	912095	0.3	6.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
674	Probe Location	285045	912199	0.4	7.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
675	Probe Location	285111	912348	0.2	9.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
676	Probe Location	285116	912409	0.5	8.20	6	Sand or Gravel	Peaty soil	1	1	6	Low

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
677	Probe Location	285110	912498	0.8	9.00	6	Sand or Gravel	Thin Peat	2	1	12	Low
678	Probe Location	285136	912594	0.3	17.80	8	Sand or Gravel	Peaty soil	1	1	8	Low
679	Probe Location	285244	912640	0.2	10.20	6	Sand or Gravel	Peaty soil	1	1	6	Low
680	Probe Location	285398	912758	0.4	10.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
681	Probe Location	285040	912535	0.7	5.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
682	Probe Location	284935	912512	0.6	7.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
683	Probe Location	284767	912466	1.4	5.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
684	Probe Location	284632	912384	0.5	7.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
685	Probe Location	284532	912321	0.7	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
686	Probe Location	284401	912320	0.6	2.20	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
687	Probe Location	284211	912379	0.8	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
688	Probe Location	284109	912409	0.5	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
689	Probe Location	283935	912436	0.6	6.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
690	Probe Location	283812	912451	0.4	4.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
691	Probe Location	283696	912481	1.5	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
692	Probe Location	283596	912495	2.1	3.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
693	Probe Location	283478	912515	0.6	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
694	Probe Location	283310	912465	0.7	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
695	Probe Location	283258	912419	0.8	1.40	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
696	Probe Location	283202	912357	0.3	5.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
697	Probe Location	283171	912307	1.0	7.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
698	Probe Location	283064	912217	0.6	9.00	6	Sand or Gravel	Thin Peat	2	1	12	Low
699	Probe Location	283023	912129	0.4	14.10	8	Sand or Gravel	Peaty soil	1	1	8	Low
700	Probe Location	282983	912033	0.2	10.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
701	Probe Location	282900	911911	0.3	5.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
702	Probe Location	282854	911821	0.1	16.50	8	Sand or Gravel	Peaty soil	1	1	8	Low
703	Probe Location	282772	911668	0.3	10.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
704	Probe Location	282744	911547	0.2	9.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
705	Probe Location	282706	911477	0.4	11.00	6	Sand or Gravel	Peaty soil	1	1	6	Low
706	Probe Location	282674	911432	1.4	6.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
707	Probe Location	282663	911377	0.5	8.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
708	Probe Location	282665	911276	0.1	8.20	6	Sand or Gravel	Peaty soil	1	1	6	Low
709	Probe Location	282634	911234	0.1	6.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
710	Probe Location	282627	911178	0.2	8.40	6	Sand or Gravel	Peaty soil	1	1	6	Low
711	Probe Location	282635	911077	0.1	10.40	6	Sand or Gravel	Peaty soil	1	1	6	Low
712	Probe Location	282599	911067	0.1	9.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
713	Probe Location	282599	911027	0.1	7.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
714	Probe Location	283866	912262	1.0	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
715	Probe Location	283828	912221	1.7	3.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
716	Probe Location	283850	912232	0.5	3.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
717	Probe Location	283913	912328	1.1	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
718	Probe Location	283882	912263	0.6	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
719	Probe Location	283967	912216	0.7	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
720	Probe Location	283993	912126	1.3	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
721	Probe Location	284017	912091	0.6	4.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
722	Probe Location	283948	912058	1.4	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
723	Probe Location	283886	912064	1.6	0.30	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
724	Probe Location	283895	912134	0.7	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
725	Probe Location	284054	912025	0.8	6.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
726	Probe Location	284096	911981	2.1	5.10	4	Sand or Gravel	Thick Peat	3	1	12	Low
727	Probe Location	284137	911951	0.9	7.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
728	Probe Location	284233	911941	0.6	7.80	4	Sand or Gravel	Thin Peat	2	1	8	Low

ID	Position	Easting	Northing	Peat Depth (m)	Slope (degrees)	Slope Coefficient	SUBSTRATE	Ground Conditions Coefficient	Peat Coefficient	Substrate Coefficient	Risk Coefficient	Potential Instability
729	Probe Location	284241	911925	0.6	3.20	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
730	Probe Location	284282	912000	0.6	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
731	Probe Location	284305	911932	0.2	3.10	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
732	Probe Location	284352	911935	0.6	3.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
733	Probe Location	284421	911940	0.6	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
734	Probe Location	284502	911948	1.2	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
735	Probe Location	284526	911950	0.5	4.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
736	Probe Location	284579	911958	0.5	4.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
737	Probe Location	284614	911959	0.8	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
738	Probe Location	284691	911940	1.1	6.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
739	Probe Location	284727	911929	0.4	8.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
740	Probe Location	284761	911920	0.5	7.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
741	Probe Location	284816	911941	0.5	8.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
742	Probe Location	284853	911953	0.7	5.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
743	Probe Location	285574	913039	0.3	5.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
744	Probe Location	285570	913126	0.5	7.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
745	Probe Location	285594	913299	0.6	6.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
746	Probe Location	285645	913435	0.3	3.50	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
747	Probe Location	285662	913438	0.5	9.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
748	Probe Location	285884	913579	1.4	7.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
749	Probe Location	286050	913607	0.3	5.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
750	Probe Location	284688	914995	1.1	4.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
751	Probe Location	284507	914780	0.7	4.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
752	Probe Location	284536	914599	0.5	4.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
753	Probe Location	284464	914418	0.4	8.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
754	Probe Location	284399	914236	1.2	4.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
755	Probe Location	284312	914044	0.8	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
756	Probe Location	284391	913800	0.6	5.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
757	Probe Location	284316	913624	0.6	2.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
758	Probe Location	284239	913436	0.5	2.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
759	Probe Location	284162	913249	1.9	2.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
760	Probe Location	284069	913069	1.9	2.20	2	Sand or Gravel	Thick Peat	3	1	6	Low
761	Probe Location	283966	912881	0.9	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
762	Probe Location	283821	912686	0.3	4.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
763	Probe Location	283762	912600	0.4	4.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
764	Probe Location	283701	912522	1.3	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
765	Probe Location	283670	912482	1.9	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
766	Probe Location	283618	912434	1.9	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
767	Probe Location	283646	912339	1.9	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
768	Probe Location	283748	912315	1.9	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
769	Probe Location	285811	913700	1.2	3.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
770	Probe Location	285617	913243	0.5	5.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
771	Probe Location	285747	913644	0.5	4.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
772	Probe Location	284022	912108	0.9	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
773	Probe Location	285100	914100	2.5	9.30	6	Sand or Gravel	Thick Peat	3	1	18	Medium
774	Probe Location	285100	913900	1.5	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
775	Probe Location	285500	913700	1.5	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
776	Probe Location	285483	913166	1.3	5.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
777	Probe Location	283208	912339	0.9	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
778	Probe Location	283202	912348	0.9	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
779	Probe Location	283214	912332	0.3	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
780	Probe Location	283168	912309	0.4	8.30	6	Sand or Gravel	Peaty soil	1	1	6	Low

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781	Probe Location	283179	912306	0.6	6.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
782	Probe Location	283158	912313	0.6	13.40	8	Sand or Gravel	Thin Peat	2	1	16	Medium
783	Probe Location	283128	912275	0.5	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
784	Probe Location	283122	912280	0.4	9.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
785	Probe Location	283133	912267	0.6	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
786	Probe Location	283084	912249	0.5	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
787	Probe Location	283077	912254	0.2	19.30	8	Sand or Gravel	Peaty soil	1	1	8	Low
788	Probe Location	283090	912243	1.1	2.60	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
789	Probe Location	283052	912211	0.9	10.10	6	Sand or Gravel	Thin Peat	2	1	12	Low
790	Probe Location	283042	912215	0.7	13.80	8	Sand or Gravel	Thin Peat	2	1	16	Medium
791	Probe Location	283060	912207	0.7	6.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
792	Probe Location	283041	912172	0.6	15.50	8	Sand or Gravel	Thin Peat	2	1	16	Medium
793	Probe Location	283032	912175	0.8	20.40	8	Sand or Gravel	Thin Peat	2	1	16	Medium
794	Probe Location	283050	912168	0.3	6.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
795	Probe Location	283022	912124	0.6	10.90	6	Sand or Gravel	Thin Peat	2	1	12	Low
796	Probe Location	283014	912129	0.4	19.70	8	Sand or Gravel	Peaty soil	1	1	8	Low
797	Probe Location	283031	912119	0.5	1.10	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
798	Probe Location	283002	912077	0.8	9.00	6	Sand or Gravel	Thin Peat	2	1	12	Low
799	Probe Location	282993	912083	0.4	15.10	8	Sand or Gravel	Peaty soil	1	1	8	Low
800	Probe Location	283010	912073	0.8	4.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
801	Probe Location	282972	912036	0.2	11.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
802	Probe Location	282964	912042	0.2	19.10	8	Sand or Gravel	Peaty soil	1	1	8	Low
803	Probe Location	282982	912032	0.3	10.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
804	Probe Location	282917	911952	0.4	12.90	8	Sand or Gravel	Peaty soil	1	1	8	Low
805	Probe Location	282909	911959	0.2	15.50	8	Sand or Gravel	Peaty soil	1	1	8	Low
806	Probe Location	282925	911945	0.5	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
807	Probe Location	282891	911908	0.2	13.10	8	Sand or Gravel	Peaty soil	1	1	8	Low
808	Probe Location	282882	911914	0.3	17.90	8	Sand or Gravel	Peaty soil	1	1	8	Low
809	Probe Location	282900	911904	0.2	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
810	Probe Location	282867	911863	0.3	15.50	8	Sand or Gravel	Peaty soil	1	1	8	Low
811	Probe Location	282859	911867	0.5	16.00	8	Sand or Gravel	Peaty soil	1	1	8	Low
812	Probe Location	282875	911859	0.5	15.50	8	Sand or Gravel	Peaty soil	1	1	8	Low
813	Probe Location	282839	911821	0.5	16.80	8	Sand or Gravel	Thin Peat	2	1	16	Medium
814	Probe Location	282830	911826	1.6	16.50	8	Sand or Gravel	Thick Peat	3	1	24	Medium
815	Probe Location	282847	911816	0.5	17.10	8	Sand or Gravel	Thin Peat	2	1	16	Medium
816	Probe Location	282806	911782	0.7	15.00	8	Sand or Gravel	Thin Peat	2	1	16	Medium
817	Probe Location	282798	911785	0.3	15.00	8	Sand or Gravel	Peaty soil	1	1	8	Low
818	Probe Location	282813	911781	0.7	15.00	8	Sand or Gravel	Thin Peat	2	1	16	Medium
819	Probe Location	282780	911739	0.5	13.10	8	Sand or Gravel	Thin Peat	2	1	16	Medium
820	Probe Location	282772	911741	0.3	18.40	8	Sand or Gravel	Peaty soil	1	1	8	Low
821	Probe Location	282790	911736	0.3	10.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
822	Probe Location	282784	911686	0.4	8.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
823	Probe Location	282775	911689	0.4	10.20	6	Sand or Gravel	Peaty soil	1	1	6	Low
824	Probe Location	282793	911685	0.6	8.90	6	Sand or Gravel	Thin Peat	2	1	12	Low
825	Probe Location	282778	911638	0.0	9.90	6	Sand or Gravel	No Peat	0	1	0	Negligible
826	Probe Location	282766	911638	0.3	9.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
827	Probe Location	282786	911640	0.3	9.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
828	Probe Location	282772	911590	0.0	9.60	6	Sand or Gravel	No Peat	0	1	0	Negligible
829	Probe Location	282762	911592	0.5	9.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
830	Probe Location	282780	911588	0.8	10.00	6	Sand or Gravel	Thin Peat	2	1	12	Low
831	Probe Location	282738	911589	0.4	9.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
832	Probe Location	282745	911586	0.2	9.50	6	Sand or Gravel	Peaty soil	1	1	6	Low

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833	Probe Location	282730	911592	0.3	9.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
834	Probe Location	282720	911548	0.2	8.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
835	Probe Location	282728	911550	0.3	9.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
836	Probe Location	282710	911545	0.5	8.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
837	Probe Location	282717	911505	0.2	8.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
838	Probe Location	282726	911506	0.1	8.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
839	Probe Location	282708	911504	1.1	8.50	6	Sand or Gravel	Thin Peat	2	1	12	Low
840	Probe Location	282717	911449	0.0	11.90	6	Sand or Gravel	No Peat	0	1	0	Negligible
841	Probe Location	282726	911448	0.1	11.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
842	Probe Location	282710	911451	0.8	11.90	6	Sand or Gravel	Thin Peat	2	1	12	Low
843	Probe Location	282699	911402	0.6	10.20	6	Sand or Gravel	Thin Peat	2	1	12	Low
844	Probe Location	282708	911399	0.4	11.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
845	Probe Location	282692	911405	0.3	8.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
846	Probe Location	282683	911354	0.3	6.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
847	Probe Location	282690	911350	0.8	6.00	4	Sand or Gravel	Thin Peat	2	1	8	Low
848	Probe Location	282676	911359	0.6	8.40	6	Sand or Gravel	Thin Peat	2	1	12	Low
849	Probe Location	282667	911306	0.5	8.40	6	Sand or Gravel	Thin Peat	2	1	12	Low
850	Probe Location	282676	911304	0.4	8.40	6	Sand or Gravel	Peaty soil	1	1	6	Low
851	Probe Location	282658	911309	0.0	8.40	6	Sand or Gravel	No Peat	0	1	0	Negligible
852	Probe Location	282659	911256	0.4	9.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
853	Probe Location	282668	911257	1.0	9.50	6	Sand or Gravel	Thin Peat	2	1	12	Low
854	Probe Location	282650	911259	0.2	7.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
855	Probe Location	282653	911207	0.5	9.00	6	Sand or Gravel	Peaty soil	1	1	6	Low
856	Probe Location	282661	911207	0.2	9.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
857	Probe Location	282643	911208	0.6	8.40	6	Sand or Gravel	Thin Peat	2	1	12	Low
858	Probe Location	282651	911155	0.1	8.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
859	Probe Location	282661	911155	0.1	8.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
860	Probe Location	282642	911156	0.4	8.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
861	Probe Location	282647	911106	0.5	8.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
862	Probe Location	282638	911109	0.3	8.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
863	Probe Location	282656	911105	0.2	8.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
864	Probe Location	282621	911064	0.1	10.40	6	Sand or Gravel	Peaty soil	1	1	6	Low
865	Probe Location	282629	911065	0.2	10.40	6	Sand or Gravel	Peaty soil	1	1	6	Low
866	Probe Location	282610	911065	0.2	10.10	6	Sand or Gravel	Peaty soil	1	1	6	Low
867	Probe Location	282603	910999	0.2	4.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
868	Probe Location	282612	910996	0.4	4.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
869	Probe Location	282594	911004	0.1	4.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
870	Probe Location	282584	910973	0.8	0.60	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
871	Probe Location	282593	910968	1.0	0.60	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
872	Probe Location	282576	910977	0.3	0.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
873	Probe Location	282571	910922	0.3	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
874	Probe Location	282580	910921	0.5	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
875	Probe Location	282563	910923	0.3	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
876	Probe Location	282569	910873	0.2	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
877	Probe Location	282579	910870	0.2	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
878	Probe Location	282560	910873	0.0	0.70	1	Sand or Gravel	No Peat	0	1	0	Negligible
879	Probe Location	282566	910822	0.3	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
880	Probe Location	282575	910821	0.4	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
881	Probe Location	282557	910823	0.4	0.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
882	Probe Location	283253	912373	0.6	1.50	1	Sand or Gravel	Thin Peat	2	1	2	Negligible
883	Probe Location	283244	912379	0.5	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
884	Probe Location	283261	912365	0.8	1.60	1	Sand or Gravel	Thin Peat	2	1	2	Negligible

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885	Probe Location	283300	912391	4.7	2.20	2	Sand or Gravel	Thick Peat	3	1	6	Low
886	Probe Location	283298	912402	2.4	1.70	1	Sand or Gravel	Thick Peat	3	1	3	Negligible
887	Probe Location	283303	912382	2.8	3.10	2	Sand or Gravel	Thick Peat	3	1	6	Low
888	Probe Location	283352	912394	2.5	3.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
889	Probe Location	283357	912402	1.7	3.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
890	Probe Location	283348	912385	2.2	3.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
891	Probe Location	283404	912387	1.1	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
892	Probe Location	283407	912398	0.6	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
893	Probe Location	283401	912377	0.4	3.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
894	Probe Location	283451	912381	0.5	4.00	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
895	Probe Location	283454	912391	1.0	4.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
896	Probe Location	283449	912371	0.7	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
897	Probe Location	283502	912376	0.1	3.60	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
898	Probe Location	283505	912386	0.4	3.60	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
899	Probe Location	283500	912366	0.4	3.60	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
900	Probe Location	283564	912361	1.7	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
901	Probe Location	283565	912371	2.0	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
902	Probe Location	283566	912352	1.7	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
903	Probe Location	283614	912338	1.3	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
904	Probe Location	283615	912349	1.9	3.80	2	Sand or Gravel	Thick Peat	3	1	6	Low
905	Probe Location	283613	912327	2.1	3.60	2	Sand or Gravel	Thick Peat	3	1	6	Low
906	Probe Location	283664	912328	2.0	3.70	2	Sand or Gravel	Thick Peat	3	1	6	Low
907	Probe Location	283665	912341	1.6	4.00	2	Sand or Gravel	Thick Peat	3	1	6	Low
908	Probe Location	283664	912317	2.0	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
909	Probe Location	283717	912321	2.7	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
910	Probe Location	283720	912334	2.8	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
911	Probe Location	283717	912309	2.9	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
912	Probe Location	283764	912314	2.9	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
913	Probe Location	283767	912327	1.3	3.40	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
914	Probe Location	283764	912304	3.1	3.40	2	Sand or Gravel	Thick Peat	3	1	6	Low
915	Probe Location	283815	912305	0.6	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
916	Probe Location	283816	912317	0.7	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
917	Probe Location	283814	912293	0.5	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
918	Probe Location	283860	912282	0.4	3.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
919	Probe Location	283864	912293	0.4	3.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
920	Probe Location	283858	912272	0.3	3.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
921	Probe Location	283902	912249	0.6	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
922	Probe Location	283908	912257	0.7	5.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
923	Probe Location	283898	912239	0.7	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
924	Probe Location	283933	912209	0.7	5.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
925	Probe Location	283942	912215	0.5	5.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
926	Probe Location	283925	912203	0.7	5.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
927	Probe Location	283964	912170	0.8	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
928	Probe Location	283972	912176	0.7	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
929	Probe Location	283957	912163	0.9	4.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
930	Probe Location	283994	912156	0.6	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
931	Probe Location	283985	912149	0.5	4.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
932	Probe Location	284002	912161	0.7	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
933	Probe Location	284007	912110	1.0	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
934	Probe Location	284017	912115	1.0	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
935	Probe Location	283998	912104	0.5	3.90	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
936	Probe Location	284040	912075	1.1	4.40	4	Sand or Gravel	Thin Peat	2	1	8	Low

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937	Probe Location	284050	912079	2.1	4.80	4	Sand or Gravel	Thick Peat	3	1	12	Low
938	Probe Location	284030	912070	1.0	4.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
939	Probe Location	284059	912024	0.8	6.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
940	Probe Location	284067	912032	0.4	6.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
941	Probe Location	284051	912016	0.5	6.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
942	Probe Location	284092	911988	2.9	5.10	4	Sand or Gravel	Thick Peat	3	1	12	Low
943	Probe Location	284101	911996	1.9	5.80	4	Sand or Gravel	Thick Peat	3	1	12	Low
944	Probe Location	284086	911980	0.4	5.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
945	Probe Location	284128	911951	0.9	7.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
946	Probe Location	284137	911957	0.7	7.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
947	Probe Location	284120	911945	0.7	7.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
948	Probe Location	284179	911946	1.2	7.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
949	Probe Location	284186	911955	0.3	2.90	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
950	Probe Location	284172	911937	1.0	7.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
951	Probe Location	284229	911930	0.6	2.50	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
952	Probe Location	284234	911939	0.7	7.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
953	Probe Location	284226	911920	0.3	3.10	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
954	Probe Location	284280	911944	0.6	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
955	Probe Location	284285	911954	0.7	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
956	Probe Location	284276	911934	0.7	3.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
957	Probe Location	284329	911918	0.6	3.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
958	Probe Location	284325	911909	0.4	3.10	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
959	Probe Location	284334	911928	0.6	3.10	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
960	Probe Location	284372	911923	0.5	4.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
961	Probe Location	284371	911934	0.7	4.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
962	Probe Location	284373	911914	0.4	4.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
963	Probe Location	284424	911922	0.2	4.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
964	Probe Location	284422	911933	0.6	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
965	Probe Location	284425	911913	0.6	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
966	Probe Location	284473	911930	0.7	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
967	Probe Location	284472	911941	0.2	4.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
968	Probe Location	284473	911920	0.5	4.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
969	Probe Location	284523	911942	0.6	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
970	Probe Location	284522	911953	0.6	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
971	Probe Location	284524	911932	0.4	4.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
972	Probe Location	284571	911930	0.7	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
973	Probe Location	284574	911941	0.6	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
974	Probe Location	284571	911919	0.7	4.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
975	Probe Location	284620	911953	0.7	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
976	Probe Location	284617	911964	0.7	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
977	Probe Location	284623	911943	0.6	4.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
978	Probe Location	284671	911953	0.4	4.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
979	Probe Location	284668	911964	0.4	4.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
980	Probe Location	284673	911943	0.3	4.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
981	Probe Location	284718	911937	0.2	8.40	6	Sand or Gravel	Peaty soil	1	1	6	Low
982	Probe Location	284716	911947	0.2	8.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
983	Probe Location	284720	911927	0.3	8.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
984	Probe Location	284755	911938	0.5	8.60	6	Sand or Gravel	Thin Peat	2	1	12	Low
985	Probe Location	284750	911946	0.3	8.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
986	Probe Location	284760	911929	0.3	8.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
987	Probe Location	284814	911942	0.5	8.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
988	Probe Location	284806	911947	0.4	8.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible

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989	Probe Location	284822	911936	0.4	8.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
990	Probe Location	284857	911969	0.6	4.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
991	Probe Location	284847	911971	0.6	8.80	6	Sand or Gravel	Thin Peat	2	1	12	Low
992	Probe Location	284866	911966	0.7	2.80	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
993	Probe Location	284902	911992	0.4	6.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
994	Probe Location	284892	911997	0.3	1.60	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
995	Probe Location	284912	911988	0.5	10.00	6	Sand or Gravel	Thin Peat	2	1	12	Low
996	Probe Location	284944	912016	0.3	9.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
997	Probe Location	284937	912023	0.2	9.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
998	Probe Location	284952	912009	0.3	6.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
999	Probe Location	284979	912054	0.5	6.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,000	Probe Location	284971	912059	0.2	6.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,001	Probe Location	284985	912049	0.5	6.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,002	Probe Location	284997	912099	0.2	6.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,003	Probe Location	284989	912101	0.1	6.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,004	Probe Location	285006	912096	0.9	6.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,005	Probe Location	285022	912140	0.2	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,006	Probe Location	285016	912148	0.3	5.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,007	Probe Location	285028	912131	0.6	6.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,008	Probe Location	285038	912184	0.1	6.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,009	Probe Location	285028	912188	0.3	6.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,010	Probe Location	285048	912181	0.3	6.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,011	Probe Location	285062	912218	0.6	9.50	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,012	Probe Location	285054	912222	0.2	9.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,013	Probe Location	285070	912213	0.2	7.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,014	Probe Location	285073	912267	0.2	10.00	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,015	Probe Location	285065	912274	0.2	7.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,016	Probe Location	285081	912260	0.2	8.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,017	Probe Location	285096	912309	0.4	7.10	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,018	Probe Location	285088	912314	0.3	7.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,019	Probe Location	285105	912305	0.9	11.90	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,020	Probe Location	285103	912346	0.3	8.20	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,021	Probe Location	285093	912349	0.3	7.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,022	Probe Location	285112	912342	0.4	8.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,023	Probe Location	285117	912397	0.2	8.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,024	Probe Location	285107	912398	0.5	6.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,025	Probe Location	285127	912396	0.6	15.70	8	Sand or Gravel	Thin Peat	2	1	16	Medium
1,026	Probe Location	285119	912440	0.3	8.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,027	Probe Location	285108	912441	0.3	8.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,028	Probe Location	285127	912438	0.2	9.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,029	Probe Location	285118	912502	0.3	10.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,030	Probe Location	285109	912506	1.1	8.60	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,031	Probe Location	285128	912496	0.1	13.60	8	Sand or Gravel	Peaty soil	1	1	8	Low
1,032	Probe Location	285124	912553	0.2	14.70	8	Sand or Gravel	Peaty soil	1	1	8	Low
1,033	Probe Location	285130	912555	0.1	16.30	8	Sand or Gravel	Peaty soil	1	1	8	Low
1,034	Probe Location	285115	912552	0.0	9.20	6	Sand or Gravel	No Peat	0	1	0	Negligible
1,035	Probe Location	285131	912608	0.1	18.30	8	Sand or Gravel	Peaty soil	1	1	8	Low
1,036	Probe Location	285123	912614	0.3	8.10	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,037	Probe Location	285135	912604	0.3	18.10	8	Sand or Gravel	Peaty soil	1	1	8	Low
1,038	Probe Location	285162	912644	0.2	8.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,039	Probe Location	285166	912653	0.1	11.10	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,040	Probe Location	285160	912637	0.4	9.90	6	Sand or Gravel	Peaty soil	1	1	6	Low

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1,041	Probe Location	285193	912670	0.4	9.20	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,042	Probe Location	285196	912679	0.5	8.30	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,043	Probe Location	285191	912661	0.6	10.20	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,044	Probe Location	285242	912673	0.2	9.00	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,045	Probe Location	285238	912680	0.2	8.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,046	Probe Location	285247	912667	0.2	9.00	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,047	Probe Location	285290	912689	0.3	8.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,048	Probe Location	285285	912695	0.1	8.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,049	Probe Location	285294	912682	0.3	8.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,050	Probe Location	285337	912706	0.4	12.40	8	Sand or Gravel	Peaty soil	1	1	8	Low
1,051	Probe Location	285333	912714	0.6	12.70	8	Sand or Gravel	Thin Peat	2	1	16	Medium
1,052	Probe Location	285341	912700	0.2	12.00	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,053	Probe Location	285371	912746	0.2	11.40	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,054	Probe Location	285365	912753	0.4	9.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,055	Probe Location	285376	912740	0.4	11.40	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,056	Probe Location	285409	912776	0.0	8.00	4	Sand or Gravel	No Peat	0	1	0	Negligible
1,057	Probe Location	285404	912784	0.0	7.80	4	Sand or Gravel	No Peat	0	1	0	Negligible
1,058	Probe Location	285415	912769	0.5	12.20	8	Sand or Gravel	Peaty soil	1	1	8	Low
1,059	Probe Location	285457	912795	0.0	8.90	6	Sand or Gravel	No Peat	0	1	0	Negligible
1,060	Probe Location	285459	912804	0.3	8.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,061	Probe Location	285451	912786	0.5	8.80	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,062	Probe Location	285505	912801	0.3	8.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,063	Probe Location	285503	912809	0.2	8.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,064	Probe Location	285506	912791	0.1	8.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,065	Probe Location	285554	912806	0.5	10.30	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,066	Probe Location	285549	912813	0.4	10.20	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,067	Probe Location	285558	912798	0.6	11.80	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,068	Probe Location	285600	912816	0.2	10.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,069	Probe Location	285596	912826	0.0	9.90	6	Sand or Gravel	No Peat	0	1	0	Negligible
1,070	Probe Location	285603	912809	0.1	10.80	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,071	Probe Location	285635	912837	0.7	9.80	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,072	Probe Location	285633	912844	0.4	9.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,073	Probe Location	285638	912830	0.5	10.30	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,074	Probe Location	285633	912886	0.6	9.10	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,075	Probe Location	285626	912891	0.6	8.80	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,076	Probe Location	285638	912878	0.6	10.30	6	Sand or Gravel	Thin Peat	2	1	12	Low
1,077	Probe Location	285616	912932	0.6	5.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,078	Probe Location	285608	912928	0.5	6.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,079	Probe Location	285623	912937	0.4	5.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,080	Probe Location	285592	912975	0.5	7.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,081	Probe Location	285585	912969	0.4	7.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,082	Probe Location	285597	912981	0.5	7.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,083	Probe Location	285564	913022	0.2	5.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,084	Probe Location	285555	913027	0.3	5.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,085	Probe Location	285572	913021	0.4	5.80	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,086	Probe Location	285529	913057	0.3	5.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,087	Probe Location	285520	913057	0.6	5.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,088	Probe Location	285537	913056	0.6	5.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,089	Probe Location	285533	913106	0.4	6.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,090	Probe Location	285529	913109	0.3	6.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,091	Probe Location	285540	913103	0.5	6.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,092	Probe Location	285545	913156	0.5	6.70	4	Sand or Gravel	Thin Peat	2	1	8	Low

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1,093	Probe Location	285537	913163	0.4	6.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,094	Probe Location	285551	913152	0.4	6.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,095	Probe Location	285538	913207	0.7	5.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,096	Probe Location	285530	913211	0.6	5.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,097	Probe Location	285547	913203	0.8	6.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,098	Probe Location	285558	913253	0.7	5.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,099	Probe Location	285550	913257	0.6	5.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,100	Probe Location	285567	913251	0.5	6.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,101	Probe Location	285571	913304	0.4	6.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,102	Probe Location	285564	913310	0.7	6.60	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,103	Probe Location	285579	913299	0.3	6.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,104	Probe Location	285573	913353	0.5	5.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,105	Probe Location	285568	913360	0.7	5.70	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,106	Probe Location	285578	913345	0.6	7.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,107	Probe Location	285608	913388	0.4	6.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,108	Probe Location	285600	913390	0.6	6.10	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,109	Probe Location	285617	913386	0.2	6.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,110	Probe Location	285648	913420	0.2	2.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
1,111	Probe Location	285642	913425	0.2	2.70	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
1,112	Probe Location	285654	913413	0.4	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
1,113	Probe Location	285690	913453	1.6	5.20	4	Sand or Gravel	Thick Peat	3	1	12	Low
1,114	Probe Location	285683	913459	2.0	4.80	4	Sand or Gravel	Thick Peat	3	1	12	Low
1,115	Probe Location	285695	913446	1.5	5.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,116	Probe Location	285726	913485	0.8	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
1,117	Probe Location	285722	913493	1.1	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
1,118	Probe Location	285729	913477	0.5	3.70	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
1,119	Probe Location	285761	913515	0.4	5.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,120	Probe Location	285758	913524	0.5	5.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,121	Probe Location	285764	913507	1.1	5.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,122	Probe Location	285798	913538	1.1	5.50	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,123	Probe Location	285802	913530	0.9	5.80	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,124	Probe Location	285796	913545	0.2	5.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,125	Probe Location	285838	913558	0.5	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,126	Probe Location	285839	913549	0.3	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,127	Probe Location	285838	913567	0.5	5.90	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,128	Probe Location	285881	913570	0.8	7.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,129	Probe Location	285890	913564	1.3	7.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,130	Probe Location	285872	913574	1.2	7.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,131	Probe Location	285930	913578	0.5	7.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,132	Probe Location	285939	913575	0.3	7.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,133	Probe Location	285922	913581	0.4	7.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,134	Probe Location	285976	913581	1.1	7.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,135	Probe Location	285987	913578	0.4	7.30	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,136	Probe Location	285967	913584	0.6	7.30	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,137	Probe Location	286021	913590	0.4	5.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,138	Probe Location	286031	913595	0.0	5.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,139	Probe Location	286012	913586	0.3	5.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,140	Probe Location	286064	913602	0.3	5.60	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,141	Probe Location	285653	912901	0.3	12.30	8	Sand or Gravel	Peaty soil	1	1	8	Low
1,142	Probe Location	285585	913072	0.3	7.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,143	Probe Location	285538	913237	0.3	5.20	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,144	Probe Location	285613	913391	0.3	6.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible

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1,145	Probe Location	285743	913516	0.3	3.80	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
1,146	Probe Location	285835	913601	0.7	2.20	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
1,147	Probe Location	285564	912817	0.3	10.10	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,148	Probe Location	285255	912671	0.4	8.50	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,149	Probe Location	284944	912015	0.3	9.70	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,150	Probe Location	284238	911854	0.3	8.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,151	Probe Location	283945	912199	0.3	4.70	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,152	Probe Location	283300	912382	0.7	2.20	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
1,153	Probe Location	283759	912310	0.5	3.40	2	Sand or Gravel	Peaty soil	1	1	2	Negligible
1,154	Probe Location	284249	911947	0.8	4.40	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,155	Probe Location	284889	911982	0.7	3.00	2	Sand or Gravel	Thin Peat	2	1	4	Negligible
1,156	Probe Location	285037	912163	0.4	5.00	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,157	Probe Location	285113	912411	0.5	7.50	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,158	Probe Location	285398	912759	0.4	9.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,159	Probe Location	285585	912984	0.3	7.40	4	Sand or Gravel	Peaty soil	1	1	4	Negligible
1,160	Probe Location	285833	913557	0.6	5.90	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,161	Probe Location	282595	910987	0.4	1.50	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
1,162	Probe Location	282705	911452	0.5	11.90	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,163	Probe Location	282857	911774	0.1	9.60	6	Sand or Gravel	Peaty soil	1	1	6	Low
1,164	Probe Location	283049	912168	0.6	7.20	4	Sand or Gravel	Thin Peat	2	1	8	Low
1,165	Probe Location	283249	912368	0.5	1.70	1	Sand or Gravel	Peaty soil	1	1	1	Negligible
1,166	Probe Location	282627	911673	0.1	17.40	8	Sand or Gravel	Peaty soil	1	1	8	Low
1,167	Probe Location	282646	911683	0.0	3.50	2	Sand or Gravel	No Peat	0	1	0	Negligible
1,168	Probe Location	282626	911674	0.0	17.30	8	Sand or Gravel	No Peat	0	1	0	Negligible
1,169	Probe Location	286090	913586	0.8	6.50	4	Sand or Gravel	Thin Peat	2	1	8	Low