

# MONA OFFSHORE WIND PROJECT

## Preliminary Environmental Information Report

Volume 7, annex 20.1: Published agricultural land classification and desk top soils data



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FINAL

Image of an offshore wind farm

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## Glossary

Term	Meaning
Accumulated Temperature	Unit of measurement used to describe the cumulative effect of temperature over time
Maximum Climatic Grade	The highest quality of agricultural land according to an overall climatic limitation
Field Capacity Duration	The amount of rain needed to bring the soil moisture content back to field capacity
Moisture Deficit	The difference between the amount of water in the soil and the amount of water that the soil can hold

## Acronyms

Acronym	Description
AAR	Average Annual Rainfall
ALC	Agricultural Land Classification
AOD	Above Ordnance Datum
ATO	Accumulated Temperature
Met Office	Meteorological Office
MHWS	Mean High Water Springs

## Units

Unit	Description
mm	Millimetres
m	Metres
km	Kilometres
cm	Centimetres



# 1 LAND USE AND RECREATION – PUBLISHED AGRICULTURAL LAND CLASSIFICATION AND SOILS DATA

## 1.1 Introduction

1.1.1.1 This technical report provides details of the available published soils and Agricultural Land Classification (ALC) data that has been used to inform the baseline environment and assessment in volume 3, chapter 20: Land use and recreation, of the Preliminary Environmental Information Report (PEIR). Although some of the data presented lies outside the land use and recreation study area, this data provides information that is relevant to the assessment of soil types and likely ALC grades.

1.1.1.2 Following a description of the land use and recreation study area, the report considers the sources of data that have been consulted and then describes the published topographic, climatic, soils and ALC data available within the Mona Proposed Onshore Development Area.

## 1.1.2 Study area

1.1.2.1 The land use and recreation study area focuses on areas landward of Mean High Water Springs (MHWS) and is described below:

- The area of land to be temporarily or permanently occupied during construction, operations and maintenance, and decommissioning of the Mona Offshore Wind Project.
- The following aspects are considered within the land use and recreation study area:
  - Soil types and patterns
  - The quality of agricultural land within the land use and recreation study area, in accordance with the Ministry of Agriculture, Fisheries and Food (MAFF) ALC Guidelines (MAFF, 1988), including ‘best and most versatile’ Grade 1, 2 and 3a ALC land
  - Farm holdings and/or enterprises
  - Recreational resources (e.g. recreational facilities, areas of public access and Public Rights of Way)
  - Users of recreational resources, including pedestrians, cyclists, equestrians, and other recreational users.

## 1.2 Methodology

1.2.1.1 A desk top study has been undertaken to assess the likely distribution of soil types and ALC grades within the land use and recreation study area. This study has considered the following information:

- Climatic data from the Meteorological Office (Met Office, 1989) using their standard 5 kilometre (km) grid point data set for representative points near the

centre of the land use and recreation study area. This information is relevant to the assessment of key criteria within the ALC system

- Geological Information provided by the British Geological Survey Geology Viewer (British Geological Survey, 2020)
- Soil Information from the National Soil Map published by the Soil Survey of England and Wales (1:250,000), specifically Sheet 2 (Wales) and accompanying Bulletin 11 (Soil Information from the National Soil Map, 1984)
- Soil Survey of Great Britain, The Soils and Land Use of The District around Rhyl & Denbigh, Sheets 95 and 107, 1:63,360 and accompanying Memoir (Soil Survey of Great Britain 1984)
- 1:250,000 series Agricultural Land Classification (Wales) (MAFF, 1977)
- Welsh Government Predictive Agricultural Land Classification Map (Welsh Government, 2019)
- Detailed Welsh Government and commercial ALC survey information for sites with a similar geology and soil pattern in the general area.

## 1.3 Published ALC Information

### 1.3.1 Topography

1.3.1.1 The land use and recreation study area extends south from the intertidal area at Llanndulas: it starts just south of the A55 at a height of about 10 metres (m) Above Ordnance Datum (AOD) and rises gently towards the steep escarpment on which Gwrych Castle is situated. Most of the very steep slope is within woodland and the land use and recreation study area emerges from this at a height of about 120m AOD. Thereafter, the topography can be described as gently undulating reaching a high point of about 180m AOD near Llys Arwel and a low point of about 80m AOD, where it crosses a small watercourse near Nant Fawr. Most of the land is, however, at around 100 to 150m AOD and none of the slopes are so steep as to pose any agricultural limitation.

1.3.1.2 The land use and recreation study area crosses the A548 and B538 near Sirior Goch Farm at a height of about 130m AOD before turning east. Thereafter the land use and recreation study area pursues an approximate easterly direction mostly at a height of about 120m to 160m AOD skirting the north flanks of Moelfre Isaf, but reaching the highest point on the land use and recreation study area at about 200m just south of Letty. Thereafter, the land use and recreation study area, though continuing to undulate with gentle slopes, begins to lose overall height falling below 100m AOD east of Gascoed.

1.3.1.3 The land use and recreation study area continues east for about 1km, ending on the edge of St Asaph at about 40m AOD. Other than the steep slopes near Gwrych Castle in the west, most of which are in woodland, there is little if any agricultural land where the slopes pose any limitation.

**1.3.2 Climate**

1.3.2.1 Climatic data has been obtained from the Met Office's standard 5km grid point data set for several representative points along the land use and recreation study area, as shown in Table 1.1 below.

**Table 1.1: Climatic data.**

Reference point	SH 924 780	SH 935 745	SH 959 741	SH 990 738	SJ 008 738	SJ 010 751
Altitude (m)	10	150	190	100	55	20
Accumulated Temperature (ATO) (day degrees)	1,463	1,304	1,281	1,360	1,411	1,451
Average Annual Rainfall (AAR) (millimetres, mm)	738	860	846	781	742	717
Maximum Climatic Grade	1	2	2	1	1	1
Field Capacity Duration (days)	174	196	193	182	176	172
Moisture Deficit for wheat (mm)	104	82	81	92	99	105
Moisture Deficit for potatoes (mm)	94	65	64	79	88	96

1.3.2.2 The data is typical of the mild, maritime climate of North Wales showing the effect of altitude on both the ATO, which falls with increasing altitude, and rainfall, which increases with altitude. These changes are such that, while the overall climate imposes no agricultural limitations at lower altitude, there is a slight limitation at higher altitudes such that the maximum ALC grade is Grade 2 rather than Grade 1. A few sample intermediate calculations indicate that, in general terms, the division between Grade 1 and Grade 2 due to the overall climate occurs at approximately 110-120m AOD. This is, however, of relatively little consequence since, as discussed below, there are other factors related to the characteristics of the soils along the land use and recreation study area which determine the ALC grade. It may be noted, however, that the rainfall is relatively low giving a long field capacity duration over the winter and low moisture deficits which build up during the summer.

**1.4 Geology**

1.4.1.1 The underlying bedrock geology consists of various strata of Carboniferous age in the north and east of the area crossed by the land use and recreation study area, notably Carboniferous Limestone forming the steep slopes around Gwrych Castle and Silurian

strata, chiefly shales, in the south and west. This is of academic interest only since other than the narrow outcrop of the Carboniferous Limestone, all the rest of the bedrock is covered in superficial drift in which the soils are formed. The drift is mainly of glacial origin and includes material derived from Silurian, Carboniferous, and Triassic rocks, as described in more detail in the section on soils below. Some of the drift, however, will have been locally re-worked, hence the more general term “drift” rather than more specific terms such as “glacial till”.

**1.4.2 Soils**

1.4.2.1 The area within the land use and recreation study area was the subject of an early soil survey carried out by the Soil Survey of Great Britain, with the results published as two maps (Sheets 95 and 107) at a scale of 1:63,360 and an accompanying Memoir in 1960. It is clear from a comparison of the results of the Welsh Government's Predictive ALC project (Welsh Government, 2019) that the results of this 1960 survey were used in this area rather than the latter, but much less detailed information from the National Soil Map.

1.4.2.2 Figure 1.1 below illustrates the distribution of the soil series within the land use and recreation study area. These soil series are described in the following sections of this report.



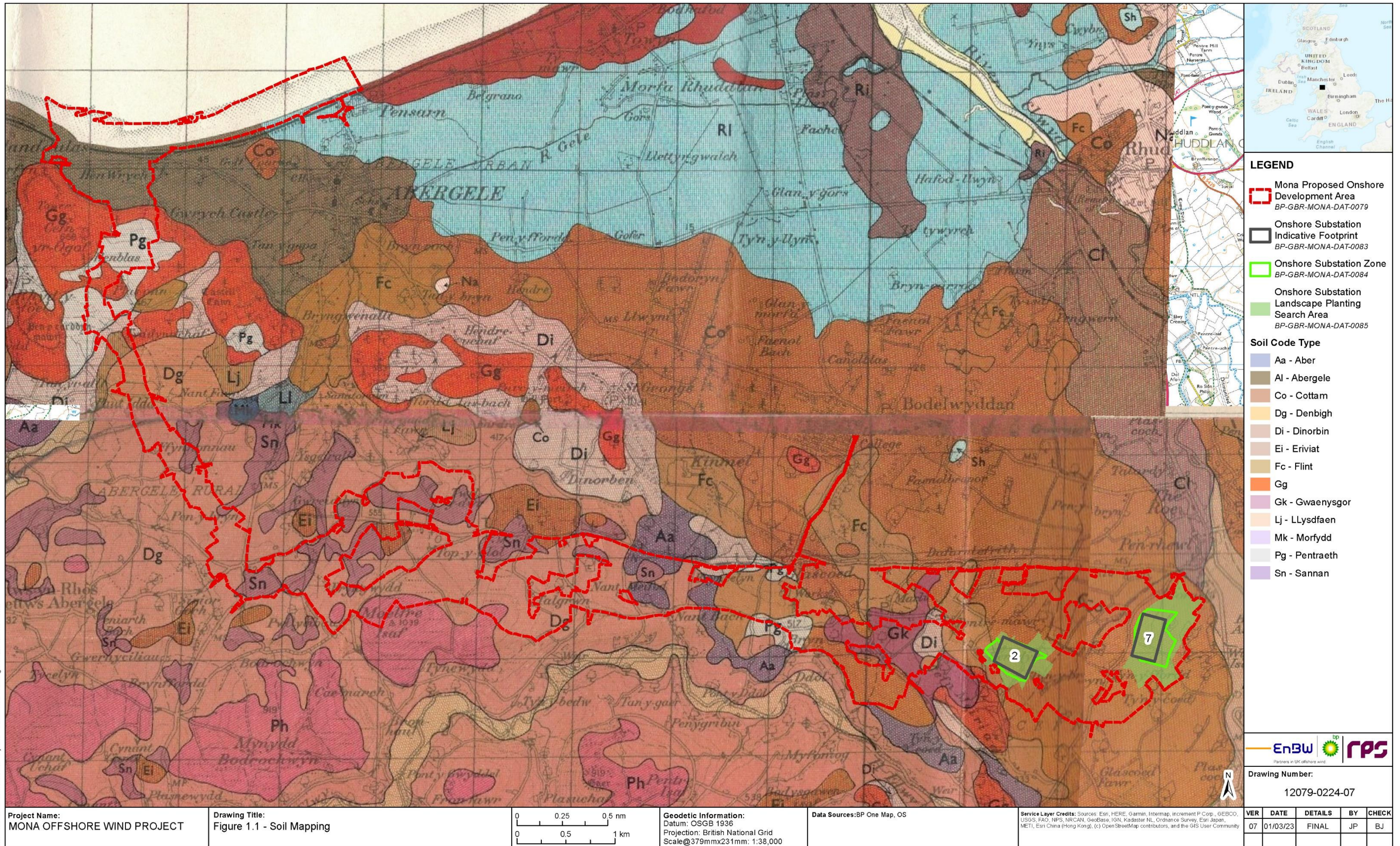


Figure 1.1: Distribution of the soil series within the land use and recreation study area.



1.4.2.3 The following gives a description of the locations of the different soil series within the land use and recreation study area followed by a description of each of the characteristics of each series.

### 1.4.3 Locations of the soil series

1.4.3.1 The land use and recreation study area starts by crossing well drained soils of the Abergele series (Al) developed in mixed drift over Triassic till at depth. The land use and recreation study area then encounters various well-drained soils associated with the Carboniferous Limestone ridge, including the shallow Gower series (Cg), the deeper Penraeth series (Pg) and the Dinorbin series (Di) which has admixed Silurian material. Further south there are narrow bands or small patches of the Llysdfaen series (Lj), the Lanasa complex (Li) and the Morfydd series (Mk), with profile drainage varying between Wetness Classes I and IV.

1.4.3.2 Thereafter, much of the land use and recreation study area has soils of the well-drained (Wetness Class I) Denbigh series (Dg), its imperfectly drained (Wetness Class II) analogue, the Sannan series (Sn) and two small patches of the well-drained (Wetness Class I) but shallow Eriviat series (Ei) all developed in drift from Silurian shale.

1.4.3.3 Near Nant Back, the influence of Triassic derived material begins, first with a couple of patches of the imperfectly drained (Wetness Class III) Aber series (Ai) developed in drift derived from Silurian shales over Triassic till at depth, then a succession of soils all formed mainly in Triassic material. These include the well-drained (Wetness Class I) Flint series (Fc) and its imperfectly drained (Wetness Class II) analogue the Cottam series (Co). There is an insignificantly small patch of the well-drained (Wetness Class I) Penraeth series (Pg) where the land use and recreation study area crosses the mainly drift covered outcrop of the Carboniferous Limestone. Also considered to be of insignificant extent is a patch of the well-drained (Wetness Class I) Gwaenysgor series (Gk) on mixed drift.

### 1.4.4 Descriptions of the soil types

#### Soils in Carboniferous Limestone and associated drift

##### Gower series (Cg)

1.4.4.1 This is a shallow, stony, highly calcareous soil developed directly in Carboniferous Limestone but with some superficial drift. A typical profile usually consists of a thin sandy loam topsoil with many limestone fragments directly overlying shattered limestone. The profile is well drained (Wetness Class I in modern nomenclature).

##### Penraeth series (Pg)

1.4.4.2 This has more superficial drift than the Gower series resulting in a deeper profile with a distinct subsoil. The topsoil is a non-calcareous sandy silt loam and overlies a browner and slightly sandier subsoil passing down into shattered limestone at between about 60 to 90 centimetres (cm) from the surface. The whole profile is well-drained (Wetness Class I) and has relatively few stones other than occasional limestone fragments.

#### Soils in drift from Silurian shale

##### Denbigh series (Dg)

1.4.4.3 This well-drained (Wetness Class I) soil is the most common soil encountered along the land use and recreation study area and is formed in drift material derived mainly from Silurian rocks. This results in a typical profile consisting of a medium clay loam or silty clay loam, slightly stony topsoil and moderately stony subsoil over solid or shattered rock within about 80cm of the surface. The depth to rock is, however, variable and without detailed survey information it is difficult to predict how deep the actual profiles are along the land use and recreation study area. Similarly, the number of stones varies and both these factors (i.e. depth to rock and stoniness affect the moisture holding capacity and hence the ALC grading, see below).

##### Eriviat series (Ei)

1.4.4.4 This is the shallow analogue of the Denbigh series, normally found on the crests of small hummocks where erosion has resulted in a profile no more than about 30cm thick over compact drift. Although well-drained, the shallowness of the profile gives it a very low moisture holding capacity. It is of negligible importance occurring only in two very small areas on the very edges of the land use and recreation study area.

##### Sannan series (Sn)

1.4.4.5 This is the imperfectly-drained analogue of the Denbigh series in which the lower subsoil is slowly permeable leading to impeded drainage and the development of greyish colours and mottling, collectively called gleying, below approximately 50cm from the surface. Some of the wetness may also be due to groundwater seepage related to fault lines in the underlying bedrock. The actual drainage status of the soils is difficult to predict without the benefit of some survey information but is thought to be typically Wetness Class II after drainage installation. The main occurrence of these soils is in the first few kilometres of the land use and recreation study area, where it turns east near Sirior Goch Farm, but there are one or two smaller patches elsewhere.

#### Soils in drift from Triassic rocks

##### Flint series (Fc)

1.4.4.6 This soil is developed in drift, probably glacial till, derived from Triassic rocks and consequently has a distinctly reddish brown colour. The drainage status of soils in such parent materials is notoriously difficult to determine since the characteristic greyish colours and mottling (gleying) indicative of waterlogged conditions tend not to develop. Thus, the overall reddish-brown colours of the subsoil and only faint mottling tend to give the impression of free drainage, and this appears to be case in Sheet 95/107 Memoir (Soil Survey of Great Britain, 1984), which reports the Flint as a well-drained soil. It is now generally agreed that the subsoils are slowly permeable and despite the lack of gleying, there is some drainage impedance. Thus, the soils are likely to be only moderately well-drained (Wetness Class II in modern nomenclature). A typical profile consists of a brown, slightly stony medium silty clay loam over a brown slightly stonier subsoil of similar texture passing down into reddish brown, faintly mottled clay at about 60cm from the surface.



**Cottam series (Co)**

- 1.4.4.7 This is the imperfectly drained analogue of the Flint series with somewhat heavier textures (medium to heavy clay loam) and more obvious signs of gleying in the form of paler colours and colour mottling in the subsoil. Thus, they are normally classed as being somewhat less well drained than the Flint series, typically Wetness Class II or III.

**Salop series (Sh)**

- 1.4.4.8 This is a heavy textured, poorly drained soil with significant drainage impedance (Wetness Class III even after drainage). It is of negligible importance occurring only as a tiny patch adjacent to the A55 at the east end of the land use and recreation study area.

**Soils in drifts over Triassic till****Aber series (Aa)**

- 1.4.4.9 This soil is developed in a thin covering of loamy drift containing many small shale stones overlying a slowly permeable, reddish brown, heavy clay loam believed to be Triassic glacial till at about 50cm from the surface. There is a sharp boundary between the two materials. The drainage status is probably Wetness Class III even after drainage. It occurs in the transitional zone between soils formed predominantly in drift derived from Silurian rocks (Denbigh and Sannan series) in the west and those in Triassic derived material (Flint and Cottam series) in the east.

**Abergele series (Al)**

- 1.4.4.10 This soil is restricted to the lowland north of the limestone ridge at the west end of the land use and recreation study area. It is very similar to the Aber series (see above) but has more non-Silurian derived material in the surface horizons. A typical profile has a loamy topsoil and subsoil with, as in the Aber series, a sharp boundary to a slowly permeable, reddish brown, heavy clay loam or clay believed to be Triassic glacial till at about 50cm from the surface. Although described in the Sheet 95/107 memoir (Soil Survey of Great Britain, 1984) as well-drained, the presence of the slowly permeable clay at depth would suggest that the drainage status is very similar to that of the Aber series (i.e. probably Wetness Class III even after drainage).

**Soils in mixed drifts**

- 1.4.4.11 The following soil series are encountered along the land use and recreation study area only as very narrow strips or as small patches.

**Gwaenysgor series (Gk)**

- 1.4.4.12 This is a well-drained (Wetness Class I) soil developed in drift from Carboniferous and Triassic rocks with a sandy silt loam or sandy loam texture and is only slightly stony. Unlike the Aber and Abergele series there is no sharp boundary to an underlying slowly permeable till.

**Lysdfaen series (Li)**

- 1.4.4.13 This is a well-drained (Wetness Class I) soil developed in drift from Carboniferous and Triassic rocks somewhat similar to the Denbigh series in terms of textures, but deeper, less stony and including stones of Carboniferous origin.

**Morfydd series (Mk)**

- 1.4.4.14 This is the poorly drained (Wetness Class III or IV) analogue of the Lysdfaen series. The poorer drainage is because of a slowly permeable layer of clayey texture at around 35 to 40cm from the surface giving greyish subsoil colours with prominent mottling (gleying).

**Dinorbin series (Di)**

- 1.4.4.15 This well-drained (Wetness Class I) soil is found close to the Carboniferous Limestone ridge and its loamy profile includes some limestone fragments. It is broadly similar to the Pentraeth series (see above) but has more Silurian derived material and can be somewhat shallower, with limestone sometimes as near as 45cm from the surface.

**1.4.5 Agricultural Land Classification****Predictive ALC**

- 1.4.5.1 The Predictive ALC Map (Welsh Government, 2019) uses the best available information to predict the Grade of land on national basis. It has been designed to help Local Planning Authorities, developers, surveyors, and land use managers make informed long-term decisions over the use of land in the planning system and to target survey work to the most appropriate locations.
- 1.4.5.2 Where the Predictive ALC Map identifies grades 1, 2 or 3a, a survey will be required to determine ALC Grades present and in what proportion. For areas where the predictive viewer indicates entirely lower quality Subgrade 3b/Grade 4/Grade 5 land, no further survey of agricultural land quality would be required.
- 1.4.5.3 Figure 1.2 below illustrates the distribution of predictive ALC grades within the land use and recreation study area. In addition, there have been a number of detailed ALC surveys undertaken by Welsh Government in close proximity to the land use and recreation study area as shown in Figure 1.3, with a small area of Subgrade 3a land that has been surveyed falling into the eastmost part of the land use and recreation study area.



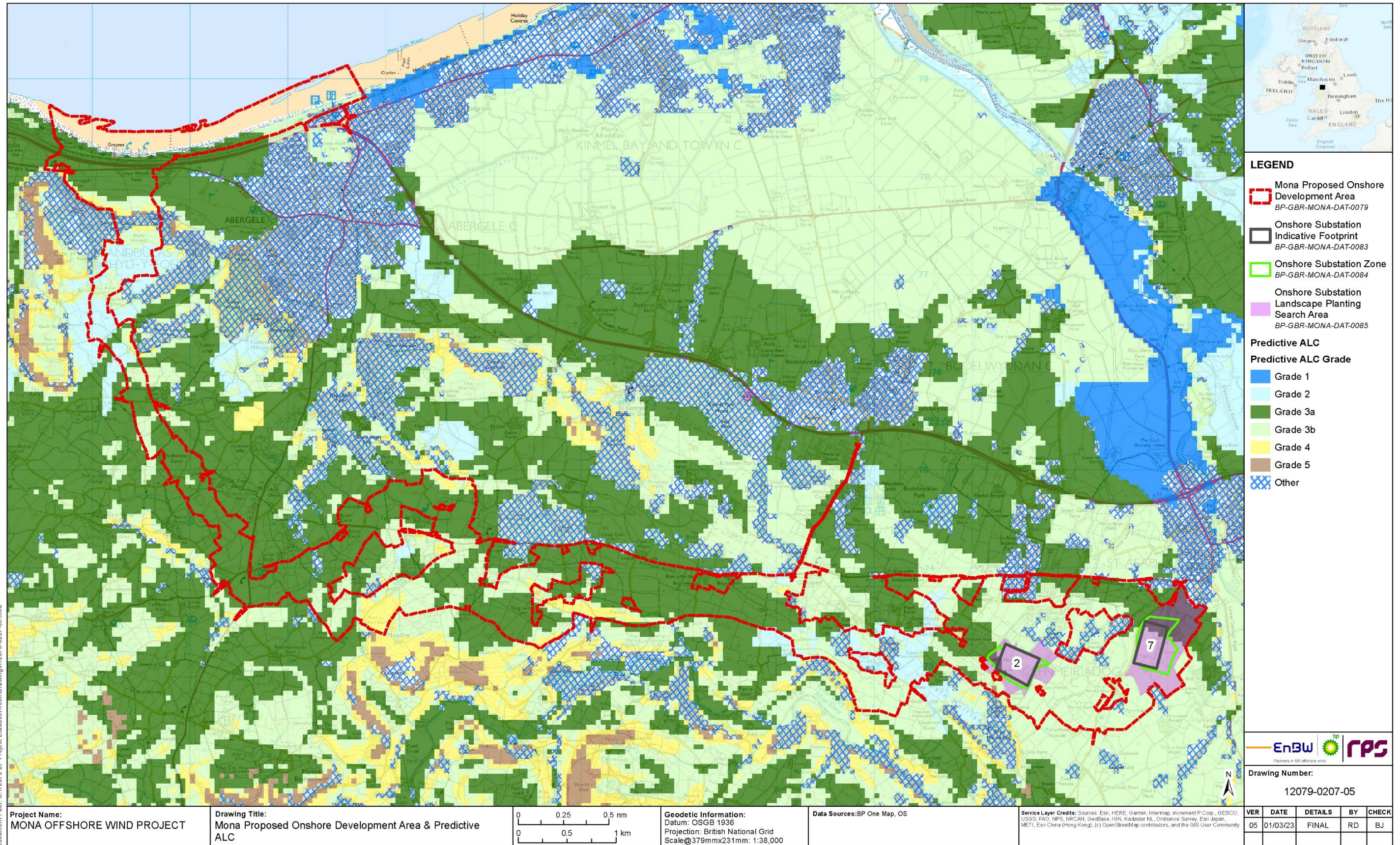


Figure 1.2: Land use and recreation study area and the Predictive ALC.



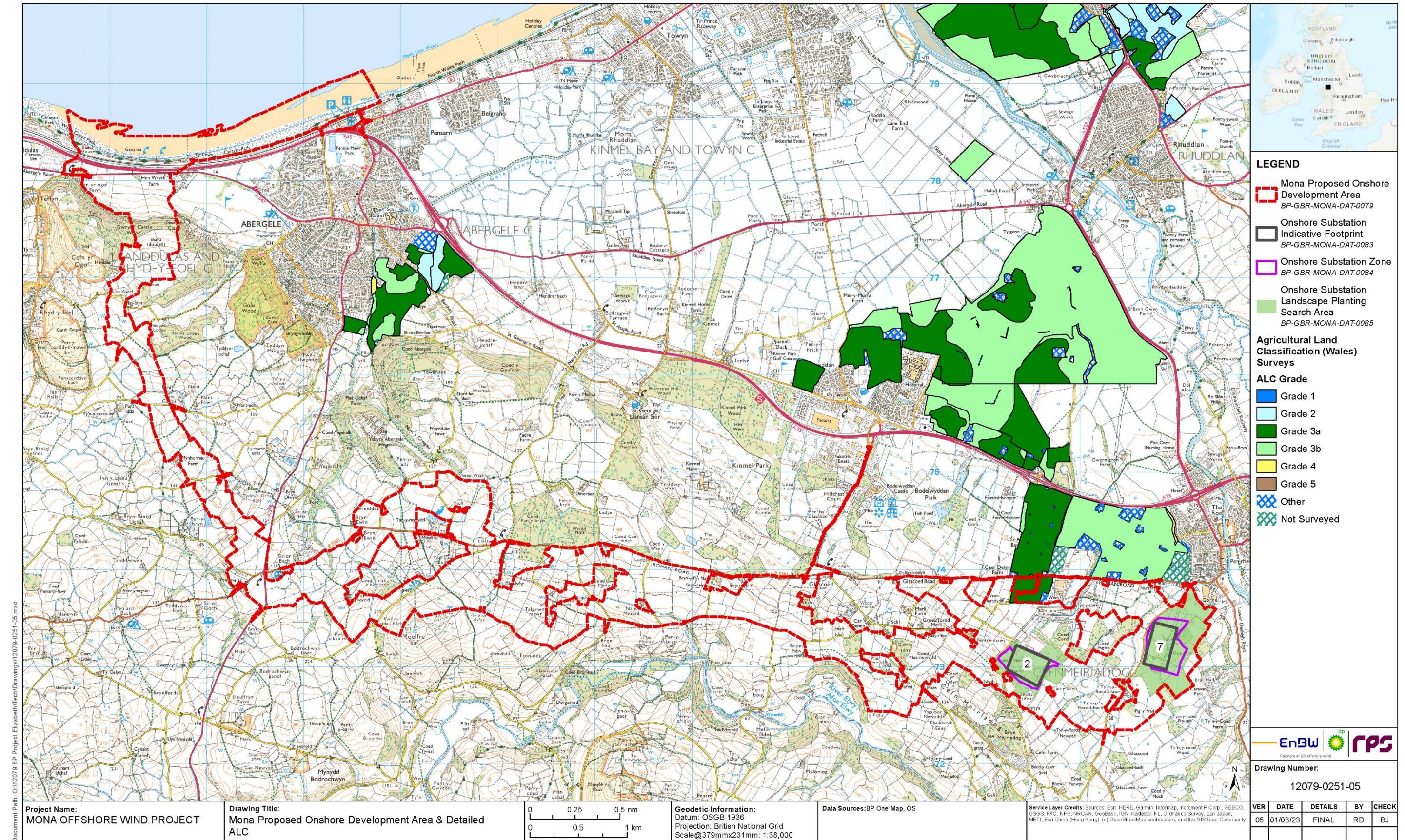


Figure 1.3: Land use and recreation study area and the Detailed ALC.



1.4.5.4 Taking this information into account and the soils information as described above, Table 1.2 lists the likely ALC grading for the different soil types identified within the land use and recreation study area.

**Table 1.2: ALC grading of soil types within the land use and recreation study area.**

Map symbol	Soil series Name	Parent material	Profile drainage	Welsh Government Predictive ALC
<b>Soils in Carboniferous Limestone and associated drift</b>				
Cg	Gower	Carboniferous Limestone	Well drained	3b and 4
Pg	Pentraeth	Drift from Carboniferous Limestone	Well drained	2
<b>Soils in drift from Silurian shales</b>				
Dg	Denbigh	Drift from Silurian shale	Well drained	3a and occasional 3b
Ei	Eriviat	Drift from Silurian shale	Well drained	3b
Sn	Sannan	Drift from Silurian shale	Imperfectly drained	3a occasional 3b
<b>Soils in drift from Triassic rocks</b>				
Fc	Flint	Drift from Triassic rocks	Well drained	3a
Co	Cottam	Drift from Triassic rocks	Imperfectly drained	3b and 3b
Sh	Salop	Drift from Triassic rocks	Poorly drained	3b
<b>Soils in drifts over Triassic till</b>				
Aa	Aber	Drift from Silurian shale over Triassic till	Imperfectly drained	3a
Al	Abergele	Mixed drift over Triassic till	Well drained	3a
<b>Soils in mixed drift</b>				
Gk	Gwaenyngor	Drift from Carboniferous and Triassic rocks	Well drained	2
Lj	LLysdfaen	Drift from Silurian shale and Carboniferous sandstone and marl	Well drained	2
Mk	Morfydd	Drift from Silurian shale and Carboniferous sandstone and marl	Poorly drained	4

Map symbol	Soil series Name	Parent material	Profile drainage	Welsh Government Predictive ALC
Di	Dinorbin	Drift from Silurian shale and Carboniferous Limestone	Well drained	3a
LI	Llanasa	Drift from Silurian shale and Triassic rocks	Variable	3a

1.4.5.5 The Predictive ALC Map (Welsh Government, 2019) viewer together with the detailed survey work suggests that there are likely to be areas of Subgrades 3a land with smaller areas of lower quality Subgrade 3b land and higher quality Grade 2 within the land use and recreation study area.

## 1.5 Mona Onshore Substation Options

1.5.1.1 The ALC grading for land located within Mona Onshore Substation Footprint for Option 2 and Option 7, according to the Predictive ALC Map (Welsh Government, 2019) and detailed ALC survey, are presented below in Figure 1.4 and Figure 1.5 of this report respectively.



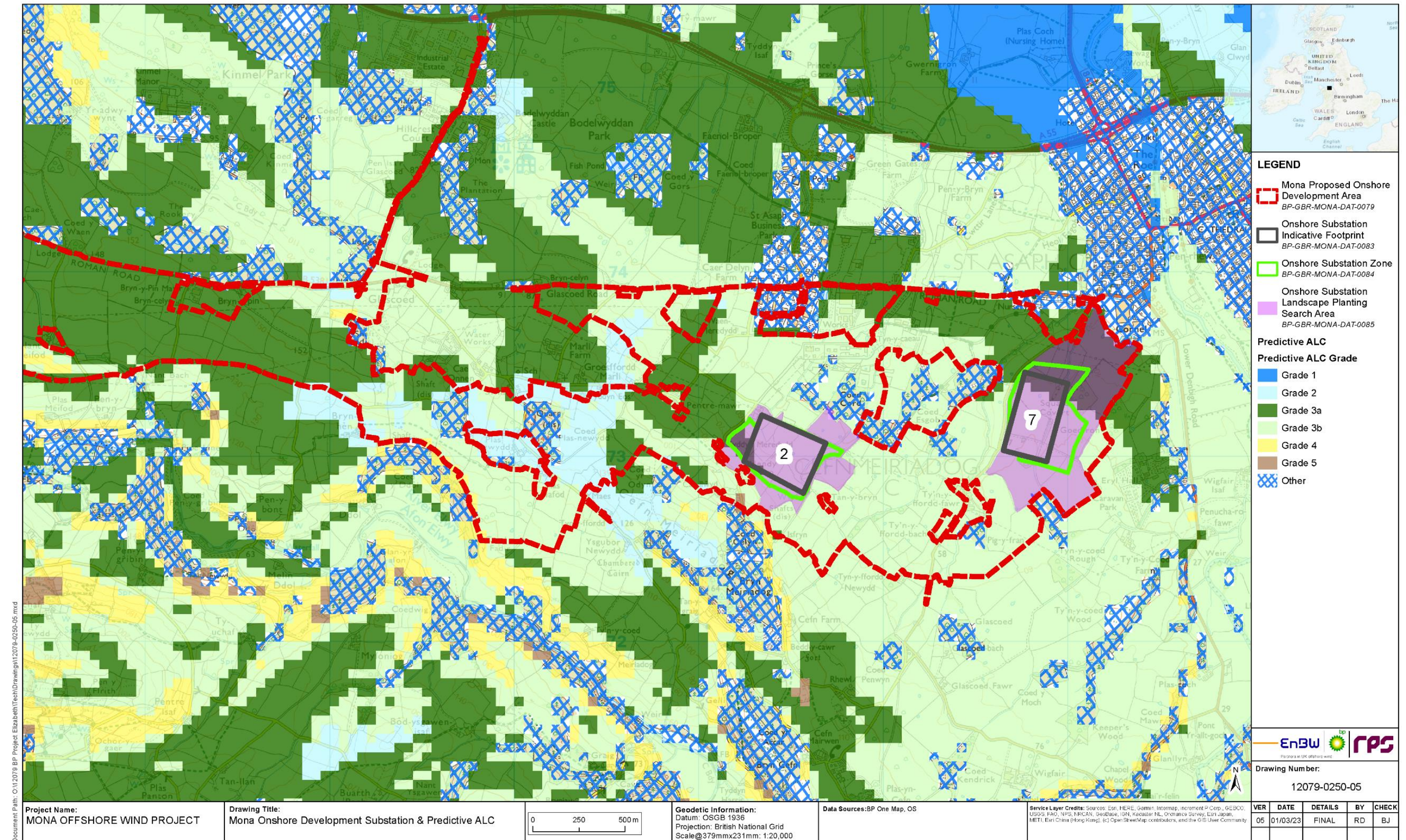


Figure 1.4: Mona Onshore Substation Options and the Predictive ALC.



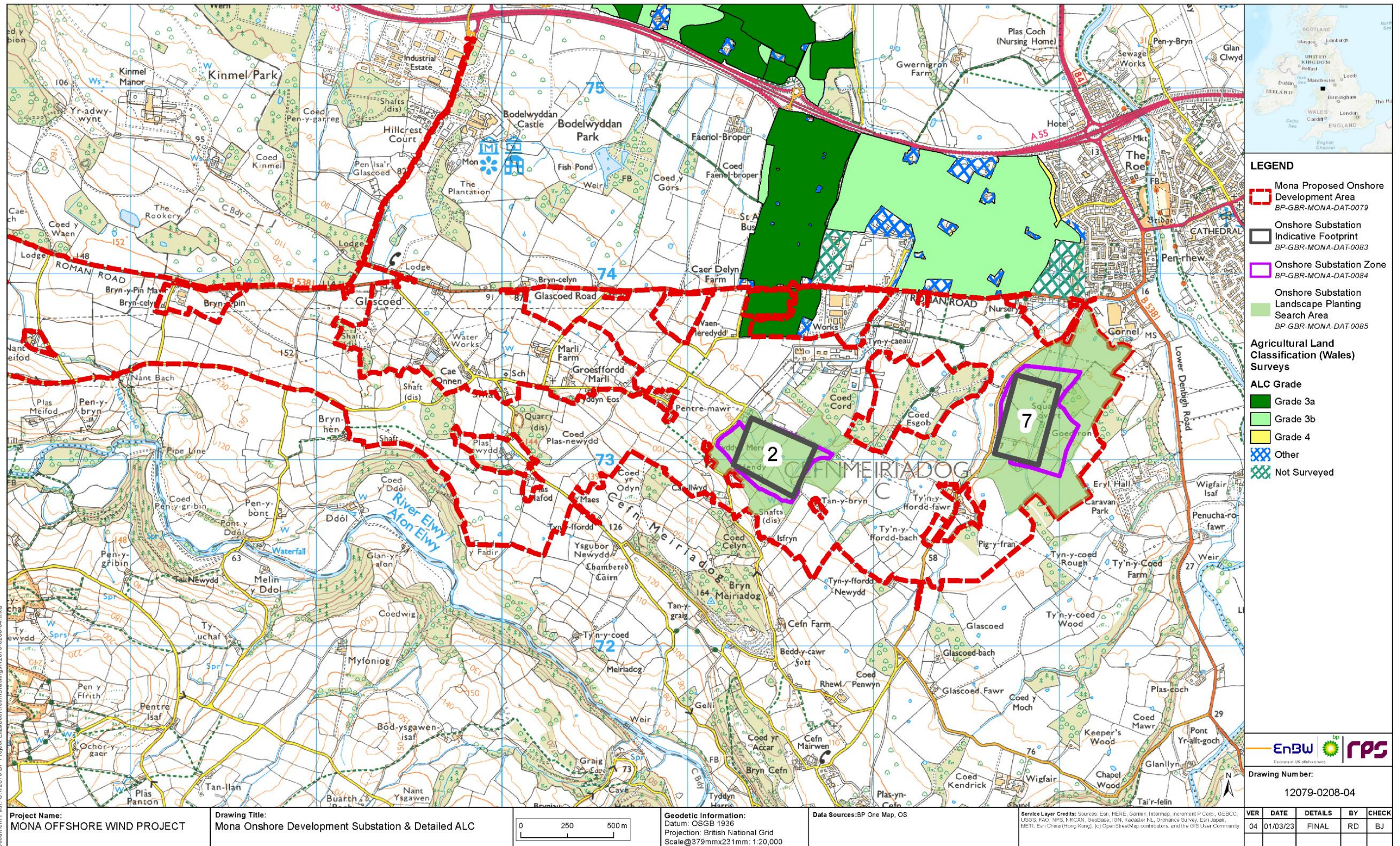


Figure 1.5: Mona Onshore Substation Options and the detailed ALC.



## 1.5.2 Mona Onshore Substation Option 2

### Topography

1.5.2.1 The land slopes very gently from the highest point at about 70m AOD in the southwest corner to about 55m AOD at the northeast corner. The slope poses no agricultural limitation.

### Climate

1.5.2.2 Climatic data has been obtained from the Met Office's standard 5km grid point data (Met Office, 1989) set for a representative point near the centre of the site and is presented in Table 1.3 below.

**Table 1.3: Climatic data for Mona Onshore Substation Option 2.**

Climatic data	Measure
Reference Point	SJ 014 730
Altitude (m)	60
ATO (day degrees)	1,406
AAR (mm)	751
Maximum Climatic Grade	1
Field Capacity Duration (days)	178
Moisture Deficit for wheat (mm)	97
Moisture Deficit for potatoes (mm)	86
Overall climatic limitation.	None

### Geology and soils

1.5.2.3 The soil parent material is drift from Triassic rocks and only a single soil series, the Cottam series (Co), is shown on Sheet 107 (Soil Survey of Great Britain 1984). The whole of the Mona Onshore Substation Option 2 (see below) is similarly shown as just Cottam series (Co).

1.5.2.4 The Cottam series (Co) is formed in drift from Triassic rocks has a distinctly reddish-brown colour. The drainage status of soils in such parent materials is notoriously difficult to determine since the characteristic greyish colours and mottling (gleying) indicative of waterlogged conditions tend not to develop. However typical profiles of the Cottam (Co) do have signs of waterlogging in the subsoil in the form of relatively pale colours and colour mottling, collectively called gleying. This is thought to be due to the lower subsoil being only slowly permeable. Thus, a typical profile consists of a dark brown, slightly stony medium silty clay loam over a brown, slightly stonier subsoil of similar texture passing down into reddish brown, faintly mottled clay at about 60cm from the surface (the slowly permeable layer).

1.5.2.5 It is the depth to the slowly permeable layer, together with the duration of field capacity that is used to determine the Wetness Class. Soils of the Cottam series (Co) are

normally classed as being typically in Wetness Class II or III. In the climatic regime of the Central Substation with a field capacity duration of 178 days, a profile such as that described above would be in Wetness Class III.

### Predictive ALC

1.5.2.6 The Predictive ALC Map (Welsh Government, 2019) shows that most of Mona Onshore Substation Option 2 comprises Subgrade 3b land (see Figure 1.4).

## 1.5.3 Mona Onshore Substation Option 7

### Topography

1.5.3.1 The land slopes very gently from the highest point at about 70m AOD in the southwest corner to about 55m AOD at the northeast corner. The slope poses no agricultural limitation.

### Climate

1.5.3.2 Climatic data has been obtained from the Met Office's standard 5km grid point data (Met Office, 1989) set for a representative point near the centre of the site and is presented in Table 1.4 below.

**Table 1.4: Climatic data for Mona Onshore Substation Option 7.**

Climatic data	Measure
Reference Point	SJ 029 734
Altitude (m)	40
ATO (day degrees)	1,428
AAR (mm)	725
Maximum Climatic Grade	1
Field Capacity Duration (days)	174
Moisture Deficit for wheat (mm)	101
Moisture Deficit for potatoes (mm)	91
Overall climatic limitation.	None

### Geology and soils

1.5.3.3 The soil parent material is drift from Triassic rocks and only a single soil series, the Cottam series (Co), is shown within the footprint of this substation option.

1.5.3.4 The Cottam series (Co) is formed in drift from Triassic rocks and has a distinctly reddish-brown colour. The drainage status of soils in such parent materials is notoriously difficult to determine since the characteristic greyish colours and mottling (gleying) indicative of waterlogged conditions tend not to develop. However, typical profiles of the Cottam (Co) do have signs of waterlogging in the subsoil in the form of relatively pale colours and colour mottling, collectively called gleying. This is thought

to be due to the lower subsoil being only slowly permeable. Thus, a typical profile consists of a dark brown, slightly stony medium silty clay loam over a brown, slightly stonier subsoil of similar texture passing down into reddish brown, faintly mottled clay at about 60cm from the surface (the slowly permeable layer).

- 1.5.3.5 It is the depth to the slowly permeable layer, together with the duration of field capacity that is used to determine the Wetness Class. Soils of the Cottam series (Co) are normally classed as being typically in Wetness Class II or III. In the climatic regime of the Mona Onshore Substation Option 7 with a field capacity duration of 174 days, a profile such as that described above would fall within Wetness Class III.

#### Predictive ALC

- 1.5.3.6 The Predictive ALC Map for the Cottam series (Co) on the Mona Onshore Substation Option 7 is Subgrade 3a in the north and Subgrade 3b in the south with notably a similar grading of only Subgrade 3b applied to the Cottam series (Co) on Mona Onshore Substation Option 2 (see above).

- 1.5.3.7 Some of the Cottam series along the land use and recreation study area and at the east end have been downgraded to Subgrade 3b, and detailed surveys carried out by MAFF/ADAS on adjacent land, also shown on the soil map as Cottam series, have similarly graded some of it 3a and some 3b. There appears to be some inconsistency in the grading of the Cottam series soils across the Mona Onshore Substation Options 2 and 7.

## 1.6 References

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