

## **TECHNCIAL APPENDIX 14.1: LAND USE AND AGRICULTURE BASELINE**

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## 1. INTRODUCTION

- 1.1.1 Reading Agricultural Consultants Limited (RAC) is instructed by WSP UK Limited on behalf of SSEN Transmission to investigate the agricultural land quality and soil resources of land at Netherton Hub, Netherton, Aberdeenshire by means of a desk appraisal of soil and site characteristics.
- 1.1.2 Agricultural land in Scotland is graded according to the Macaulay Land Capability for Agriculture (LCA) classification system, formerly the Land Use Capability (LUC) system. The LCA system divides agricultural land into seven classes, with a further four subdivisions. Classifications are based on the potential productivity and the flexibility of cropping of agricultural land.
- 1.1.3 Land capable of supporting Arable Agriculture includes Classes 1, 2 and 3.1. Class 1 land is capable of producing a very wide range of crops with no or very minor physical limitations affecting agricultural use. Class 2 land is capable of producing a wide range of crops, with minor physical limitations affecting agricultural use. Class 3.1 is land capable of producing a moderate range of crops with high yields of cereals and grass and lower yields of potatoes and other vegetables. Land in Class 1, 2 and 3.1 is categorised in the National Planning Framework 4<sup>1</sup> (NPF4) as Prime quality.
- 1.1.4 Land capable of supporting Mixed Agriculture includes Classes 3.2, 4.1 and 4.2. Class 3.2 land is capable of producing a moderate range of crops with an increasing trend of grass in the rotation. Class 4.1 land is capable of producing a narrow range of crops but is primarily grassland. Class 4.2 land is primarily under grass with limited potential for other crops such as barley, oats and forage crops.
- 1.1.5 Land capable of supporting Improved Grassland includes Classes 5.1, 5.2 and 5.3. On Class 5.1 land, establishment and maintenance of the sward has few difficulties; on Class 5.2 land there are no difficulties in sward establishment but physical limitations to maintenance; on Class 5.3 land, deterioration of the grass sward can be rapid.
- 1.1.6 Land capable of supporting only Rough Grazing includes Classes 6.1, 6.2, 6.3 and 7. The grazing quality is of diminishing value<sup>2</sup>.
- 1.1.7 In the national context, Policy 5 – Soils in the NPF4 indicates that proposals on prime agricultural land will only be supported where it is for essential infrastructure and there is a specific locational need and no other suitable site.
- 1.1.8 Local policy as set out in the Aberdeenshire Local Development Plan<sup>3</sup> indicates at Policy R2 that brownfield sites are preferred over greenfield for development, and at Policy PR1 that there is a presumption against developments that have a negative effect on prime agricultural land.

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<sup>1</sup> The Scottish Government (2023). *National Planning Framework 4*. Available at National Planning Framework 4 – gov.scot (www.gov.scot).

<sup>2</sup> Bibby et al (1991). Macaulay Land Use Research Institute. *Land Capability Classification for Agriculture*.

<sup>3</sup> Aberdeenshire Council (2023). *Aberdeenshire Local Development Plan*. Available at <https://aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2023/>.

## 2. SITE CONDITIONS

### 2.1 General Features, Land Form and Drainage

- 2.1.1 The Site extends to approximately 230 ha at Nethererton, to the south of the A950, southeast of Longside. The centre and southeast of the Site are mainly under grass whilst the north and west are in arable use.
- 2.1.2 The topography is generally characterised by a north-facing slope which falls from approximately 65 m above Ordnance Datum (AOD) at the southern boundary to around 30 m AOD in the north.
- 2.1.3 Drainage is via the slopes and facilitated by field ditches.

### 2.2 Soil Parent Material and Soil Type

- 2.2.1 The underlying geology mapped by the British Geological Survey<sup>4</sup> across most of the site is the Forest of Deer Pluton, with undifferentiated Crinan Subgroup and Tayvallich Subgroup of the Argyll Group in a small area in the west.
- 2.2.2 The Forest of Deer Pluton comprises melagranite (dark granite). The Crinan Subgroup predominantly comprises varied metamorphosed rock including quartzite, semipelite, pelite (mudstone or siltstone) and psammite (clayey sandstone). The Tayvallich Subgroup predominantly comprises limestone.
- 2.2.3 Superficial deposits of the Banchory Till Formation are mapped across most of the Site. These deposits comprise poorly sorted gravelly and sandy sediment with varied clast size.
- 2.2.4 The Soil Survey of Scotland mapping<sup>5</sup> (1:250,000 scale) shows the Tarves association across the Site. The Corby association is mapped in very close proximity to the northwest.
- 2.2.5 Soil of the Tarves association are derived from metamorphic and igneous rocks, giving rise to soils which are:  
*“Highly variable, the till has a sandy loam to sandy clay loam texture on free-draining sites but sandy silt loam to clay loam in sites with poor drainage. Drift deposits on the upper hill slopes and summits is stonier and coarser in texture. Moraine deposits are generally a stony, gravelly loamy sand. Moderately stony within subsoil.”*
- 2.2.6 Soils of the Corby association are mapped across the north-west of the Site. Soils of this association are derived from fluvioglacial and raised beach sands and gravels. The soil is characterised by sandy gravel to gravelly sand with rounded or subrounded, abundant stones with gravel deposits.
- 2.2.7 The Boyndie association is mapped along the drainage extensions to the west and north of the Site, along with “Alluvial Soils”. Boyndie soils are characterised by freely drained glaciofluvial sand deposits<sup>6</sup>.
- 2.2.8 Within the Tarves association, the Soil Survey of Scotland mapping<sup>7</sup> (1:25,000 scale) shows four soil series (reproduced in **Volume 3, Figure 14.1: Soils Series**). A sample borehole log produced by the Ground Investigations (GI) contractor<sup>8</sup> from each of the mapped series units is used below in **Table 2-1** to describe the soils present. The series are listed in order of prevalence on the map.

<sup>4</sup> British Geological Survey (2024). *Geology of Britain viewer*. Available at <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>.

<sup>5</sup> National Soil Map of Scotland (2024). *Scotland's Soils*. Available at [https://map.environment.gov.scot/Soil\\_maps/?layer=1](https://map.environment.gov.scot/Soil_maps/?layer=1).

<sup>6</sup> The James Hutton Institute (2024). Available at <https://www.hutton.ac.uk/learning/exploringscotland/soils>.

<sup>7</sup> The Macaulay Institute for Soil Research (1962). *Soil Survey of Scotland. Peterhead & Fraserburgh – Sheets 87 & 97*. Available at View map: Macaulay Land Use Research Institute, Sheets 87 & 97 - Peterhead & Fraserburgh - Soil Survey of Scotland, 1950s-1980s (nls.uk)

<sup>8</sup> BAM Ritchies (2023). *ASTI Substation Site – LT444 Peterhead Hub. Ground Investigation Factual Report*. BAM Ritchies Project Reference: RGN.329R.

**Table 2-1: Mapped soil series and associated borehole description**

Soil Series	Mapped LCA Class	Soil Survey of Scotland Description	GI Borehole Description
Pitmedden	Predominantly Class 3.2	Non-calcareous and calcareous gleys, poorly drained	TP77 0-40 cm, soft dark brown slightly gravelly sandy CLAY. 40-120 cm, firm greyish brown mottled orange becoming grey slightly gravelly sandy silty CLAY.
Tarves	Class 3.1	Brown forest soils, freely draining	TP73 0-10 cm, soft dark brown slightly gravelly sandy SILT. 10-60 cm, Orangish brown gravelly fine to coarse SAND. 60-120 cm, Orangish grey gravelly coarse SAND.
Thistlyhill	Class 3.1	Brown forest soils, imperfectly drained	TP12 0-40 cm, soft dark brown slightly gravelly sandy CLAY. 40-120 cm, soft to firm orangish brown mottled grey becoming brown mottled black gravelly sandy CLAY.
Pettymuck	Class 3.2	Peaty gleys, very poorly drained	TP25 0-30 cm, soft dark brown slightly gravelly sandy CLAY. 30-80 cm, soft brown mottle grey and orange slightly gravelly sandy silty CLAY. 80-120 cm, soft grey slightly gravelly sandy silty CLAY.

2.2.9 In addition, the Dallachy series of the Boyndie association is mapped along the northern site boundary and is in Class 3.2. Alluvial soils are mapped in the western and northern drainage extension areas and are in Classes 3.2 and 4.2. No series belonging to the Corby association are shown on the available smaller scale mapping.

### 2.3 Land Capability for Agriculture

2.3.1 The LCA classification system is designed to identify the potential productivity and flexibility of agricultural land in Scotland. The classification is described in detail in Bibby et al<sup>2</sup>.

2.3.2 The contrasting soil series give rise to land of differing classifications. The site is shown on the LCA map<sup>9</sup> as mostly Class 3.2, with three areas of Class 3.1 the north, south and east of the Site and an area of Class 4.2 in the north.

2.3.3 The areas of each class mapped are shown in **Volume 3, Figure 14.2 Land Capability for Agriculture** and given in **Table 2-2**.

<sup>9</sup> James Hutton Institute (2024). Land Capability for Agriculture (partial cover) map. Available at [https://map.environment.gov.scot/Soil\\_maps/?layer=5](https://map.environment.gov.scot/Soil_maps/?layer=5).

**Table 2-2 LCA areas**

<b>Class</b>	<b>Area (ha)</b>	<b>% of agricultural land</b>
Class 3.1	58.0	26
Class 3.2	164.3	72
Class 4.2	4.7	2
Total agricultural	227.0	100

### 3. AGRICULTURAL LAND QUALITY

- 3.1.1 The available data indicate that well-drained sandy soils and imperfectly-drained sandy clay soils are confirmed to be present within the areas of mapped higher quality land at the site (Class 3.1). The poorly drained and very poorly drained sandy clays over silty clays are confirmed to be present within the lower quality land at the site (Class 3.2), with alluvial soils in Class 4.2.
- 3.1.2 The published soil information correlates with the mapped LCA information. However, photographs taken by ecologists and the GI contractor showing land use and soil types indicate that Class 3.2 might be an overestimate of the land productivity in areas of the southern grassland. The vegetation is characterised by coarse grasses and reeds which are indicative of prolonged wet ground conditions/waterlogging. Photographs are given in Annex 1.
- 3.1.3 There is likely to be a significant restraint on the utilisation of the land in terms of access by machinery and livestock. It is considered that such land is not likely to be classed higher than a subdivision of Class 5.
- 3.1.4 In light of all of the available information, the land quality comprises around one-quarter Class 3.1, which is categorised as prime agricultural land, with most as Class 3.2 and small areas of Class 4.2 and Class 5 (division unknown).

## ANNEX A: ECOLOGY SITE PHOTOGRAPHS

### Example Class 3.1 or 3.2

