

STEWART MILNE HOMES

AGRICULTURAL LAND CLASSIFICATION REPORT ON LAND AT NEW BRIGHTON

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CONTENTS

1.0 INTRODUCTION

2.0 CLIMATE

3.0 THE SITE

4.0 THE SOILS

5.0 AGRICULTURAL LAND CLASSIFICATION

APPENDIX

1. Schedule of Auger Borings and Soil Pit Descriptions

PLAN

- 1. Soil Survey Locations (N14/1)**
- 2. Agricultural Land Classification (N14/2)**

1. INTRODUCTION

- 1.1 Stewart Milne Homes instructed Richard Stock to prepare an Agricultural Land Classification report on approximately 3.68 hectares of land at New Brighton.
- 1.2 The report is based on a soil survey which was undertaken on 28th December 2018 by sampling soil at six locations using a 1.2 metre dutch auger and spade, and examining two soil profile pits. Further information has been obtained from the Soil Survey of England and Wales.
- 1.3 The site is located on the north side of New Brighton, and comprises a single parcel of land lying on the south side of New Brighton Road. It is centred on National Grid Reference SJ 252 656 at an approximate altitude of 145m aod (range 142 to 147m aod).
- 1.4 The soil survey details have been interpreted to grade the site in accordance with the Ministry of Agriculture, Fisheries and Food Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land) published in 1988. The system considers criteria relating to the **climate, site and soil, and interactive limitations**.

2. CLIMATE

- 2.1 Agroclimatic data for the site influences the agricultural land classification in respect of growing conditions for crops, and the soil reaction in terms of wetness and drought.
- 2.2 The meteorological office has published agroclimatic data for England and Wales on a five kilometre grid basis, which can be interpolated to produce data for specific grid points. Data for the centre of the site is presented in the table below.

Grid Reference	SJ 252 656
Altitude - ALT	145 m
Average Annual Rainfall - AAR	835 mm
Accumulated Temperature - Jan to June - ATO	1307
Moisture Deficit Wheat - MDMWHT	79
Moisture Deficit Potatoes - MDMPOTS	63
Duration of Field Capacity - FCD	198

- 2.3 The climatic criteria are considered first when classifying land as climate can be overriding irrespective of soil and site conditions. The main parameters used in the assessment of climatic limitation are Average Annual Rainfall (AAR), as a measure of overall wetness, and Accumulated Temperature (ATO, Jan to June), as a measure of the relative warmth of the area.
- 2.4 On the basis of Rainfall and Accumulated Temperature, there is a climatic limitation to grade 2.

3 THE SITE

- 3.1 The site extends to 3.68 hectares and comprises a single parcel of land in permanent grass. It is bordered by New Brighton Road to the north, Argoed View to the west, Cae Isa to the east and the rear gardens of houses fronting the A5119 to the south. There is a short length of footpath crossing the northwest part of the site. The field is gently undulating and falls to a

low area in the east adjacent to Cae Isa. Much of the surface was saturated due to slow natural drainage following recent rainfall, and there was standing water in a number of locations and evidence of rush grass.

3.2 There is no evidence that the site is at risk of flooding by inundation or that micro-relief influences land use through frost risk.

3.5 On the basis of **site** characteristics relating to gradient, microrelief and flooding there is no limitation to grade.

4 THE SOILS

4.1 The soils are described in Soil Survey of England and Wales Bulletin 11 (Soils and Their Use in Wales), and identified on the 1:250,000 map of the Soils of Wales Sheet 2. The information given in the Bulletin and maps is limited in several ways and is not a definitive soil description. Firstly, soil patterns in England and Wales are commonly complex and vary greatly in composition. Secondly, the minimum area that can be shown on the map is 0.5 km² and because of this many soil associations include small patches of soils which, at a larger scale, would be correlated with a different map unit. It is therefore noted that within the limitations of the map, the site is dominated by soils in the Clifton Association.

4.2 The Clifton Association is described as '*Slowly permeable seasonally waterlogged reddish fine and coarse loamy soils, and similar soils with slight seasonal waterlogging. Some deep coarse loamy soils seasonally affected by groundwater*'.

4.3 Bulletin 11 confirms the Clifton Association soils are generally dense and slowly permeable, and because of the slowly permeable nature of the till, the soils are mainly stagnogley soils. Stagnogley describes poorly drained soil horizons that impede surface water drainage. As there is little runoff on level or gently sloping land these slowly permeable soils are seasonally waterlogged.

4.4 The detailed soil survey accords with the broad description of the Association and confirms that the land is predominantly non-calcareous clay loam topsoil, (occasionally sandy clay loam), overlying similar upper subsoil, which sits on slowly permeable clay. The upper subsoil is occasionally absent or very shallow. The schedule of auger borings and profile pits description is at Appendix 1.

5. AGRICULTURAL LAND CLASSIFICATION

5.1 The site was graded by applying the survey details to the Ministry of Agriculture, Fisheries and Food Guidelines for Agricultural Land Classification (October 1988).

5.2 The current classification system was adopted in 1988 and was a refinement of the previous system. A series of Provisional ALC maps were produced at a scale of 1 inch to 1 mile between 1967 and 1974 based on the earlier classification system, and were intended to be for guidance only for strategic planning purposes. A new series of soil maps at a scale of 1:250,000 based on the same information are available and the Sheet covering Wales was provided by the Land Use Planning Unit for Wales. The 1:250,000 map for the area shows the site to be undifferentiated Grade 3.

5.3 The agricultural land classification system provides a framework for classifying land according to the extent to which it's physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can affect the range of crops that can be grown, the level of yield, the consistency of yield and the cost of obtaining it. The principal factors considered are **Climate, Site and Soil**. These factors, together with **Interactions**

between them, form the basis for classifying land into one of five grades. Grade 1 is land of excellent quality and grade 5 is very poor. Grade 3 is divided into sub-grades 3a and 3b since this grade covers about half of England and Wales. The grade or sub-grade is determined by the most limiting factor present.

- 5.4 On this site there a limitation to Grade 2 according to **Climate**.
- 5.5 The assessment of **Site** factors considers the way the topography affects agricultural machinery use and crop production. This site comprises level and very gently undulating land, which does not affect farming practices or inhibit use of farm machinery. There is no evidence that the site is adversely affected by frost or flooding, and therefore it is concluded that there are no site limitations to grade.
- 5.6 The main **Soil** properties, which may affect cropping potential, are texture, structure, depth, stoniness and chemical fertility. The land has been actively farmed for generations and there are no overriding limitations caused by the individual soil factors.
- 5.7 The remaining consideration for ALC grading on this site relates to **Interactive** limitations, principally wetness and drought.
- 5.8 Calculations of moisture balance for the profile pit descriptions show that there is no drought limitation.
- 5.9 With regard to wetness limitation the ALC System describes the Wetness Class (WC) graphically by reference to the presence of gleying, the duration of field capacity (FCD) and the depth to a slowly permeable layer (SPL). The ALC grade is then determined according to Wetness Class and topsoil texture. For a field capacity duration (FCD) of 198 days, the table below shows the wetness class according to the depth to a slowly permeable layer, and the ALC grade with topsoil texture of medium clay loam and sandy clay loam, which is described on the site.

Depth to SPL cm	Wetness Class	ALC Grade
<54	IV	3b
>54	III	3a

- 5.10 The soil profile pits describe the clay lower subsoil as a slowly permeable layer. This is a distinct soil horizon of yellowish brown severely gleyed clay with numerous manganese concretions. At all the survey locations, except one, this slowly permeable clay layer was found above 54cm (WC IV), which equates to ALC Grade 3b. At survey location 5 it occurred at 68cm (WC III), which equates to ALC Grade 3a. However, the ALC System notes that a degree of variability within a discrete area is to be expected. If the area includes a small proportion of land of different quality, the variability can be considered as a function of the mapping scale. Thus, small discrete areas of a different ALC grade may be identified on large scale maps, whereas on smaller scale maps it may only be feasible to show the predominant grade. Although the small area of grade 3a is identified at the survey location 5 it is considered that this is too small to map at this scale and overall the site is predominantly grade 3b.
- 5.11 The soil survey locations are shown on Plan N14/1 and the Agricultural Land Classification is shown on N14/2 attached.

APPENDIX 1

Schedule of Auger Borings and Soil Pit Descriptions

KEY

Colour

vdb	very dark brown	10yr2/2
vdgb	very dark greyish brown	10yr3/2
dgb	dark greyish brown	10yr4/2
dg	dark grey	10yr4/1
b	brown	10yr5/3
dyb	dark yellow brown	10yr4/4
yb	yellowish brown	10yr5/6

Munsell Colour

Mottling and Gleying

0	none
rrm	rusty root mottles
x	few and faint
xx	common
xxx	many

Texture

scl	sandy clay loam
mcl	medium clay loam
sc	sandy clay
c	clay

Observations

nc	non-calcareous
spl	slowly permeable layer
sgmc	severe gley and manganese concretions
mn	manganese concretions

SCHEDULE OF AUGER BORINGS AND PROFILE PITS

LAND AT NEW BRIGHTON

Auger No	Grid Ref SJ	Depth cm	Colour	Texture	gley	Observations	WC	ALC Grade
1	25234 65593	0-25 25-50 50-90+	vdb dgb dyb	mcl/scl mcl sc/c	rrm xx xxx	nc. stiff. spl	IV	3b
2	25239 65510	0-30 30-70+	vdb db	mcl c	rrm xxx	nc. saturated. See pit A	IV	3b
3	25335 65502	0-30 30-40 40-70+	vdb dgb dg/g	mcl mcl c	rrm xx xxx	nc. saturated. sgmc	IV	3b
4	25184 65499	0-30 30-40 40-70+	vdb vdgb yb	scl scl c	rrm x(x) xxx	nc. very firm. See pit B	IV	3b
5	25111 65626	0-30 30-55 55-68 68+	vdb dgb b yb	scl scl scl c/sc	rrm x(x) xx xxx	nc. occasional stone saturated. spl	III	3a
6	25153 65584	0-35 35-50 50+	vdb dgb yb	scl scl c	rrm x(x) xxx	nc spl confirmed by pit	IV	3b

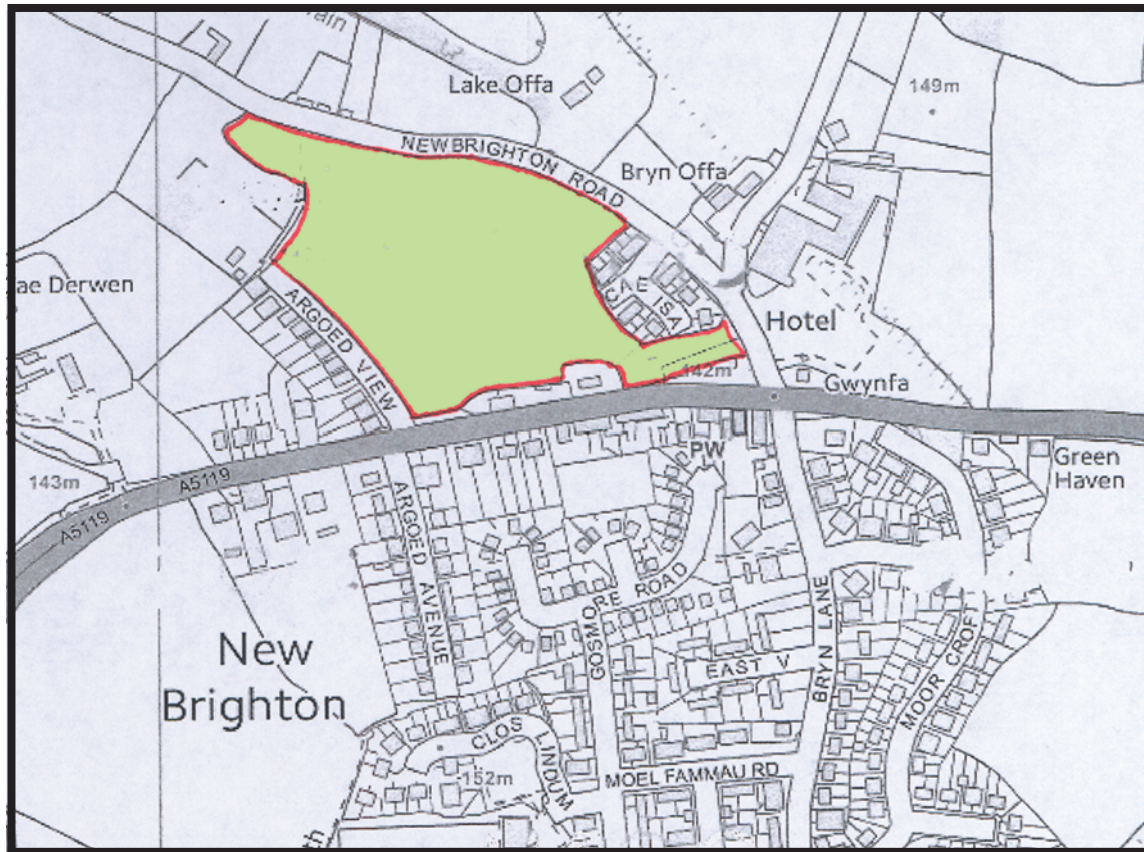
PROFILE PIT DESCRIPTIONS

Pit A Auger 2 SJ 25239 65510	0-30	Very dark brown (10yr2/2) medium clay loam. Abundant rusty root mottles. Occasional earthworm. Friable, well developed fine subangular blocky. Firm. Many fine fibrous roots. Saturated surface.
	30-50	Dark grey (10yr4/1) clay. Well developed coarse prismatic. Gleying on ped faces and rooting between peds. High packing density. <0.5% biopores. Slowly permeable layer. Water seeping into pit at interface above SPL.
	50	Pit ends
	wetness	<i>Slowly permeable layer from 30 cm equates to wetness class IV, combined with non-calcareous medium clay loam topsoil places this profile in wetness grade 3b.</i>
	drought	<i>No drought limitation</i>
Overall	<i>Overall Grade 3b</i>	

Pit B Auger 4 SJ 25184 65499	0-37	Very dark brown (10yr2/2) sandy clay loam. Abundant rusty root mottles. Occasional earthworm. Friable, well developed fine subangular blocky. Firm. Many fine fibrous roots. Saturated surface.
	37-60	Yellowish brown (10yr5/6) clay. Severely gleyed pale grey on ped faces. Well developed coarse prismatic. Rooting between peds. High packing density. <0.5% biopores. Slowly permeable layer. Water seeping into pit at interface above SPL.
	60	Pit ends
	wetness	<i>Slowly permeable layer from 37 cm equates to wetness class IV, combined with non-calcareous medium clay loam topsoil places this profile in wetness grade 3b.</i>
	drought	<i>No drought limitation</i>
Overall	<i>Overall Grade 3b</i>	

PLANS

- 1. Soil Survey Locations (N14/1)**
- 2. Agricultural Land Classification (N14/2)**



CLIENT

Stewart Milne Homes

SITE

Land at New Brighton

TITLE

Agricultural Land Classification

SCALE NTS

REF N14/2

DATE January 2019



LEGEND

Grade 3b



Survey boundary





CLIENT

Stewart Milne Homes

SITE

Land at New Brighton

TITLE

Soil Survey Locations

SCALE NTS

REF N14/1

DATE January 2019



LEGEND

Auger location (1)

Pit location (A)

Survey boundary (red line)