

**AGRICULTURAL QUALITY
OF LAND AT NEW RIDES FARM**

Report 1766/2

17th May 2021

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Report 1766/2
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17th May, 2021

SUMMARY

An agricultural land quality survey has been undertaken of 16.5 ha of land at New Rides Farm, Isle of Sheppey in February 2021.

All of the agricultural land has heavy wet soils, giving land of subgrade 3b quality.

1.0 Introduction

- 1.1 This report provides information on the agricultural quality of 16.5 ha of land at New Rides Farm, Isle of Sheppey.

SITE ENVIRONMENT

- 1.2 The survey area covers two fields and a small section of a third. The land is bordered on all sides by adjoining agricultural land. The site is very gently sloping, at an average elevation of approximately 20 m AOD.
- 1.3 At the time of survey the land was all under grass grazed by sheep.

PUBLISHED INFORMATION

- 1.4 1:50,000 scale BGS information records the geology of the land as London Clay Formation.
- 1.5 The National Soil Map (published at 1:250,000 scale) records the land as Windsor Association, typically slowly permeable seasonally waterlogged clayey soils¹.

¹Jarvis, M.G., *et al.*, (1984). *Soils and their Use in South East England*, Soil Survey of England and Wales Bulletin No. 15, Harpenden.

2.0 Soils

- 2.1 A detailed soils and agricultural quality survey was carried out in February 2021 in strict accordance with MAFF (1988) guidelines². It was based on observations at intersects of a 100 m grid, giving a density of one observation per hectare. During the survey, soils were examined by a combination of pits and augerings to a maximum depth of 1.2 m. A log of the sampling points and a map (Map 1) showing their locations are in an appendix to this report.
- 2.2 The soils were found to comprise uniform non-calcareous clay topsoil with dense slowly permeable clay subsoil. The soils are mainly stoneless, but moderately stony in the north-east.
- 2.3 An example profile is described below from a pit at observation 13 (Map 1).
- | | |
|-----------|--|
| 0-25 cm | Dark greyish brown (10YR 4/2) clay; stoneless; moderately developed coarse to very coarse sub-angular blocky structure; very firm; non-calcareous; common fine fibrous roots; smooth gradual boundary to: |
| 25-36 cm | Light yellowish brown (2.5Y 6/3) clay with 5% distinct fine olive yellow (2.5Y 6/8) mottles; stoneless; weakly developed coarse angular blocky structure; very firm; common fibrous roots; no macro-pores; high packing density; non-calcareous; smooth diffuse boundary to: |
| 36-120 cm | Light brownish grey (2.5Y 6/2) clay with 5% faint fine yellowish brown (10YR 5/6) mottles; stoneless; weakly developed very coarse prismatic to structureless (massive); very firm; no macro-pores; very few roots; high packing density; non-calcareous. |
- 2.4 These soils are imperfectly-draining (Soil Wetness Class III), meaning waterlogging will occur to shallow depth during the winter field capacity period.

²MAFF, (1988). *Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*.

3.0 Agricultural land quality

3.1 To assist in assessing land quality, the Ministry of Agriculture, Fisheries and Food (MAFF) developed a method for classifying agricultural land by grade according to the extent to which physical or chemical characteristics impose long-term limitations on agricultural use for food production. The MAFF ALC system classifies land into five grades numbered 1 to 5, with grade 3 divided into two subgrades (3a and 3b). The system was devised and introduced in the 1960s and revised in 1988.

3.2 The agricultural climate is an important factor in assessing the agricultural quality of land and has been calculated using the Climatological Data for Agricultural Land Classification³. The relevant site data for an average elevation of 20 m is given below.

- Average annual rainfall: 555 mm
- January-June accumulated temperature >0°C 1472 day°
- Field capacity period 104 days
(when the soils are fully replete with water) mid Dec-late Mar
- Summer moisture deficits for: wheat: 127 mm
potatoes: 125 mm

3.3 The survey described in the previous section was used in conjunction with the agro-climatic data above to classify the site using the revised guidelines for ALC issued in 1988 by MAFF⁴. There are no climatic limitations at this locality.

SURVEY RESULTS

3.4 The agricultural quality of the land is primarily determined by soil wetness. Land of grade 3 has been identified.

Subgrade 3b

3.5 This subgrade accounts for all of the agricultural land at the site. The combination of high topsoil clay content and significant drainage restrictions (Soil Wetness Class III) means spring machinery land access opportunities are rare and arable cropping is therefore limited to autumn sowings.

³Meteorological Office, (1989). *Climatological Data for Agricultural Land Classification*.

⁴MAFF, (1988). *Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*.

Other land (non-agricultural)

- 3.6 This land comprises an area of hard standing.

Grade areas

- 3.7 The land grades are shown on Map 2 and the areas occupied shown below.

Table 1: Areas occupied by the different land grades

<i>Grade/subgrade</i>	<i>Area (ha)</i>	<i>% of the land</i>
Subgrade 3b	16.1	98
Other land	0.4	2
Total	16.5	100

APPENDIX
DETAILS OF OBSERVATIONS
MAPS

Land at New Rides Farm: Soils and ALC survey – Details of observations at each sampling point

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
1	0-23	C	0	<u>23</u> -90+	C	xxx				3	III	3b	W
2	0-30	C	0	30-40	C	xxx	<u>40</u> -90+	C	xxx	3	III	3b	W
3	0-32	C	0	22-90	C	xxx				2	III	3b	W
4	0-19	C	0	<u>19</u> -30	C	xxx	30-90+	C	xxx	2	III	3b	W
5	0-22	C	0	<u>22</u> -90	C	xxx				3	III	3b	W
6	0-23	C	0	23-90	C	xxx				0	III	3b	W
7	0-30	C	0	<u>30</u> -38	C	xxx	<u>38</u> -90+	C	xxx	2	III	3b	W
8	0-22	C	0	<u>22</u> -100+	C	xxx				0	III	3b	W
9	0-27	C	0	<u>27</u> -100+	C	xxx				1	III	3b	W
10	0-26	C	0	<u>26</u> -90+	C	xxx				2	III	3b	W
11	0-30	C	0	<u>30</u> -90+	C	xxx				2	III	3b	W
12	0-22	HCL	0	<u>22</u> -90+	C	xxx				1	III	3b	W
13	0-21	C	0	<u>21</u> -41	C	xxx	<u>41</u> -90+	C	xxx	3	III	3b	W
14	0-21	C	0	<u>21</u> -90+	C	xxx				3	III	3b	W
15	0-22	C	0	<u>22</u> -100+	C	xxx				3	III	3b	W
16	0-26	C	0	<u>26</u> -90+	C	xxx				1	III	3b	W
17	Hard standings												

Key to table

Mottle intensity:

- o unmottled
- x few to common rusty root mottles (topsoils) or a few ochreous mottles (subsoils)
- xx common to many ochreous mottles and/or dull structure faces
- xxx common to many greyish or pale mottles (gleyed horizon)
- xxxx dominantly grey, often with some ochreous mottles (gleyed horizon)

a depth underlined (e.g. 50) indicates the top of a slowly permeable layer
(a wavy underline indicates the top of a layer borderline to slowly permeable)

Texture:

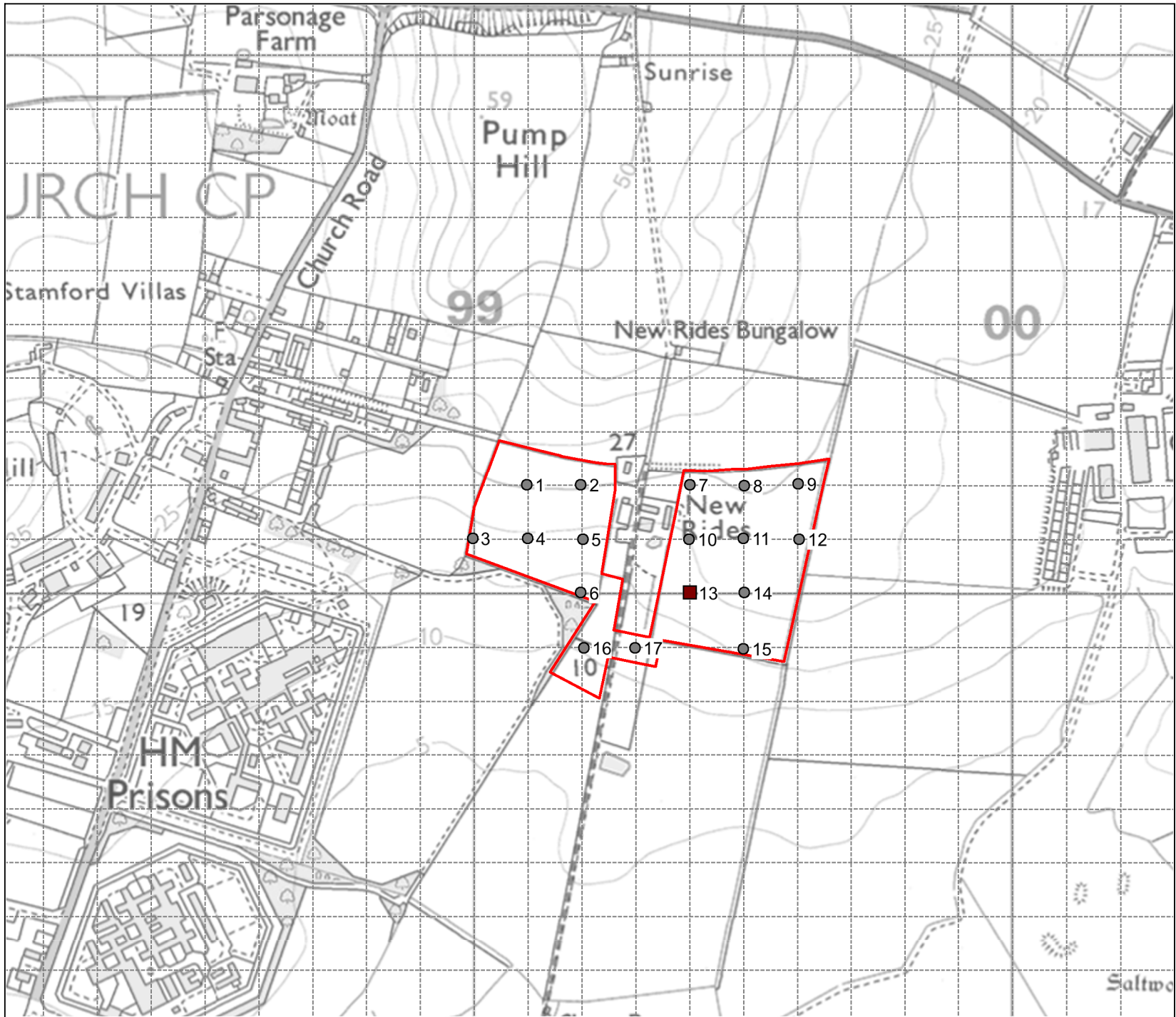
- C - clay
- ZC - silty clay
- SC - sandy clay
- CL - clay loam (H-heavy, M-medium)
- ZCL - silty clay loam (H-heavy, M-medium)
- SCL - sandy clay loam
- SZL - sandy silt loam (F-fine, M-medium, C-coarse)
- SL - sandy loam (F-fine, M-medium, C-coarse)
- LS - loamy sand (F-fine, M-medium, C-coarse)
- S - sand (F-fine, M-medium, C-coarse)
- P - peat (H-humified, SF-semi-fibrous, F-fibrous)
- LP - loamy peat; PL - peaty loam
- R - bedrock (CH - chalk, SST - sandstone)
- LST - limestone, MST - Mudstone

Limitations:

- W - wetness/workability
- D - droughtiness
- De - depth
- St - stoniness
- Sl - slope
- F - flooding
- T - topography/microrelief

Texture suffixes & prefixes:

- ca - calcareous: x-extremely, v-very, sl-slightly
- (ca) marginally calcareous
- mn - ferrimanganiferous concentrations
- gn - greenish, yb - yellowish brown, rb - reddish brown
- r - reddish; (v)st - (very) stony
- dist - disturbed soil layer; chky-chalky



KEY

- Auger observations
- Pits
- Site boundary

Client



Site:

New Rides Farm

Map title:

MAP 1
Observations



Lockington
Derby
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www.lra.co.uk

Date:17/05/2020

Scale: 1:10,000

