
FENWICK SOLAR FARM

Fenwick Solar Farm
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Environmental Statement

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**AGRICULTURAL QUALITY
OF LAND AT FENWICK**

Report 2128/2

20th June 2024

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OF LAND AT FENWICK**

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SUMMARY

An agricultural land quality survey has been undertaken of 416.6 ha of land at Fenwick between February and May 2023.

The land dominantly has heavy soils with poor drainage, giving land of Subgrade 3b quality due to wetness/workability limitations. Small patches of better draining land are of Grade 2 or Subgrade 3a quality. Minor areas adjoining the River Went are limited to Grade 4 by flooding risk.

1.0 Introduction

- 1.1 This report provides information on the agricultural quality of 416.6 ha of land at Fenwick, Doncaster. The report is based on a survey of the land between February and May 2023, with additional areas surveyed during June 2024.

SITE ENVIRONMENT

- 1.2 The survey area comprises several land holdings to the east of Fenwick village, bordered to the north by the River Went, to the south by a drain, to the south-east by West Lane and on other sides by adjoining agricultural land and blocks of woodland.
- 1.3 The land is mainly level at an elevation of approximately 5 m AOD.
- 1.4 At the time of survey most of the land was under winter cereal rotation (wheat and barley with oilseed rape or beans), with the land in the east under grass used for beef cattle and sheep grazing or as silage meadow.

PUBLISHED INFORMATION

- 1.5 British Geological Survey 1:50,000 scale information records the underlying geology as Hemingborough Formation glacio-lacustrine clay, over Sherwood Sandstone, with some minor patches of Brighton Sand Formation cover.
- 1.6 The National Soil Map (published at 1:250,000 scale) records all of the land as Foggathorpe 2 Association: mainly clay soils with poor drainage formed in Quaternary clay deposits, with some lighter soils where windblown sand overlies the clay¹.

¹ Jarvis, R.A., *et al.*, 1984. *Soils and their use in Northern England*. Soil Survey of England and Wales Bulletin No. 10, Harpenden.

2.0 Soils

- 2.1 A soils and agricultural quality survey was carried out between February and May 2023 in accordance with MAFF (1988) Agricultural Land Classification 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 hand augerings and pits to a maximum depth of 1.2 m. A log of the sampling points and a map (Map 1) showing their location is in an appendix to this report.
- 2.2 The soils were found to dominantly consist of stoneless clay or heavy clay loam topsoil over slowly permeable clay subsoil. The subsoils show evidence of prolonged waterlogging to shallow depth (greyish colours with ochreous mottles) and are generally poorly-structured immediately below the topsoil. These soils are judged imperfectly-draining (Soil Wetness Class III) under the local climate. In places, particularly in the east and south-west, sandier upper layers occur above the clay (mainly sandy clay loam or sandy loam in texture). These are variably moderately freely to imperfectly-draining (Soil Wetness Class II to III).
- 2.3 Limited areas adjoining the River Went in the north have peaty subsoil, usually overlain by clayey alluvium. These areas are likely to be affected by shallow groundwater for long periods and are judged poorly-draining (Soil Wetness Class IV).
- 2.4 Full soil pit descriptions are provided in an appendix to this report.

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 5 m is has been calculated for a central point for individual land holdings. The range of values are shown below. There is very little variation across the site.

- Average annual rainfall: 578-582 mm
- January-June accumulated temperature >0°C 1413-1414 day°
- Field capacity period 117-119 days
- Summer moisture deficits for: wheat: 111-112 mm
potatoes: 104-106 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 wetness/workability limitations and by flooding risk. Other factors have been assessed but do not affect the land grade. Land of grades 2, 3 and 4 has been identified.

Grade 2

3.5 A small patch of land in the south-west (see Map 2) has medium loamy topsoil and free drainage (Soil Wetness Class II). This land has slight wetness/workability restrictions, which are likely to cause some reduction in the flexibility of winter field operations. Equally limiting is slight droughtiness caused by sub-optimal soil moisture supply, which is likely to affect crop yields in dry summers.

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*.

Subgrade 3a

- 3.1 This land mainly has sandy clay loam topsoils and imperfect drainage (Soil Wetness Class III). This combination means wetness/workability restricts opportunities for cultivations and access in winter and early spring, although late spring (as well as autumn) crop sowings are usually possible.
- 3.2 Limited areas in the south-west have sandy subsoils, which have low moisture reserves: summer droughtiness is likely to reduce average yields on this land.
- 3.3 Some observations have a lesser degree of limitation but could not be managed separately and are graded according to the average degree of limitation.

Subgrade 3b

- 3.4 The site dominantly comprises land with heavy topsoils (clays and heavy clay loams) and imperfect drainage (Soil Wetness Class III) as well as some minor areas with potentially lesser drainage restrictions (Soil Wetness Class II) but clay topsoil. These combinations mean this land is likely to be too wet for spring cultivations, and arable cropping is mainly limited to autumn sowings.
- 3.5 Small patches within otherwise wetter land which could not be mapped or managed separately are judged most appropriately allocated to the average degree of limitation of the surrounding land.

Grade 4

- 3.6 This land comprises low-lying areas adjacent to the River Went in the north of the site. This land is groundwater-affected and marshy, often with peaty soils. It is judged that regular groundwater inundations for long periods in winter mean this land is unsuitable for cropping and largely limited to use as improved pasture.

Other land

- 3.7 This comprises roads, tracks and other hard standings, flood embankments, water bodies and woodland and scrub areas.

Grade areas

3.8 The land grade is shown on Map 2 and the area occupied is shown below.

Table 1: Areas occupied by the different land grades

<i>Grade/subgrade</i>	<i>Area (ha)</i>	<i>% of the land</i>
Grade 2	4.3	1
Subgrade 3a	25.9	6
Subgrade 3b	365.2	88
Grade 4	9.4	2
Other land	11.8	3
Total	416.6	100

APPENDIX
DETAILS OF OBSERVATIONS
MAPS
SELECTED DROUGHTINESS CALCULATIONS
LABORATORY TESTING

Land at Fenwick: Soils and ALC survey – Details of observations at each sampling point

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope (°)	Wetness Class	Agricultural quality		
	No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture			Mottling	Grade	Main limitation
A1	Disturbed land (not surveyed)													
A2	0-25	ZC	0	25-80+	ZC	xxx					0	III	3b	W
A3	0-20	SCL	0	20-60+	SCL(dist)	xx(x)					0	-	-	-
A4	0-20	HCL	0	20-28	HCL	xxx	28-60 60+	C(dist) Stopped on stones	-		0	III	3b	W
A5	0-18	HCL	0	18-28	HCL	xxx	28-58 58-90+	C C(r)	xxx xxx		0	III	3b	W
A6	0-22	HCL	0	22-32	HCL		32-54 54-100+	C C	xxx x		0	III	3b	W
A7	0-17	HCL	0	17-90+	C	xxx					0	III	3b	W
A8	0-14	C	0	14-90+	C	xxx					0	III	3b	W
B1	0-28	C	0	28-80+	C	xxx					1	III	3b	W
B2	0-24	C	0	24-80+	C	xxx					0	III	3b	W
B3	0-24	C	0	24-90+	C	xxx					0	III	3b	W
B4	0-26	C	0	26-80+	C	xxx					0	III	3b	W
B5	0-28	C	0	28-90+	C	xxx					0	III	3b	W
B6	0-26	C	0	24-45	C	xxx	45-90+	C	xxx		0	III	3b	W
B7	0-30	C	0	30-64	LMS	xxx	64-90+	C	xxx		0	II	3b	W
B8	0-44	C	0	44-80+	C	xxx					0	III	3b	W
B9	0-31	C	0	31-44	SCL(dist)	-	44-90+	SCL	xxx		0	II	3b	W
B10	0-30	C	0	30-90+	C	xxx					0	III	3b	W
B11	0-50+	C	0								1	-	-	-
B12	Not surveyed – field boundary													
B13	0-25	C	0	25-53	C	xxx	53-70+	C	xxx		0	III	3b	W
B14	0-28	HCL/C	0	28-90+	C/SC	xxx					0	III	3b	W
B15	0-29	SC/SCL	0	29-68	SCL&C	xxx	68-90+	C			0	II	3b/2	W
B16	0-32	SC/SCL	0	32-63	SCL	xxx	63-100+	C	xxx		0	II	3b/2	W
B17	0-32	HCL	0	32-47	SCL	xxx	47-70+	C	xxx		0	III	3b	W
B18	0-26	C	0	26-90+	C	xxx					0	III	3b	W
B19	0-37	C	0	37-47	C	xxx	47-90+	C	xxx		0	III	3b	W
B20	0-32	C	0	32-64	C	xxx	64-90+	C	xxx		0	III	3b	W
B21	0-60+	C(dist)	0								0	-	-	-

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope (°)	Wetness Class	Agricultural quality	
	No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture			Mottling	Grade
B22	0-50+	C(dist)	0							0	-	-	-
B23	0-33	C	0	33-47	HCL	xxx	47+	Stopped on stones		0	-	-	-
B24	0-27	HCL	0	<u>27</u> -37	HCL	xxx	<u>37</u> -90+	C	xxx	0	III	3b	W
B25	0-26	C	0	<u>26</u> -55	C	xxx	55-70 70-90+	SCL C	xx xxx	0	III	3b	W
B26	0-25	C	0	<u>25</u> -37	C	xxx	37-57 57-90+	SCL SC	xxx xxx	0	III	3b	W
B27	0-32	HCL	0	<u>32</u> -90+	C	xxx				0	III	3b	W
B28	0-32	C	0	<u>32</u> -90+	C	xxx				0	III	3b	W
B29	0-25	C	0	<u>25</u> -43	C	xxx	<u>43</u> -90+	C	xxxx	0	III	3b	W
B30	0-32	C	0	<u>32</u> -66	C	xxx	<u>66</u> -90+	C	xxxx	0	III	3b	W
B31	0-28	C	0	28-54	C	xxx	<u>54</u> -90+	C	xxxx	0	III	3b	W
C1	Scrub-non agricultural												
C2	0-24	ZC	0	<u>24</u> -90+	C(r)	xxx				0	III	3b	W
C3	0-27	C	0	<u>27</u> -64	C(r)	xxx	<u>64</u> -90+	C(org)	xxx	0	III	3b	W
C4	0-25	C	0	<u>25</u> -90+	C	xxx				0	III	3b	W
C5	0-24	HCL	0	<u>24</u> -63	C	xxx	<u>63</u> -90+	C(r)	xxx	0	III	3b	W
C6	0-27	C	0	<u>27</u> -90+	C	xxx				0	III	3b	W
C7	0-25	HCL/C	0	<u>25</u> -36	C	xxx	<u>36</u> -90+	C(r)	xxx	0	III	3b	W
C8	0-31	C	0	<u>31</u> -90+	C	xxx				0	III	3b	W
C9	0-30	HCL	0	<u>30</u> -61	C	xxx	<u>61</u> -90+	C(org)	xxx	0	III	3b	W
C10	0-27	HCL	0	<u>27</u> -90+	C	xxx				0	III	3b	W
C11	0-26	C	0	<u>26</u> -90+	C	xxx				0	III	3b	W
C12	0-28	C	0	<u>28</u> -63	C	xxx	<u>63</u> -90+	ZC	xxx	0	III	3b	W
C13	0-26	SCL	0	26-44	SCL	xxx	<u>44</u> -90+	C	xxx	0	III	3a	W
C14	0-25	SCL	0	25-45	SCL	xxx	<u>45</u> -90+	C	xxx	0	III	3a	W
C15	0-33	SCL	0	33-45	SCL	xxx	<u>45</u> -90+	C(r)	xxx	0	III	3a	W
C16	0-27	SC/SCL	0	27-36	SCL	xxx	<u>36</u> -90+	C	xxx	0	III	3a	W
C17	0-20	HCL	0	20-45	HCL	xxx	<u>45</u> -90+	C	xxx	0	III	3b	W
C18	0-31	C	0	<u>31</u> -90+	C	xxx				0	III	3b	W
C19	0-35	C	0	<u>35</u> -90+	C	xxx				0	III	3b	W
C20	0-35	SCL	0	35-64	SCL	xxx	<u>64</u> -90+	SCL	xxx	0	II	2	D/W
C21	0-21	C	0	<u>21</u> -90+	C	xxx				0	III	3b	W
C22	0-25	C	0	<u>25</u> -47	C	xxx				0	III	3b	W
C23	0-26	C	0	<u>26</u> -90+	C	xxx				0	III	3b	W

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
C24	0-30	HCL	0	30-45	SCL	xxx	45-60 60-80 80-100+	C SCL C	xxx xxx xxxx	0	III	3b	W
C25	Not recorded											3a	W
C26	0-25	SCL	0	25-72	C	xxx	72-90+	MSL	xxx	0	III	3a	W
C27	0-22	C	0	22-80+	C	xxx				0	III	3b	W
C28	0-30	C/HCL	0	30-90+	C	xxx				0	III	3b	W
C29	0-28	SCL	0	28-45	SCL	xxx	45-80 80-100+	HCL C	xxx xxxx	0	III	3a	W
C30	0-34	SCL/HCL	0	34-45	SCL	xxx	45-60 60-110 110-120	MSL/LMS MS C	xxx xxx xxxx	0	II/III	3a	W
C31	0-30	HCL	0	30-90	C	xxxx				0	III	3b	W
C32	0-28	SCL/MSL	0	28-50	SCL	xxx	50-70 70-90 90-120	MSL MSL&C MS	xxx xxx xxx	0	II	2	D/W
C33	0-26	C	0	26-45	C	xxx	45-100	C(r)	xxxx	0	III	3b	W
C34	0-28	SCL	0	28-60	C	xxx	60-110	C(r)	xxxx	0	III	3b	W
C35	0-30	HCL	0	30-60	C	xxx	60-90 90-110+	C(r) ZC	xxxx xxxx	0	III	3b	W
C36	0-26	HCL	0	26-100	C	xxx				0	III	3b	W
C37	0-28	C	0	28-55	C	xxx	55-110	C	xxxx	0	III	3b	W
C38	0-31	HCL	0	31-44	C	xxx	44-120	C	xxxx	0	III	3b	W
C39	0-30	C	0	30-90	C	xxx	90-110	C+S	xxx	0	III	3b	W
C40	0-30	HCL	0	30-55	C	xxx	55-75 75-110+	SCL C(r)	xxx xxxx	0	III	3b	W
C41	0-29	SCL	0	29-100+	C	xxx			xxx	0	III	3a	W
C42	0-26	MCL	0	26-50	C&S	xxx	50-65 65-100+	MSL/SCL C	xxx xxxx	0	II	2	D/W
C43	0-30	HCL	0	30-60	HCL	xxx	60-100	C	xxx	0	III	3b	W
C44	0-30	HCL	0	30-90	C-HCL	xxx	90-110	C(r)	xxxx	0	III	3b	W
C45	Non-agricultural – shoulder of watercourse												
C46	0-20	C	<5	20-80+	C	xxxx				1	III	3b	W
C47	0-28	HCL	<5	28-80+	C	xxx				2	III	3b	W
C48	0-30	SCL	<5	30-43	SCL	xxx	43-65 65-80+	C LMS	xxx xxx	1	III	3a	W
C49	0-30	HCL	<5	30-40	HCL	xxxx	40-50 50-80+	SCL SCL	xxx xxx	1	III	3b	W
C50	0-30	MSL	<5	30-60	MSL	xxx	60-100+	LMS	xxx	1	I	2	D

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope (°)	Wetness Class	Agricultural quality	
	No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture			Mottling	Grade
C51	0-28	HCL	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
C52	0-28	HCL	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
C53	0-28	HCL	<5	<u>28</u> -60	C	xxx	60-80+	LMS	xxx	0	III	3b	W
C54	0-30	HCL / C	<5	<u>30</u> -55	C	xxx	<u>55</u> -80+	C	xxx	0	III	3b	W
C55	0-28	C	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
C56	0-30	HCL	<5	<u>30</u> -60	C	xxx	<u>60</u> -80+	C(r)	xxx	0	III	3b	W
C57	0-27	C	<5	<u>27</u> -40	C	xxx	<u>40</u> -80+	C	xxx	0	III	3b	W
C58	0-25	C	<5	<u>25</u> -80+	C	xxx				0	III	3b	W
C59	0-35	C	<5	<u>35</u> -80+	C	xxx				0	III	3b	W
C60	0-20	HCL	<5	<u>20</u> -80+	C	xxx				0	III	3b	W
C61	0-30	C	<5	<u>30</u> -80+	C	xxx				0	III	3b	W
C62	0-30	C	<5	<u>30</u> -80+	C	xxx				0	III	3b	W
C63	0-25	HCL	<5	<u>25</u> -80+	C	xxx				0	III	3b	W
C64	0-31	C	<5	<u>31</u> -80+	C	xxx				0	III	3b	W
C65	0-29	HCL	<5	<u>29</u> -80+	C	xxx				0	III	3b	W
C66	0-28	HCL	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
C67	0-28	HCL/C	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
C68	0-29	HCL	<5	<u>29</u> -80+	C	xxx				0	III	3b	W
C69	0-27	HCL	<5	<u>27</u> -80+	C	xxx				0	III	3b	W
C70	0-24	C	<5	<u>24</u> -80+	C	xxx				0	III	3b	W
C71	0-25	HCL	<5	<u>25</u> -80+	C	xxx				0	III	3b	W
C72	0-30	C	<5	<u>30</u> -80+	C	xxx				0	III	3b	W
C73	0-24	C	<5	<u>24</u> -80+	C	xxx				0	III	3b	W
C74	0-24	C	<5	<u>24</u> -80+	C	xxx				0	III	3b	W
C75	0-25	HCL/C	<5	<u>25</u> -80+	C	xxx				0	III	3b	W
C76	0-23	HCL	<5	<u>23</u> -80+	C	xxx				0	III	3b	W
C77	0-32	MSL	0	32-45	MSL	o	45-90+	LMS(fmn)	xxx	0	I	3a	D
C78	0-23	ZC	0	<u>23</u> -40	ZC	xxx	<u>40</u> -90+	C		0	III	3b	W
C79	0-33	C	0	<u>33</u> -90+	C	xxx				0	III	3b	W
C80	0-24	C	0	<u>24</u> -37	C	xxx	<u>37</u> -90+	C		0	III	3b	W
C81	0-32	C	0	<u>32</u> -60+	C(r)	xxx				0	III	3b	W
C82	0-30	C	0	<u>30</u> -80+	C	xx(x)				0	III	3b	W
C83	0-28	C	0	<u>28</u> -90+	C	xxx				0	III	3b	W
C84	0-22	C	0	<u>22</u> -56	C	xxx	<u>56</u> -80+	C	xxxx	0	III	3b	W
C85	0-25	C	0	<u>25</u> -80+	C	xxx				0	III	3b	W

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope (°)	Wetness Class	Agricultural quality	
	No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture			Mottling	Grade
C86	0-27	C	0	<u>27</u> -45	C	xxx	<u>45</u> -90+	C	xxxx	0	III	3b	W
C87	0-25	C	0	<u>25</u> -47	C	xxx	<u>47</u> -90+	C	xxxx	0	III	3b	W
CA1	0-25	C	0	25-100+	SFP	-				0	IV	4	FI
CA2	0-26	C	0	<u>26</u> -45	C	xxx	45-90+	PL	xxx	0	IV	4	FI
CA3	0-38	C(org)	0	<u>38</u> -90+	C	xxx				0	IV	4	FI
CA4	0-30	C(org)	0	<u>30</u> -70+	C	xxxx				1	IV	4	FI
CA5	Not surveyed-cable easement												
CA6	0-25	C/HCL	0	<u>25</u> -90+	C	xxx				1	III	3b	W
CA7	0-26	HZCL	0	26-42	HZCL	xxx	<u>42</u> -90+	C	xxx	2	III	3b	W
CA8	0-26	HCL	0	<u>26</u> -42	HCL	xxx	<u>42</u> -90+	C	xxx	1	III	3b	W
CA9	0-25	C	0	<u>25</u> -90+	C	xxx				1	III	3b	W
CA10	0-27	HCL	0	<u>27</u> -90+	HCL/C	xxx				1	III	3b	W
CA11	0-25	HCL	0	<u>25</u> -90+	C	xxx				1	III	3b	W
CA12	0-28	HCL	0	<u>28</u> -72	C	xxx	<u>72</u> -90+	C	xxx	1	III	3b	W
CA13	0-26	HCL/C	0	<u>26</u> -90+	C	xxx				0	III	3b	W
CA14	Not surveyed												
CA15	0-25	HZCL	0	<u>15</u> -90+	C	xxx				0	III	3b	W
CA16	0-25	HCL	0	<u>25</u> -62	HCL	xxx	<u>62</u> -90+	C	xxxx	0	III	3b	W
CA17	0-25	HCL	0	<u>25</u> -90+	C	xxx				0	III	3b	W
CA18	0-19	ZC	0	<u>23</u> -90+	C	xxxx				1	III	3b	W
CA19	0-26	C	0	<u>19</u> -55	C	xxx	<u>55</u> -90+	C(r)	xxx	0	III	3b	W
CA20	0-27	C	0	<u>26</u> -90+	C	xxx				0	III	3b	W
CA21	0-26	HCL	0	26-54	C	xxx	<u>54</u> -90+	C	xxxx	1	III	3b	W
CA22	0-27	C	0	<u>27</u> -100+	C	xxx				0	III	3b	W
CA23	0-28	C	0	<u>28</u> -90+	C	xxx				0	III	3b	W
CA24	0-25	HCL/C	0	<u>25</u> -90+	C	xxx				1	III	3b	W
CA25	0-33	C	0	<u>33</u> -75	C	xxx	<u>75</u> -90+	C	xxx	1	III	3b	W
CA26	0-27	HCL/C	0	27-37	HCL/C	xxx	<u>37</u> -55 <u>55</u> -90+	C C	xxx xxxx	1	III	3b	W
CA27	0-24	HCL/C	0	<u>24</u> -45	HCL/C	xxx	<u>45</u> -90+	C	xxx	0	III	3b	W
CA28	0-26	C	0	<u>26</u> -90+	C	xxx				0	III	3b	W
CA29	0-27	C	0	<u>27</u> -90+	C	xxx				1	III	3b	W
CA30	0-22	C	0	<u>22</u> -90+	C	xxx				0	III	3b	W
CA31	0-26	C	0	<u>26</u> -48	C	xxx	<u>48</u> -90+	C	xxxx	0	III	3b	W

	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
	CA32	0-25	C	0	25-52	C	xxx	52-90+	C	xxx	0	III	3b	W
	CA33	0-20	C	0	20-90+	C	xxx				0	III	3b	W
	CA34	0-25	C	0	25-90+	C	xxx				0	III	3b	W
	CA35	0-25	C	0	25-60	C	xxx	60-90+	C	xxxx	0	III	3b	W
	CA36	0-40	C	0	40-55	C	xxx	55-90+	C	xxxx	0	III	3b	W
	CA37	0-23	SC	0	23-90+	C	xxx				1	III	3b	W
	CA38	0-31	HCL	0	31-90+	C	xxx				0	III	3b	W
	CA39	0-22	C	0	22-60	C	xxx	60-90+	C	xxxx	1	III	3b	W
	CA40	0-22	HCL	0	22-90+	C	xxx				1	III	3b	W
	CA41	0-24	HCL	0	24-35	C	xxx	35-90+	C	xxx	1	III	3b	W
	CA42	0-32	C/HCL	0	32-90+	C	xxx				0	III	3b	W
	CA43	0-43	C	0	43-90+	C	xxx				1	III	3b	W
	CA44	0-26	HCL	0	26-85	C	xxx	85-90+	C	xxxx	0	III	3b	W
	CA45	0-25	C	0	25-90+	C	xxx				0	III	3b	W
	CA46	0-22	C	0	22-35	C	xxx	35-120	C	xxxx	0	III	3b	W
	CA47	0-24	C	0	24-44	C	xxx	44-90+	C	xxxx	0	III	3b	W
	CA48	0-31	C	0	31-44	C	xxx	44-90+	C	xxxx	0	III	3b	W
	CA49	0-23	C	0	23-41	SCL	xxx	41-80+	C	xxx(x)	1	III	3b	W
	CA50	0-25	HCL	0	25-45	HCL	xxx	45-70+	C	xxx	1	III	3b	W
	CA51	0-32	C	0	32-90+	C	xxx				0	III	3b	W
	CA52	0-31	C	0	31-90+	C	xxx				0	III	3b	W
	CA53	0-23	C	0	23-80+	C	xxx				0	III	3b	W
	CA54	0-35	C	0	35-90+	C	xxx				0	III	3b	W
	CA55	0-25	C	0	25-90+	C	xxx				0	III	3b	W
	CA56	0-26	C	0	26-80+	C	xxx				0	III	3b	W
	CA57	0-24	C	0	24-90+	C	xxx				0	III	3b	W
	CA58	0-25	C	0	25-90+	C	xxx				0	III	3b	W
	CA59	0-22	C	0	22-120	C	xxxx				0	III	3b	W
	CA60	0-30	C	0	30-90+	C	xxx				0	III	3b	W
	CA61	0-27	C	0	27-90+	C	xxx				0	III	3b	W
	CA62	0-41	C	0	41-90+	C	xxx				0	III	3b	W
	CA63	0-25	C	0	25-90+	C	xxx				0	III	3b	W
	CA64	0-32	C	0	32-90+	C	xxx				0	III	3b	W
	CA65	0-25	C	0	25-90+	C	xxx				0	III	3b	W
	CA66	0-25	C	0	25-40	C	xxx	40-90+	C	xxx	0	III	3b	W

	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
	D1	0-27	C	<5	27-80+	C	xxx				1	III	3b	W
	D2	0-25	HCL	<5	25-35 35-60	C Bands of S & C	xxx xxx	60-120	C	xxx	1	II / III	3a/3b	W
	D3	0-25	C	<5	25-80+	C	xxx				1	III	3b	W
	D4	0-25	C	<5	25-120	MSL	xxx				1	I	3a	W
	D5	0-28	C	<5	28-80+	C	xxx				1	III	3b	W
	D6	0-25	C	<5	25-48	HCL	xxx	48-100+	C	xxx	1	III	3b	W
	D7	0-26	HCL/C	<5	26-80+	C					1	III	3b	W
	D8	0-24	C	<5	24-80+	C	xxx				1	III	3b	W
	D9	0-26	C	<5	26-80+	C	xxx				1	III	3b	W
	D10	0-25	C	<5	25-80+	C	xxx				1	III	3b	W
	D11	0-23	C	<5	23-80+	C	xxx				1	III	3b	W
	D12	0-32	HCL/C	<5	32-40 40-60	C MSL	xxx xxx	60-100+	C	xxx	1	II	3a	W
	D13	0-31	HCL	<5	31-80+	C	xxx				1	III	3b	W
	D14	0-29	SCL/HCL	<5	29-42 42-60	C SCL	xxx xxx	60-120	C	xxx	1	II	2/3a	W
	D15	0-30	C	<5	30-80+	C	xxx				1	III	3b	W
	D16	0-27	C	<5	27-80+	C	xxx				1	III	3b	W
	D17	0-28	C	<5	28-80+	C	xxx				1	III	3b	W
	D18	0-28	C	<5	28-80+	C	xxx				1	III	3b	W
	D19	0-30	C	<5	30-35	MSL	xxx	35-80+	C	xxx	1	III	3b	W
	D20	0-30	SCL	<5	30-48	SCL	xxx	48-120	C	xxx	1	II	3a	W
	D21	0-30	SCL	<5	30-60	SCL	xxx	60-120	C	xxx	1	II	2	W / D
	D22	0-15	C	<5	15-80+	C	xxx				1	III	3b	W
	D23	0-30	C	<5	30-80+	C	xxx				1	III	3b	W
	H1	0-30	C	<5	30-47	C	xxx	47-80+	LP	-	1	IV	4	FI
	H2	0-28	C	<5	28-80+	C	xxx				1	III	3b	W
	H3	0-22	HCL / C	<5	22-80+	C	xxx				1	III	3b	W
	H4	0-28	C	<5	28-80+	C	xxx				0	III	3b	W
	H5	0-28	HCL	<5	28-80+	C	xxx				0	III	3b	W
	H6	0-21	C	<5	21-80+	C	xxx				0	III	3b	W
	H7	0-29	HCL / C	<5	29-80+	C	xxx				0	III	3b	W
	H8	0-22	C	<5	22-80+	C	xxx				0	III	3b	W
	H9	0-27	C	<5	27-80+	C	xxx				0	III	3b	W

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope (°)	Wetness Class	Agricultural quality		
	No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture			Mottling	Grade	Main limitation
H10		0-22	HCL	<5	<u>22</u> -80+	C	xxx				0	III	3b	W
H11		0-30	HCL / C	<5	<u>30</u> -47	C	xxx	<u>47</u> -80+	C	xxxx	0	III	3b	W
H12		0-25	C	<5	<u>25</u> -60	C	xxx	<u>60</u> -80+	C	xxxx	0	III	3b	W
H13		0-25	C	<5	<u>25</u> -80+	C	xxx				0	III	3b	W
H14		0-30	C	<5	<u>30</u> -80+	C	xxx				0	III	3b	W
H15		0-25	C	<5	<u>25</u> -80+	C	xxx				0	III	3b	W
H16		0-30	C	<5	<u>30</u> -80+	C	xxx				0	III	3b	W
H17		0-15	C	<5	<u>15</u> -80+	C	xxx				0	III	3b	W
H18		0-35	C	<5	<u>35</u> -80+	C	xxx				0	III	3b	W
H19		0-28	C	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
H20		0-30	C	<5	<u>30</u> -80+	C	xxx				0	III	3b	W
H21		0-26	HCL / C	<5	<u>26</u> -80+	C	xxx				0	III	3b	W
H22		0-22	C	<5	<u>22</u> -80+	C	xxx				0	III	3b	W
H23		0-20	C	<5	<u>20</u> -80+	C	xxx				0	III	3b	W
H24		0-32	C	<5	<u>32</u> -80+	C	xxx				0	III	3b	W
H25		0-26	C	<5	<u>26</u> -70	C	xxx	<u>70</u> -80+	C	xxxx	0	III	3b	W
H26		0-29	C	<5	<u>29</u> -80+	C	xxx				0	III	3b	W
H27		0-32	C	<5	<u>32</u> -80+	C	xxx				0	III	3b	W
H28		0-23	HCL	0	<u>23</u> -90+	C	xxx				0	III	3b	W
H29		0-32	C	0	<u>32</u> -90+	C	xxx				0	III	3b	W
H30		0-31	C	0	<u>31</u> -90+	C	xxx				0	III	3b	W
H31		0-28	ZC	0	<u>28</u> -90+	C	xxx				0	III	3b	W
H32		0-31	HCL	0	<u>31</u> -48	HCL	xxx	<u>48</u> -90+	C	xxx	0	III	3b	W
H33		0-22	C	0	<u>22</u> -90+	C	xxx				0	III	3b	W
H34		Track												
H35		0-22	C	0	<u>22</u> -90+	C	xxx				0	III	3b	W
H36		0-26	C	0	<u>26</u> -90+	C	xxx				0	III	3b	W
H37		0-25	C	0	<u>25</u> -90+	C	xxx				0	III	3b	W
M1		0-20	ZC	0	<u>20</u> -35	ZC	xxx	<u>35</u> -90+	HP(waterlogged)	-	0	IV	4	FI
M2		0-31	HCL(org)	0	<u>31</u> -52	HCL	xxx	<u>52</u> -90+	C	xxx	0	IV	4	FI
M3		0-32	C	0	<u>32</u> -60	C(dist)	xxx				0	-	-	-
M4		Not accessed (waterlogged)												
M5		0-26	HCL	0	<u>26</u> -90+	C	xxx				0	III	3b	W
M6		0-30	HCL	0	<u>30</u> -90+	C	xxx				0	III	3b	W

	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
	M7	0-24	SCL	0	24-41	HCL(fmn)	xxx	41-90+	C	xxx	0	III	3a	W
	M8	0-40	C	0	40-90+	C	xxx				1	III	3b	W
	M9	0-28	HCL	0	28-90+	C	xxx				0	III	3b	W
	M10	0-26	C	0	26-36	C	xxx	36-100+	HP(waterlogged)	-	0	IV	4	FI
	M11	0-25	ZC	0	25-90+	C	xxx				0	III	3b	W
	M12	0-30	HCL	0	30-44	HCL	xxx	44-90+	C	xxx	0	III	3b	W
	M13	0-26	SCL	0	26-42	SCL	xxx	42-90+	C	xxx	0	III	3a	W
	M14	0-30	HCL	0	30-90+	C	xxx				0	III	3b	W
	M15	0-40	HCL	0	40-53	HCL	xxx	53-90+	C	xxx	0	III	3b	W
	M16	0-31	C	0	31-90+	C	xxx				0	III	3b	W
	M17	0-34	C	0	34-90+	C	xxx				0	III	3b	W
	M18	0-34	C	0	34-90+	C	xxx				0	III	3b	W
	M19	0-13	ZC	0	13-36	C	xxx	36-70 70-90+	PL ZC	- xxx	0	IV	4	FI
	M20	0-30	C	0	30-90+	C	xxx				0	III	3b	W
	M21	0-22	SCL	0	22-59	SCL	xxx	59-90+	C	xxxx	0	III/II	3a/2	W
	M22	0-22	MCL/HCL	0	22-31	HCL	xxx	31-45 45-80+	C C	xxx xxxx	0	III	3a/3b	W
	M23	0-50+	C(dist)								0	-	-	-
	M24	0-33	C	0	33-90+	C	xxx				0	III	3b	W
	M25	0-32	C	0	32-58	C	xxx	58-120	C	xxxx	0	III	3b	W
	M26	0-31	C	0	31-42	C	xxx				0	III	3b	W
	M27	0-42	C	0	42-90+	C	xxx				0	III	3b	W
	M28	0-30	ZC	0	30-90+	C	xxx				0	III	3b	W
	M29	0-18	HZCL	0	18-90+	C	xxx				0	III	3b	W
	M30	0-22	C	0	22-90+	C	xxx				0	III	3b	W
	M31	0-27	ZC	0	27-42	ZC	xxx	42-90+	C	xxx	0	III	3b	W
	M32	0-34	C	0	34-90+	C					0	III	3b	W
	M33	0-40	HCL	0	40-60	SCL(fmn)	xxx	60-90+	MSL(org)	xxx	0	II	3a	W
	M34	0-31	HCL	0	31-52	C/SC	xxx	52-75 75-90+	SCL MSL	xxx xx	0	III	3b	W
	M35	0-22	ZC	0	22-35	HCL	xxx	35-90+	C	xxx	0	III	3b	W
	M36	0-28	C	0	28-90+	C	xxx				0	III	3b	W
	M37	0-25	C	0	25-90+	C	xxx				0	III	3b	W
	M38	0-32	C	0	32-90+	C	xxx				0	III	3b	W
	M39	0-21	HCL	0	21-90+	C	xxx				0	III	3b	W

	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
	L1	0-23	C	<5	<u>23</u> -80+	C	xxx				1	III	3b	W
	L2	0-26	HCL	<5	<u>26</u> -80+	C	xxx				1	III	3b	W
	L3	0-28	C	<5	<u>28</u> -80+	C	xxx				1	III	3b	W
	L4	0-30	C	<5	<u>30</u> -80+	C	xxx				1	III	3b	W
	L5	0-26	C	<5	<u>26</u> -80+	C	xxx				0	III	3b	W
	L6	0-28	C	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
	L7	0-28	C	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
	L8	0-30	C	<5	<u>30</u> -80+	C	xxx				1	III	3b	W
	L9	0-30	C	<5	<u>30</u> -80+	C	xxx				1	III	3b	W
	L10	0-28	C	<5	<u>28</u> -80+	C	xxx				1	III	3b	W
	L11	0-32	HCL	<5	<u>32</u> -80+	C	xxx				0	III	3b	W
	L12	0-28	HCL/C	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
	L13	0-25	C	<5	<u>25</u> -80+	C	xxx				0	III	3b	W
	L14	0-30	C	<5	<u>30</u> -80+	C	xxx				1	III	3b	W
	L15	0-30	C	<5	<u>30</u> -80+	C	xxx				1	III	3b	W
	L16	0-33	HCL	<5	<u>33</u> -80+	C	xxx				1	III	3b	W
	L17	0-28	HCL	<5	<u>28</u> -80+	C					0	III	3b	W
	L18	0-30	C	<5	<u>30</u> -80+	C	xxx				0	III	3b	W
	L19	0-33	C	<5	<u>33</u> -80+	C	xxx				0	III	3b	W
	L20	0-15	C	<5	<u>15</u> -80+	C	xxx				0	III	3b	W
	L21	0-26	C	<5	26-40	MSL	xxx	<u>40</u> -80+	C	xxx	1	III	3b	W
	L22	0-28	HCL	<5	<u>28</u> -80+	C	xxx				1	III	3b	W
	L23	0-28	HCL	<5	<u>28</u> -80+	C	xxx				0	III	3b	W
	S1	0-30	MSL	<5	30-48 48-70	LMS MS	xxx xxx	70-120	C	xxx	0	II	3a	D
	S2	0-25	SCL	<5	25-35 35-62	C LMS	xxx xxx	62-120	MS	xxx	0	I	3a	D
	S3	0-38	HCL/C	<5	<u>38</u> -80+	C	xxx				0	III	3b	W
	S4	0-27	C	<5	<u>27</u> -80+	C	xxx				0	III	3b	W
	S5	0-30	C/HCL	<5	<u>30</u> -100+	C	xxx				0	III	3b	W
	S6	0-32	HCL/C	<5	<u>32</u> -80+	C	xxx				0	III	3b	W
	S7	0-28	HCL	<5	<u>28</u> -50	C	xxx	50-80 80-120	LMS MSL	xxx xxx	0	III	3b	W
	S8	0-30	SCL	<5	30-40 40-60	MSL C	xxx xxx	60-85 85-120	LMS C	xxx xxx	0	II / III	2/3a	W / (D)

	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
	S9	0-30	HCL	<5	30-35	MSL	xxx	35-80+	C	xxx	0	III	3b	W
	S10	0-30	HCL/C	<5	30-80+	C	xxx				0	III	3b	W
	S11	0-30	C	<5	30-80+	C	xxx				0	III	3b	W
	S12	0-25	HCL	0	25-90+	C	xxx				0	III	3b	W
	S13	0-33	SCL	<5	33-75	MSL	xxx	75-120	C	xxx	1	II	2	W/D
	S14	0-28	SCL	<5	28-60	SCL	xxx	60-120	C	xxx	0	II	2	W/D
	S15	0-25	SCL/HCL	<5	25-80+	C	xxx				0	III	3a/3b	W
	S16	0-25	HCL	<5	25-80+	C					1	III	3b	W
	S17	0-26	C	<5	26-80+	C	xxx				1	III	3b	W
	S18	0-30	C	<5	30-80+	C	xxx				0	III	3b	W
	S19	0-26	HCL/SCL	0	26-47	SCL	xxx	47-78 78-90+	MSL C	xxx xxx	0	II	3a/2	W
	S20	0-27	C	<5	27-80+	C	xxx				1	III	3b	W
	S21	0-31	SCL	0	31-55	SCL	xxx	55-90+	C	xxx	0	III	3a	W
	S22	0-27	SCL	0	27-44	SCL	xxx	44-63 63-90+	MSL C	xxx xxx	0	II	2	W
	S23	0-25	SCL	0	25-52	SCL	xxx	52-77 77-100+	MSL C	xxx xxx	0	II	2	W
	S24	0-40	HCL	0	40-62	HCL/SCL	xxx	62-90+	C	xxx	0	II	3a	W
	S25	0-27	HCL	0	27-100+	C	xxx				0	III	3b	W
	S26	0-24	SCL	0	24-35	SCL	xxx	35-80+	C	xxx	0	III	3a	W

Soil log key

Gley indicators¹

o	unmottled
x	1-2% ochreous mottles and brownish matrix (or a few to common root mottles (topsoils)) ³
xx	>2% ochreous mottles and brownish matrix and/or dull structure faces (slightly gleyed horizon)
xxx	>2% ochreous mottles and greyish or pale matrix (gleyed horizon) or reddish matrix and >2% greyish, brownish or ochreous mottles and pale ped faces
xxxx	mottles or f-m concentrations (gleyed horizon) dominantly blueish matrix, often with some ochreous or reddish mottles (gleyed horizon)

Slowly permeable layers⁴

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

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

¹Gley indicators in accordance with Hodgson, J.M., 1997. Soil Survey Field Handbook (third edition). Soil survey technical monograph No. 5

²Texture in accordance with particle size classes in Hodgson (1997)

³ Occasionally recorded in the texture box

⁴Permeability is estimated for auger borings and must be confirmed by full pit observations in accordance with the definitions in: Revised Guidelines for grading the quality of Agricultural Land (Maff 1988)

⁵Soil Wetness Classes are defined in Hodgson (1997)

⁷calcareous classes as defined in Hodgson (1997)

Grades shown as intergrade e.g. **3a/3b** are close to the grade boundary. The estimate of which side of the boundary the grading falls is the shown first (in bold here) grades in brackets eg. (3a) raised by one grade due to calcareous topsoil

Texture²

C	clay
ZC	silty clay
SC	sandy clay
CL	clay loam (H-heavy, M-medium)
ZCL	silty clay loam (H-heavy, M-medium)
SZL	sandy silt loam (F-fine, M-medium, C-coarse)
LS	loamy sand (F-fine, M-medium, C-coarse)
SL	sandy loam (F-fine, M-medium, C-coarse)
S	sand (F-fine, M-medium, C-coarse)
SCL	sandy clay loam
P	peat (H-humified, SF-semi-fibrous, F-fibrous)
LP	loamy peat; PL - peaty loam

Wetness Class⁵

I (freely drained) to VI (very poorly drained)

⁶stoniness classes as defined in Hodgson (1997)

Limitations:

W	wetness/workability
D	droughtiness
De	depth
F	flooding
St	stoniness
SI	slope
T	topography/microrelief
C	Climate

Suffixes & prefixes:

o - organic

(vsl, sl, m, v, x)**st** – (very slightly, slightly, moderately, very, extremely) **stony**⁶

(vsl, sl, m, v, x)**ca**
(very slightly, slightly, moderately, very, extremely) **calcareous**⁷

Other abbreviations

fmn	ferri-manganiferous concentrations
dist	disturbed soil layer; chky - chalky
R	bedrock (CH – chalk, SST – sandstone)
LST	limestone, MST – Mudstone)
r	reddish, gn – greenish

Soil pit descriptions

Pit A6

- 0-10 cm Very dark greyish brown (10YR 3/2) heavy clay loam; stoneless; well developed fine subangular blocky structure; friable; abundant fine fibrous roots; non-calcareous; smooth gradual boundary to:
- 10-22 cm Dark grey (10YR 4/1) heavy clay loam with 10% fine distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; stoneless; moderately developed coarse subangular blocky structure; friable; common fine fibrous roots; non-calcareous; smooth gradual boundary to:
- 22-32 cm Grey (10YR 5/1) heavy clay loam with 20% distinct fine yellowish brown (10YR 5/6) mottles; stoneless; moderately developed coarse sub-angular blocky structure; firm; <0.5% macropores; common fine fibrous roots; non-calcareous; smooth gradual boundary to:
- 32-54 cm Grey (7.5YR 5/1) clay with 25% prominent strong brown (7.5YR 5/8) mottles; stoneless; moderately developed very coarse prismatic structure; very firm; <0.5% macropores; few fine fibrous roots; non-calcareous; smooth diffuse boundary to:
- 54-100+ cm Dark blueish grey (10B 4/1) clay with 20% fine reddish brown (5YR 5/4) and yellowish red (5YR 5/6) mottles; stoneless; weakly developed very coarse prismatic structure; very firm; <0.5% macropores; very few roots; non-calcareous.

Pit B16

- 0-32 cm Very dark greyish brown (10YR 4/2) sandy clay loam; stoneless; moderately developed coarse subangular blocky structure; friable; non-calcareous; smooth clear boundary to:
- 32-63 cm Grey (10YR 6/1) sandy clay loam with 40% prominent medium yellowish brown (10YR 5/8) mottles; some slowly permeable clay laminations; stoneless; moderately developed very coarse sub-angular blocky structure; very firm; <0.5% macropores; smooth gradual boundary to:
- 63-100+ cm Dark grey (10YR 4/1) clay/sandy clay with 40% distinct medium and coarse strong brown (7.5YR 4/6) mottles and 5% very fine black ferri-manganiferous concentrations; stoneless; moderately developed very sub-angular blocky structure; firm; <0.5% macropores.

Pit CA46

- 0-22 cm Very dark greyish brown (10YR 3/2) clay; stoneless; moderately developed coarse and very coarse subangular blocky structure; friable to firm; common fine fibrous roots; non-calcareous; smooth clear boundary to:
- 22-35 cm Grey (10YR 5/1) clay with 35% prominent fine and medium reddish yellow (7.5YR 6/8) mottles; stoneless; weakly developed coarse angular blocky structure; very firm; <0.5% macropores; few fine fibrous roots; smooth gradual boundary to:
- 35-120 cm Dark blueish grey (10B 4/1) clay with 10% distinct fine strong brown (7.5YR 5/6) and 25% diffuse fine and medium dark reddish grey (5YR 3/3) mottles; stoneless; weakly developed coarse prismatic structure to structureless (massive); very firm; no macropores; very few roots.

Pit CA59

- 0-22 cm Very dark greyish brown (10YR 4/2) clay; stoneless; moderately developed coarse subangular blocky structure; firm; common fine fibrous roots; non-calcareous; smooth clear boundary to:
- 22-48 cm Blueish grey (5B 5/1) clay with 40% prominent fine and medium reddish yellow (7.5YR 6/8) and yellowish brown (10YR 5/8) mottles; stoneless; weakly developed very coarse prismatic structure; very firm; <0.5% macropores; few fine fibrous roots; perched water above; smooth gradual boundary to:
- 48-120 cm Very dark blueish grey (5B 3/1) clay with 10% distinct fine strong brown (7.5YR 4/6) mottles; stoneless; weakly developed coarse prismatic structure to structureless (massive); very firm; no macropores; very few roots.

Pit C38

- 0-31 cm Dark greyish brown (10YR 4/2) clay; stoneless; moderately developed very coarse subangular blocky structure; firm; non-calcareous; smooth clear boundary to:
- 31-44 cm Grey (10YR 5/1) clay with 10% distinct fine yellowish brown (10YR 5/8) mottles; stoneless; moderately developed very coarse angular blocky structure; very firm; <0.5% macropores; smooth gradual boundary to:
- 44-110+ cm Blueish grey (5B 5/1) clay with 20% prominent fine strong brown (7.5YR 5/8) mottles; stoneless; weakly developed coarse prismatic structure; very firm; <0.5% macropores.

Pit C41

- 0-29 cm Dark brown (10YR 4/2) sandy clay loam; rare stones; moderately developed medium subangular blocky structure; friable; many very fine fibrous roots; common fine and medium pores and earthworm channels; pores; sharp smooth boundary to:
- 29-72 cm Grey (10YR 5/1) stoneless clay with many strong brown (7.5YR 4/8) mottles; moderately developed coarse angular blocky structure; firm; common very fine fibrous roots; 0.5% very fine biopores; merging to:
- 72-100+ cm Grey (N 6/0) stoneless clay many yellowish red (5YR 5/6) mottles; structureless, massive; firm; a few very fine fibrous roots; 0.1% very fine biopores.

Pit C60

- 0-28 cm Dark grey (10YR 4/1) heavy clay loam; stoneless; weakly developed coarse subangular blocky structure; firm; a few fine fibrous roots; non-calcareous; smooth clear boundary to:
- 28-50 cm Light olive brown (2.5Y 5/3) clay with pale brown (10YR 6/3) ped faces and many medium strong brown (7.5YR 5/8) and common medium grey (10YR 6/1) mottles; stoneless; weakly developed coarse angular blocky structure; very firm; <0.5% macropores; no roots; non-calcareous; wavy clear boundary to:
- 50-60+ cm Blueish grey (5B 5/1) and pale brown (10YR 6/3) clay with common medium strong brown (7.5YR 5/8) mottles; stoneless; weakly developed coarse angular blocky structure; very firm; <0.5% macropores; no roots; non-calcareous.

Pit D15

- 0-30 cm Dark grey (10YR 4/1) clay; stoneless; weakly developed, adherent, very coarse prismatic structure; moderately strong; a few fine fibrous roots; non-calcareous; clear wavy boundary to:
- 30-70 cm Grey (6 N/1) clay with very many medium and coarse strong brown (7.5YR 5/6) mottles; stoneless; moderately developed very coarse prismatic structure; moderately strong; a few very fine fibrous roots; <0.5% macropores; non-calcareous; clear wavy boundary to:
- 70-100+ cm Dark grey (N 4/1) clay with common medium dark brown (7.5YR 3/3) and strong brown (7.5YR 4/6) mottles; stoneless; moderately strong; non-calcareous.

Pit D21

- 0-28 cm Very dark greyish brown (10YR 3/2) sandy clay loam; stoneless; weakly developed coarse subangular blocky structure; friable; a few fine fibrous roots; non-calcareous; clear wavy boundary to:
- 28-60 cm Light brownish grey (10YR 6/2) sandy clay loam; stoneless; weakly developed, adherent, coarse angular blocky structure; firm; no roots; >0.5% macropores; non-calcareous; gradual wavy boundary to:
- 60-80+ cm Dark grey (N 4/1) clay with very many coarse dark brown (7.5YR 3/4) and common medium strong brown (7.5YR 4/6) mottles; stoneless; moderately developed very coarse prismatic structure; moderately strong; no roots; <0.5% macropores; non-calcareous.

Pit H15

- 0-25 cm Dark grey (10YR 4/1) clay; stoneless; weakly developed very coarse subangular blocky structure; firm; common fine fibrous roots; non-calcareous; smooth clear boundary to:
- 25-60+ cm Pale brown (10YR 6/3) and grey (10YR 5/1) clay with many medium strong brown (7.5YR 5/8) mottles and grey (N 5/1) ped faces; stoneless; moderately developed very coarse angular blocky structure; very firm; <0.5% macropores; a few very fine fibrous roots; non-calcareous.

Pit M25

- 0-32 cm Dark greyish brown (10YR 4/2) clay; stoneless; moderately developed very coarse subangular blocky structure; firm; abundant fine fibrous roots; non-calcareous; smooth clear boundary to:
- 32-58 cm Grey (5YR 5/1) clay with 20% prominent fine and medium strong brown (7.5YR 5/8) mottles; stoneless; weakly developed very coarse prismatic structure; very firm; <0.5% macropores; few fine fibrous roots; smooth diffuse boundary to:
- 58-120 cm Blueish grey (5B 5/1) clay with 25% fine and medium yellowish brown (10YR 5/8) mottles; stoneless; weakly developed very coarse angular blocky structure; very firm; <0.5% macropores; few fine fibrous roots.

Pit M48

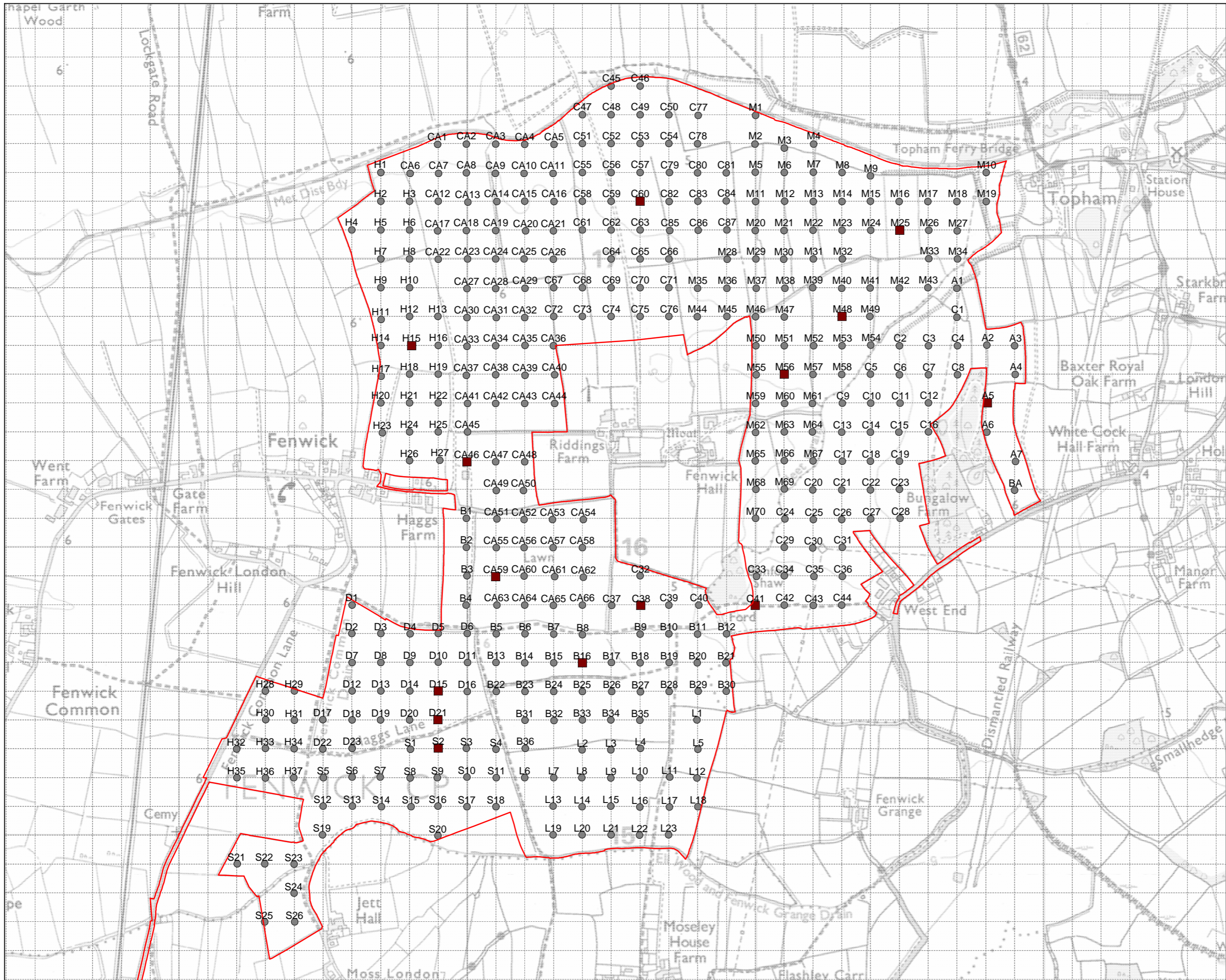
- 0-19 cm Very dark greyish brown (10YR 3/2) sandy clay loam; stoneless; moderately developed medium and coarse sub-angular blocky structure; friable; common fine fibrous roots; non-calcareous; smooth gradual boundary to:
- 19-36 cm Greyish brown (10YR 5/2) sandy clay loam with 10% faint fine strong brown (7.5YR 5/6) mottles; stoneless; moderately developed medium sub-angular blocky structure; friable; <0.5% macropores; common fine fibrous roots; wavy gradual boundary to:
- 36-60 cm Grey (7.5YR 5/1) sandy clay loam with 25% distinct fine and medium strong brown (7.5YR 5/8) mottles; stoneless; moderately developed coarse sub-angular blocky structure; friable; few fine fibrous roots; wavy diffuse boundary to:
- 60-120 cm Blueish grey (5B 6/1) clay with 30% fine and medium strong brown (7.5YR 5/6) mottles; stoneless; weakly developed very coarse angular blocky structure; very firm; <0.5% macropores; few fine fibrous roots; perched water above.

Pit M56

- 0-19 cm Very dark greyish brown (10YR 3/2) heavy clay loam; stoneless; well developed medium sub-angular blocky structure; friable; common fine fibrous roots; non-calcareous; smooth clear boundary to:
- 19-35 cm Greyish brown (10YR 5/2) heavy clay loam with 5% distinct fine strong brown (7.5YR 5/8) mottles; stoneless; moderately developed medium sub-angular blocky structure; friable; common fine fibrous roots; smooth clear boundary to:
- 35-57 cm Grey (7.5YR 6/1) clay with 30% distinct fine and medium strong brown (7.5YR 5/6 & 5/8) mottles; stoneless; moderately developed coarse prismatic structure; firm; <0.5% macropores; few fine fibrous roots (mainly in fissures); smooth diffuse boundary to:
- 57-100 cm+ Blueish grey (10B 5/1) clay with 40% distinct medium yellowish brown (10YR 5/6) mottles; stoneless; weakly developed very coarse prismatic structure to structureless (massive); very firm; no macropores; very few fine fibrous roots.

Pit S2

- 0-25 cm Very dark greyish brown (10YR 3/2) sandy clay loam; stoneless; weakly developed coarse subangular blocky structure; friable; common fine fibrous roots; non-calcareous; clear wavy boundary to:
- 25-35 cm Light grey (10YR 7/1) and dark grey (10YR 4/1) clay with many medium yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; stoneless; moderately developed coarse columnar structure; moderately strong; a few fine fibrous roots; >0.5% macropores; non-calcareous; clear wavy boundary to:
- 35-62 cm Pale brown (10YR 6/3) loamy medium sand with many coarse strong brown (7.5YR 5/6) mottles; stoneless; weakly developed fine subangular blocky structure; friable; no roots; >0.5% macropores; non-calcareous; gradual smooth boundary to:
- 62-120 cm Pale brown (10YR 6/3) and light grey (10YR 7/1) medium sand with many coarse strong brown (7.5YR 5/6) mottles; stoneless; single grain structure; loose; no roots; >0.5% macropores; non-calcareous.



KEY

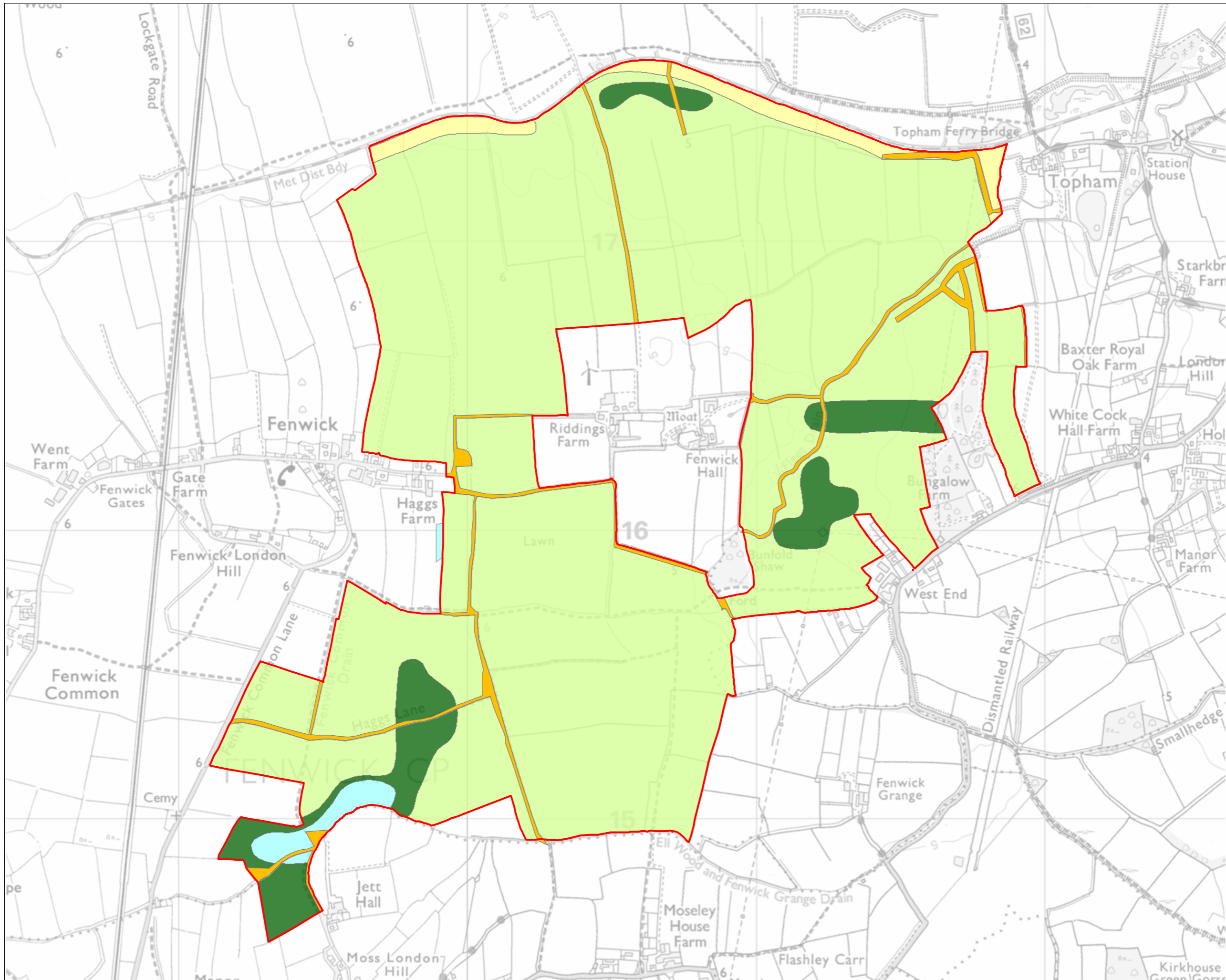
- Auger
- Pits
- Site boundary

Site:
Fenwick

Map title:
MAP 1
Observations

Land Research ASSOCIATES
 Tapton Innovation Centre
 Brimington Road
 Chesterfield
 S41 0TZ
 www.lra.co.uk

Date: 20/06/2024
 Scale: 1:12,500@A3



- KEY**
- Grade 2
 - Subgrade 3a
 - Subgrade 3b
 - Grade 4
 - Other land
 - Site boundary

Site:
Fenwick

Map title:
MAP 2
Agricultural Land
Classification

ANALYTICAL REPORT

Report Number	61951-23	H579	MR MIKE PALMER
Date Received	08-MAR-2023		LAND RESEARCH ASSOCIATES
Date Reported	23-MAR-2023		LOCKINGTON HALL
Project	SOIL		LOCKINGTON
Reference	FENWICK		DERBY
Order Number			DE74 2RH

Laboratory Reference		SOIL615878	SOIL615879							
Sample Reference		C13	C38							
Determinand	Unit	SOIL	SOIL							
Sand 2.00-0.063mm	% w/w	56	23							
Silt 0.063-0.002mm	% w/w	22	27							
Clay <0.002mm	% w/w	22	50							
Textural Class **		SCL	C							

Notes

Analysis Notes	The sample submitted was of adequate size to complete all analysis requested. The results as reported relate only to the item(s) submitted for testing. The results are presented on a dry matter basis unless otherwise stipulated.
Document Control	This test report shall not be reproduced, except in full, without the written approval of the laboratory.

** Please see the attached document for the definition of textural classes.

Reported by ***Myles Nicholson***
 Natural Resource Management, a trading division of Cawood Scientific Ltd.
 Coopers Bridge, Braziers Lane, Bracknell, Berkshire, RG42 6NS
 Tel: 01344 886338
 Fax: 01344 890972
 email: enquiries@nrm.uk.com

ADAS (UK) Textural Class Abbreviations

The texture classes are denoted by the following abbreviations:

Class	Code
Sand	S
Loamy sand	LS
Sandy loam	SL
Sandy Silt loam	SZL
Silt loam	ZL
Sandy clay loam	SCL
Clay loam	CL
Silt clay loam	ZCL
Clay	C
Silty clay	ZC
Sandy clay	SC

For the *sand*, *loamy sand*, *sandy loam* and *sandy silt loam* classes the predominant size of sand fraction may be indicated by the use of prefixes, thus:

- vf Very Fine (more than 2/3's of sand less than 0.106 mm)
- f Fine (more than 2/3's of sand less than 0.212 mm)
- c Coarse (more than 1/3 of sand greater than 0.6 mm)
- m Medium (less than 2/3's fine sand and less than 1/3 coarse sand).

The subdivisions of *clay loam* and *silty clay loam* classes according to clay content are indicated as follows:

- M medium (less than 27% clay)
- H heavy (27-35% clay)

Organic soils i.e. those with an organic matter greater than 10% will be preceded with a letter O.

Peaty soils i.e. those with an organic matter greater than 20% will be preceded with a letter P.

ANALYTICAL REPORT

Report Number	70510-23	H579	MR MIKE PALMER
Date Received	05-MAY-2023		LAND RESEARCH ASSOCIATES
Date Reported	18-MAY-2023		LOCKINGTON HALL
Project	SOIL		LOCKINGTON
Reference	FENWICK		DERBY
Order Number			DE74 2RH

Laboratory Reference		SOIL627356	SOIL627357	SOIL627358	SOIL627359	SOIL627360	SOIL627361	SOIL627362	SOIL627363		
Sample Reference		A6	B16	C79	CA46	CA59	M25	M48	M56		
Determinand	Unit	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
Sand 2.00-0.063mm	% w/w	38	57	27	28	28	25	59	24		
Silt 0.063-0.002mm	% w/w	29	13	29	23	23	27	17	41		
Clay <0.002mm	% w/w	33	30	44	49	49	48	24	35		
Textural Class **		HCL	SC/SCL	C	C	C	C	SCL	C/HCL		

Notes

Analysis Notes	The sample submitted was of adequate size to complete all analysis requested. The results as reported relate only to the item(s) submitted for testing. The results are presented on a dry matter basis unless otherwise stipulated.
Document Control	This test report shall not be reproduced, except in full, without the written approval of the laboratory.

Reported by	<p>** Please see the attached document for the definition of textural classes.</p> <p><i>Myles Nicholson</i> Natural Resource Management, a trading division of Cawood Scientific Ltd. Coopers Bridge, Braziers Lane, Bracknell, Berkshire, RG42 6NS Tel: 01344 886338 Fax: 01344 890972 email: enquiries@nrm.uk.com</p>
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The texture classes are denoted by the following abbreviations:

Class	Code
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Loamy sand	LS
Sandy loam	SL
Sandy Silt loam	SZL
Silt loam	ZL
Sandy clay loam	SCL
Clay loam	CL
Silt clay loam	ZCL
Clay	C
Silty clay	ZC
Sandy clay	SC

For the *sand*, *loamy sand*, *sandy loam* and *sandy silt loam* classes the predominant size of sand fraction may be indicated by the use of prefixes, thus:

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- f Fine (more than 2/3's of sand less than 0.212 mm)
- c Coarse (more than 1/3 of sand greater than 0.6 mm)
- m Medium (less than 2/3's fine sand and less than 1/3 coarse sand).

The subdivisions of *clay loam* and *silty clay loam* classes according to clay content are indicated as follows:

- M medium (less than 27% clay)
- H heavy (27-35% clay)

Organic soils i.e. those with an organic matter greater than 10% will be preceded with a letter O.

Peaty soils i.e. those with an organic matter greater than 20% will be preceded with a letter P.

An aerial photograph of a vast solar farm at sunset. The rows of solar panels stretch across the landscape, creating a strong sense of perspective. The sky is a deep orange and red, with the sun low on the horizon, casting long shadows and highlighting the texture of the panels.

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