

**AGRICULTURAL QUALITY
OF LAND EAST OF BRAILSFORD**

Report 2454/3

24th March 2026

Land
Research
ASSOCIATES
www.lra.co.uk

**AGRICULTURAL QUALITY
OF LAND EAST OF BRAILSFORD**

M W Palmer, PhD, MISoilSci, CSci
M A Worsley, BSc, MSc

Report 2454/3
Land Research Associates Ltd
Tapton Park Innovation Centre
Brimington Road
Chesterfield
S41 0TZ
www.lra.co.uk

24th March 2026

SUMMARY

An agricultural land quality survey has been undertaken of 119.9 ha of land to the east of Brailsford, Derbyshire in January 2025.

The land has a mixture of reddish fine loams over clay, reddish fine loams and reddish coarse loams, with other stony loams and sands found locally. The soils form agricultural land of Grade 2, Subgrade 3a and Subgrade 3b quality. The principal limitation to agriculture is soil wetness. Climate, soil droughtiness and topsoil stoniness also limit land quality in some areas.

1.0 Introduction

- 1.1 This report provides information on the agricultural quality of 119.9 ha of land to the east of Brailsford, Derbyshire. The report is based on a survey of the land in January 2025.

SITE ENVIRONMENT

- 1.2 The survey area spans numerous agricultural fields to the east of Brailsford. The land is bordered to the south by the A52 and adjoining agricultural land, to the east by Wild Park Derbyshire and adjoining agricultural land, and to the north and west by adjoining agricultural land.
- 1.3 The survey area slopes from a high in the west (c. 162 m AOD) to low points in the south (c. 140 m AOD), east (c. 127 m AOD), and north-east (c. 120 m AOD). The land is level to moderately sloping.
- 1.4 At the time of survey the agricultural land was split between arable and grassland uses.

PUBLISHED INFORMATION

- 1.5 British Geological Survey 1:50,000 scale information records the basal geology of the survey area as interbedded mudstone and limestone of the Widmerpool Formation, in the south and west, and interbedded mudstone and siltstone of the Tarporley Siltstone Formation, in the north and east. Overlying glacial till is recorded over most of the western half of the survey area, particularly at altitudes above 140 m AOD. No other surface deposits are recorded.
- 1.6 The National Soil Map (published at 1:250,000 scale) records the Salop Association in western and north-western parts and the Hodnet Association over the remainder of the survey area. Salop is principally an association of slowly permeable reddish fine loamy over clayey, fine loamy and clayey soils formed in reddish glacial till. Hodnet is principally an association of reddish fine and coarse loamy soils formed in reddish mudstone, siltstone and sandstone¹.

¹ Ragg, J.M. *et al.*, (1984). *Soils and their Use in Midland and Western England*. Soil Survey of England and Wales Bulletin No. 12, Harpenden.

2.0 Soils

- 2.1 A soils and agricultural quality survey was carried out in January 2025 in accordance with MAFF (1988) Agricultural Land Classification guidelines². During this survey soils were examined by auger borings and soil pits to a maximum depth of 1.2 m. Observations were aligned with a 100 m Ordnance Survey grid.
- 2.2 Soil auger records, soil pit descriptions, laboratory analysis results and a map showing the location of each investigation point (Map 1) are attached to this report as appendices.
- 2.3 There are four broad soil types in the survey area: reddish fine loams over clay, reddish fine loams and reddish coarse loams, with other stony loams and sands found locally. More details are given below.

FINE LOAMS OVER REDDISH CLAY

- 2.4 These soils are particularly prevalent in the west and north. They have medium-textured topsoil over permeable fine loamy upper subsoil and slowly permeable reddish clay lower subsoil. There are some similar soils, particularly in the east, which are reddish to the land surface. The majority of soils are gleyed³ at shallow depth and slowly permeable at moderate depth. Where the slowly permeable reddish clay is within 52 cm depth the soils are judged to belong to Wetness Class IV. These soils are poorly draining and likely to be waterlogged at shallow depth for long periods between autumn and spring. Where the slowly permeable reddish clay is deeper than 52 cm the soils are judged to belong to Wetness Class III. These soils are imperfectly draining and likely to be waterlogged periodically between autumn and spring.
- 2.5 The soils generally have low stone content, although locally some soils have slightly to moderately stony topsoil and slightly to very stony upper subsoil.

REDDISH FINE LOAMS

- 2.6 These soils are particularly prevalent in the east. They have medium-textured topsoil over reddish fine loamy subsoil. Evidence of gleying is variable in these reddish soils. However, most have slowly permeable lower subsoil and the soils are judged to mostly belong to Wetness Class II or III. They are moderately freely to imperfectly draining.

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

³Gleying – greyish and pale soil colours with associated ochreous mottles resulting from reduction and mobilisation of iron compounds under anaerobic conditions (indicates periodic waterlogging).

REDDISH COARSE LOAMS

- 2.7 These soils are mostly found interspersed with the reddish fine loams in the east. They have light-textured topsoil over coarse to fine loamy subsoil. The subsoils tend to have common to abundant siltstones. Evidence of gleying is variable in these reddish soils. They are judged to belong to Wetness Class I or II. They are freely to moderately freely draining.

STONY LOAMS AND SANDS

- 2.8 These soils are mostly found in isolated patches. They have light or medium-textured topsoil over coarse loamy or fine loamy upper subsoil and coarse loamy or sandy lower subsoil. They are permeable to depth and judged to belong to Wetness Class I. They tend to have slightly stony topsoil over moderately to very stony upper subsoil and variably stony lower subsoil. Stone content in the topsoil and upper subsoil is dominated by hard small and medium pebbles.

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 Classification⁴.
- 3.3 Agro-climatic data for three representative locations are given below.

Table 2: Agro-climatic data

	West SK 264 417	South SK 267 410	East SK 274 421
Altitude (m AOD)	160	140	130
Average annual rainfall (mm)	815	798	803
January-June accumulated temperature >0°C	1277	1300	1311
Field capacity period	193	190	191
Summer moisture deficit for – wheat (mm)	82	85	86
Summer moisture deficit for – potatoes (mm)	66	70	71

- 3.4 The slightly cool and moist climate limits agricultural land quality to Grade 2 throughout the survey area.
- 3.5 The survey described in the previous section was used in conjunction with the agro-climatic data detailed above to classify the survey area using the revised guidelines for ALC issued in 1988 by MAFF⁵.

SURVEY RESULTS

- 3.6 Agricultural land of Grade 2, Subgrade 3a and Subgrade 3b quality has been identified.

⁴Meteorological Office, (1989). *Climatological Data for Agricultural Land Classification*.

⁵MAFF, (1988). *Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*.

Grade 2

- 3.7 This land is mapped where there are contiguous patches of reddish coarse loams and stony loams and sands (see paragraphs 2.10 to 2.13). These soils tend to be freely draining (Wetness Class I) and have light or medium-textured topsoil. They form very good quality agricultural land with only slight limitations to agricultural use.
- 3.8 The overarching limitation to use is the relatively cool and moist local climate. It is likely to limit the range of crop which could viably be grown.
- 3.9 Locally, soil wetness, soil droughtiness and topsoil stoniness are co-limitations alongside climate.

Subgrade 3a

- 3.10 This land is mapped where moderately freely (Wetness Class II) to imperfectly (Wetness Class III) draining reddish fine loams and reddish fine loams over clay are prevalent (see paragraphs 2.4 to 2.9). These soils form good quality agricultural land with moderate limitations to use.
- 3.11 The over-arching limitation to use is soil wetness. This is a result of impeded drainage and medium-textured topsoil under the relatively moist local climate. It means that safe opportunities for arable cultivation in a typical year are likely to be limited to autumn or late spring. This limits the potential flexibility and productivity of the land.
- 3.12 This land is occasionally interspersed by reddish coarse loams and stony loams and sands, which form higher quality agricultural land. However, these soils are judged to be subsidiary in areas mapped as Subgrade 3a and the use of the land is determined by the dominant reddish fine loams and reddish fine loams over clay.

Subgrade 3b

- 3.13 This land is mapped where poorly draining (Wetness Class IV) reddish fine loams over clay are prevalent. See paragraphs 2.4 to 2.7. These soils form moderate quality agricultural land with moderately severe limitations to use.
- 3.14 The principal limitation to use is soil wetness. This is a result of poor drainage and medium-textured topsoil under the relatively moist local climate. It means that safe opportunities for arable cultivation in a typical year are likely to be limited to autumn only. This limits the land to a greater extent than outlined above.

Other land

- 3.15 This land includes farm tracks and small areas of woodland / hedgerow.

Grade areas

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

Table 2: Areas occupied by the different land grades (ha)

<i>Grade/subgrade</i>	<i>Area (ha)</i>	<i>% of the land</i>
Grade 2	10.0	8
Subgrade 3a	73.0	61
Subgrade 3b	35.7	30
Other land	1.2	1
Total	119.9	100

APPENDICES:

1. SOIL AUGER LOG

2. SOIL PIT DESCRIPTIONS

3. MAPS

Land east of Brailsford: Details of Soils and ALC survey

Obs. No	Topsoil				Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
	Depth (cm)	Texture	Hard stones >2 cm (%)	Stones >6 cm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
1	0-31	MCL	<5	<5	31-57	MCL	xx	57-72 72-90+	rMCL rMCL	xx xxx	1	II	3a	W
2	0-24	MCL	<5	<5	24-44	MCL	o	44-57 57-77 77+	rMCL/SCL rMCL/SCL ZST	xxx x	2	II?	3a	W
3	0-24	SCL	<5	<5	24-48	rSCL	xxx	48-90+	C/RHCL	xxx	3	IV	3b	W
4	0-26	MCL	<5	<5	26-37	rZC	xx	37-90+	rZC	xx	4	III/IV	3a/3b	W
5	0-22	MZCL	<5	<5	22-70	rHZCL(r)	xxx	70-77 77+	rMCL ZST?	xxx	3	IV	3b	W
6	0-25	MCL	<5	<5	25-52	rC	xxx	52-80+	rHCL	xxx	3	IV/III	3b/3a	W
7	0-20	MCL	<5	<5	20-52	MCL	o	52-80+	rFSZL	o	1	I	2	C, W
8	0-26	MCL	<5	<5	26-55	rFZSL	xx	55-90+	rMCL	o	1	I	2	C, W
9	0-28	FSZL/SCL	<5	<5	28-70	FSZL/SCL	o	70-100+	rFSZL	o	1	I	2	C
10	0-29	slstSCL	<5	<5	29-56	slstSCL	xxx	56-90+	rC	xxx	4	III	3a	W
11	0-21	MCL	<5	<5	31-35	HCL	xxx	35-90+	rC	xxx	2	IV	3b	W
12	0-29	SCL	<5	<5	29-45	SCL	xxx	45-80+	rC	xxx	1	IV	3b	W
13	0-25	slstSCL	5-10	<5	25-37	rSCL	xxx	37-48 48+	rHCL Stopped on stones	xxx	2	IV	3b	W
14	0-27	MCL	<5	<5	27-50	rHCL	xxx	50-100+	rC	xxx	3	IV/III	3b/3a	W
15	0-23	HZCL	0	<5	23-46	rHZCL	xx	46-70+	rHZCL	xx	3	IV	4	W
16	0-25	MCL	<5	<5	25-37	rMCL	o	37-80+	ZC (wet)	xx	1	IV	3b	W
17	0-25	vslstFZSL	<5	<5	25-45	rFSZL	o	45-110+	MSZL/soft ZST	xx	2	I/II	2	C, W
18	0-24	FSZL	<5	<5	24-65	rFSZL	o	65-80 80-90 90+	rFSZLslst Weathered siltstone Stopped on stones	o	2	I	2	C
19	0-24	FSZL	<5	<5	24-45	rFSZL	o	45-55 55-80+	rMCL rHCL	xxx xxx	2	III	3a	W
20	0-27	slstSCL	<5	<5	27-57	slstSCL	xxx	57-90+	RC	xxx	3	III	3a	W
21	0-24	slstSCL	5	<5	24-46	slstSCL	xxx	46-59 59-80+	rHCL rC	xxx o	4	IV	3b	W
22	0-23	MCL	<5	<5	23-40	rC	xxx	40+	Stopped on stones		1	IV	3b	W
23	0-37	MCL	<5	<5	37-51	MCL	xxx	51-70 70-90+	HCL rC	xxx xxx	1	IV/III	3b/3a	W

Obs. No	Topsoil				Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
	Depth (cm)	Texture	Hard stones >2 cm (%)	Stones >6 cm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
24	0-32	MCL	<5	<5	32-65	rMSLslst	xxx	65 -100+	rC	xxx	4	III	3a	W
25	0-30	MCL	<5	<5	30-50	MCL	xxx	50 -100+	HCL/C	xxx	2	IV	3b	W
26	0-34	MCL	<5	<5	34-64	MCL(r)	o	64 -90+	rHCL	xx	3	II	3a	W
27	0-27	MCL	<5	<5	27-90+	MCL(r)	o				3	I	2	C, W
28	0-28	MZCL	<5	<5	28-65	rMCL	o	65-70 70+	Weathered siltstone Stopped on stones		2	I	2	C, W
29	0-30	FSZL	<5	<5	30-45	rFSZLslst	o	45+	Stopped on stones		2	I	2	C
30	0-26	slstSCL	5	<5	26-48	slstSCL	xxx	48 -90+	rC	xxx	2	IV	3b	W
31	0-37	slstSCL	5	<5	37-47	SCL (wet)	xxx	47 -80+	rC	xxx	2	IV	3b	W
32	0-26	M/SCL	<5	<5	26 -50	C	xxx	50 -80+	rC	xxx	3	IV	3b	W
33	0-28	SCL	<5	<5	28-50	SCL	xxx	50 -80+	rC	xxx	3	IV	3b	W
34	0-26	MCL	<5	<5	26-41	MCL	x	41 -80+	rC	xxx	3	III	3a	W
35	0-25	MCL	<5	<5	25-50	rMCL	xxx	50 -100+	rM/HCL	xxx	5	II / III	3a	W
36	0-30	MZCL	<5	<5	30 -100+	rM/HCL	xxx				2	III	3a	W
37	0-28	MZCL	<5	<5	28-42	rMCL	o	42 -80+	rC	xxx	2	III	3a	W
38	0-28	M(Z)CL	<5	<5	28-48	rFSZL	o	rHCL	xxx		2	III	3a	W
39	0-28	MSZCL	<5	<5	28-45	rMCL	o	48 -100+	rHCL	xxx	4	III	3a	W
40	0-30	MCL	<5	<5	30 -80+	rCfm	xxx				4	IV	3b	W
41	0-23	slstSCL	<5	<5	23-62	slstSCL	xxx	62 -90+	rHCL	xxx	2	III	3a	W
42	0-26	slstSCL	<5	<5	26-40	slstSCL	xxx	40 -90+	rC	xxx	2	IV	3b	W
43	0-24	MCL	<5	<5	24 -40	HCL	xxx	40 -80+	rC	xxx	2	IV	3b	W
44	0-25	MCL	<5	<5	25-45	MCLslst	xxx	45 -80+	rC	xxx	3	IV	3b	W
45	0-25	SCL	<5	<5	25-72	rSCLslst	xxx	72 -100+	rHCL	xxx	5	II	3a	W
46	0-26	M/HCL	<5	<5	26 -100+	rC	xxx				5	IV	3b/4	W
47	0-26	MCL	<5	<5	26-75	MZCL	xxx	75 -100+	rHCL	xxx	4	II	3a	W
48	0-26	MZCL	<5	<5	26-54	rFSZL	o	54 -80+	rHCL	xxx	3	III	3a	W
49	0-28	MZCL	<5	<5	28-65	rHCL	xxx	65 -100+	rC	xxx	2	IV	3b	W
50	0-30	MCL	<5	<5	30-44	rMCL	xxx	44 -80+	rHCL	xxx	1	IV	3b	W
51	0-28	MCL	<5	<5	28-38	rMCL	o	38 -100	rHCL	xxx	4	IV	3b	W
52	0-38	MCL	<5	<5	38-68	SCL	xxx	68 -90+	rHCL	xx	1	III/II	3a	W
53	0-30	MCL	<5	<5	30-55	MCLslst	xxx	55 -100+	rSCLslst	xxx	1	III	3a	W
54	0-24	MCL	<5	<5	24-48	MCL	xxx	48 -80+	rC	xxx	2	IV	3b	W

Obs. No	Topsoil				Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
	Depth (cm)	Texture	Hard stones >2 cm (%)	Stones >6 cm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
55	0-28	MCL	<5	<5	28-75	rMCLfm	xxx	<u>75</u> -100+	rC	xxx	3	II	3a	W
56	0-30	MCL	<5	<5	30-45	Weathered siltstone	-	45+	Stopped on stones		4	?	?	?
57	0-28	MCL	<5	<5	28-65	rSCL	x	<u>65</u> -100+	rM/HCL	xxx	5	II / III	3a	W
58	0-28	MCL	<5	<5	28-65	rMCL	xxx	<u>65</u> -100+	rHCL	xxx	5	III	3a	W
59	0-26	MCL	<5	<5	<u>26</u> -100+	rHCL/C	xxx				2	IV	3b	W
60	0-27	MCL	<5	<5	27-62	rMSZL	o	<u>62</u> -100+	rHCL	xxx	2	III	3a	W
61	0-28	MCL	<5	<5	<u>28</u> -80+	rC	xxx				1	IV	3b	W
62	0-26	MCL	<5	<5	<u>26</u> -100+	M/SCL	xxx				1	II / III	3a	W
63	0-28	MCL	<5	<5	28-50	MCL	xxx	<u>50</u> -80+	rC	xxx	<1	IV	3b	W
64	0-28	MCL	<5	<5	28-50	MCL	xxx	<u>50</u> -80+	rC	xxx	1	IV	3b	W
65	0-28	MCL	<5	<5	28-48	SCLslst	xxx	<u>48</u> -65 <u>65</u> -100+	S/HCLslst rC	xxx xxx	2	III / IV	3a/b	W
66	0-28	MCL	<5	<5	28-42	SCL	x	<u>42</u> -80+	HCL	xxx	2	III	3a	W
67	0-28	MCL	<5	<5	28-55	rHCL	o	<u>55</u> -80+	rHCL	xxx	2	III	3a	W
68	0-25	FSZL	<5	<5	25-60	rFSZLslst	o	60+	Stopped on stones		2	I	2	C
69	0-26	MCL	<5	<5	26-70	rMCL	o	<u>70</u> -100+	rSC	xxx	2	II / III	3a	W
70	0-26	MCL	<5	<5	<u>26</u> -80+	rC	xxx				1	IV	3b	W
71	0-25	MCL	<5	<5	25-70	SCLfm	xxx	70-100+	FS	xxx	2	II	3a	W
72	0-28	MCL	<5	<5	28-42	MCLfm	xxx	<u>42</u> -80+	C	xxx	2	IV	3b	W
73	0-25	MCL	<5	<5	<u>25</u> -45	M/HCL	xxx	<u>45</u> -80+	C	xxx	3	IV	3b	W
74	0-25	MSL	<5	<5	25-48	SCLmst	xxx	<u>48</u> -75	HCLmst	xxx	3	IV	3b	W
75	0-25	MCL	<5	<5	25-46	rM/HCL	o	<u>46</u> -80+	rC	xxx	5	III	3a	W
76	Field boundary – not surveyed													
77	0-28	FSZL	<5	<5	28-80	rMCLvst	xxx	80+	Stopped on stones		3	II	3a	W
78	0-28	MCLslst	<5	<5	28-40	MCLmst	o	40+	Stopped on stones		4	II?	3a?	W?
79	0-28	MCLmst	15-20	5-10	28-32	rMCLmst	o	32+	Stopped on stones		2	II?	3b	St
80	0-27	MCL	<5	<5	27-72	rSCLfm	xxx	<u>72</u> -100+	rSCL	xxx	4	II	3a	W
81	0-28	MCL	<5	<5	28-50	MCLfm	xxx	<u>50</u> -80+	HCL/C	xxx	3	IV	3b	W
82	0-25	MCL	<5	<5	25-55	rMCLfm	xxx	<u>55</u> -80+	rCfm	xxx	3	III	3a	W
83	0-25	FSL	<5	<5	25-57	rF/MSLslst	xxx	<u>57</u> -100+	rC	xxx	4	III	3a	W
84	0-24	FSZL	<5	<5	24-75	rMSLslst	x	75+	Stopped on stones		5	I	2	C
85	0-32	MCL	<5	<5	32-55	MCL	xx	<u>55</u> -90+	RHCL	xx	3	III/II	3a	W

Obs. No	Topsoil				Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
	Depth (cm)	Texture	Hard stones >2 cm (%)	Stones >6 cm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
86	Not recorded													
87	0-24	MCLslst	>5	<5	24-53	rMCLslst	o	53-70 70+	rSCLvst Stopped on stones	o	4	I / II	2 / 3a	C, W
88	0-26	MSLmst	>10	>5	26-40	MSvst	o	40+	Stopped on stones		3	I	3a	St
89	0-26	M(Z)CL	<5	<5	26-32	MCL	x	32-44 44-80+	HCLfm rC	xxx xxx	3	IV	3b	W
90	0-22	SCL	<5	<5	22-65	SCL	xxx	65+	Stopped on stones		4	II / III	3a	W
91	0-30	SCL	<5	<5	30-57	rSCL	xx	57-90+	rSCL	xx	3	II / III	3a	W
92	0-27	slstMCL/SCL	<5	<5	27-54	vstSCL	o	54-65 65-100+	MS rC/MST	xxx -	3	II	3a	W
93	0-25	MCL	<5	<5	25-80+	rCfm	xxx				3	IV	3b	W
94	0-28	SCL	<5	<5	28-62	SCLmst	o	62+	Stopped on stones		3	II?	3a?	W?
95	0-26	HCL	<5	<5	26-35	HCL	x	35-42 42-80+	HCL rC	xxx xxx	4	IV	4	W
96	0-22	MCL	<5	<5	22-54	MCL	xxx	54-72 72-100+	rC MST	xxx	2	III	3a	W
97	0-34	MCL	<5	<5	34-55	MCL(r)	xx	55-90+	rC	xx	3	III	3a	W
98	0-38	SCL/MCL	<5	<5	28-52	rSCL/MCL	xx	52-90+	rC	xx	2	III/IV	3a/3b	W
99	0-25	SCL	<5	<5	25-57	SCL/MSL	xxx	57-80+	MSL/Soft SST	-	2	II	3a	W
100	0-25	SCL	<5	<5	25-48	SCL	xxx	48-62 62+	MSL Stopped on stones	xxx	2	II	3a	W
101	0-26	SCL	<5	<5	26-47	SCL	xxx	47-90+	rSCL	xxx	3	IV/III	3b/3a	W
102	0-34	FSZL/FSL	<5	<5	34-56	FSL	xxx	56+	ZST		3	I / II	2	C, W
103	0-26	HCL	<5	<5	26-70	F/MSZLslst	xxx	70+	Stopped on stones		2	I / II	3a	W
104	0-28	FSZL	<5	<5	28-40	FSZLslst	xxx	40+	Stopped on stones		3	I-III	2 / 3a	C, W
105	0-30	MCL	<5	<5	30-80+	C	xxx				2	IV	3b	W
106	0-28	MCL	<5	>5	28-40	SCL	xxx	40-100+	rSCL	xxx	3	II / III	3a	W
107	0-32	FSL	<5	<5	32-40	Weathered siltstone		40+	Stopped on stones		4	?	?	?
108	0-28	MCL	<5	<5	28-57	rMCL	xxx	57-80+	rHCL	xxx	2	III	3a	W
109	0-26	HCL	<5	<5	26-80+	rHCL	xxx				4	III / IV	3b/4	W
110	0-28	MCL	<5	<5	28-80+	rC	xxx				1	IV	3b	W
111	0-25	FSZL	<5	<5	25-58	rFSZLvslst	xxx	58-100+	rFSZLslst	xxx	1	I	2	C

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 or f-m concentrations and pale ped faces (gleyed horizon)
xxxx	dominantly blueish/greenish matrix, often with some reddish mottles (gleyed horizon)
xx(x)	Subsoils where gleying evidence is unclear in auger boring (especially reddish soils)

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

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)

Limitations:

W - wetness/workability
D - droughtiness
De - depth
F - flooding
St – stoniness
G - gradient
T – topography/microrelief
Tx – texture
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)
gn – greenish

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)

⁶stoniness classes as 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

Soil pit descriptions

Pit at 426000, 341400⁶

0-25 cm	Brown (7.5YR 4/2) medium clay loam; 5% small and medium quartz pebbles; moderately developed coarse sub-angular blocky structure; firm; no roots; smooth sharp boundary to:
25-42 cm	Reddish brown (2.5YR 5/4) heavy clay loam with light reddish brown (2.5YR 6/3) ped faces and 5% fine red (2.5YR 6/8) mottles; very slightly stony; moderately developed coarse sub-angular blocky structure; firm; <0.5% macropores; smooth gradual boundary to:
42-65 cm	Light reddish brown (5YR 6/3) clay with 40% medium red (2.5YR 5/6) mottles; slightly stony; weakly developed very coarse angular blocky structure; very firm; <0.5% macropores; smooth gradual boundary to:
65-100 cm+	Reddish brown (5YR 4/4) clay with greyish (5YR 5/3) ped faces and 10% red (2.5YR 4/8) mottles; 2-3% dark reddish grey (5YR 3/1) ferri-manganiferous concentrations stoneless; weakly developed very coarse angular blocky structure; very firm; <0.5% macropores.

Wetness Class: IV

Grade: 3b. Limitation: soil wetness.

Pit 14

0-27 cm	Weak red (5YR 4/2) medium clay loam; 1% small and medium quartz pebbles; moderately developed very coarse sub-angular blocky structure; firm; smooth gradual boundary to:
27-50 cm	Reddish brown (5YR 5/4) heavy clay loam with reddish grey (5YR 5/2) ped faces and 3% yellowish red (5YR 5/6) ped face mottles; stoneless; weakly developed very coarse angular blocky structure; firm; <0.5% macropores; smooth gradual boundary to:
50-100 cm+	Reddish brown (5YR 4/4) clay with weak red (2.5YR 5/2) ped faces and 2-3% pale red (2.5YR 6/2) mottles; moderately developed coarse prismatic structure; firm; <0.5% macropores.

Wetness Class: IV

Grade: 3b. Limitation: soil wetness.

Pit 17

0-25 cm	Brown (7.5YR 4/2) fine sandy silt loam; 1-2% small quartz pebbles; moderately developed coarse sub-angular blocky structure; friable; smooth clear boundary to:
25-45 cm	Brown (7.5YR 5/3) fine sandy silt loam; fine sandy loam; 1-2% small quartz pebbles; moderately developed coarse sub-angular blocky structure; friable; wavy clear boundary to
45-110 cm+	Grey (5YR 6/1) soft platy siltstone with reddish brown (5YR 4/4) interstitial inclusions; partial rooting barrier.

Available Water Capacity (AP): Wheat = 127.5 mm; Potatoes = 127.3 mm.

Moisture Balance (MB): Wheat = 41.5 mm; Potatoes = 56.3 mm.

Wetness Class: I

Grade: 2. Limitation: climate.

Pit 50

0-30 cm	Brown (7.5YR 4/2) medium clay loam; stoneless; weakly developed medium subangular blocky structure; moderately weak; no roots; smooth clear boundary to:
30-44 cm	Light brown to light reddish brown (7.5YR to 5YR 6/3) medium clay loam with common fine strong brown (7.5YR 5/6) mottles; 0-1% small, medium and large hard pebbles; weakly developed medium to coarse angular blocky structure; moderately firm; c. 1% macropores; no roots; gradual wavy boundary to:

⁶ Soil pit dug during adjacent related survey.

44-80+ cm	Reddish brown (5YR 5/3) heavy clay loam with common coarse grey (5YR 6/1) mottles; stoneless; weakly developed coarse prismatic structure; very firm; <0.5% macropores; no roots. Wetness Class: IV Grade: 3b. Limitation: soil wetness.
Pit 63	
0-28 cm	Brown (7.5YR 4/2) medium clay loam; 0-1% small, medium and large hard pebbles; weakly developed coarse subangular blocky structure; moderately weak; common fine fibrous roots; smooth clear boundary to:
28-50 cm	Light brown (7.5YR 6/3) medium clay loam with many fine strong brown (7.5YR 5/6) mottles; 0-1% small, medium and large hard pebbles; moderately developed medium to coarse subangular blocky structure; >0.5% macropores; a few fine fibrous roots; gradual wavy boundary to:
50-80+ cm	Reddish brown and reddish grey (5YR 5/3 + 5/2) clay with common medium grey (5YR 6/1) and common fine strong brown (7.5YR 5/8) mottles; stoneless; weakly developed very coarse prismatic structure; moderately firm; <0.5% macropores; no roots. Wetness Class: IV Grade: 3b. Limitation: soil wetness.
Pit 67	
0-28 cm	Dark reddish grey (5YR 4/2) medium clay loam; 0-1% small and medium hard pebbles; weakly developed coarse subangular blocky structure; moderately weak; common fine fibrous roots; smooth clear boundary to:
28-55 cm	Reddish brown (2.5YR 5/3) heavy clay loam; 0-1% small and medium hard pebbles; moderately developed medium angular blocky structure; moderately weak; c. 0.5-1% macropores; a few fine fibrous roots; occasional ferrimanganiferous concentrations; smooth gradual boundary to:
55-80+ cm	Reddish brown (2.5YR 5/3) heavy clay loam with a few fine light yellowish brown to yellowish brown (10YR 6/4 to 5/6) mottles; 0-1% small and medium hard pebbles; weakly developed very coarse prismatic to massive structure; moderately firm; <0.5% macropores; no roots. Wetness Class: III Grade: 3a. Limitation: soil wetness.
Pit 77	
0-28 cm	Dark reddish grey (5YR 4/2) fine sandy silt loam; 0-1% small and medium hard pebbles; weakly developed fine to medium subangular blocky structure; moderately weak; common fine fibrous roots; smooth clear boundary to:
28-80+ cm	Reddish brown (5YR 5/3) medium silty clay loam with common medium yellowish brown (10YR 5/4) and grey (5YR 6/1) mottles; 40-60% medium to large subangular platy brittle siltstones; weakly developed fine to medium subangular blocky structure; moderately weak; porous. Available Water Capacity (AP): Wheat = 152.4 mm; Potatoes = 121.9 mm. Moisture Balance (MB): Wheat = 66.4 mm; Potatoes = 50.9 mm. Wetness Class: II Grade: 2. Limitation: soil wetness.
Pit 92	
0-27 cm	Dark greyish brown (10YR 4/2) medium clay loam/sandy clay loam; 10% small and medium quartz pebbles (<5% >20 mm); moderately developed medium and coarse sub-angular blocky structure; friable; smooth gradual boundary to:
27-54 cm	Brown (7.5YR 5/4) sandy clay loam; 60-70% small and medium quartz pebbles; weakly developed fine sub-angular blocky structure; very friable; smooth sharp boundary to:
54-65 cm	Light brown (10YR 6/4) medium sand with 10% faint fine yellowish brown (10YR 5/6) mottles; stoneless; weakly developed fine sub-angular blocky structure; very friable; smooth gradual boundary to:
65-100 cm+	Weak red (2.5YR 5/2) clay/mudstone; Structureless (massive); very firm. Wetness Class: III Grade: 3a. Limitation: soil wetness.

Pit 96

- 0-22 cm Dark greyish brown (10YR 4/2) medium clay loam; stoneless; moderately developed coarse sub-angular blocky structure; friable; smooth sharp boundary to:
- 22-54 cm Light grey (10YR 7/1) medium clay loam with 10% fine and medium reddish yellow (7.5YR 6/8) mottles; stoneless; moderately developed coarse angular blocky structure; friable; porous; wavy diffuse boundary to:
- 54-72 cm Reddish brown (2.5YR 4/4) clay with pale red (2.5YR 6/2) ped faces and 2-3% fine yellowish (5YR 6/8) mottles; stoneless; moderately developed coarse prismatic structure; firm; <0.5% macropores; smooth diffuse boundary to:
- 72-100 cm+ Reddish brown mudstone with 10% light grey inclusions; massive and very firm.

Wetness Class: III

Grade: 3a. Limitation: soil wetness.

Pit 108

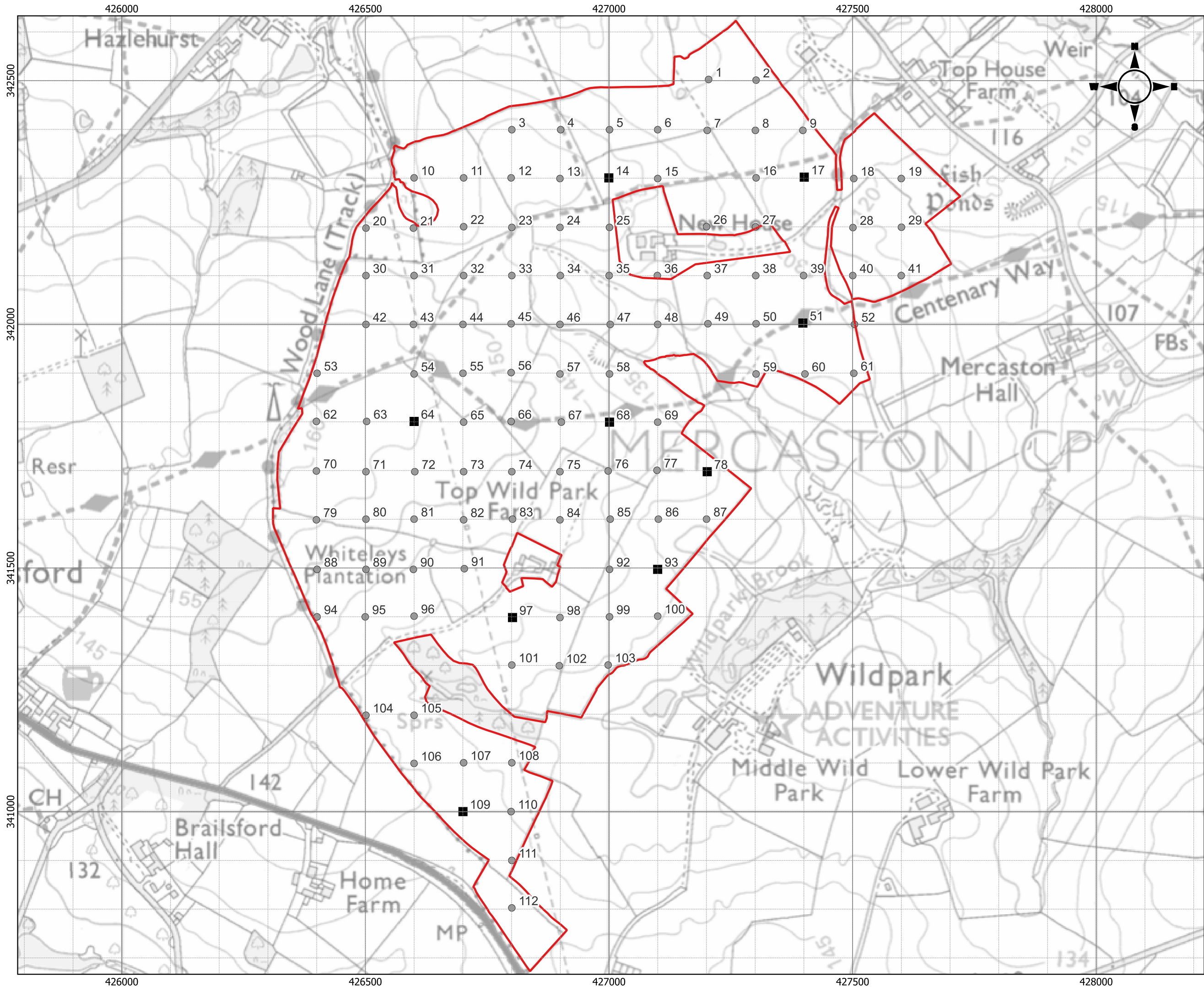
- 0-27 cm Weak red (5YR 4/2) medium clay loam/silty clay loam; 1-2% mixed hard stones; moderately developed coarse sub-angular blocky structure; friable; smooth gradual boundary to:
- 27-54 cm Reddish brown (5YR 4/4) medium silty clay loam with greyish (5YR 5/3) ped faces; stoneless; moderately developed coarse angular blocky structure; friable to firm; porous; common worm channels; smooth diffuse boundary to:
- 54-70 cm Reddish brown (5YR 5/3) medium silty clay loam with weak red (5YR 5/2) ped faces and 5% medium strong brown (7.5YR 5/6) mottles; stoneless; weakly developed very coarse sub-angular blocky structure; friable; moderately porous; smooth gradual boundary to:
- 70-110 cm+ Reddish brown (2.5YR 4/4) clay/mudstone with 5-10% light greyish green (5GY 6/2) siltstone inclusions; weakly developed very coarse angular blocky structure; very firm; <0.5% macro-pores.

Available Water Capacity (AP): Wheat = 131.1 mm; Potatoes = 115.7 mm.

Moisture Balance (MB): Wheat = 46.1 mm; Potatoes = 45.7 mm.

Wetness Class: II

Grade: 3a. Limitation: soil wetness.



- Key**
- Survey area
 - Soil pit
 - Soil auger

Location:
Land east of Brailsford

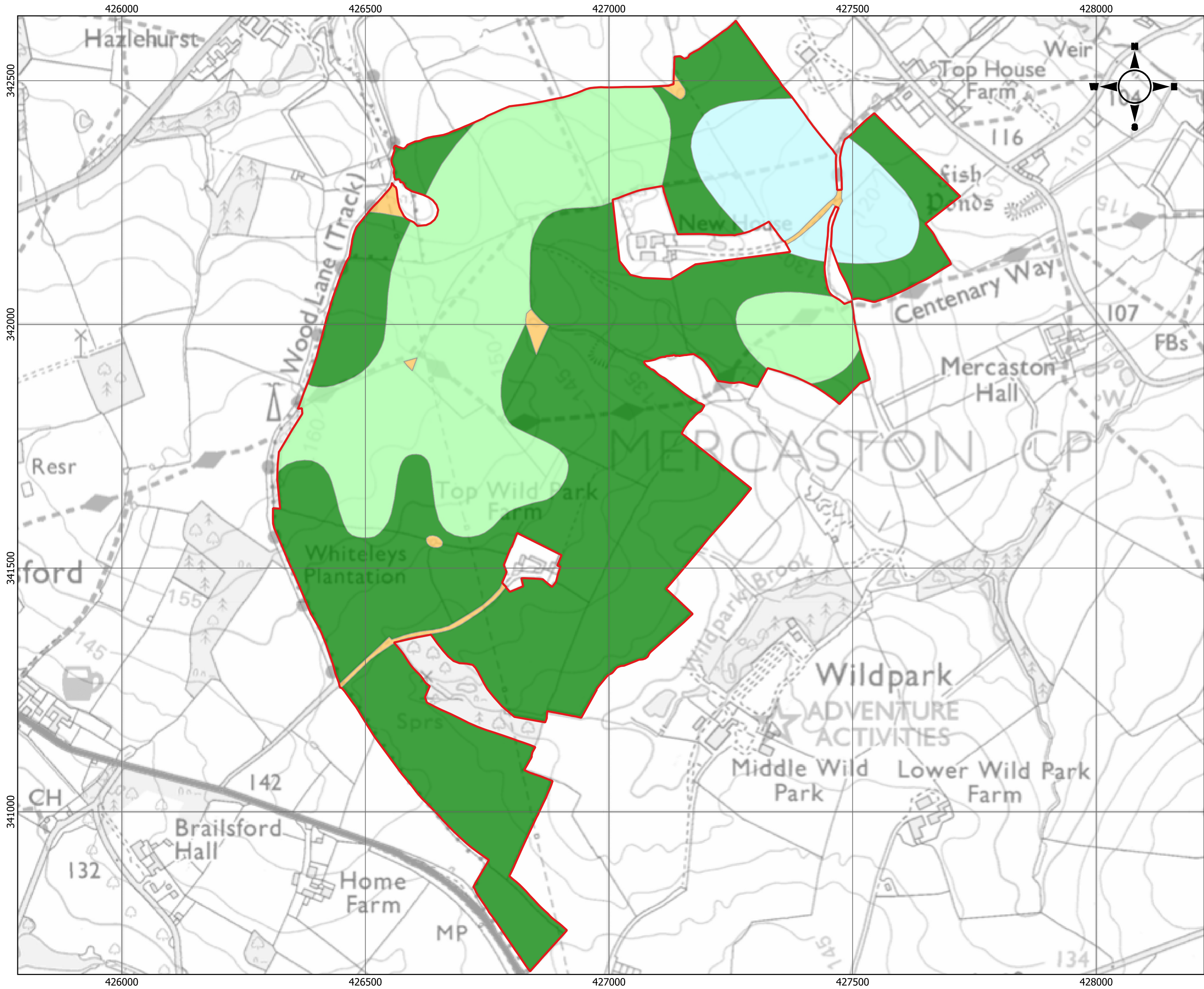
Map:
Map 1 - Observations

Date: 24 / 03 / 2026

Scale: 1 : 7,100 at A3

**Land
Research**
ASSOCIATES

Tapton Park Innovation Centre
Brimington Road
Chesterfield
S41 0TZ
www.lra.co.uk



Key

- Survey area
- Grade 2
- Subgrade 3a
- Subgrade 3b
- Other land

Location:

Land east of Brailsford

Map:

Map 2 - Agricultural land classification

Date: 24 / 03 / 2026

Scale: 1 : 7,100 at A3

Land Research ASSOCIATES

Tapton Park Innovation Centre
Brimington Road
Chesterfield
S41 0TZ
www.lra.co.uk