Soil Environment Services Ltd

AGRICULTURAL LAND CLASSIFICATION

Arcus Consulting Services Ltd

Soay Solar Farm

Soil Environment Services Ltd
April 2022

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AGRICULTURAL LAND CLASSIFICATION

Soay Solar Farm

A report prepared on behalf of ***Soil Environment Services*** by:

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1. INTRODUCTION

An Agricultural Land Classification (ALC) has been carried out on ~126 ha of land near Allerthorpe (Drawing 1). The site is centred on Grid Ref. 476402, 446727. The format of this report follows the 1988 MAFF guidelines for assessing limitations.

The site is currently used for arable cropping which includes cereals and vegetables.

1.1 Methodology

Agricultural land is classified into the following grades according to the 1988 guidelines[1].

Grade	Description
1	**Excellent quality agricultural land** with no or very minor limitations to agricultural use.
2	**Very good quality agricultural land** with minor limitations which affect crop yield, cultivation or harvesting.
3a	**Good quality agricultural land** capable of producing moderate to high yields of a narrow range of arable crops or moderate yields of a wider range of crops.
3b	**Moderate quality agricultural land** capable of producing moderate yields of a narrow range of crops or lower yields of a wider range of crops.
4	**Poor quality agricultural land** with severe limitations which significantly restrict the range of crops and/or level of yields.
5	**Very poor quality agricultural land** with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

The classification includes an initial desktop investigation to examine previously mapped soil types and to note the drift and solid geology followed by the field survey consisting of auger borings at one very 100 m in general and a pit excavated at least in each of the main soil types to confirm the structures. Laboratory analysis of soil textures may be undertaken if needed in order to confirm the *heavy/medium* clay and *medium/fine* sand categories.

All of the potential limitations are assessed and then the most limiting factor dictating the ALC grade was determined for this site and is detailed in Table 5.

1.2 Previous ALC gradings

The 1:250000 MAFF ALC map (1977) details the entire site as Grade 3.

No detailed surveys have been undertaken for the site.

2. CLIMATIC LIMITATIONS

2.1 Overall climate

The climatological data for the entire site centre is detailed in Table 1.

Table 1
Climatological information[3]

Factor	Units	Value
Altitude AOD	m	12
Accumulated temperature	day°C (Jan-June)	1388.4
Average Annual Rainfall	mm	647.1
Field Capacity Days	days	152.6
Moisture Deficit Wheat	mm	104.5
Moisture Deficit Potatoes	mm	95.4

Overall climate will not result in the main limiting factor.

2.2. Local climate

Local climate will not result in the main limiting factor.

3 SITE LIMITATIONS

3.1 Gradient

The gradient will not limit the ALC Grade for the site.

3.2 Microrelief

The microrelief will not limit the ALC Grade for the site.

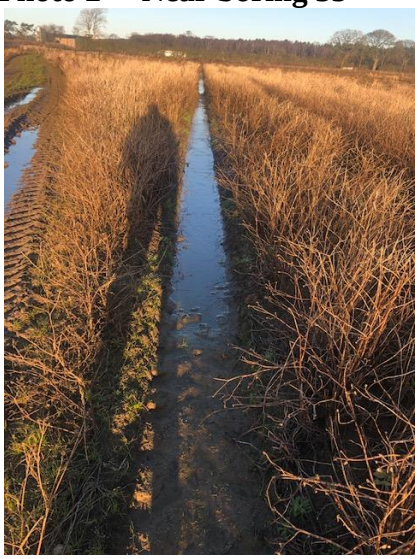
3.3 Flooding

A very low risk from flooding for surface water and rivers and sea has been identified (https://flood-warning-information.service.gov.uk/long-term-flood-risk). Flooding will not limit the ALC Grade for the site.

Some surface water accumulation was noted across the site on the fine sand soils due to compaction in the upper subsoil .

PHOTO 1 Near boring 41

Photo 2 Near boring 35



The soils are noted for having high groundwater which is alleviated in general to some degree by substantial ditch drainage.

4 SOIL LIMITATIONS

4.1 Texture and structure

The soils noted on site are detailed in Table 2.

Table 2. Soil Type descriptions

Profile Description	Soil types	
	Type 1	**Type 2**
Horizon 1 (topsoil)	0-30 cm Very dark greyish brown (10YR3/2) stoneless fine loamy sand	0-30 cm Very dark greyish brown (10YR3/2) stoneless medium loamy sand
Horizon 2 (subsoil 1)	30-45 cm Brown (10YR 4/3) brown fine sand. Few mottles, Single grain with high packing density.	30-45 cm Brown (10YR 4/3) brown medium sand. Few mottles. Single grain.
Horizon 3 (subsoil 2)	45-120 cm Strong brown (7.5YR5/6) fine stoneless sand. Many mottles. Single grain with high packing density,	45-120 cm Strong brown medium (7.5YR5/6) stoneless medium sand. Many mottles. Single grain.
Horizon 4 (subsoil 3)		
Wetness Class	I	I
Moisture Balance - Wheat	34.5	-16.5
Moisture Balance - Potatoes	2.6	-28.4

Notes:
Soil Type 1 (Drawing 1) 1-50, all remaining borings other than below
Soil Type 2 (Drawing 1) 51-53, 60, 62. 82-107,119-126

4.2 Depth

Depth is not a significant limiting factor at this site.

4.3 Stoniness

Stoniness is not a significant limiting factor at this site.

4.4 Chemical

Chemical contamination is not a significant limiting factor at this site.

5. INTERACTIVE LIMITATIONS

5.1 Wetness

Following assessment of the soil characteristics and climatic factors, Soil Types 1 and 2 were found to have a Wetness Class (determined using 'in-field' assessment) which subsequently when considered with FCD and topsoil texture resulted in no limiting factor in determining the ALC Grade. Wetness Class assessment criteria are listed in Table 3 below for the soil types.

Table 3. In-field Wetness Class Assessment

Feature	Parameter	Soil Types		
		1	2	3
Site conditions	Undisturbed/ disturbed	Undisturbed	Undisturbed	
	FCD	152.6	152.6	
Potential Slowly Permeable Layer (SPL)	Horizon depth (cm)	None	None	
	Texture			
	Structure			
	Biopores > 0.5 mm (%)			
	Evidence of wetness above			
Potential Gleyed/ Slightly Gleyed Horizon	Matrix colour	NA	NA	
	Ped faces colour			
	Mottles			
	Depth to gleying (cm)			
	Horizon type			
ALC guidelines Figure reference		-	-	
Wetness Class		1	1	

Notes
FCD – Field Capacity Days WC – Wetness Class

5.2. Droughtiness

Following assessment of the soil characteristics and climatic factors, Soil Type 1 was found to have a soil Moisture Balance which subsequently when considered with respect to the Moisture Deficit for potatoes resulted in a significant limiting factor in determining the ALC Grade.

Soil Type 2 with coarser textured soils has a Moisture Balance which subsequently when considered with respect to the Moisture Deficit for wheat and potatoes resulted in a significant limiting factor in determining the ALC Grade.

Moisture Balance assessment criteria are listed in Table 4 below for the soil types.

Table 4 Droughtiness calculations

Moisture Balance (MB) = AP - MD for wheat and potatoes (adjusted for stones*)
Moisture availability data for each texture from MAFF ALC Guidelines 1988**

Type 1 Soil	Horizon	**Data from Table 14 texture	water/depth	% vol	Stones Tav	Eav	AP water*
TAvt - Topsoil water available (mm)	Topsoil	FLS	18	0	1	0.5	18.00
LTt - Topsoil thickness (cm)			30				30.00
TAvs - Subsoil total available	1	FS	11	0	1		11.00
	2	FS	11	0	1		11.00
	3		0	0	0		0.00
	4		0	0	0		0.00
EAvs - Subsoil (SS) easily available	1	FS	9			0.5	9.00
	2	FS	9			0.5	9.00
	3		0			0	0.00
	4					0	0.00
LT50 - Thickness ss layers to 50cm	1		10				10.00
	2		10				10.00
	3		0				0.00
	4						0.00
LT120 - Thickness ss layers 50 to 120cm	1		0				0.00
	2		70				70.00
	3		0				0.00
	4						0.00
LT0 - Thickness ss layers to 70cm	1		10				10.00
	2		30				30.00
	3		0				0.00
	4						0.00
Total profile thickness for soil type cm			120				120

SOIL Droughtiness (moisture balance) results

AP wheat =	139.0	Grade	
Moisture balance wheat =	34.5	1	
AP potatoes =	98.0		
Moisture balance potatoes =	2.6	2	

Notes
Available water for fine sand has been reduced by ~ 20%-25% due to compaction in the sub-soil

Moisture Balance (MB) = AP - MD for wheat and potatoes (adjusted for stones*)

Moisture availability data for each texture from MAFF ALC Guidelines 1988**

Type 2 Soil	Horizon	**Data from Table 14 texture	water/depth	% vol	Stones Tav	Eav	AP water*
TAvt - Topsoil water available (mm)	Topsoil	MLS	13	0	1	0.5	13.00
LTt - Topsoil thickness (cm)			30				30.00
TAvs - Subsoil total available	1	MS	7	0	1		7.00
	2	MS	7	0	1		7.00
	3		0	0	0		0.00
	4		0	0	0		0.00
EAvs -	1	MS	5			0.5	5.00
Subsoil (SS) easily available	2	MS	5			0.5	5.00
	3		0			0	0.00
	4					0	0.00
LT50 -	1		10				10.00
Thickness ss layers to 50cm	2		10				10.00
	3		0				0.00
	4						0.00
LT120 -	1		0				0.00
Thickness ss layers 50 to 120cm	2		70				70.00
	3		0				0.00
	4						0.00
LT0 -	1		10				10.00
Thickness ss layers to 70cm	2		30				30.00
	3		0				0.00
	4						0.00
Total profile thickness for soil type cm			120				120

SOIL Droughtiness (moisture balance) results

AP wheat =	88.0	Grade	
Moisture balance wheat =	-16.5	3a	
AP potatoes =	67.0		
Moisture balance potatoes =	-28.4	3a	

5.3 Erosion

Wind erosion is a factor, noted across the entire site, that is considered to further substantially downgrade the classifications due to the stoneless high fine and medium to fine topsoil sand content giving structurally unstable topsoils which are susceptible to wind blow during the spring and summer in drier conditions. These soils are also noted to result in difficult winter cropping conditions which result in a reduced cropping variety and hence the land is ***capable of producing moderate yields of a narrow range of crops***. This places the entire site in the ALC Grade of 3b.

6. AGRICULTURAL LAND CLASSIFICATION

6.1 Most limiting factor

Grade 3b land – Droughtiness and Erosion Limitations

The combination of climatic factors and soil profile textures results in a droughtiness limitation for both soil types (Section 5.2). However these gradings are further significantly reduced by the compounding factors of wind erosion in dry conditions and structural instability of the topsoil in wetter winter months.

The land is very sandy and suffers badly from wind erosion and droughtiness. Winter crops are also not on the whole sown due to the poorly structured topsoil limiting machinery use and also resulting in capping. Overall the erosion and droughtiness reduces the agricultural productivity relatively uniformly across the site to the point that the land is ***capable of producing moderate yields of a narrow range of crops*** resulting in a final **ALC Grade of 3b** for all soils.

Crop yields

Data supplied by The Andersons Centre (https://theandersonscentre.co.uk/) in 2021 as part of a Farm Business Review for H Featherstone & Sons, Grange Farm, noted that: '*Winter and Spring Wheat combined yields have averaged under 3.6 t/ha for the past 3 harvests.'* UK average would be around 8.5 t/ha. In addition, the review notes: '*Barley yields at 4.46 t/ha are low..*'. UK average should be around 6.9 t/ha. This data indicates that significant major crop yields are consistently very low and supports the narrow crop range resulting in the 3b grading.

6.2 Current grading summary

This survey has resulted in an Agricultural Land Classification of the following grades:

Table 5. ALC gradings and limitations

Grade	ha	%	Limitation
1			
2			
3a			
3b	120.5	95.6	Droughtiness with Erosion
4			
5			
Non-agricultural land	5.5	4.4	Woodland and buildings
Total	126	100%	

DRAWING 1

ALC Grade

Key

ALC Grades
- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Non agricultural land

● Observation point
■ Pit

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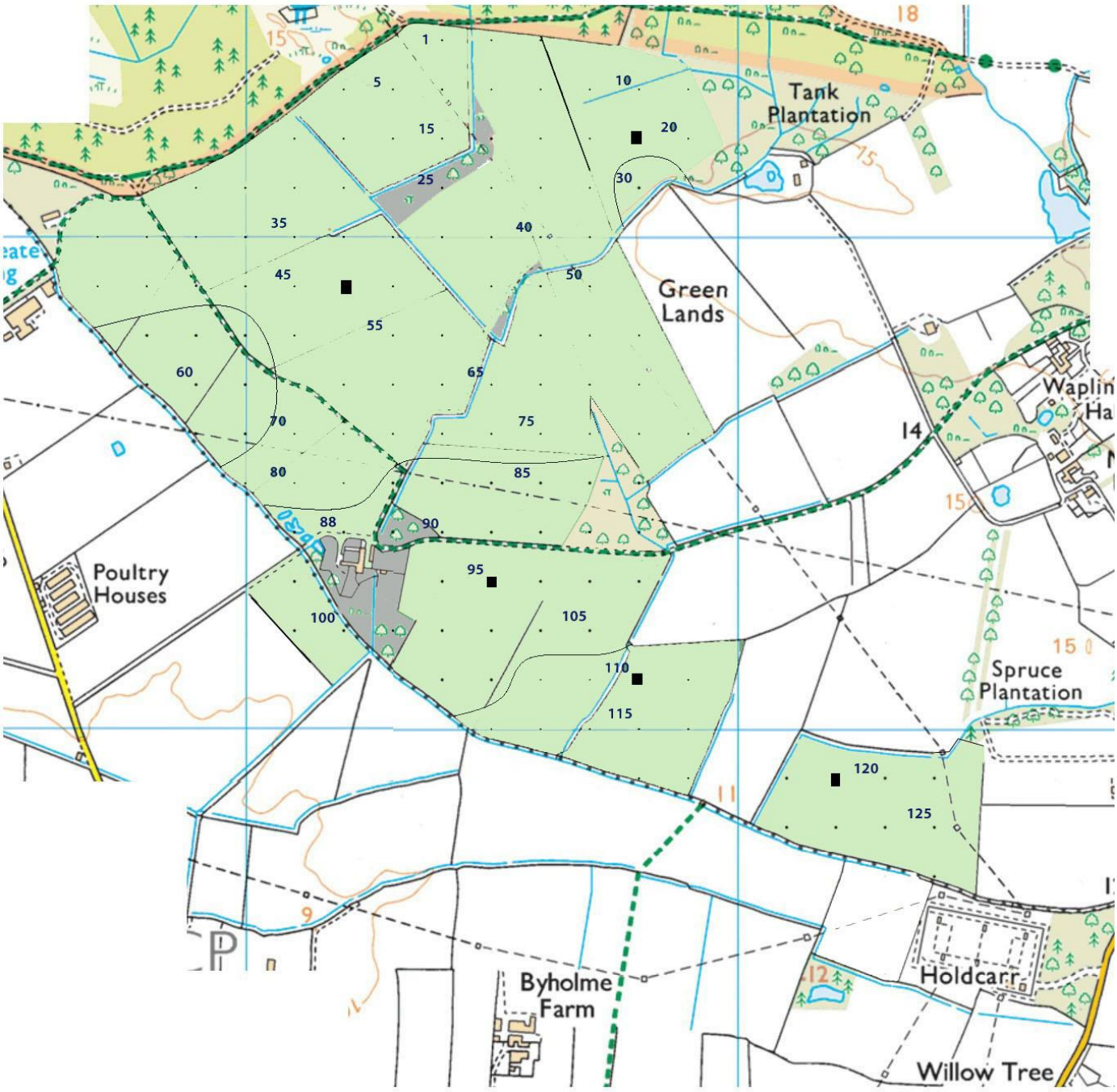
Drawing Title: ALC Grade	Drawing No.: 1
Scale: NA	Date: 15/01/2020

N



APPENDIX A

Soil profile data

Obs pt	Base depth (cm)	Text.	Col.	Motts. %/ depth	Mott/ Ped face colour	Stns %	Grad. (deg))	Struct/ Other	Obs pt	Base depth (cm)	Text.	Col.	Motts. %/ depth	Mott/ Ped face colour	Stns %	Grad. (deg)	Struct/ Other
1	45	FLS	10YR32	0		0	<7°		16	WOODLAND							
	120	FS	10YR43	5/35	10YR56	0		SG									
2	45	FLS	10YR32	0		0	<7°		17	35	FLS	10YR32	0		0		
	120	FS	10YR43	5/35	10YR56	0		SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
										120	FS	7.5YR56	20/70	2.5Y61	0		SG
3	35	FLS	10YR32	0		0			18	35	FS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG									
4	35	FLS	10YR32	0		0			19	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
5	35	FLS	10YR32	0		0			20	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
6	35	FLS	10YR32	0		0			21	35	FLS	FLS	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	FS	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	FS	20/70	2.5Y61	0		SG
7	35	FLS	10YR32	0		0			22	25	FS	10YR31	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		120		10YR56	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG									
8	35	FLS	7.5YR32	0		0			23	35	FLS	10YR32	0		0		
	45	FS	7.5YR34	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
9	35	FLS	10YR32	0		0			24	WOODLAND							
	45	FS	10YR43	5/35	10YR56	0	<7°	SG									
	120	FS	7.5YR56	20/70	2.5Y61	0		SG									
10	50	FLS	10YR31	0		0			25	WOODLAND							
	120	FS	10YR56	5/35	10YR56	0	<7°	SG									
		FS						SG									
11	35	FLS	10YR32	0		0			26	35	FLS	10YR32	0		0		
	45	FLS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FLS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
12	35	FLS	10YR32	0		0			27	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
13	35	FLS	10YR32	0		0			28	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
14	35	FLS	10YR32	0		0			29	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
15	35	FLS	10YR32	0		0			30	30	FLS	7.5YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		85	FS	10YR22	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		86	FS	10YR66	5/36	10YR57	0		SG

Obs pt.	Base depth (cm)	Text.	Col.	Motts. %/ depth	Mott/ Ped face colour	Stns %	Grad. (deg.)	Struct/ Other	Obs pt.	Base depth (cm)	Text.	Col.	Motts. %/ depth	Mott/ Ped face colour	Stns %	Grad. (deg.)	Struct/ Other
31	45	FLS	7.5YR31	0		0			46	30	FLS	10YR33	0		0		
	120	FS	10YR46	5/35	10YR56	0	<7°	SG		120	FS	10YR56	5/35	10YR56	0	<7°	SG
32	35	FLS	10YR32	0		0			47	40	FLS	10YR34	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		120	FS	10YR54	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG									
33	35	FLS	10YR32	0		0			48	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
34	35	FLS	10YR32	0		0			49	35	FLS	10YR32	0		0		
	45	FLS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FLS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
35	35	FLS	10YR32	0		0			50	40	FLS	10YR33	0		0		
	45	FLS	10YR43	5/35	10YR56	0	<7°	SG		120	FS	10YR45	5/35	10YR56	0	<7°	SG
	120	FLS	7.5YR56	20/70	2.5Y61	0		SG									
36	40	FLS	5YR32	0		5			51	35	MLS	10YR32	0		0		
	120	FLS	5YR43	20/40	5YR46	5	<7°	SGCP		45	MS	10YR43	5/35	10YR56	0	<7°	SG
										120	MS	7.5YR56	20/70	2.5Y61	0		SG
37	35	FLS	10YR32	0		0			52	35	MLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
38	30	FLS	10YR32	0		0			53	35	MLS	10YR32	0		0		
	50	FS	10YR56	5/35	10YR56	0	<7°	SG		45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	10YR44	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
39	35	FLS	10YR32	0		0			54	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
40	30	FLS	10YR33	0		0			55	35	FLS	10YR32	0		0		
	70	FS	10YR53	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	10YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
41	35	FLS	10YR32	0		0			56	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
42	35	FLS	10YR32	0		0			57	WOODLAND							
	45	FS	10YR43	5/35	10YR56	0	<7°	SG									
	120	FS	7.5YR56	20/70	2.5Y61	0		SG									
43	35	FLS	10YR32	0		0			58	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
44	35	FLS	10YR32	0		0			59	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
45	35	FLS	10YR32	0		0			60	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG

Obs pt.	Base depth (cm)	Text.	Col.	Motts. %/ depth	Mott/Ped face colour	Stns %	Grad. (deg.)	Struct/ Other	Obs pt.	Base depth (cm)	Text.	Col.	Motts. %/ depth	Mott/Ped face colour	Stns %	Grad. (deg.)	Struct/ Other
61	30	MLS	10YR32	0		0			76	35	FLS	10YR32	0		0		
	45	MS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	MS	10YR54	20/70		0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
62	35	MLS	7.5YR33	0		0			77	30	FLS	10YR32	0		0		
	120	MS	10YR31	5/35	10YR56	0	<7°	SG		45	FS	10YR54	5/35	10YR56	0	<7°	SG
63	35	FLS	10YR32	0		0			78	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
64	35	FLS	10YR32	0		0			79	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
65	35	FLS	10YR32	0		0			80	35	FLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
66	40	FLS	7.5YR32	0		0			81	45	FLS	10YR33	0		0		
	120	FS	10YR56	5/35	10YR56	0	<7°	SG		45	FS	10YR44	5/35	10YR56	0	<7°	SG
															0		
67	35	FLS	10YR32	0		0			82	35	MLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		120	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG									
68	35	FLS	10YR32	0		0			83	35	MLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
69	35	MLS	10YR32	0		0			84	30	MLS	10YR32	0		0		
	45	MS	10YR43	5/35	10YR56	0	<7°	SG		45	MS	10YR46	5/35	10YR56	0	<7°	SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	10YR34	20/70	2.5Y61	0		SG
70	35	FLS	10YR32	0		0			85	35	MLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
71	35	FLS	10YR32	0		0			86	35	MLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
72	35	FLS	10YR32	0		0			87	40	MLS	7.5YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	MS	10YR42	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG									
73	35	FLS	10YR32	0		0			88	35	MLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
74	35	FLS	10YR32	0		0			89	WOODLAND							
	45	FS	10YR43	5/35	10YR56	0	<7°	SG									
	120	FS	7.5YR56	20/70	2.5Y61	0		SG									
75	35	FLS	10YR32	0		0			90	35	MLS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG		45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG

Obs pt.	Base depth (cm)	Text.	Col.	Motts. %/ depth	Mott/Ped face colour	Stns %	Grad. (deg.)	Struct/ Other	Obs pt.	Base depth (cm)	Text.	Col.	Motts. %/ depth	Mott/Ped face colour	Stns %	Grad. (deg.)	Struct/ Other
91	35	MLS	10YR32	0		0	<7°		106	35	MLS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	MS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
92	35	MLS	10YR32	0		0	<7°		107	35	MLS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	MS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
93	35	MLS	10YR32	0		0	<7°		108	35	FS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	FS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
94	35	MLS	10YR32	0		0	<7°		109	45	FS	10YR34	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		120	FS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG									
95	35	MLS	10YR32	0		0	<7°		110	35	FS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	FS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
96	35	MLS	7.5YR32	0		0	<7°		111	35	FS	10YR32	0		0	<7°	
	45	MS	10YR54	5/35	10YR56	0		SG		45	FS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
97	35	MLS	10YR32	0		0	<7°		112	35	FS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	FS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
98	35	MLS	10YR32	0		0	<7°		113	35	FS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	FS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
99	35	MLS	10YR32	0		0	<7°		114	25	FS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	FS	10YR53	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG									
100	35	MLS	10YR32	0		0	<7°		115	35	FS	10YR32	0		0	<7°	
	120	MS	10YR53	5/35	10YR56	0		SG		45	FS	10YR43	5/35	10YR56	0		SG
								SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
101	WOODLAND								116	35	FS	10YR32	0		0	<7°	
										45	FS	10YR43	5/35	10YR56	0		SG
										120	FS	7.5YR56	20/70	2.5Y61	0		SG
102	35	MLS	10YR32	0		0	<7°		117	35	FS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	FS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	FS	7.5YR56	20/70	2.5Y61	0		SG
103	35	MLS	10YR32	0		0	<7°		118	35	MLS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	MS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
104	35	MLS	10YR32	0		0	<7°		119	35	MLS	10YR32	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	MS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG
105	35	MLS	10YR32	0		0	<7°		120	40	MLS	10YR34	0		0	<7°	
	45	MS	10YR43	5/35	10YR56	0		SG		45	MS	10YR43	5/35	10YR56	0		SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG		120	MS	7.5YR56	20/70	2.5Y61	0		SG

Obs pt.	Base depth (cm)	Text.	Col.	Motts. %/ depth	Mott/Ped face colour	Stns %	Grad. (deg.)	Struct/ Other
121	35	MLS	10YR32	0		0		
	45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG
122	35	MLS	10YR32	0		0		
	45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG
123	35	MLS	10YR33	0		0		
	40	MS	10YR66	5/35	10YR56	0	<7°	SG
	120	MS	10YR34	20/70	2.5Y61	0		SG
124	35	MLS	10YR32	0		0		
	45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG
125	25	MLS	10YR32	0		0		
	45	MS	10YR43	5/35	10YR56	0	<7°	SG
	120	MS	7.5YR56	20/70	2.5Y61	0		SG
126	35	FS	10YR32	0		0		
	45	FS	10YR43	5/35	10YR56	0	<7°	SG
	120	FS	7.5YR56	20/70	2.5Y61	0		SG

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