OAKLANDS FARM SOLAR PARK

Applicant: Oaklands Farm Solar Ltd

Environmental Statement
Appendix 15.1 – Agricultural Land Classification Survey for Oaklands Farm
January 2024
Document Ref: EN010122/APP/6.1/Appx 15.1
Revision: -

Planning Act 2008
Infrastructure Planning (Application: Prescribed Forms and Procedure) Regulations 2009 - 5(2)(a)

Oaklands Farm Solar Park - Environmental Statement Volume 3

Appendix 15.1: Agricultural Land Classification (Oaklands Farm area) (SES)

Final report
Prepared by LUC
January 2024

Soil Environment Services Ltd

AGRICULTURAL LAND CLASSIFICATION

ARCUS CONSULTANCY SERVICES

Oaklands Farm

Soil Environment Services Ltd
July 2020

Our Ref: SES/ACS/OF/#3 **Date: 24th July 2020**

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AGRICULTURAL LAND CLASSIFICATION

Oaklands Farm

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

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1. INTRODUCTION & METHODOLOGY

An Agricultural Land Classification (ALC) has been carried out on ~ 162 ha of land at Oaklands Farm (Drawing 1). The site is centred on Grid Ref. 423034,316743.

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 **3b**	**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. **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 survey was conducted on the 8th and 9th July 2020 and classifies the land into one or more of the above grades.

The classification includes an initial desktop investigation to examine previously mapped soil types and to note the drift and solid geology. This included consultation from a number of maps and reference documents (References).

The field survey consisted of point observations usually on a 100 m grid and generally in line with the nation grid (~5 m accuracy) and hand auger borings to a depth of 1.2 m depth as needed. Pit excavations are conducted to determine sub soil structure where necessary. This data was used to map the principal soil types for determining the ALC. The soil removed during augering and pit excavations was examined in accordance with the guidelines.

Climatological data[3] was used to determine the overriding site limitation and for interaction with soil parameters. The ALC grade was then determined for this site and for the current survey and is detailed in Table 3.

Soil can vary considerably over short distances and hence some variation can exist in the soils not assessed between observation points compared with those at the observation points. Also, non-significant variation with horizon depths and other parameters can occur between observation points and may not necessarily be recorded for ALC purposes. Using all information available, every effort is made to assess and group soils into significantly different types for the purposes of ALC grading. Some generalisation therefore needs to take place in order to group, categorise and map the soil types.

2. SITE CONDITIONS

2.1. Climate and flooding

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

Table 1
Climatological information[3]

Factor	Units	Value
Altitude AOD	m	75
Accumulated temperature	day°C (Jan-June)	1390.5
Average Annual Rainfall	mm	636.2
Field Capacity Days	days	137.5
Moisture Deficit Wheat	mm	104.3
Moisture Deficit Potatoes	mm	94.7

2.2. Geology

Drift geology/ superficial deposits
Southeast and northwest
1:50 000 scale superficial deposits description: Alluvium - Clay, Silt, Sand And Gravel. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by rivers (U).
Southeast and northwest
1:50 000 scale superficial deposits description: Thrussington Member - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions (U).

Bedrock geology
1:50 000 scale bedrock geology description: Edwalton Member - Sandstone. Sedimentary Bedrock formed approximately 228 to 237 million years ago in the Triassic Period. Local environment previously dominated by hot deserts.

2.3. Topography

The slope measured on site in general was minimal and gradient will not limit the ALC Grade in excess of any other limitations. Variation in relief was noted such as not to effect farming practices directly but more to have influenced the geomorphology and hence soil development.

2.4. Current agriculture or other land use

On the survey date the site had been sown with wheat, barley, oats, corn and included pastures for grass grazing by cattle.

3 SOIL CHARACTERISTICS

3.1. Mapped soil types

The soils are mapped as loamy and clayey soils with impeded drainage. The soil pattern is relatively complex and has been influenced by the solid geology and superficial deposits which also have a complex pattern across the site.

3.2. Description of surveyed soil types

The soils noted on site, in general, to some degree in general match the soils previously mapped with slight but significant variations in texture effecting the wetness class and hence ALC grade. The soil pattern is relatively complex but in general the lighter textured soils are located on the diamicton to the far west and north east and the heavier soils on the alluvium.

Profile data specifically significant for ALC grading is listed in Appendix B. A summary of the features of the soil type/s are listed in Table 2 and observation points locations are shown within Drawing 1.

Table 2. Soil Type descriptions

Profile Description	Soil types		
	Type 1	**Type 2**	**Type 3**
Horizon 1 (topsoil)	0-30 cm Dark brown (7.5YR3/2) sandy clay loam, very slightly stoney	0-25 cm Dark brown (7.5YR3/2) clay loam, very slightly stoney	0-30 cm Dark yellowish brown (10YR4/4) clay, heavy silty clay loam or heavy clay loam, slightly stoney
Horizon 2 (subsoil 1)	30-60 cm Brown (7.5YR4/4) sandy clay loamy, slightly stoney, moderate medium subangular blocky to moderate coarse prismatic, no mottles	25-50 cm Dark yellowish brow (10YR4/6) sandy clay, slightly stoney, medium subangular blocky, mottles at 25 cm	30-70 cm Reddish brown (5YR4/4) stoneless clay, mottles at 30 cm, strong coarse prismatic structure
Horizon 2 (subsoil 2)	60-120 Reddish brown (5YR4/3) sandy clay loam, moderately stoney, mottles at 70 cm, moderate coarse prismatic	50-120 cm Reddish brown, (5YR4/3) clay, slightly stoney, moderate coarse prismatic, mottles at 50 cm	70-120 cm Reddish brown (5YR4/4) stoneless silty clay, mottles at 70 cm, moderate coarse angular blocky
Wetness Class	II	III	III
Moisture Balance - Wheat	31.2	19.6	52.5
Moisture Balance - Potatoes	7.6	10.0	22.5
Survey points (Drawing 1) and soil types: Borings/ Trial Pits Type 1 soil = ALC Grade 2 areas, Type 2 soil = ALC Grade 3a areas, Type 3 soil = ALC Grade 3b areas			

4. AGRICULTURAL LAND CLASSIFICATION

4.1. National 1:250 000 map or previous survey ALC grading

Grading on the MAFF 1:250 000 map indicates the site is mapped as **ALC Grade 3 and 2**. No previous detailed surveys have been undertaken.

4.2. Current grading

This survey has resulted in an Agricultural Land Classification of the following grades (Drawing 1):

Table 3. ALC gradings and limitations

Grade	Area		Limitation
	ha.	%	
1			
2	37	22.8	Wetness
3a	71	43.8	Wetness
3b	54	33.4	Wetness/Slope
4			
5			
Non-agricultural land			
Total	162	100%	

Grade 2 land

The combination of soils with a Wetness Class of II, the Field Capacity Days of 37.5 and a topsoil texture of Sandy Clay Loam results in an ALC Grade of 2.

Grade 3a land

The combination of soils with a Wetness Class of III, the Field Capacity Days of 37.5 and a topsoil texture of Medium Clay Loam results in an ALC Grade of 3a.

Grade 3b land

The combination of soils with a Wetness Class of III, the Field Capacity Days of 37.5 and a topsoil texture of Clay or Heavy Silty Clay Loam with also one small area with a gradient of 8◦ results in an ALC Grade of 3b.

DRAWING 1

ALC Grade

Key

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

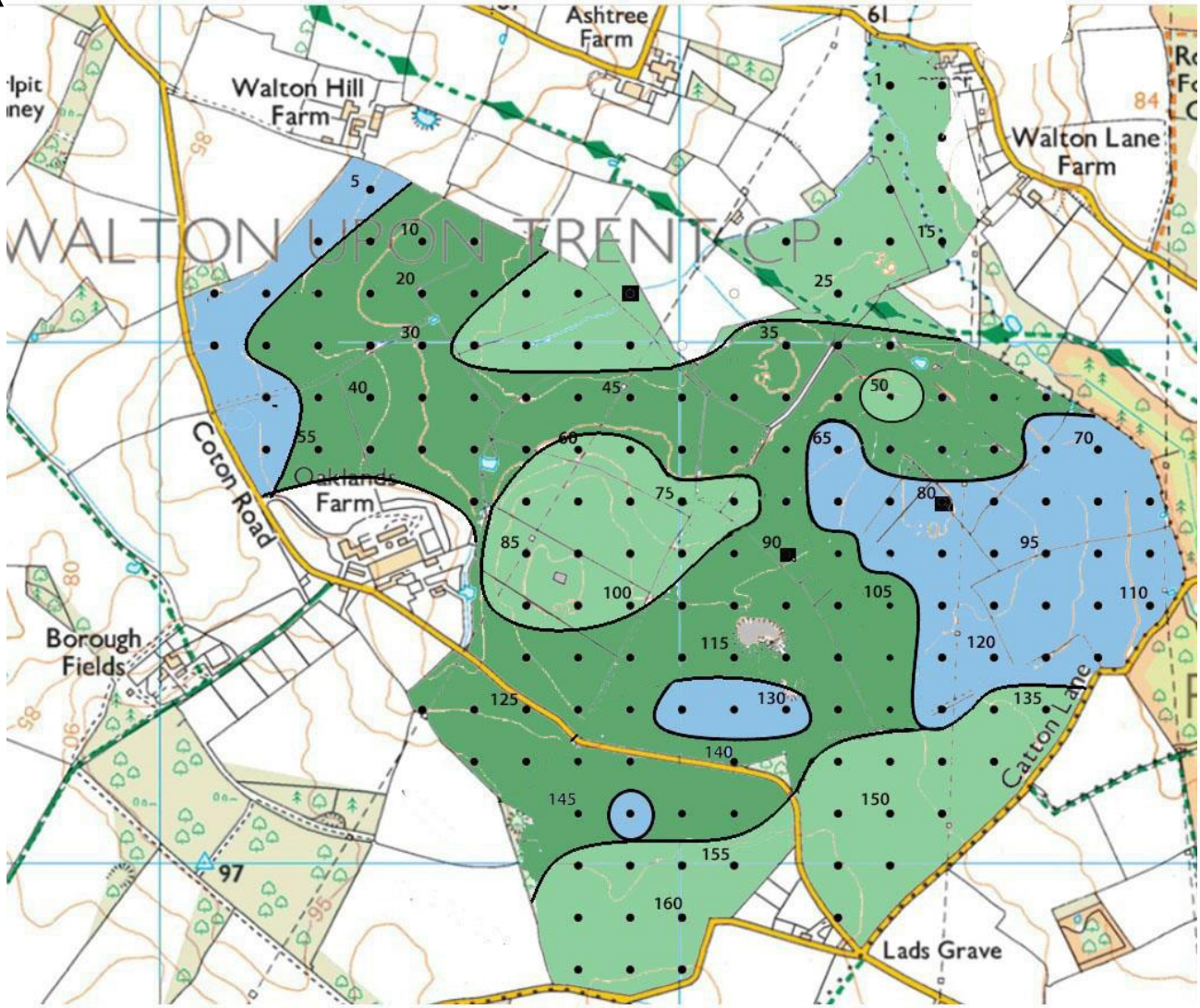
Pit

Auger boring/ observation point

Soil Environment Services

Drawing Title: ALC Grade	Drawing No.: 1
Scale: NA	Date: 13/07/2020

N



APPENDIX A

Soil profile data

Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other	Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other
1	30	HZCL	10YR44	0	10			16	30	SCL	7.5YR32	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		60	SCL	7.5YR44	20/25	15	<7°	MMSAB
	120	C	5YR44	30/70	0		MCAB		120	SCL	5YR43	20/50	20		MCP
2	30	HZCL	10YR44	0	10			17	30	SCL	7.5YR32	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		60	SCL	7.5YR44	20/25	15	<7°	MMSAB
	120	C	5YR44	30/70	0		MCAB		120	SCL	5YR43	20/50	20		MCP
3	30	HZCL	10YR44	0	10			18	25	MCL	7.5YR32	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR43	20/50	15		MCAB
4	25	ZC	10YR32	0	5			19	30	MZCL	10YR42	0	5		
	60	ZL	7.5YR43	15/25	5	<7°	MCAB		120	HZCL	7.5YR33	15/30	10	<7°	SCP
	120	SCL	10yr43	30/70	50		MCAB								
5	30	SCL	7.5YR32	0	5			20	25	MCL	7.5YR32	0	5		
	60	SCL	5YR43	20/30	5	<7°	MMSAB-		50	SC	10YR46	15/25	10	<7°	SCP
	120	SCL	5YR43	20/70	5		MCP		120	C	5YR43	20/50	15		MCAB
6	30	HZCL	10YR44	0	10			21	25	MCL	7.5YR32	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR43	20/50	15		MCAB
7	30	HZCL	10YR44	0	10			22	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
8	30	SCL	7.5YR32	0	5			23	30	HCL	10YR44	0	10		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		70	C	5YR44	30/30	0	<7°	SCP
	120	SCL	5YR43	20/70	20		MCP		120	C	5YR44	30/70	0		MCAB
9	25	MCL	7.5YR32	0	5			24	30	HZCL	10YR44	0	10		
	50	SC	10YR46	15/25	10	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR44	30/70	0		MCAB
10	25	MCL	7.5YR32	0	5			25	30	HZCL	10YR44	0	10		
	50	SC	10YR46	15/25	10	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR44	30/70	0		MCAB
11	25	MCL	7.5YR32	0	5			26	30	HZCL	5YR33	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		70	SCL	7.5YR34	0	5	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	SCL	10YR53	15/70	15		MCAB
12	20	C	7.5YR32	0	0			27	25	MCL	7.5YR32	0	5		
	120	C	10YR52	5	0	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
									120	C	5YR43	20/50	15		MCAB
13	30	HZCL	10YR44	0	10			28	25	MCL	7.5YR32	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR43	20/50	15		MCAB
14	30	HZCL	10YR44	0	10			29	25	MCL	7.5YR32	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR43	20/50	15		MCAB
15	30	HZCL	10YR44	0	10			30	30	ZL	10YR32	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		60	SZL	10YR42	15/30	10	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	SZL	5YR43	20/60	70		

Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other	Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other
31	30	HZCL	10YR44	0	10			46	30	HZCL	7.5YR43	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		70	C	5YR44	15/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
32	30	HZCL	10YR44	0	10			47	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP		60	ZCL	10YR46	25/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
33	30	HZCL	10YR44	0	10			48	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
34	30	HZCL	10YR44	0	10			49	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
35	25	MCL	7.5YR32	0	5			50	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	8	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
36	25	MCL	7.5YR32	0	5			51	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
37	25	MCL	7.5YR32	0	5			52	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
38	30	SCL	7.5YR32	0	5			53	25	MCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		50	SC	10YR46	15/25	10	<7°	SCP
	120	SCL	5YR43	20/70	20		MCP		120	C	5YR43	20/50	15		MCAB
39	25	MCL	7.5YR32	0	5			54	20	SCL	10YR3/2	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		60	LS	10YR34	0	5	<7°	WMAB
	120	C	5YR43	20/50	15		MCAB		120	SCL	5YR43	20/70	20		MCP
40	25	MCL	7.5YR32	0	5			55	25	C	5YR32	5/15	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	C	YE34	25/25	5	<7°	WMAB
	120	C	5YR43	20/50	15		MCAB		80	C	5YR44	25/50	5		MCAB
									120	ZCL	2.5YR44	25/80	5		m
41	25	MCL	7.5YR32	0	5			56	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
42	25	MCL	7.5YR32	0	5			57	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
43	25	MCL	7.5YR32	0	5			58	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
44	25	MCL	7.5YR32	0	5			59	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
45	25	C	5YR53	0	5			60	30	HZCL	10YR44	0	10		
	50	C	5YR44	20/25	5	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	ZCL	5YR44	20/50	5		MCAB		120	C	5YR44	30/70	0		MCAB

Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other	Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other
61	30	HZCL	10YR44	0	10			76	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
62	25	MCL	7.5YR32	0	5			77	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
63	25	MCL	7.5YR32	0	5			78	30	SCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	C	5YR43	20/50	15		MCAB		120	SCL	5YR43	20/70	20		MCP
64	25	MCL	7.5YR32	0	5			79	30	SCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	C	5YR43	20/50	15		MCAB		120	SCL	5YR43	20/70	20		MCP
65	30	SCL	7.5YR32	0	5			80	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP		120	SCL	5YR43	20/70	50		WCP
66	25	MCL	7.5YR32	0	5			81	30	SCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	C	5YR43	20/50	15		MCAB		120	SCL	5YR43	20/70	20		MCP
67	25	MCL	7.5YR32	0	5			82	30	SCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	C	5YR43	20/50	15		MCAB		120	SCL	5YR43	20/70	20		MCP
68	25	MCL	7.5YR32	0	5			83	30	SCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	C	5YR43	20/50	15		MCAB		120	SCL	5YR43	20/70	20		MCP
69	30	SCL	7.5YR32	0	5			84	30	SCL	10YR53	10/10	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		55	SC	10YR34	25/30	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP		120	SCL	5YR43	20/55	50		WCP
70	30	SCL	7.5YR32	0	5			85	35	C	5YR33	5/10	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		120	C	5YR42	35/35	5	<7°	SCP
	120	SCL	5YR43	20/70	20		MCP								
71	30	HZCL	10YR44	0	10			86	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
72	30	HZCL	10YR44	0	10			87	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
73	30	HZCL	10YR44	0	10			88	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
74	30	HZCL	10YR44	0	10			89	25	MCL	7.5YR32	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR43	20/50	15		MCAB
75	30	HZCL	10YR44	0	10			90	30	HZCL	7.5YR33	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		50	C	5YR43	15/25	10	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR43	20/50	15		MCAB

Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other
91	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
92	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
93	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
94	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
95	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
96	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
97	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
98	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
99	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
100	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
101	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
102	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
103	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
104	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
105	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
106	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
107	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
108	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
109	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
110	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
111	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
112	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
113	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
114	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
115	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
116	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
117	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
118	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
119	40	SCL	7.5YR32	0	10		
	120	LS	7.5YR44	0	5	<7°	WMAB
120	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP

Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other	Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other
121	30	SCL	7.5YR32	0	5			136	25	MCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		50	SC	10YR46	15/25	10	<7°	SCP
	120	SCL	5YR43	20/70	20		MCP		120	C	5YR43	20/50	15		MCAB
122	30	SCL	7.5YR32	0	5			137	25	MCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		50	SC	10YR46	15/25	10	<7°	SCP
	120	SCL	5YR43	20/70	20		MCP		120	C	5YR43	20/50	15		MCAB
123	25	MCL	7.5YR32	0	5			138	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
124	25	MCL	7.5YR32	0	5			139	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	20/25	5	<7°	MCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		WCAB		120	C	5YR43	20/50	15		MCAB
125	25	MCL	7.5YR32	0	5			140	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
126	25	MCL	7.5YR32	0	5			141	30	HZCL	10YR44	0	10		
	50	SC	10YR46	15/25	10	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR44	30/70	0		MCAB
127	25	MCL	7.5YR32	0	5			142	30	HZCL	10YR44	0	10		
	50	SC	10YR46	15/25	10	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR44	30/70	0		MCAB
128	30	SCL	7.5YR32	0	5			143	30	HZCL	10YR44	0	10		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		70	C	5YR44	30/30	0	<7°	SCP
	120	SCL	5YR43	20/70	20		MCP		120	C	5YR44	30/70	0		MCAB
129	30	SCL	7.5YR32	0	5			144	30	HZCL	10YR44	0	10		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		70	C	5YR44	30/30	0	<7°	SCP
	120	SCL	5YR43	20/70	20		MCP		120	C	5YR44	30/70	0		MCAB
130	30	SCL	7.5YR32	0	5			145	25	MCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-		50	SC	10YR46	15/25	10	<7°	SCP
	120	SCL	5YR43	20/70	20		MCP		120	C	5YR43	20/50	15		MCAB
131	30	HZCL	10YR44	0	10			146	30	MCL	7.5YR33	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		50	SCL	7.5YR43	20/30	15	<7°	MMSAB-
	120	C	5YR44	30/70	0		MCAB		120	SCL	5YR43	20/70	20		MCP
132	25	MCL	7.5YR32	0	5			147	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP		50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB		120	C	5YR43	20/50	15		MCAB
133	30	SCL	7.5YR32	0	5			148	25	MCL	7.5YR32	0	5		
	60	SCL	7.5YR44	20/25	15	<7°	MMSAB		50	SC	10YR46	15/25	10	<7°	SCP
	120	SCL	5YR43	20/50	20		MCP		120	C	5YR43	20/50	15		MCAB
134	30	HZCL	10YR44	0	10			149	25	C	10YR42	0	5		
	70	C	5YR44	30/30	0	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	0		MCAB
135	30	HZCL	10YR42	0	5			150	30	HZCL	10YR44	0	10		
	55	C	7.5YR43	30/30	5	<7°	SCP		70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB		120	C	5YR44	30/70	5		MCAB

Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other
121	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
122	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
123	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
124	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	20/25	5	<7°	MCP
	120	C	5YR43	20/50	15		WCAB
125	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
126	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
127	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
128	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
129	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
130	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
131	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
132	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	0	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
133	30	SCL	7.5YR32	0	5		
	60	SCL	7.5YR44	20/25	15	<7°	MMSAB
	120	SCL	5YR43	20/50	20		MCP
134	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
135	30	HZCL	10YR42	0	5		
	55	C	7.5YR43	30/30	5	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
136	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
137	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
138	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
139	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
140	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
141	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
142	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
143	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
144	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
145	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
146	30	MCL	7.5YR33	0	5		
	50	SCL	7.5YR43	20/30	15	<7°	MMSAB-
	120	SCL	5YR43	20/70	20		MCP
147	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
148	25	MCL	7.5YR32	0	5		
	50	SC	10YR46	15/25	10	<7°	SCP
	120	C	5YR43	20/50	15		MCAB
149	25	C	10YR42	0	5		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	0		MCAB
150	30	HZCL	10YR44	0	10		
	70	C	5YR44	30/30	0	<7°	SCP
	120	C	5YR44	30/70	5		MCAB

Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other	Obs point	Base depth (cm)	Text.	Col.	Motts. %/ depth	Stns %	Grad. (degrees)	Struct/ Other
151	30	HZCL	10YR44	0	10			166							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
152	30	HZCL	10YR44	0	10			167							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
153	30	HZCL	10YR44	0	10			168							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
154	30	HZCL	10YR44	0	10			169							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
155	30	HZCL	10YR44	0	10			170							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
156	30	HZCL	10YR44	0	10			171							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
157	30	HZCL	10YR44	0	10			172							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
158	30	HZCL	10YR44	0	10			173							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
159	30	SCL	2.5YR33	0	5			174							
	50	C	5YR44	15/39	5	<7°	SCP								
	65	ZL	2.5Y62	25.50	5		MCAB								
	120	C	5YR44	25/50	5		M								
160	30	HZCL	10YR44	0	10			175							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
161	30	HZCL	10YR44	0	10			176							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
162	30	HZCL	10YR44	0	10			177							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
163	30	HZCL	10YR44	0	10			178							
	70	C	5YR44	30/30	0	<7°	SCP								
	120	C	5YR44	30/70	0		MCAB								
164								179							
165								180							

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