ENVIRONMENTAL STATEMENT – VOLUME 3 – APPENDIX 11.2

Soil Resource and Agricultural Land Classification Survey

Drax Bioenergy with Carbon Capture and Storage

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations, 2009 - Regulation 5(2)(a)

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APPENDIX 11.2 (SOIL RESOURCE AND AGRICULTURAL LAND CLASSIFICATION)

1.1.1. This appendix has been updated at Deadline 2 to include additional Soil Resource and Agricultural Land Classification (ALC) data from surveys carried out in November 2022, which surveyed the Floodplain Compensation Area and Habitat Provision Area, in addition to the survey data previously provided at submission of the Application in May 2022.

READING AGRICULTURAL CONSULTANTS

November 2022

WSP Ltd

Soil Resource and Agricultural Land Classification Survey

at

Land at Drax Power Station, North Yorkshire

Beechwood Court,
Long Toll, Woodcote,
RG8 0RR

[redacted]

Contents

1. Introduction

1.1. Reading Agricultural Consultants Ltd (RAC) is instructed by WSP Ltd on behalf of Drax Power Station to investigate the soil resources and, as appropriate, the Agricultural Land Classification (ALC) of five parcels of land at Drax Power Station by means of soil sampling and a detailed survey of site and soil characteristics.

1.2. The five parcels are shown in Figure RAC/9440/1. Three of these were surveyed in February 2022 and reported in March 2022, and comprise:

- an eastern parcel of 7.1ha of agricultural land in arable use (observations 1-10 on Figure RAC/9440/1). It is bounded to the west by Drax Power Station, to the south by Carr Lane and to the north and east by other agricultural land;
- a central parcel of 0.9ha of disturbed land within the woodyard area of Drax Power Station, inside the main perimeter fencing of the power station (observations WY1-4 on Figure RAC/9440/1). This area is currently used to store biomass; and
- a western parcel of 2.2ha of scrubland with a mix of grass, reed, bramble and tree cover (observations 11-13 on Figure RAC/9440/1). This parcel is located to the west of Drax Power Station, just outside the security fencing, and is bounded by woodland to the north and east and by agricultural land to the south and west.

1.3. Natural England has requested soils and ALC data for two other land parcels which comprise:

- a northern extension of the eastern parcel extending to approximately 3.4ha of agricultural land in arable use, which is proposed as a Habitat Provision Area (observations 16-18 on Figure RAC/9440/1);
- a grassland field to the west of the above parcel and east of the woodyard area previously surveyed which amounts to approximately 2ha and is proposed as part of a Flood Compensation Area (observations 14 and 15 on Figure RAC/9440/1). This area had been used as a soil storage area during the construction of the power station.

1.4. These two areas were surveyed in November 2022, and the results have been added to those reported in March 2022.

1.5. Topography across all land parcels is flat at approximately 4-5m above Ordnance Datum (AOD).

2. Soil Survey Methods

2.1. In total, 22 soil profiles were examined within the five land parcels using an Edelman (Dutch) auger. Two observation pits were also excavated by spade to examine subsoil structures. The locations of observations are shown on Figure RAC/9440/1. At each observation point the following characteristics were assessed for each soil horizon up to a maximum of 120cm or any impenetrable layer:

- soil texture;
- significant stoniness;
- colour (including localised mottling);
- consistency;
- structural condition;
- free carbonate; and
- depth.

2.2. Soil samples taken at each land parcel were submitted for laboratory analysis of pH, organic matter content and major nutrient contents, with samples from the western and central parcels also submitted for determination of particle size distribution (PSD).

2.3. For ALC grading, soil Wetness Class (WC) was determined from the matrix colour, presence or absence of, and depth to, greyish and ochreous gley mottling, and slowly permeable subsoil layers at least 15cm thick, in relation to the number of Field Capacity Days at the location.

2.4. Soil droughtiness was investigated by the calculation of moisture balance equations (given in Appendix 1). Crop-adjusted Available Profile Water (AP) is estimated from texture, stoniness and depth, and then compared to a calculated moisture deficit (MD) for the standard crops wheat and potatoes. The MD is a function of potential evapotranspiration and rainfall. Grading of the land can be affected if the AP is insufficient to balance the MD and droughtiness occurs.

3. Site and Climatic Conditions

Agro-climatic conditions

3.1. Agro-climatic data for the three land parcels reported in March 2022 have been interpolated from the Meteorological Office's standard 5km grid point dataset. The data are given in Table 1, with values for the two additional parcels surveyed in November 2022 being the same as those for the eastern parcel. There is very little variation between the land parcels, with a moderately warm, dry climate and moderately large to large moisture deficits. The number of Field Capacity Days (FCD) is smaller than average for lowland England (150) and is favourable for providing opportunities for field work.

Table 1: Local Agro-climatic Conditions

Parameter	Value		
	Eastern	Central	Western
Altitude	4m	5m	4m
Average Annual Rainfall	587mm	589mm	588mm
Accumulated Temperatures >0°C	1408 day°	1406 day°	1408 day°
Field Capacity Days	123 days	123 days	123 days
Average Moisture Deficit, wheat	111mm	110mm	110mm
Average Moisture Deficit, potatoes	103mm	103mm	103mm

Soil parent material and soil type

3.2. The underlying geology mapped by the British Geological Survey[1] across all five parcels is the Sherwood Sandstone Group, which comprises red, yellow and brown sandstone with subordinate red mudstone and siltstone.

3.3. Superficial deposits mapped within the eastern parcel (and the northern extension to this parcel) comprise clay and silt of the Hemingbrough Glaciolacustrine Formation in the very south, centre and north-west of the eastern parcel, and sand deposits of the Breighton Sand Formation across the remainder of the parcel.

3.4. Most of the northern extension to this parcel and the additional grassland field to the west is also mapped as the Hemingbrough Glaciolacustrine Formation, with smaller areas of Alluvium.

[1] **British Geological Survey (2022).** *Geology of Britain viewer*, http://mapapps.bgs.ac.uk/geologyofbritain/home.html

3.5. Superficial deposits mapped within the central parcel comprise Alluvium in the north and clay and silt of the Hemingbrough Glaciolacustrine Formation in the south.

3.6. Superficial deposits of the Hemingbrough Glaciolacustrine Formation are also mapped across the western parcel.

3.7. The Soil Survey of England and Wales soil association mapping[2] (1:250,000 scale) shows the Foggathorpe 2 association across all five land parcels. This association comprises slowly permeable, seasonally waterlogged, clayey and fine loamy over clayey soils. There are also some coarse loamy over clayey soils in the association. The profiles are typically assessed as WC III and WC IV[3].

4. Eastern Parcels

Background to ALC

4.1. The three eastern parcels are in agricultural use and have been subject to soil resource and ALC surveys, involving the observation of 15 soil profiles by auger and one soil pit.

4.2. Guidance for assessing the quality of agricultural land in England and Wales is set out in the revised guidelines and criteria for grading the quality of agricultural land[4], and summarised in Natural England's Technical Information Note 049[5].

4.3. Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. The principal physical factors influencing grading are climate, site conditions and soil which, together with interactions between them, form the basis for classifying land into one of the five grades.

4.4. Grade 1 land is excellent quality agricultural land with very minor or no limitations to agricultural use. Grade 2 is very good quality agricultural land, with minor limitations which affect crop yield, cultivations or harvesting. Grade 3 land has moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield, and is subdivided into Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land). Grade 4 land is poor

[2] **Soil Survey of England and Wales (1984).** *Soils of Northern England* (1:250,000), Sheet 1.
[3] **Jarvis et al (1984).** *Soils and Their Use in Northern England*. Soil Survey of England and Wales Bulletin 10, Harpenden.
[4] **MAFF (1988).** *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land*.
[5] **Natural England (2012).** *Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land*, Second Edition.

quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields. Grade 5 is very poor quality land, with severe limitations which restrict use to permanent pasture or rough grazing.

4.5. Land which is classified as Grades 1, 2 and 3a in the ALC system is defined as best and most versatile (BMV) agricultural land.

4.6. As explained in Natural England's TIN049, the whole of England and Wales was mapped from reconnaissance field surveys in the late 1960s and early 1970s to provide general strategic guidance on agricultural land quality for planners. This Provisional Series of maps was published on an Ordnance Survey base at a scale of One Inch to One Mile (1:63,360). The Provisional ALC map shows these land parcels as Grade 2. However, TIN049 explains that:

> *"These maps are not sufficiently accurate for use in assessment of individual fields or development sites, and should not be used other than as general guidance. They show only five grades: their preparation preceded the subdivision of Grade 3 and the refinement of criteria, which occurred after 1976. They have not been updated and are out of print. A 1:250 000 scale map series based on the same information is available. These are more appropriate for the strategic use originally intended …"*

4.7. TIN049 goes on to explain that a definitive ALC grading should be obtained by undertaking a detailed survey according to the published guidelines, at an observation density of one boring per hectare. There have not been any previous detailed ALC surveys of these sites but nearly 40ha of land to the immediate north has been surveyed previously by MAFF and classified as mostly Subgrade 3b and 4.

4.8. The current surveys have been undertaken in accordance with the ALC guidelines. Soil profiles have been described according to Hodgson[6] which is the recognised source for describing soil profiles and characteristics according to the revised ALC guidelines.

Survey Findings

4.9. Two soil types are present within the three eastern parcels.

4.10. The first comprises heavy clay loam over slowly permeable clay, found in the grassland field, the northern field and the north and south parts of the southern field (see Figure RAC/9440/2).

[6] **Hodgson, J. M. (Ed.) (1997).** *Soil survey field handbook.* Soil Survey Technical Monograph No. 5, Silsoe.

4.11. The topsoil comprises very dark greyish brown (10YR3/2 in the Munsell soil colour charts[7]) heavy clay loam. The profile is predominantly stoneless, with one profile recording 1% stone content. The topsoil has a medium subangular blocky structure and the consistency is friable.

4.12. The subsoil comprises grey (10YR5/1), stoneless clay. The subsoil has a firm, poor, coarse prismatic structure and contains many ochreous mottles indicating prolonged periods of wetness. This clay is slowly permeable and restricts downward movement of water through the soil profile.

4.13. These profiles are assessed as WC III, with a slowly permeable layer directly beneath the topsoil, and are restricted to Subgrade 3b by soil wetness.

4.14. The second soil type comprises coarse loamy soils over clay. The topsoil comprises very dark greyish brown (10YR3/2), stoneless, medium sandy loam. The topsoil has a fine subangular blocky structure and the consistency is friable.

4.15. The upper subsoil comprises greyish brown (10YR5/2), with one recording of brown (10YR4/3), stoneless, medium sandy loam or sandy clay loam. Soil structure is fine to medium subangular blocky with a friable consistency. Ochreous mottling is observed within this horizon.

4.16. The lower subsoil largely matches the subsoil described within the first soil type and comprises grey (10YR5/1, 10YR6/1, N5/), stoneless clay. This clay is slowly permeable and has a coarse prismatic structure. Ochreous mottling is observed within the horizon.

4.17. Soil profiles with these characteristics are assessed as WC I, II or III depending on the depth to the slowly permeable clay horizon. All profiles have slight deficits in available water through the growing season and are restricted to Grade 2 by droughtiness. Profiles assessed as WC III are limited to the same extent by soil wetness.

4.18. The ALC distribution within the eastern parcels is shown in Figure RAC/9440/3 and the areas of each grade are given in Table 2.

Table 2: ALC for Eastern Parcels

Grade	Description	Area (ha)	% of agricultural land
Grade 2	Very good quality	4.9	39
Subgrade 3b	Moderate quality	7.6	61
	Total Agricultural	12.5	100

[7] **Munsell Color (2009).** *Munsell Soil Color Book*. Grand Rapids, MI, USA

4.19. The laboratory data from the sample taken from the soil pit confirms the sandy loam texture of the second soil type (see Table 3), and that the topsoil has a good level of organic matter content at 3.1%. Soil pH is neutral and major nutrient levels are good, although slightly low in Potassium (Table 4).

Table 3: Particle Size and Organic Matter for Eastern Parcel

Determinand	2 Topsoil	Units
Sand 2.00-0.063 mm	76	% w/w
Silt 0.063-0.002 mm	10	% w/w
Clay <0.002 mm	14	% w/w
Organic Matter	3.1	% w/w
Texture	Sandy loam	

Table 4: Soil pH and Major Nutrients for Eastern Parcel

Determinand	2 Topsoil	Units
Soil pH	7.0	
Phosphorus (P)	17.4 (2)	Mg/l (ADAS index in brackets)
Potassium (K)	118 (1)	Mg/l (ADAS index in brackets)
Magnesium (Mg)	116 (3)	Mg/l (ADAS index in brackets)

5. Central Parcel

5.1. The central parcel comprises a small 0.9ha area of disturbed land within the woodyard of the Drax Power Station. This land has been used as a biomass storage area and had heavily degraded straw bales stacked at the time of the survey, as well as young trees and scrub. Soil profiles were sampled at four locations within this area.

5.2. Auger observations within the area were impeded at a shallow depth with no profiles able to extend below 30cm, although observations were mostly restricted to a shallower depth. There are two distinct soil horizons present within the area.

5.3. The upper soil horizon comprises very dark grey (10YR3/1), sandy silt loam or sandy loam which is mostly organic. This horizon is variable in thickness over short distances but is generally shallow to a depth of 6-7cm other than at WY4, where upper horizon extended to 20cm. There was no dark grey upper horizon at WY3.

5.4. The second distinct horizon comprises pale brown (2.5Y8/3), sandy silt loam or sandy loam. This horizon is very compact and appears to form an artificial base across the area. This horizon has a very high stone content, estimated at 50%, and comprising crushed limestone.

5.5. Table 5 shows the particle size analysis and organic matter content of the 'topsoil' and 'subsoil', with predominantly sandy silt loam textures and high organic matter levels in the upper horizon.

Table 6 shows both horizons are alkaline, occasionally strongly alkaline, and nutrient levels generally very high, with no clear pattern between levels in the horizons.

Table 5: Particle Size and Organic Matter content for Central Parcel

Determinand	WY1 Topsoil	WY1 Subsoil	WY2 Topsoil	WY2 Subsoil	WY3 Subsoil	WY4 Topsoil	WY4 Subsoil	Units
Sand 2.00-0.063 mm	40	41	37	43	51	51	37	% w/w
Silt 0.063-0.002 mm	53	56	53	54	46	41	56	% w/w
Clay <0.002 mm	7	3	10	3	3	8	7	% w/w
Organic Matter	9.4	0.6	14.3	1.8	0.5	11.8	5.6	%
Texture	Sandy silt loam	Sandy silt loam	Organic sandy silt loam	Sandy silt loam	Sandy Loam	Organic sandy loam	Sandy silt loam	

Table 6: Soil pH and Major Nutrients for Central Parcel

Determinand	WY1 Topsoil	WY1 Subsoil	WY2 Topsoil	WY2 Subsoil	WY3 Subsoil	WY4 Topsoil	WY4 Subsoil	Units
Soil pH	7.9	8.8	8.2	8.6	8.9	7.7	7.6	
Phosphorus (P)	24.8 (2)	9.8 (1)	75.4 (5)	60.2 (4)	38.4 (3)	64.2 (4)	103 (6)	Mg/l (ADAS Index)
Potassium (K)	255 (3)	53.6 (0)	848 (5)	263 (3)	62.0 (1)	442 (4)	925 (6)	Mg/l (ADAS Index)
Magnesium (Mg)	199 (4)	51.4 (2)	371 (6)	106 (3)	56.5 (2)	169 (3)	191 (4)	Mg/l (ADAS Index)

6. Western parcel

6.1. This parcel comprises non-agricultural land in rough grassland with some reed, bramble and planted tree cover. Three soil profiles were observed by auger with one pit also dug to examine soil structures.

6.2. There is one soil type present within this parcel. The topsoil comprises very dark greyish brown (10YR3/2), stoneless, medium clay loam, heavy clay loam or clay. The clay topsoil observed within the pit has a dense, coarse subangular blocky structure and a firm consistency. Where the topsoil is medium clay loam or heavy clay loam, a friable consistency and a medium subangular blocky structure were observed.

6.3. The subsoil comprises grey (10YR5/1, 10YR6/1, 5N/), stoneless clay directly beneath the topsoil. The subsoil has a coarse prismatic structure and a firm consistency. Many ochreous mottles are observed within this horizon. This clay is slowly permeable and restricts downward drainage through the soil profile.

6.4. Observation 12 has a distinguishable upper subsoil between the topsoil and the grey clay subsoil described above. The upper subsoil is dark grey (10YR4/1), stoneless heavy clay loam, with a friable consistency and a subangular blocky structure.

6.5. Although the western parcel is correctly classified as non-agricultural land, were it to revert to agricultural use, it would then be classified as Subgrade 3b, for the same soil wetness limitation identified in the eastern parcels.

6.6. Topsoil and subsoil samples were taken from each auger observation and analysed for soil pH, organic matter content and major nutrients. The results are shown in Table 7. The soils are slightly acid, with low to good organic matter levels and generally low nutrient levels, other than high magnesium, as is commonly found in clay soils.

Table 7: Soil pH, Organic Matter and Major Nutrients for Western Parcel

Determinand	11 Topsoil	11 Subsoil	12 Topsoil	12 Subsoil	13 Topsoil	13 Subsoil	Units
Soil pH	6.2	6.5	6.1	6.1	6.4	6.9	
Organic Matter	2.9	2.3	2.7	3.2	4.3	2.2	% w/w
Phosphorus (P)	11.4 (1)	11.0 (1)	6.4 (0)	9.6 (1)	5.6 (0)	5.8 (0)	Mg/l (ADAS Index)
Potassium (K)	135 (2-)	57.6 (0)	81.0 (1)	66.1 91)	135 (2-)	106 (1)	Mg/l (ADAS Index)
Magnesium (Mg)	232 (4)	340 (5)	278 (5)	243 (4)	431 (6)	568 (6)	Mg/l (ADAS Index)

Appendix 1: Soil Profile Summaries and Droughtiness Calculations

Site No	Depth (cm)		Texture	$CaCO_3$	Colour	Mottle colour	Abund-ance	stone% hard	stone %	Structure	APwheat mm	APpotato mm	Gley	SPL	WC	Wetness grade	Final Grade	Limiting Factors
1	0	38	hCL	n	10YR3/2			1	0		68	68	n	n	///	3b	**3b**	WE
	38	120	C	n	10YR5/1	Fe	many	0	0	poor	65	42	y	y				
										Total	**132**	**109**						
										MB	21	6						
								Droughtiness grade (DR)			2	2						
2	0	33	mSL	n	10YR3/2			0	0		56	56	n	n	///	2	**2**	WE DR
	33	55	SCL	n	10YR5/2	Fe	many	0	0		31	33	y	n				
	55	120	C	n	N5/	Fe	many	0	0	poor	46	20	y	y				
										Total	**132**	**109**						
										MB	21	6						
								Droughtiness grade (DR)			2	2						
3	0	35	mSL	n	10YR3/2			0	0		56	60	n	n	///	2	**2**	WE DR
	35	45	SCL	n	10YR5/2	Fe	com	0	0		31	15	y	n				
	45	120	C	n	10YR6/1	Fe	many	0	0	poor	46	33	y	y				
										Total	**132**	**107**						
										MB	21	4						
								Droughtiness grade (DR)			2	2						
4	0	30	mSL	n	10YR3/2			0	0		56	51	n	n	///	2	**2**	WE DR
	30	48	mSL	n	10YR5/2	Fe	com	0	0		31	27	y	n				
	48	120	C	n	10YR5/1	Fe	many	0	0	poor	46	29	y	y				
										Total	**132**	**107**						
										MB	21	4						
								Droughtiness grade (DR)			2	2						
5	0	36	hCL	n	10YR3/2			0	0		56	56	n	n	///	3b	**3b**	WE
	36	120	C	n	10YR5/1	Fe	many	0	0	poor	31	33	y	y				

Site No	Depth (cm)		Texture	$CaCO_3$	Colour	Mottle colour	Abund-ance	stone% hard	stone %	Structure	APwheat mm	APpotato mm	Gley	SPL	WC	Wetness grade	Final Grade	Limiting Factors
										Total	**132**	**109**		Soil boundary can be seen during survey in varied crop growth				
										MB	21	6						
								Droughtiness grade (DR)			2	2						
6	0	34	hCL	n	10YR3/2			0	0		56	56	n	n	///	3b	**3b**	WE
	34	120	C	n	10YR5/1	Fe	many	0	0	poor	31	33	y	y				
										Total	**132**	**109**		Few fine USS sand lenses to 45cm				
										MB	21	6		Soil boundary can be seen in varied crop growth				
								Droughtiness grade (DR)			2	2						
7	0	38	mSL	n	10YR3/2			0	0		65	65	n	n	//	1	**2**	DR
	38	65	mSL	n	10YR5/2	Fe	com	0	0		35	41	y	n				
	65	120	C	n	10YR6/1	Fe	many	0	0	poor	39	7	y	y				
										Total	**138**	**112**						
										MB	27	9						
								Droughtiness grade (DR)			2	2						
8	0	42	mSL	n	10YR3/2			0	0		71	71	n	n	//	1	**2**	DR
	42	70	mSL	n	10YR5/2	Fe	com	0	0		34	42	y	n				
	70	120	C	n	10YR6/1	Fe	many	0	0	poor	35	0	y	y				
										Total	**140**	**113**						
										MB	29	10						
								Droughtiness grade (DR)			2	1						
9	0	37	mSL	n	10YR3/2			0	0		63	63	n	n	/	1	**2**	DR
	37	68	mSL	n	10YR4/3	Fe	few	0	0		39	47	n	n				
	68	90	mSL	n	10YR5/2	Fe	many	0	0		24	3	y	n				
	90	120	C	n	10YR5/1	Fe	many	0	0	poor	21	0	y	y				
										Total	**147**	**112**		GW -				

Site No	Depth (cm)		Texture	$CaCO_3$	Colour	Mottle colour	Abund-ance	stone% hard	stone %	Structure	APwheat mm	APpotato mm	Gley	SPL	WC	Wetness grade	Final Grade	Limiting Factors
														68cm				
										MB	36	9						
								Droughtiness grade (DR)			1	2						
10	0	38	mSL	n	10YR3/2			0	0		65	65	n	n	/	1	**2**	DR
	38	70	LmS	n	10YR5/2	Fe	com	0	0		23	29	y	n				
	70	120	LmS	n	10YR5/4	Femn	many	0	0		30	0	n	n				
										Total	**117**	**93**						
										MB	6	-10						
								Droughtiness grade (DR)			2	2						
11	0	30	mCL	n	10YR3/2			0	0		54	54	n	n	///	3a	**Non-Ag**	-
	30	70	C	n	10YR5/1	Fe	many	0	0	poor	40	52	y	y				
	70	120	C	n	5N/	Fe	many	0	0	poor	35	0	y	y				
										Total	**129**	**106**						
										MB	18	3						
								Droughtiness grade (DR)			2	2						
12	0	30	hCL	n	10YR3/2	Fe	com	0	0		54	54	y	n	///	3b	**Non-Ag**	-
	30	40	hCL	n	10YR4/1	Fe	many	0	0		40	52	y	n				
	40	120	C	n	10YR5/1	Fe	many	0	0	poor	35	0	y	y				
										Total	**129**	**106**		Pit attempt stopped by roots				
										MB	18	3						
								Droughtiness grade (DR)			2	2						
13/ P2	0	30	C	n	10YR4/2	Fe	com	0	0		54	54	y	n	///	3b	**Non-Ag**	-
	30	120	C	n	10YR6/1	Fe	com	0	0	poor	40	52	y	y				
										Total	**129**	**106**						

Site No	Depth (cm)		Texture	$CaCO_3$	Colour	Mottle colour	Abund-ance	stone% hard	stone %	Structure	APwheat mm	APpotato mm	Gley	SPL	WC	Wetness grade	Final Grade	Limiting Factors
										MB	18	3		Grass with reeds. Uneven TS in lines - deep plough before seed. Standing water in depressions				
								Droughtiness grade (DR)			2	2						
WY 1	0	7	SZL		10YR3/1			0	0	Compact from approx 20cm. Impeded auger							**Non-Ag**	-
	7	20	SZL		2.5Y8/3			50	0	TS/Organic cover uneven in depth mostly 5-10cm								
WY 2	0	6	oSZL		10YR3/1			0	0	Compact from approx 15cm. Impeded auger							**Non-Ag**	-
	6	15	SZL		2.5Y8/3			50	0	TS/Organic cover uneven in depth mostly 5-8cm								
WY 3	0	6	SL		2.5Y8/3			50	0	Compact from 10cm. Impeded auger							**Non-Ag**	-
	N/A	N/A	N/A							No discernible organic cover								
WY 4	0	20	oSL		10YR3/1			0	0	Slightly deeper profile over hard compact layer							**Non-Ag**	-
	20	30	SZL		10YR4/1			50	0									
14	0	36	hCL	n	10YR3/2	Fe	many	0	0		65	65	y	n	///	3b	**3b**	WE
	36	78	C	n	2.5Y4/2	Fe	com	0	0	poor	38	54	y	y				
	78	120	C	n	10YR5/1	Fe	com	0	0	poor	29	0	y	y				
										Total	**132**	**119**		Disturbed – used as soil storage during construction of power station				
										MB	21	16						
								Droughtiness grade (DR)			2	1						
15	0	50	hCL	n	10YR3/2	Fe	many	0	0		90	90	y	n	///	3b	**3b**	WE
	50	120	C	n	10YR4/2	Fe	many	0	0	poor	49	26	y	y				
										Total	**139**	**116**		Disturbed – used as soil storage during construction of power station				
										MB	28	13						
								Droughtiness grade (DR)			2	1						

Site No	Depth (cm)		Texture	$CaCO_3$	Colour	Mottle colour	Abund-ance	stone% hard	stone %	Structure	APwheat mm	APpotato mm	Gley	SPL	WC	Wetness grade	Final Grade	Limiting Factors
16	0	38	hCL	n	10YR3/2	Fe	many	0	0		68	68	y	n	///	3b	**3b**	WE
	38	57	C	n	10YR5/3	Fe	com	0	0	poor	21	25	y	y				
	57	70	SL	n	10YR3/2	Fe	com	0	0		14	20	y	n				
	70	120	C	n	10YR5/3	Fe	com	0	0	poor	35	0	y	y				
										Total	**138**	**113**						
										MB	27	10						
								Droughtiness grade (DR)			2	2						
17	0	30	C	n	2.5Y4/2	Fe	com	0	0		51	51	y	n	///	3b	**3b**	WE
	30	60	C	n	2.5Y5/3	Fe	com	0	0	poor	33	39	y	y				
	60	120	C	n	2.5Y4/1	Fe	com	0	0	poor	42	13	y	y				
										Total	**126**	**103**						
										MB	15	0						
								Droughtiness grade (DR)			2	2						
18	0	35	C	n	2.5Y4/2	Fe	com	0	0		60	60	y	n	///	3b	**3b**	WE
	35	120	C	n	2.5Y5/2	Fe	com	0	0	poor	69	46	y	y				
										Total	**128**	**105**						
										MB	17	2						
								Droughtiness grade (DR)			2	2						

Appendix 2: Site Photographs

Pit 1 (Eastern Parcel): Deep topsoil

Pit 1: Overview

Pit 1: Topsoil

Pit 1: Upper subsoil

Pit 1: Lower subsoil

clay observed by auger

Photos of woodyard area



Central parcel soil horizons

Pit 2 (western parcel): Overview

Pit 2 : Topsoil

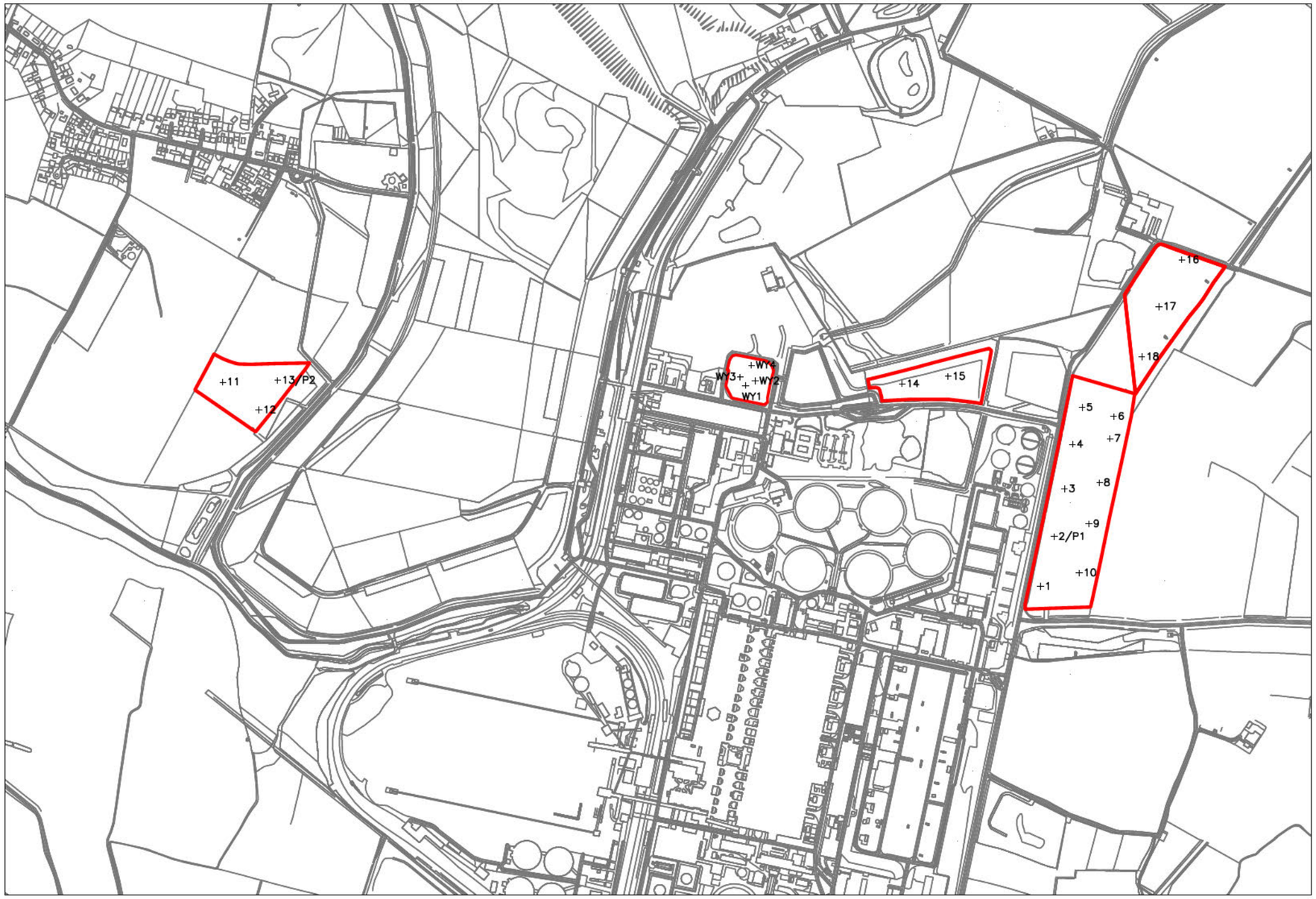
Pit 2: Subsoil

Western parcel land cover

Deep ridges in topsoil

at observation 13

N



KEY

	Survey boundary
+1	Observations
+P	Pit

1:10,000

0 200m 400m

Rev.	Comment	Date

Drawing title

OBSERVATION MAPPING

Contract

LAND AT DRAX POWER STATION,
NORTH YORKSHIRE

Reading Agricultural Consultants Ltd
Gate House
Beechwood Court
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Woodcote
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www.reading-ag.com

READING AGRICULTURAL CONSULTANTS

Ref.	Rev.
RAC/9440/1	11/2022
Drawn by: AGM	Checked by: AIF
Scales: 1:10,000@A3	Date: 11/2022

KEY

- Clay loam/clay over clay
- Sandy loam/ sandy clay loam over clay
- Disturbed sandy silt loam /sandy loam

1:10,000

0 200m 400m

Rev.	Comment	Date

Drawing title

SOIL TYPES

Contract

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NORTH YORKSHIRE

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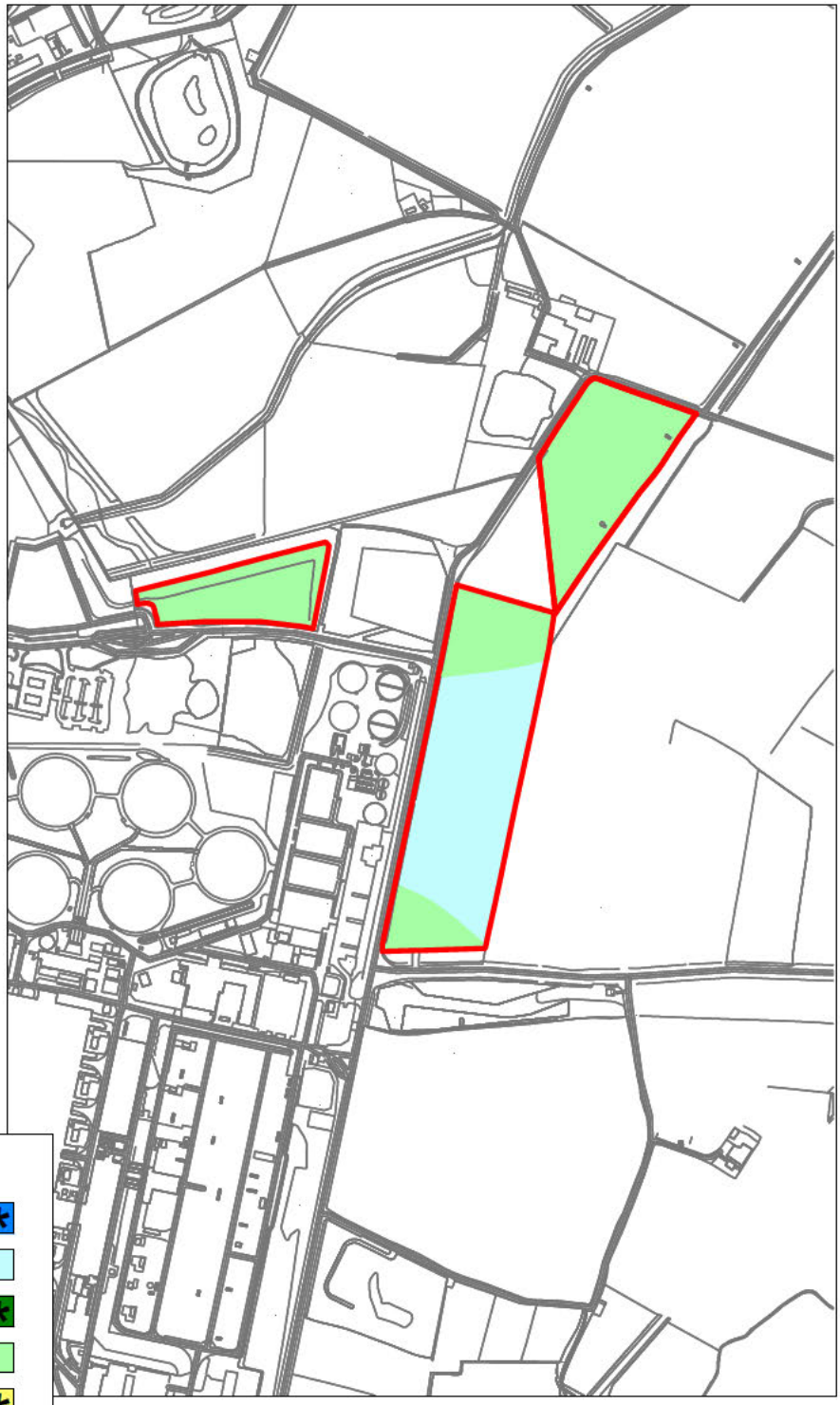
RAC/9440/2	11/2022
Drawn by: AGM	Checked by: AIF
Scales: 1:10,000@A3	Date: 11/2022



KEY

- Grade 1
- Grade 2
- Subgrade 3a
- Subgrade 3b
- Grade 4
- Grade 5
- Non–agricultural
- Not present

1:10,000

0 200m 400m

Drawing title AGRICULTURAL LAND CLASSIFICATION	Ref. RAC/9440/3	Rev. 11/2022			
Contract LAND AT DRAX POWER STATION, NORTH YORKSHIRE	Drawn by AGM	Checked by AIF			
	Scales 1:10,000@A4	Date 11/2022	Rev.	Comment	Date

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