

MONA OFFSHORE WIND PROJECT

Environmental Statement

Volume 7, Annex 7.2: Soil survey data technical report

Document Number: MOCNS-J3303-RPS-10127

Document Reference: F7.7.2

APFP Regulations: 5(2)(a)

February 2024

F01



Image of an offshore wind farm

MONA OFFSHORE WIND PROJECT

Document status					
Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
F01	Application	RPS	Mona Offshore Wind Ltd	Mona Offshore Wind Ltd	February 2024
Prepared by:			Prepared for:		
RPS			Mona Offshore Wind Ltd.		

MONA OFFSHORE WIND PROJECT

Contents

1	SOIL SURVEY DATA TECHNICAL REPORT	1
1.1	Introduction	1
1.2	Survey area	1
1.3	Methodology	1
1.4	Survey data.....	2
1.4.1	Key to auger boring data	2
1.4.2	Table of soil auger borings.....	3
1.4.3	Table of soil auger borings.....	11
1.4.4	References	15

Tables

Table 1.1:	Key to Auger Boring Data.....	2
Table 1.2:	Soil auger borings within the Mona Onshore Development Area.	3
Table 1.3:	Soil auger borings within the Onshore Substation.	8
Table 1.4:	Soil pit descriptions.....	11

Figures

Figure 1.1:	Results of soil surveys and ALC grade (sheet 1).	12
Figure 1.2:	Results of soil surveys and ALC grade (sheet 2).	13
Figure 1.3:	Results of soil surveys and ALC grade (sheet 3).	14

Appendices

APPENDIX A	16
A.1. Soil sample textural analysis report.....	16

MONA OFFSHORE WIND PROJECT

Acronyms

Acronym	Description
ALC	Agricultural Land Classification
MAFF	Ministry of Agriculture, Fisheries and Food
MHWS	Mean High Water Springs

Units

Unit	Description
cm	centimetres
kv	Kilovolts

1 Soil survey data technical report

1.1 Introduction

- 1.1.1.1 This technical report provides the results of hand auger boring soil surveys undertaken to inform Volume 3, Chapter 7: Land use and recreation of the Environmental Statement.

1.2 Survey area

- 1.2.1.1 The survey area comprised areas of agricultural land located within the Mona Onshore Development Area, landward of Mean High Water Springs (MHWS) where:
- There would be a permanent loss of agricultural land associated with the location of the Onshore Substation and associated earthworks
 - Areas of land along the Onshore Cable Corridor and 400 kV Grid Connection Cable Corridor where representative locations of several main soil types were identified.
- 1.2.1.2 The location and geographic extent of the survey area is provided in Figure 1.1, Figure 1.2 and Figure 1.3 of this technical report.

1.3 Methodology

- 1.3.1.1 The soils survey were undertaken using a 1.2 m Dutch hand auger to examine soil samples on site at approximately 100 m intervals within the survey area in accordance with the Ministry of Agriculture, Fisheries and Food (MAFF) Agricultural Land Classification (ALC) of England and Wales, Revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988).
- 1.3.1.2 The location of representative auger boring surveys were chosen to reflect the main soil types identified within the Mona Onshore Development Area, according to the desktop information presented in Volume 7, Annex 7.1: Published soils and agricultural land classification data technical report of the Environmental Statement.
- 1.3.1.3 In addition, the auger boring data has been supplemented by the examination of dug archaeological trenches available at the time of survey, together with the excavation of three further soil pits to identify soil structural characteristics and other soil profile characteristics noted during the auger boring survey in the main soil types. Further information regarding the archaeological investigations undertaken to date can be found in Volume 7, Annex 5.5: Trial trenching technical report of the Environmental Statement.
- 1.3.1.4 Soils sample textural analysis is provided in Appendix A at the end of this technical report.

MONA OFFSHORE WIND PROJECT

1.4 Survey data

1.4.1 Key to auger boring data

Table 1.1: Key to Auger Boring Data.

Abbreviation	Definition
Textures	
Mcl	Medium clay loam
Scl	Sandy clay loam
Hcl	Heavy clay loam
C	Clay
Colours	
Db	Dark brown
Dgb	Dark greyish brown
B	Brown
Rb	Reddish brown
Yb	Yellowish brown
Others	
Cdom	Common distinct ochreous mottles
Fdom	Few distinct ochreous mottles
Mn concs	Manganese concretions
IMP	Impenetrable
SPL	Slowly permeable layer
TS	Topsoil Sample

MONA OFFSHORE WIND PROJECT

1.4.2 Table of soil auger borings

Table 1.2: Soil auger borings within the Mona Onshore Development Area.

Number	Depth (cm)	Colour	Texture	Description	Soil Series	Welsh Government Predictive ALC Grade	Site Survey ALC Grade
1	0 – 29	Db	Mcl		Abergele	3a	3a
	29 – 47	Gb	Hcl	fdom			WC III/IV
	47 – 70+	Rb	C	Cdgm (Trench Adjacent) SPL			
2	0 – 27	Db	Mcl	10 % stone (Trench observed)	Abergele	3a	3a
	27 – 40	B	Mcl	15% stone	(Gower)		
	40 – 55	Rb	Mcl	Stony 20-30%			
	IMP			Stony layer clear in trench			
3	0 – 27	Db	Mcl	10 % stone (Trench observed)	Abergele	3a	3a
	27 – 40	B	Mcl	15% stone	(Gower)		
	40 – 50	Rb	Mcl	Stony 20-30%			
	IMP			Stony layer clear in trench			
4	0 – 24	Db	Mcl	10% stone (TS 2)	Abergele	3a	3a
	24 – 35	Rb	m/hcl	10-15% stone			
	35 – 42	Rb	C	Mn, brown mottles and stony 20%+			
	IMP						
5	0 – 27	Db	Mcl	10 % stone (Trench observed)	Abergele	3a	3a
	27 – 40	B	Mcl	15% stone	(Gower)		
	40 – 50	Rb	Mcl	Stony 20-30%			
	IMP			Stony layer clear in trench			
6	0 – 20	Dgb	Hcl	5 – 10% stone (shallow top)			
	20 – 40	Gb	Hcl/c	Cdom 10% stone			

MONA OFFSHORE WIND PROJECT

Number	Depth (cm)	Colour	Texture	Description	Soil Series	Welsh Government Predictive ALC Grade	Site Survey ALC Grade
	IMP			Stony layer below – this profile is odd one in context of field – farmer comment that some of the land on the north side had had topsoil stripped and sold.		3a	3b (potentially disturbed and heavier)
							WC III
7	0 – 25	Drb	Mcl/Scl	5-10% stone	Abergele/ Gower	3a/3b	3a/3b
	25 – 35	Rb	Mcl	Becoming stony			
	IMP						
7a	0 – 26	Drb	Scl	10% stone	Abergele/ Gower	3a/3b	3a
	26 – 40	Rb	Mcl	10-15% (some larger limestone rocks)			
	40+	IMP					
8	0 – 26	Drb	Scl	10% + stone	Abergele/ Gower	3a/3b	3a/3b
	26 – 42	Rb	Mcl	10-15% (some larger limestone rocks)			
	42+	IMP					
9	0 – 26	Db	Msl	10-15% plus large limestone flags	Gower	3b	3b
	Imp						
10	0 – 25	Db	Msl	10-15% plus large limestone flags	Gower	3b	3b
	Imp						
11	0 – 26	Db	m/hcl	10-15% plus large limestone flags	Gower	3b	3b
	Imp						
12	0 – 26	Db	Hcl	10-15% plus large limestone flags	Gower	3b	3b
	Imp			(TS 1)			
13	0 – 26	Db	Msl	10-15% plus large limestone flags	Gower	3b	3b
	26 – 30	Rb	Mcl	Very stony			
	IMP						
14	0- 22	Drb	Msl	5-10% stone	Gower	3b	3b

MONA OFFSHORE WIND PROJECT

Number	Depth (cm)	Colour	Texture	Description	Soil Series	Welsh Government Predictive ALC Grade	Site Survey ALC Grade
	22-28	Drb	Msl	stony			
	IMP						
15	0- 22	Drb	Msl	10% stone	Gower	3b	3b
	22-28	Drb	Msl	stony			
	IMP						
16	0 – 28	Drb	Mcl	<5% stone (TS 3)	Pentreath	2	2
	28 – 45	Rb	Mcl	<5% stone			
	45 – 60	Rb	Msl	Gritty and mn concs			
	60 – 95+	Rb/yb	Scl	Brownish mottles			
17	0 – 27	Drb	Mcl	<5% stone	Pentreath	2	2
	27 – 45	Rb	Scl	<5% stone			
	45 – 55	Rb	Msl	Gritty and mn concs			
	55 – 95+	Rb/yb	Scl	Brownish mottles			
18	0 – 29	Drb	Szl		Pentreath	2	2
	29 – 42	Rb	Mcl				
	42- 70	Rb	Mcl	5-10% stone, mn concs; stony at base			
	IMP						
19	0 – 28	Drb	Mcl	<5% stone	Pentreath	2	2
	28 – 45	Rb	Scl	<5% stone			
	45 – 55	Rb	Msl	Gritty and mn concs			
	55 – 95+	Rb/yb	Scl	Brownish mottles			
20	0 – 27	Db	Mcl		Pentreath	2	3a
	27 – 40	B	Mcl				WC III
	40 – 60	Yb/rb	Scl	Mix of reddish brown Hcl with the scl; few brown mottles			
	60 – 80+	y/rb	C	Thick reddish clay; cdom in matrix			
21	0 -26	Drb	Scl	5% stone	Pentreath	2	2
	26 – 50	Rb	Scl	5-10% stone, increasing at the base			
	IMP						

MONA OFFSHORE WIND PROJECT

Number	Depth (cm)	Colour	Texture	Description	Soil Series	Welsh Government Predictive ALC Grade	Site Survey ALC Grade
22	0- 28	Drb	Mcl	2-3% stone	Pentreath	2	2
	28 – 45	Rb	Mcl	2-3% stone			
	45 – 90+	Rb	mcl	5% stone gritty throughout			
23	0- 28	Drb	Mcl	2-3% stone	Pentreath	2	2
	28 – 45	Rb	Mcl	2-3% stone			
	45 – 90+	Rb	mcl	5% stone gritty throughout			
24	0 -26	Db/drb	hcl	TS 4	Dinorbin/LLy sfaen	3a	3a
	26-42	B	hcl				WCIII
	42 – 65	Rb	Hcl	cdom			
	65+	Gb	C	cdom			
25	0 – 27	Drb	hcl		Dinorbin/LLy sfaen	2/3a	2
	27 – 45	Rb	hcl				
	45 – 75	Rb	Sc/hcl	Mixed material with fdom and mn			
	75 – 95+	R	C+sc mixed	Mn concs			
26	0- 28	Drb	Mcl		Llysfaen	2	2
	28 – 55	Drb	mcl				
	55 – 85+	Rb	Hcl	Slightly stony			
27	0 – 27	Drb	Mcl		Denbigh/LLy sfaen	2/3a	3a
	27 – 55	Rb	Mcl				WC II/III
	55 – 65	Rb/r	hcl				
	65-80+	Reddish	C	Thick – wet ground here. SPL			
28	0 – 26	Drb	Mcl	5-10% stone	Denbigh/LLy sfaen	2/3a	3a
	26 – 40	Rb	Mcl	5% stone			WC III
	40 – 60	R	Hcl	5% stone			
	60 – 80+	Gb/rb	C	Cdom; mn (dug at base of trench) SPL			
29	0 - 26	Db	Mcl	5 – 10% stone	Denbigh	3a	3a

MONA OFFSHORE WIND PROJECT

Number	Depth (cm)	Colour	Texture	Description	Soil Series	Welsh Government Predictive ALC Grade	Site Survey ALC Grade
	26 – 40	Rb	Mcl/hcl	5% stone			WC III
	40 – 60	Gb	Hcl	Cdom; mn gritty stony at base			
	IMP						
30	0 - 26	Db	Mcl	5 – 10% stone	Denbigh	3a	3a
	26 – 43	Rb	Mcl/hcl	5 – 10% stone becoming stony at base			
	IMP						
31	0 – 22	Dgb	Mcl	10+% stone	Denbigh shallow	3b/4	3b
	22 – 28	Gb	Hcl	stony			
	IMP						
32	0 – 20	Dgb	Mcl	10+% stone	Denbigh shallow	3b/4	3b
	22 – 28	Gb	Hcl	stony			
	IMP						
33	0 – 22	Dgb	Mcl	10+% stone	Denbigh shallow	3b/a	3b
	22 – 30	Gb	Hcl	stony			
	IMP						
34	0 – 22	Dgb	Mcl	10+% stone	Denbigh shallow	3b/a	3b
	22 – 28	Gb	Hcl	stony			
	IMP						
35	0 - 26	Db	Mcl	5 – 10% stone	Denbigh	3a	3a
	26 – 43	dgb	Mcl/hcl	10% stone becoming stony at base			
	IMP						
36	0 - 26	Db	Mcl	5 – 10% stone	Denbigh	3a	3a
	26 – 43	dgb	Mcl/hcl	10% stone becoming stony at base			
	IMP						
37	0 – 22	Dgb	Mcl/hcl	10+% stone	Denbigh shallow	3b/a	3b
	22 – 30	Gb	Hcl	Stony (shallow again here)			
	IMP						

MONA OFFSHORE WIND PROJECT

Number	Depth (cm)	Colour	Texture	Description	Soil Series	Welsh Government Predictive ALC Grade	Site Survey ALC Grade
38	0 – 22	Dgb	Hcl	10+% stone	Denbigh shallow	3b/a	3b
	22 – 30	Gb	Hcl	stony			
	IMP						

Table 1.3: Soil auger borings within the Onshore Substation.

Number	Depth (cm)	Colour	Texture	Description	Soil Series	Welsh Government Predictive ALC Grade	Site Survey ALC Grade
S1	0 -27	Db	Mcl	Fdom; mn	Cottam	3b	3b
	27 – 40	gb	Hcl	Cdom; mn concs			WC IV
	40 – 70+	Gb/rb	C	Cdom; mn SPL			
S2	0 – 25	Dgb	Mcl	Wet; fdom	Cottam	3b	3b
	25 – 35	Gb	Hcl	Cdom; mn			WC IV
	35 – 70+	G	C	Cdom SPL			
S3	0 – 25	Dgb	Mcl	Wet; fdom	Cottam	3b	3b
	25 – 33	Gb	Hcl	Cdom; mn			WC IV
	33 – 70+	G	C	Cdom SPL			
S4	0 – 26	Dgb	m/hcl		Cottam	3b	3b
	26 – 35	Gb	C	Cdom; mn (heavier texture)			WCIV
	35 -80+	Rb	C	Thick; common brown mottles; mn; SPL			
S5	0 – 25	Dgb	Mcl	Wet; fdom	Cottam	3b	3b
	25 – 33	Gb	Hcl	Cdom; mn			WC IV
	33 – 70+	G	C	Cdom SPL			
S6	0 – 26	Dgb	Mcl		Cottam	3b	3b
	26 – 45	Gb	Hcl	Cdom; mn			WC IV
	45 – 70+	Gb	C	Cdom SPL			
S7	0 – 26	Dgb	Mcl		Cottam	3b	3b

MONA OFFSHORE WIND PROJECT

Number	Depth (cm)	Colour	Texture	Description	Soil Series	Welsh Government Predictive ALC Grade	Site Survey ALC Grade
	26 – 45	Gb	Hcl	Cdom; mn			WC IV
	45 – 70+	Gb	C	Cdom SPL			
S8	0- 26	Dgb	Mcl		Cottam	3b	3b
	26 – 35	Gb	Hcl	Cdom; mn			WC IV
	35 – 60+	Gb	C	Plastic (wet above the horizon); cdom;SPL			
S9	0 - 25	Dgb	Mcl		Cottam	3b	3b
	25 – 35	Gb	Hcl	Cdom; mn			WC IV
	35 – 60+	Gb	C	Plastic ; cdom; SPL			
S10	0 – 26	Dgb	m/hcl		Cottam	3b	3b
	26 – 35	Gb	C	Cdom; mn (heavier texture)			WCIV
	35 -80+	Rb	C	Thick; common brown mottles; mn; SPL			
S11	0 – 28	Db	Mcl	5 – 10% stone stone	Flint	3b/a	3a
	28 – 55	B	Hcl	5% stone			
	55 - 60	B	Hcl	Becoming stony			
S12	0 – 28	Db	Mcl	5- 10% stone	Flint	3b/a	3a
	28 – 45	B	Hcl	5% stone			
	45 - 50	B	Hcl	Becoming stony			
	IMP						
S13	0 – 28	Db	Mcl	fdom	Cottam	3b	3b
	28 – 45	B	Hcl	Cdom; 5% stone			WCIV
	45 – 65	Gb	Hcl/c	Cdom; SPL			
	65 – 80+	Gb	C	Cdom; plastic			
S14	0 -28	Db	Mcl				
	28 – 42	Gb	Hcl	Cdom; mn	Cottam	3b	3b
	42 – 70+	Rb	C	Common brown mottles; mn; SPL			WCIV
S15	0 -28	Db	Mcl				
	28 – 40	Gb	Hcl	Cdom; mn	Cottam	3b	3b
	40 – 70+	Rb	C	Common brown mottles; mn; SPL			WCIV

MONA OFFSHORE WIND PROJECT

Number	Depth (cm)	Colour	Texture	Description	Soil Series	Welsh Government Predictive ALC Grade	Site Survey ALC Grade
S16	0 – 28	Db	Mcl	10% stone	Flint	3b/a	3a
	28 – 45	B	Hcl	10% + stone			
	45 - 50	B	Hcl	Becoming stony			
	IMP						
S17	0 – 26	Dgb	Hcl/c	TS 5	Cottam	3b	3b
	26 – 35	Gb	C	Cdom; mn (heavier texture)			WCIV
	35 -80+	Rb	C	Thick; common brown mottles; mn; SPL			
S18	0 – 25	Dgb	mcl		Cottam	3b	3b
	25 – 34	Gb	C	Cdom; mn (heavier texture)			WCIV
	35 -80+	Rb	C	Thick; common brown mottles; mn; SPL			
S19	0 – 28	Db	Mcl	5% stone	Flint / Cottam	3b/3a	3a
	28 – 60	B	Hcl	5% stone			WC II
	60 – 85+	Rb	Hcl	Cdom; slightly stony			
S20	0 – 26	Dgb	m/hcl		Cottam	3b	3b
	26 – 35	Gb	C	Cdom; mn (heavier texture)			WCIV
	35 -80+	Rb	C	Thick; common brown mottles; mn; SPL			
S21	0 – 26	Dgb	Hcl/C		Cottam	3b	3b
	26 – 35	Gb	C	Cdom; mn (heavier texture)			WCIV
	35 -80+	Rb	C	Thick; common brown mottles; mn; SPL			

MONA OFFSHORE WIND PROJECT

1.4.3 Table of soil auger borings

Table 1.4: Soil pit descriptions.

Soil pit number	Location	Depth (cm)	Description
1	Close to Auger Boring 3 – excavation of archaeological trench	0-27 cm	Dark brown (7.5 YR 4/2) medium clay loam; moist; abundant grass roots; 10 – 15% stone with >10% >2cm in diameter.
		27-40 cm	Brown (10YR 5/3) medium clay loam; fewer grass roots; moderate medium sub angular blocky structure.
		40-50 cm	Reddish brown (5YR 4/3) heavy clay loam; very few roots; stone content much higher >20% >2cm in diameter; moderate medium angular blocky structure; stony limestone layer.
2	Close to Auger Boring 15	0-22 cm	Dark reddish brown (5YR 3/3) medium sandy clay loam; > 10% stone >2cm diameter; old arable roots.
		22-28 cm	Reddish brown (5YR 4/3); becoming very stony with limestone and some flags present; shallow layer with structure indeterminant; few roots present; limestone layer.
3	Close to Auger Boring 22	0-28 cm	Dark reddish brown(5YR 3/3) medium clay loam; 2% stone; arable roots; moist.
		28-50 cm	Reddish brown (5YR 4/3) medium clay loam; 2% stone; well-developed medium to coarse subangular blocky; few arable roots; moist.
		50-70 cm +	Reddish brown (5YR 4/3) medium to heavy clay loam; slightly gritty with 3-5% stone; moderate medium angular blocky; moist.
4	Close to Auger Boring 30 – open trench	0-26 cm	Dark brown (7.5 YR 3/3) medium to heavy clay loam; few arable roots present; total stone approximately 10%, predominantly >2cm in diameter; moist.
		26-40 cm	Brown (7.5YR 3/2) heavy clay loam; few roots; 10% stone but increasing notably at base of the horizon; moderate medium subangular blocky structure.
		40-55 cm	Brown (7.5 YR 3/2) very stony horizon with hcl within matrix (excavated within trench with difficulty).
5	Cottam at Substation – Close to S4	0-25 cm	Dark grey brown (10 YR 4/3) heavy clay loam; common distinct ochreous mottles; few small manganese concretions; common grass roots; very moist.
		25-35 cm	Grey, brown (10 YR 5/2) clay; common distinct ochreous mottles; common small manganese concretions; few grass roots; coarse angular blocky structure; very moist.
		35 cm +	Grey and reddish brown (5 YR 4/3); common distinct ochreous mottles; common small manganese concretions; weak coarse prismatic structure; plastic.

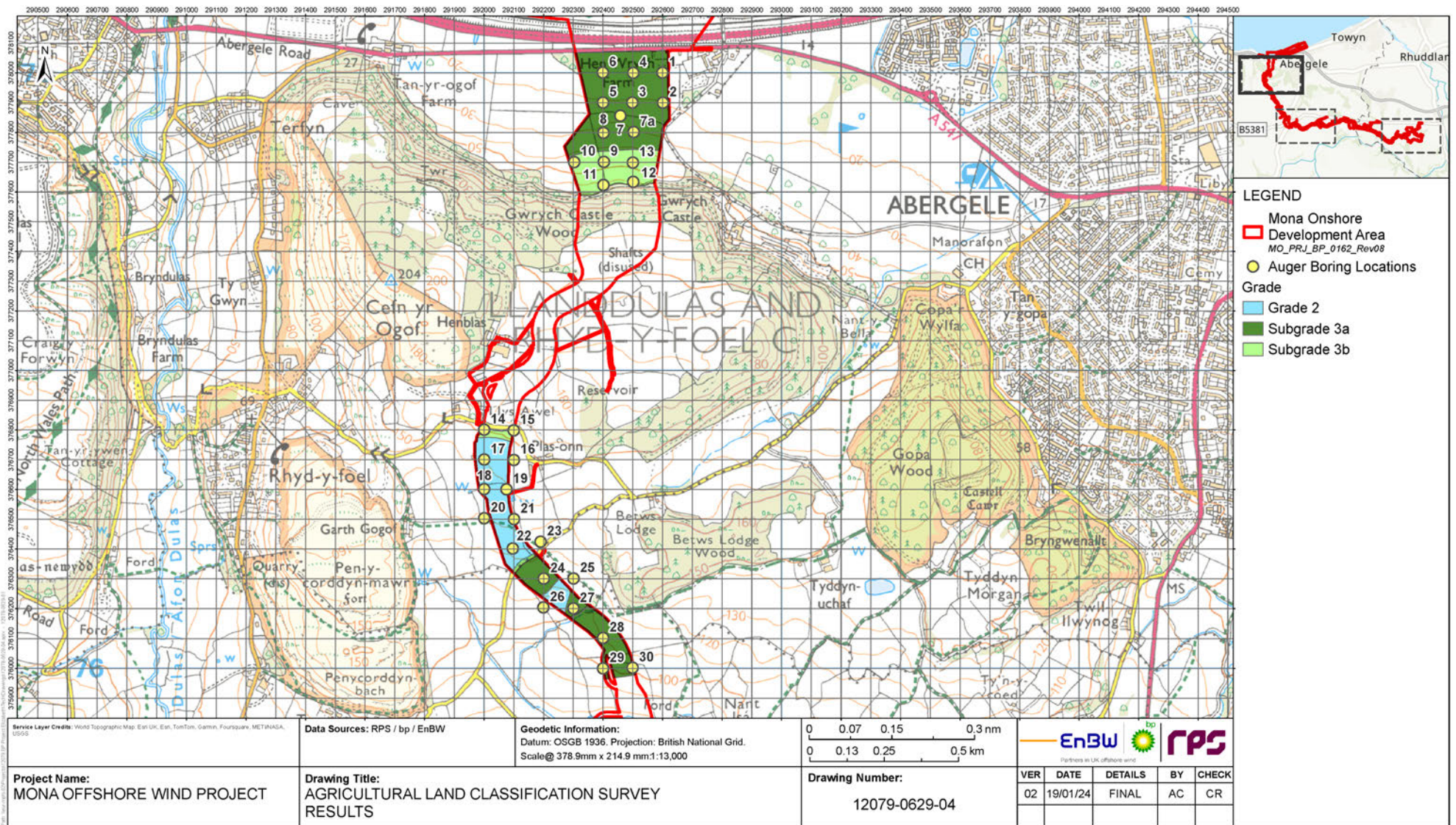


Figure 1.1: Results of soil surveys and ALC grade (sheet 1).

MONA OFFSHORE WIND PROJECT

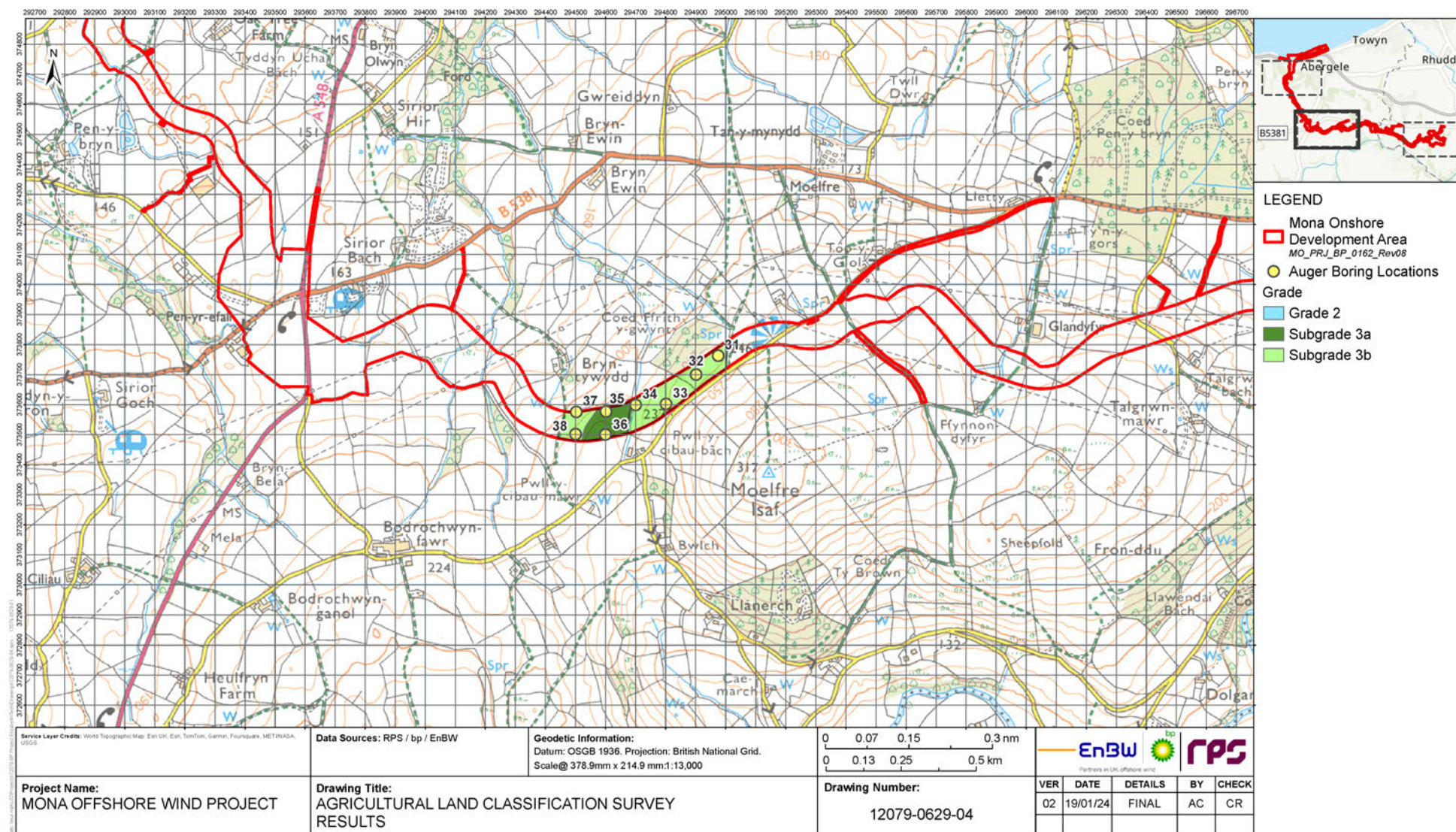


Figure 1.2: Results of soil surveys and ALC grade (sheet 2).

MONA OFFSHORE WIND PROJECT

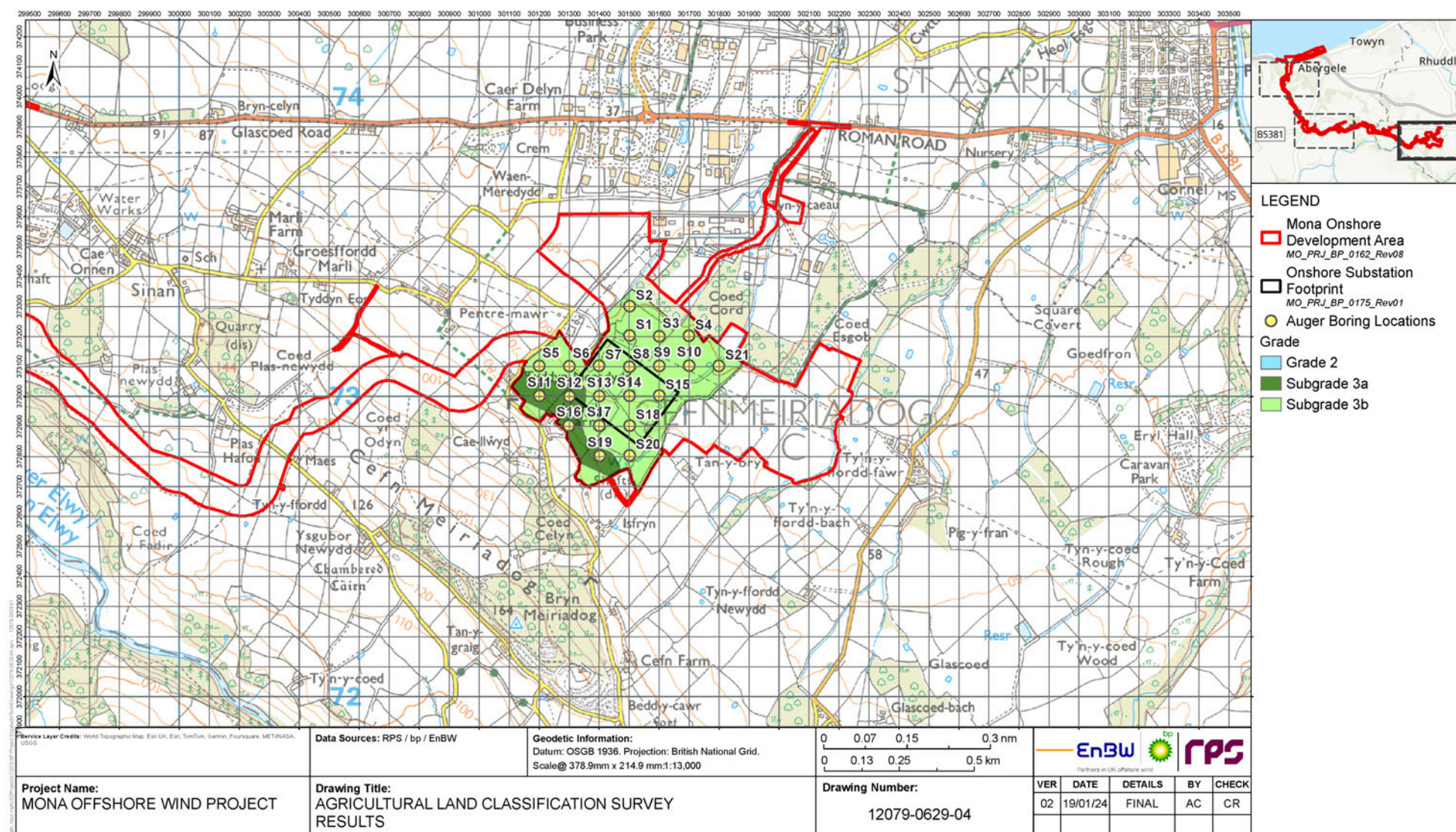


Figure 1.3: Results of soil surveys and ALC grade (sheet 3).

1.4.4 References

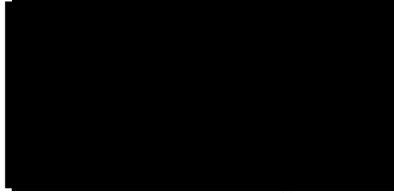
MAFF (1988) Ministry of Agriculture, Fisheries and Food, Agricultural Land Classification of England and Wales, Revised guidelines and criteria for grading the quality of agricultural land.

Appendix A

A.1. Soil sample textural analysis report

ANALYSIS REPORT

Contact :

**P682**

Please quote the above code for all enquiries

Client : MONA

Sample Matrix : Agricultural Soil

Laboratory Reference

Card Number

Date Received 12-Oct-23

Date Reported 25-Oct-23

SOIL ANALYSIS REPORT

Laboratory Sample Reference	Field Details			Index			mg/l (Available)		
	No.	Name or O.S. Reference with Cropping Details	Soil pH	P	K	Mg	P	K	Mg
389631/23	1	MONA 1 <i>No cropping details given</i>	7.3	3	2+	3	35.4	184	123
389632/23	2	MONA 2 <i>No cropping details given</i>	7.5	4	2-	2	53.4	123	92
389633/23	3	MONA 3 <i>No cropping details given</i>	7.0	3	2+	2	41.2	197	90
389634/23	4	MONA 4 <i>No cropping details given</i>	6.4	2	1	2	18.8	120	77
389635/23	5	MONA 5 <i>No cropping details given</i>	5.6	0	3	3	7.6	384	111

If general fertiliser and lime recommendations have been requested, these are given on the following sheets.

The analytical methods used are as described in DEFRA Reference Book 427

The index values are determined from the AHDB Fertiliser Recommendations RB209 9th Edition.

Released by

On behalf of NRM

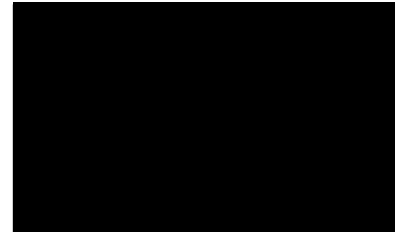
Date

25/10/23

MICRO NUTRIENT REPORT

DATE 25th October 2023

SAMPLES FROM MONA



Reference: 74015/389631/23	Field Name: MONA 1	Result (*)
Sand (2.00 - 0.063mm) %		36
Silt (0.063 - 0.002mm) %		33
Clay (< 0.002mm) %		31
Textural Classification	Clay Loam	1

Reference: 74015/389632/23	Field Name: MONA 2	Result (*)
Sand (2.00 - 0.063mm) %		43
Silt (0.063 - 0.002mm) %		33
Clay (< 0.002mm) %		24
Textural Classification	Clay Loam	1

Reference: 74015/389633/23	Field Name: MONA 3	Result (*)
Sand (2.00 - 0.063mm) %		42
Silt (0.063 - 0.002mm) %		32
Clay (< 0.002mm) %		26
Textural Classification	Clay Loam	1

Reference: 74015/389634/23	Field Name: MONA 4	Result (*)
Sand (2.00 - 0.063mm) %		24
Silt (0.063 - 0.002mm) %		42
Clay (< 0.002mm) %		34
Textural Classification	Clay Loam	1

Reference: 74015/389635/23	Field Name: MONA 5	Result (*)
Sand (2.00 - 0.063mm) %		22
Silt (0.063 - 0.002mm) %		39
Clay (< 0.002mm) %		39
Textural Classification	Clay	1

Notes (*)

- (1) In calcareous soils the sand, silt and clay sized fractions are likely to contain particles of carbonate which may result in the incorrect classification of soil type.

ANALYSIS REPORT

DATE 25th October 2023
SAMPLES FROM MONA

SAMPLED BY

Report reference

Fertiliser Recommendations

The phosphate and potash recommendations shown below, are those required to replace the offtake and maintain target soil indices. The larger recommended applications for soils below target index will allow the soil to build up to this target index over a number of years. Not applying fertiliser to soils which are above target index will allow the soil to run down over a number of years to the target index.

The recommendation should be increased or decreased where yields are substantially more or less than that specified. The amount to apply can be calculated using the expected yield and values for the offtake of phosphate and potash per tonne of yield given in the RB209 9th edition.

All recommendations are given for the mid-point of each Index.

Where a soil analysis value (as given by the laboratory) is close to the range of an adjacent Index, the recommendation may be reduced or increased slightly taking account of the recommendation given for the adjacent Index. Small adjustments of less than 10 kg/ha are generally not justified.

Efficient use of P and K is most likely to be achieved on soils that are well structured and enable good rooting.

For visual evaluation of soil structure (VESS), a score on 1 or 2 would be considered adequate.

Don't forget to deduct nutrients applied as organic manures.

For Nitrogen recommendations please refer to the RB209 9th edition or seek advice from an FACTS qualified adviser.

Target Indices:

Arable, Forage, Grassland and Potato Crops: P Index 2, K Index 2-

(In rotations where most crops are Autumn-sown, soils are in good condition and P is applied annually, high index 1 can be an adequate target.)

Vegetables and Bulbs: P Index 3, K Index 2+

(If vegetables are only grown occasionally as part of an arable rotation, it would be most economic to target index 2 for arable and forage crops.)

Fruit Vines and Hops: P Index 2, K Index 2, Mg Index 2

(Note: Cider apples respond to K Index 3, Mg Index 3)

A lime recommendation is usually for a 20cm depth of cultivated soil or a 15cm depth of grassland soil. Where soil is acid below 20 cm and soils are ploughed for arable crops, a proportionately larger quantity of lime should be applied. However, if more than 10 t/ha is needed, half should be deeply cultivated into the soil and ploughed down, with the remainder applied to the surface and worked in.

For established grassland or other situations where there is no, or only minimal soil cultivation, no more than 7.5 t/ha of lime should be applied in one application.

In these situations, applications of lime change the pH below the surface very slowly. Consequently, the underlying soil should not be allowed to become too acidic because this will affect the root growth and thus limit nutrient and water uptake, which will adversely affect yield.

Field Name / Ref / Soil Type	Last Crop / Next Crop	P2O5	K2O	MgO	Lime (Arable)	(Grass)
MONA 1	Not Given / Not Given	Units/Acre			T/Ac	0
389631 / Medium		Kg/Ha			Te/Ha	0
Field Name / Ref / Soil Type	Last Crop / Next Crop	P2O5	K2O	MgO	Lime (Arable)	(Grass)
MONA 2	Not Given / Not Given	Units/Acre			T/Ac	0
389632 / Medium		Kg/Ha			Te/Ha	0
Field Name / Ref / Soil Type	Last Crop / Next Crop	P2O5	K2O	MgO	Lime (Arable)	(Grass)
MONA 3	Not Given / Not Given	Units/Acre			T/Ac	0
389633 / Medium		Kg/Ha			Te/Ha	0
Field Name / Ref / Soil Type	Last Crop / Next Crop	P2O5	K2O	MgO	Lime (Arable)	(Grass)
MONA 4	Not Given / Not Given	Units/Acre			T/Ac	0.8
389634 / Medium		Kg/Ha			Te/Ha	2.1
Field Name / Ref / Soil Type	Last Crop / Next Crop	P2O5	K2O	MgO	Lime (Arable)	(Grass)
MONA 5	Not Given / Not Given	Units/Acre			T/Ac	3.6
389635 / Heavy		Kg/Ha			Te/Ha	8.8

Fertiliser recommendations are based on AHDB RB209 (Ninth Edition). If a nutrient is deficient and no recommendation is given, either no recommendation is given in RB209 or we have insufficient data to give a recommendation. Apply Lime to the nearest half Ton / Tonne.

NRM is a UKAS accredited laboratory to ISO/IEC 17025