

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

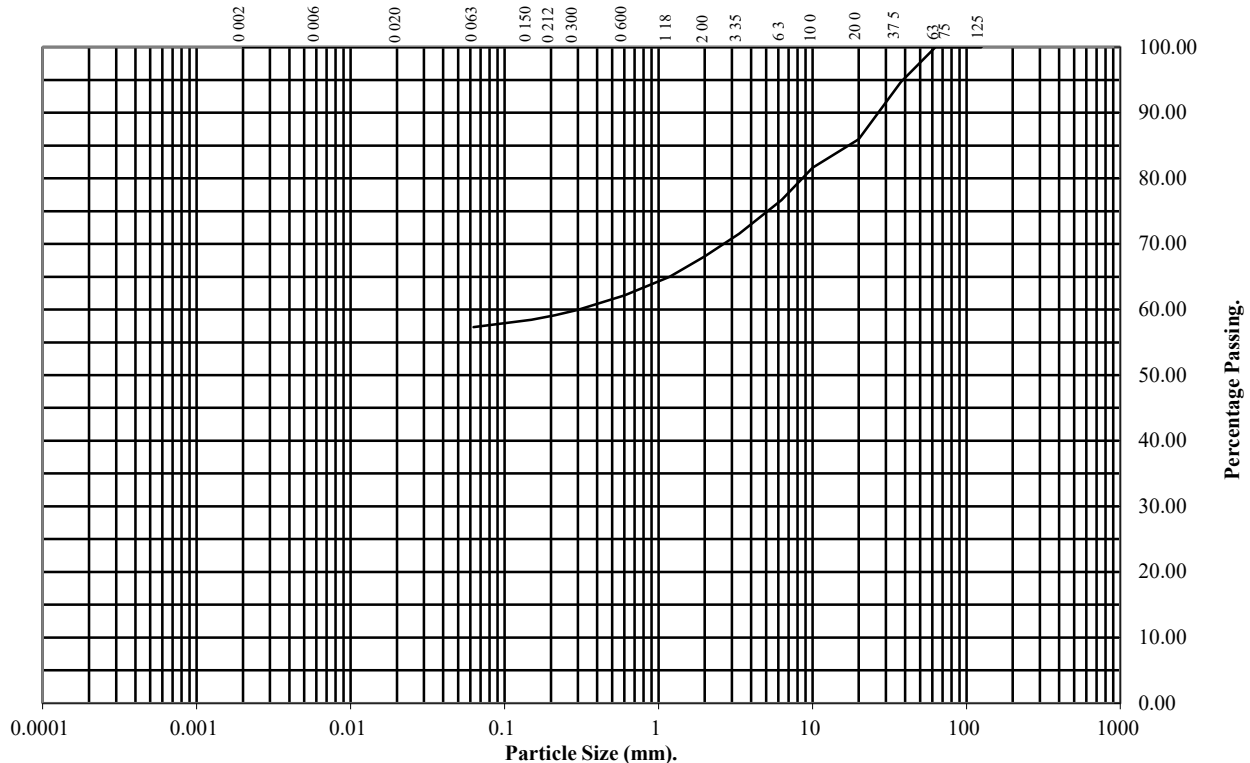
Hole Number: TP1009

Top Depth (m): 2.00

Sample Number:

Base Depth(m): 3.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	95
20	86
10	82
6.3	77
3.35	72
2	68
1.18	65
0.6	62
0.3	60
0.212	59
0.15	58
0.063	57

Soil Fraction	Total Percentage
Cobbles	0
Gravel	32
Sand	11
Silt/Clay	57

Remarks:

See Summary of Soil Descriptions



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Hoylands Common, Barnsley

Contract No:

PSL20/1448

Client Ref:

AG3080-19

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Wet Sieve, Clause 9.2

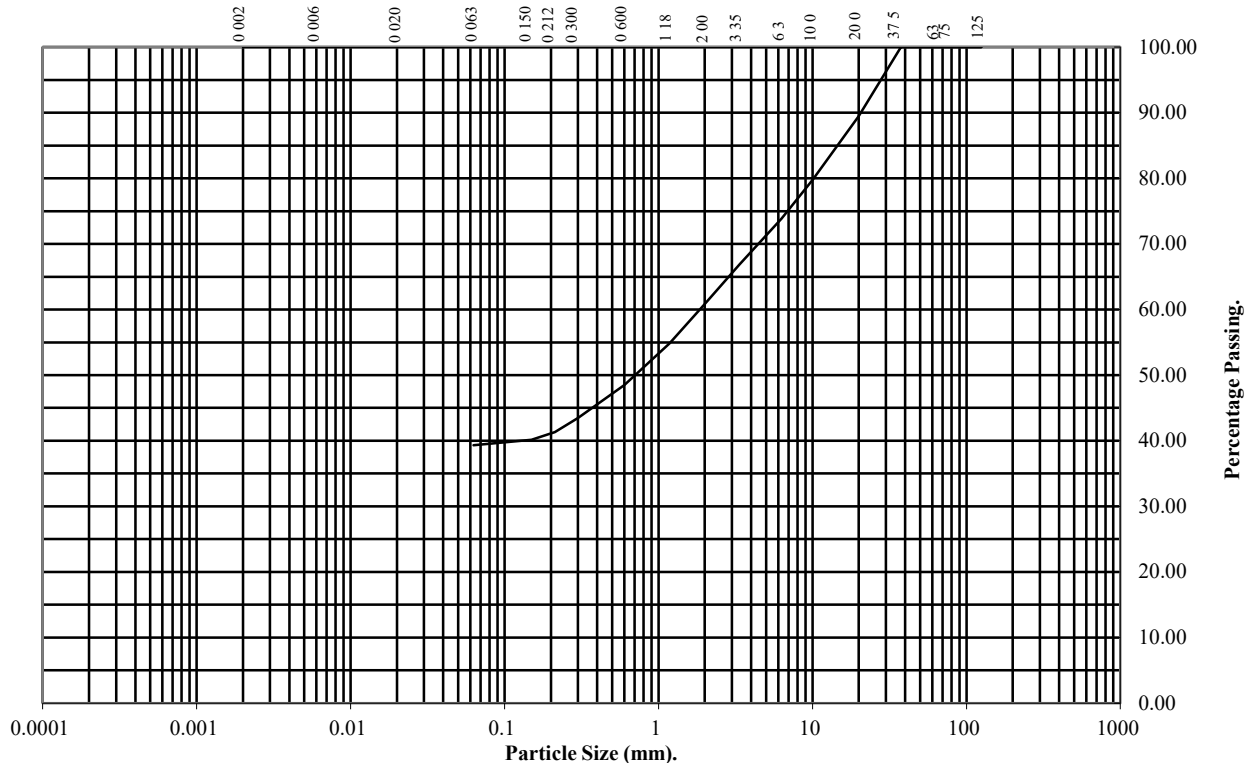
Hole Number: TP1012

Top Depth (m): 1.60

Sample Number:

Base Depth(m): 4.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	89
10	80
6.3	74
3.35	67
2	61
1.18	55
0.6	49
0.3	43
0.212	41
0.15	40
0.063	39

Soil Fraction	Total Percentage
Cobbles	0
Gravel	39
Sand	22
Silt/Clay	39

Remarks:

See Summary of Soil Descriptions



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Wet Sieve, Clause 9.2

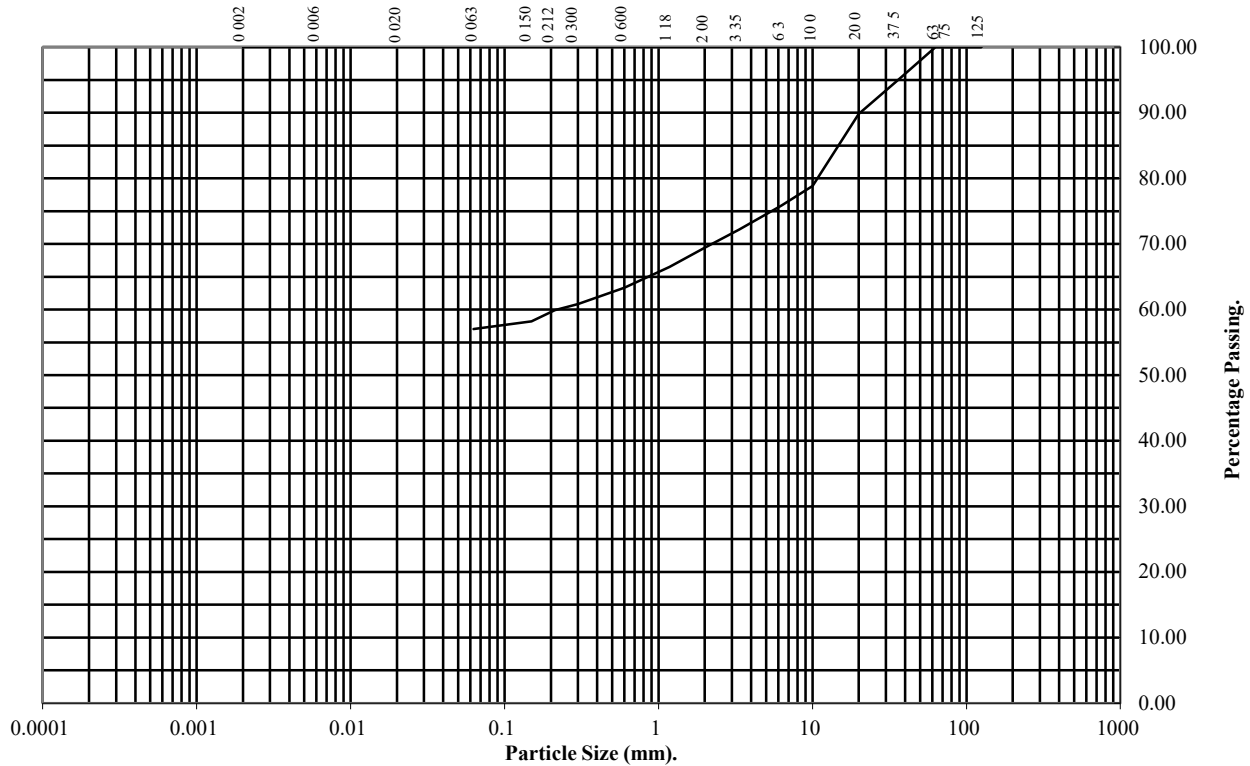
Hole Number: TP1015

Top Depth (m): 1.20

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	95
20	90
10	79
6.3	76
3.35	72
2	69
1.18	66
0.6	63
0.3	61
0.212	60
0.15	58
0.063	57

Soil Fraction	Total Percentage
Cobbles	0
Gravel	31
Sand	12
Silt/Clay	57

Remarks:

See Summary of Soil Descriptions



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Wet Sieve, Clause 9.2

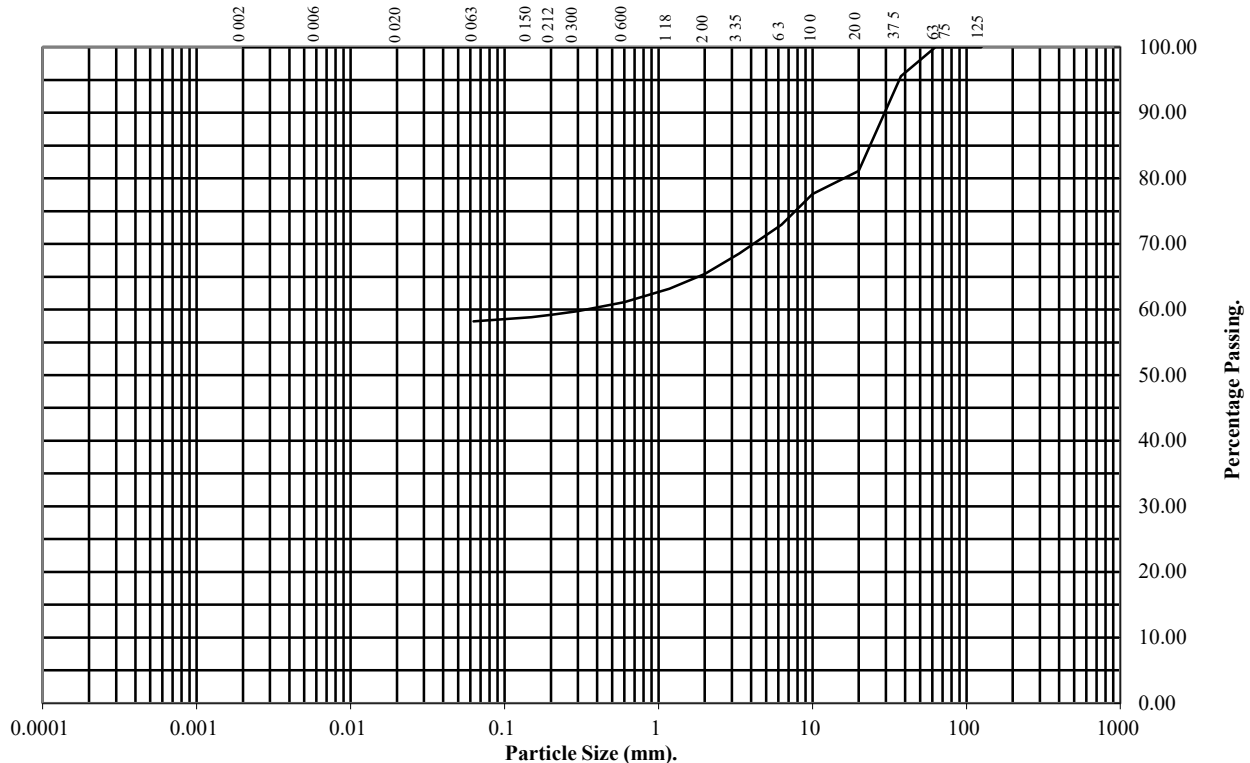
Hole Number: TP1017

Top Depth (m): 2.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	96
20	81
10	78
6.3	73
3.35	69
2	65
1.18	63
0.6	61
0.3	60
0.212	59
0.15	59
0.063	58

Soil Fraction	Total Percentage
Cobbles	0
Gravel	35
Sand	7
Silt/Clay	58

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

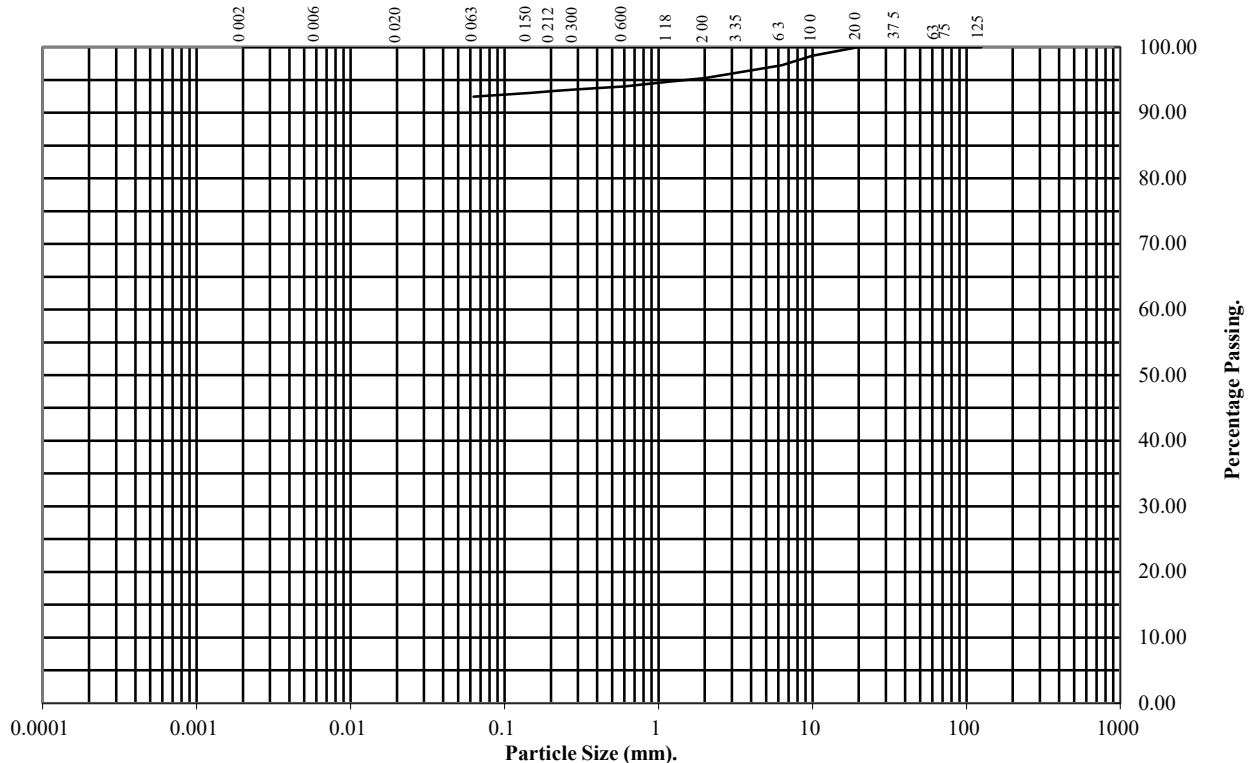
Hole Number: TP1018

Top Depth (m): 1.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	97
3.35	96
2	95
1.18	95
0.6	94
0.3	94
0.212	93
0.15	93
0.063	92

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	3
Silt/Clay	92

Remarks:

See Summary of Soil Descriptions



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Wet Sieve, Clause 9.2

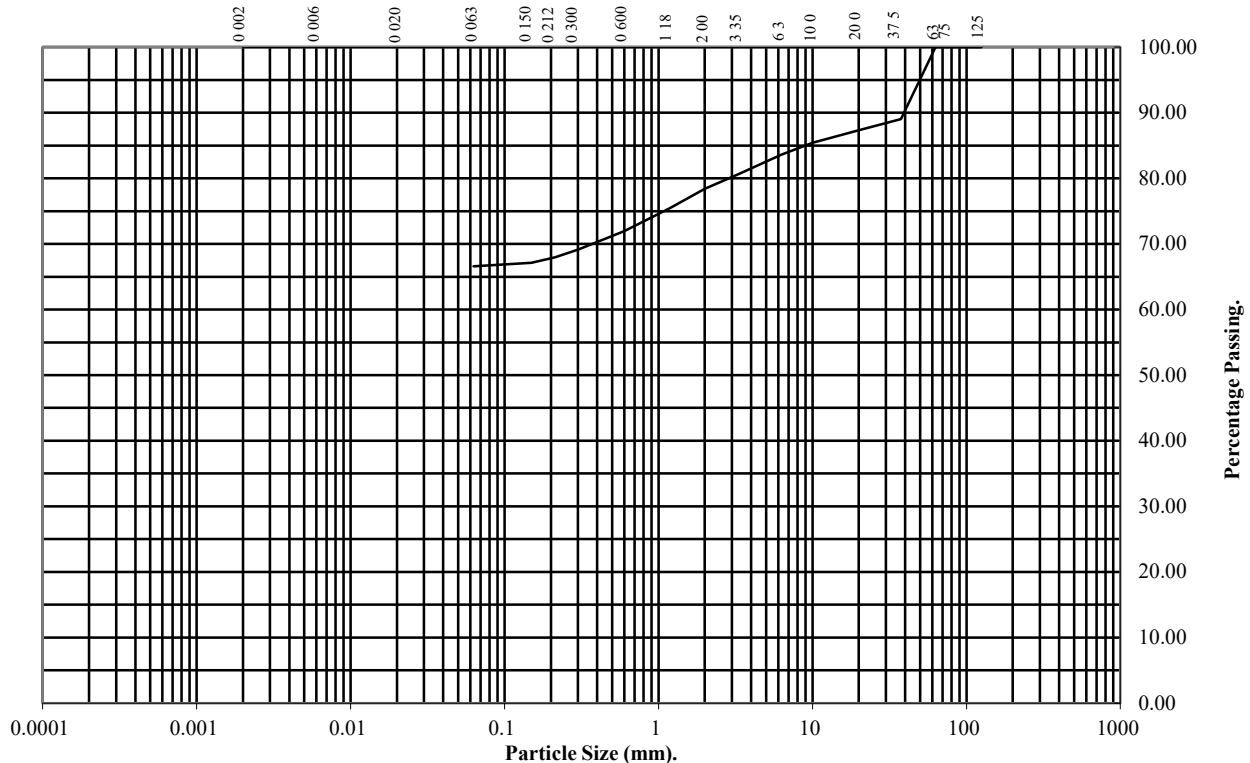
Hole Number: TP1022

Top Depth (m): 0.90

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	89
20	87
10	85
6.3	84
3.35	81
2	78
1.18	75
0.6	72
0.3	69
0.212	68
0.15	67
0.063	67

Soil Fraction	Total Percentage
Cobbles	0
Gravel	22
Sand	11
Silt/Clay	67

Remarks:

See Summary of Soil Descriptions



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Wet Sieve, Clause 9.2

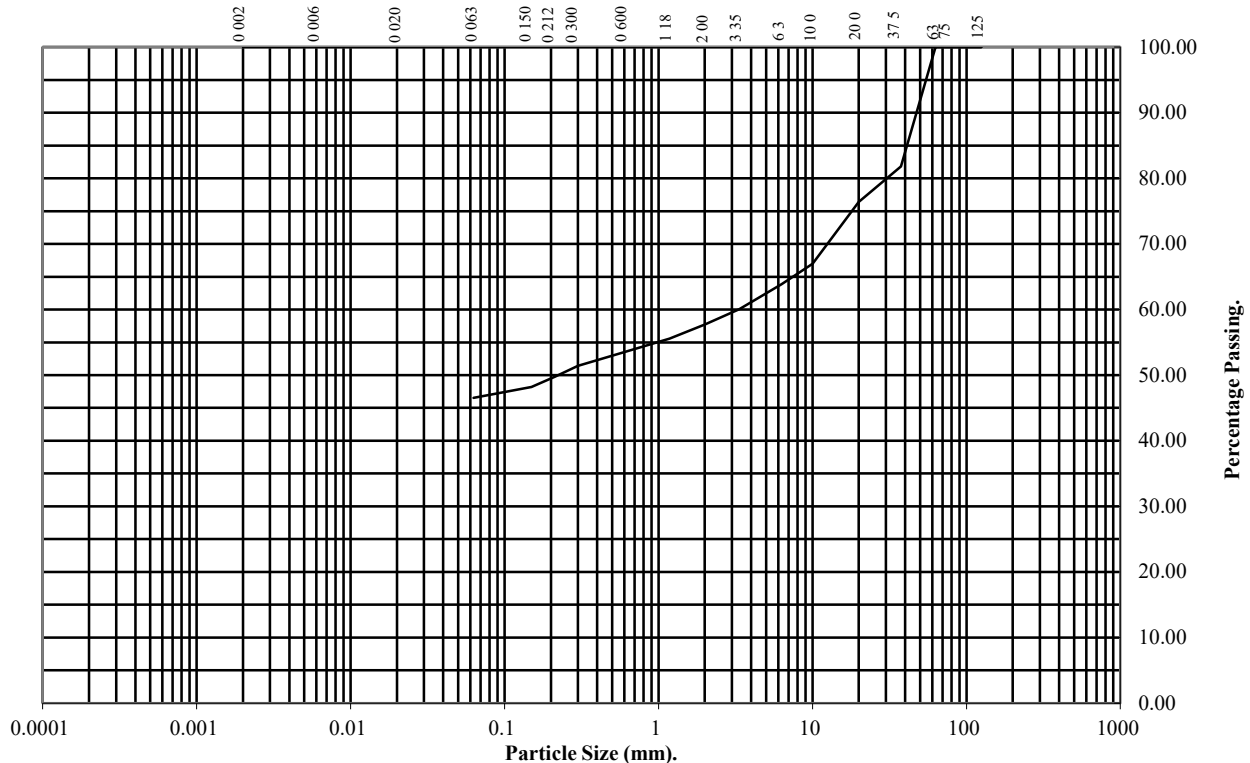
Hole Number: TP1024

Top Depth (m): 1.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	82
20	76
10	67
6.3	64
3.35	60
2	58
1.18	56
0.6	54
0.3	51
0.212	50
0.15	48
0.063	47

Soil Fraction	Total Percentage
Cobbles	0
Gravel	42
Sand	11
Silt/Clay	47

Remarks:

See Summary of Soil Descriptions



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Wet Sieve, Clause 9.2

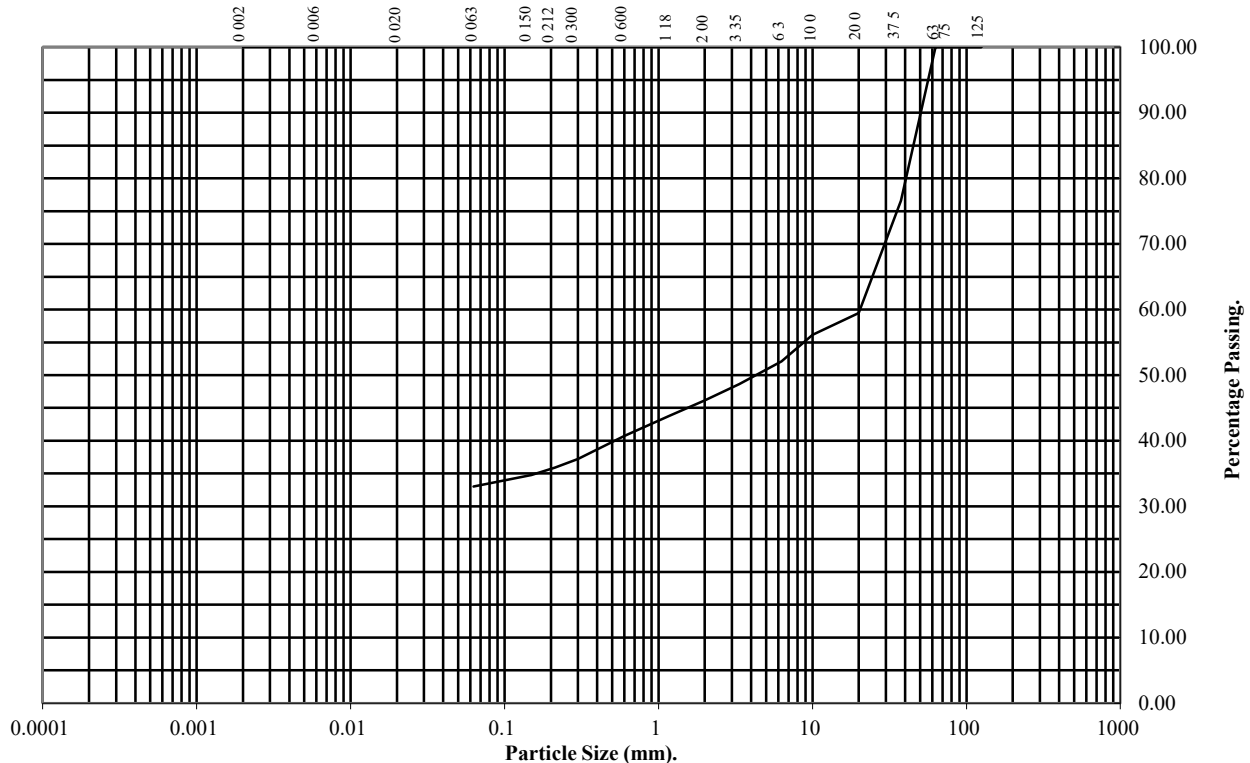
Hole Number: TP1027

Top Depth (m): 2.50

Sample Number:

Base Depth(m): 3.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	77
20	59
10	56
6.3	52
3.35	49
2	46
1.18	44
0.6	41
0.3	37
0.212	36
0.15	35
0.063	33

Soil Fraction	Total Percentage
Cobbles	0
Gravel	54
Sand	13
Silt/Clay	33

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

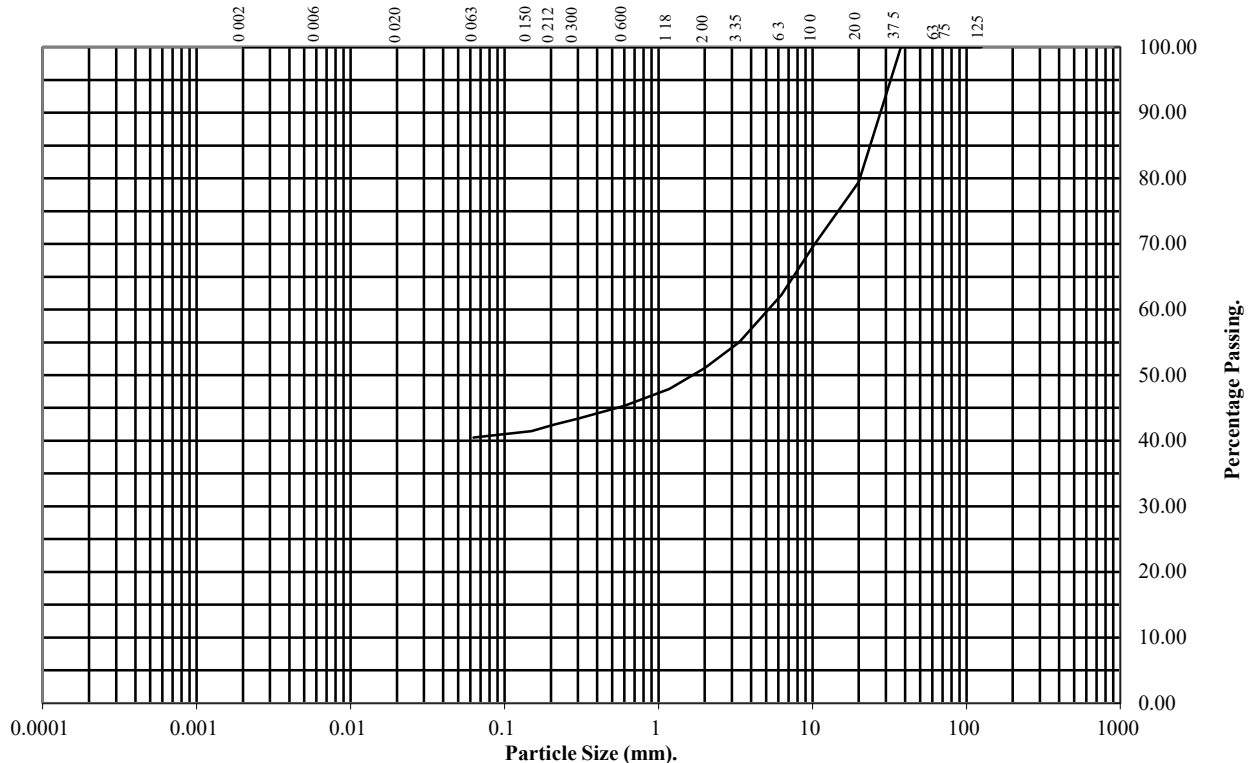
Hole Number: TP1029

Top Depth (m): 3.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	79
10	70
6.3	62
3.35	55
2	51
1.18	48
0.6	45
0.3	43
0.212	42
0.15	41
0.063	40

Soil Fraction	Total Percentage
Cobbles	0
Gravel	49
Sand	11
Silt/Clay	40

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

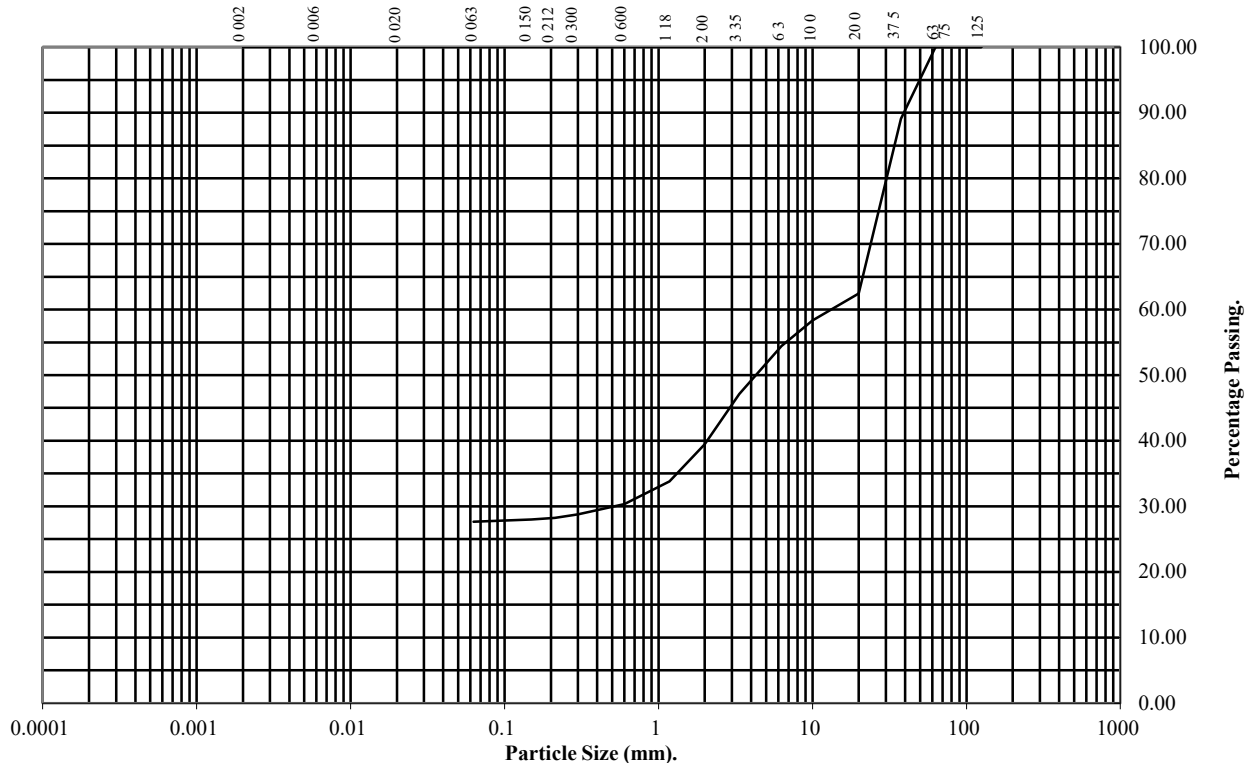
Hole Number: TP1030

Top Depth (m): 2.50

Sample Number:

Base Depth(m): 3.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	89
20	62
10	58
6.3	54
3.35	47
2	39
1.18	34
0.6	30
0.3	29
0.212	28
0.15	28
0.063	28

Soil Fraction	Total Percentage
Cobbles	0
Gravel	61
Sand	11
Silt/Clay	28

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

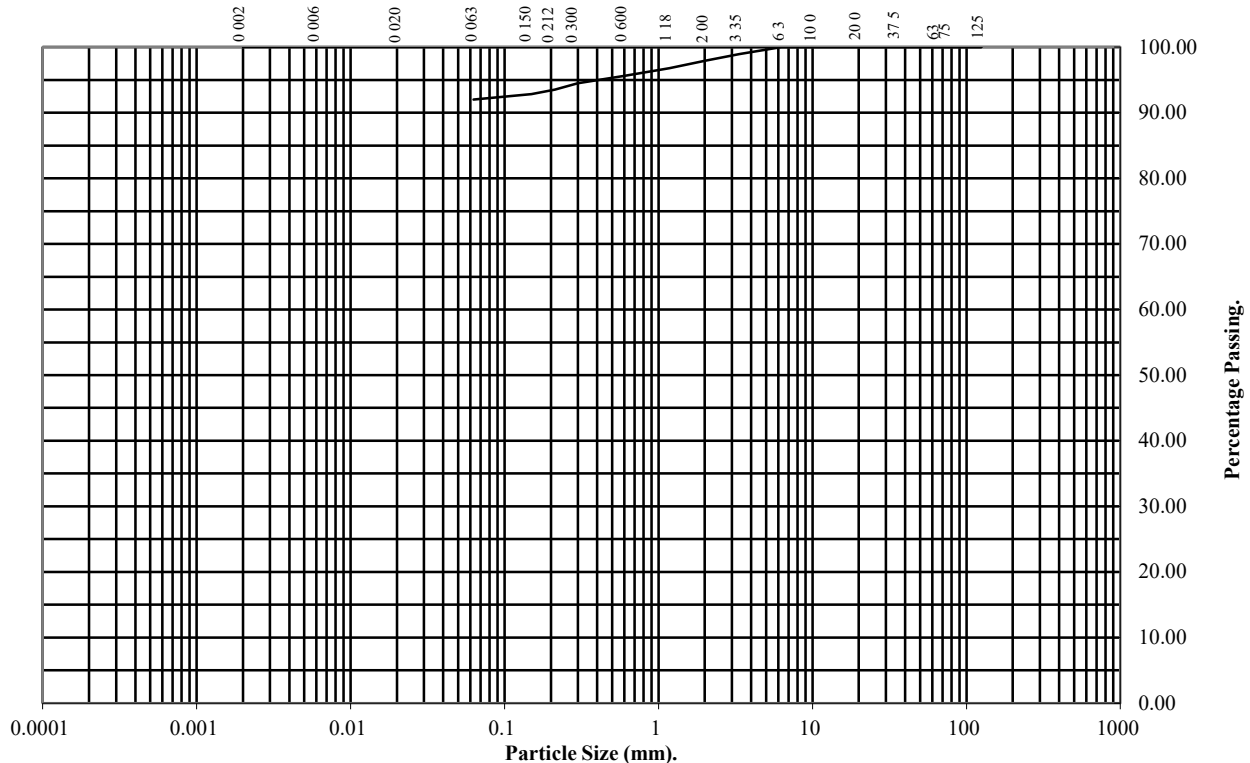
Hole Number: TP1032

Top Depth (m): 0.50

Sample Number:

Base Depth(m): 1.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	98
1.18	97
0.6	96
0.3	94
0.212	94
0.15	93
0.063	92

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	6
Silt/Clay	92

Remarks:

See Summary of Soil Descriptions



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Wet Sieve, Clause 9.2

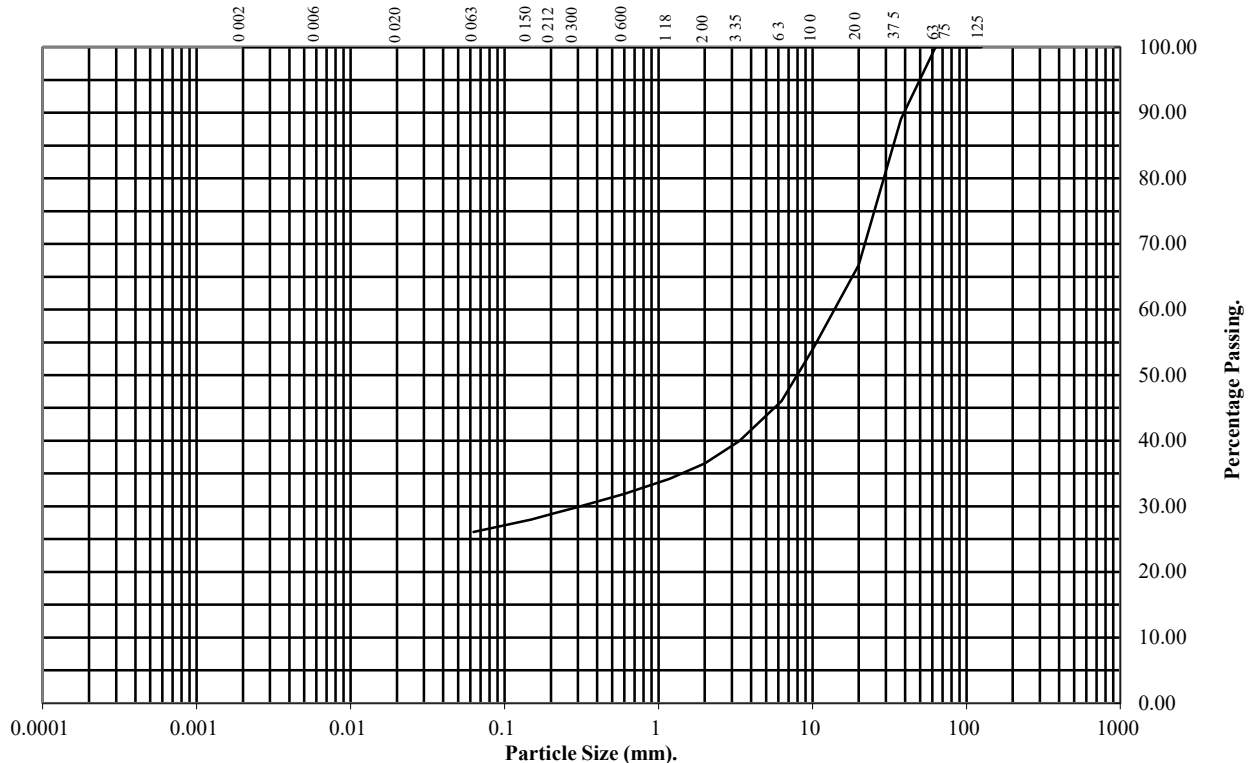
Hole Number: TP1032

Top Depth (m): 2.00

Sample Number:

Base Depth(m): 2.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	89
20	67
10	54
6.3	46
3.35	40
2	37
1.18	34
0.6	32
0.3	30
0.212	29
0.15	28
0.063	26

Soil Fraction	Total Percentage
Cobbles	0
Gravel	63
Sand	11
Silt/Clay	26

Remarks:

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Wet Sieve, Clause 9.2

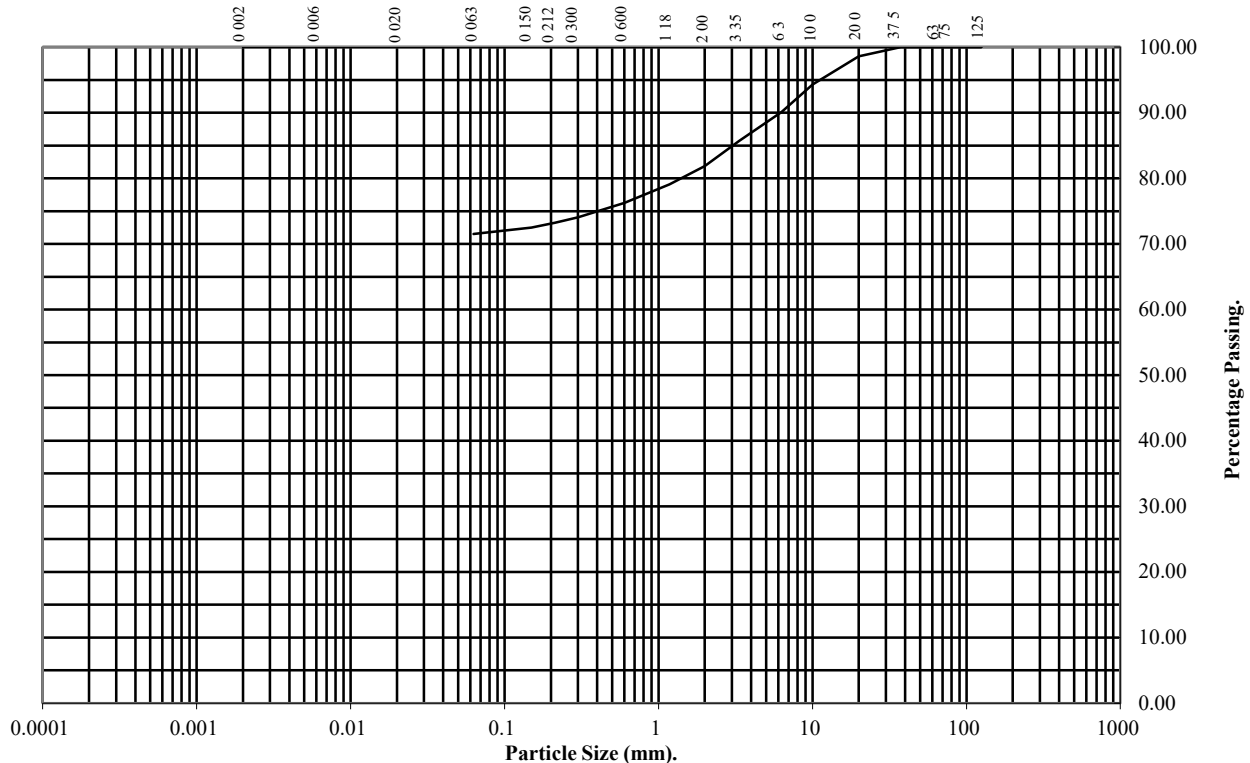
Hole Number: TP1033

Top Depth (m): 2.00

Sample Number:

Base Depth(m): 2.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	94
6.3	90
3.35	86
2	82
1.18	79
0.6	76
0.3	74
0.212	73
0.15	73
0.063	72

Soil Fraction	Total Percentage
Cobbles	0
Gravel	18
Sand	10
Silt/Clay	72

Remarks:

See Summary of Soil Descriptions



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Wet Sieve, Clause 9.2

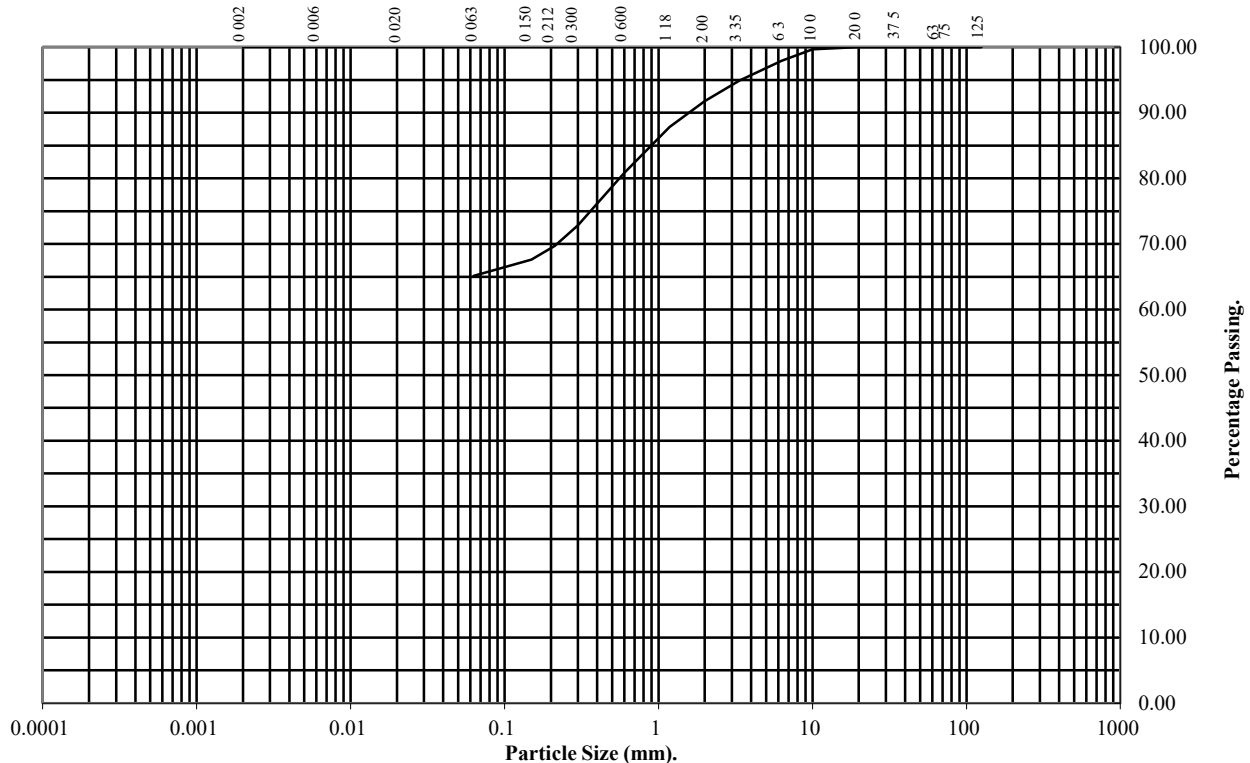
Hole Number: TP1033

Top Depth (m): 3.50

Sample Number:

Base Depth(m): 4.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	98
3.35	95
2	92
1.18	88
0.6	81
0.3	73
0.212	70
0.15	68
0.063	65

Soil Fraction	Total Percentage
Cobbles	0
Gravel	8
Sand	27
Silt/Clay	65

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

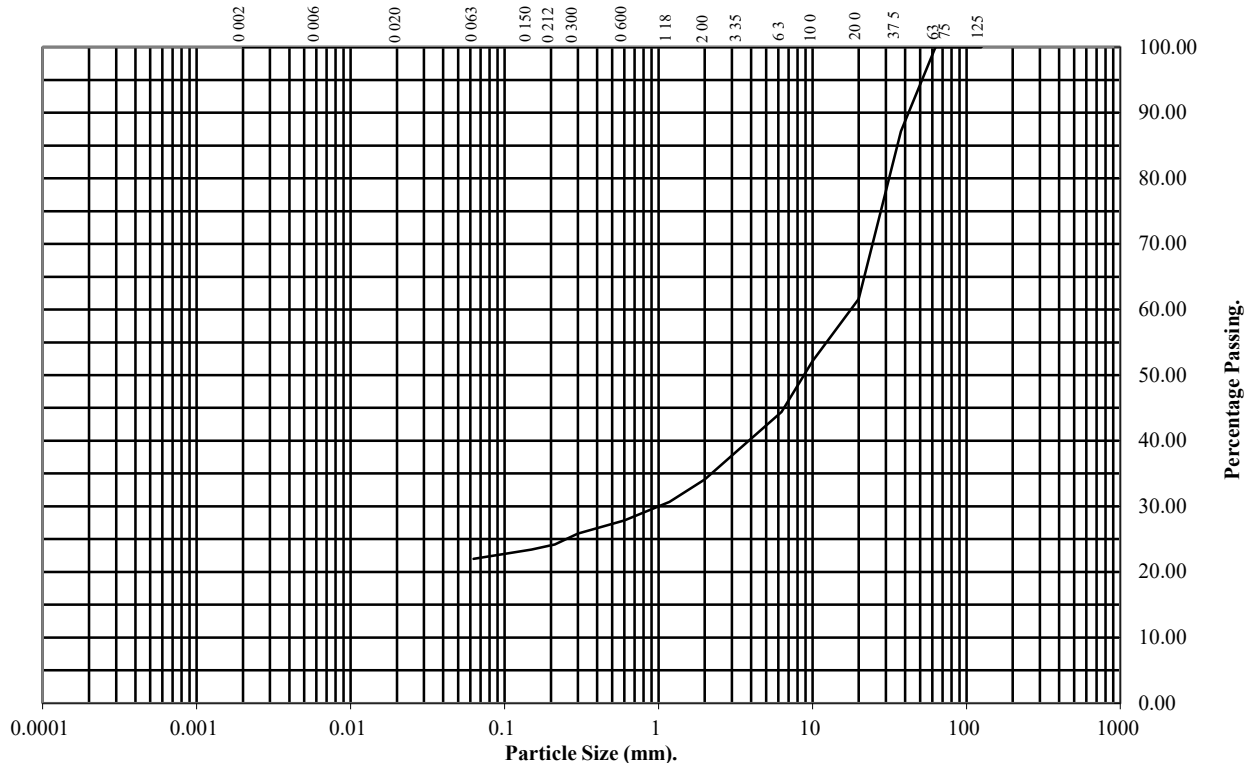
Hole Number: TP1036

Top Depth (m): 3.00

Sample Number:

Base Depth(m): 3.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	87
20	62
10	52
6.3	44
3.35	39
2	34
1.18	31
0.6	28
0.3	26
0.212	24
0.15	23
0.063	22

Soil Fraction	Total Percentage
Cobbles	0
Gravel	66
Sand	12
Silt/Clay	22

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

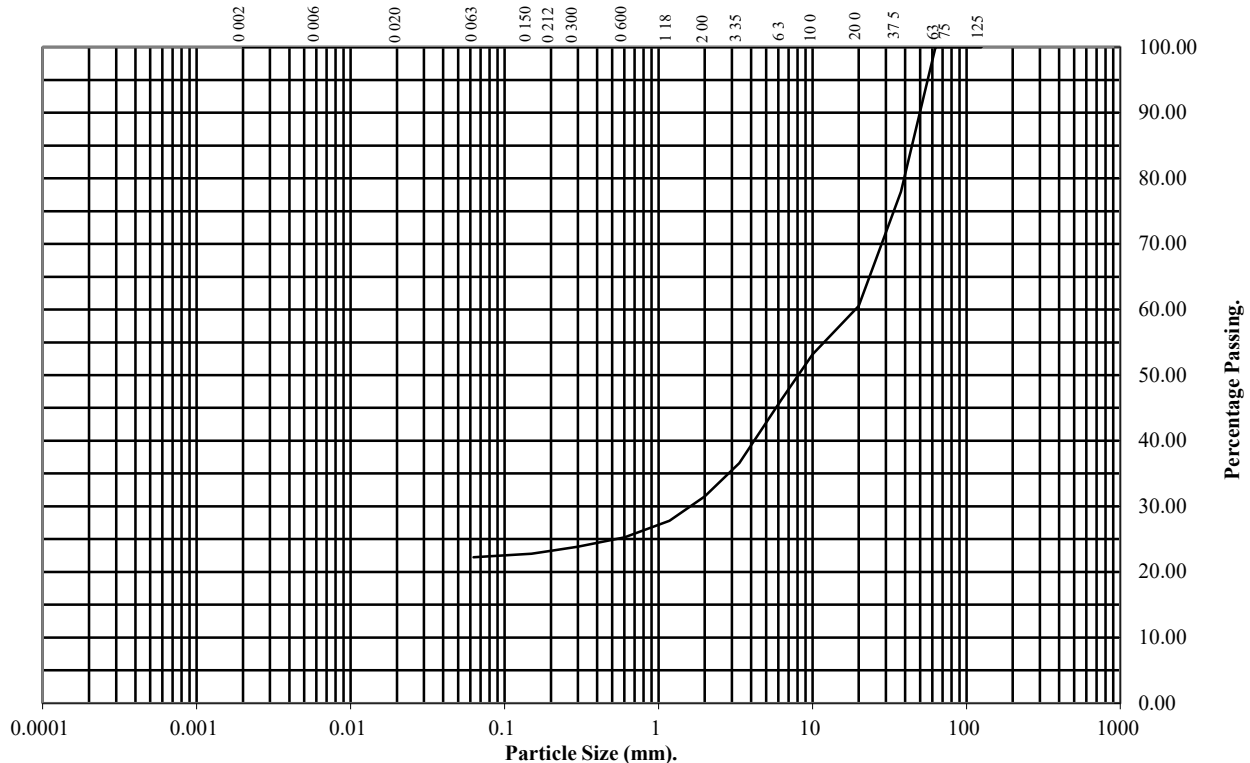
Hole Number: TP1040

Top Depth (m): 1.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	78
20	61
10	53
6.3	46
3.35	37
2	32
1.18	28
0.6	25
0.3	24
0.212	23
0.15	23
0.063	22

Soil Fraction	Total Percentage
Cobbles	0
Gravel	68
Sand	10
Silt/Clay	22

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

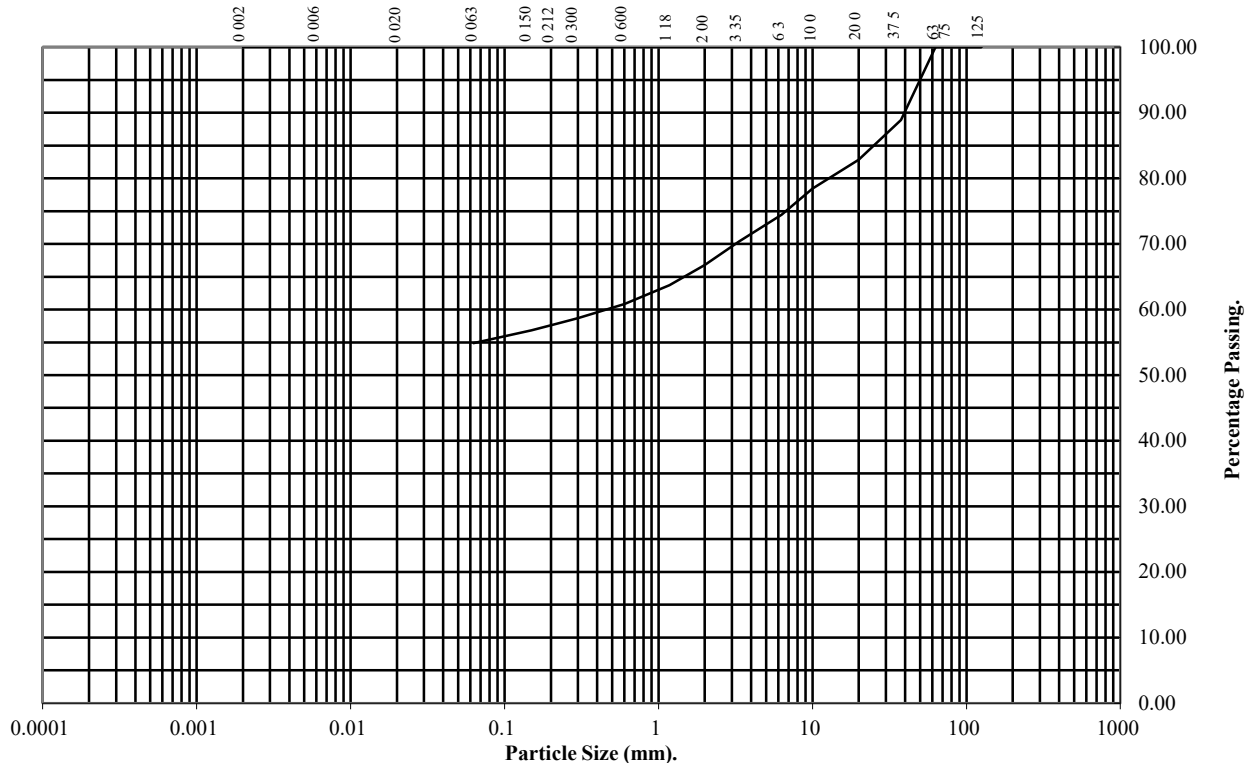
Hole Number: TP1042

Top Depth (m): 3.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	89
20	83
10	78
6.3	74
3.35	70
2	67
1.18	64
0.6	61
0.3	59
0.212	58
0.15	57
0.063	55

Soil Fraction	Total Percentage
Cobbles	0
Gravel	33
Sand	12
Silt/Clay	55

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

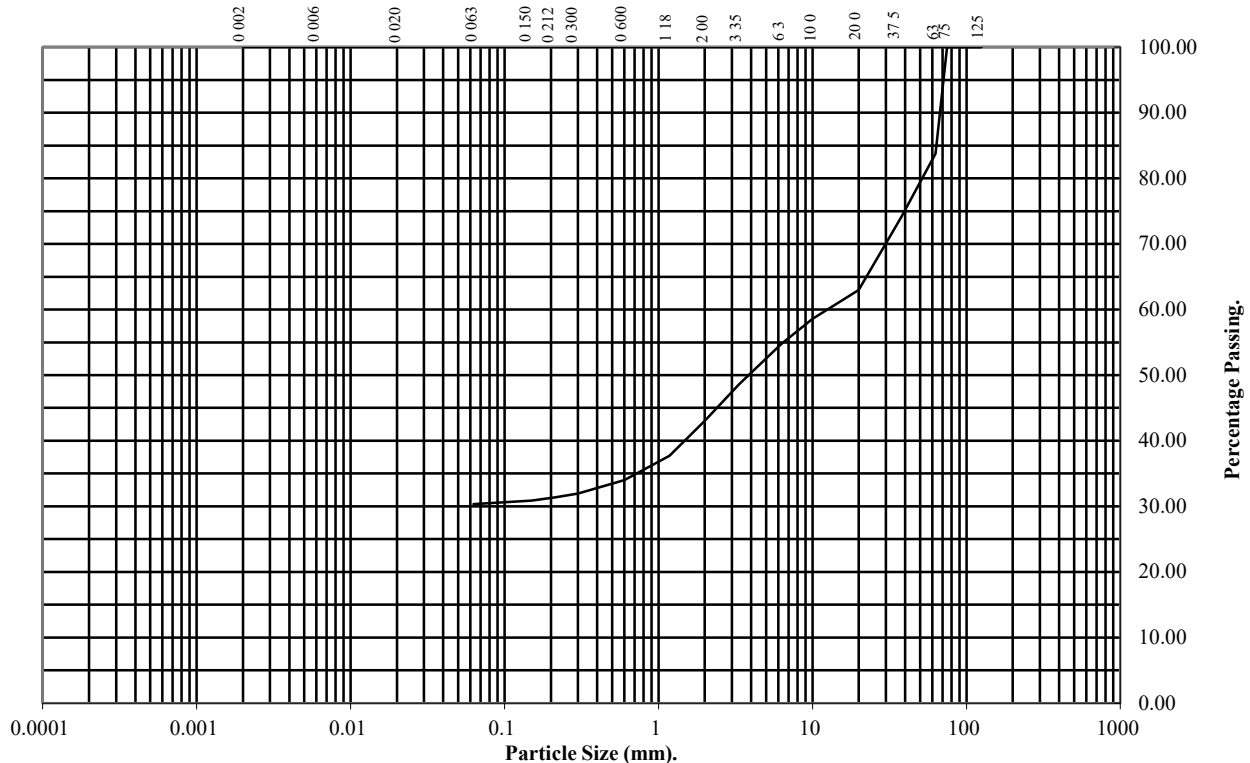
Hole Number: TP1043

Top Depth (m): 4.00

Sample Number:

Base Depth(m): 4.70

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	84
37.5	74
20	63
10	59
6.3	55
3.35	49
2	43
1.18	38
0.6	34
0.3	32
0.212	31
0.15	31
0.063	30

Soil Fraction	Total Percentage
Cobbles	16
Gravel	41
Sand	13
Silt/Clay	30

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

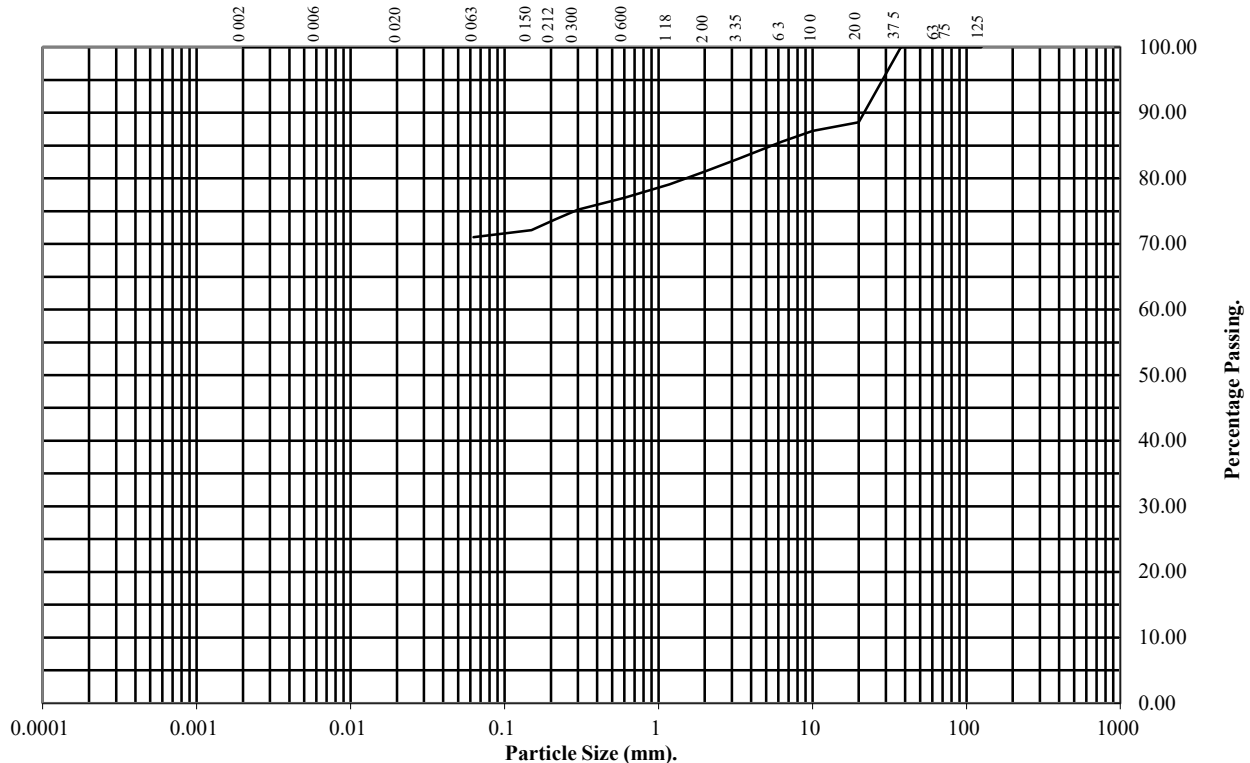
Hole Number: TP1045

Top Depth (m): 2.50

Sample Number:

Base Depth(m): 3.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	89
10	87
6.3	86
3.35	83
2	81
1.18	79
0.6	77
0.3	75
0.212	74
0.15	72
0.063	71

Soil Fraction	Total Percentage
Cobbles	0
Gravel	19
Sand	10
Silt/Clay	71

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

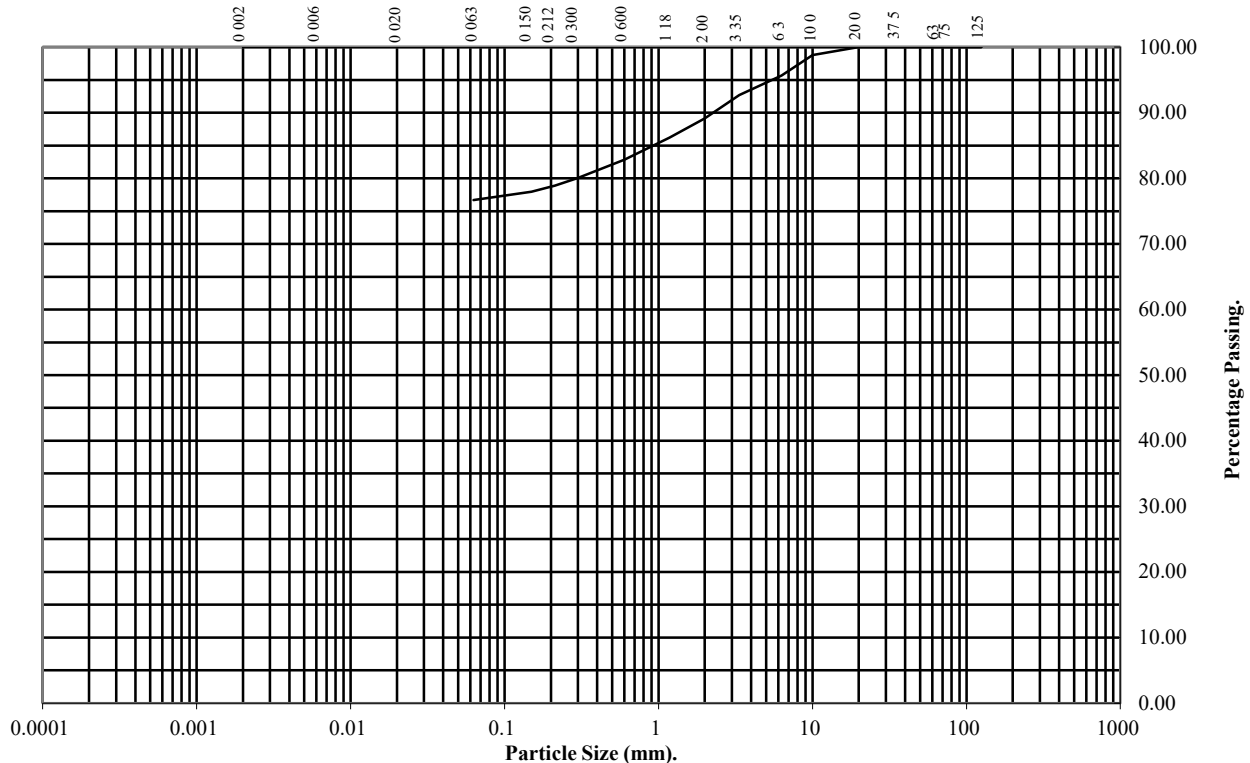
Hole Number: TP1047

Top Depth (m): 2.50

Sample Number:

Base Depth(m): 3.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	96
3.35	93
2	89
1.18	86
0.6	83
0.3	80
0.212	79
0.15	78
0.063	77

Soil Fraction	Total Percentage
Cobbles	0
Gravel	11
Sand	12
Silt/Clay	77

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

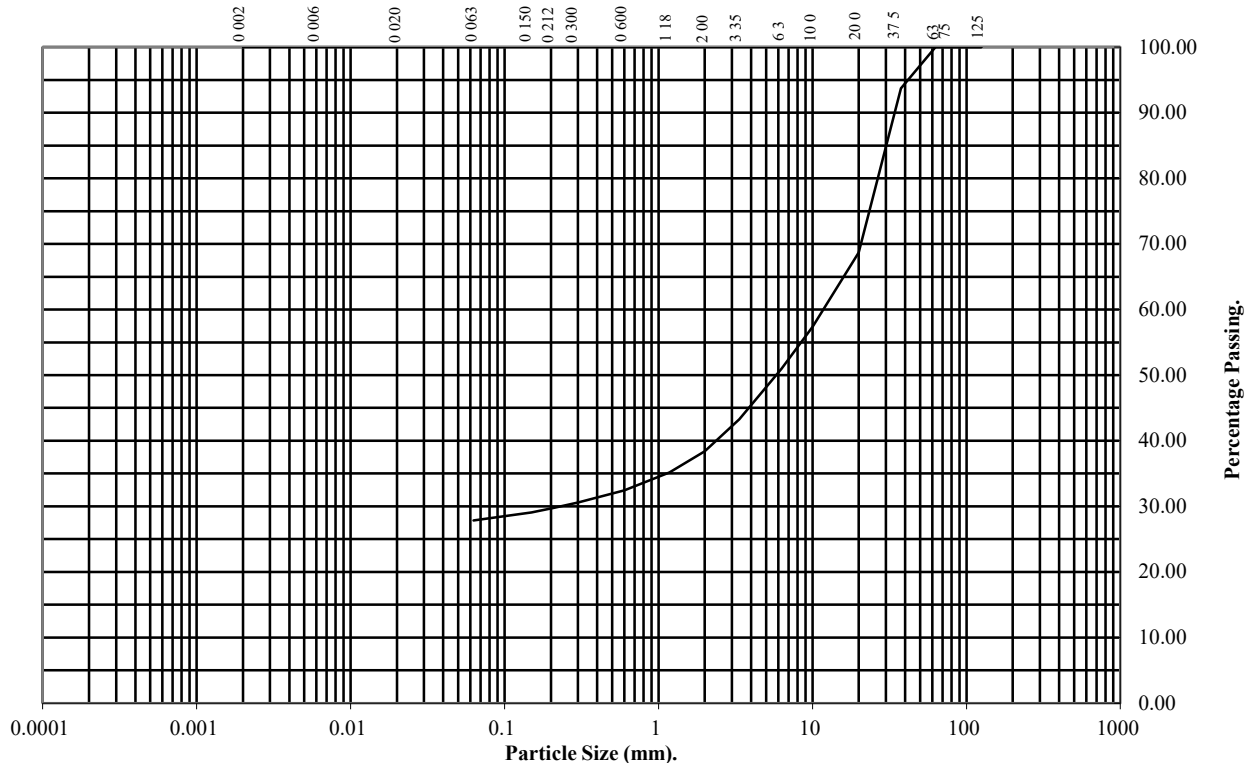
Hole Number: TP1048

Top Depth (m): 1.50

Sample Number:

Base Depth(m): 2.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	94
20	69
10	57
6.3	51
3.35	43
2	38
1.18	35
0.6	32
0.3	31
0.212	30
0.15	29
0.063	28

Soil Fraction	Total Percentage
Cobbles	0
Gravel	62
Sand	10
Silt/Clay	28

Remarks:

See Summary of Soil Descriptions



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Contract No:
PSL20/1448
Client Ref:
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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

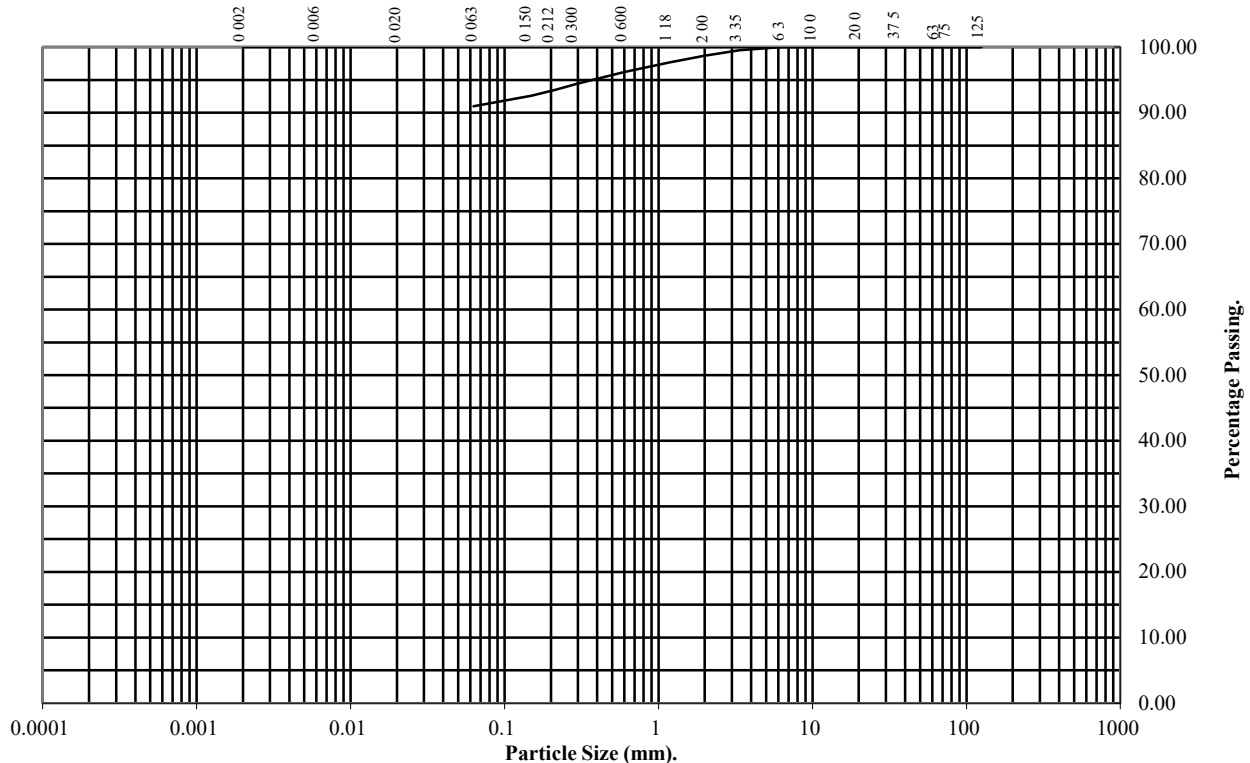
Hole Number: TP1049

Top Depth (m): 1.50

Sample Number:

Base Depth(m): 2.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	99
1.18	98
0.6	96
0.3	94
0.212	93
0.15	93
0.063	91

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	8
Silt/Clay	91

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

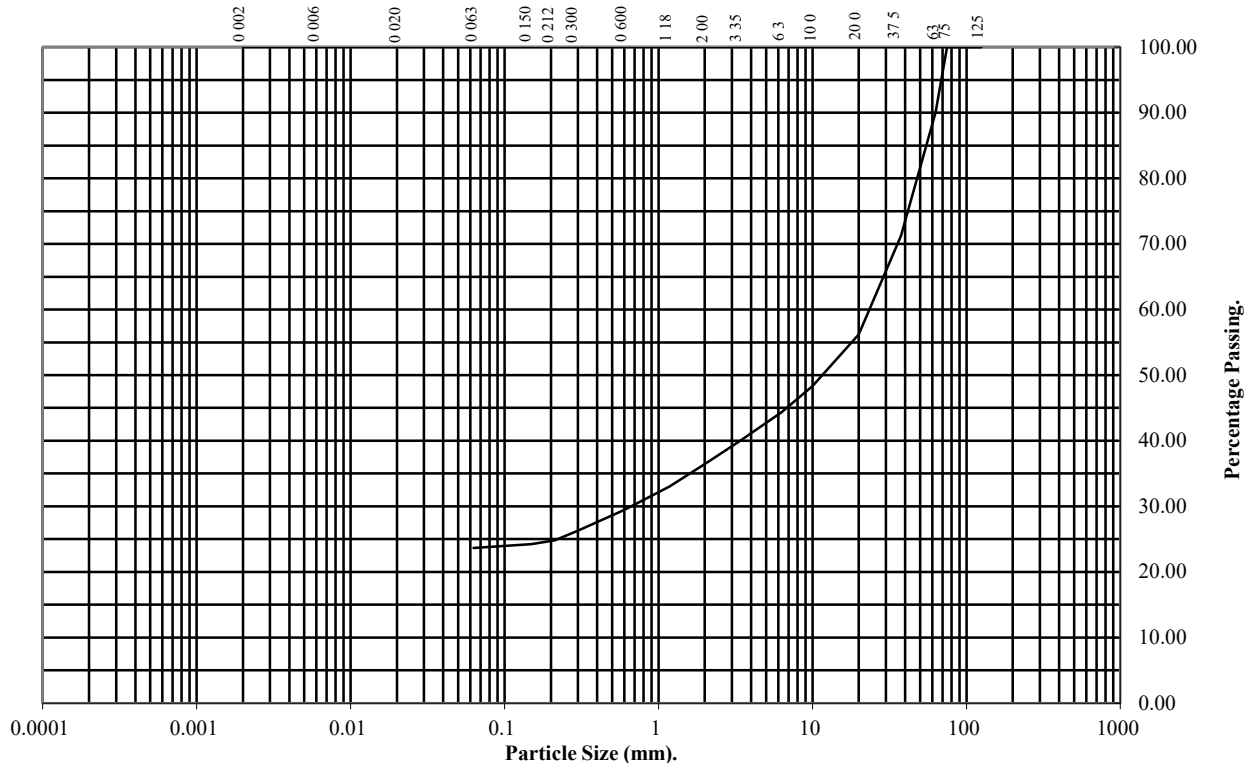
Hole Number: TP1049

Top Depth (m): 3.00

Sample Number:

Base Depth(m): 4.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	90
37.5	71
20	56
10	48
6.3	44
3.35	40
2	36
1.18	33
0.6	29
0.3	26
0.212	25
0.15	24
0.063	24

Soil Fraction	Total Percentage
Cobbles	10
Gravel	54
Sand	12
Silt/Clay	24

Remarks:

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Contract No:
PSL20/1448
Client Ref:
AG3080-19

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

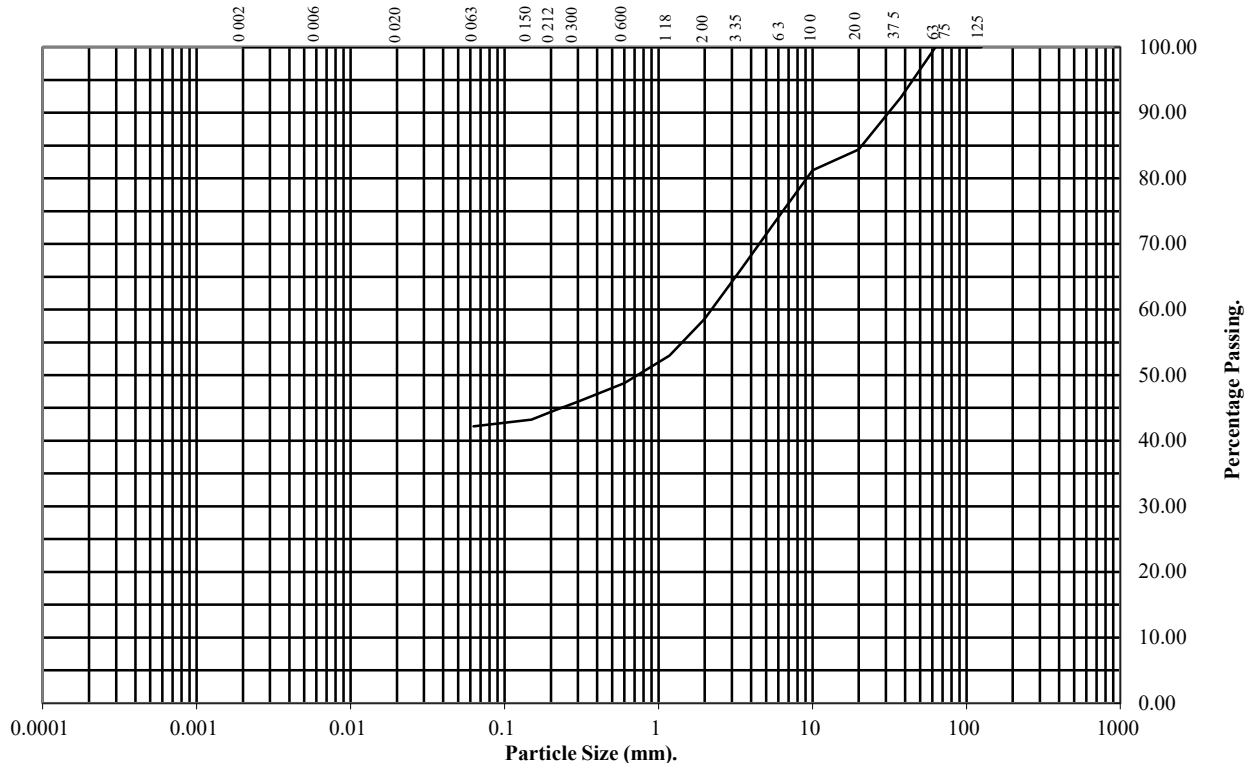
Hole Number: TP1054

Top Depth (m): 2.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	92
20	84
10	81
6.3	75
3.35	66
2	59
1.18	53
0.6	49
0.3	46
0.212	45
0.15	43
0.063	42

Soil Fraction	Total Percentage
Cobbles	0
Gravel	41
Sand	17
Silt/Clay	42

Remarks:

See Summary of Soil Descriptions



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Hoylands Common, Barnsley

Contract No:
PSL20/1448
Client Ref:
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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

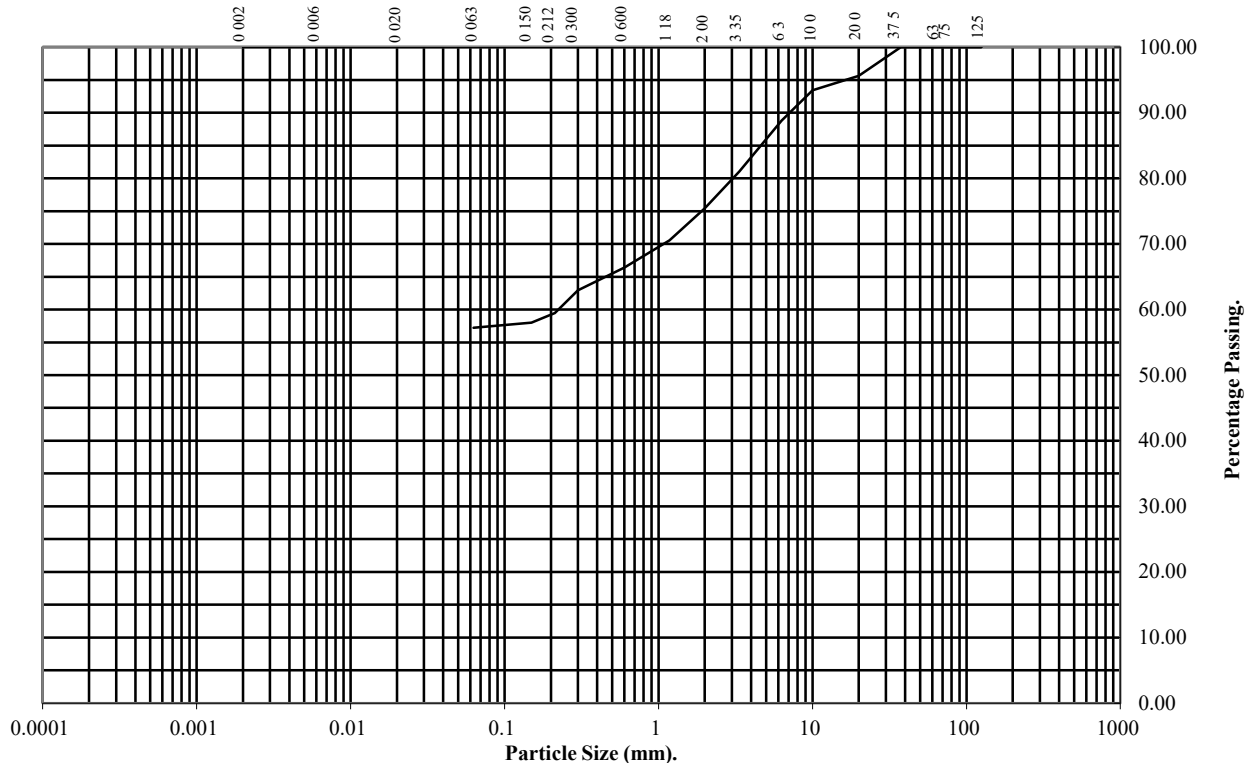
Hole Number: TP1055

Top Depth (m): 3.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	93
6.3	89
3.35	81
2	75
1.18	71
0.6	66
0.3	63
0.212	59
0.15	58
0.063	57

Soil Fraction	Total Percentage
Cobbles	0
Gravel	25
Sand	18
Silt/Clay	57

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

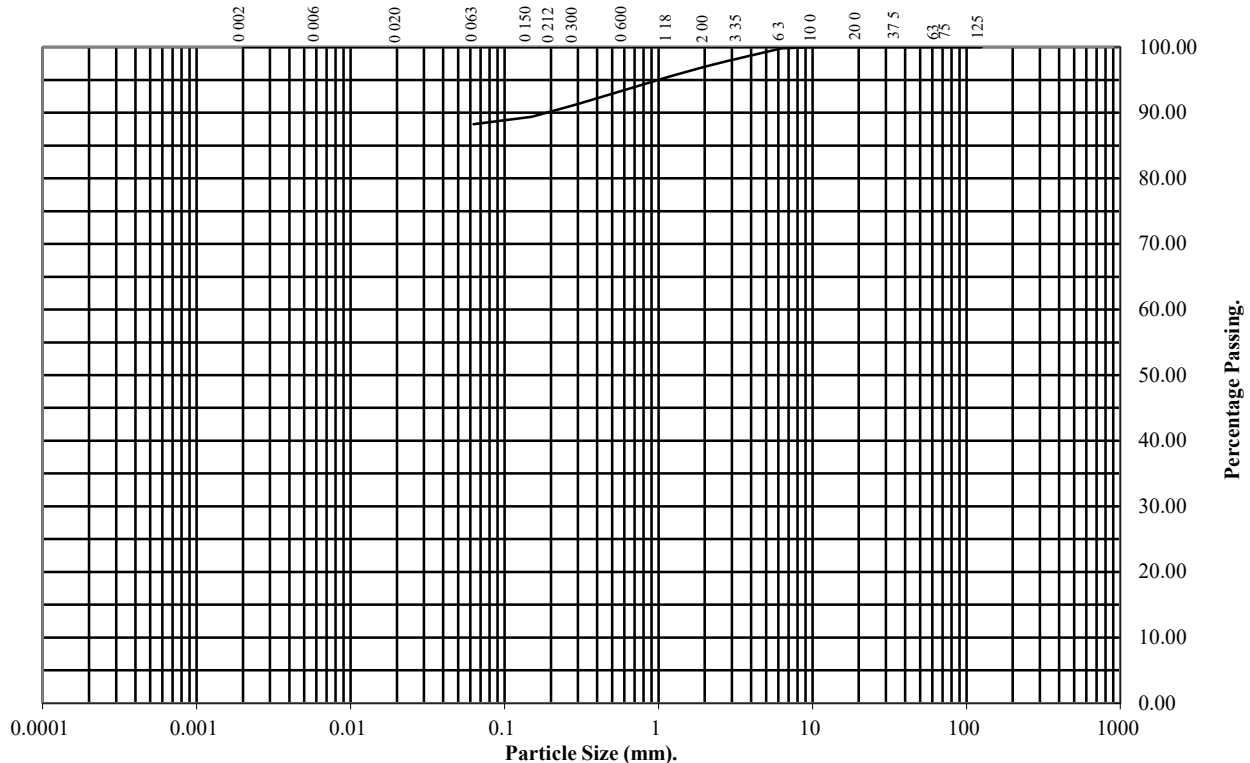
Hole Number: TP1056

Top Depth (m): 0.50

Sample Number:

Base Depth(m): 0.70

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	98
2	97
1.18	95
0.6	93
0.3	91
0.212	90
0.15	89
0.063	88

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	9
Silt/Clay	88

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

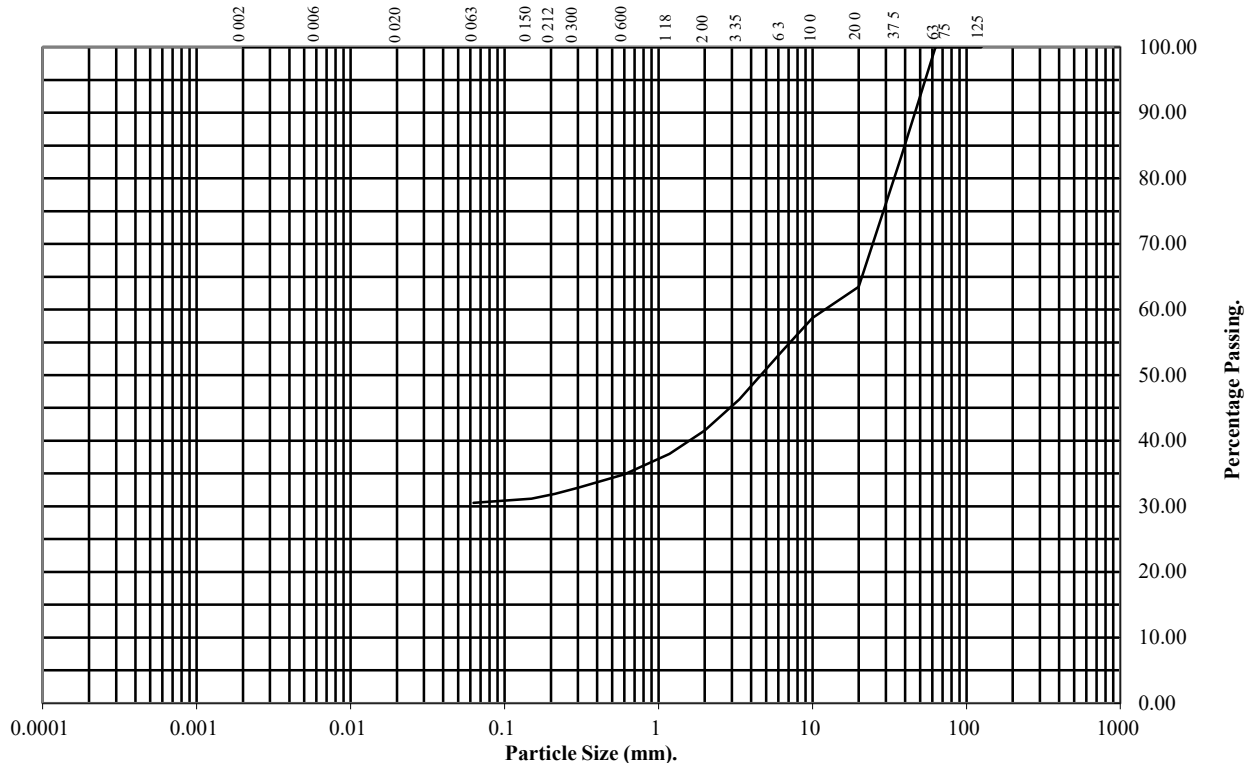
Hole Number: TP1063

Top Depth (m): 2.00

Sample Number:

Base Depth(m): 2.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	83
20	63
10	59
6.3	54
3.35	46
2	42
1.18	38
0.6	35
0.3	33
0.212	32
0.15	31
0.063	31

Soil Fraction	Total Percentage
Cobbles	0
Gravel	58
Sand	11
Silt/Clay	31

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

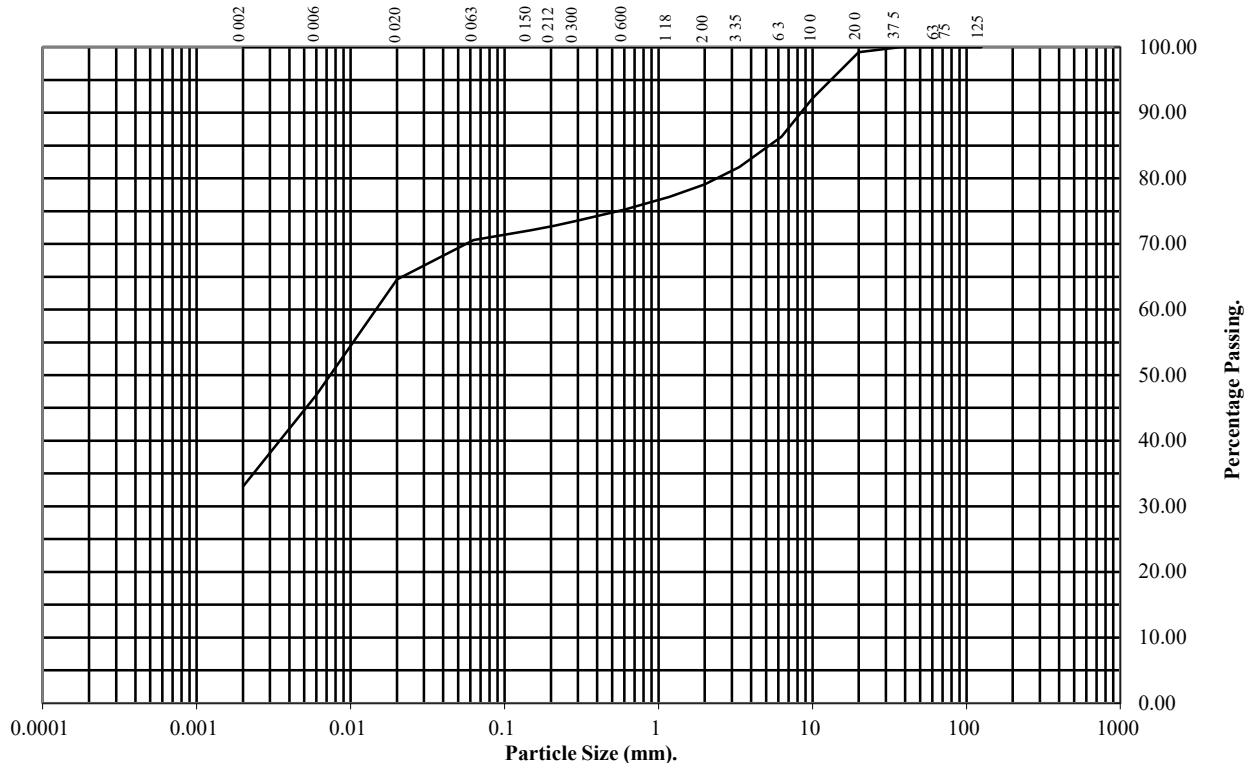
Hole Number: TP1097

Top Depth (m): 1.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	92
6.3	86
3.35	82
2	79
1.18	77
0.6	75
0.3	74
0.212	73
0.15	72
0.063	71

Particle Diameter	Percentage Passing
0.02	65
0.006	47
0.002	33

Soil Fraction	Total Percentage
Cobbles	0
Gravel	21
Sand	8
Silt	38
Clay	33

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

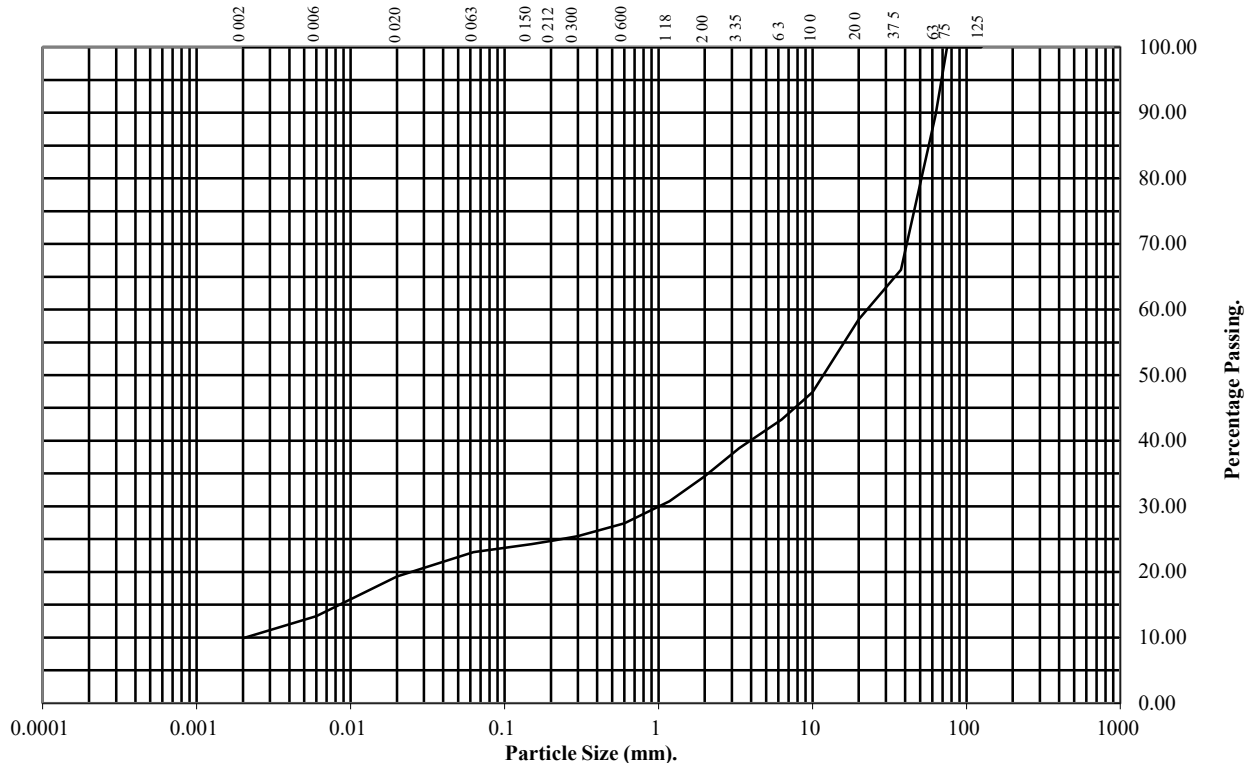
Hole Number: TP1101

Top Depth (m): 3.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	90
37.5	66
20	58
10	47
6.3	43
3.35	39
2	35
1.18	31
0.6	27
0.3	25
0.212	25
0.15	24
0.063	23

Particle Diameter	Percentage Passing
0.02	19
0.006	13
0.002	10

Soil Fraction	Total Percentage
Cobbles	10
Gravel	55
Sand	12
Silt	13
Clay	10

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

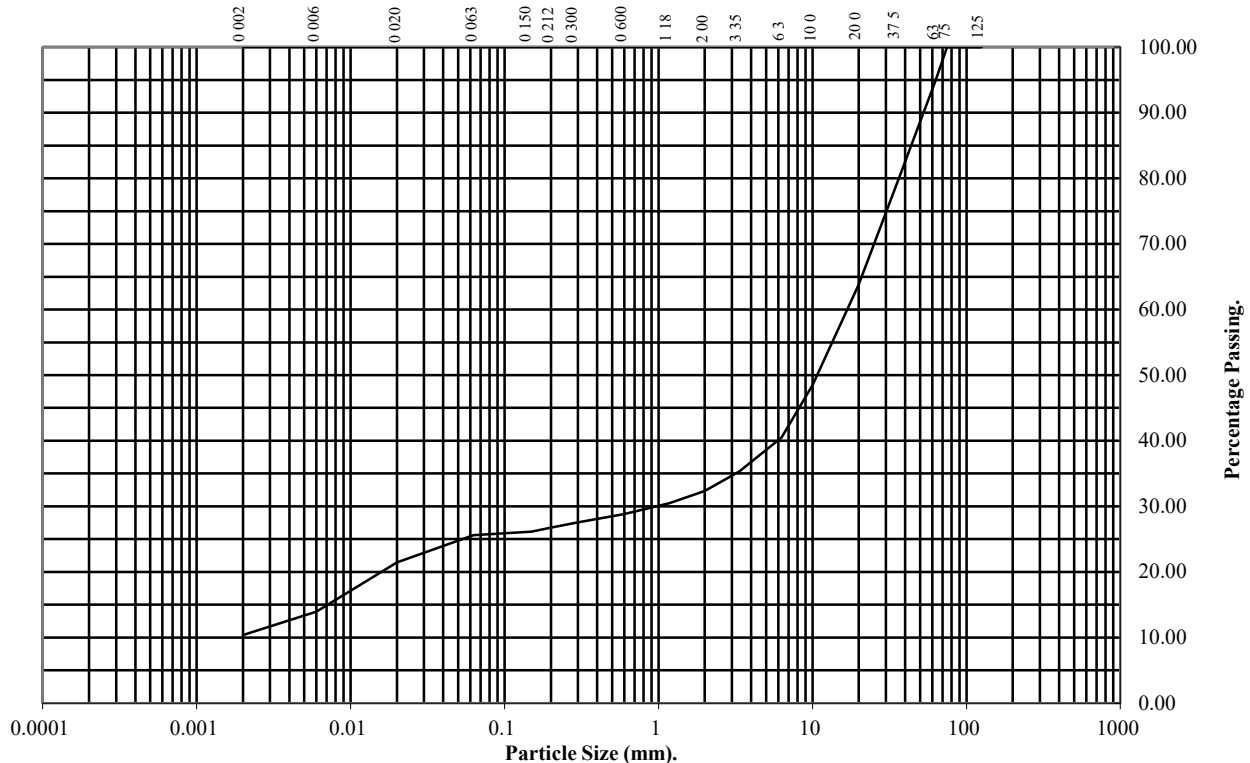
Hole Number: TP1103

Top Depth (m): 2.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	95
37.5	81
20	64
10	49
6.3	41
3.35	35
2	32
1.18	30
0.6	29
0.3	28
0.212	27
0.15	26
0.063	26

Particle Diameter	Percentage Passing
0.02	21
0.006	14
0.002	10

Soil Fraction	Total Percentage
Cobbles	5
Gravel	63
Sand	6
Silt	16
Clay	10

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

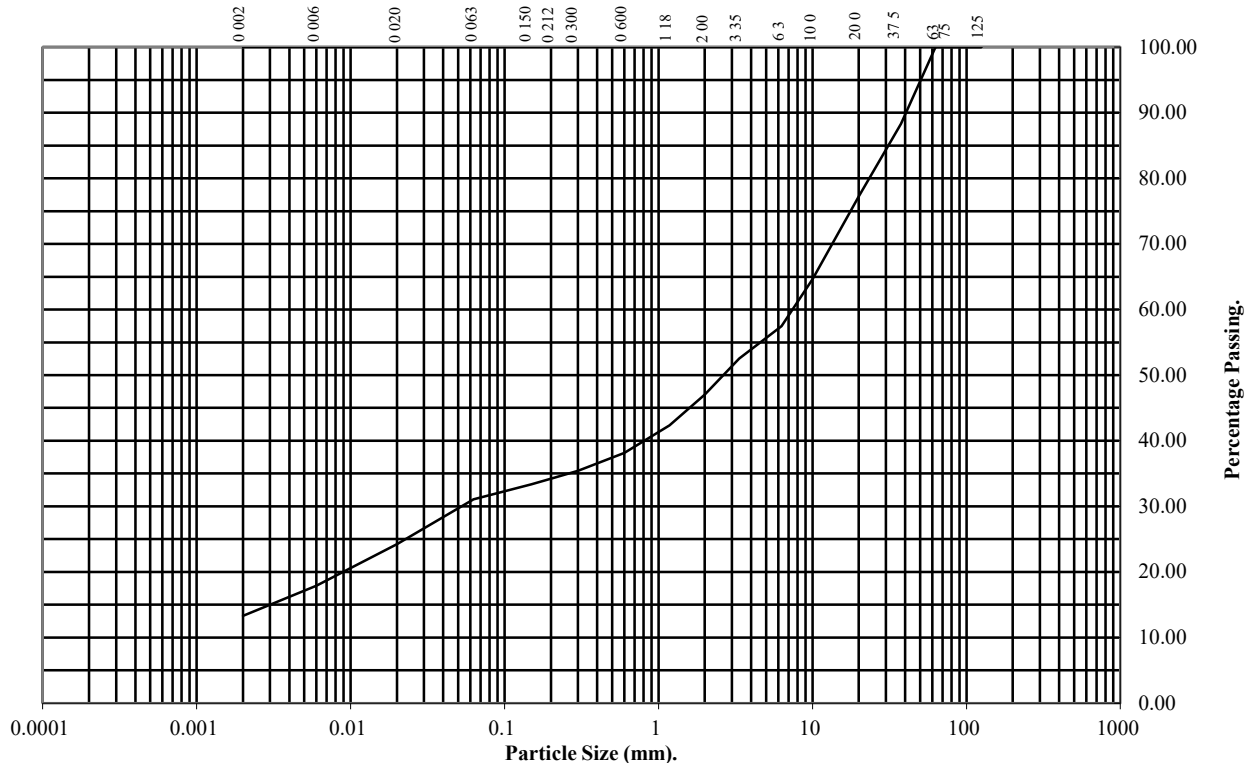
Hole Number: TP1111

Top Depth (m): 2.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	88
20	77
10	65
6.3	57
3.35	53
2	47
1.18	42
0.6	38
0.3	35
0.212	34
0.15	33
0.063	31

Particle Diameter	Percentage Passing
0.02	24
0.006	18
0.002	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	53
Sand	16
Silt	18
Clay	13

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

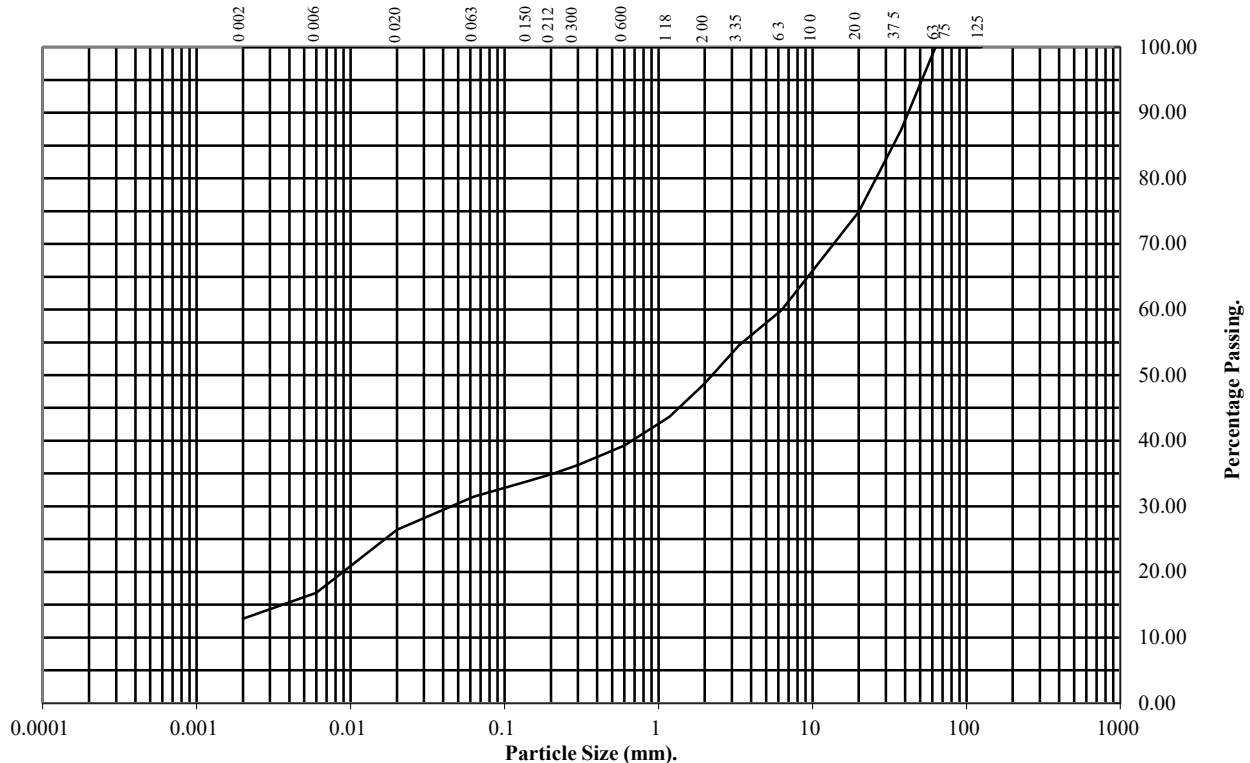
Hole Number: TP1113

Top Depth (m): 2.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	87
20	75
10	66
6.3	60
3.35	55
2	49
1.18	44
0.6	39
0.3	36
0.212	35
0.15	34
0.063	31

Particle Diameter	Percentage Passing
0.02	26
0.006	17
0.002	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	51
Sand	18
Silt	18
Clay	13

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

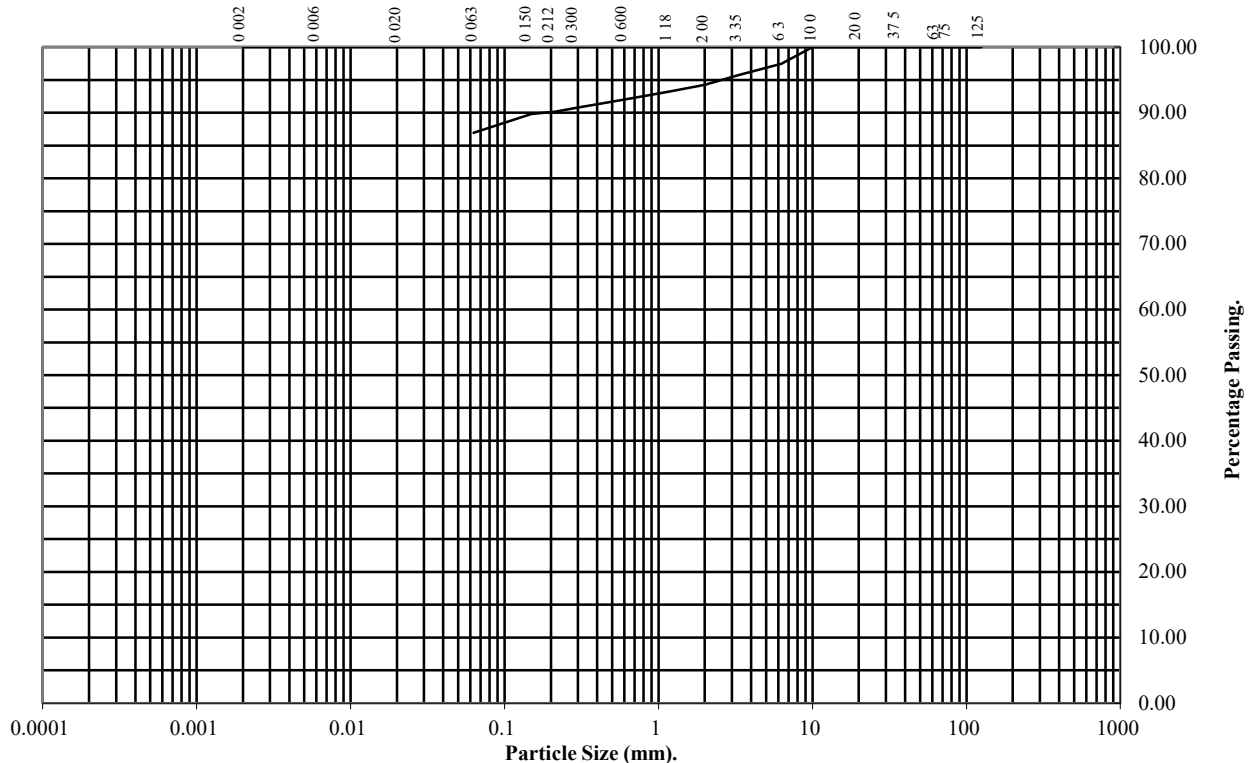
Hole Number: TP1201

Top Depth (m): 0.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	97
3.35	96
2	94
1.18	93
0.6	92
0.3	91
0.212	90
0.15	90
0.063	87

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	7
Silt/Clay	87

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

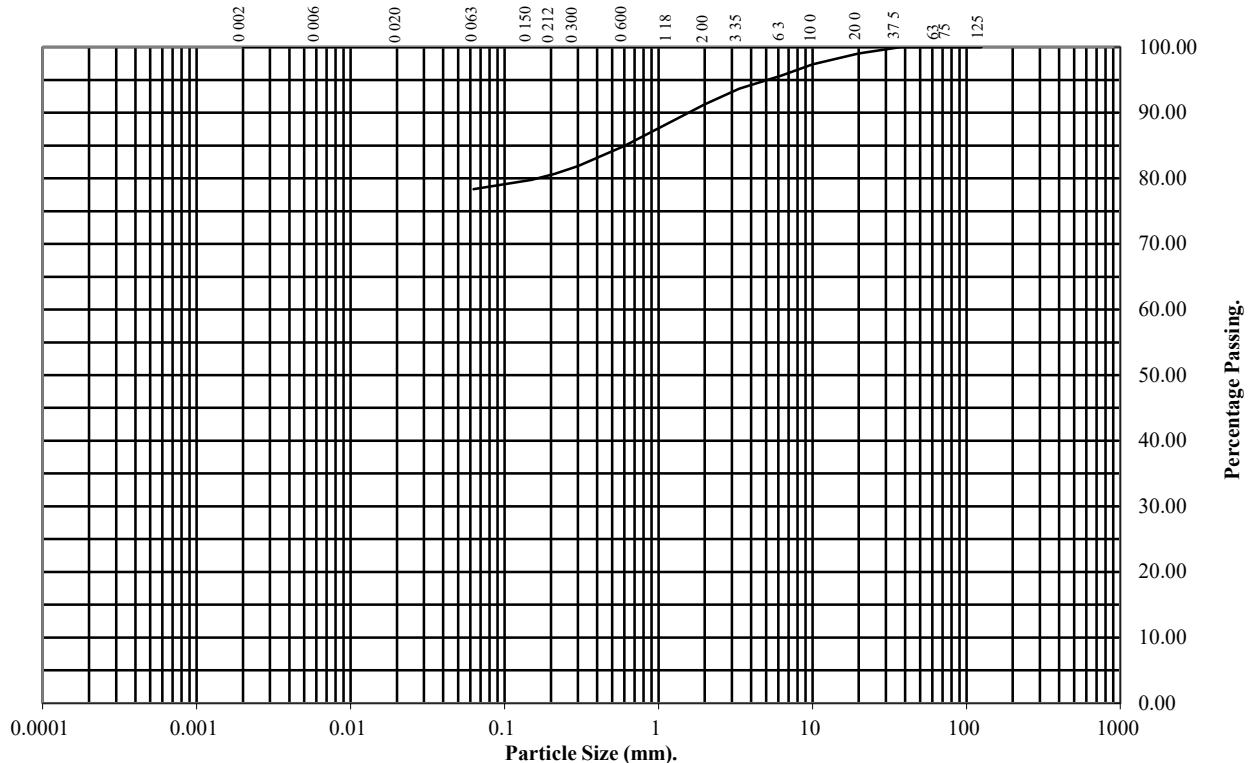
Hole Number: TP1202

Top Depth (m): 0.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	97
6.3	96
3.35	94
2	91
1.18	88
0.6	85
0.3	82
0.212	81
0.15	80
0.063	78

Soil Fraction	Total Percentage
Cobbles	0
Gravel	9
Sand	13
Silt/Clay	78

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

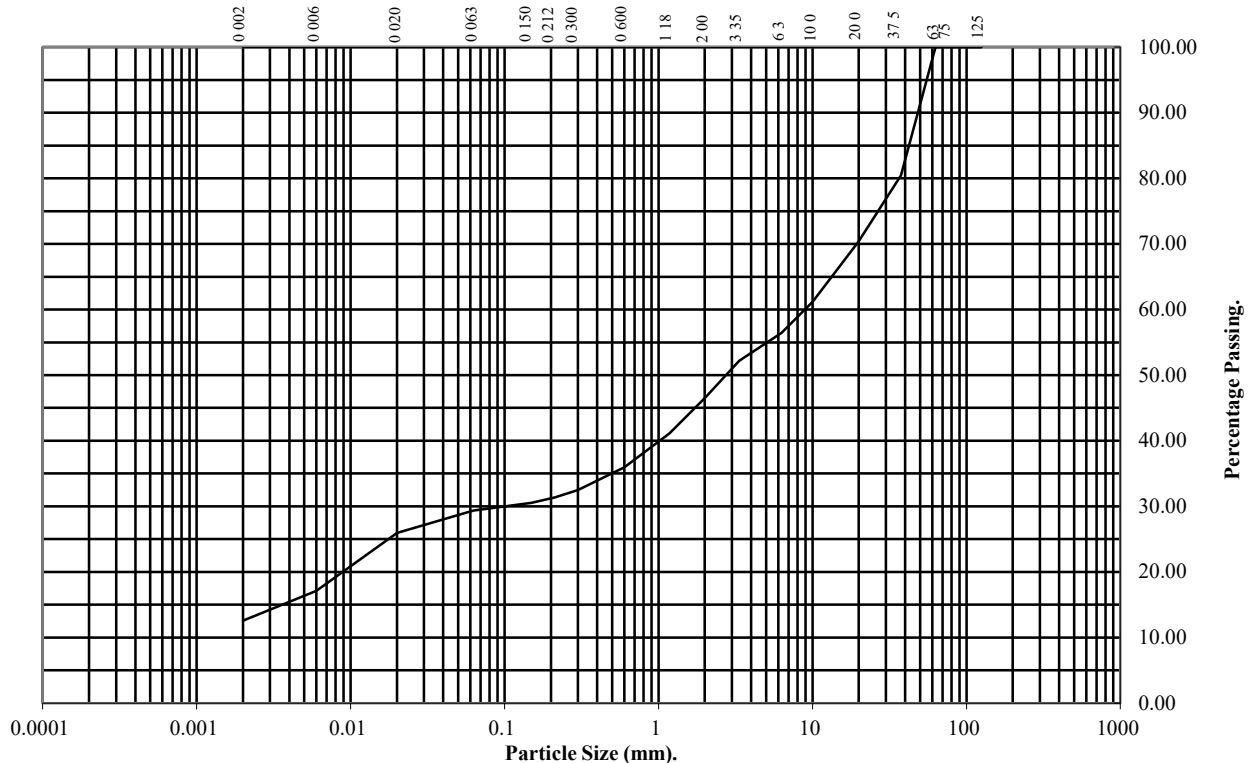
Hole Number: TT2009

Top Depth (m): 2.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	80
20	70
10	61
6.3	56
3.35	52
2	46
1.18	41
0.6	36
0.3	32
0.212	31
0.15	31
0.063	29

Particle Diameter	Percentage Passing
0.02	26
0.006	17
0.002	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	54
Sand	17
Silt	16
Clay	13

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

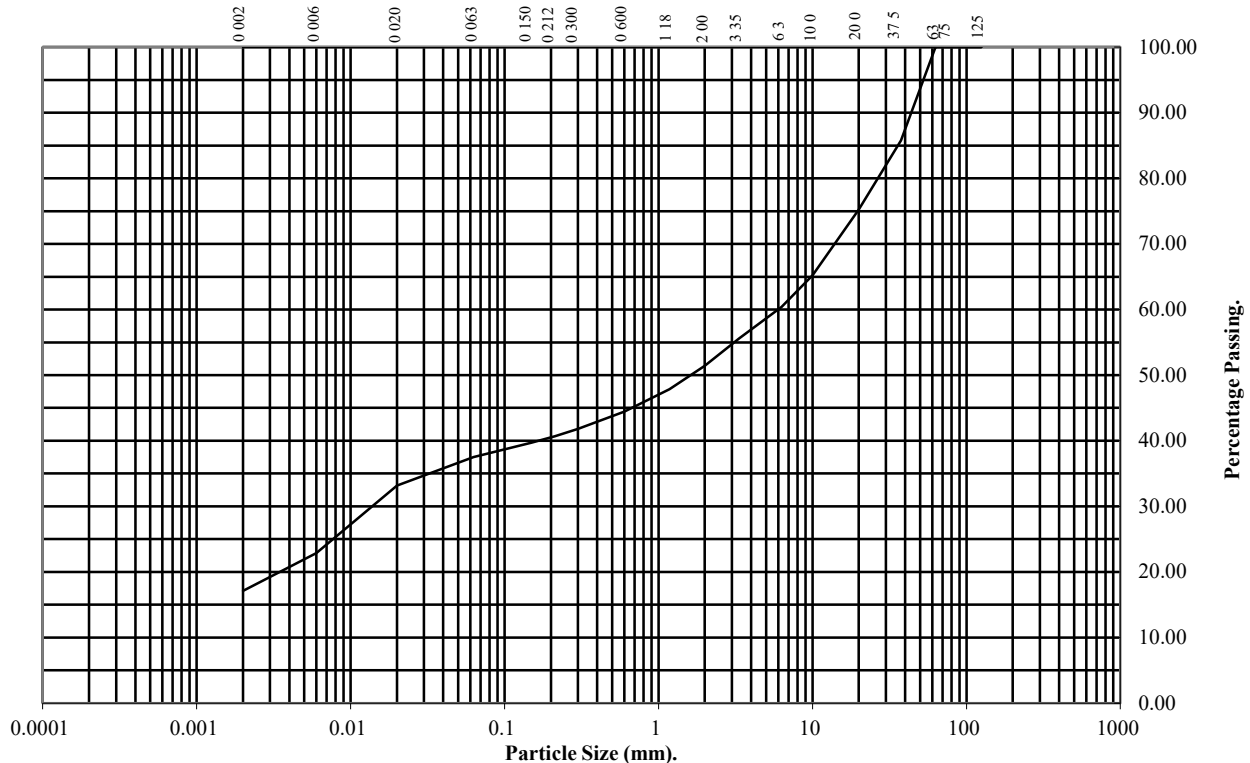
Hole Number: TT2031

Top Depth (m): 2.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	86
20	75
10	65
6.3	60
3.35	56
2	51
1.18	48
0.6	44
0.3	42
0.212	41
0.15	40
0.063	38

Particle Diameter	Percentage Passing
0.02	33
0.006	23
0.002	17

Soil Fraction	Total Percentage
Cobbles	0
Gravel	49
Sand	13
Silt	21
Clay	17

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

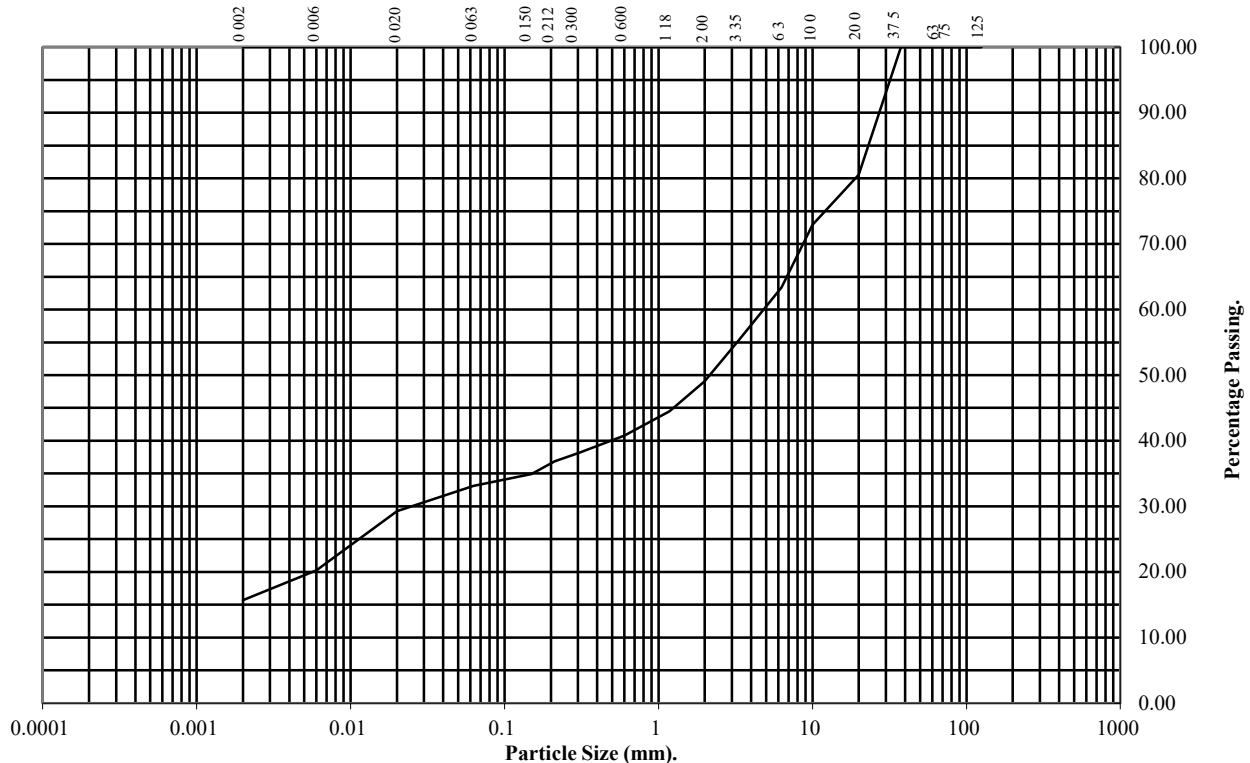
Hole Number: RC4010

Top Depth (m): 2.00

Sample Number:

Base Depth(m): 4.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	81
10	73
6.3	63
3.35	55
2	49
1.18	44
0.6	41
0.3	38
0.212	37
0.15	35
0.063	33

Particle Diameter	Percentage Passing
0.02	29
0.006	20
0.002	16

Soil Fraction	Total Percentage
Cobbles	0
Gravel	51
Sand	16
Silt	17
Clay	16

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

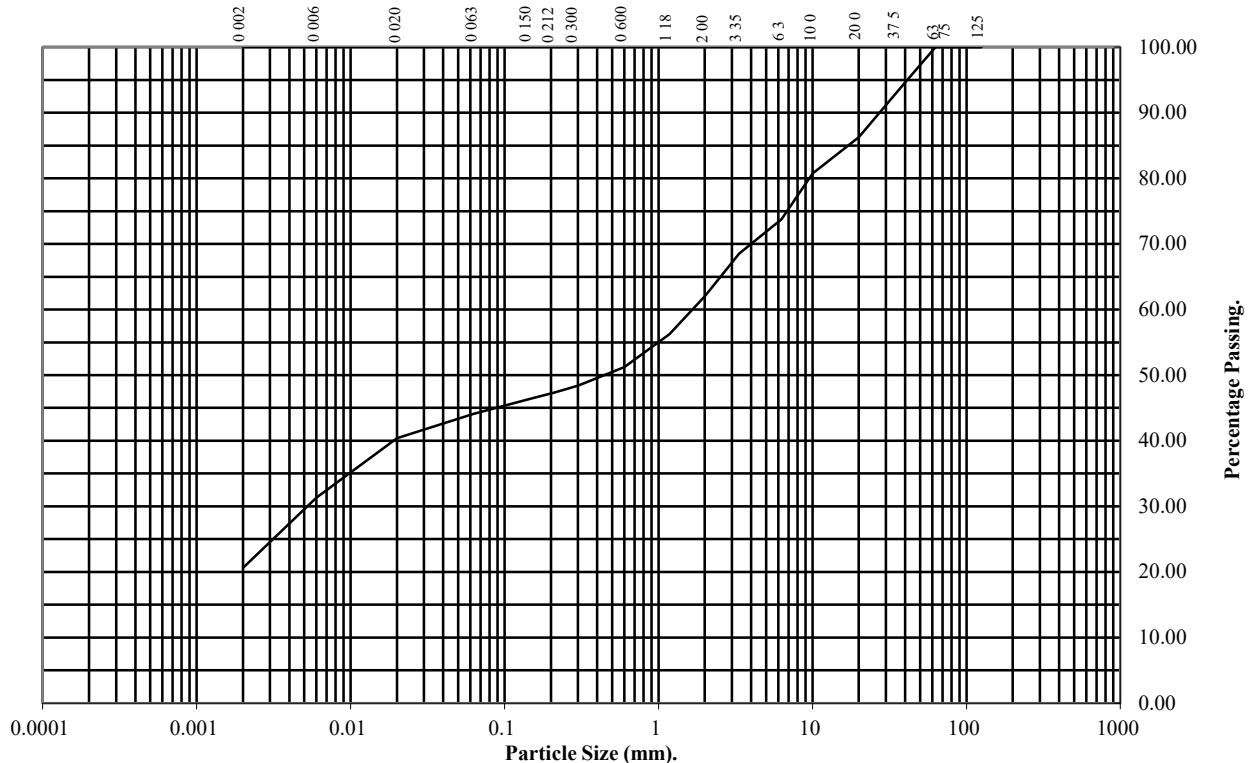
Hole Number: RC4010

Top Depth (m): 6.00

Sample Number:

Base Depth(m): 8.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	94
20	86
10	81
6.3	74
3.35	69
2	62
1.18	56
0.6	51
0.3	48
0.212	47
0.15	46
0.063	44

Particle Diameter	Percentage Passing
0.02	40
0.006	31
0.002	21

Soil Fraction	Total Percentage
Cobbles	0
Gravel	38
Sand	18
Silt	23
Clay	21

Remarks:

See Summary of Soil Descriptions



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

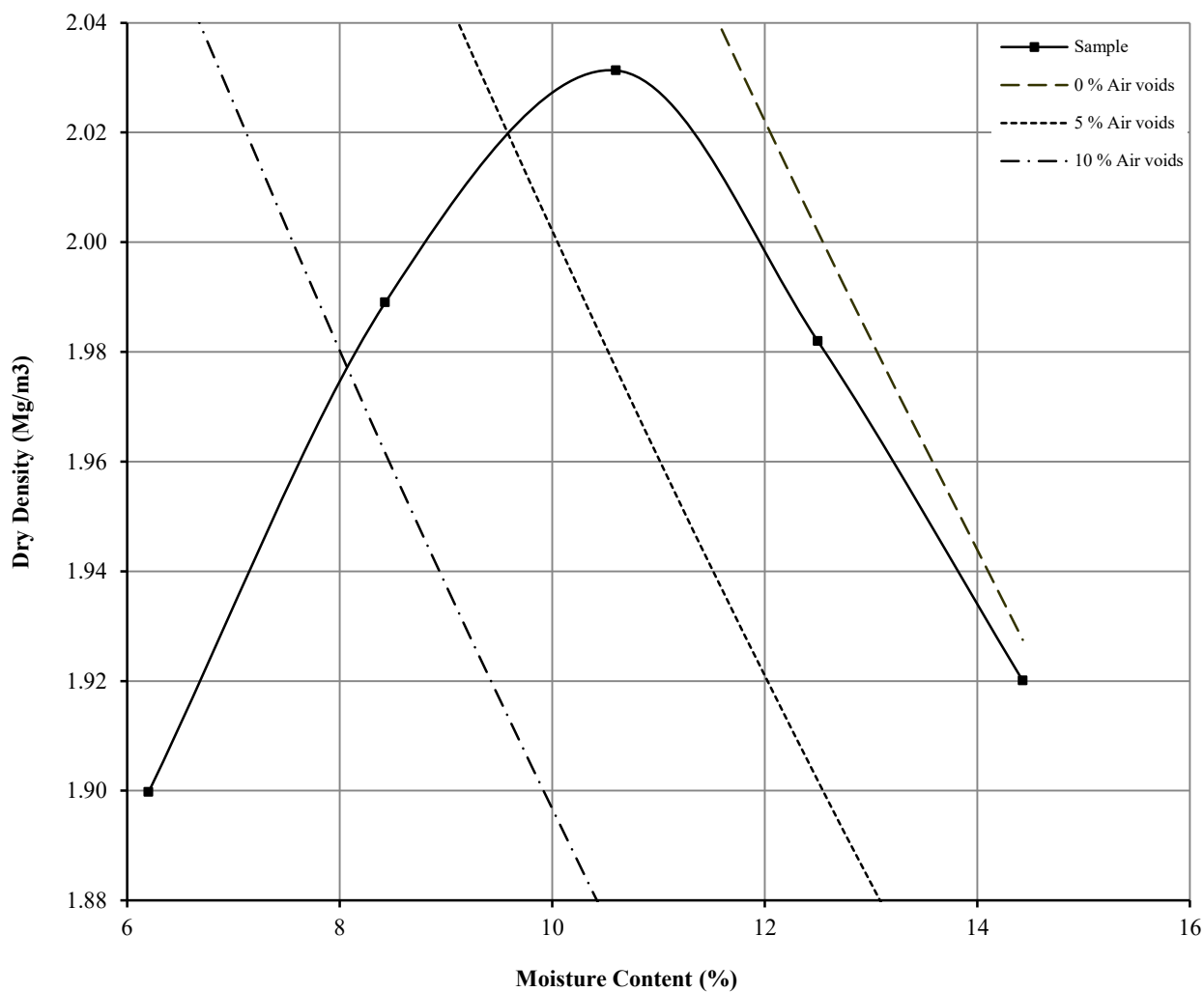
Hole Number: TP1002

Top Depth (m) : 3.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	13	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.67	Measured	Material Retained on 37.5 mm Test Sieve (%):	16
Maximum Dry Density (Mg/m ³):	2.03		Material Retained on 20.0 mm Test Sieve (%):	12
Optimum Moisture Content (%):	11			
Remarks				
See summary of soil descriptions.				

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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

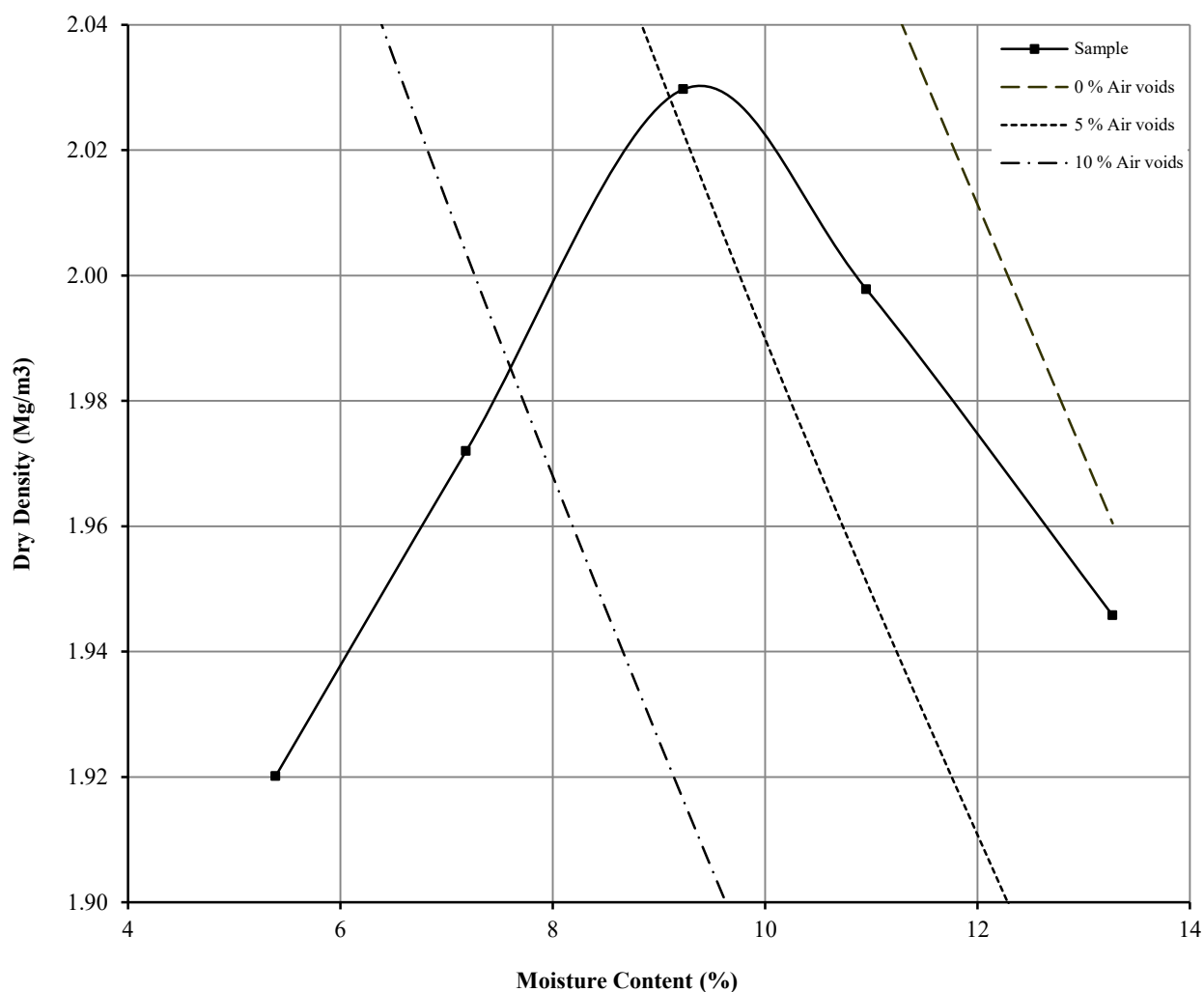
Hole Number: TP1003

Top Depth (m) : 2.50

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	11	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	12
Maximum Dry Density (Mg/m ³):	2.03		Material Retained on 20.0 mm Test Sieve (%):	18
Optimum Moisture Content (%):	9			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

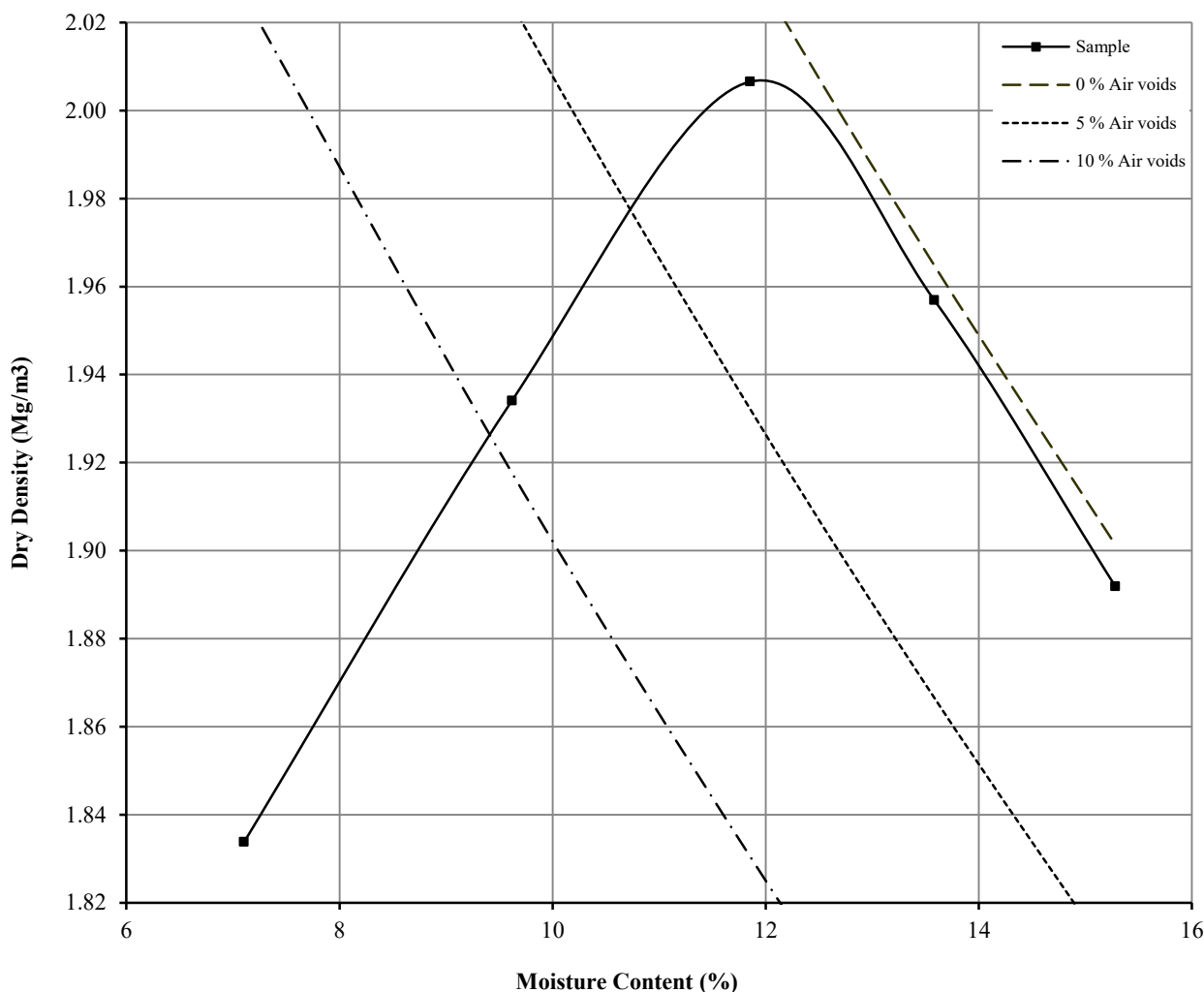
Hole Number: TP1004

Top Depth (m) : 3.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	14	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m³):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	8
Maximum Dry Density (Mg/m³):	2.01		Material Retained on 20.0 mm Test Sieve (%):	10
Optimum Moisture Content (%):	12			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

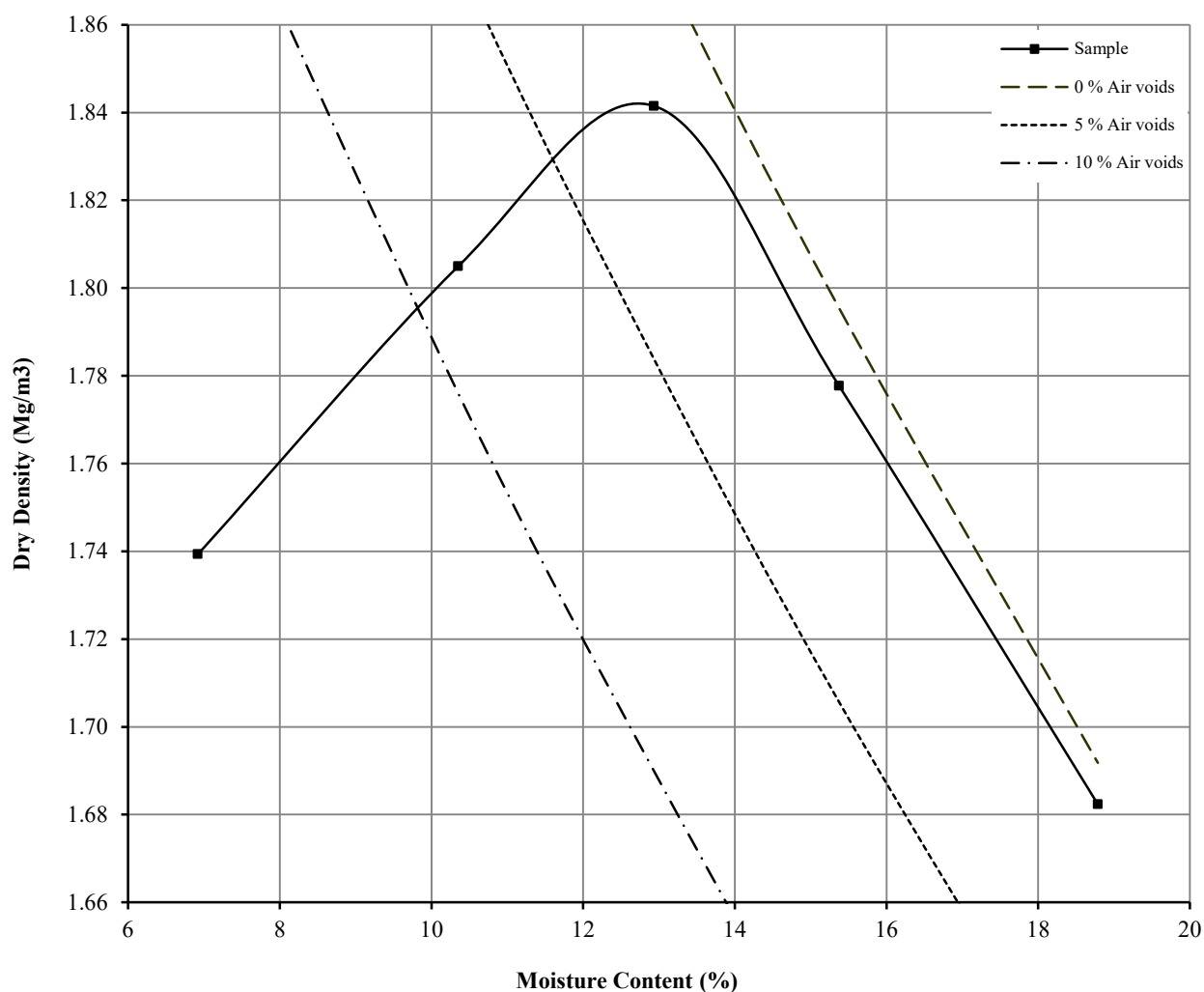
Hole Number: TP1007

Top Depth (m) : 0.60

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	19	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.48	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.84		Material Retained on 20.0 mm Test Sieve (%):	13
Optimum Moisture Content (%):	13			
Remarks				
See summary of soil descriptions.				



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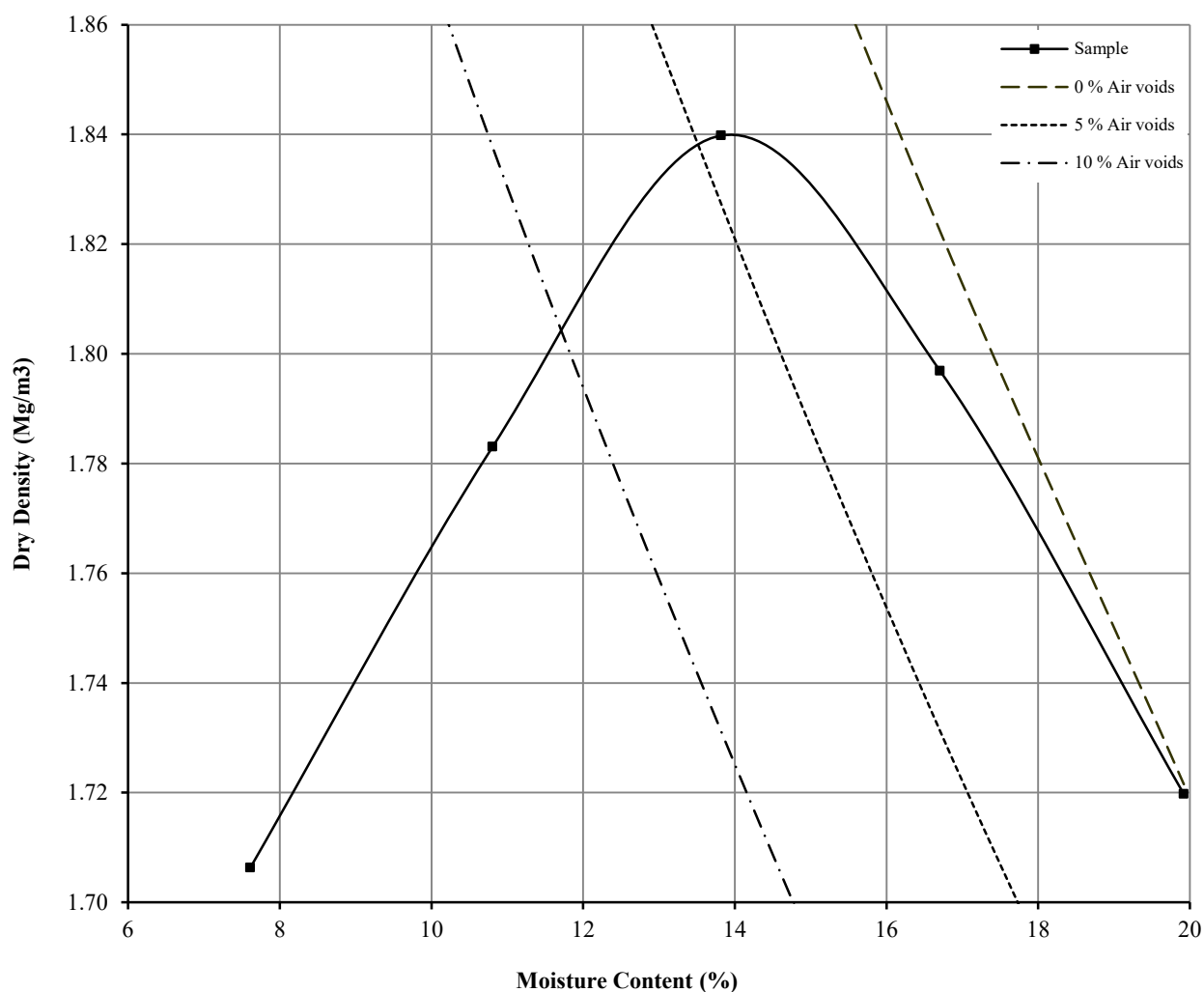
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

Hole Number: TP1009 Top Depth (m) : 2.00

Sample Number: Base Depth (m) : 3.00

Sample Type: B



Initial Moisture Content:	20	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.62	Measured	Material Retained on 37.5 mm Test Sieve (%):	5
Maximum Dry Density (Mg/m ³):	1.84		Material Retained on 20.0 mm Test Sieve (%):	9
Optimum Moisture Content (%):	14			
Remarks				
See summary of soil descriptions.				



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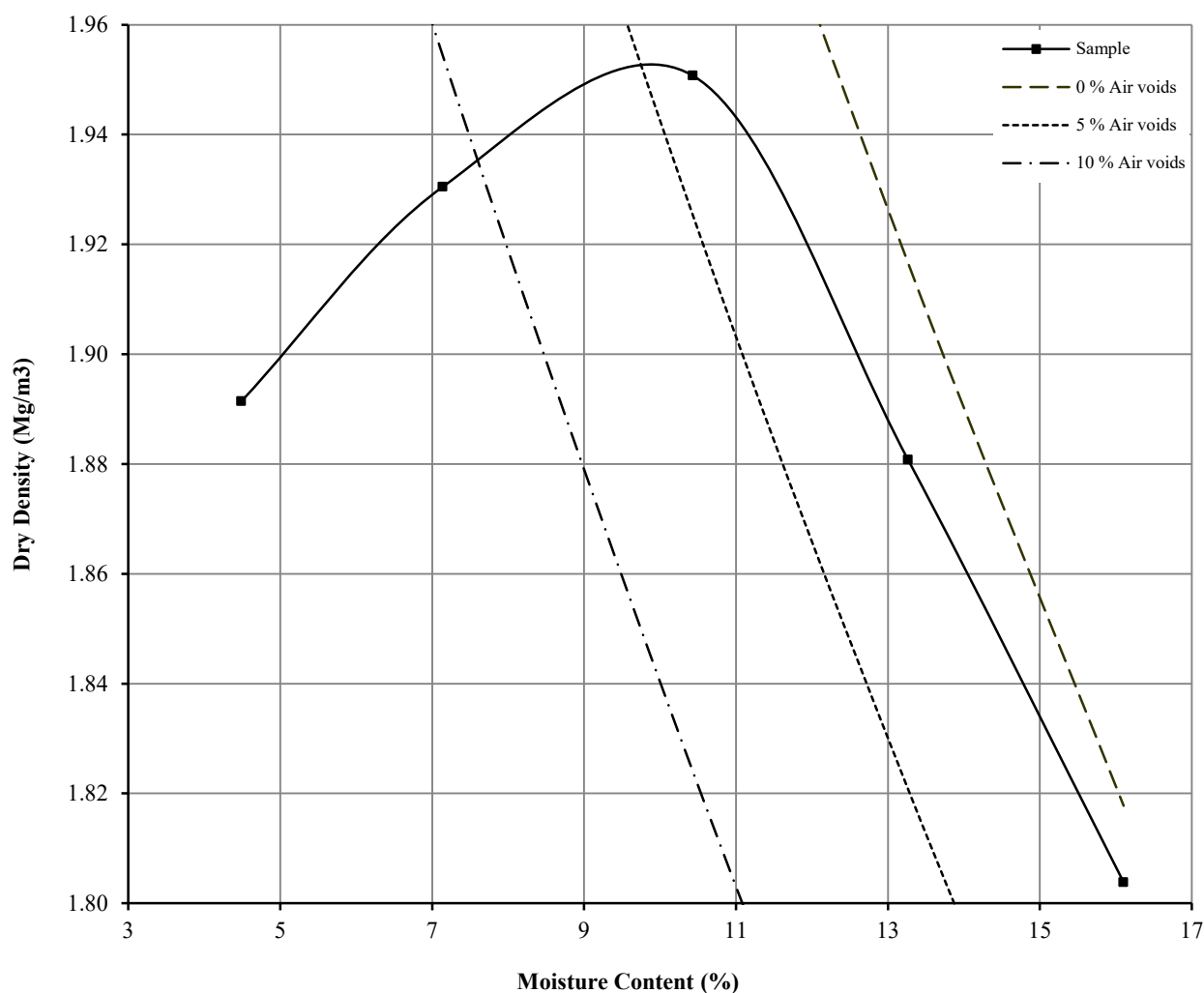
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

Hole Number: TP1012 Top Depth (m) : 1.60

Sample Number: Base Depth (m) : 4.00

Sample Type: B



Initial Moisture Content:	13	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.57	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.95		Material Retained on 20.0 mm Test Sieve (%):	11
Optimum Moisture Content (%):	10			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

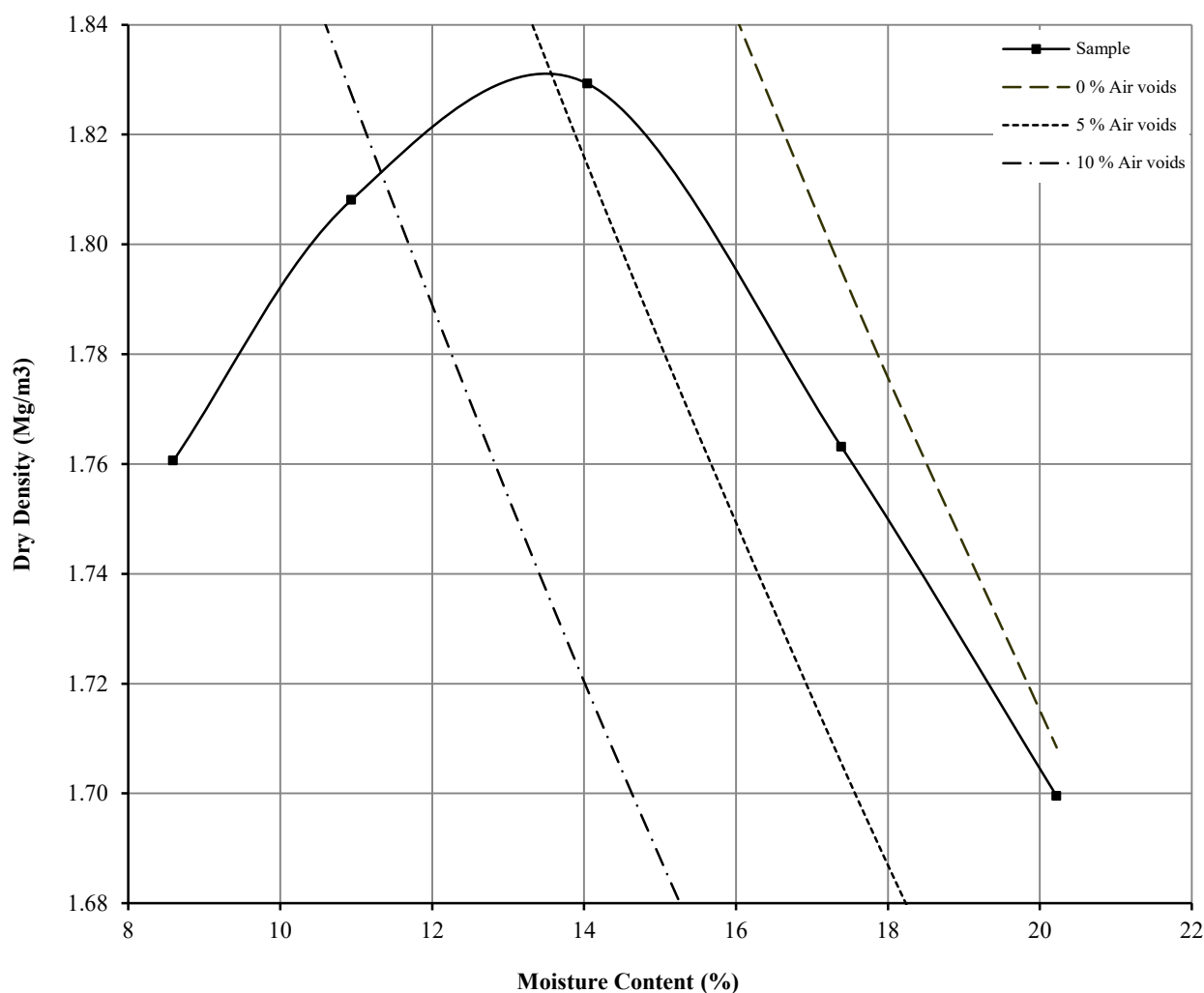
Hole Number: TP1015

Top Depth (m) : 1.20

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	20	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.61	Measured	Material Retained on 37.5 mm Test Sieve (%):	5
Maximum Dry Density (Mg/m3):	1.83		Material Retained on 20.0 mm Test Sieve (%):	5
Optimum Moisture Content (%):	14			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

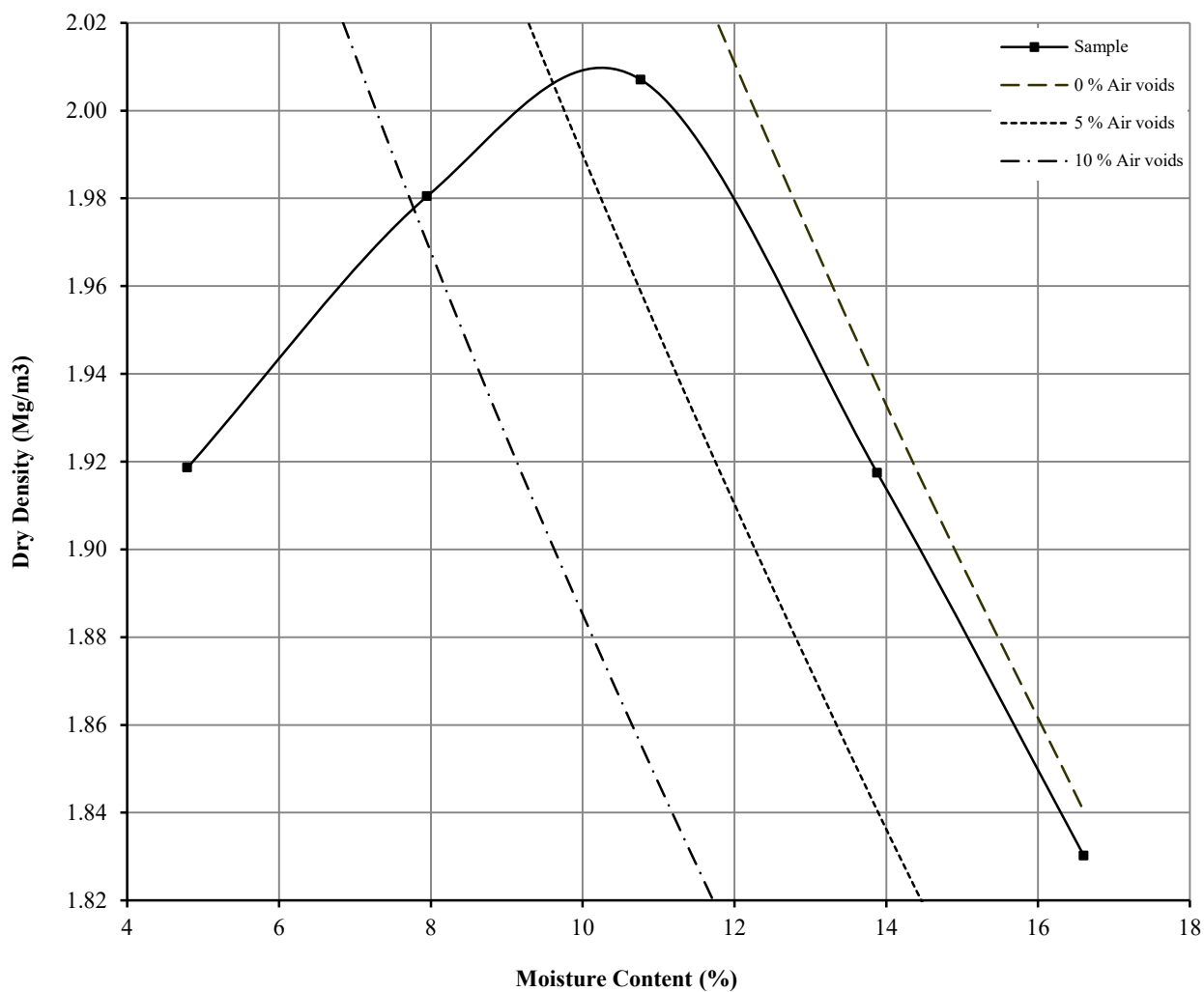
Hole Number: TP1017

Top Depth (m) : 2.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	14	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	4
Maximum Dry Density (Mg/m3):	2.01		Material Retained on 20.0 mm Test Sieve (%):	15
Optimum Moisture Content (%):	11			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

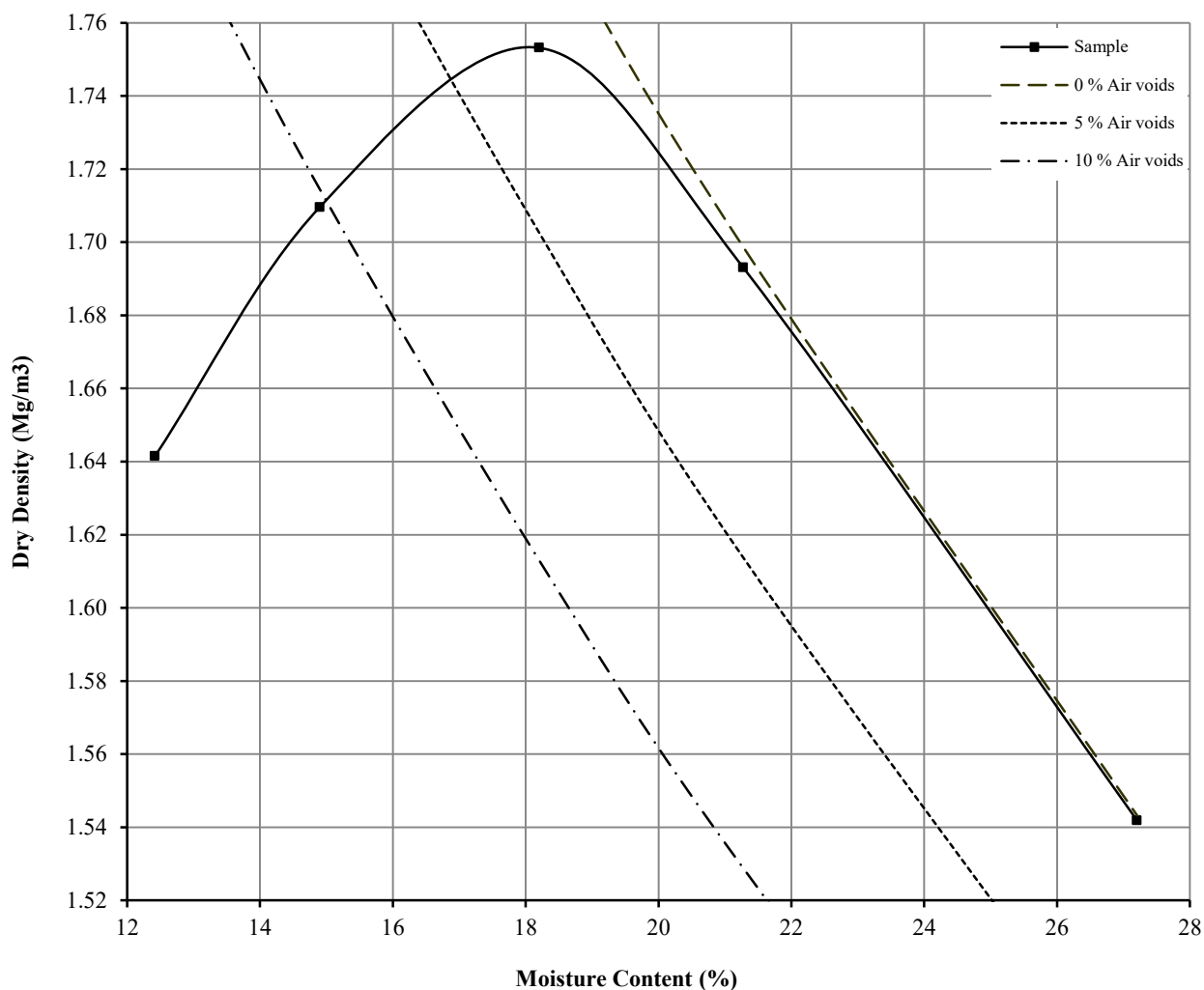
Hole Number: TP1018

Top Depth (m) : 1.00

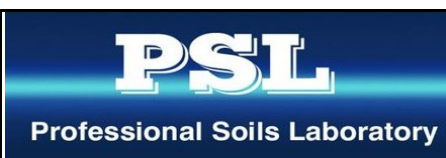
Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	27	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.66	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.75		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	18			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

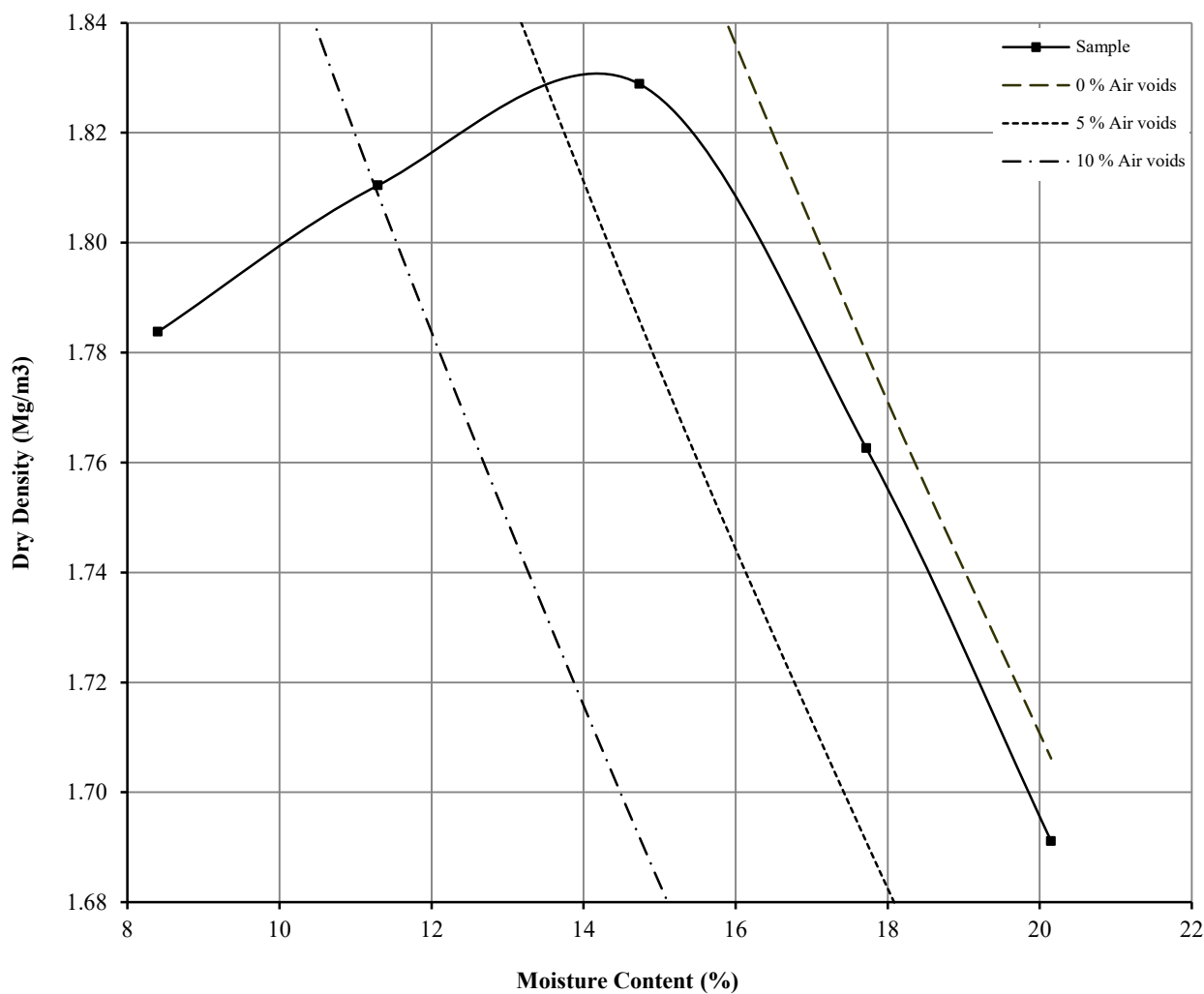
Hole Number: TP1022

Top Depth (m) : 0.90

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	20	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.60	Measured	Material Retained on 37.5 mm Test Sieve (%):	11
Maximum Dry Density (Mg/m ³):	1.83		Material Retained on 20.0 mm Test Sieve (%):	2
Optimum Moisture Content (%):	15			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

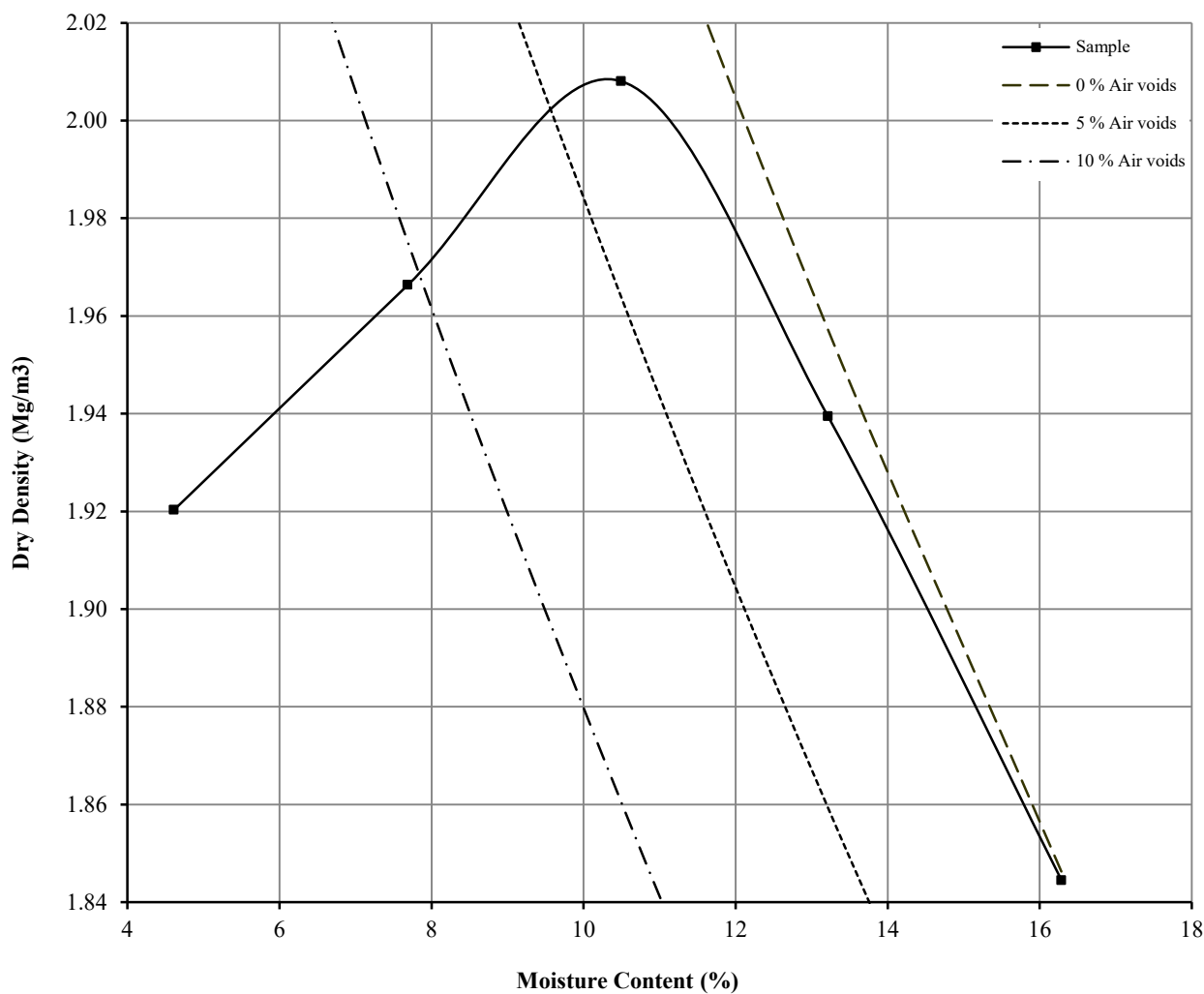
Hole Number: TP1024

Top Depth (m) : 1.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	13	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.64	Measured	Material Retained on 37.5 mm Test Sieve (%):	18
Maximum Dry Density (Mg/m3):	2.01		Material Retained on 20.0 mm Test Sieve (%):	6
Optimum Moisture Content (%):	10			
Remarks				
See summary of soil descriptions.				



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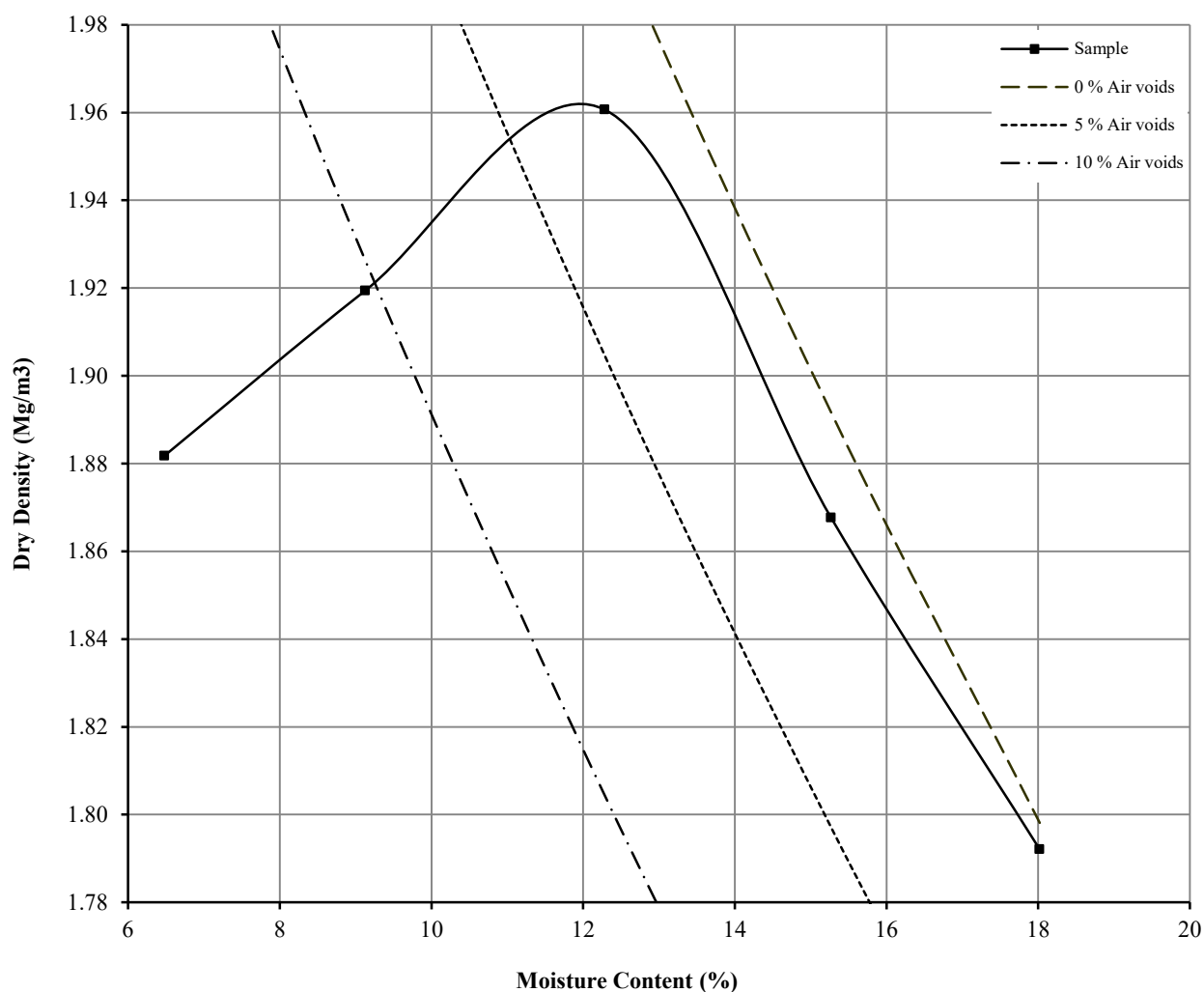
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

Hole Number: TP1027 Top Depth (m) : 2.50

Sample Number: Base Depth (m) : 3.00

Sample Type: B



Initial Moisture Content:	15	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.66	Measured	Material Retained on 37.5 mm Test Sieve (%):	23
Maximum Dry Density (Mg/m ³):	1.96		Material Retained on 20.0 mm Test Sieve (%):	18
Optimum Moisture Content (%):	12			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

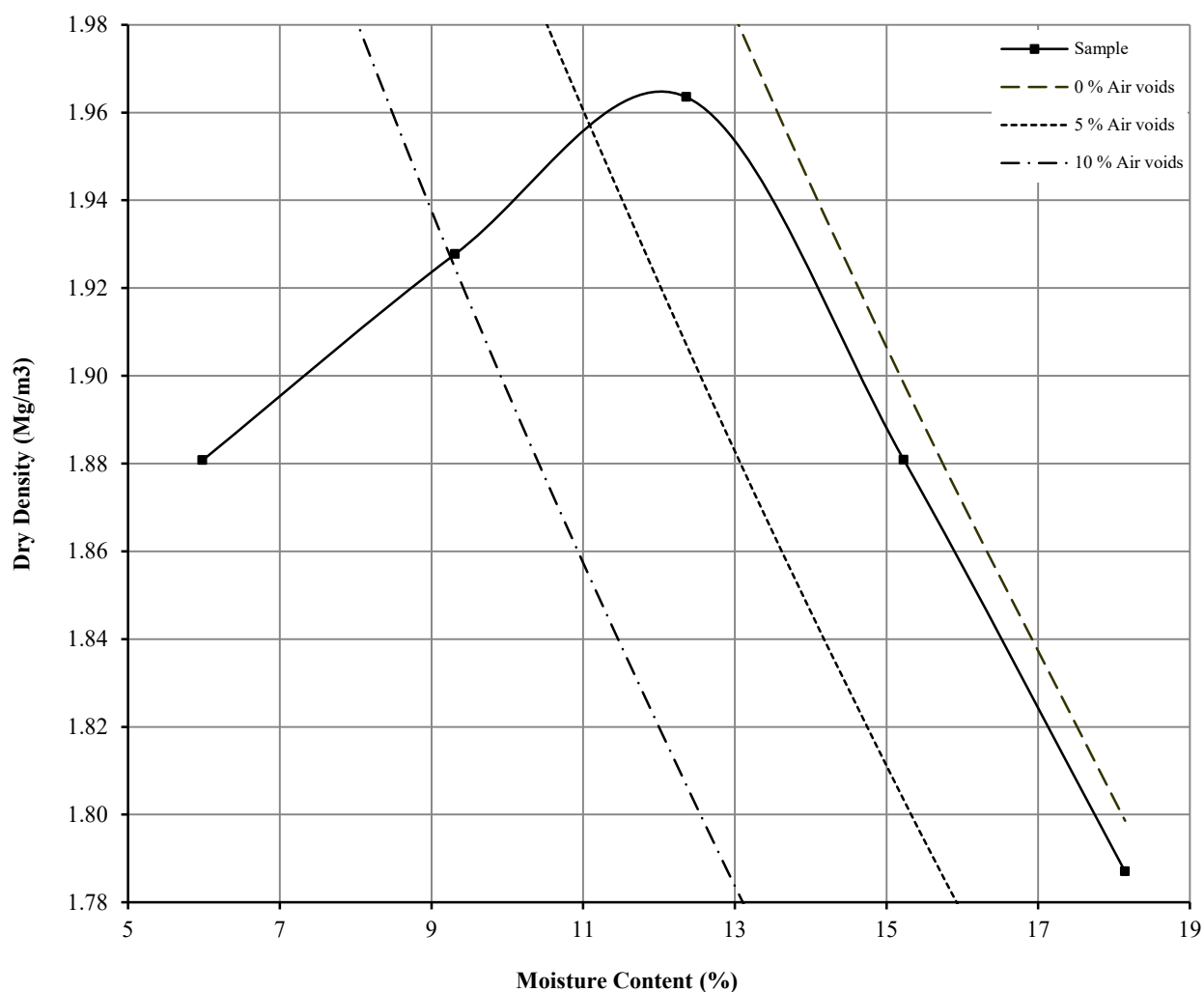
Hole Number: TP1029

Top Depth (m) : 3.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	18	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.67	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.96		Material Retained on 20.0 mm Test Sieve (%):	21
Optimum Moisture Content (%):	12			
Remarks				
See summary of soil descriptions.				



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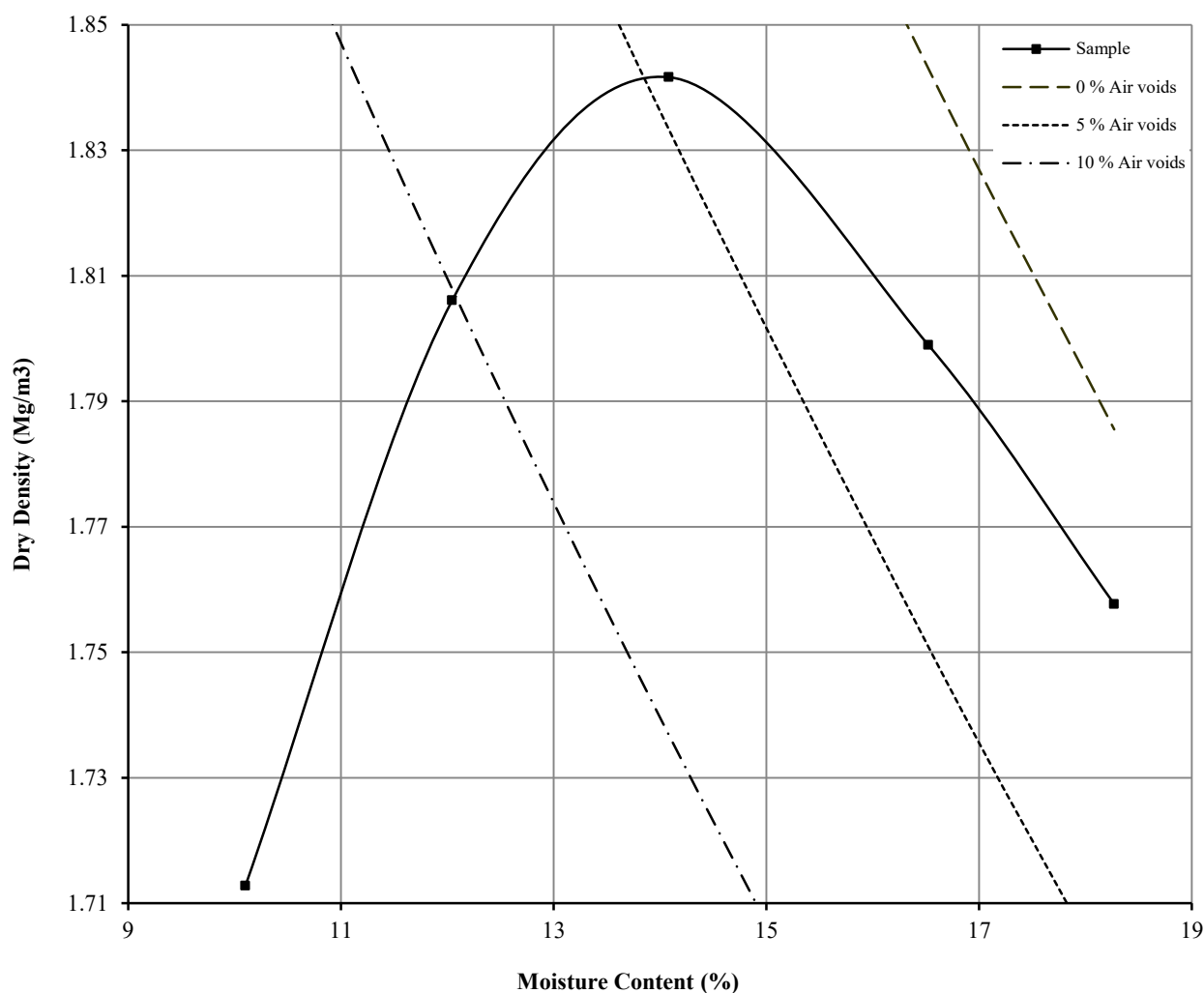
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.4 : 1990

Hole Number: TP1030 Top Depth (m) : 2.50

Sample Number: Base Depth (m) : 3.00

Sample Type: B



Initial Moisture Content:	12	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	11
Maximum Dry Density (Mg/m ³):	1.84		Material Retained on 20.0 mm Test Sieve (%):	27
Optimum Moisture Content (%):	14			
Remarks				
See summary of soil descriptions.				

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Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

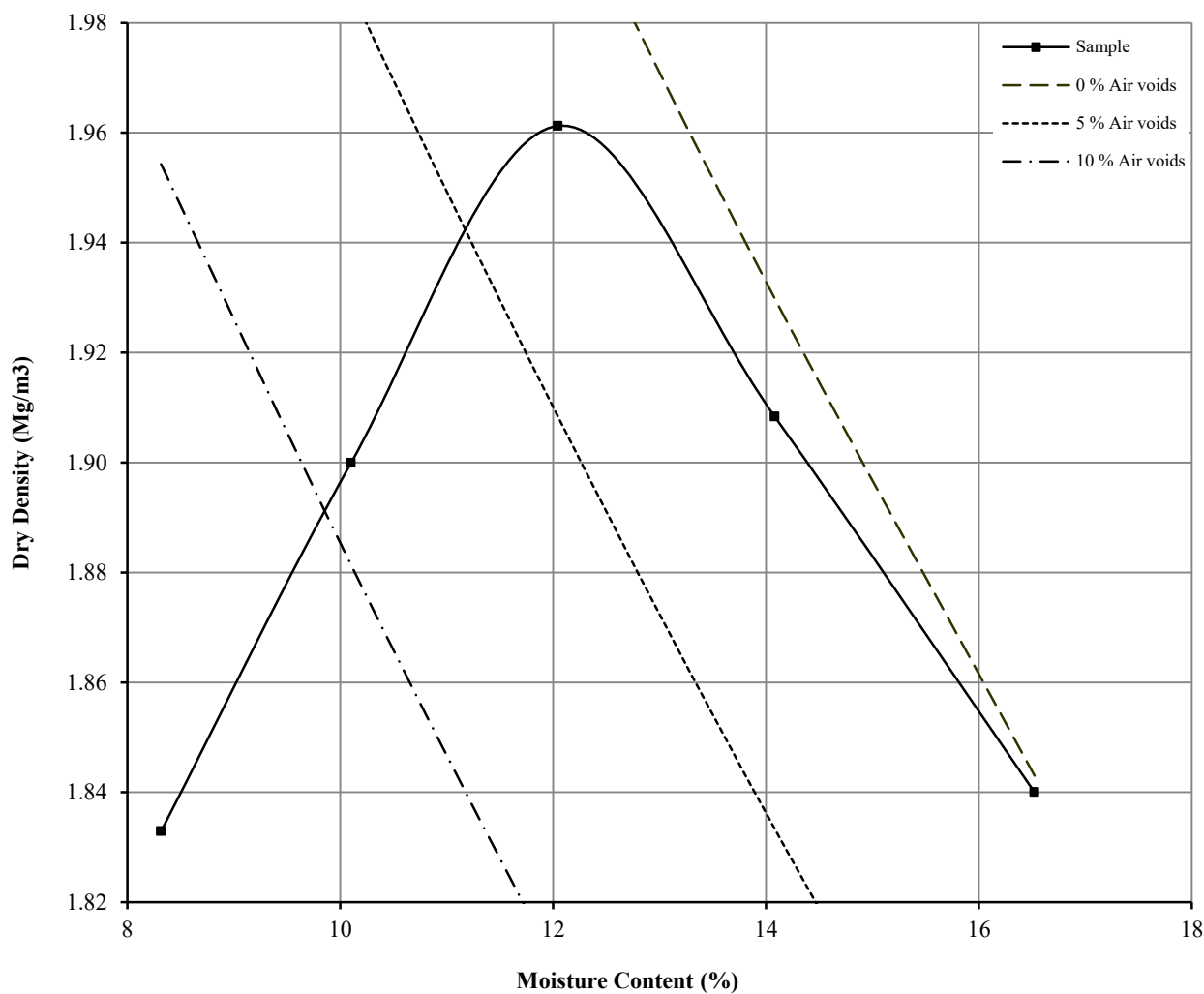
Hole Number: TP1030

Top Depth (m) : 2.50

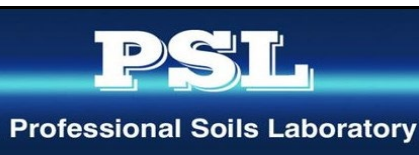
Sample Number:

Base Depth (m) : 3.00

Sample Type: B



Initial Moisture Content:	12	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	11
Maximum Dry Density (Mg/m ³):	1.96		Material Retained on 20.0 mm Test Sieve (%):	27
Optimum Moisture Content (%):	12			
Remarks				
See summary of soil descriptions.				



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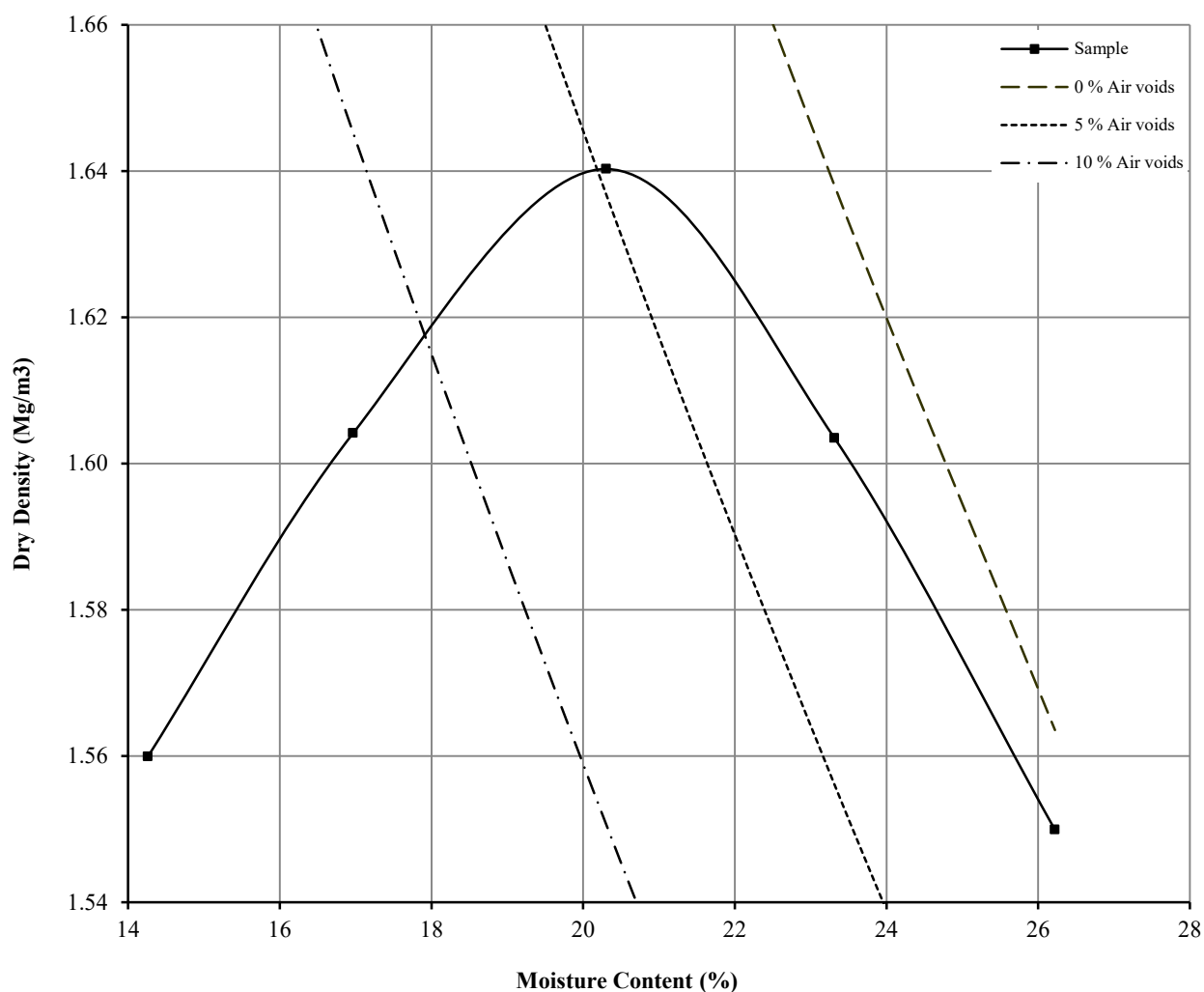
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number: TP1032 Top Depth (m) : 0.50

Sample Number: Base Depth (m) : 1.50

Sample Type: B



Initial Moisture Content:	23	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.64		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	20			
Remarks				
See summary of soil descriptions.				

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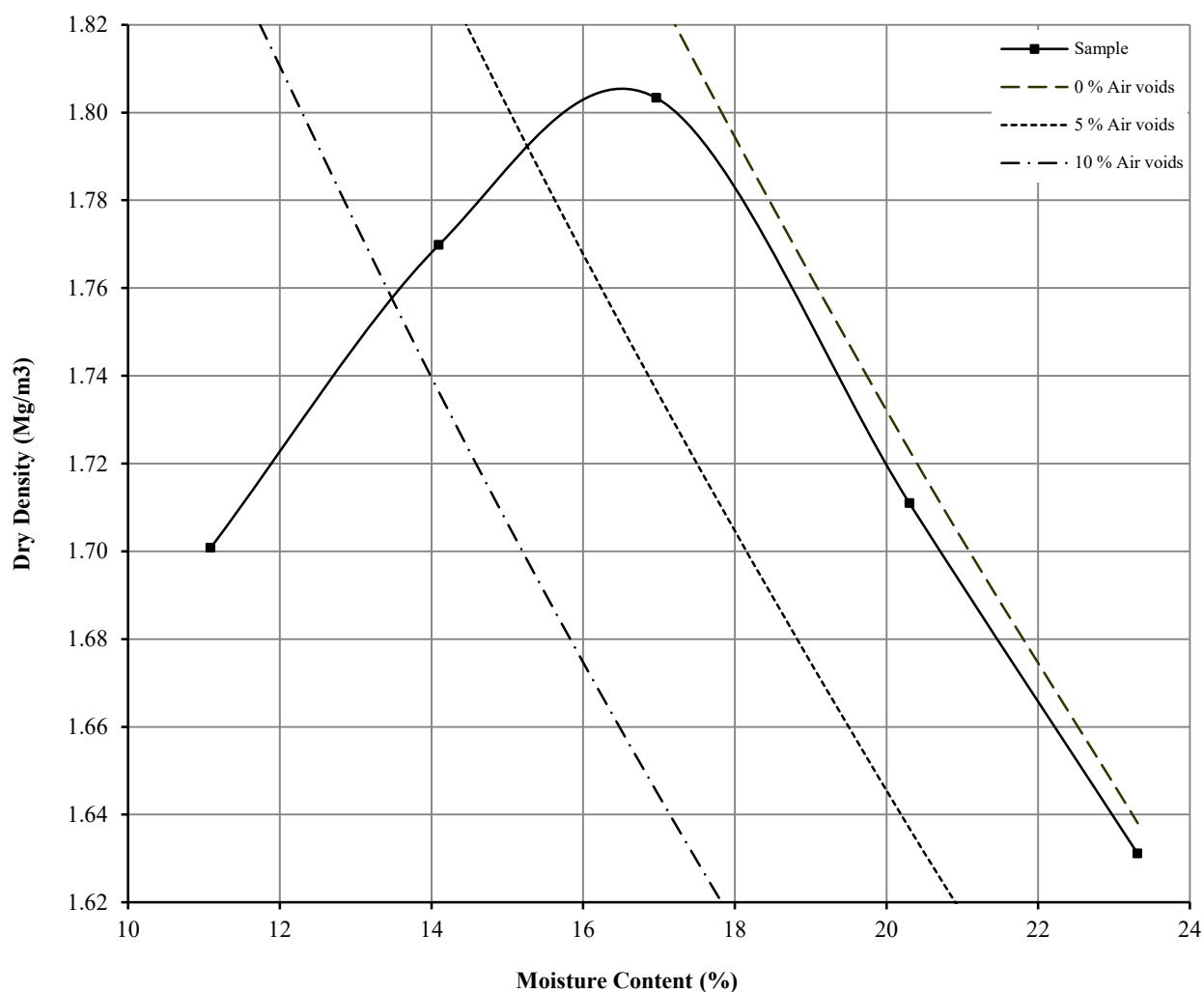
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

Hole Number: TP1032 Top Depth (m) : 0.50

Sample Number: Base Depth (m) : 1.50

Sample Type: B



Initial Moisture Content:	23	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.80		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	17			
Remarks				
See summary of soil descriptions.				



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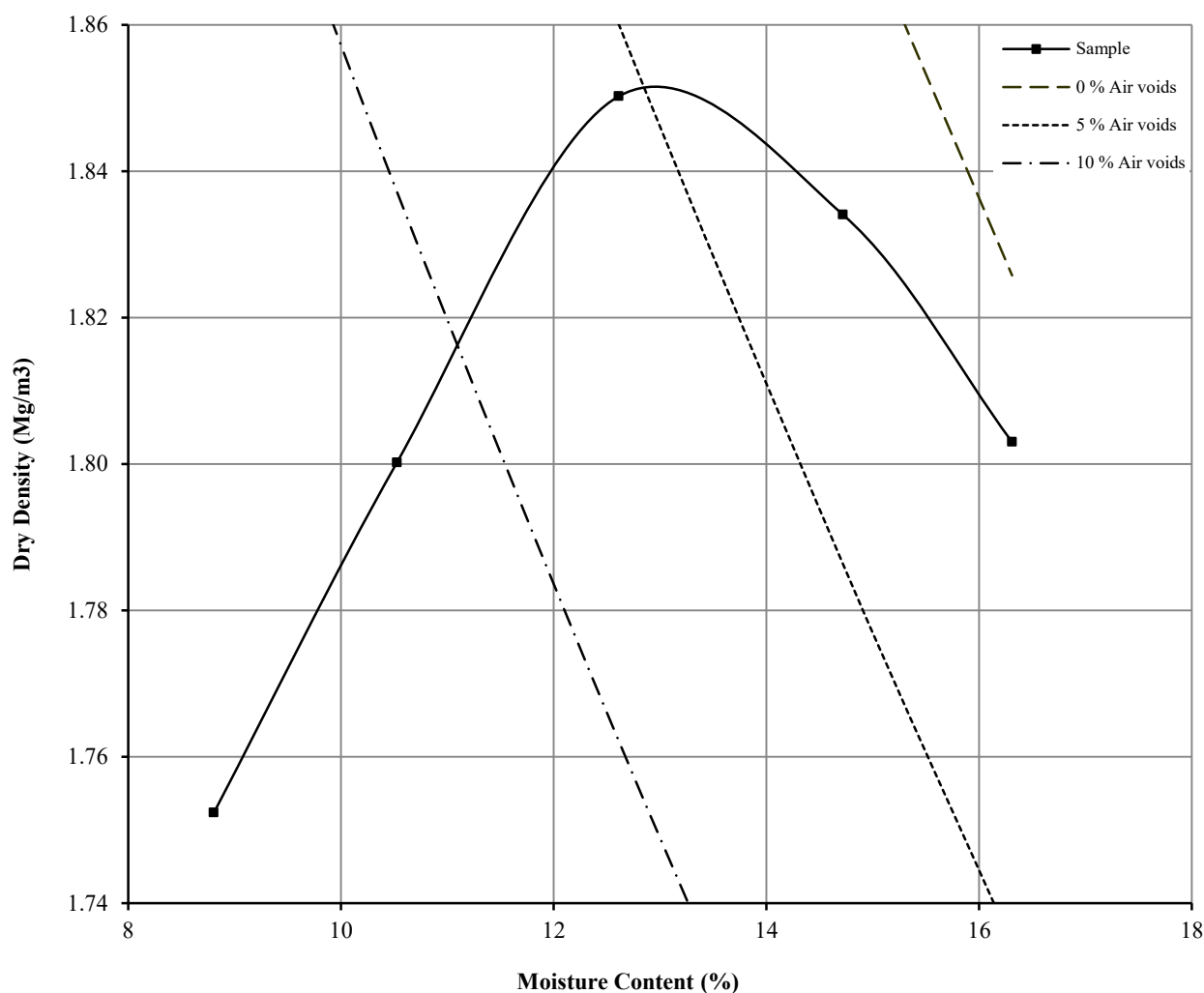
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.4 : 1990

Hole Number: TP1032 Top Depth (m) : 2.00

Sample Number: Base Depth (m) : 2.50

Sample Type: B



Initial Moisture Content:	11	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.6	Measured	Material Retained on 37.5 mm Test Sieve (%):	11
Maximum Dry Density (Mg/m ³):	1.85		Material Retained on 20.0 mm Test Sieve (%):	22
Optimum Moisture Content (%):	13			
Remarks				
See summary of soil descriptions.				

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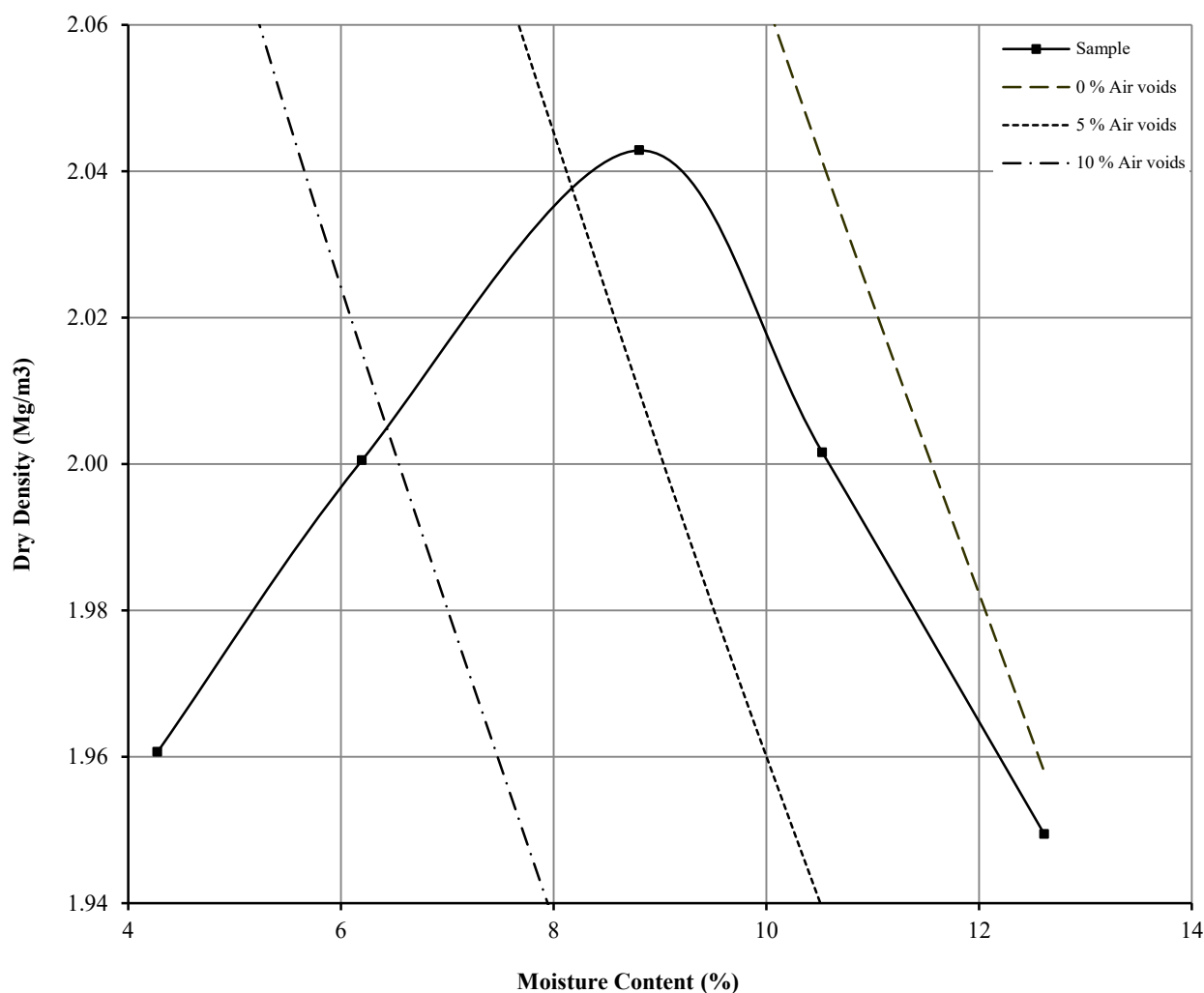
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

Hole Number: TP1032 Top Depth (m) : 2.00

Sample Number: Base Depth (m) : 2.50

Sample Type: B



Initial Moisture Content:	11	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.60	Measured	Material Retained on 37.5 mm Test Sieve (%):	11
Maximum Dry Density (Mg/m ³):	2.04		Material Retained on 20.0 mm Test Sieve (%):	22
Optimum Moisture Content (%):	9			
Remarks				
See summary of soil descriptions.				

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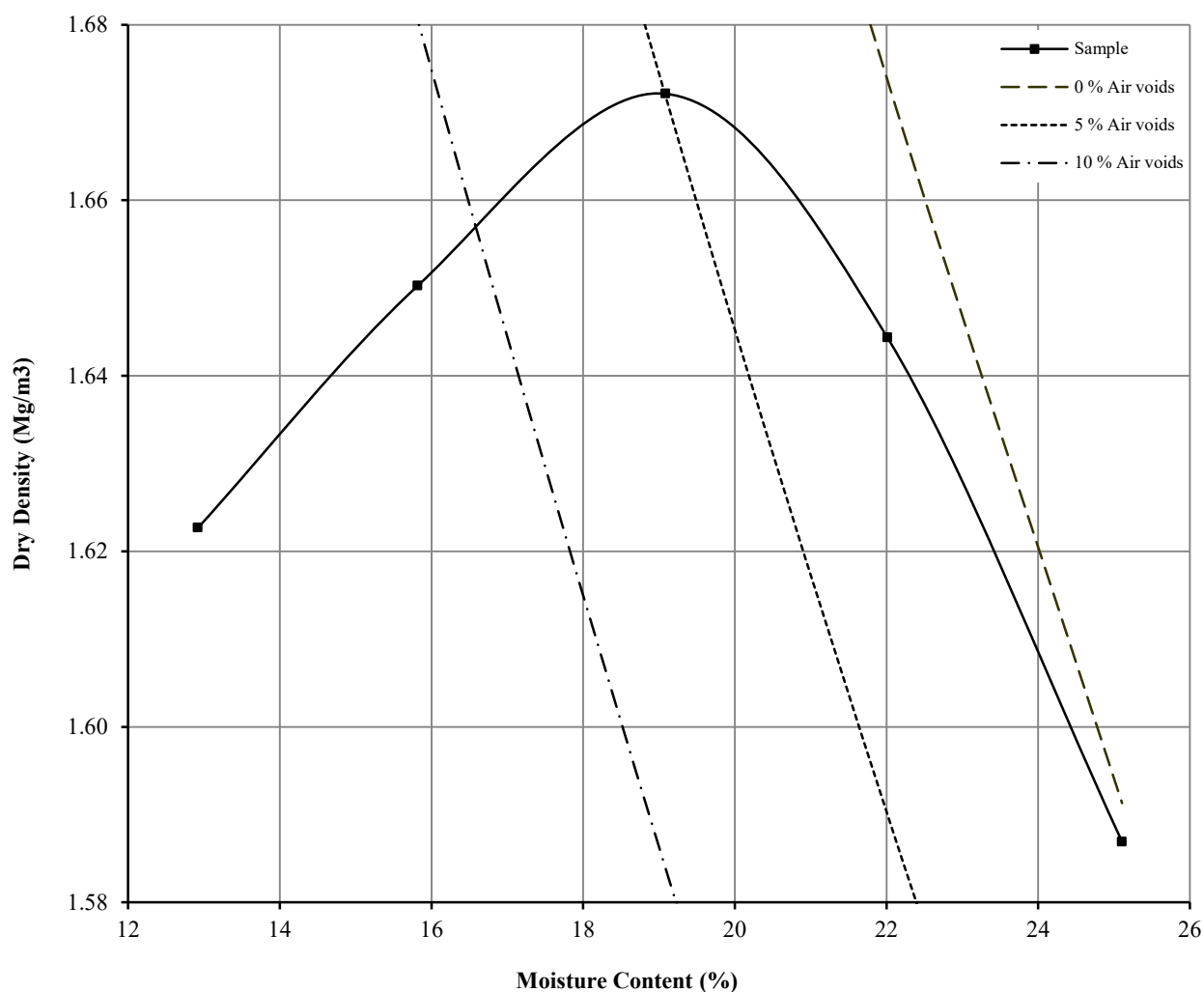
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number: TP1033 Top Depth (m) : 2.00

Sample Number: Base Depth (m) : 2.50

Sample Type: B



Initial Moisture Content:	22	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.67		Material Retained on 20.0 mm Test Sieve (%):	1
Optimum Moisture Content (%):	19			
Remarks				
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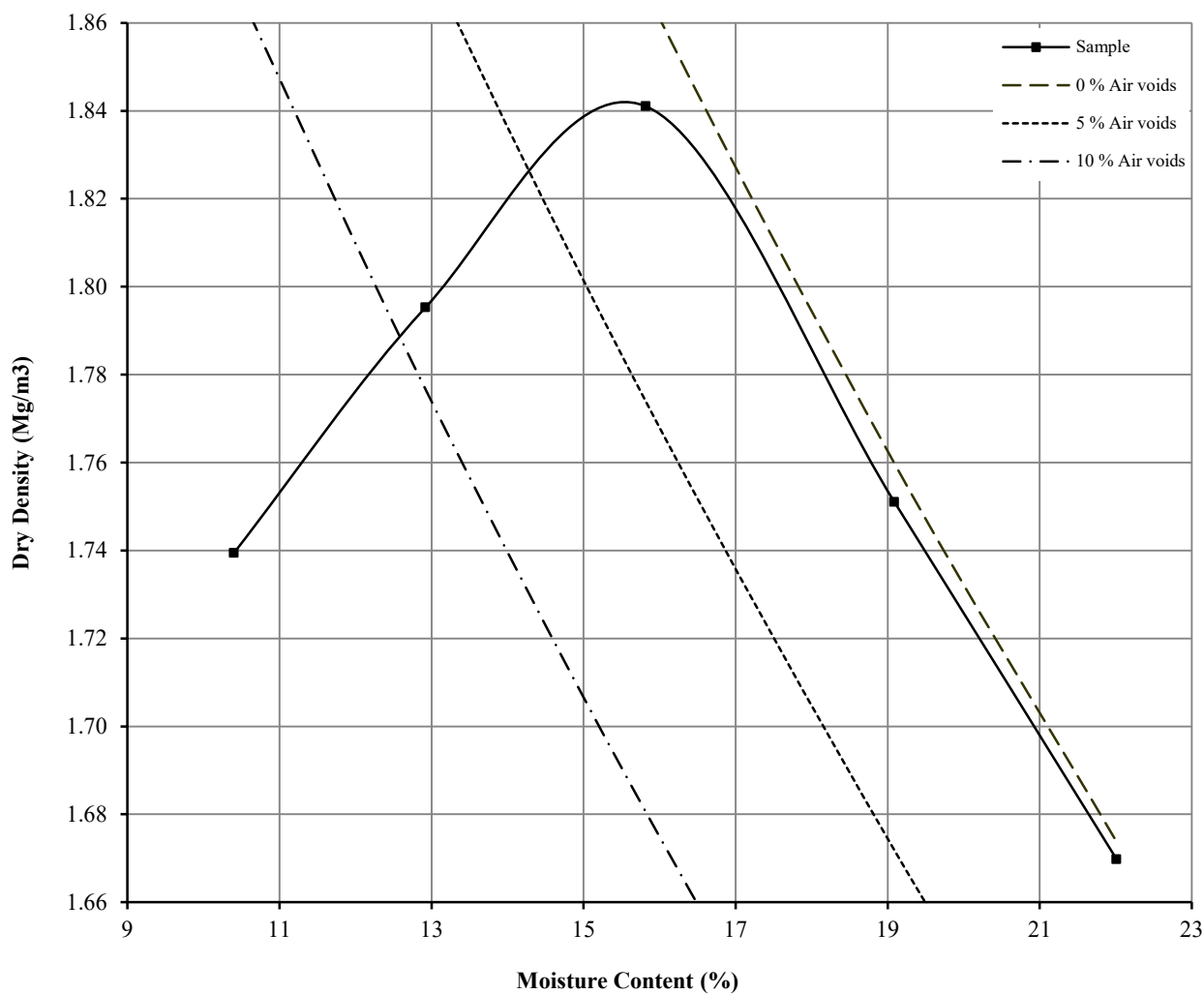
Hole Number: TP1033

Top Depth (m) : 2.00

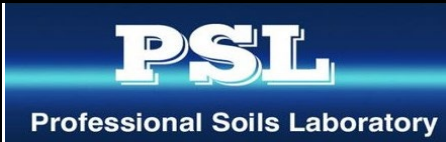
Sample Number:

Base Depth (m) : 2.50

Sample Type: B



Initial Moisture Content:	22	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.84		Material Retained on 20.0 mm Test Sieve (%):	1
Optimum Moisture Content (%):	16			
Remarks				
See summary of soil descriptions.				

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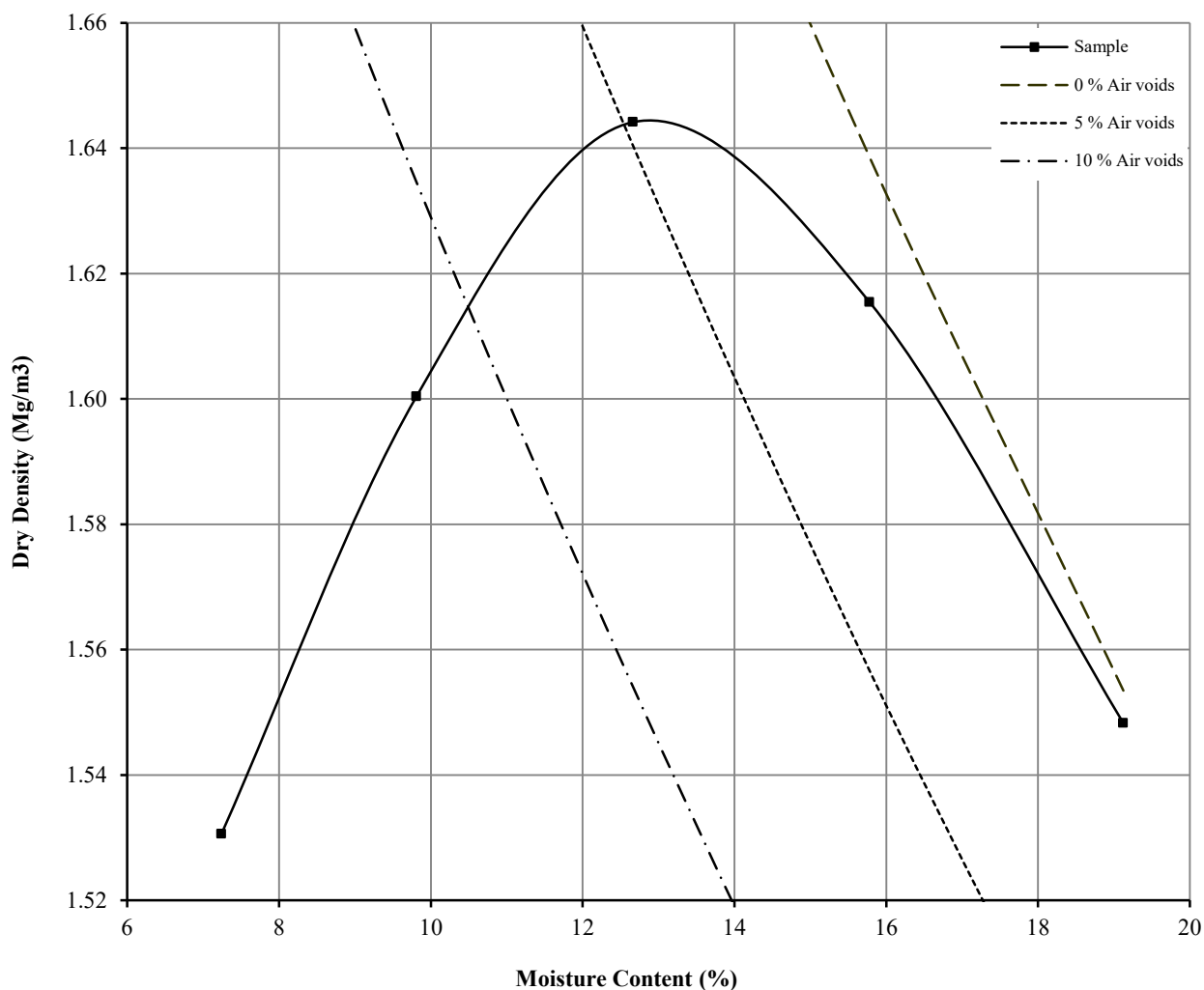
Hole Number: TP1033

Top Depth (m) : 3.50

Sample Number:

Base Depth (m) : 4.00

Sample Type: B



Initial Moisture Content:	19	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.21	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.64		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	13			
Remarks				
See summary of soil descriptions.				



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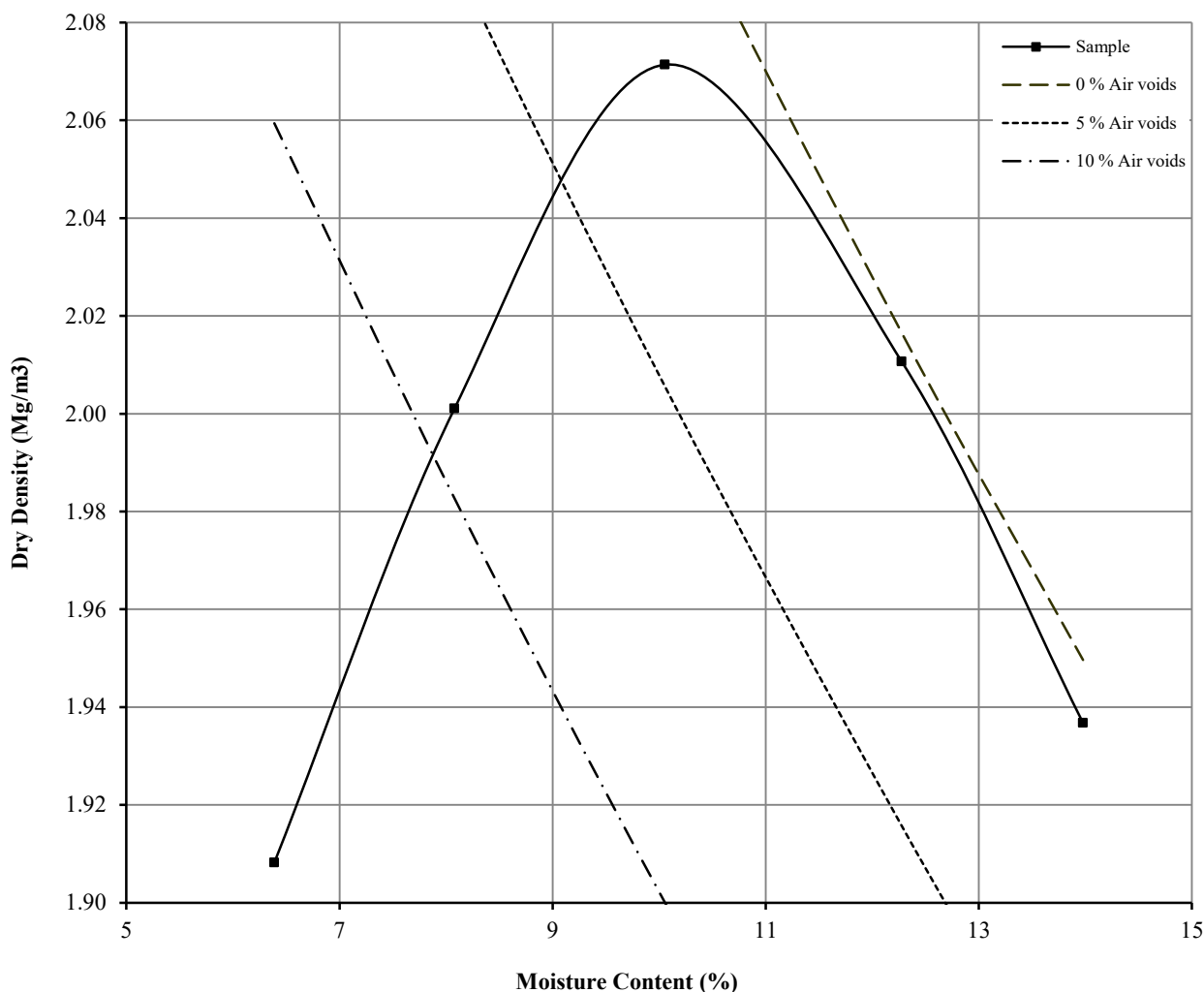
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

Hole Number: TP1036 Top Depth (m) : 3.00

Sample Number: Base Depth (m) : 3.50

Sample Type: B



Initial Moisture Content:	10	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	13
Maximum Dry Density (Mg/m ³):	2.07		Material Retained on 20.0 mm Test Sieve (%):	25
Optimum Moisture Content (%):	10			
Remarks				
See summary of soil descriptions.				

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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

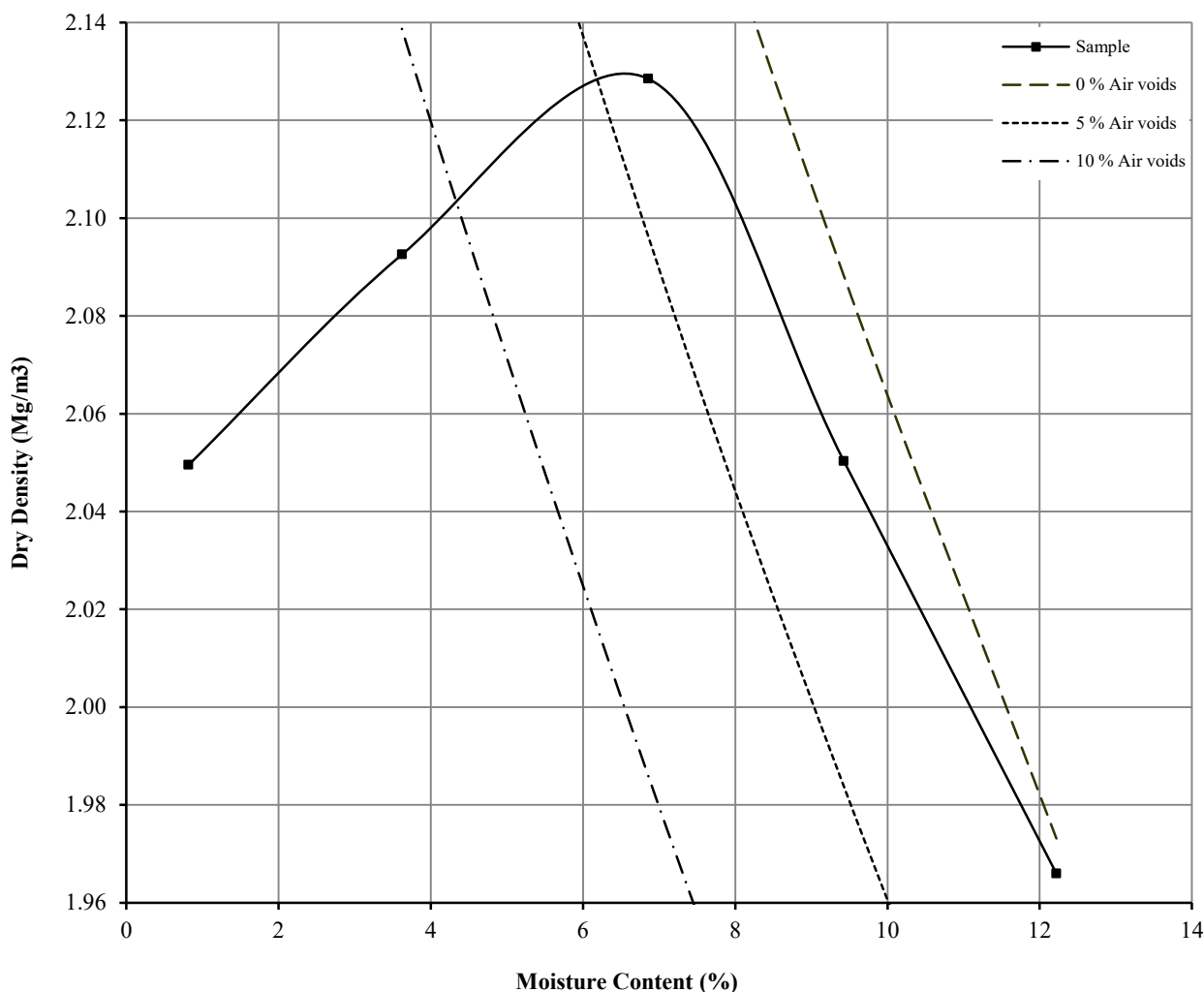
Hole Number: TP1040

Top Depth (m) : 1.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	9.4	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m³):	2.60	Measured	Material Retained on 37.5 mm Test Sieve (%):	22
Maximum Dry Density (Mg/m³):	2.13		Material Retained on 20.0 mm Test Sieve (%):	17
Optimum Moisture Content (%):	7			
Remarks				
See summary of soil descriptions.				



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Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

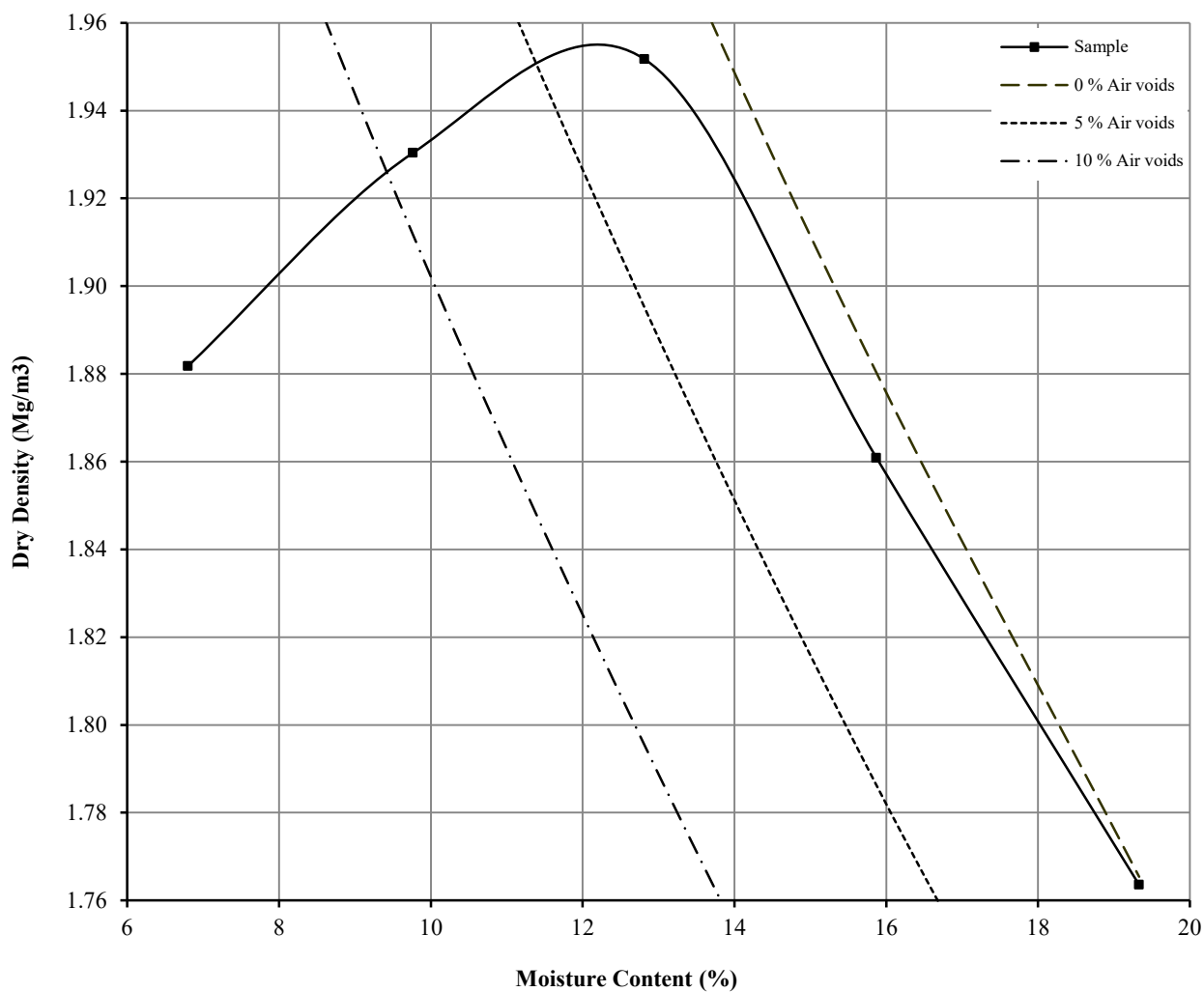
Hole Number: TP1042

Top Depth (m) : 3.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	19	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	11
Maximum Dry Density (Mg/m3):	1.95		Material Retained on 20.0 mm Test Sieve (%):	6
Optimum Moisture Content (%):	13			
Remarks				
See summary of soil descriptions.				



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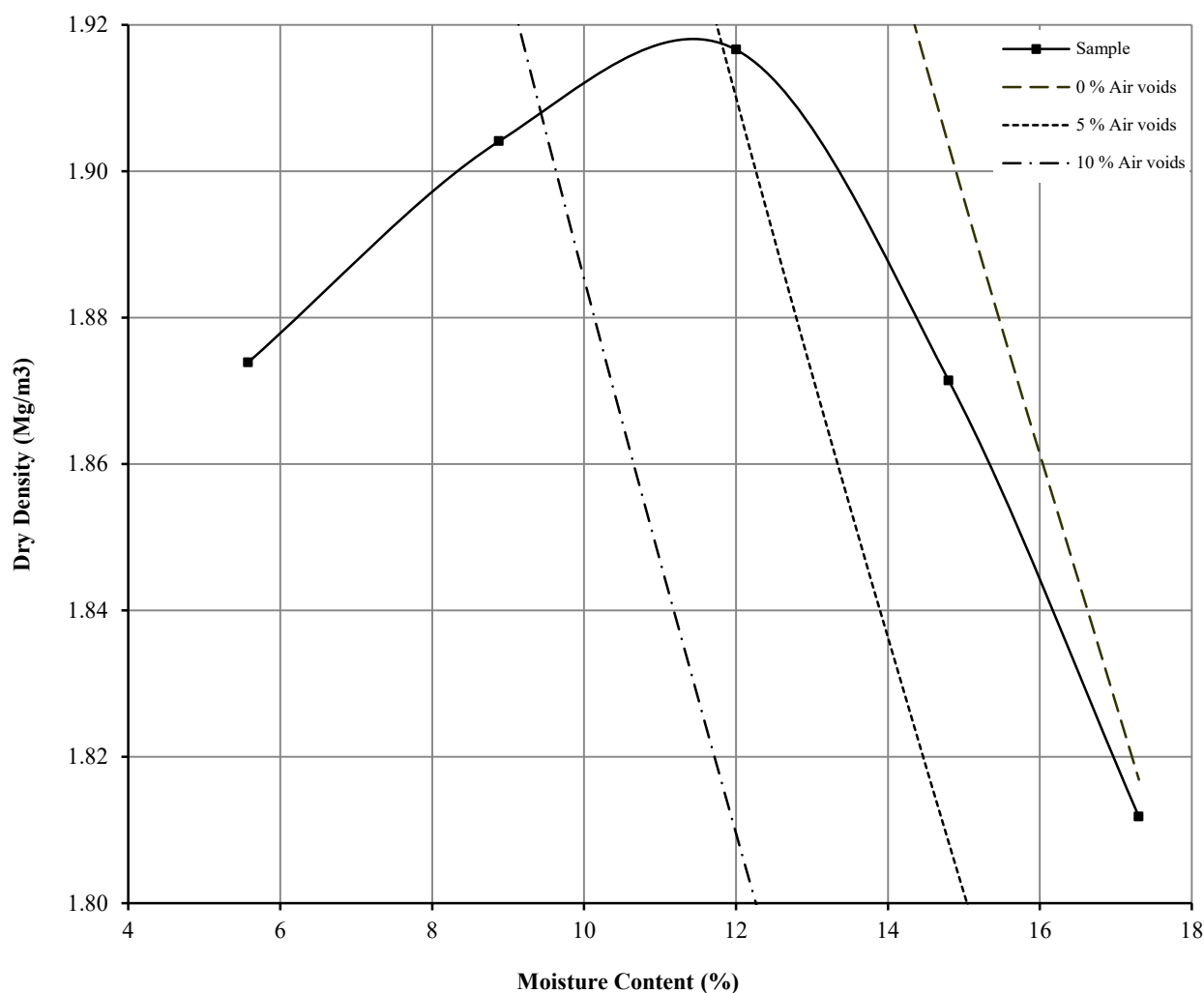
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.4 : 1990

Hole Number: TP1043 Top Depth (m) : 4.00

Sample Number: Base Depth (m) : 4.70

Sample Type: B



Initial Moisture Content:	8.9	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	26
Maximum Dry Density (Mg/m ³):	1.92		Material Retained on 20.0 mm Test Sieve (%):	11
Optimum Moisture Content (%):	12			
Remarks				
See summary of soil descriptions.				



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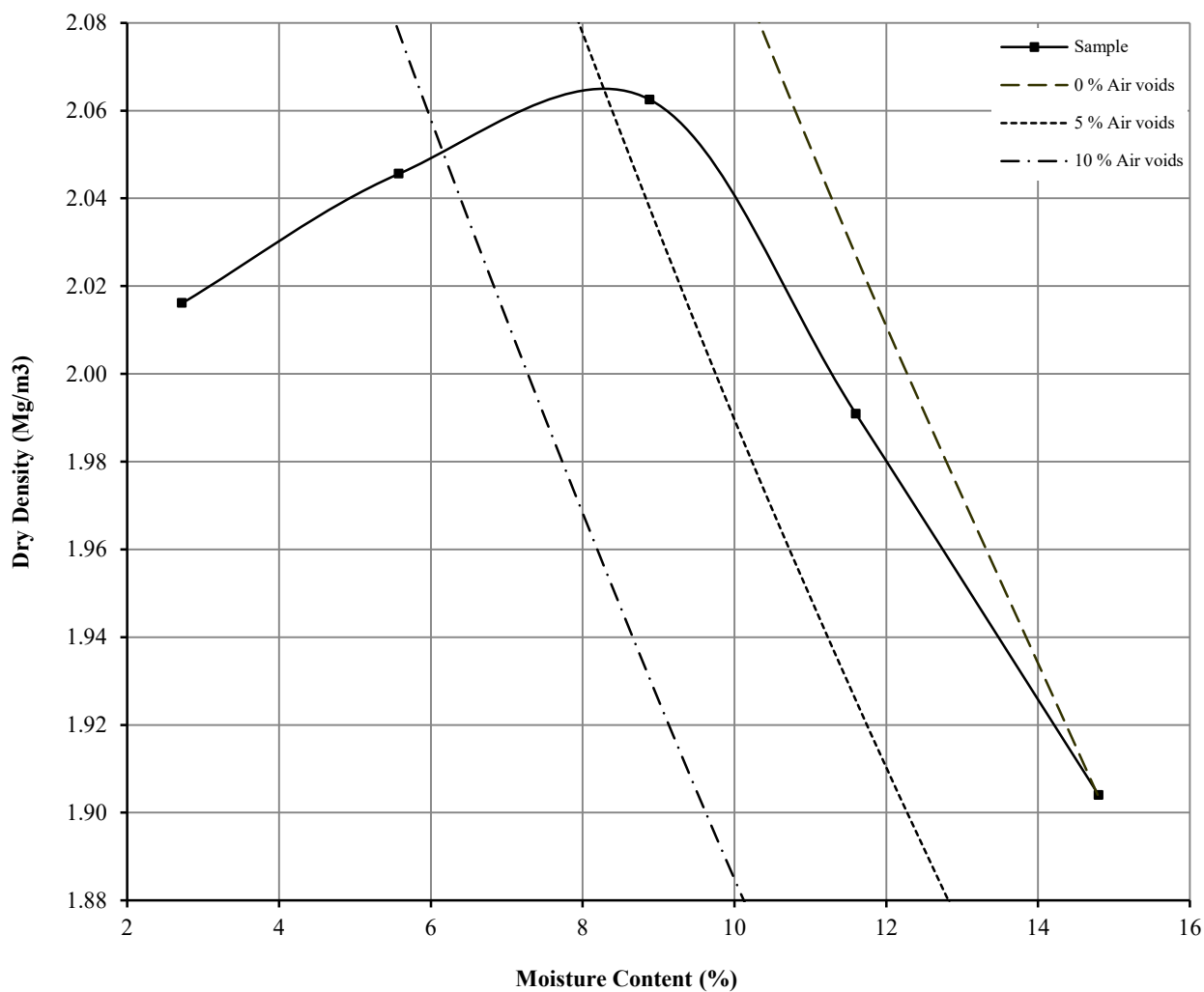
Hole Number: TP1043

Top Depth (m) : 4.00

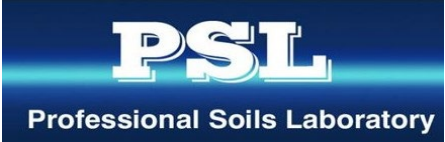
Sample Number:

Base Depth (m) : 4.70

Sample Type: B



Initial Moisture Content:	8.9	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	26
Maximum Dry Density (Mg/m ³):	2.06		Material Retained on 20.0 mm Test Sieve (%):	11
Optimum Moisture Content (%):	9			
Remarks				
See summary of soil descriptions.				

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BS 1377 : Part 4 : Clause 3.4 : 1990

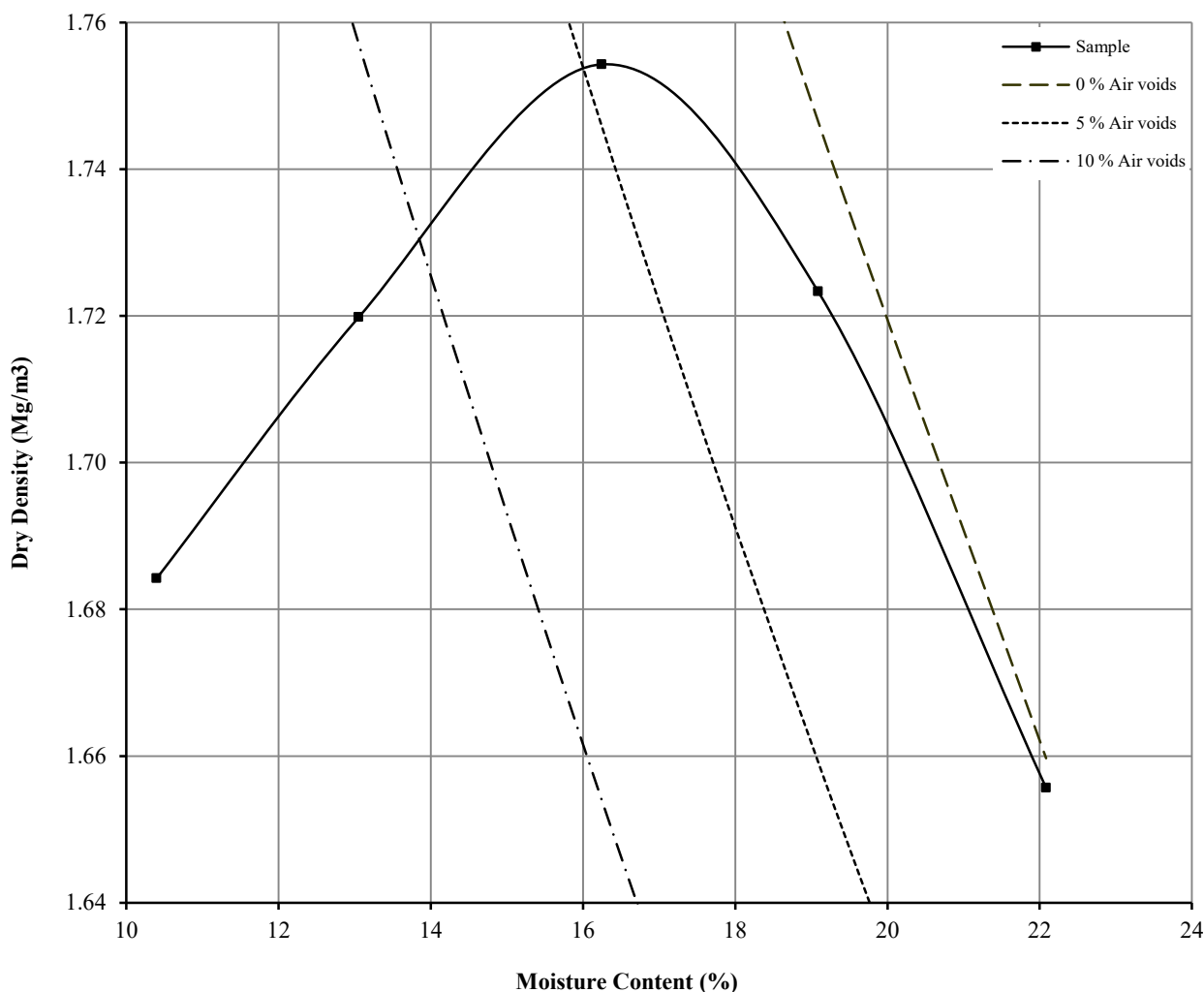
Hole Number: TP1045

Top Depth (m) : 2.50

Sample Number:

Base Depth (m) : 3.50

Sample Type: B



Initial Moisture Content:	19	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.62	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.75		Material Retained on 20.0 mm Test Sieve (%):	11
Optimum Moisture Content (%):	16			
Remarks				
See summary of soil descriptions.				



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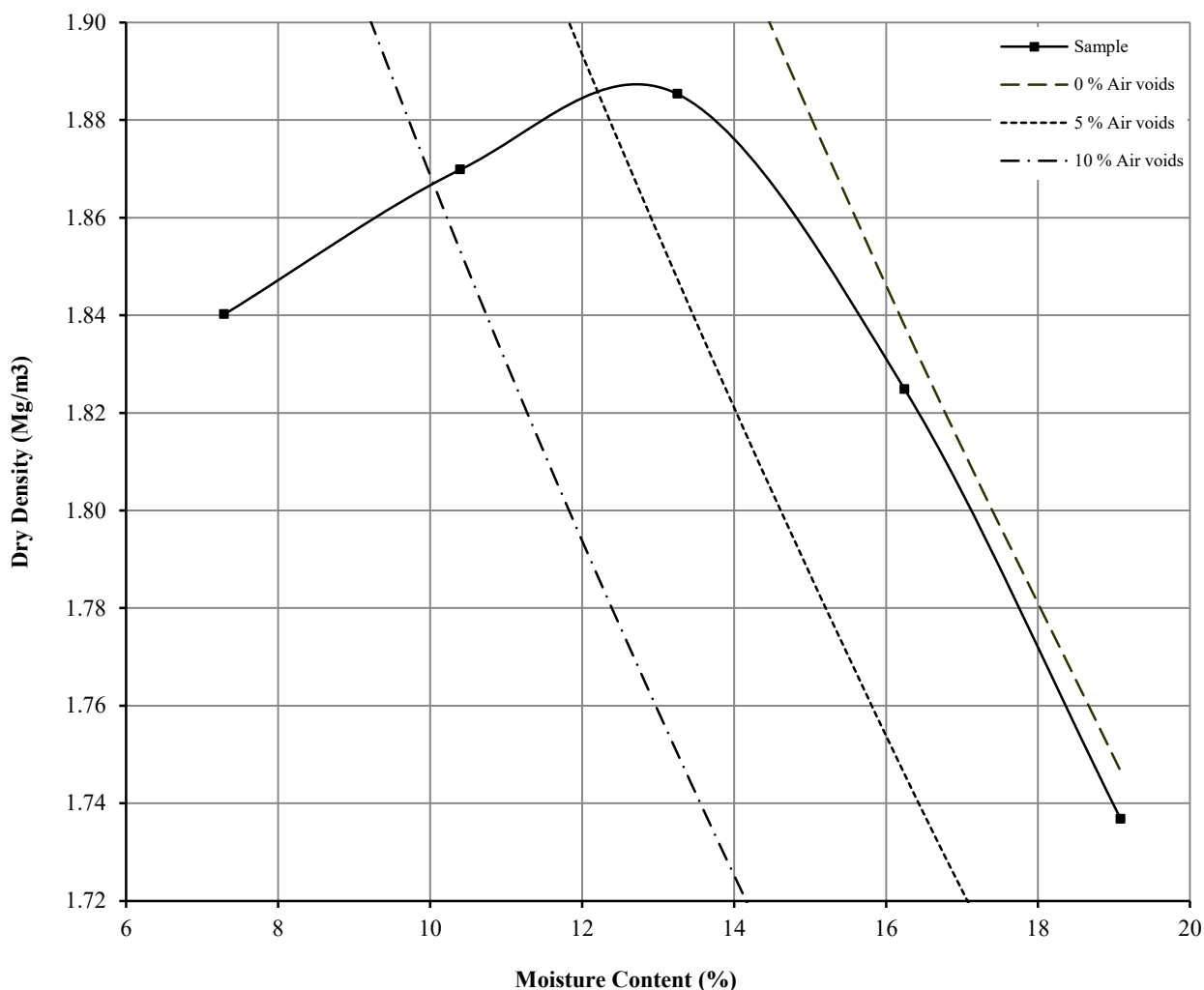
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

Hole Number: TP1045 Top Depth (m) : 2.50

Sample Number: Base Depth (m) : 3.50

Sample Type: B



Initial Moisture Content:	19	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m³):	2.62	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m³):	1.89		Material Retained on 20.0 mm Test Sieve (%):	11
Optimum Moisture Content (%):	13			
Remarks				
See summary of soil descriptions.				

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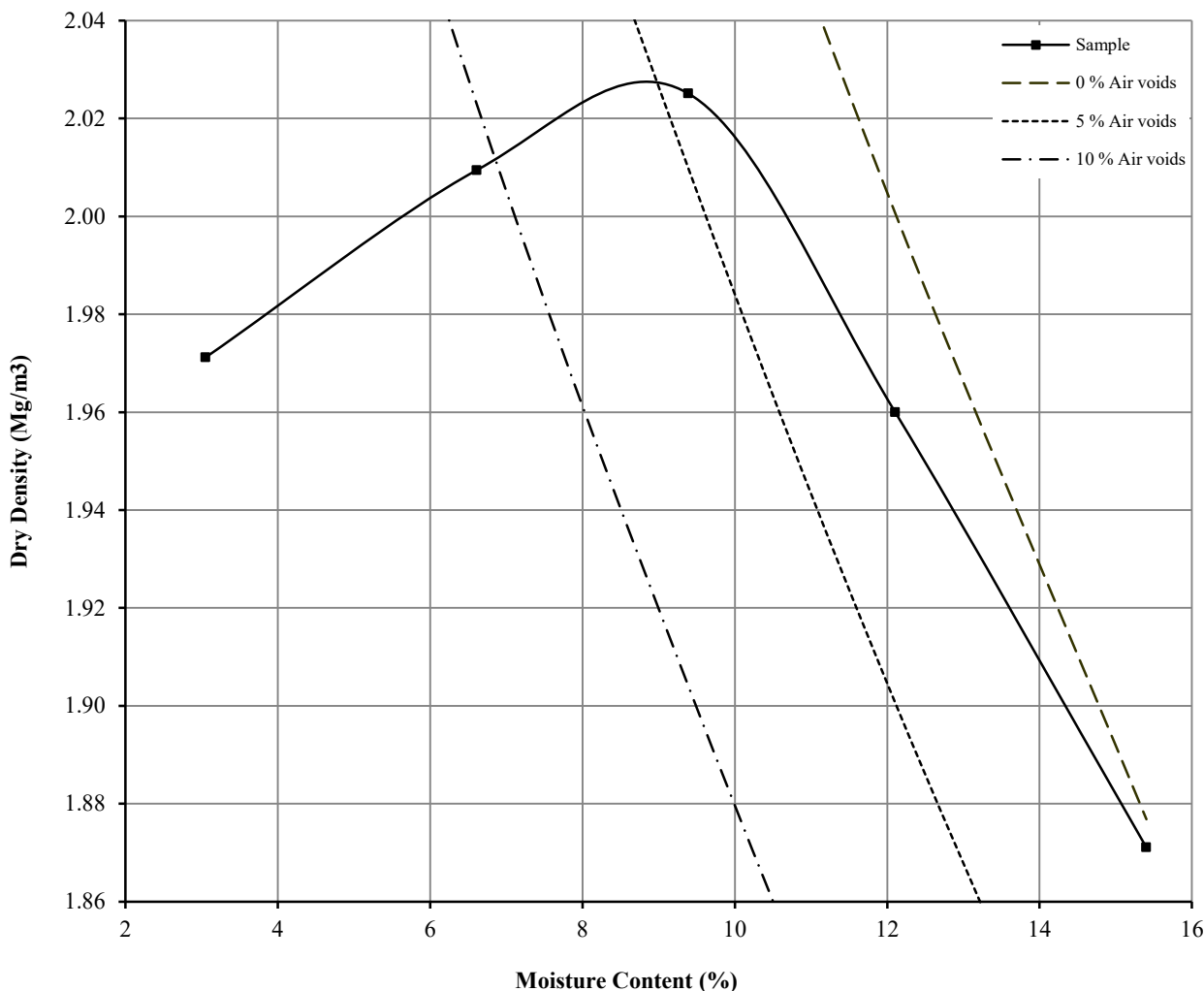
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

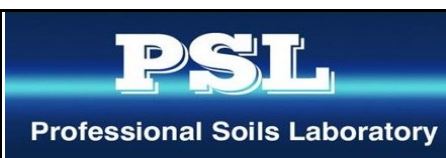
Hole Number: TP1048 Top Depth (m) : 1.50

Sample Number: Base Depth (m) : 2.00

Sample Type: B



Initial Moisture Content:	12	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m³):	2.64	Measured	Material Retained on 37.5 mm Test Sieve (%):	6
Maximum Dry Density (Mg/m³):	2.03		Material Retained on 20.0 mm Test Sieve (%):	25
Optimum Moisture Content (%):	9			
Remarks				
See summary of soil descriptions.				



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BS 1377 : Part 4 : Clause 3.5 : 1990

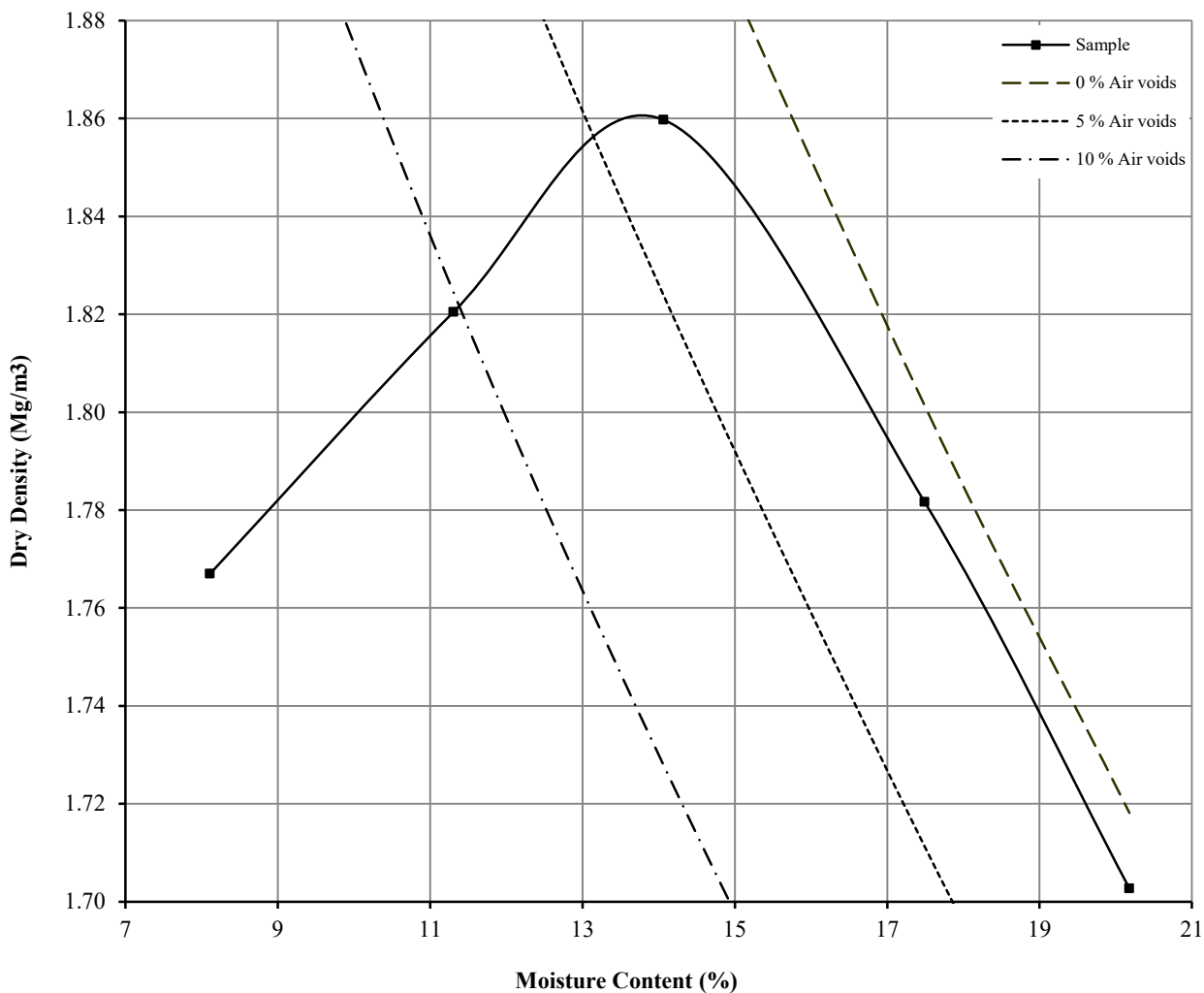
Hole Number: TP1049

Top Depth (m) : 1.50

Sample Number:

Base Depth (m) : 2.00

Sample Type: B



Initial Moisture Content:	20	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m³):	2.63	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m³):	1.86		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	14			
Remarks				
See summary of soil descriptions.				



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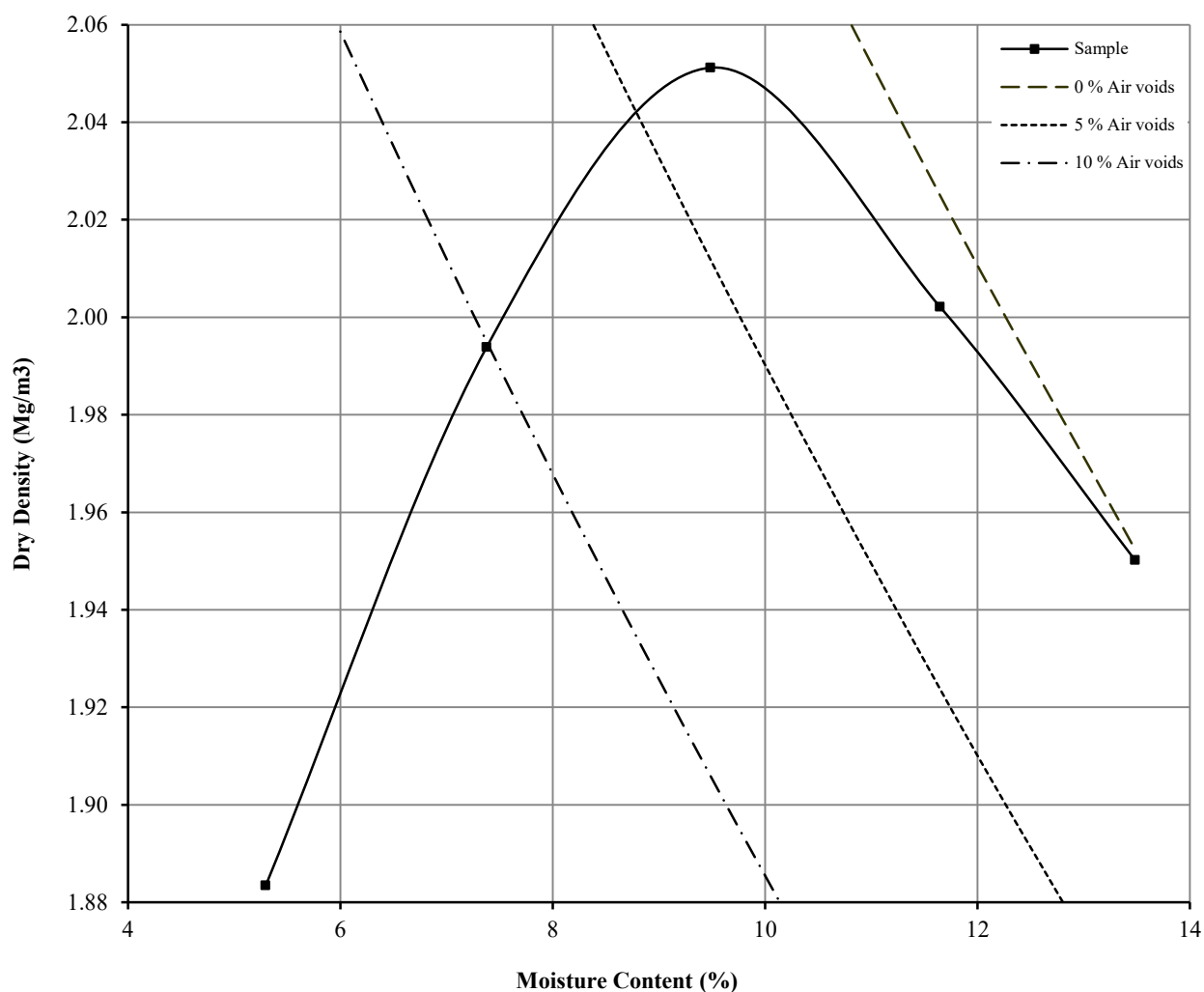
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

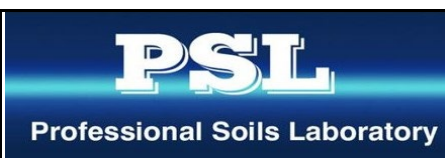
Hole Number: TP1049 Top Depth (m) : 3.00

Sample Number: Base Depth (m) : 4.00

Sample Type: B



Initial Moisture Content:	9.5	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):	29
Maximum Dry Density (Mg/m ³):	2.05		Material Retained on 20.0 mm Test Sieve (%):	15
Optimum Moisture Content (%):	9			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.6 : 1990

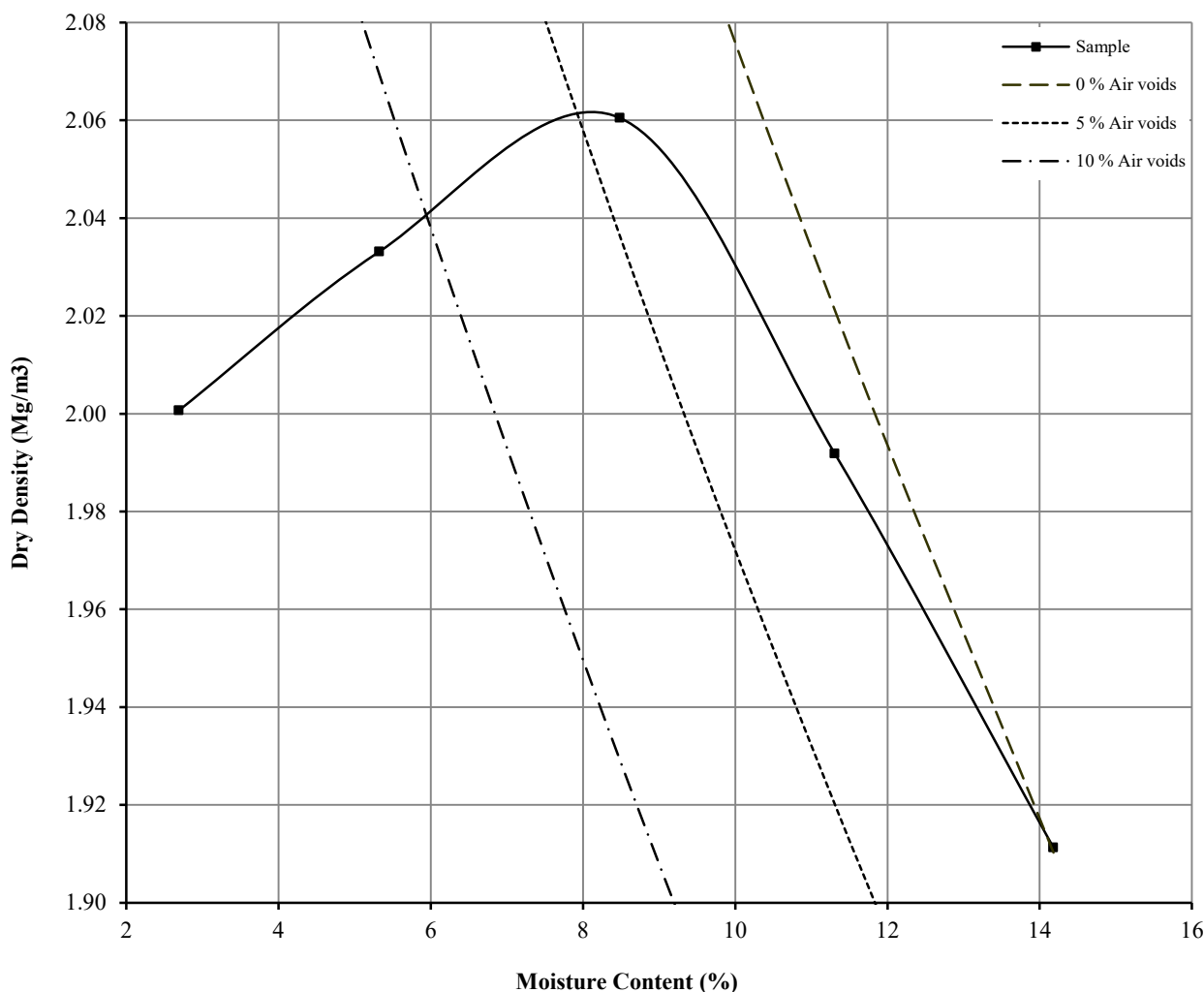
Hole Number: TP1054

Top Depth (m) : 2.50

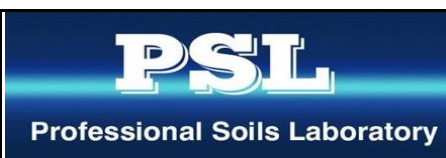
Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	11	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m³):	2.62	Measured	Material Retained on 37.5 mm Test Sieve (%):	8
Maximum Dry Density (Mg/m³):	2.06		Material Retained on 20.0 mm Test Sieve (%):	8
Optimum Moisture Content (%):	8			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

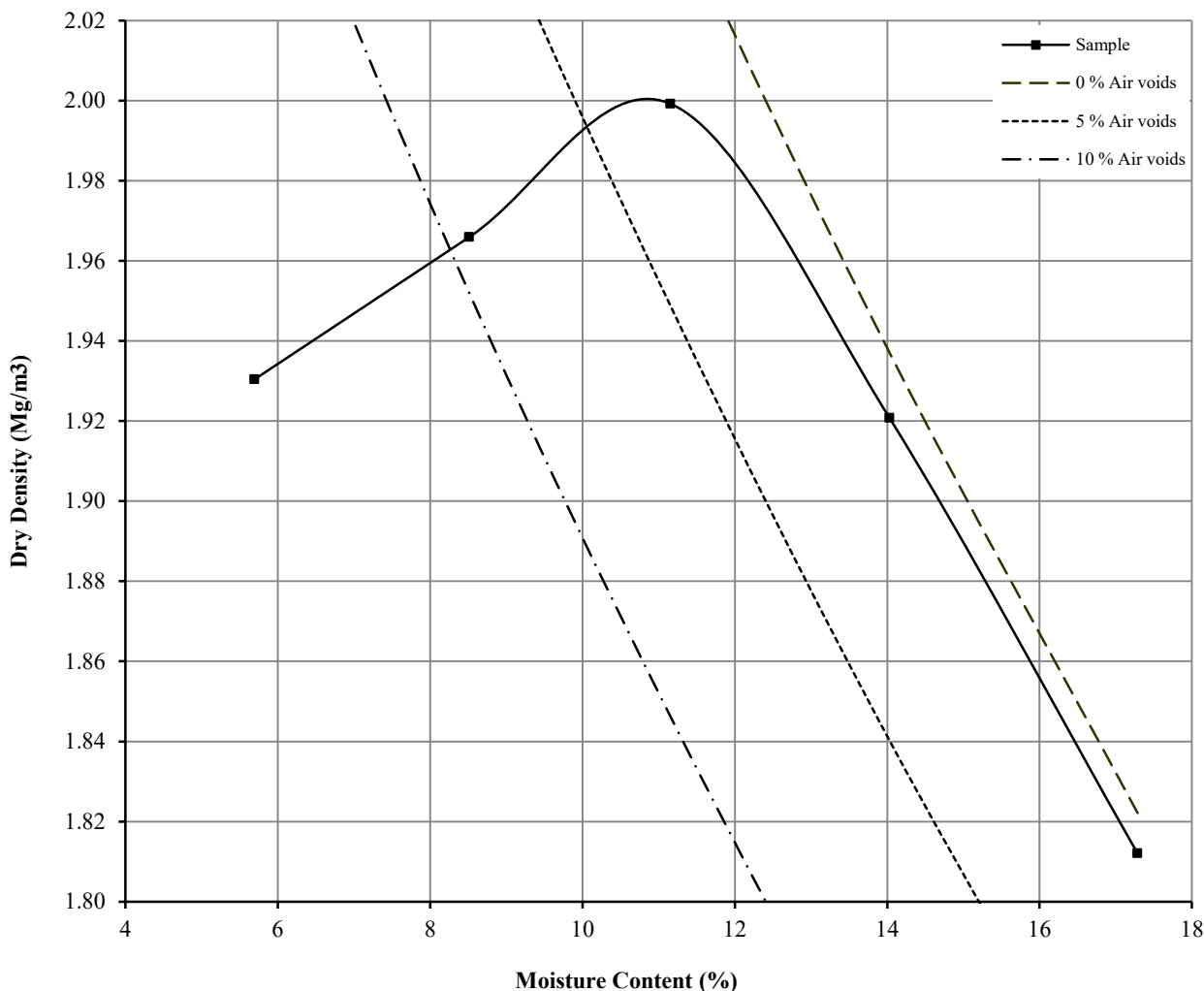
Hole Number: TP1055

Top Depth (m) : 3.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	14	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m³):	2.66	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m³):	2.00		Material Retained on 20.0 mm Test Sieve (%):	4
Optimum Moisture Content (%):	11			
Remarks				
See summary of soil descriptions.				



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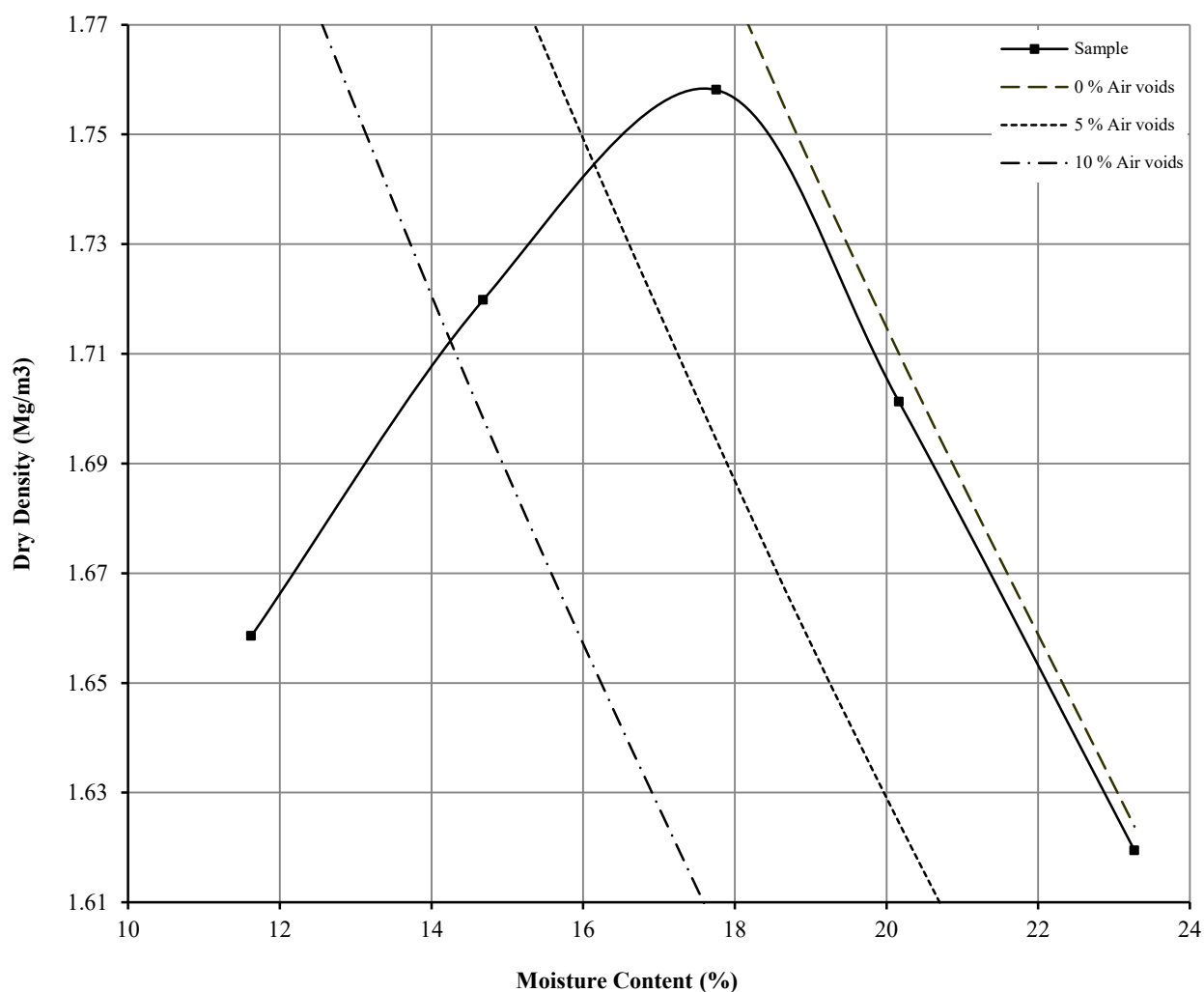
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

Hole Number: TP1056 Top Depth (m) : 0.50

Sample Number: Base Depth (m) : 0.70

Sample Type: B



Initial Moisture Content:	23	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.61	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.76		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	18			
Remarks				
See summary of soil descriptions.				



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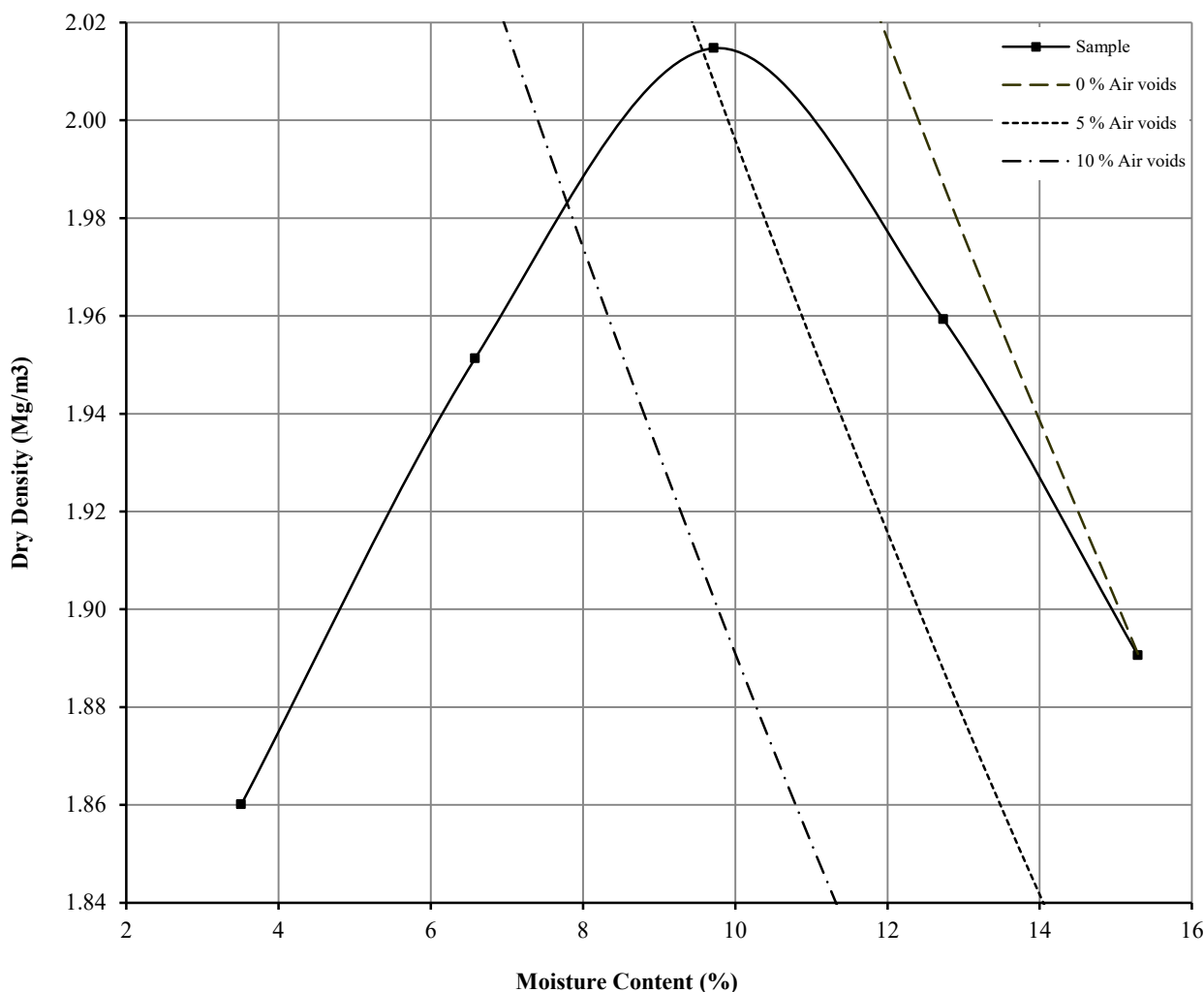
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

Hole Number: TP1063 Top Depth (m) : 2.00

Sample Number: Base Depth (m) : 2.50

Sample Type: B



Initial Moisture Content:	13	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m³):	2.66	Measured	Material Retained on 37.5 mm Test Sieve (%):	17
Maximum Dry Density (Mg/m³):	2.01		Material Retained on 20.0 mm Test Sieve (%):	20
Optimum Moisture Content (%):	10			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

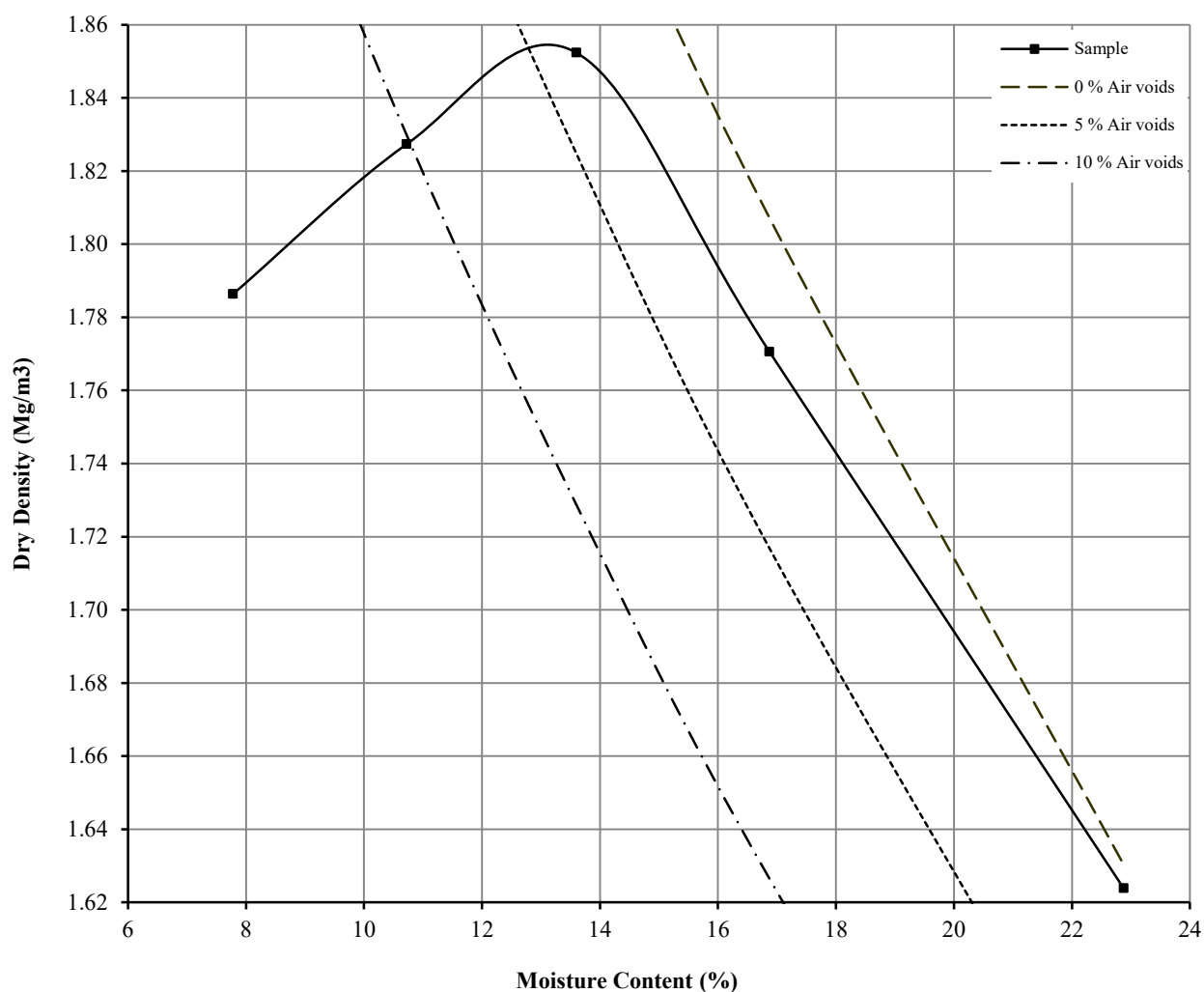
Hole Number: TP1201

Top Depth (m) : 0.50

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	23	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.60	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.85		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	14			
Remarks				
See summary of soil descriptions.				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

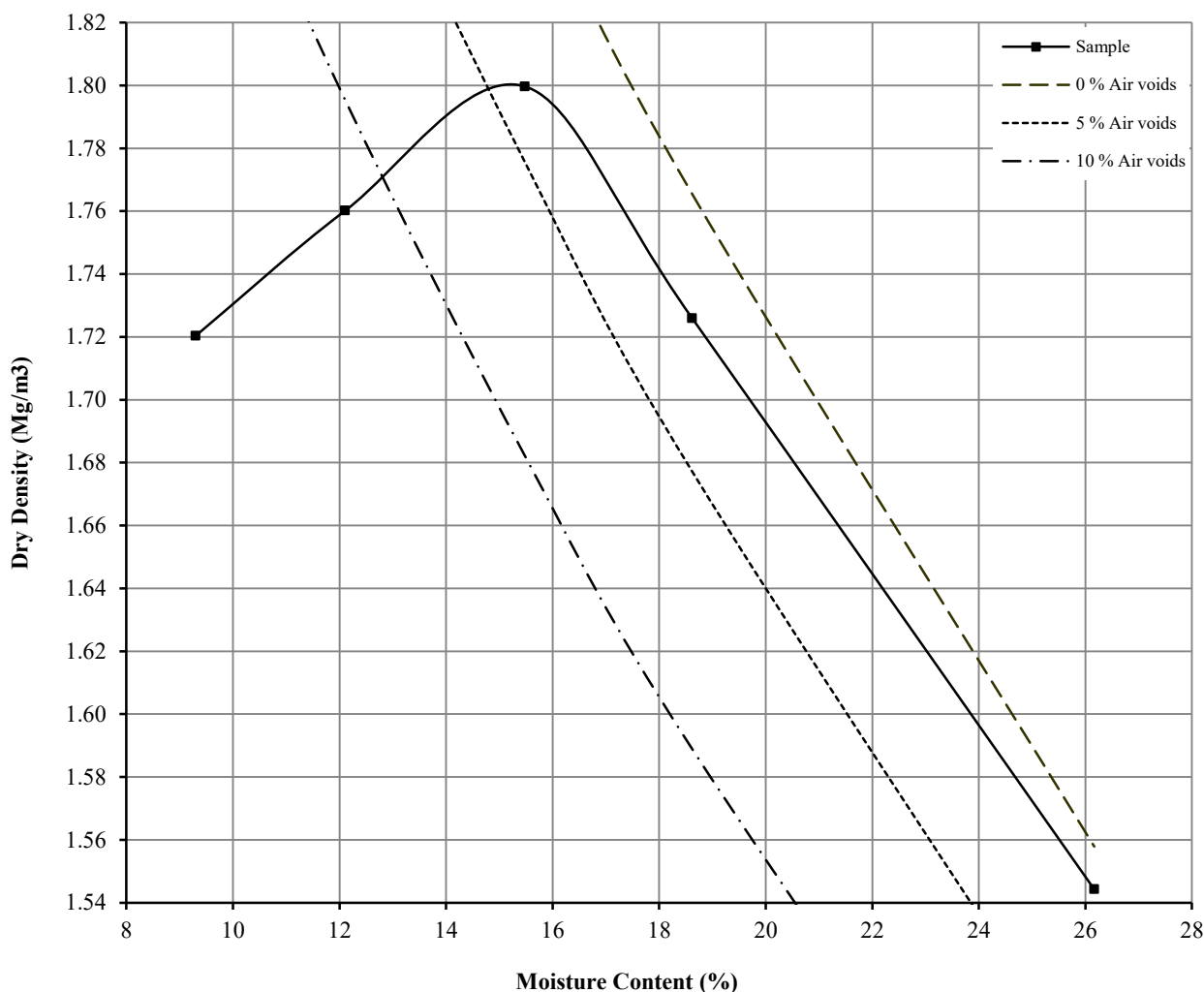
Hole Number: TP1202

Top Depth (m) : 0.50

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	26	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m³):	2.63	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m³):	1.80		Material Retained on 20.0 mm Test Sieve (%):	1
Optimum Moisture Content (%):	15			
Remarks				
See summary of soil descriptions.				



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Non compliance with BS 1377 : Part 4 : 1990

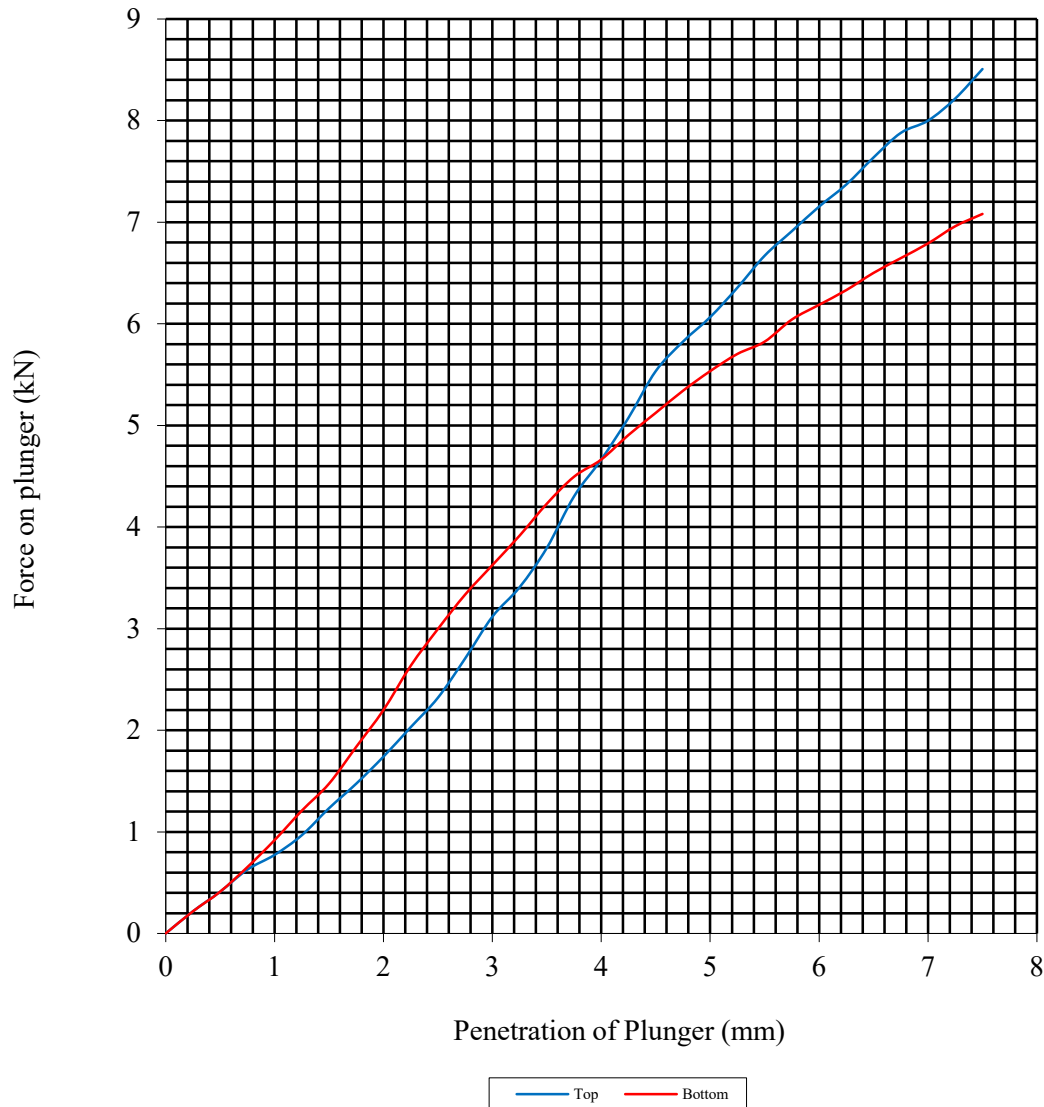
Hole Number: TP1002

Top Depth (m): 3.00

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	11	Surcharge Kg:	4.20	Sample Top	10	Sample Top	30.3
Bulk Density Mg/m3:	2.25	Soaking Time hrs	0	Sample Bottom	11	Sample Bottom	27.7
Dry Density Mg/m3:	2.03	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		28					
Compaction Conditions		4.5kg					



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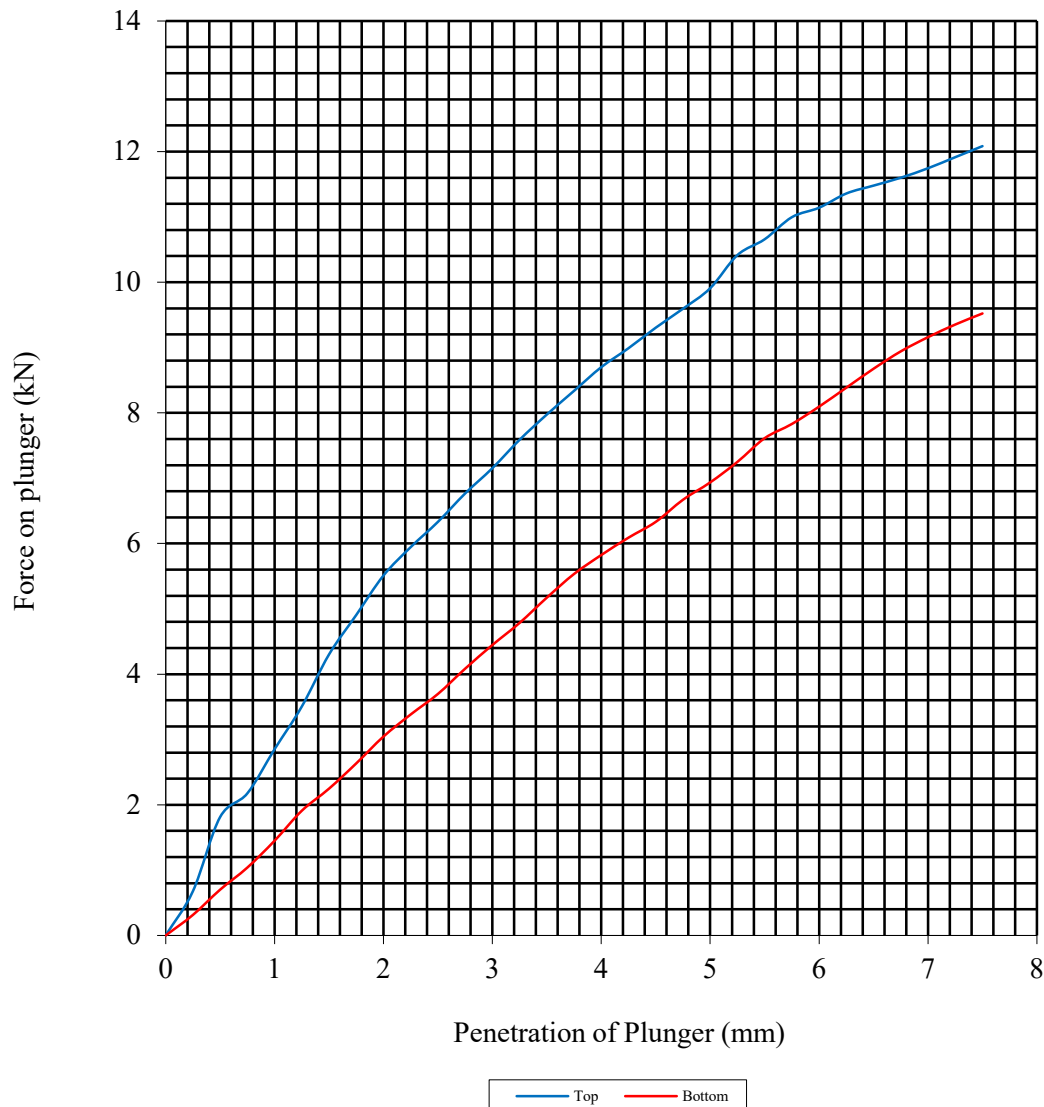
Hole Number: TP1003

Top Depth (m): 2.50

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	9.2	Surcharge Kg:	4.20	Sample Top	9.1	Sample Top	49.5
Bulk Density Mg/m3:	2.22	Soaking Time hrs	0	Sample Bottom	9.2	Sample Bottom	34.7
Dry Density Mg/m3:	2.03	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		30					
Compaction Conditions		4.5kg					



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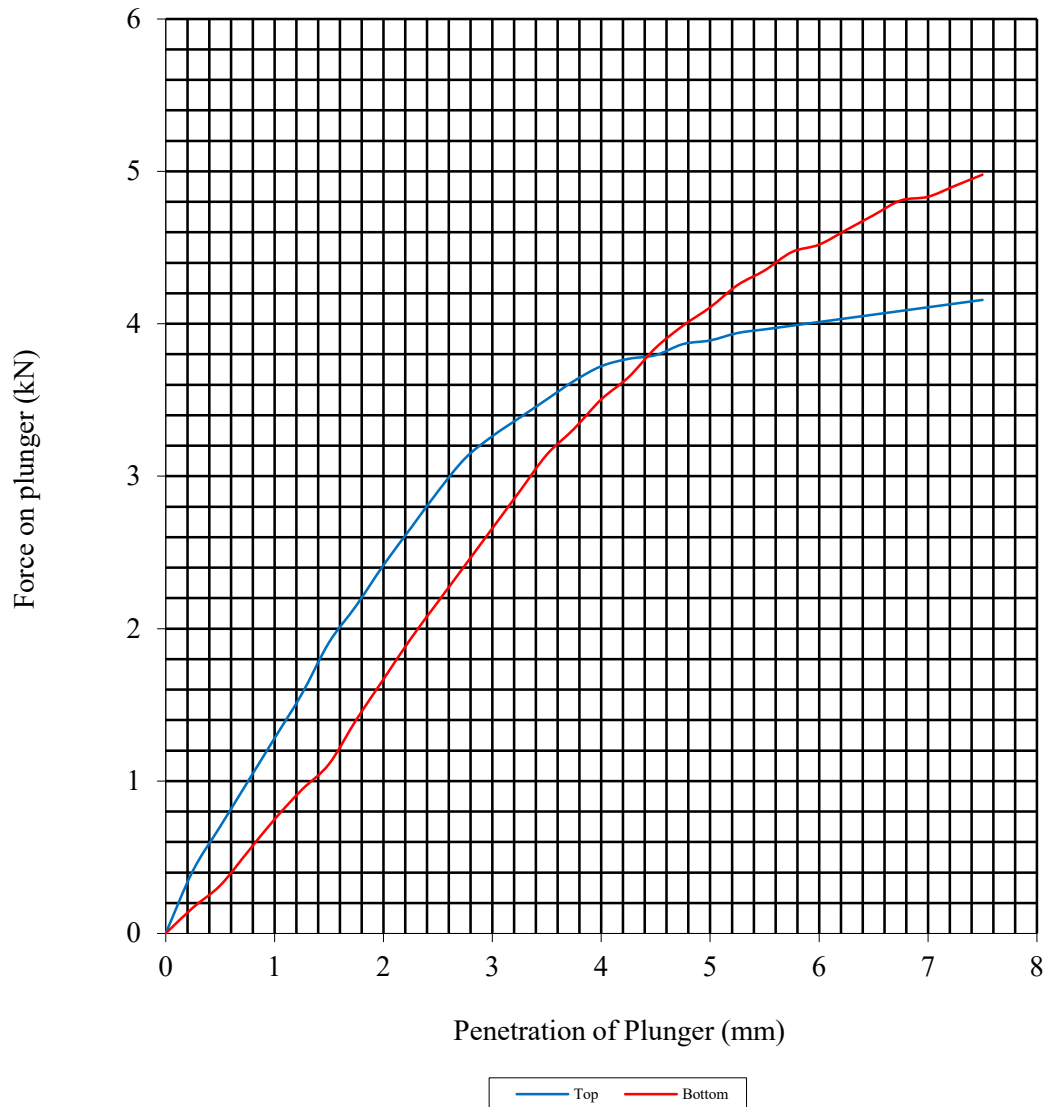
Hole Number: TP1004

Top Depth (m): 3.00

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	12	Surcharge Kg:	4.20	Sample Top	12	Sample Top	22.0
Bulk Density Mg/m3:	2.24	Soaking Time hrs	0	Sample Bottom	12	Sample Bottom	20.5
Dry Density Mg/m3:	2.01	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		18					
Compaction Conditions		4.5kg					



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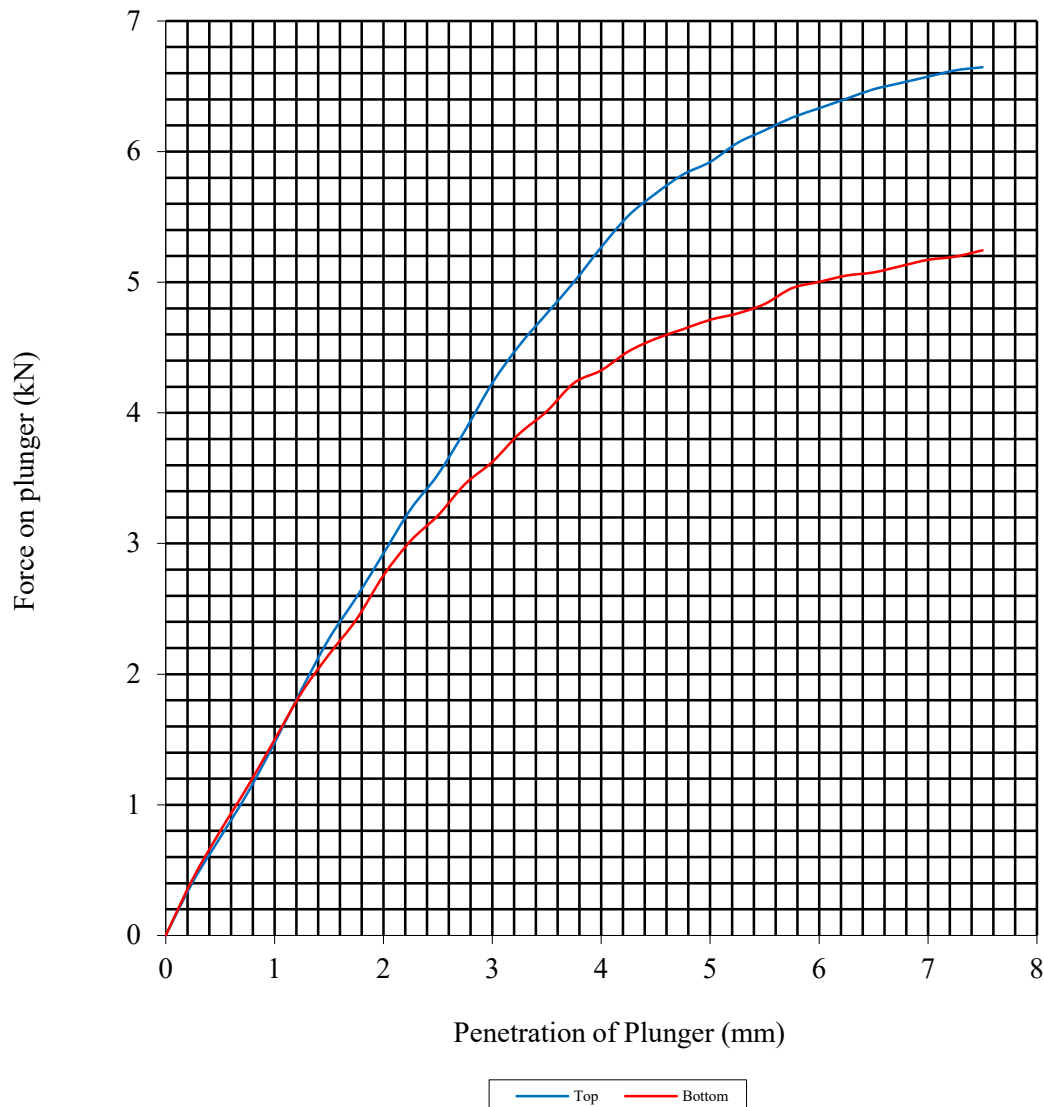
Hole Number: TP1007

Top Depth (m): 0.60

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	13	Surcharge Kg:	4.20	Sample Top	13	Sample Top	29.6
Bulk Density Mg/m3:	2.08	Soaking Time hrs	0	Sample Bottom	13	Sample Bottom	24.3
Dry Density Mg/m3:	1.84	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		13					
Compaction Conditions		4.5kg					



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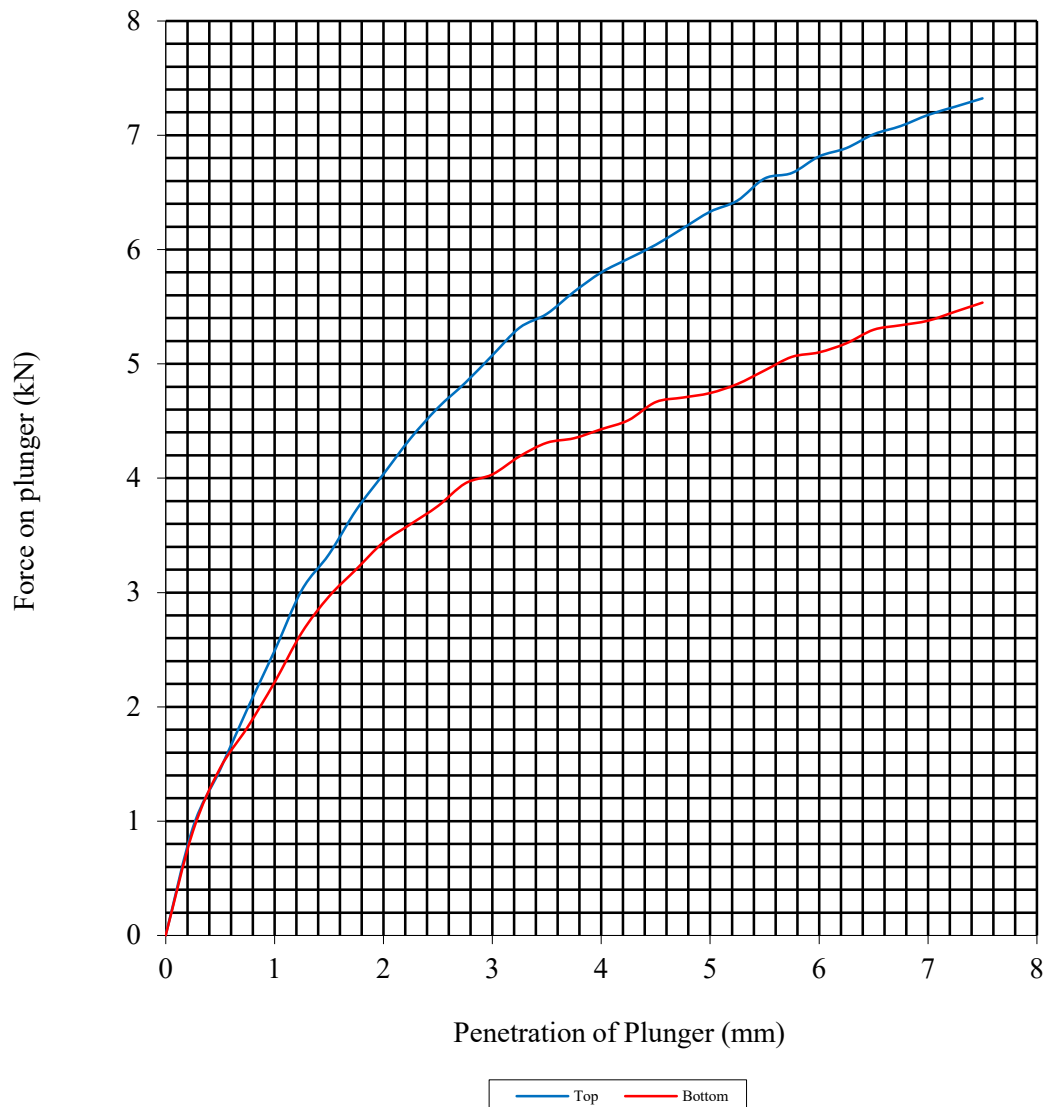
Hole Number: TP1009

Top Depth (m): 2.00

Sample Number:

Base Depth (m): 3.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	14	Surcharge Kg:	4.20	Sample Top	14	Sample Top	35.0
Bulk Density Mg/m3:	2.09	Soaking Time hrs	0	Sample Bottom	14	Sample Bottom	28.5
Dry Density Mg/m3:	1.84	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		19					
Compaction Conditions		4.5kg					



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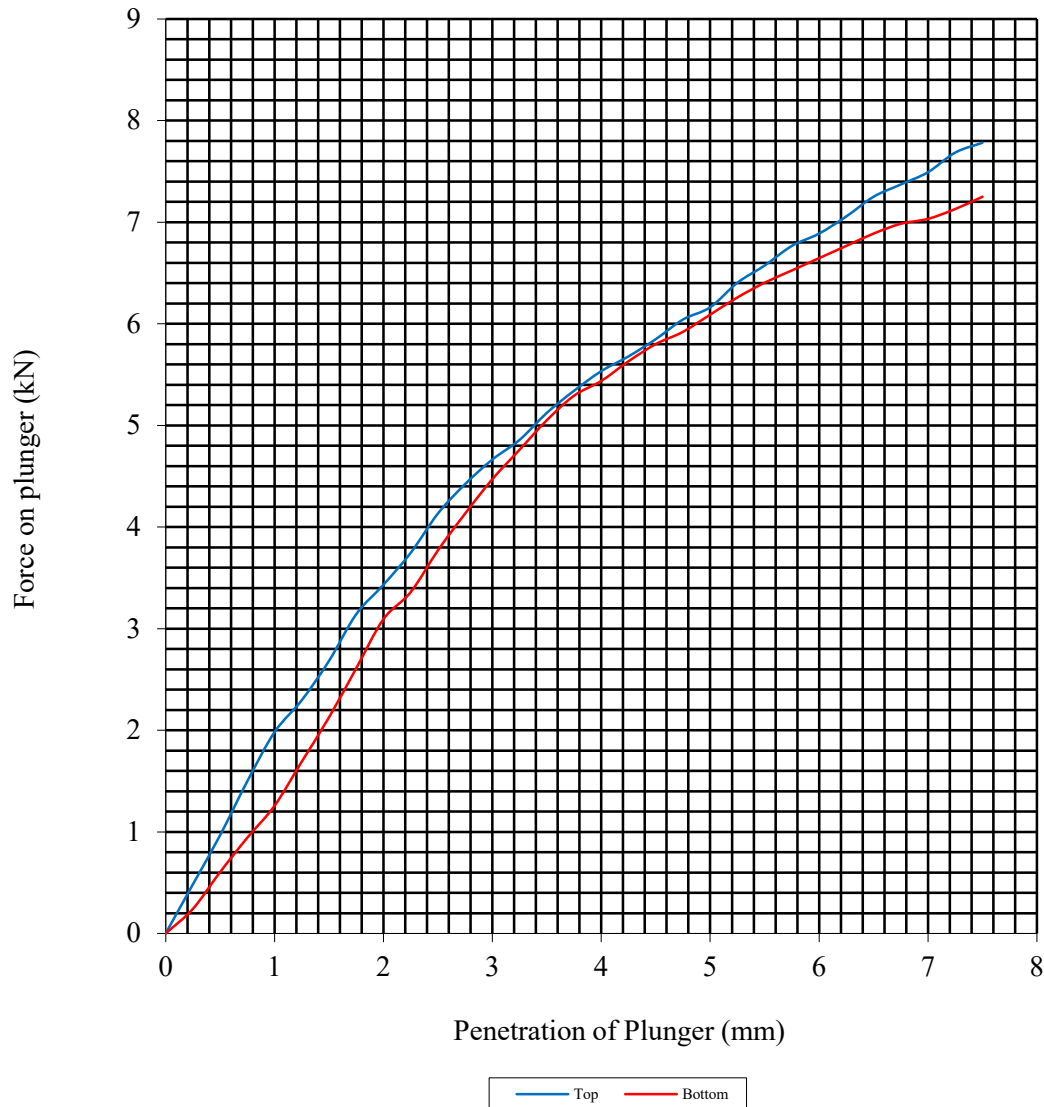
Hole Number: TP1012

Top Depth (m): 1.60

Sample Number:

Base Depth (m): 4.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	10	Surcharge Kg:	4.20	Sample Top	10	Sample Top	31.3
Bulk Density Mg/m3:	2.15	Soaking Time hrs	0	Sample Bottom	10	Sample Bottom	30.4
Dry Density Mg/m3:	1.95	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		11					
Compaction Conditions		4.5kg					



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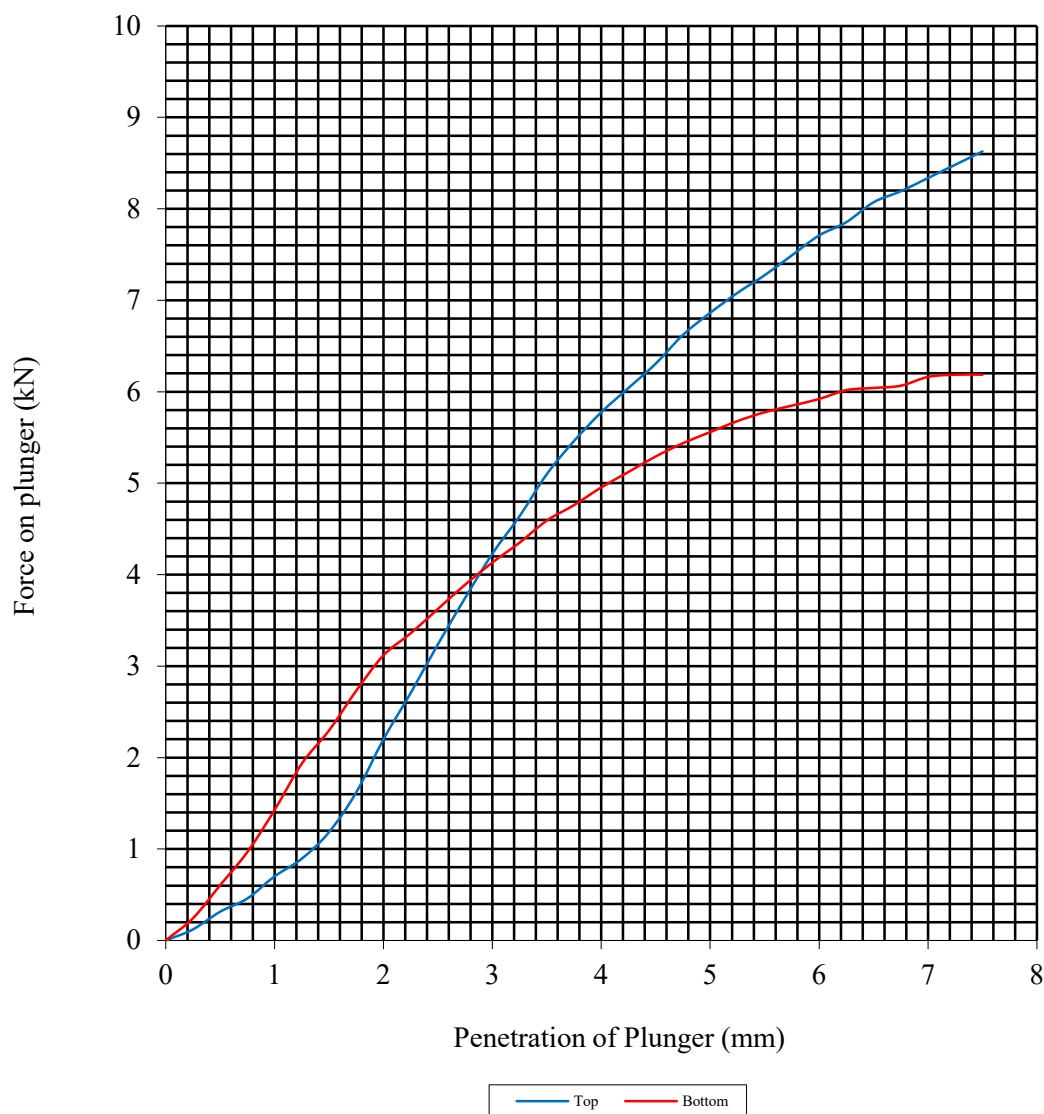
Hole Number: TP1015

Top Depth (m): 1.20

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	14	Surcharge Kg:	4.20	Sample Top	14	Sample Top	34.3
Bulk Density Mg/m3:	2.09	Soaking Time hrs	0	Sample Bottom	14	Sample Bottom	27.8
Dry Density Mg/m3:	1.83	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		10					
Compaction Conditions		4.5kg					



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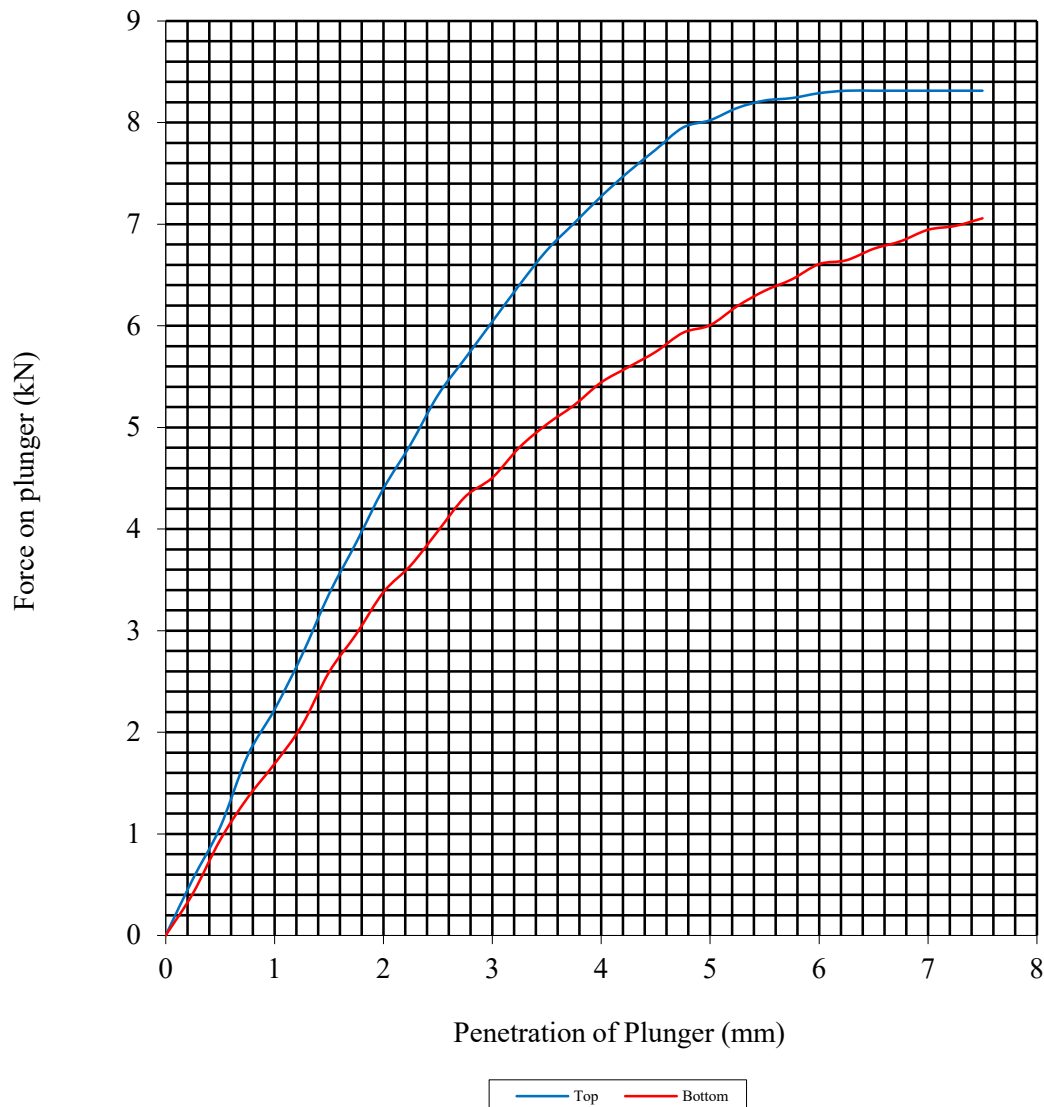
Hole Number: TP1017

Top Depth (m): 2.00

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	11	Surcharge Kg:	4.20	Sample Top	10	Sample Top	40.3
Bulk Density Mg/m3:	2.22	Soaking Time hrs	0	Sample Bottom	11	Sample Bottom	30.1
Dry Density Mg/m3:	2.01	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		19					
Compaction Conditions		4.5kg					



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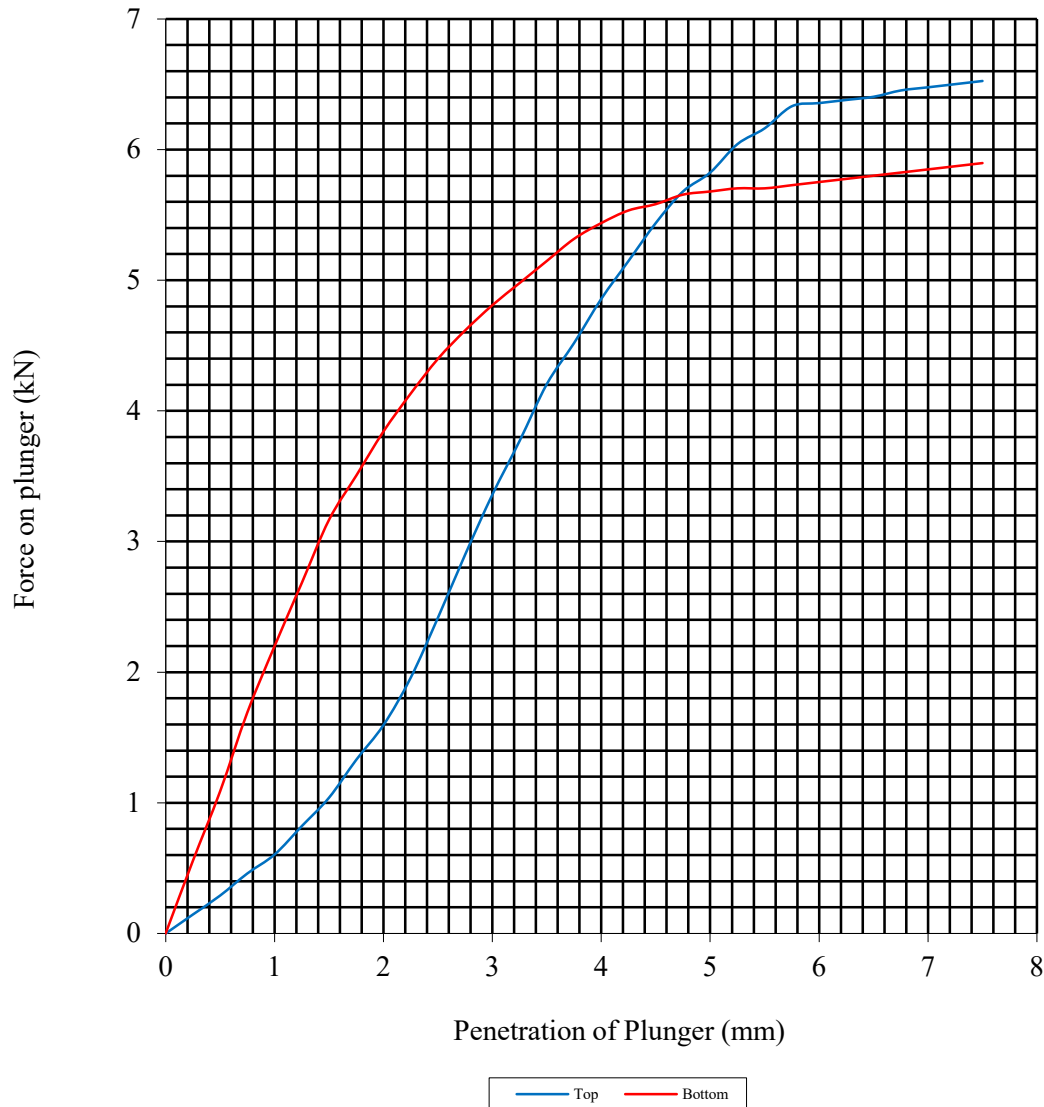
Hole Number: TP1018

Top Depth (m): 1.00

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	18	Surcharge Kg:	4.20	Sample Top	18	Sample Top	29.1
Bulk Density Mg/m3:	2.07	Soaking Time hrs	0	Sample Bottom	18	Sample Bottom	33.3
Dry Density Mg/m3:	1.75	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		4.5kg					



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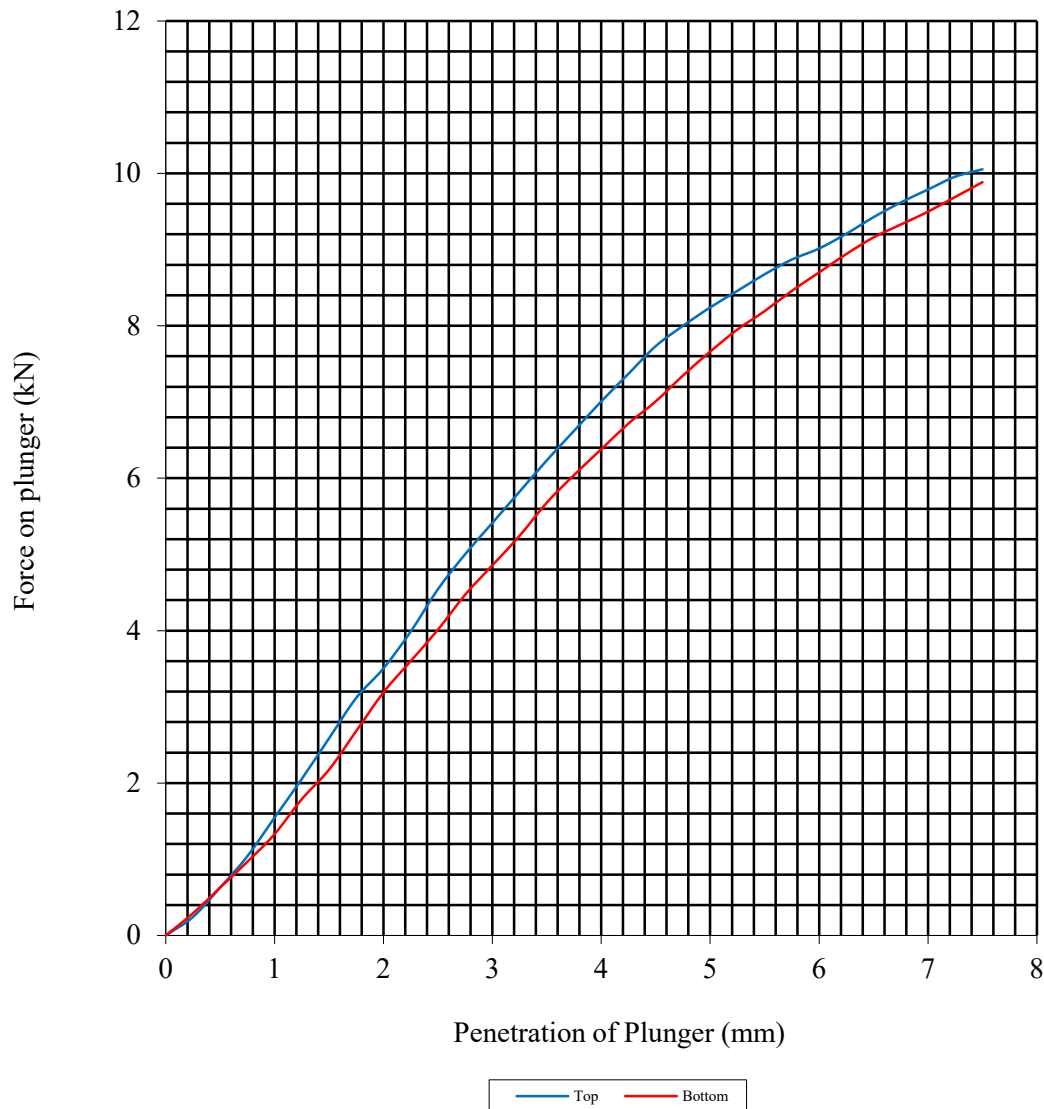
Hole Number: TP1022

Top Depth (m): 0.90

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	15	Surcharge Kg:	4.20	Sample Top	15	Sample Top	41.2
Bulk Density Mg/m3:	2.10	Soaking Time hrs	0	Sample Bottom	15	Sample Bottom	38.3
Dry Density Mg/m3:	1.83	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		13					
Compaction Conditions		4.5kg					



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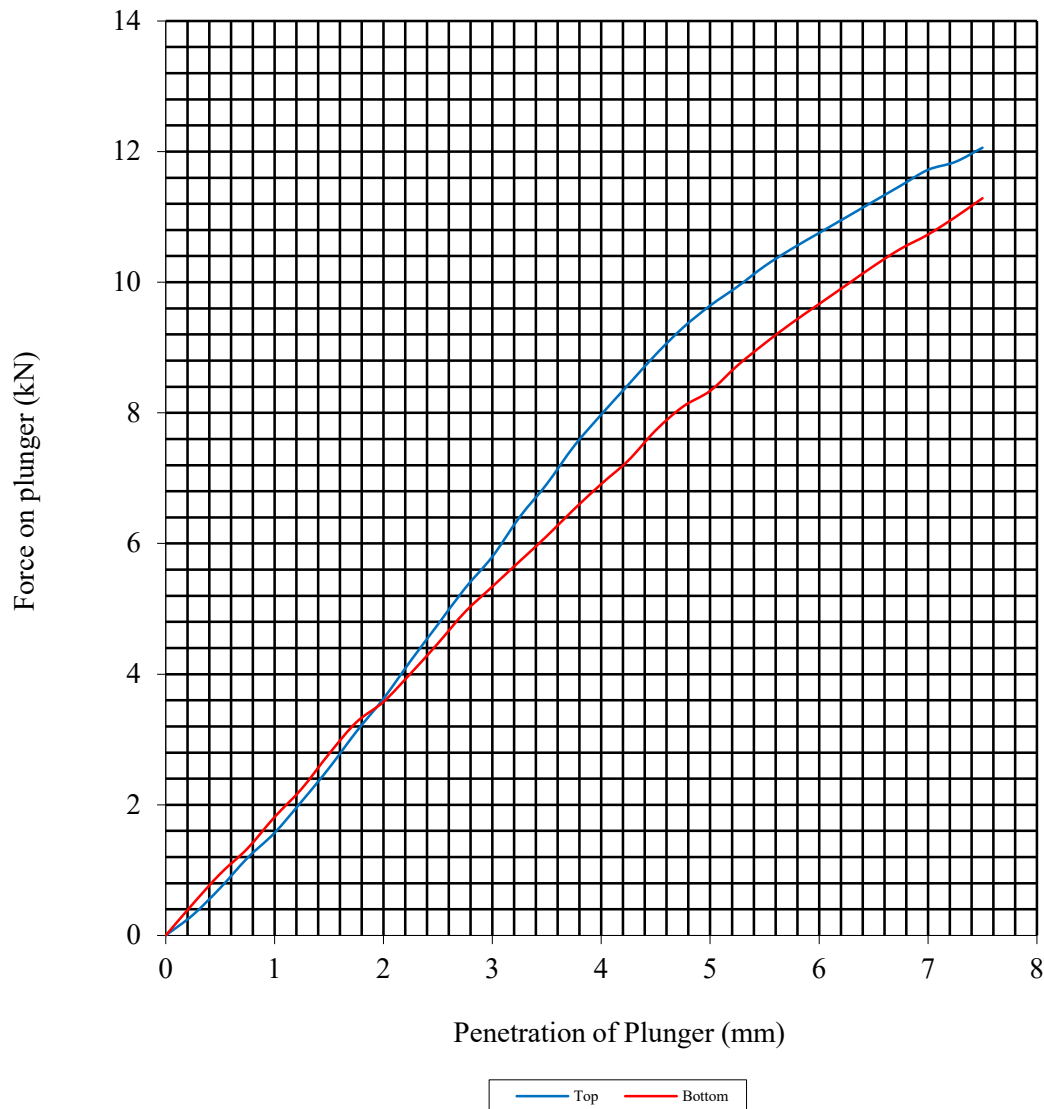
Hole Number: TP1024

Top Depth (m): 1.00

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	10	Surcharge Kg:	4.20	Sample Top	10	Sample Top	48.2
Bulk Density Mg/m3:	2.22	Soaking Time hrs	0	Sample Bottom	11	Sample Bottom	41.7
Dry Density Mg/m3:	2.01	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		24					
Compaction Conditions		4.5kg					



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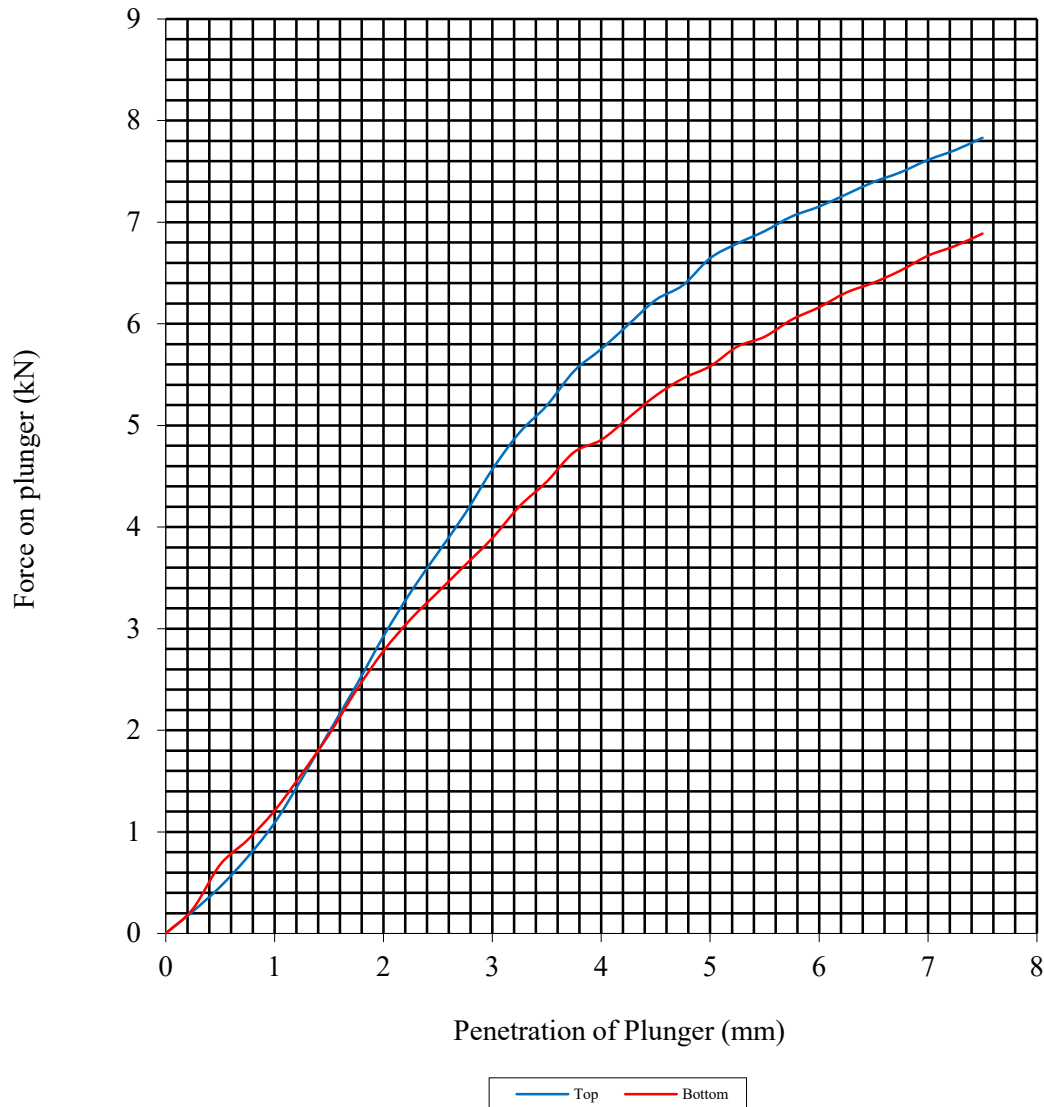
Hole Number: TP1027

Top Depth (m): 2.50

Sample Number:

Base Depth (m): 3.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	12	Surcharge Kg:	4.20	Sample Top	12	Sample Top	33.2
Bulk Density Mg/m ³ :	2.20	Soaking Time hrs	0	Sample Bottom	12	Sample Bottom	27.9
Dry Density Mg/m ³ :	1.96	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			41				
Compaction Conditions		4.5kg					



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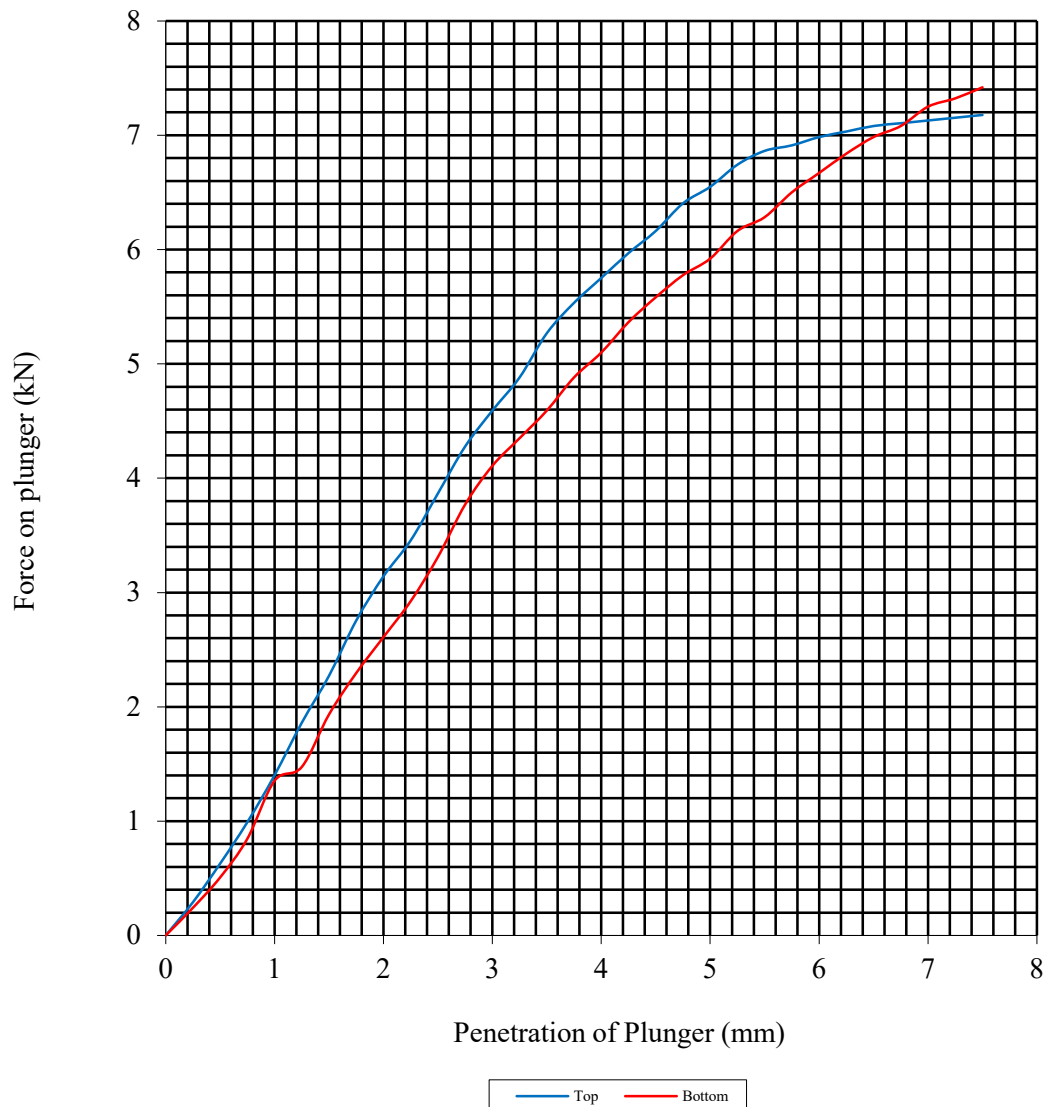
Hole Number: TP1029

Top Depth (m): 3.00

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	12	Surcharge Kg:	4.20	Sample Top	12	Sample Top	32.7
Bulk Density Mg/m3:	2.21	Soaking Time hrs	0	Sample Bottom	12	Sample Bottom	29.6
Dry Density Mg/m3:	1.96	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		21					
Compaction Conditions		4.5kg					



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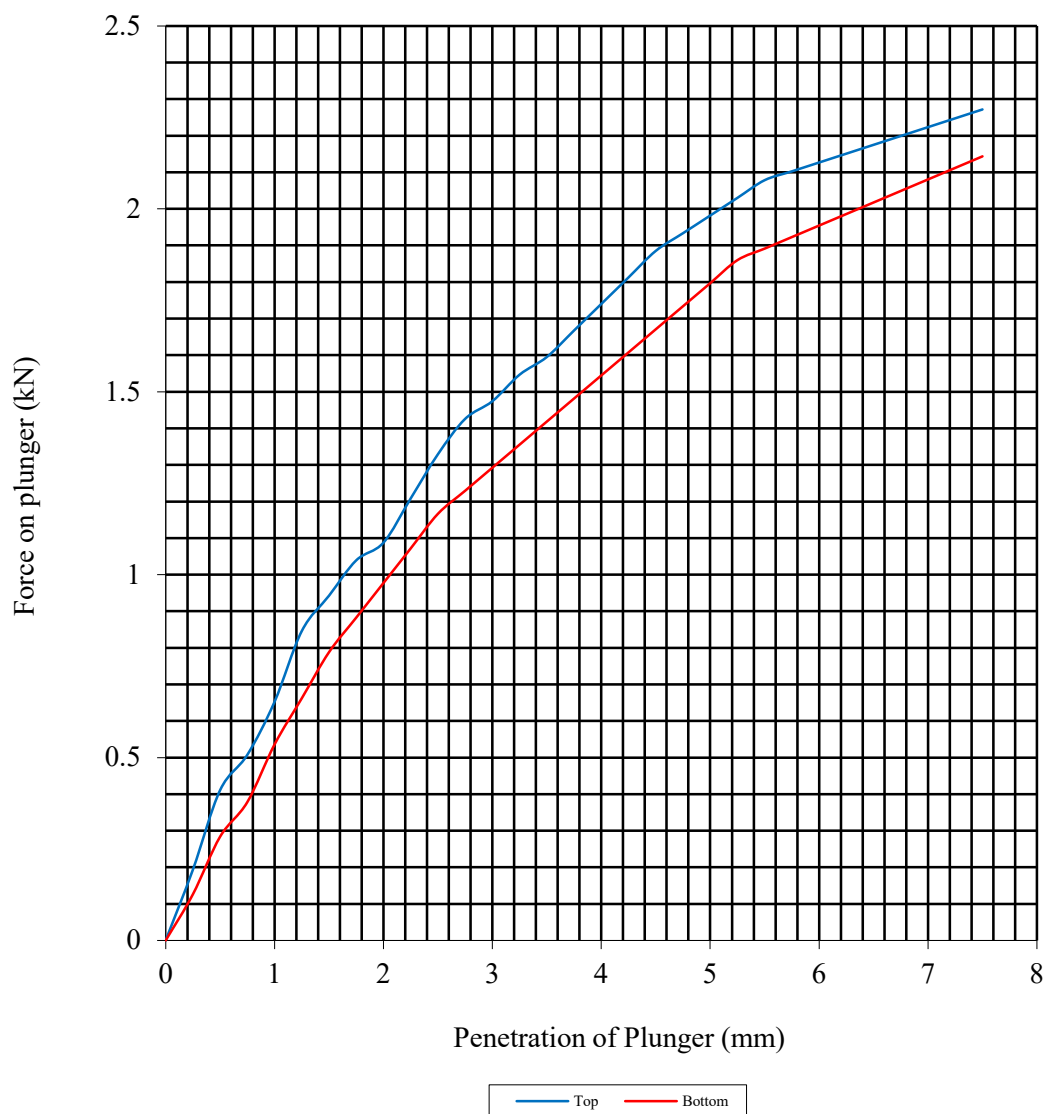
Hole Number: TP1030

Top Depth (m): 2.50

Sample Number:

Base Depth (m): 3.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	14	Surcharge Kg:	4.20	Sample Top	14	Sample Top	10.1
Bulk Density Mg/m3:	2.10	Soaking Time hrs	0	Sample Bottom	14	Sample Bottom	9.0
Dry Density Mg/m3:	1.84	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		38					
Compaction Conditions		2.5kg					



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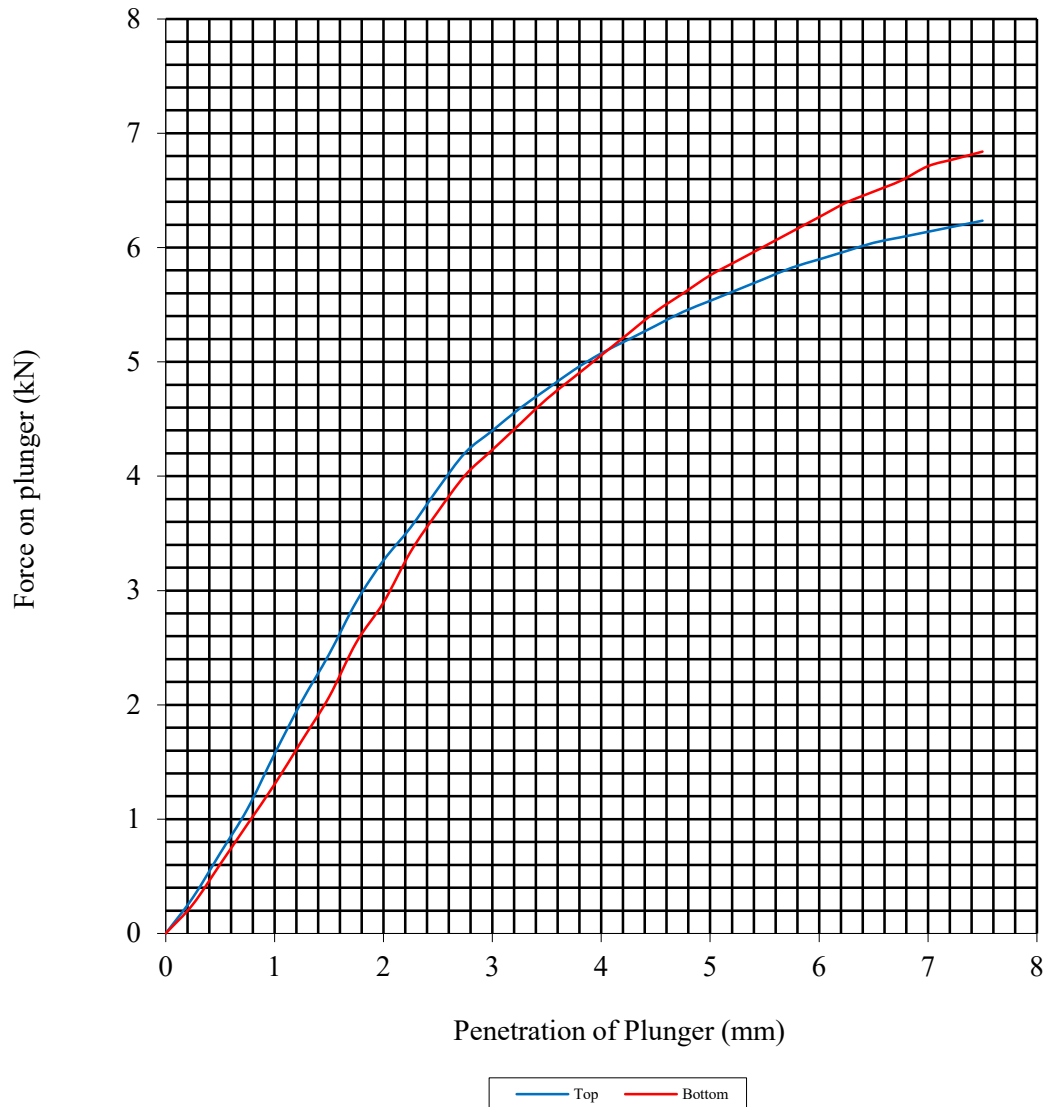
Hole Number: TP1030

Top Depth (m): 2.50

Sample Number:

Base Depth (m): 3.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	12	Surcharge Kg:	4.20	Sample Top	12	Sample Top	29.5
Bulk Density Mg/m3:	2.20	Soaking Time hrs	0	Sample Bottom	12	Sample Bottom	28.8
Dry Density Mg/m3:	1.96	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		38					
Compaction Conditions		4.5kg					



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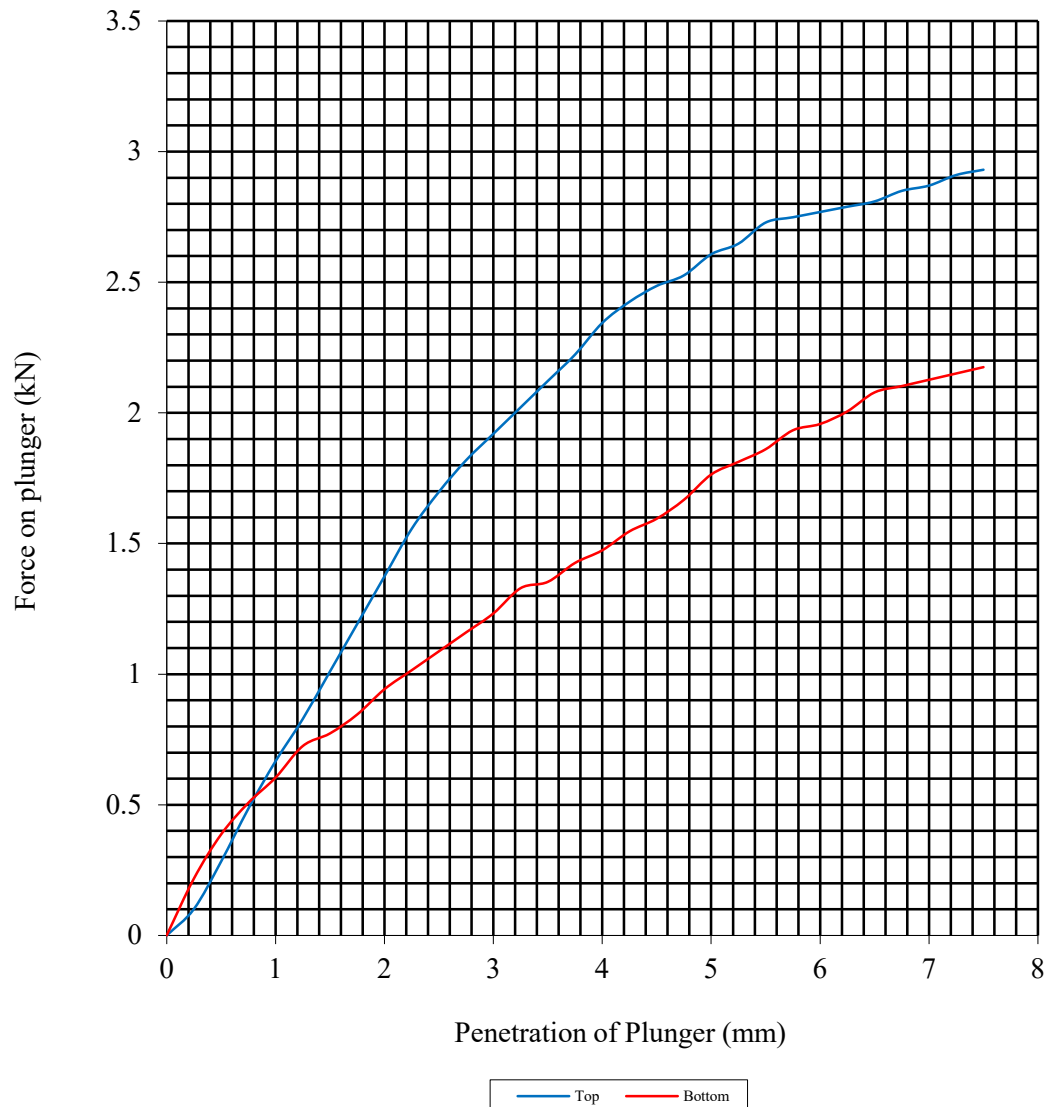
Hole Number: TP1032

Top Depth (m): 0.50

Sample Number:

Base Depth (m): 1.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	20	Surcharge Kg:	4.20	Sample Top	20	Sample Top	13.0
Bulk Density Mg/m3:	1.97	Soaking Time hrs	0	Sample Bottom	20	Sample Bottom	8.8
Dry Density Mg/m3:	1.64	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					



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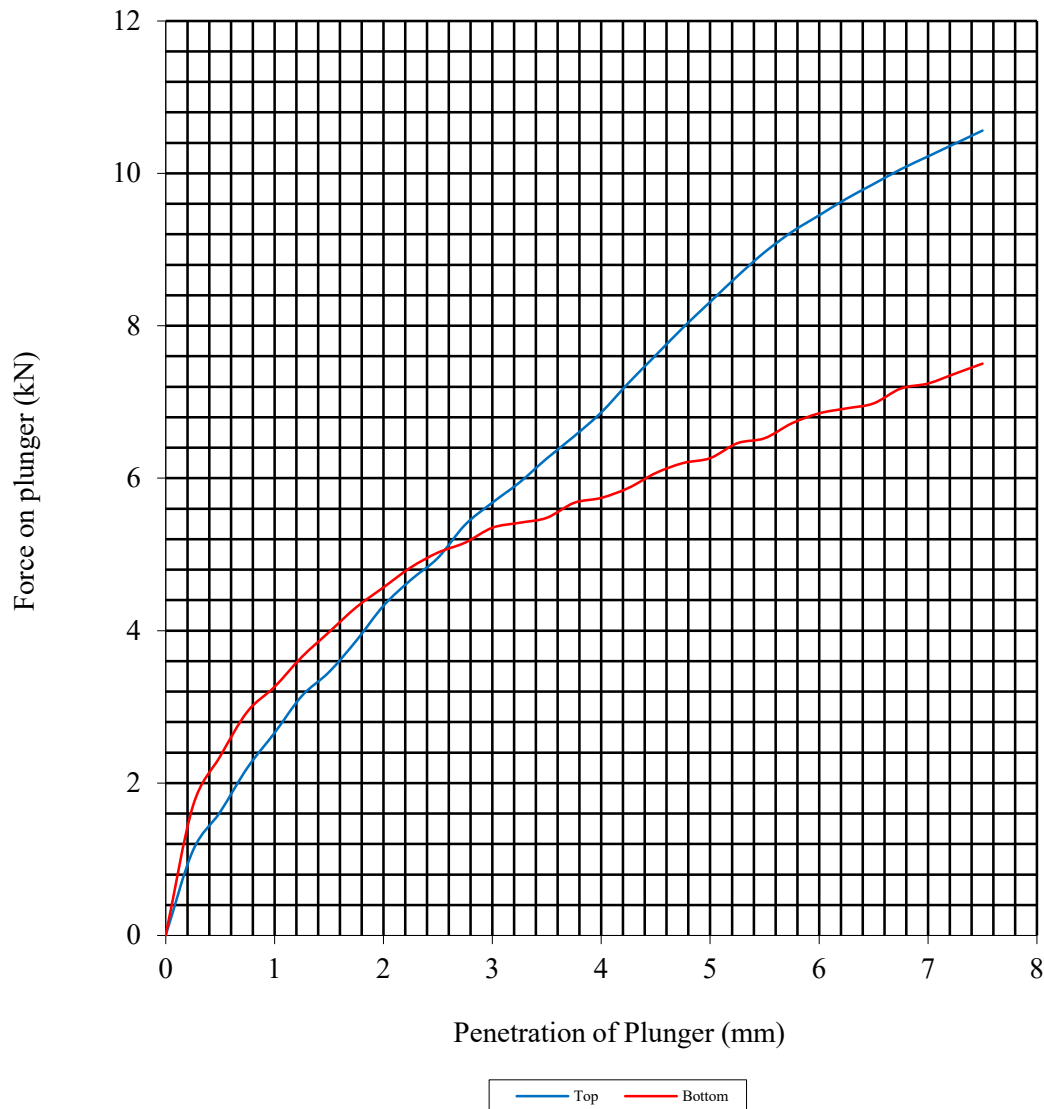
Hole Number: TP1032

Top Depth (m): 0.50

Sample Number:

Base Depth (m): 1.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	17	Surcharge Kg:	4.20	Sample Top	17	Sample Top	41.6
Bulk Density Mg/m3:	2.10	Soaking Time hrs	0	Sample Bottom	17	Sample Bottom	38.1
Dry Density Mg/m3:	1.80	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		4.5kg					



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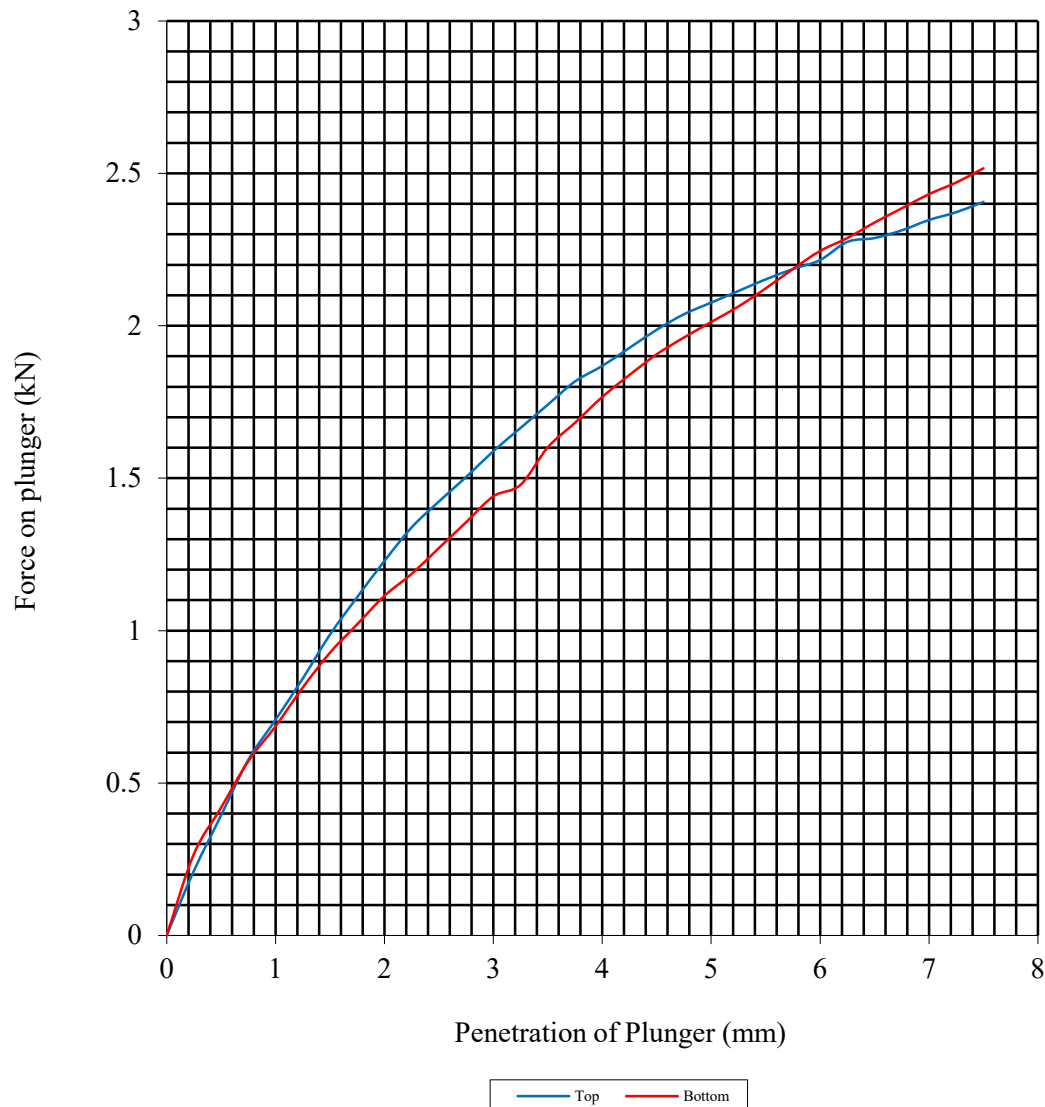
Hole Number: TP1032

Top Depth (m): 2.00

Sample Number:

Base Depth (m): 2.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	13	Surcharge Kg:	4.20	Sample Top	13	Sample Top	10.8
Bulk Density Mg/m3:	2.08	Soaking Time hrs	0	Sample Bottom	13	Sample Bottom	10.1
Dry Density Mg/m3:	1.85	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		33					
Compaction Conditions		2.5kg					



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CALIFORNIA BEARING RATIO TEST

Non compliance with BS 1377 : Part 4 : 1990

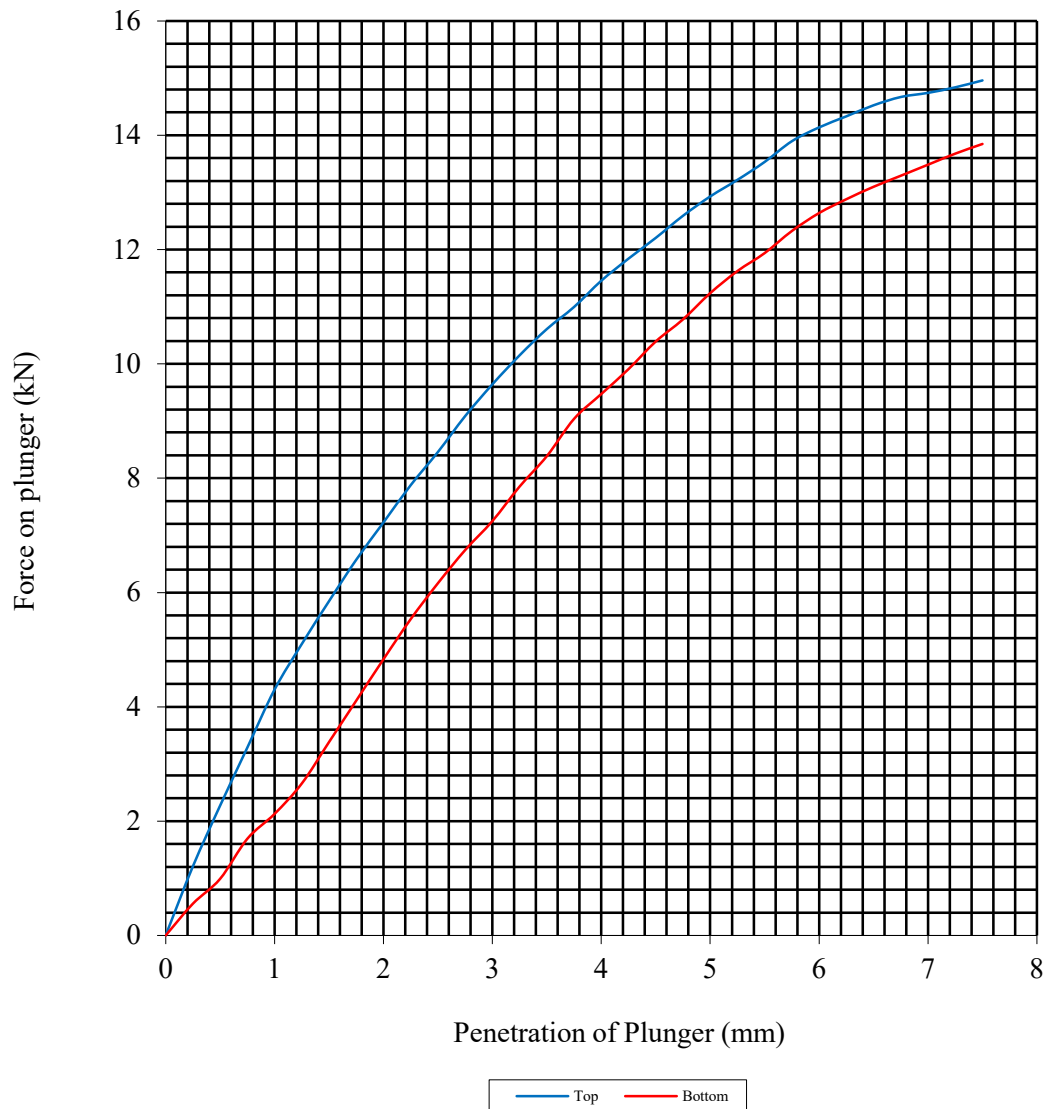
Hole Number: TP1032

Top Depth (m): 2.00

Sample Number:

Base Depth (m): 2.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	8.8	Surcharge Kg:	4.20	Sample Top	8.8	Sample Top	64.6
Bulk Density Mg/m3:	2.22	Soaking Time hrs	0	Sample Bottom	8.8	Sample Bottom	56.2
Dry Density Mg/m3:	2.04	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		33					
Compaction Conditions		4.5kg					



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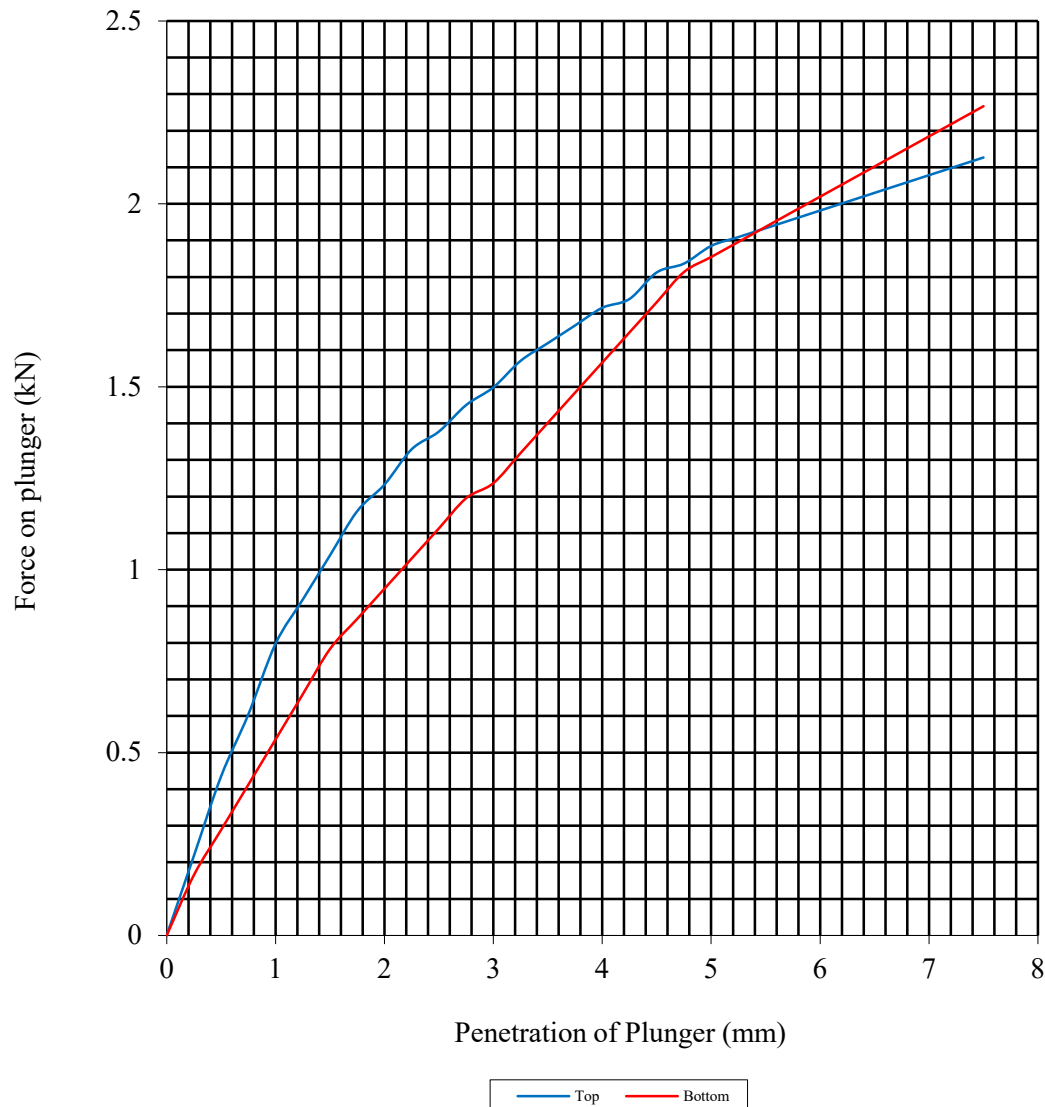
Hole Number: TP1033

Top Depth (m): 2.00

Sample Number:

Base Depth (m): 2.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	19	Surcharge Kg:	4.20	Sample Top	19	Sample Top	10.4
Bulk Density Mg/m3:	1.99	Soaking Time hrs	0	Sample Bottom	19	Sample Bottom	9.3
Dry Density Mg/m3:	1.67	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			1				
Compaction Conditions		2.5kg					



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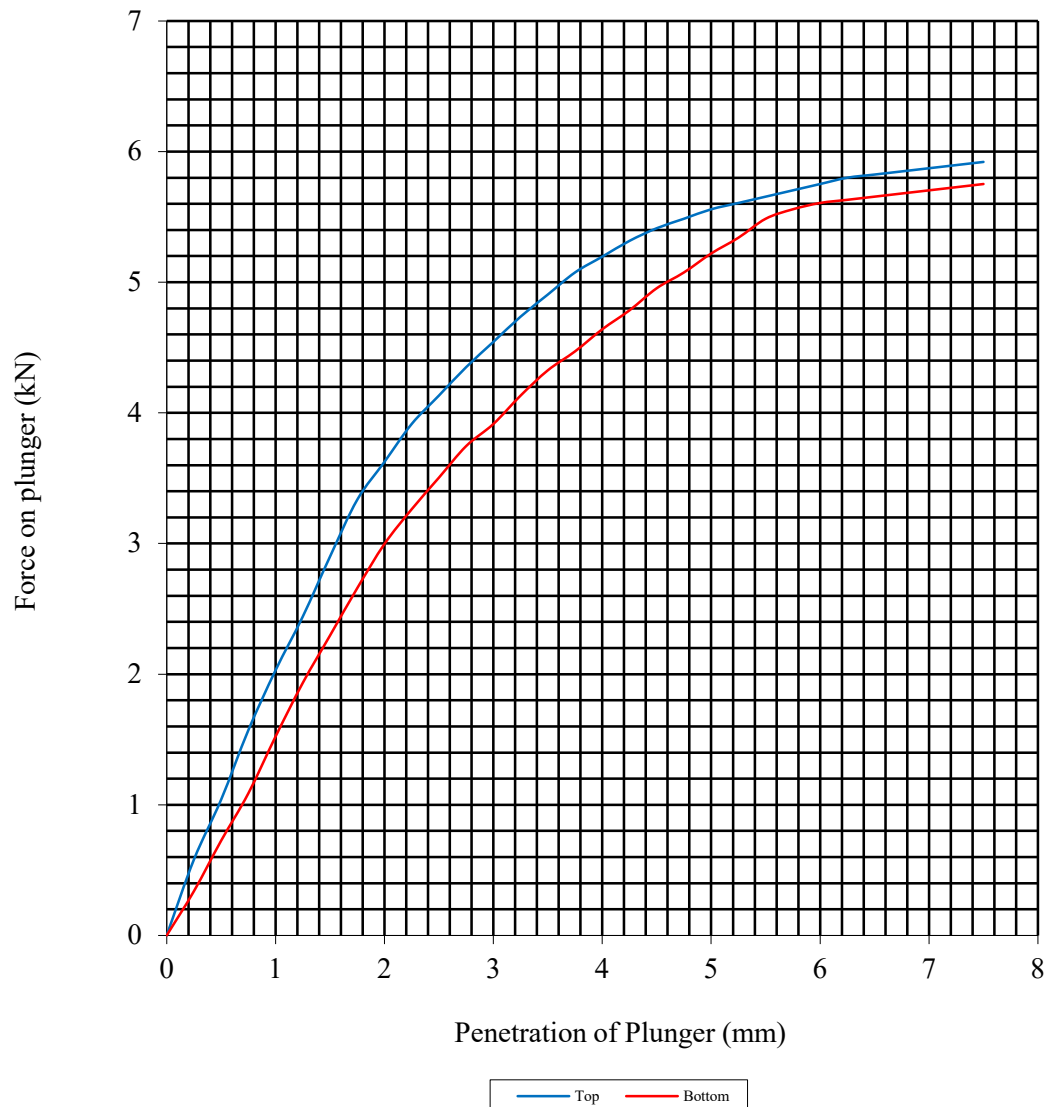
Hole Number: TP1033

Top Depth (m): 2.00

Sample Number:

Base Depth (m): 2.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	16	Surcharge Kg:	4.20	Sample Top	16	Sample Top	31.3
Bulk Density Mg/m3:	2.13	Soaking Time hrs	0	Sample Bottom	16	Sample Bottom	26.5
Dry Density Mg/m3:	1.84	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		1					
Compaction Conditions		4.5kg					



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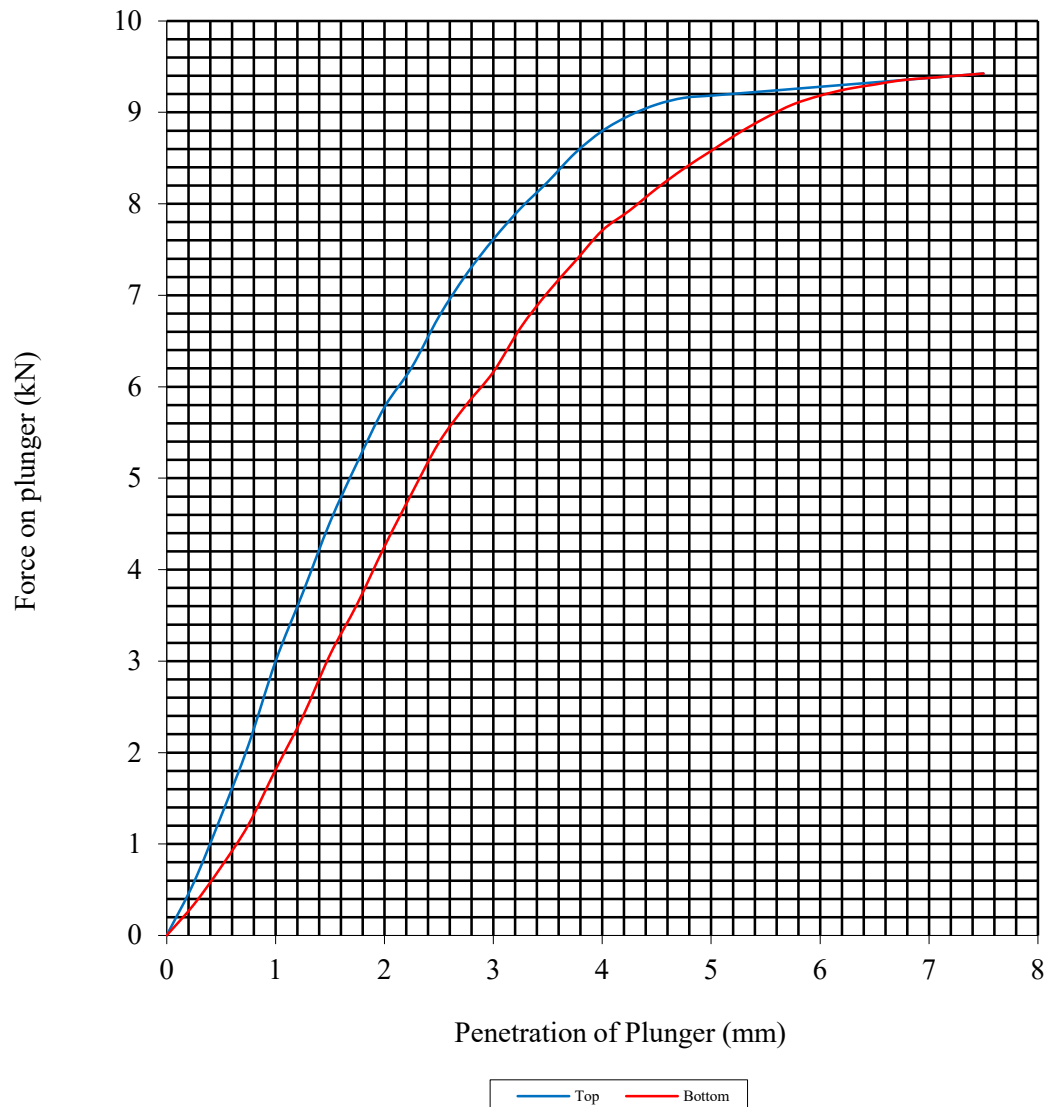
Hole Number: TP1033

Top Depth (m): 3.50

Sample Number:

Base Depth (m): 4.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	13	Surcharge Kg:	4.20	Sample Top	13	Sample Top	51.3
Bulk Density Mg/m3:	1.85	Soaking Time hrs	0	Sample Bottom	13	Sample Bottom	42.9
Dry Density Mg/m3:	1.64	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		4.5kg					



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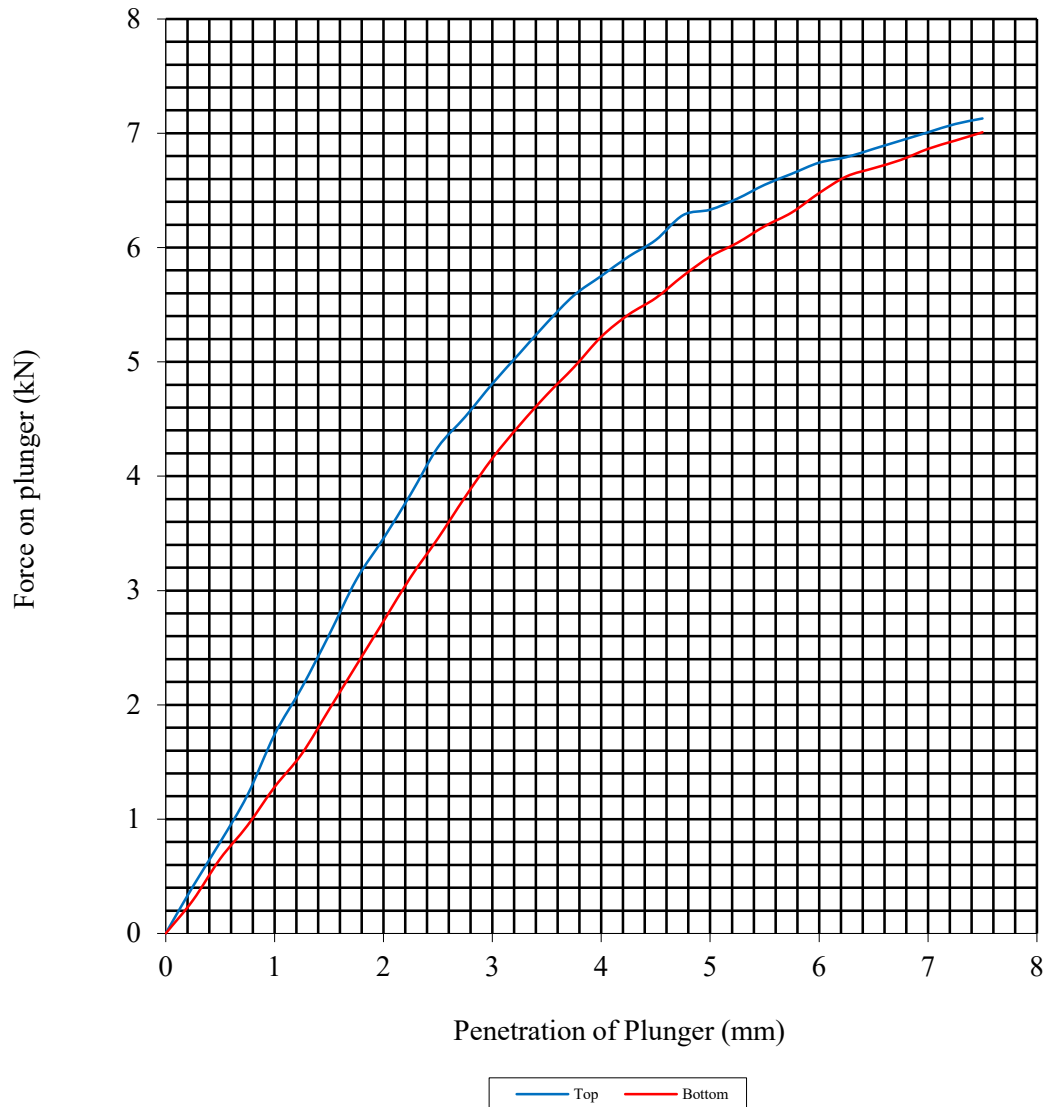
Hole Number: TP1036

Top Depth (m): 3.00

Sample Number:

Base Depth (m): 3.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	10	Surcharge Kg:	4.20	Sample Top	10	Sample Top	32.2
Bulk Density Mg/m3:	2.28	Soaking Time hrs	0	Sample Bottom	10	Sample Bottom	29.6
Dry Density Mg/m3:	2.07	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		38					
Compaction Conditions		4.5kg					



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CALIFORNIA BEARING RATIO TEST

Non compliance with BS 1377 : Part 4 : 1990

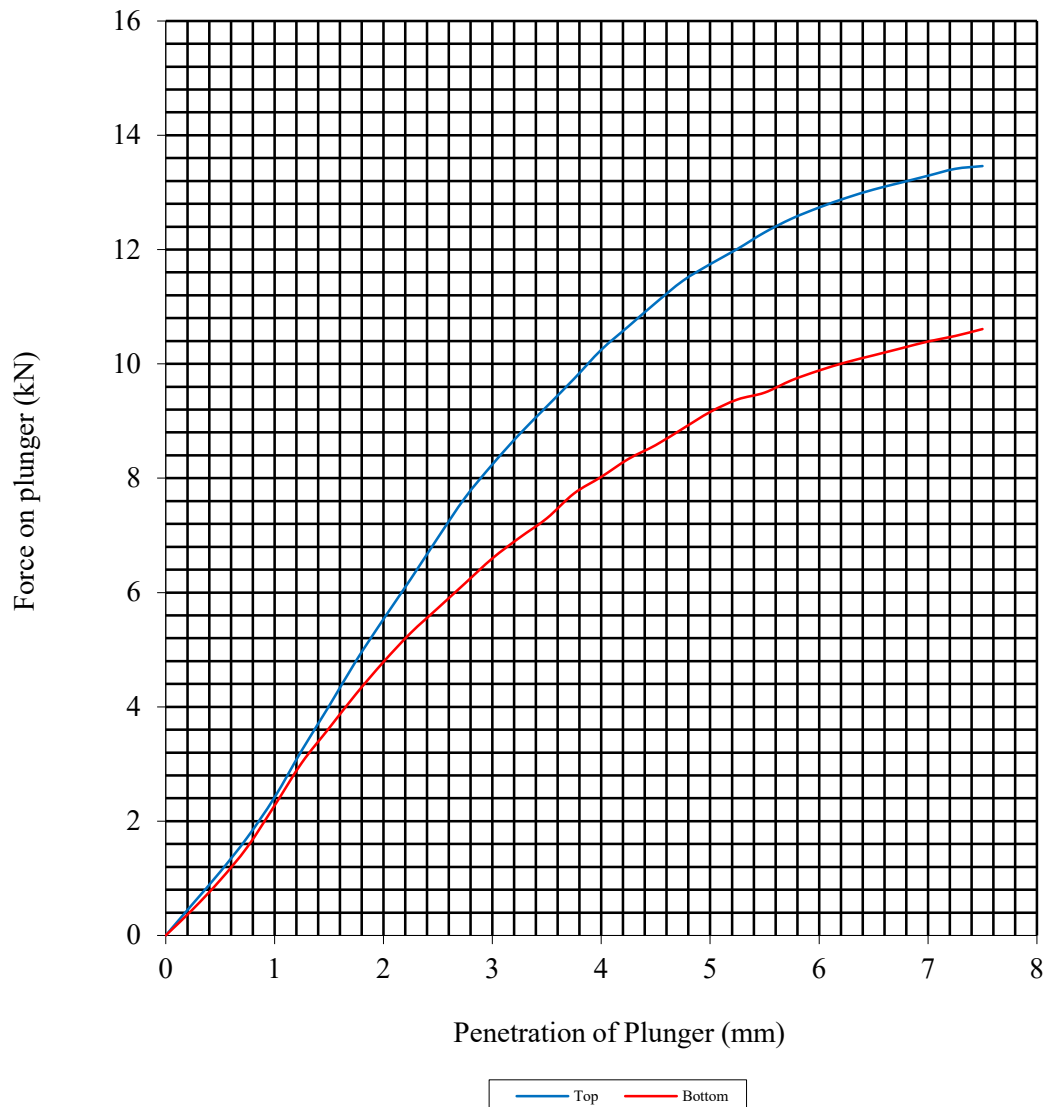
Hole Number: TP1040

Top Depth (m): 1.00

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	6.9	Surcharge Kg:	4.20	Sample Top	6.8	Sample Top	58.7
Bulk Density Mg/m ³ :	2.27	Soaking Time hrs	0	Sample Bottom	6.9	Sample Bottom	45.8
Dry Density Mg/m ³ :	2.13	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			39				
Compaction Conditions		4.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

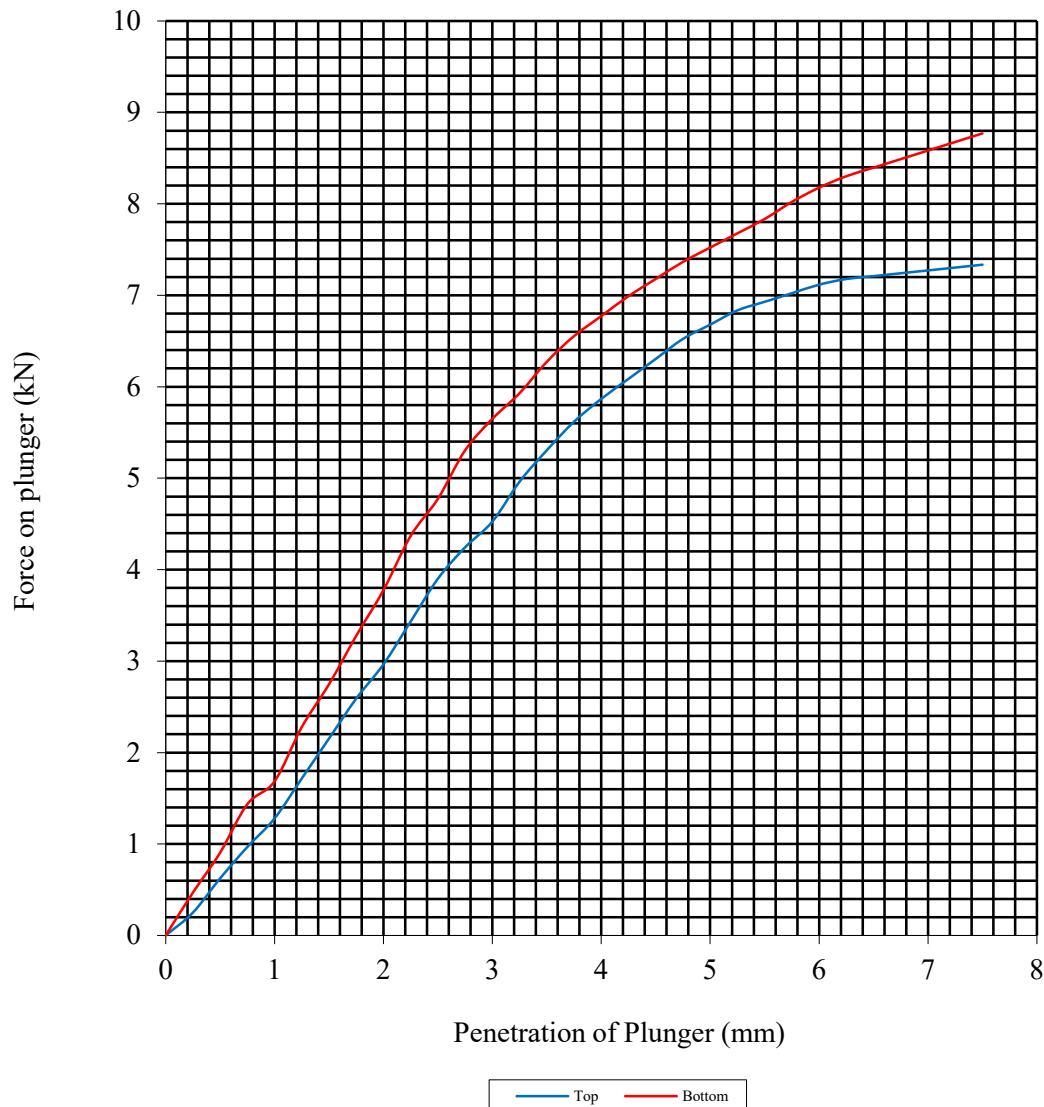
Hole Number: TP1042

Top Depth (m): 3.00

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	13	Surcharge Kg:	4.20	Sample Top	13	Sample Top	33.4
Bulk Density Mg/m3:	2.20	Soaking Time hrs	0	Sample Bottom	13	Sample Bottom	37.6
Dry Density Mg/m3:	1.95	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		17					
Compaction Conditions		4.5kg					



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CALIFORNIA BEARING RATIO TEST

Non compliance with BS 1377 : Part 4 : 1990

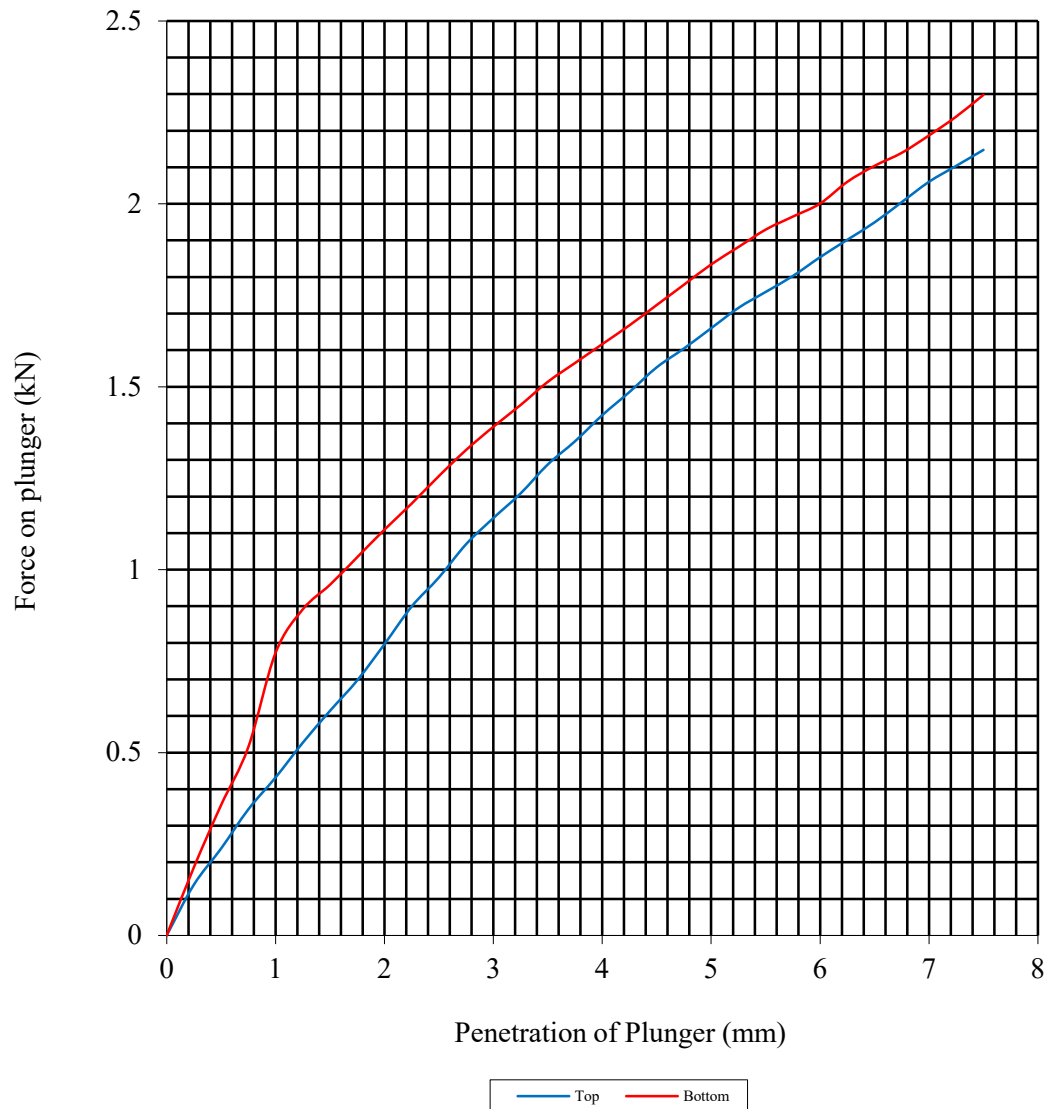
Hole Number: TP1043

Top Depth (m): 4.00

Sample Number:

Base Depth (m): 4.70

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	12	Surcharge Kg:	4.20	Sample Top	12	Sample Top	8.3
Bulk Density Mg/m3:	2.15	Soaking Time hrs	0	Sample Bottom	11	Sample Bottom	9.5
Dry Density Mg/m3:	1.92	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		37					
Compaction Conditions		2.5kg					



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Non compliance with BS 1377 : Part 4 : 1990

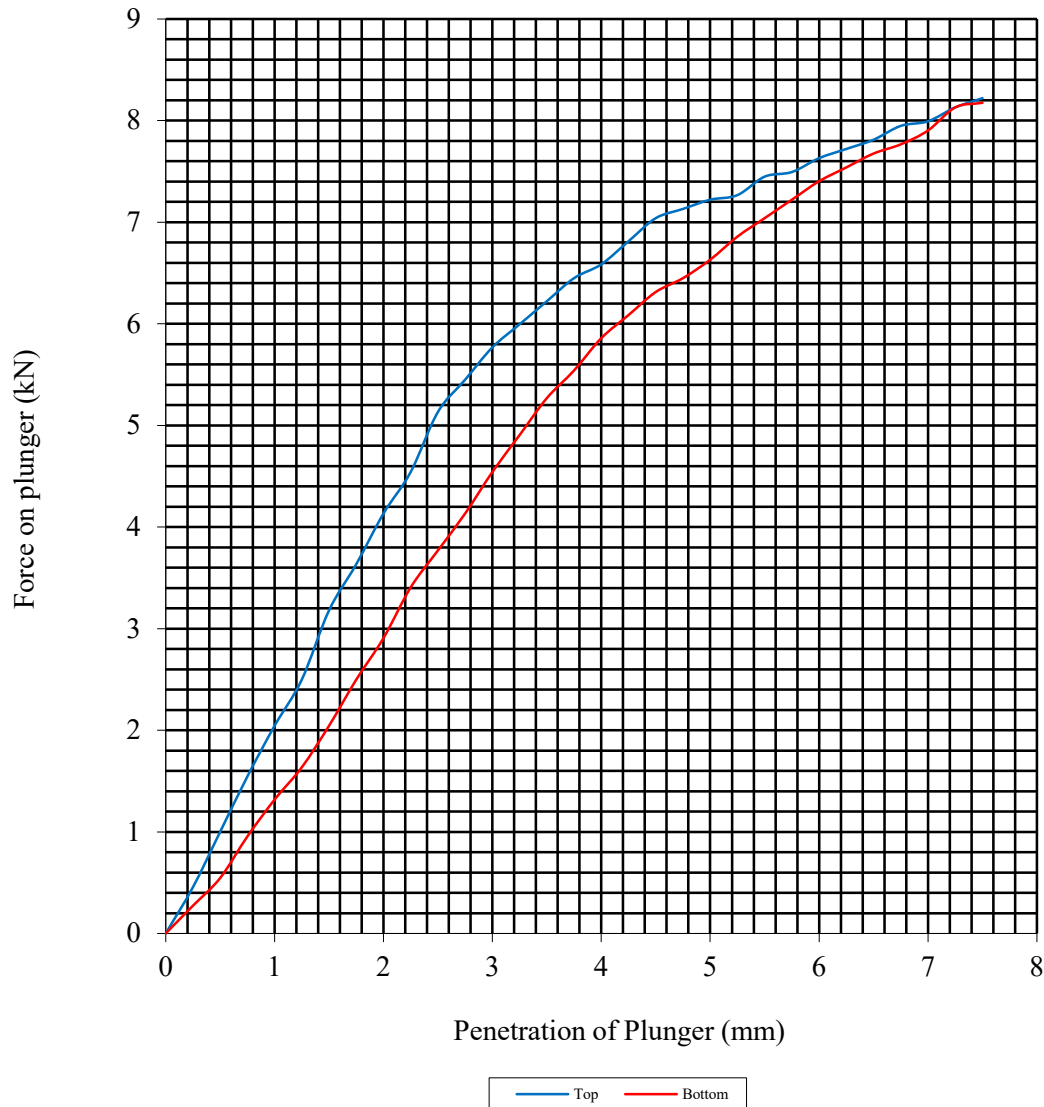
Hole Number: TP1043

Top Depth (m): 4.00

Sample Number:

Base Depth (m): 4.70

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	8.9	Surcharge Kg:	4.20	Sample Top	8.9	Sample Top	38.9
Bulk Density Mg/m3:	2.25	Soaking Time hrs	0	Sample Bottom	8.9	Sample Bottom	33.2
Dry Density Mg/m3:	2.06	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		37					
Compaction Conditions		4.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

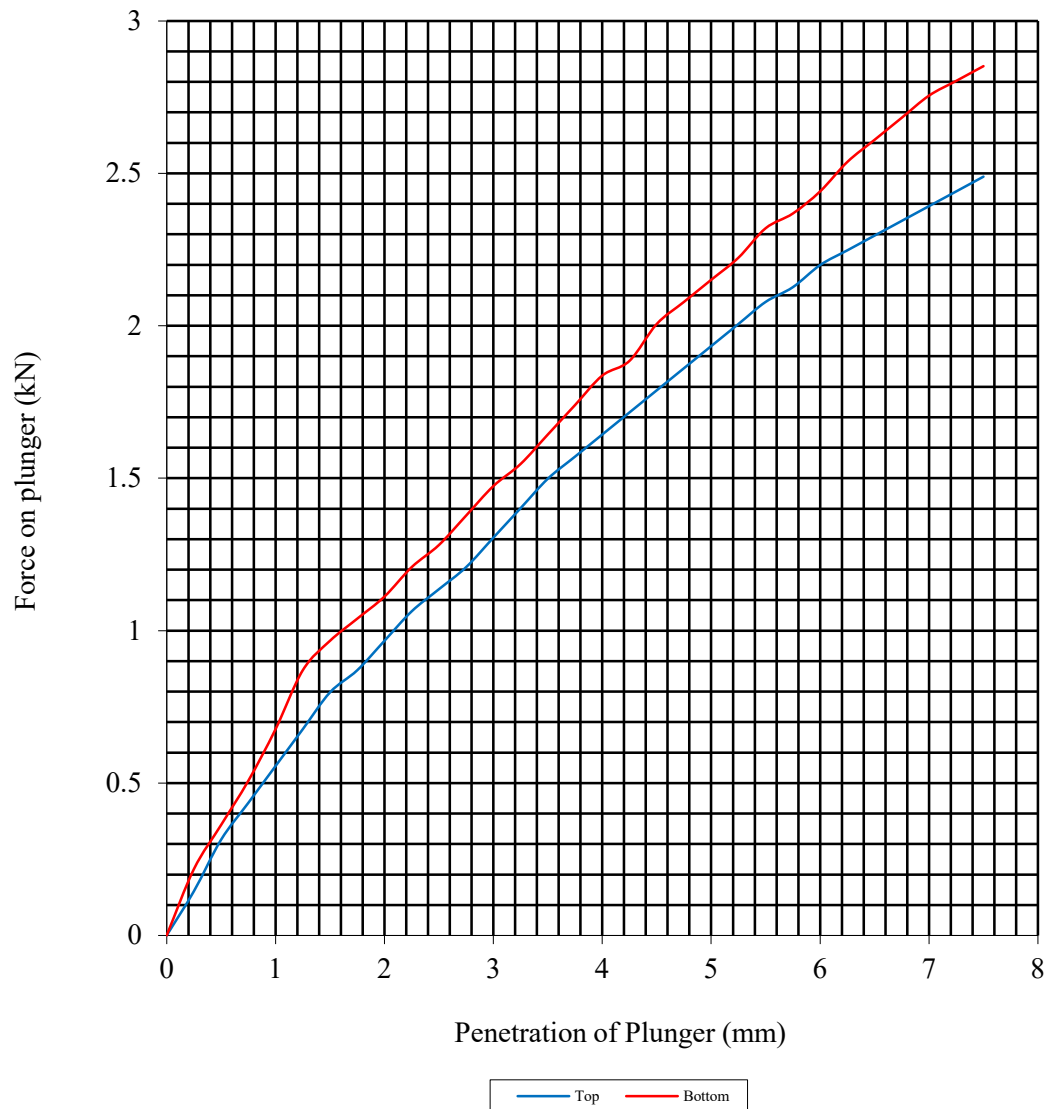
Hole Number: TP1045

Top Depth (m): 2.50

Sample Number:

Base Depth (m): 3.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	16	Surcharge Kg:	4.20	Sample Top	16	Sample Top	9.7
Bulk Density Mg/m3:	2.03	Soaking Time hrs	0	Sample Bottom	16	Sample Bottom	10.8
Dry Density Mg/m3:	1.75	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		11					
Compaction Conditions		2.5kg					



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BS 1377 : Part 4 : 1990

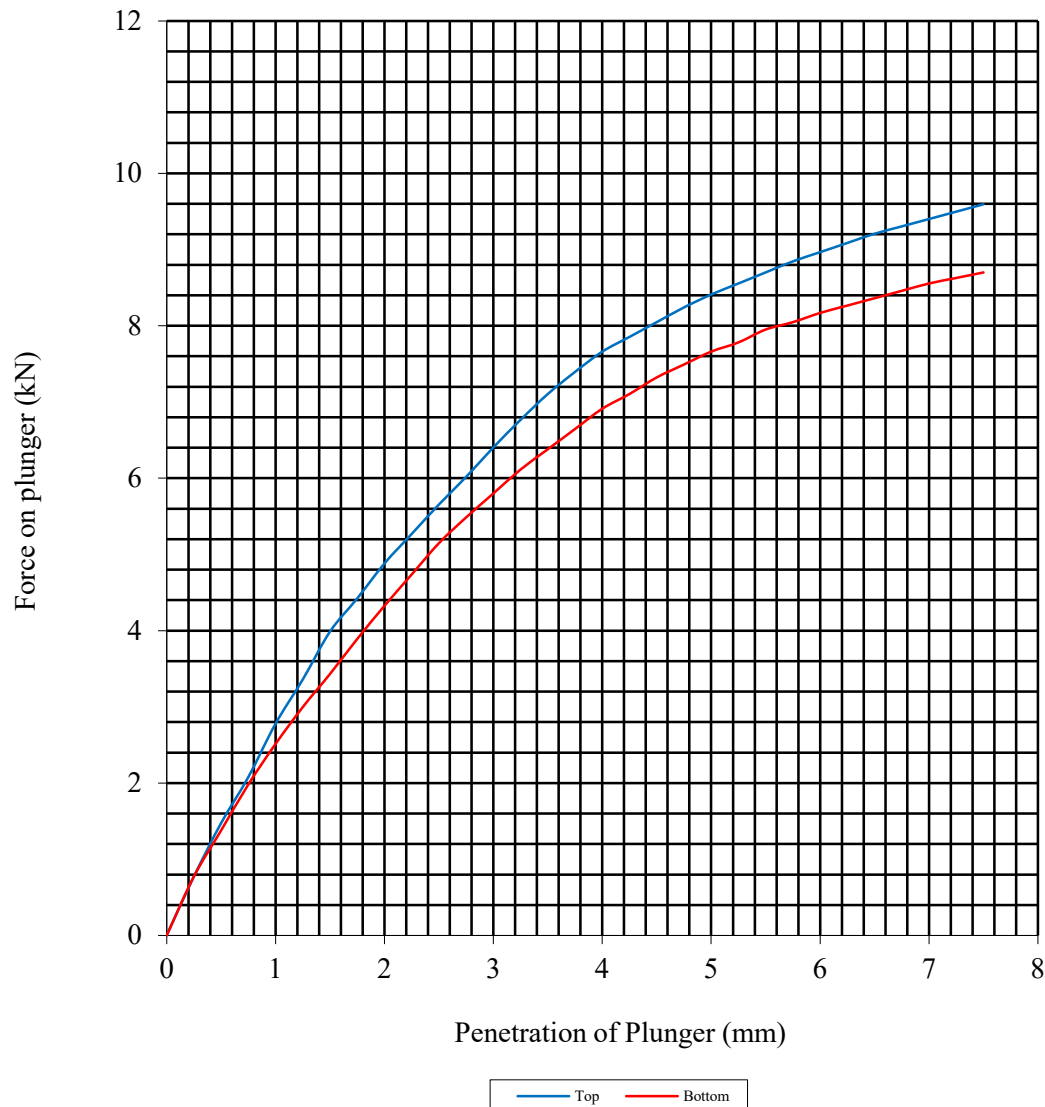
Hole Number: TP1045

Top Depth (m): 2.50

Sample Number:

Base Depth (m): 3.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	13	Surcharge Kg:	4.20	Sample Top	13	Sample Top	42.8
Bulk Density Mg/m3:	2.14	Soaking Time hrs	0	Sample Bottom	13	Sample Bottom	39.0
Dry Density Mg/m3:	1.89	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		11					
Compaction Conditions		4.5kg					



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CALIFORNIA BEARING RATIO TEST

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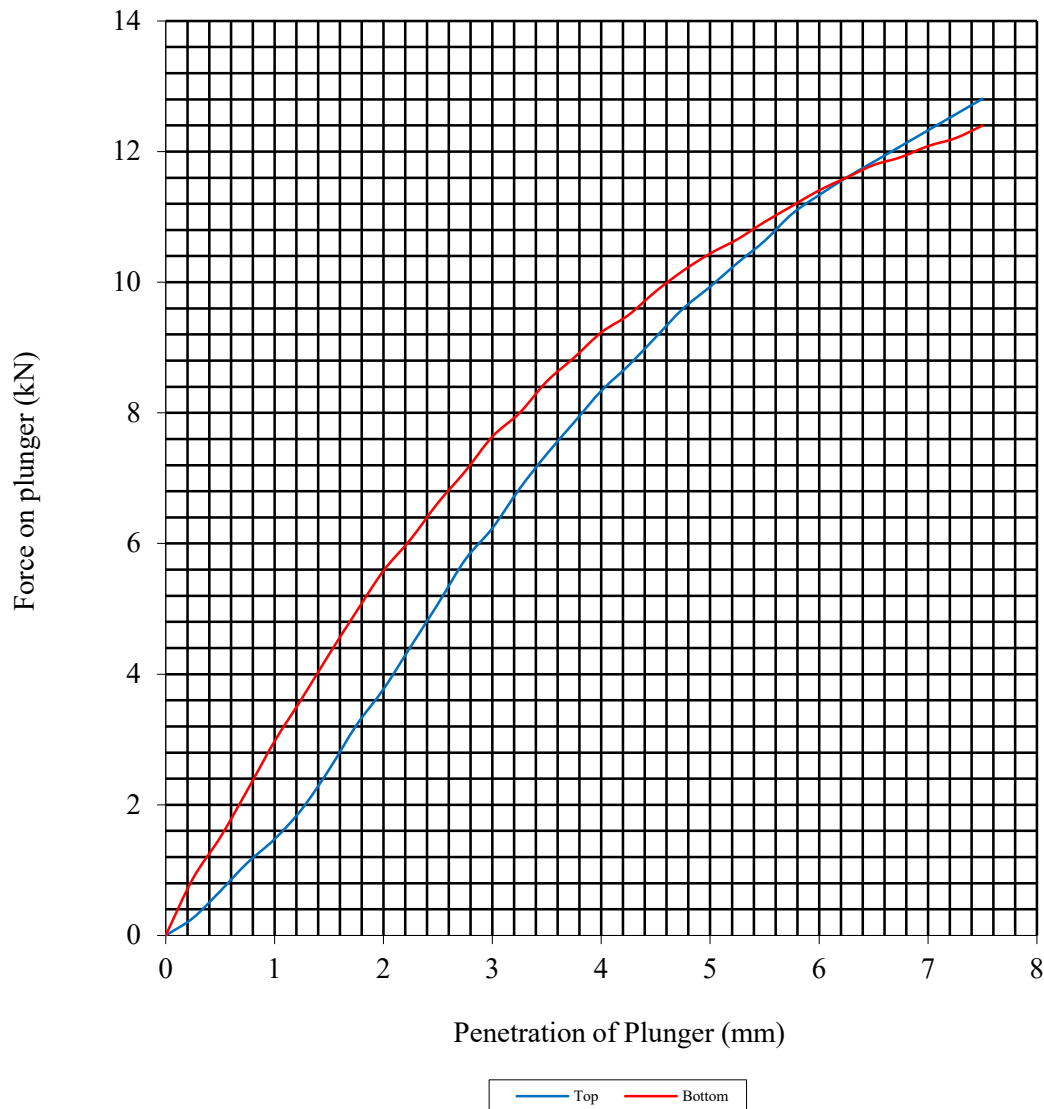
Hole Number: TP1048

Top Depth (m): 1.50

Sample Number:

Base Depth (m): 2.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	9.3	Surcharge Kg:	4.20	Sample Top	9.2	Sample Top	49.7
Bulk Density Mg/m3:	2.22	Soaking Time hrs	0	Sample Bottom	9.3	Sample Bottom	52.2
Dry Density Mg/m3:	2.03	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		31					
Compaction Conditions		4.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

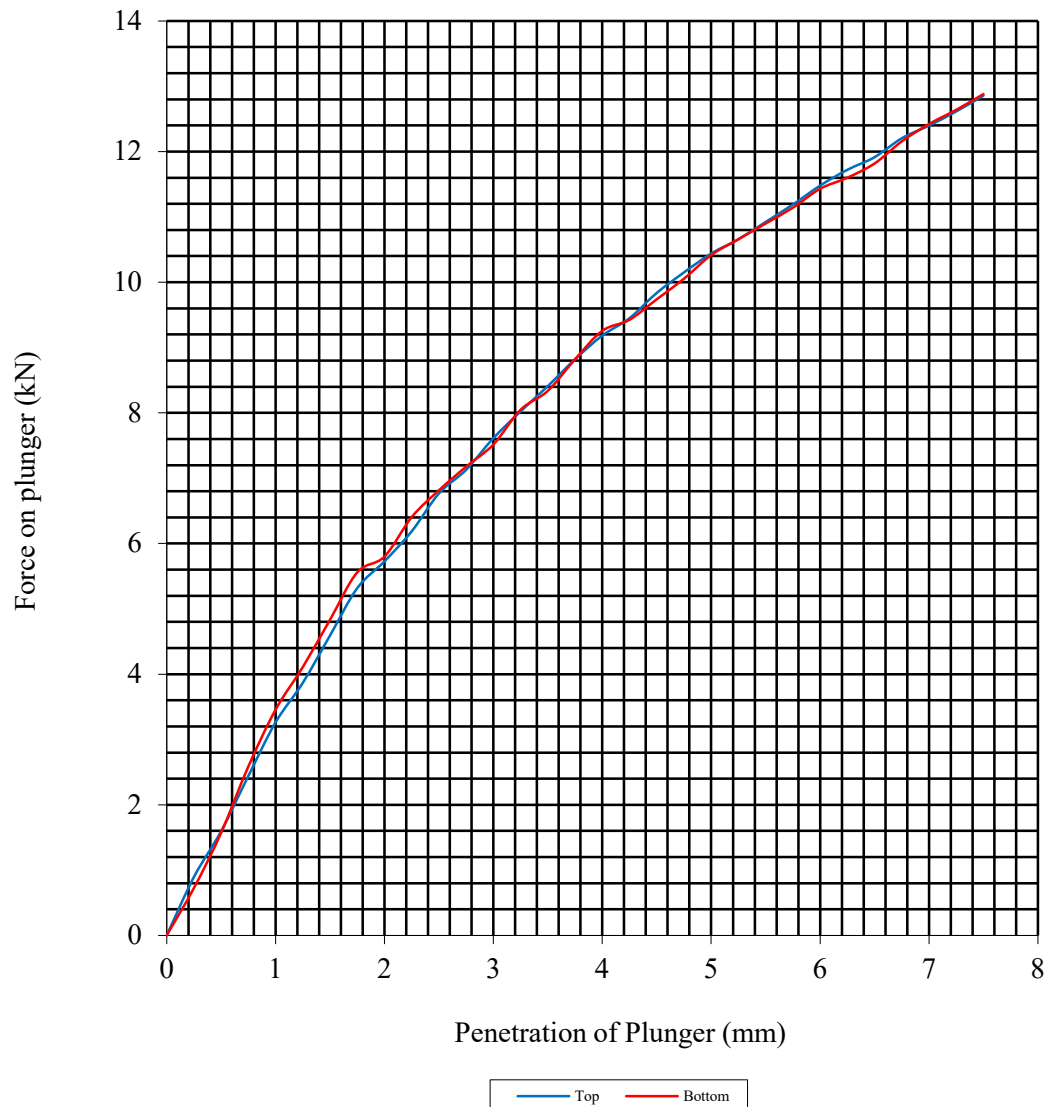
Hole Number: TP1049

Top Depth (m): 1.50

Sample Number:

Base Depth (m): 2.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	14	Surcharge Kg:	4.20	Sample Top	14	Sample Top	52.2
Bulk Density Mg/m3:	2.12	Soaking Time hrs	0	Sample Bottom	14	Sample Bottom	52.1
Dry Density Mg/m3:	1.86	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		4.5kg					



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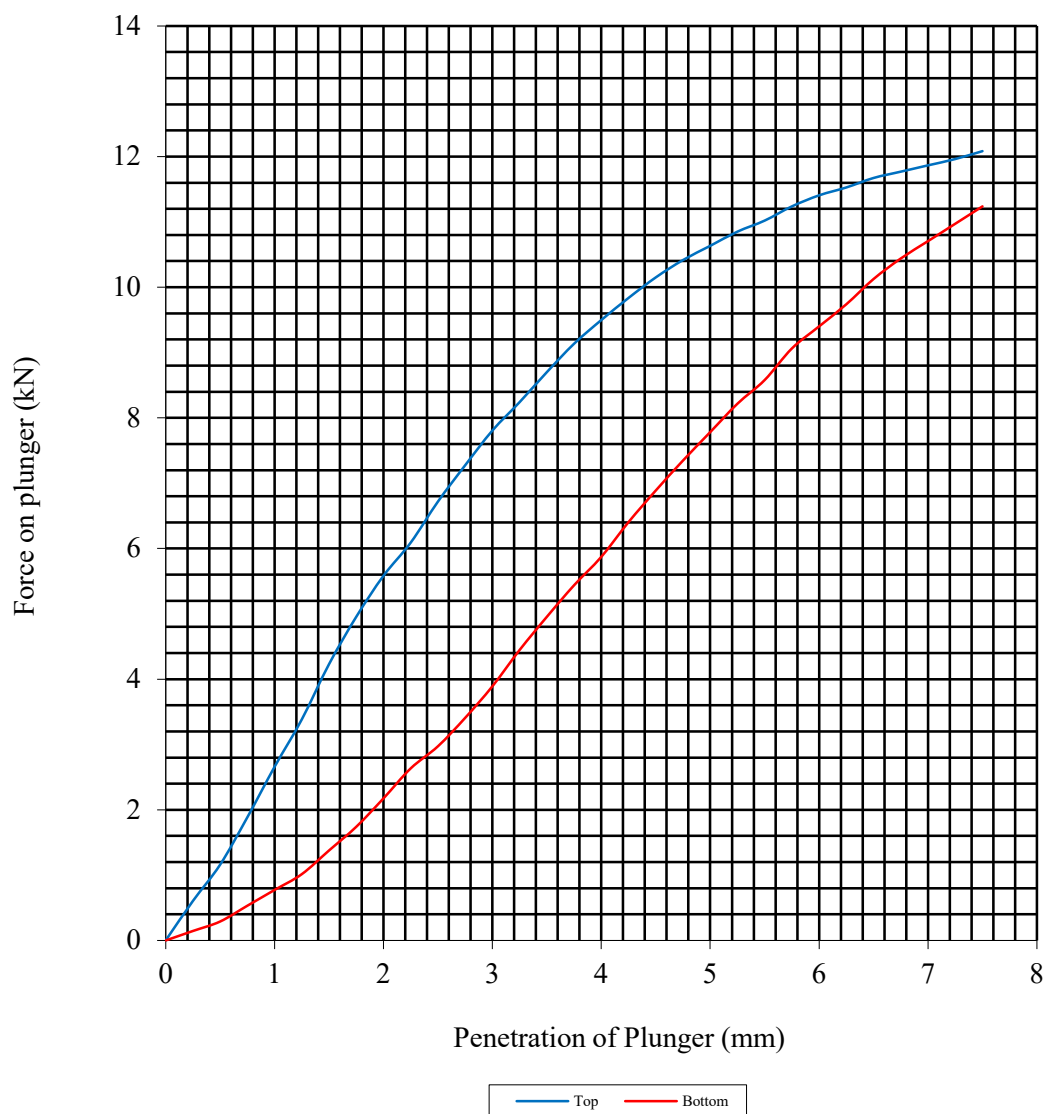
Hole Number: TP1049

Top Depth (m): 3.00

Sample Number:

Base Depth (m): 4.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	9.5	Surcharge Kg:	4.20	Sample Top	9.4	Sample Top	53.2
Bulk Density Mg/m3:	2.25	Soaking Time hrs	0	Sample Bottom	9.6	Sample Bottom	38.9
Dry Density Mg/m3:	2.05	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		44					
Compaction Conditions		4.5kg					



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BS 1377 : Part 4 : 1990

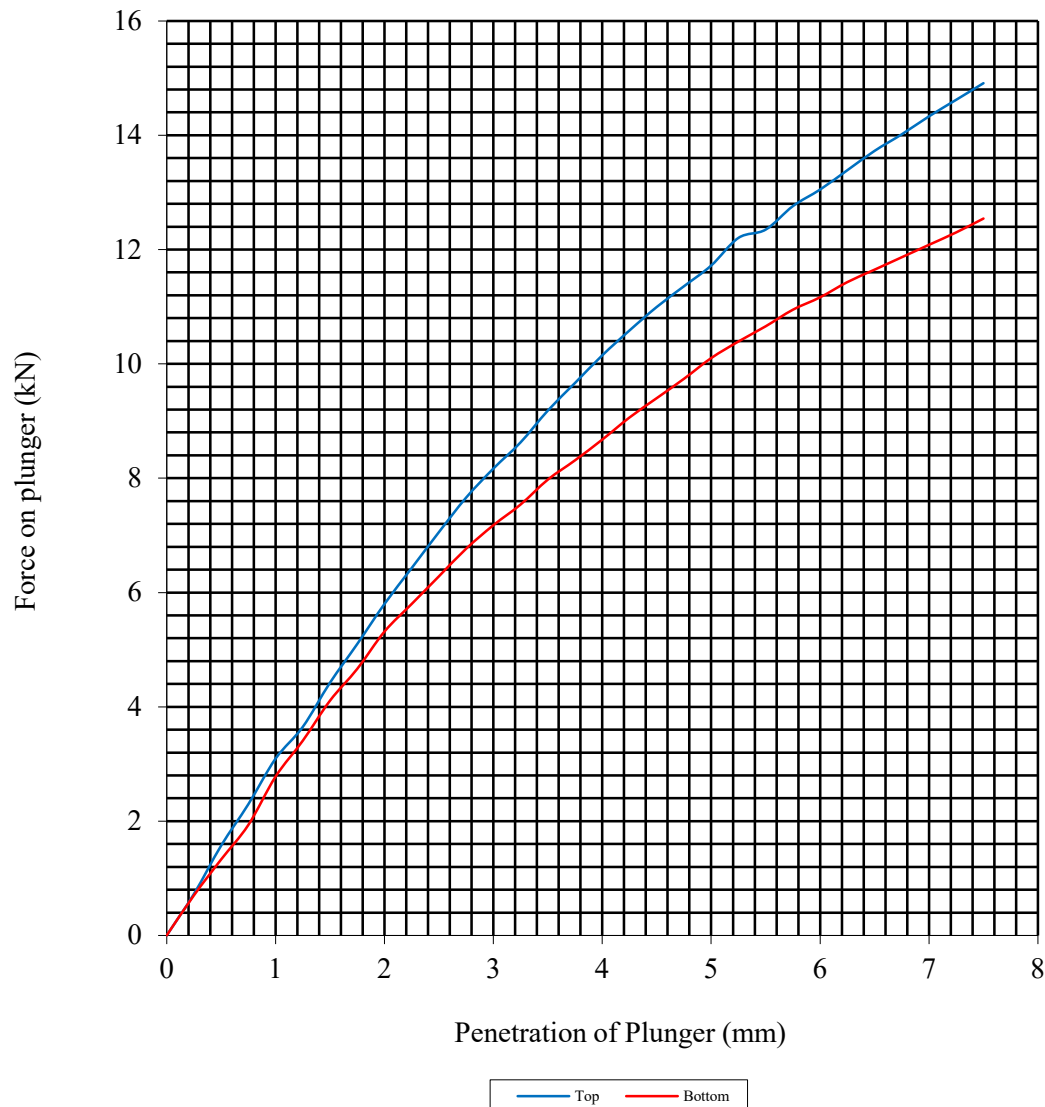
Hole Number: TP1054

Top Depth (m): 2.50

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	8.5	Surcharge Kg:	4.20	Sample Top	8.4	Sample Top	58.6
Bulk Density Mg/m3:	2.24	Soaking Time hrs	0	Sample Bottom	8.6	Sample Bottom	50.5
Dry Density Mg/m3:	2.06	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		16					
Compaction Conditions		4.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

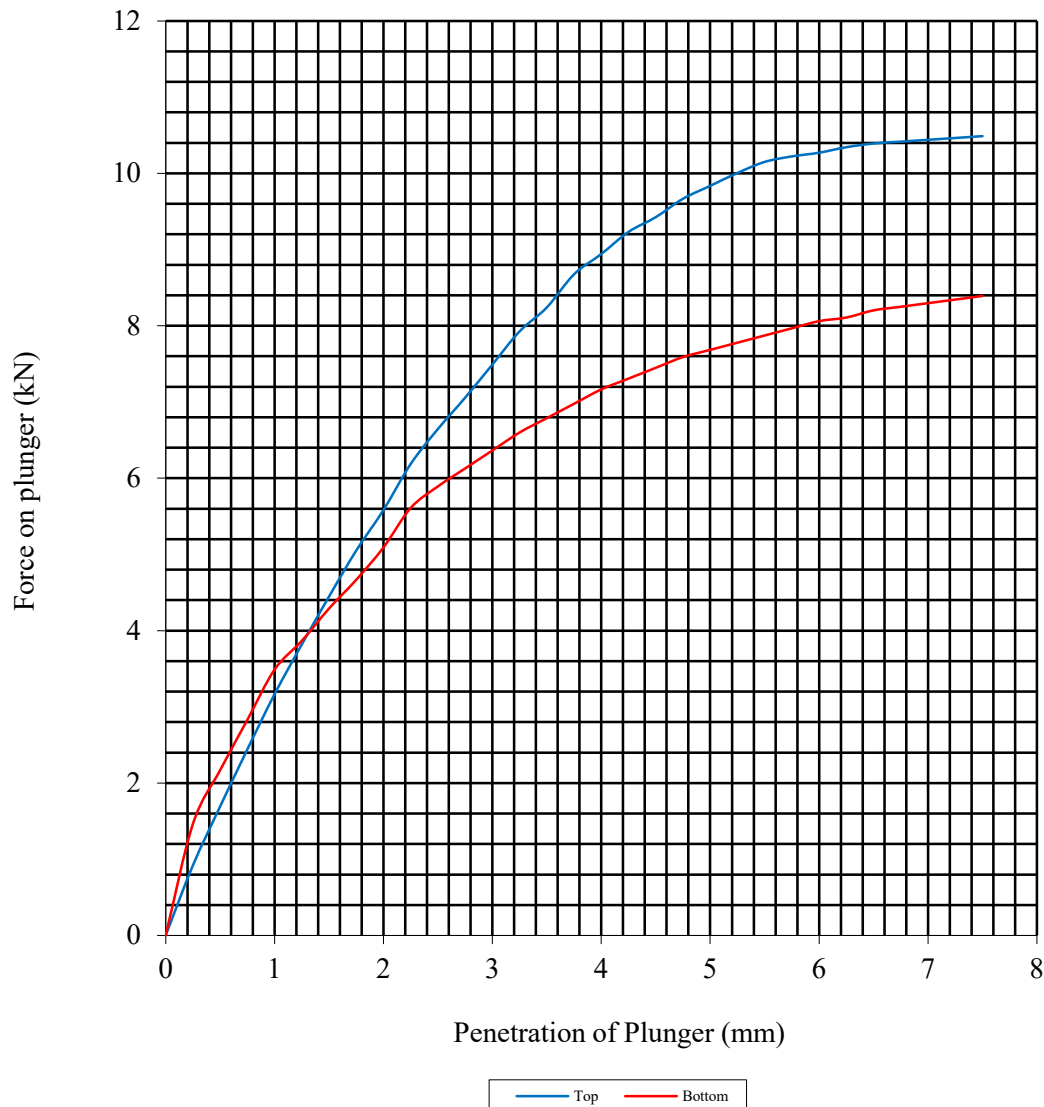
Hole Number: TP1055

Top Depth (m): 3.00

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	11	Surcharge Kg:	4.20	Sample Top	11	Sample Top	50.3
Bulk Density Mg/m3:	2.22	Soaking Time hrs	0	Sample Bottom	11	Sample Bottom	44.6
Dry Density Mg/m3:	2.00	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		4					
Compaction Conditions		4.5kg					



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BS 1377 : Part 4 : 1990

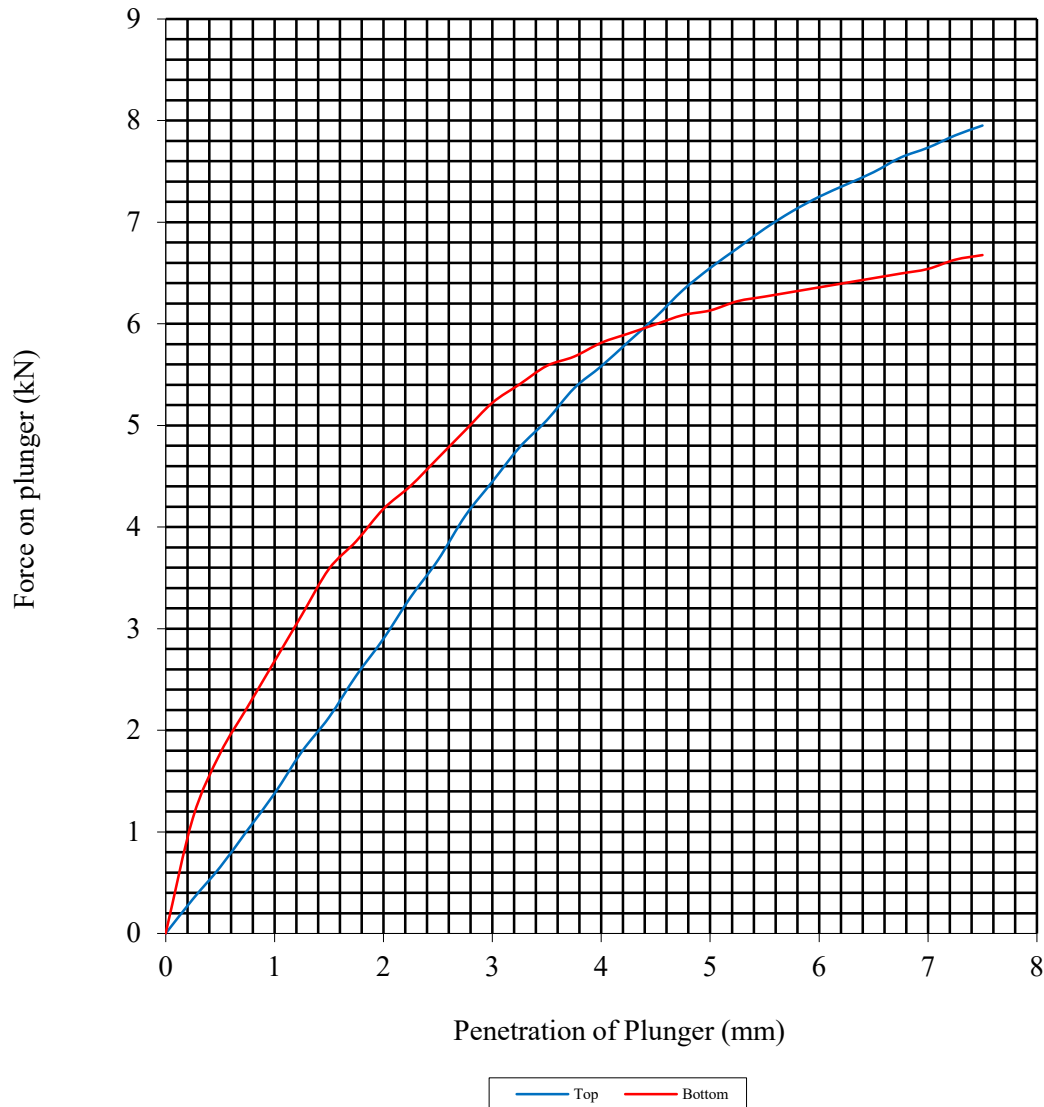
Hole Number: TP1056

Top Depth (m): 0.50

Sample Number:

Base Depth (m): 0.70

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	18	Surcharge Kg:	4.20	Sample Top	18	Sample Top	32.7
Bulk Density Mg/m3:	2.07	Soaking Time hrs	0	Sample Bottom	9.6	Sample Bottom	35.4
Dry Density Mg/m3:	1.76	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		4.5kg					



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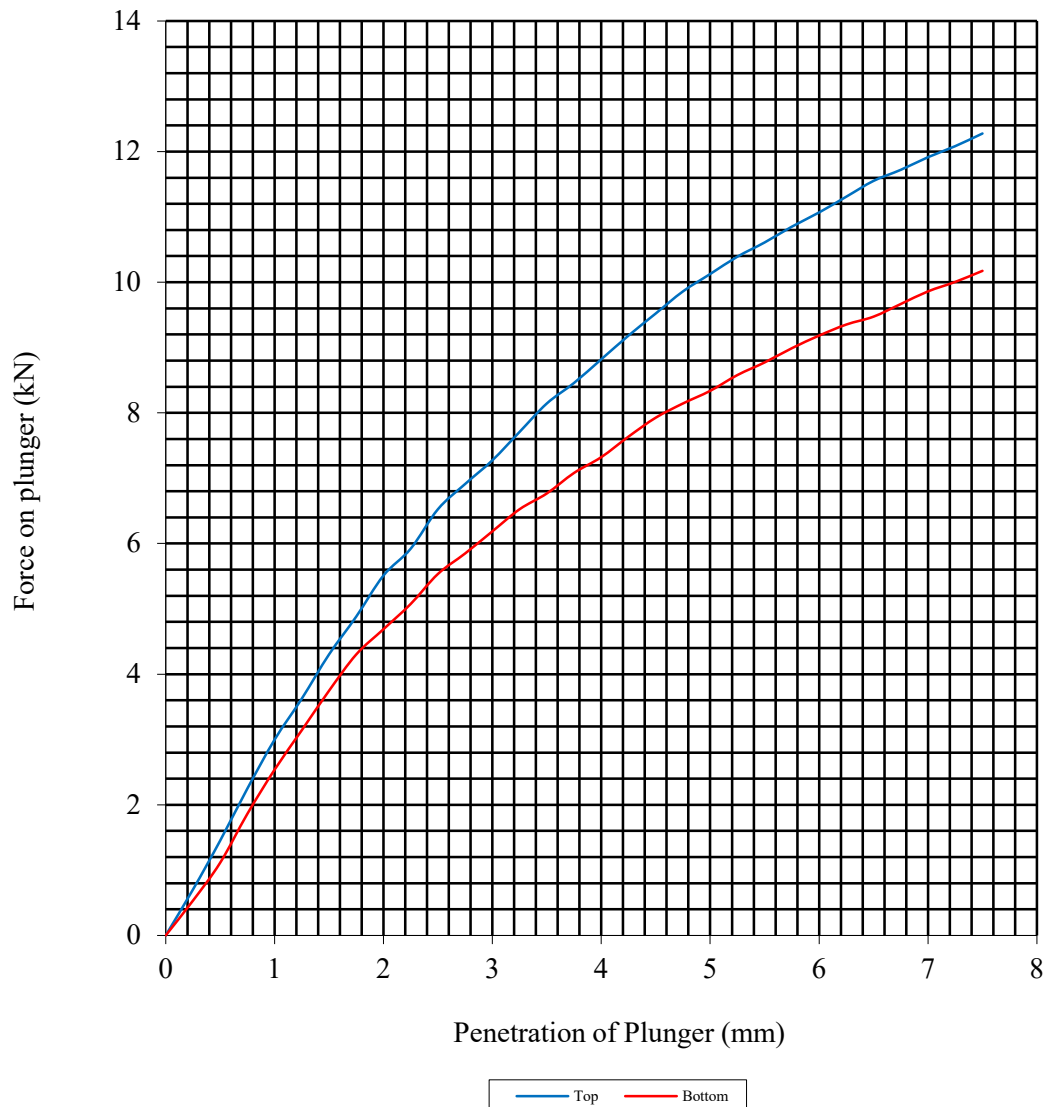
Hole Number: TP1063

Top Depth (m): 2.00

Sample Number:

Base Depth (m): 2.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	9.7	Surcharge Kg:	4.20	Sample Top	9.8	Sample Top	50.6
Bulk Density Mg/m3:	2.21	Soaking Time hrs	0	Sample Bottom	9.6	Sample Bottom	41.9
Dry Density Mg/m3:	2.01	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		37					
Compaction Conditions		4.5kg					



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BS 1377 : Part 4 : 1990

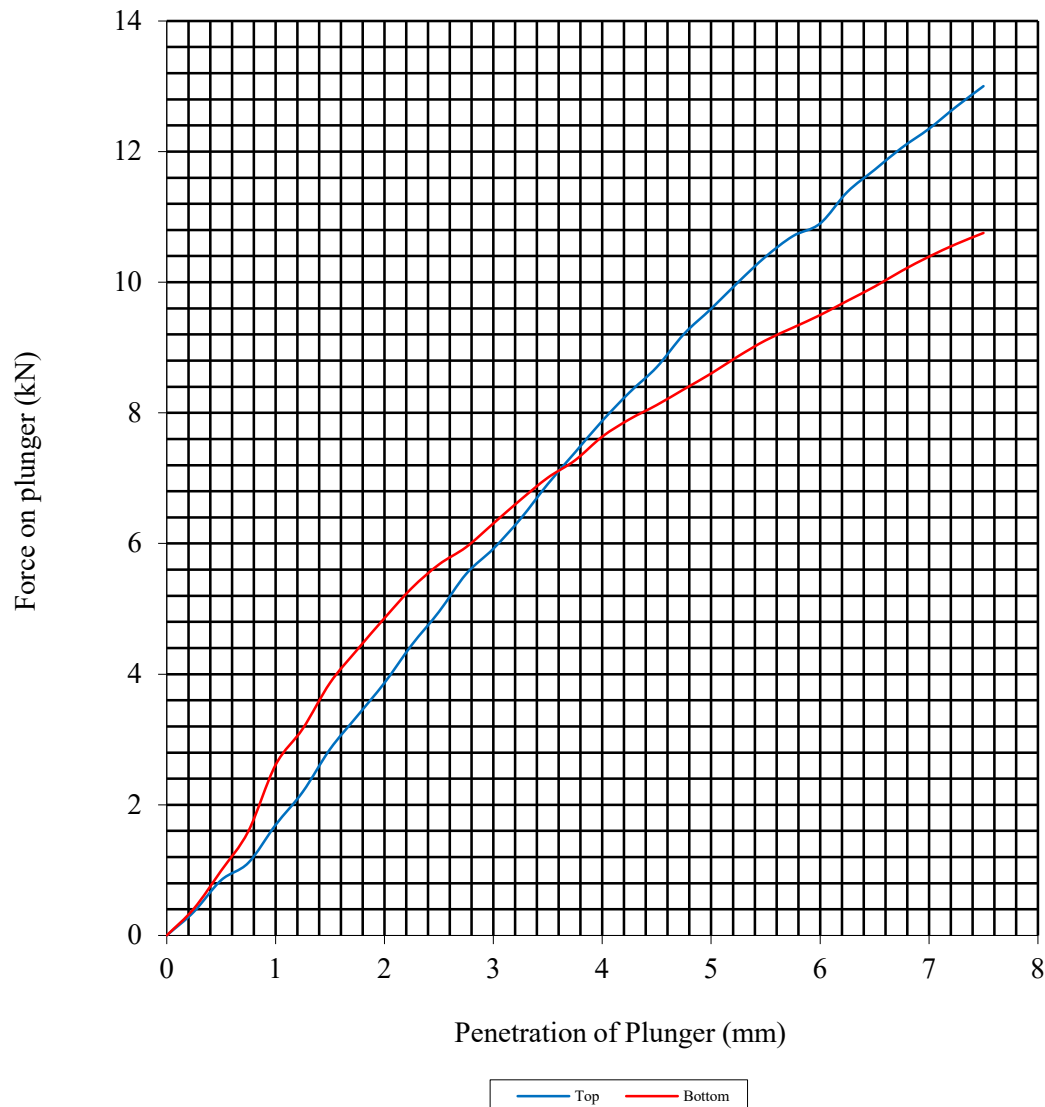
Hole Number: TP1201

Top Depth (m): 0.50

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	14	Surcharge Kg:	4.20	Sample Top	14	Sample Top	48.0
Bulk Density Mg/m3:	2.11	Soaking Time hrs	0	Sample Bottom	14	Sample Bottom	43.0
Dry Density Mg/m3:	1.85	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		4.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

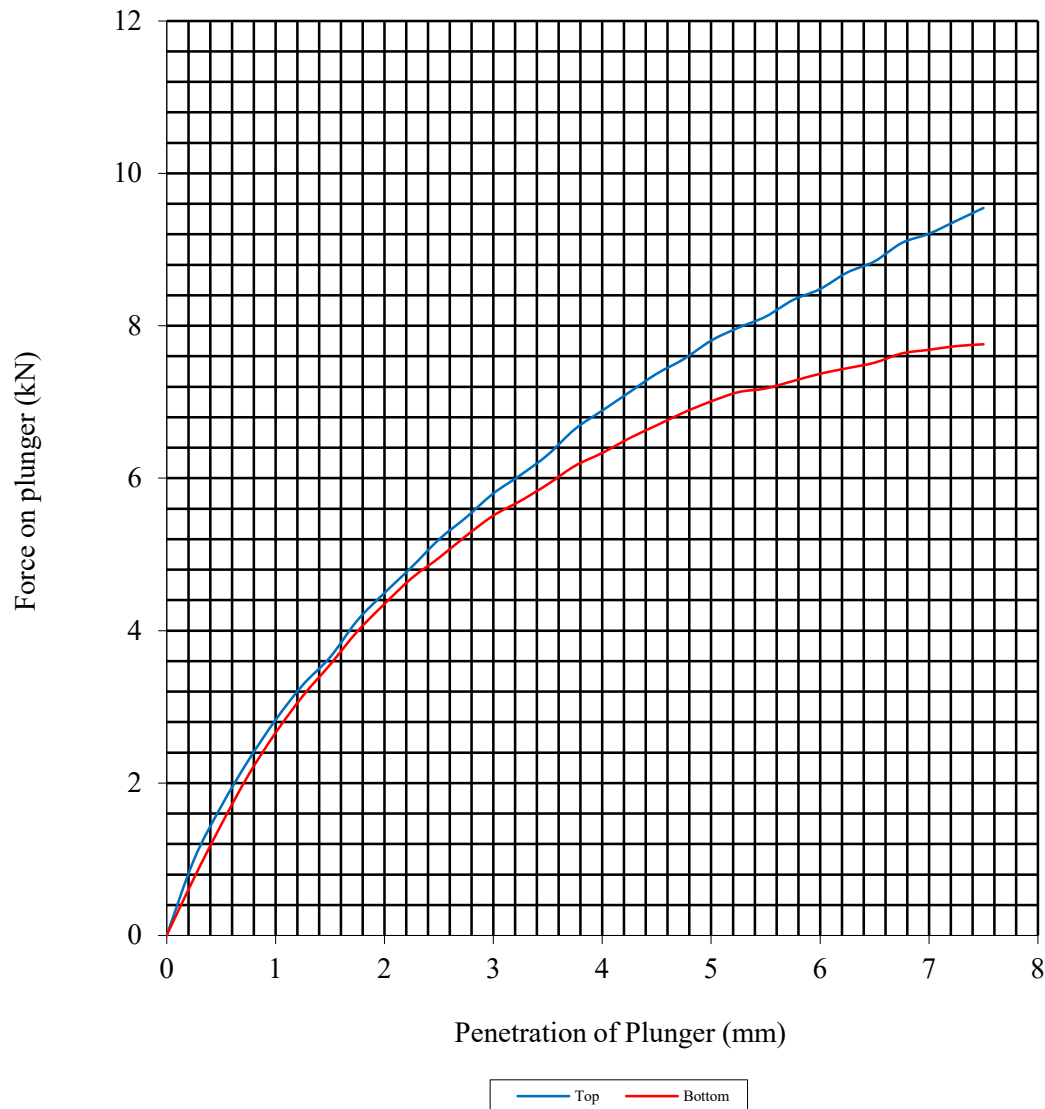
Hole Number: TP1202

Top Depth (m): 0.50

Sample Number:

Base Depth (m):

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	15	Surcharge Kg:	4.20	Sample Top	15	Sample Top	39.4
Bulk Density Mg/m3:	2.08	Soaking Time hrs	0	Sample Bottom	16	Sample Bottom	37.5
Dry Density Mg/m3:	1.80	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		1					
Compaction Conditions		4.5kg					



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

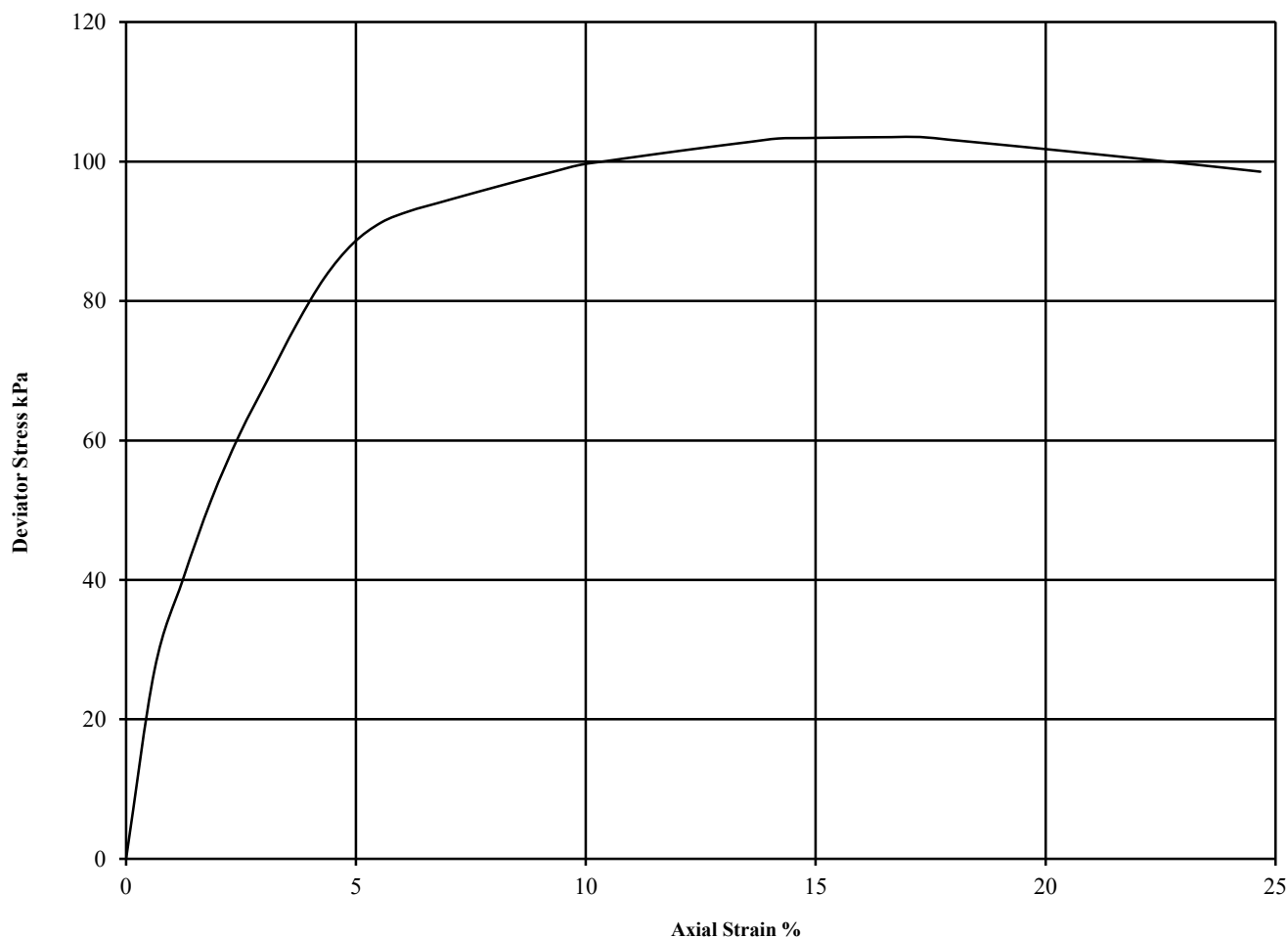
Hole Number: RS3005

Top Depth (m): 1.50

Sample Number:

Base Depth (m): 1.95

Sample Type UT



Diameter (mm):		103		Height (mm):		167		Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34 See summary of soil descriptions		
1	24	1.98	1.59	35	104	52	17.3	Plastic			



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

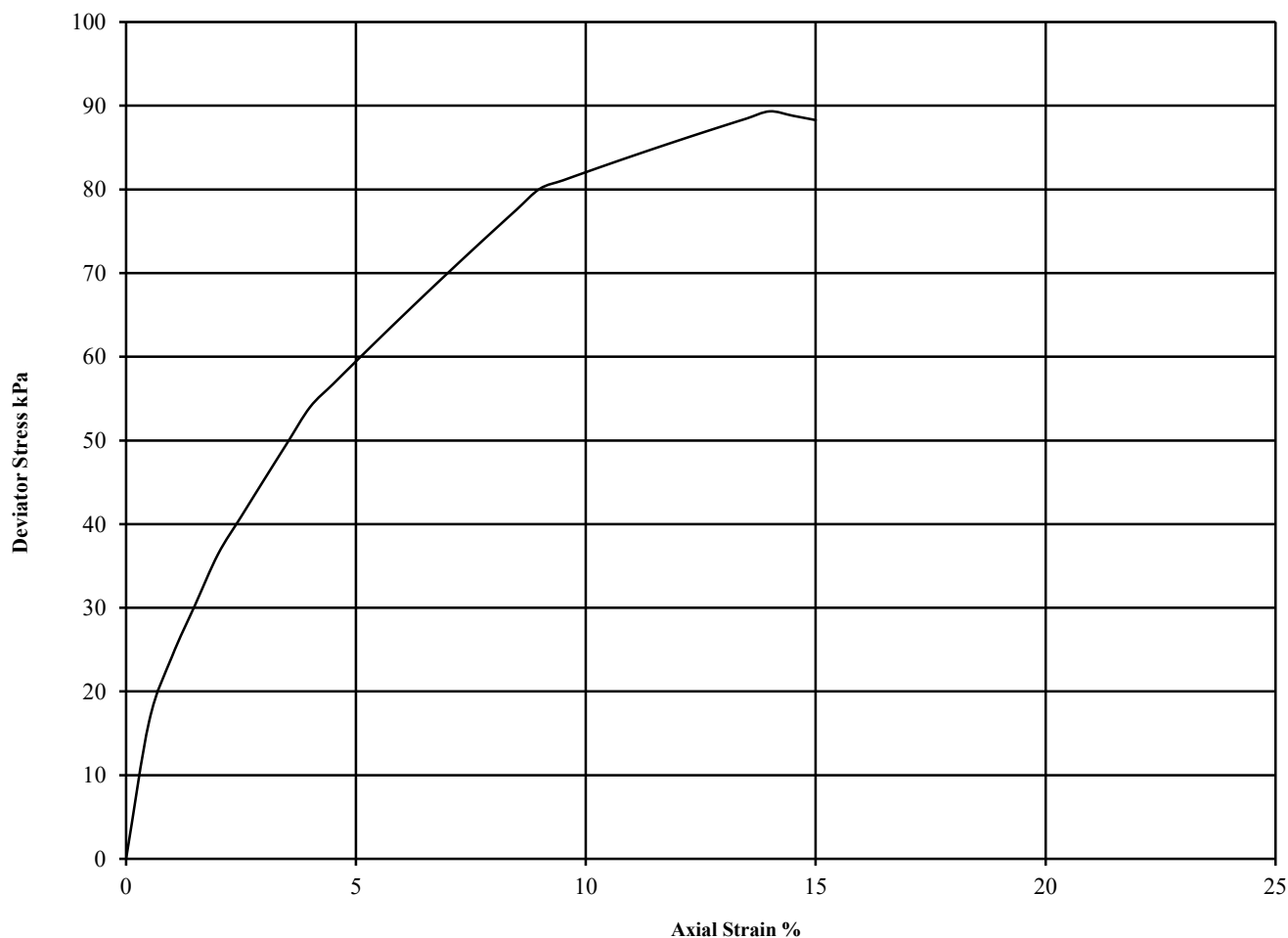
Hole Number: RS3009

Top Depth (m): 1.00

Sample Number:

Base Depth (m): 1.45

Sample Type UT



Diameter (mm):		38	Height (mm):		76	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.79 See summary of soil descriptions
1	32	1.89	1.43	θ_3 25	$(\theta_1 - \theta_3)_f$ 89	$\frac{1}{2}(\theta_1 - \theta_3)_f$ 45	14.0	Plastic	



4043

PSL

Professional Soils Laboratory

Hoylands Common, Barnsley

Contract No:

PSL20/1448

Client Ref:

AG3080-19

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

[illegible]

Hoylands Common, Barnsley

Contract No:**PSL20/1448****Client Ref:**

AG3080-19

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Hoylands Common, Barnsley

Contract No:

PSL20/1448

Client Ref:

AG3080-19

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Hoylands Common, Barnsley

Contract No:

PSL20/1448

Client Ref:

AG3080-19

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

Hoylands Common, Barnsley

Contract No:

PSL20/1448

Client Ref:

AG3080-19



Certificate of Analysis

Certificate Number 20-06012

26-Mar-20

Client Professional Soils Laboratory Ltd
5/7 Hexthorpe Road
Hexthorpe
DN4 0AR

Our Reference 20-06012

Client Reference PSL20/1448

Order No (not supplied)

Contract Title Hoylands Common, Barnsley

Description 38 Soil samples.

Date Received 19-Mar-20

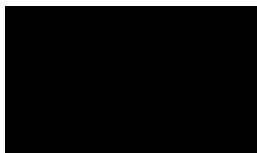
Date Started 19-Mar-20

Date Completed 26-Mar-20

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis Soil Samples

Our Ref 20-06012

Client Ref PSL20/1448

Contract Title Hoylands Common, Barnsley

Lab No	1656935	1656936	1656937	1656938	1656939	1656940	1656941	1656942	1656943	1656944	1656945
Sample ID	DCS6002	DCS6004	DCS6005	RS3008	RS3014	RS3022	TP1001	TP1002	TP1004	TP1007	TP1010
Depth	1.50-1.50	1.50-1.50	0.50-0.50	4.00-4.00	7.50-7.50	6.00-6.00	0.50-0.50	3.00-3.00	3.00-3.00	0.60-0.60	1.50-1.50
Other ID											
Sample Type	D	D	D	D	D	D	D	B	B	B	D
Sampling Date	02/03/2020	02/03/2020	02/03/2020	06/02/2020	03/02/2020	11/02/2020	25/02/2020	25/02/2020	25/02/2020	27/02/2020	28/02/2020
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units										
Metals													
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l	21	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Inorganics													
Loss on Ignition at 440oC	DETSC 2003#	0.01	%							2.9	2.8		
pH	DETSC 2008#		pH	7.1	6.4	6.7	7.7	7.4	7.6	7.2	6.0	7.7	6.9
Calorific Value	DETSC 5008	1	MJ/kg							< 1.0	< 1.0		
Chloride Aqueous Extract	DETSC 2055	1	mg/l	7.8	17	8.2	6.7	8.0	5.9	9.9	5.8	5.8	5.9
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l	1.4	1.0	1.1	1.3	1.4	1.4	13	< 1.0	1.7	3.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	18	72	56	15	58	25	14	21	29	12
Sulphur as S, Total	DETSC 2320	0.01	%	0.01	0.01	0.02	< 0.01	0.06	0.05	0.01	0.01	0.02	< 0.01
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.02	0.04	0.04	< 0.01	0.03	0.01	0.02	0.02	0.02	0.02

Summary of Chemical Analysis Soil Samples

Our Ref 20-06012

Client Ref PSL20/1448

Contract Title Hoylands Common, Barnsley

Lab No	1656946	1656947	1656948	1656949	1656950	1656951	1656952	1656953	1656954	1656955	1656956
Sample ID	TP1012	TP1014	TP1014	TP1015	TP1016	TP1019	TP1024	TP1025	TP1027	TP1029	TP1033
Depth	1.60-4.00	1.50-1.50	2.50-2.50	2.60-2.60	3.00-3.00	4.00-4.00	1.00-1.00	3.60-3.60	2.50-3.00	3.00-3.00	2.00-2.50
Other ID											
Sample Type	B	D	B	D	D	D	B	D	B	B	B
Sampling Date	28/02/2020	05/02/2020	05/02/2020	06/02/2020	05/02/2020	06/02/2020	06/02/2020	24/01/2020	27/01/2020	14/02/2020	31/01/2020
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units										
Metals													
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l	23	< 10	< 10	< 10	< 10	< 10		< 10		
Inorganics													
Loss on Ignition at 440oC	DETSC 2003#	0.01	%	6.9						4.0		4.0	5.1 7.9
pH	DETSC 2008#		pH	7.6	7.0	7.2	7.5	8.1	7.6		7.3		
Calorific Value	DETSC 5008	1	MJ/kg	< 1.0						< 1.0		< 1.0	< 1.0
Chloride Aqueous Extract	DETSC 2055	1	mg/l	7.0	6.8	5.3	6.2	4.7	5.3		5.4		
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l	2.3	2.2	2.6	1.5	2.6	1.3		< 1.0		
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	170	19	16	18	16	20		26		
Sulphur as S, Total	DETSC 2320	0.01	%	0.12	< 0.01	< 0.01	< 0.01	0.02	0.02		0.09		
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.06	0.01	0.01	0.01	0.01	0.02		0.03		

Summary of Chemical Analysis Soil Samples

Our Ref 20-06012

Client Ref PSL20/1448

Contract Title Hoylands Common, Barnsley

Lab No	1656957	1656958	1656959	1656960	1656961	1656962	1656963	1656964	1656965	1656966	1656967
Sample ID	TP1036	TP1045	TP1048	TP1054	TP1056	TP1063	TP1077	TP1098	TP1103	TP1113	TP1201
Depth	3.00-3.50	2.50-3.50	1.50-2.00	2.50-2.50	0.50-0.70	2.00-2.50	1.00-1.00	1.80-1.80	2.50-2.50	2.50-2.50	0.50-0.50
Other ID											
Sample Type	B	B	B	B	B	B	D	D	B	B	B
Sampling Date	28/01/2020	03/02/2020	24/01/2020	04/02/2020	30/01/2020	30/01/2020	20/01/2020	14/01/2020	22/01/2020	05/02/2020	03/03/2020
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units										
Metals													
Magnesium Aqueous Extract	DETS 2076*	10	mg/l							12	< 10	11	38 < 10
Inorganics													
Loss on Ignition at 440oC	DETS 2003#	0.01	%	4.0	3.8	4.9	4.2	4.9	4.0				
pH	DETS 2008#		pH							8.1	6.0	8.3	8.1 6.3
Calorific Value	DETS 5008	1	MJ/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Chloride Aqueous Extract	DETS 2055	1	mg/l							7.1	3.5	4.5	5.1 11
Nitrate Aqueous Extract as NO3	DETS 2055	1	mg/l							5.2	< 1.0	2.5	3.0 41
Sulphate Aqueous Extract as SO4	DETS 2076#	10	mg/l							92	34	28	240 14
Sulphur as S, Total	DETS 2320	0.01	%							0.01	< 0.01	0.03	0.03 0.01
Sulphate as SO4, Total	DETS 2321#	0.01	%							0.03	0.02	0.02	0.06 0.02

Summary of Chemical Analysis Soil Samples

Our Ref 20-06012

Client Ref PSL20/1448

Contract Title Hoylands Common, Barnsley

Lab No	1656968	1656969	1656970	1656971	1656972
Sample ID	TP1202	TP1203	TT2009	TT2031	RC4010
Depth	0.50-0.50	1.50-1.50	2.50-2.50	2.00-2.00	6.00-8.00
Other ID					
Sample Type	B	D	B	B	B
Sampling Date	03/03/2020	03/03/2020	26/02/2020	17/01/2020	18/02/2020
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Metals								
Magnesium Aqueous Extract	DETS 2076*	10	mg/l	< 10	< 10	< 10	< 10	15
Inorganics								
Loss on Ignition at 440oC	DETS 2003#	0.01	%					
pH	DETS 2008#		pH	6.1	6.4	7.2	7.5	7.2
Calorific Value	DETS 5008	1	MJ/kg					
Chloride Aqueous Extract	DETS 2055	1	mg/l	10	6.2	5.6	7.7	5.1
Nitrate Aqueous Extract as NO3	DETS 2055	1	mg/l	1.2	2.0	5.1	2.9	< 1.0
Sulphate Aqueous Extract as SO4	DETS 2076#	10	mg/l	23	35	47	17	100
Sulphur as S, Total	DETS 2320	0.01	%	0.03	0.01	0.02	0.01	0.06
Sulphate as SO4, Total	DETS 2321#	0.01	%	0.05	0.04	0.03	0.01	0.04

Information in Support of the Analytical Results

Our Ref 20-06012
 Client Ref PSL20/1448
 Contract Hoylands Common, Barnsley

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1656935	DCS6002 1.50-1.50 SOIL	02/03/20	PT 1L	pH + Conductivity (7 days)	
1656936	DCS6004 1.50-1.50 SOIL	02/03/20	PT 1L	pH + Conductivity (7 days)	
1656937	DCS6005 0.50-0.50 SOIL	02/03/20	PT 1L	pH + Conductivity (7 days)	
1656938	RS3008 4.00-4.00 SOIL	06/02/20	PT 1L	pH + Conductivity (7 days)	
1656939	RS3014 7.50-7.50 SOIL	03/02/20	PT 1L	pH + Conductivity (7 days)	
1656940	RS3022 6.00-6.00 SOIL	11/02/20	PT 1L	pH + Conductivity (7 days)	
1656941	TP1001 0.50-0.50 SOIL	25/02/20	PT 1L	pH + Conductivity (7 days)	
1656942	TP1002 3.00-3.00 SOIL	25/02/20	PT 1L	pH + Conductivity (7 days)	
1656943	TP1004 3.00-3.00 SOIL	25/02/20	PT 1L	pH + Conductivity (7 days)	
1656944	TP1007 0.60-0.60 SOIL	27/02/20	PT 1L	pH + Conductivity (7 days)	
1656945	TP1010 1.50-1.50 SOIL	28/02/20	PT 1L	pH + Conductivity (7 days)	
1656946	TP1012 1.60-4.00 SOIL	28/02/20	PT 1L	pH + Conductivity (7 days)	
1656947	TP1014 1.50-1.50 SOIL	05/02/20	PT 1L	pH + Conductivity (7 days)	
1656948	TP1014 2.50-2.50 SOIL	05/02/20	PT 1L	pH + Conductivity (7 days)	
1656949	TP1015 2.60-2.60 SOIL	06/02/20	PT 1L	pH + Conductivity (7 days)	
1656950	TP1016 3.00-3.00 SOIL	05/02/20	PT 1L	pH + Conductivity (7 days)	
1656951	TP1019 4.00-4.00 SOIL	06/02/20	PT 1L	pH + Conductivity (7 days)	
1656952	TP1024 1.00-1.00 SOIL	06/02/20	PT 1L		
1656953	TP1025 3.60-3.60 SOIL	24/01/20	PT 1L	pH + Conductivity (7 days)	
1656954	TP1027 2.50-3.00 SOIL	27/01/20	PT 1L		
1656955	TP1029 3.00-3.00 SOIL	14/02/20	PT 1L		
1656956	TP1033 2.00-2.50 SOIL	31/01/20	PT 1L		
1656957	TP1036 3.00-3.50 SOIL	28/01/20	PT 1L		
1656958	TP1045 2.50-3.50 SOIL	03/02/20	PT 1L		
1656959	TP1048 1.50-2.00 SOIL	24/01/20	PT 1L		
1656960	TP1054 2.50-2.50 SOIL	04/02/20	PT 1L		
1656961	TP1056 0.50-0.70 SOIL	30/01/20	PT 1L		
1656962	TP1063 2.00-2.50 SOIL	30/01/20	PT 1L		
1656963	TP1077 1.00-1.00 SOIL	20/01/20	PT 1L	pH + Conductivity (7 days)	
1656964	TP1098 1.80-1.80 SOIL	14/01/20	PT 1L	pH + Conductivity (7 days)	
1656965	TP1103 2.50-2.50 SOIL	22/01/20	PT 1L	pH + Conductivity (7 days)	
1656966	TP1113 2.50-2.50 SOIL	05/02/20	PT 1L	pH + Conductivity (7 days)	
1656967	TP1201 0.50-0.50 SOIL	03/03/20	PT 1L	pH + Conductivity (7 days)	
1656968	TP1202 0.50-0.50 SOIL	03/03/20	PT 1L	pH + Conductivity (7 days)	
1656969	TP1203 1.50-1.50 SOIL	03/03/20	PT 1L	pH + Conductivity (7 days)	
1656970	TT2009 2.50-2.50 SOIL	26/02/20	PT 1L	pH + Conductivity (7 days)	
1656971	TT2031 2.00-2.00 SOIL	17/01/20	PT 1L	pH + Conductivity (7 days)	
1656972	RC4010 6.00-8.00 SOIL	18/02/20	PT 1L	pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Information in Support of the Analytical Results

Our Ref 20-06012
Client Ref PSL20/1448
Contract Hoylands Common, Barnsley

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months



LABORATORY REPORT



4043

Contract Number: PSL20/1233

Report Date: 09 April 2020

Client's Reference: 15469

Client Name: Applied Geology Limited
Unit 23, Abbey Park
Stareton
Kenilworth
Warwickshire
CV8 2LY

For the attention of: Adam Perks

Contract Title: Hoylands Common, Barnsley

Date Received: 26/2/2020

Date Commenced: 26/2/2020

Date Completed: 09/4/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)

L Knight
(Senior Technician)

S Eyre
(Senior Technician)

R Cowles
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR

Page 1 of

SUMMARY OF ROCK TESTS

(ISRM Suggested Method for the Determination of the Water Content of Rock)

Hole Number	Sample Number	Sample Type	Sample Depth (m)	Water Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Porosity %	Remarks
RC4004		C	8.99	3.2				
RC4004		C	10.55	4.1				
RC4004		C	12.03	3.2				
RC4004		C	20.78	3.3				
RC4004		C	24.97	3.8				
RC4004		C	21.70	3.0				
RC4007		C	14.25	3.0				
RC4007		C	16.94	3.8				
RC4007		C	26.30	3.3				
RC4008		C	7.99	4.6				
RC4001		C	13.59	4.7				
RC4001		C	15.28	7.6				
RC4002		C	4.71	3.1				
RC4002		C	8.36	3.6				
RC4002		C	10.05	3.3				
RC4003		C	8.50	3.1				
RC4003		C	10.30	3.4				
RC4003		C	15.77	3.4				



Hoylands Common, Barnsley

Contract No:

PSL20/1233

Client Ref:

AG3080-19

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
RC4004		C	8.99	9.20	86	190	2.2	2883	2.61	3.2	2.53	51.7	8.9	Brittle	08/04/20	
RC4004		C	10.55	10.75	86	151	1.8	2326	2.65	4.1	2.55	48.3	8.3	Brittle	08/04/20	
RC4004		C	12.03	12.40	86	199	2.3	3023	2.61	3.2	2.53	113.9	19.6	Brittle	08/04/20	
RC4004		C	20.78	21.00	86	192	2.2	2932	2.63	3.3	2.54	42.4	7.3	Brittle	08/04/20	
RC4004		C	24.97	25.20	86	205	2.4	3035	2.55	3.8	2.46	81.1	14.0	Brittle	08/04/20	
RC4004		C	21.70	22.00	86	197	2.3	3030	2.65	3.0	2.57	81.9	14.1	Brittle	08/04/20	
RC4007		C	14.25	14.51	86	185	2.2	2810	2.61	3.0	2.54	68.8	11.8	Brittle	08/04/20	
RC4007		C	16.94	17.20	86	193	2.2	2981	2.66	3.8	2.56	42.2	7.3	Brittle	08/04/20	
RC4007		C	26.30	26.53	86	156	1.8	2403	2.65	3.3	2.57	85.7	14.8	Brittle	08/04/20	
RC4008		C	7.99	8.10	86	182	2.1	2714	2.57	4.6	2.45	13.2	2.3	Brittle	08/04/20	
RC4001		C	13.59	13.82	86	199	2.3	2931	2.54	4.7	2.42	115.0	19.8	Brittle	08/04/20	
RC4001		C	15.28	15.57	86	199	2.3	2852	2.47	7.6	2.29	109.1	18.8	Brittle	08/04/20	
RC4002		C	4.71	5.00	86	201	2.3	3093	2.65	3.1	2.57	44.3	7.6	Brittle	08/04/20	
RC4002		C	8.36	8.62	86	198	2.3	3021	2.63	3.6	2.54	146.6	25.2	Brittle	08/04/20	
RC4002		C	10.05	10.31	86	194	2.3	3008	2.67	3.3	2.58	48.4	8.3	Brittle	08/04/20	
RC4003		C	8.50	8.70	86	192	2.2	2932	2.63	3.1	2.55	119.9	20.6	Brittle	08/04/20	
RC4003		C	10.30	10.50	86	150	1.7	2312	2.65	3.4	2.57	81.5	14.0	Brittle	08/04/20	
RC4003		C	15.77	15.99	86	178	2.1	2724	2.63	3.4	2.55	27.9	4.8	Brittle	08/04/20	



Hoylands Common, Barnsley

Contract No:

PSL20/1233

Client Ref:

AG3080-19

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm ²)	D _c ²	D _c (mm)	Failure Load (P)		I _s (MPa)	Corr Fac F	I _{s50} (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
RC4004	8.99		A	Perp	86	42	3612	4598.94	67.82	-	2.16	0.47	1.147	0.54	Valid	
RC4004	10.55		A	Perp	86	35	3010	3832.45	61.91	-	1.63	0.43	1.101	0.47	Valid	
RC4004	12.03		A	Perp	86	40	3440	4379.94	66.18	-	2.92	0.67	1.134	0.76	Valid	
RC4004	20.78		I	Perp	86	36	3096	3941.95	62.78	-	1.19	0.30	1.108	0.33	Valid	
RC4004	24.97		A	Perp	86	61	5246	6679.41	81.73	-	18.26	2.73	1.247	3.41	Valid	
RC4004	21.70		A	Perp	86	45	3870	4927.44	70.20	-	4.17	0.85	1.165	0.99	Valid	
RC4007	14.25		A	Perp	86	59	5074	6460.42	80.38	-	2.28	0.35	1.238	0.44	Valid	
RC4007	16.94		A	Perp	86	33	2838	3613.45	60.11	-	5.43	1.50	1.086	1.63	Valid	
RC4007	26.30		A	Perp	86	35	3010	3832.45	61.91	-	1.91	0.50	1.101	0.55	Valid	
RC4008	7.99		A	Perp	86	47	4042	5146.43	71.74	-	1.62	0.31	1.176	0.37	Valid	
RC4001	13.59		A	Perp	86	46	3956	5036.94	70.97	-	3.51	0.70	1.171	0.82	Valid	
RC4001	15.28		A	Perp	86	39	3354	4270.45	65.35	-	2.32	0.54	1.128	0.61	Valid	
RC4002	4.71		A	Perp	86	64	5504	7007.91	83.71	-	5.19	0.74	1.261	0.93	Valid	
RC4002	8.36		A	Perp	86	41	3526	4489.44	67.00	-	12.91	2.88	1.141	3.28	Valid	
RC4002	10.05		A	Perp	86	50	4300	5474.93	73.99	-	5.15	0.94	1.193	1.12	Valid	
RC4003	8.50		A	Perp	86	51	4386	5584.43	74.73	-	5.03	0.90	1.198	1.08	Valid	
RC4003	10.30		A	Perp	86	46	3956	5036.94	70.97	-	3.07	0.61	1.171	0.71	Valid	
RC4003	15.77		I	Perp	86	41	3526	4489.44	67.00	-	0.51	0.11	1.141	0.13	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Hoylands Common, Barnsley

Contract No:

PSL20/1233

Client Ref:

AG3080-19

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	10-11/02/2020
Date Tested	12/02/2020

Tested By	JW
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4001		5.39 - 5.46	D	Par		70.00	90.00	8100.00	90.00	0.60	0.07	1.30	0.10
			A	Per		90.00	40.00	4583.07	67.70	2.60	0.57	1.15	0.65
RC4001		13.18 - 13.29	D	Par		110.00	90.00	8100.00	90.00	0.55	0.07	1.30	0.09
			A	Per		90.00	60.00	6874.60	82.91	6.60	0.96	1.26	1.21
RC4001		7.02 - 7.11	D	Par		90.00	90.00	8100.00	90.00	2.60	0.32	1.30	0.42
			A	Per		90.00	65.00	7447.49	86.30	9.50	1.28	1.28	1.63
RC4001		12.31 - 12.44	D	Par		130.00	90.00	8100.00	90.00	2.30	0.28	1.30	0.37
			A	Per		90.00	75.00	8593.25	92.70	3.90	0.45	1.32	0.60
RC4001		14.67 - 14.77	D	Par		100.00	90.00	8100.00	90.00	1.90	0.23	1.30	0.31
			A	Per		90.00	60.00	6874.60	82.91	5.20	0.76	1.26	0.95
RC4001		11.49 - 11.65	D	Par		150.00	90.00	8100.00	90.00	1.10	0.14	1.30	0.18
			A	Per		90.00	85.00	9739.02	98.69	1.80	0.18	1.36	0.25
RC4001		10.24 - 10.32	D	Par		80.00	90.00	8100.00	90.00	0.50	0.06	1.30	0.08
			A	Per		90.00	40.00	4583.07	67.70	1.30	0.28	1.15	0.33
RC4001		10.58 - 10.66	D	Par		80.00	90.00	8100.00	90.00	0.90	0.11	1.30	0.14
			A	Per		90.00	45.00	5155.95	71.80	1.20	0.23	1.18	0.27

- Notes:
1. Testing undertaken in accordance with ISRM Suggested Methods 1985
 2. All samples tested at as-received moisture content unless otherwise stated.
 3. A = Axial, D = Diametral, I = Irregular Lump
 4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client: Newlands Developments

Project: Hoyland Common, Barnsley

Project No: AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	14/02/2020
Date Tested	19/02/2020

Tested By	JW
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4002		8.62 - 8.73	D	Par	Y	110.00	90.00	8100.00	90.00	11.40	1.41	1.30	1.83
			A	Per	Y	90.00	70.00	8020.37	89.56	18.50	2.31	1.30	3.00
RC4002		6.09 - 6.26	D	Par	Y	170.00	90.00	8100.00	90.00	21.00	2.59	1.30	3.38
			A	Per	Y	90.00	70.00	8020.37	89.56	26.60	3.32	1.30	4.31
RC4002		3.32 - 3.50	D	Par	Y	180.00	90.00	8100.00	90.00	8.20	1.01	1.30	1.32
			A	Per	Y	90.00	85.00	9739.02	98.69	9.60	0.99	1.36	1.34
RC4002		7.50 - 7.67	D	Par	Y	170.00	90.00	8100.00	90.00	7.90	0.98	1.30	1.27
			A	Per	Y	90.00	85.00	9739.02	98.69	16.20	1.66	1.36	2.26
RC4002		6.38 - 6.50	D	Par	Y	120.00	90.00	8100.00	90.00	6.00	0.74	1.30	0.97
			A	Per	N	90.00	70.00	8020.37	89.56	11.10	1.38	1.30	1.80
RC4002		4.56 - 4.70	D	Par	N	140.00	90.00	8100.00	90.00	2.70	0.33	1.30	0.43
			A	Per	Y	90.00	80.00	9166.14	95.74	8.70	0.95	1.34	1.27
RC4002		10.56 - 10.72	D	Par	Y	160.00	90.00	8100.00	90.00	0.90	0.11	1.30	0.14
			A	Per	N	90.00	75.00	8593.25	92.70	2.40	0.28	1.32	0.37

- Notes:
1. Testing undertaken in accordance with ISRM Suggested Methods 1985
 2. All samples tested at as-received moisture content unless otherwise stated.
 3. A = Axial, D = Diametral, I = Irregular Lump
 4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client: Newlands Developments

Project: Hoyland Common, Barnsley

Project No: AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	18/02/2020
Date Tested	19/02/2020

Tested By	JW
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4003		5.50 - 5.64	D	Par	Y	140.00	90.00	8100.00	90.00	1.50	0.19	1.30	0.24
			A	Per	Y	90.00	65.00	7447.49	86.30	6.40	0.86	1.28	1.10
RC4003		9.45 - 9.56	D	Par	Y	110.00	90.00	8100.00	90.00	1.20	0.15	1.30	0.19
			A	Per	Y	90.00	55.00	6301.72	79.38	2.10	0.33	1.23	0.41
RC4003		8.05 - 8.14	D	Par	Y	90.00	90.00	8100.00	90.00	2.70	0.33	1.30	0.43
			A	Per	Y	90.00	50.00	5728.84	75.69	3.40	0.59	1.21	0.72
RC4003		12.63 - 12.76	D	Par	Y	130.00	90.00	8100.00	90.00	1.40	0.17	1.30	0.23
			A	Per	Y	90.00	65.00	7447.49	86.30	1.70	0.23	1.28	0.29
RC4003		6.26 - 6.39	D	Par	Y	130.00	90.00	8100.00	90.00	8.60	1.06	1.30	1.38
			A	Per	Y	90.00	70.00	8020.37	89.56	19.40	2.42	1.30	3.14
RC4003		6.92 - 7.05	D	Par	N	130.00	90.00	8100.00	90.00	1.00	0.12	1.30	0.16
			A	Per	Y	90.00	80.00	9166.14	95.74	5.70	0.62	1.34	0.83
RC4003		4.09 - 4.28	D	Par	Y	190.00	90.00	8100.00	90.00	5.90	0.73	1.30	0.95
			A	Per		90.00	-	-	-	-	-	-	-
RC4003		10.96 - 11.10	D	Par	N	140.00	90.00	8100.00	90.00	0.90	0.11	1.30	0.14
			A	Per	Y	90.00	75.00	8593.25	92.70	2.00	0.23	1.32	0.31
RC4003		16.24 - 16.34	D	Par	Y	100.00	90.00	8100.00	90.00	0.80	0.10	1.30	0.13
			A	Per	Y	90.00	55.00	6301.72	79.38	2.60	0.41	1.23	0.51

Notes:

1. Testing undertaken in accordance with ISRM Suggested Methods 1985
2. All samples tested at as-received moisture content unless otherwise stated.
3. A = Axial, D = Diametral, I = Irregular Lump
4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client:

Newlands Developments

Project:

Hoyland Common, Barnsley

Project No:

AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	23-27/01/2020
Date Tested	19/02/2020

Tested By	JW
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4004		28.08 - 28.18	D	Para	Y	100.00	90.00	8100.00	90.00	0.70	0.09	1.30	0.11
			A	Perp	N	90.00	65.00	7447.49	86.30	1.50	0.20	1.28	0.26
RC4004		25.98 - 26.08	D	Para	Y	100.00	90.00	8100.00	90.00	0.45	0.06	1.30	0.07
			A	Perp	Y	90.00	50.00	5728.84	75.69	4.60	0.80	1.21	0.97
RC4004		18.37 - 18.47	D	Para	Y	100.00	90.00	8100.00	90.00	0.45	0.06	1.30	0.07
			A	Perp	Y	90.00	50.00	5728.84	75.69	0.75	0.13	1.21	0.16
RC4004		29.46 - 29.61	D	Para	Y	150.00	90.00	8100.00	90.00	0.65	0.08	1.30	0.10
			A	Perp	Y	90.00	80.00	9166.14	95.74	3.00	0.33	1.34	0.44
RC4004		20.37 - 20.50	D	Para	Y	130.00	90.00	8100.00	90.00	1.30	0.16	1.30	0.21
			A	Perp	Y	90.00	70.00	8020.37	89.56	2.30	0.29	1.30	0.37
RC4004		23.23 - 23.40	D	Para	Y	170.00	90.00	8100.00	90.00	9.40	1.16	1.30	1.51
			A	Perp	N	90.00	85.00	9739.02	98.69	19.80	2.03	1.36	2.76
RC4004		17.00 - 17.09	D	Para	Y	90.00	90.00	8100.00	90.00	1.30	0.16	1.30	0.21
			A	Perp	Y	90.00	45.00	5155.95	71.80	1.80	0.35	1.18	0.41
RC4004		22.50 - 22.67	D	Para	Y	170.00	90.00	8100.00	90.00	2.00	0.25	1.30	0.32
			A	Perp	Y	90.00	95.00	10884.79	104.33	8.60	0.79	1.39	1.10
RC4004		14.28 - 14.44	D	Para	Y	160.00	90.00	8100.00	90.00	2.00	0.25	1.30	0.32
			A	Perp	Y	90.00	75.00	8593.25	92.70	2.70	0.31	1.32	0.41
RC4004		14.66 - 14.84	D	Para	Y	180.00	90.00	8100.00	90.00	3.10	0.38	1.30	0.50
			A	Perp	Y	90.00	70.00	8020.37	89.56	8.40	1.05	1.30	1.36

Notes:

1. Testing undertaken in accordance with ISRM Suggested Methods 1985
2. All samples tested at as-received moisture content unless otherwise stated.
3. A = Axial, D = Diametral, I = Irregular Lump
4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client:	Newlands Developments	
Project:	Hoyland Common, Barnsley	
Project No:	AG3080-19	

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	16- 21/01/2020
Date Tested	24/02/2020

Tested By	JW
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4004		13.25 - 13.38	D	Par	Y	130.00	90.00	8100.00	90.00	1.40	0.17	1.30	0.23
			A	Per	N	90.00	80.00	9166.14	95.74	3.00	0.33	1.34	0.44
RC4004		7.97 - 8.06	D	Par	Y	90.00	90.00	8100.00	90.00	3.50	0.43	1.30	0.56
			A	Per	N	90.00	60.00	6874.60	82.91	1.60	0.23	1.26	0.29
RC4004		10.10 - 10.25	D	Par	Y	150.00	90.00	8100.00	90.00	3.80	0.47	1.30	0.61
			A	Per	Y	90.00	80.00	9166.14	95.74	4.80	0.52	1.34	0.70
RC4004		2.05 - 2.12	D	Par	Y	70.00	90.00	8100.00	90.00	0.20	0.02	1.30	0.03
			A	Per	Y	90.00	40.00	4583.07	67.70	0.40	0.09	1.15	0.10
RC4004		6.92 - 7.00	D	Par	Y	80.00	90.00	8100.00	90.00	1.20	0.15	1.30	0.19
			A	Per	Y	90.00	45.00	5155.95	71.80	1.80	0.35	1.18	0.41
RC4004		8.78 - 8.86	D	Par	Y	80.00	90.00	8100.00	90.00	11.30	1.40	1.30	1.82
			A	Per	Y	90.00	45.00	5155.95	71.80	14.40	2.79	1.18	3.29
RC4004		11.63 - 11.78	D	Par	Y	150.00	90.00	8100.00	90.00	0.50	0.06	1.30	0.08
			A	Per	Y	90.00	60.00	6874.60	82.91	9.00	1.31	1.26	1.64

- Notes:
1. Testing undertaken in accordance with ISRM Suggested Methods 1985
 2. All samples tested at as-received moisture content unless otherwise stated.
 3. A = Axial, D = Diametral, I = Irregular Lump
 4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client: Newlands Developments

Project: Hoyland Common, Barnsley

Project No: AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	24- 27/01/2020
Date Tested	24/02- 08/03/2020

Tested By	JW/DH
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4005		9.40 - 9.49	D	Par	Y	90.00	90.00	8100.00	90.00	0.90	0.11	1.30	0.14
			A	Per	Y	90.00	45.00	5155.95	71.80	1.00	0.19	1.18	0.23
RC4005		7.36 - 7.51	D	Par	Y	150.00	90.00	8100.00	90.00	0.75	0.09	1.30	0.12
			A	Per	N	90.00	45.00	5155.95	71.80	0.50	0.10	1.18	0.11
RC4005		10.40 - 10.54	D	Par	Y	140.00	90.00	8100.00	90.00	1.40	0.17	1.30	0.23
			A	Per	N	90.00	80.00	9166.14	95.74	1.80	0.20	1.34	0.26
RC4005		12.55 - 12.72	D	Par	Y	170.00	90.00	8100.00	90.00	2.00	0.25	1.30	0.32
			A	Per	Y	90.00	90.00	10311.90	101.55	2.90	0.28	1.38	0.39
RC4005		7.13 - 7.24	D	Par	Y	120.00	87.00	7569.00	87.00	2.45	0.32	1.28	0.42
			A	Per	Y	55.00	87.00	6091.66	78.05	1.72	0.28	1.22	0.35
RC4005		8.97 - 9.14	D	Par	Y	182.00	87.00	7569.00	87.00	0.12	0.02	1.28	0.02
			A	Per	N	85.00	87.00	9414.39	97.03	-	-	1.35	-
RC4005		3.29 - 3.36	D	Par	N	50.00	87.00	7569.00	87.00	-	-	1.28	-
			A	Per	N	30.00	87.00	3322.72	57.64	-	-	1.07	-
RC4005		12.32 - 12.39	D	Par	Y	70.00	88.00	7744.00	88.00	0.61	0.08	1.29	0.10
			A	Per	N	42.00	87.00	4651.81	68.20	-	-	1.15	-
RC4005		9.84 - 9.95	D	Par	Y	110.00	86.00	7396.00	86.00	1.68	0.23	1.28	0.29
			A	Per	Y	55.00	86.00	6021.64	77.60	1.52	0.25	1.22	0.31

- Notes:
1. Testing undertaken in accordance with ISRM Suggested Methods 1985
 2. All samples tested at as-received moisture content unless otherwise stated.
 3. A = Axial, D = Diametral, I = Irregular Lump
 4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client: Newlands Developments

Project: Hoyland Common, Barnsley

Project No: AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	11/02/2020
Date Tested	12/02/2020

Tested By	JW
Approved By	SD

[illegible]

Notes:

1. Testing undertaken in accordance with ISRM Suggested Methods 1985
2. All samples tested at as-received moisture content unless otherwise stated.
3. A = Axial, D = Diametral, I = Irregular Lump
4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Comments:

Client:	Newlands Developments	
Project:	Hoyland Common, Barnsley	
Project No:	AG3080-19	

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	05/02/2020
Date Tested	10/02/2020

Tested By	JW
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4007		14.90 - 14.98	D	Par		80.00	90.00	8100.00	90.00	1.40	0.17	1.30	0.23
			A	Per		90.00	55.00	6301.72	79.38	2.45	0.39	1.23	0.48
RC4007		22.95 - 23.06	D	Par		110.00	90.00	8100.00	90.00	2.60	0.32	1.30	0.42
			A	Per		90.00	55.00	6301.72	79.38	2.20	0.35	1.23	0.43
RC4007		8.57 - 8.69	D	Par		120.00	90.00	8100.00	90.00	1.50	0.19	1.30	0.24
			A	Per		90.00	65.00	7447.49	86.30	1.90	0.26	1.28	0.33
RC4007		7.65 - 7.73	D	Par		80.00	90.00	8100.00	90.00	1.60	0.20	1.30	0.26
			A	Per		90.00	50.00	5728.84	75.69	1.50	0.26	1.21	0.32
RC4007		17.98 - 18.15	D	Par		170.00	90.00	8100.00	90.00	2.10	0.26	1.30	0.34
			A	Per		90.00	85.00	9739.02	98.69	2.90	0.30	1.36	0.40
RC4007		20.59 - 20.74	D	Par		150.00	90.00	8100.00	90.00	2.60	0.32	1.30	0.42
			A	Per		90.00	80.00	9166.14	95.74	2.80	0.31	1.34	0.41
RC4007		20.88 - 21.00	D	Par		120.00	90.00	8100.00	90.00	1.60	0.20	1.30	0.26
			A	Per		90.00	60.00	6874.60	82.91	2.30	0.33	1.26	0.42
RC4007		15.80 - 15.97	D	Par		170.00	90.00	8100.00	90.00	4.30	0.53	1.30	0.69
			A	Per		90.00	85.00	9739.02	98.69	14.90	1.53	1.36	2.08
RC4007		11.31 - 11.41	D	Par		100.00	90.00	8100.00	90.00	1.20	0.15	1.30	0.19
			A	Per		90.00	50.00	5728.84	75.69	0.90	0.16	1.21	0.19
RC4007		18.80 - 18.97	D	Par		170.00	90.00	8100.00	90.00	0.60	0.07	1.30	0.10
			A	Per		90.00	90.00	10311.90	101.55	4.30	0.42	1.38	0.57

- Notes:
1. Testing undertaken in accordance with ISRM Suggested Methods 1985
 2. All samples tested at as-received moisture content unless otherwise stated.
 3. A = Axial, D = Diametral, I = Irregular Lump
 4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client: Newlands Developments

Project: Hoyland Common, Barnsley

Project No: AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	05/02/2020
Date Tested	10/02/2020

Tested By	JW/DH
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4007		12.77 - 12.96	D	Par		190.00	90.00	8100.00	90.00	2.60	0.32	1.30	0.42
			A	Per		90.00	100.00	11457.67	107.04	3.80	0.33	1.41	0.47
RC4007		26.60 - 26.75	D	Par		150.00	90.00	8100.00	90.00	2.70	0.33	1.30	0.43
			A	Per		90.00	85.00	9739.02	98.69	6.00	0.62	1.36	0.84
RC4007		24.95 - 25.12	D	Par		175.00	87.00	7569.00	87.00	1.81	0.24	1.28	0.31
			A	Per		85.00	87.00	9414.39	97.03	2.73	0.29	1.35	0.39
RC4007		9.82 - 9.90	D	Par		82.00	87.00	7569.00	87.00	1.37	0.18	1.28	0.23
			A	Per		55.00	87.00	6091.66	78.05	1.14	0.19	1.22	0.23
RC4007		6.97 - 7.06	D	Par		87.00	87.00	7569.00	87.00	0.32	0.04	1.28	0.05
			A	Per		34.00	87.00	3765.75	61.37	0.45	0.12	1.10	0.13

Notes:

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4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client:

Newlands Developments

Project:

Hoyland Common, Barnsley

Project No:

AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	28/01/2020
Date Tested	08/03/2020

Tested By	DH
Approved By	SD

[illegible]

Notes:

1. Testing undertaken in accordance with ISRM Suggested Methods 1985
2. All samples tested at as-received moisture content unless otherwise stated.
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4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Comments:

Client:	Newlands Developments	
Project:	Hoyland Common, Barnsley	
Project No:	AG3080-19	

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	12- 13/02/2020
Date Tested	04/03/2020

Tested By	DH
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4009		9.35 - 9.45	D	Par	Y	134.00	86.00	7396.00	86.00	0.58	0.08	1.28	0.10
			A	Per	Y	85.00	86.00	9306.17	96.47	5.13	0.55	1.34	0.74
RC4009		15.56 - 15.71	D	Par	Y	90.00	86.00	7396.00	86.00	0.54	0.07	1.28	0.09
			A	Per	Y	47.00	87.00	5205.60	72.15	1.98	0.38	1.18	0.45
RC4009		11.32 - 11.46	D	Par	Y	118.00	87.00	7569.00	87.00	4.82	0.64	1.28	0.82
			A	Per	N	80.00	87.00	8860.60	94.13	-	-	1.33	-
RC4009		8.85 - 8.96	D	Par	Y	110.00	87.00	7569.00	87.00	0.61	0.08	1.28	0.10
			A	Per	Y	55.00	86.00	6021.64	77.60	2.28	0.38	1.22	0.46
RC4009		10.34 - 10.42	D	Par	Y	82.00	87.00	7569.00	87.00	1.14	0.15	1.28	0.19
			A	Per	Y	86.00	87.00	9525.14	97.60	2.63	0.28	1.35	0.37
RC4009		7.94 - 8.09	D	Par	Y	100.00	87.00	7569.00	87.00	0.24	0.03	1.28	0.04
			A	Per	Y	34.00	87.00	3765.75	61.37	1.25	0.33	1.10	0.36

Notes:

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4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client:

Newlands Developments

Project:

Hoyland Common, Barnsley

Project No:

AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	19/02/2020
Date Tested	05/03/2020

Tested By	TWC
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4010		14.72 - 14.82	D	Par	Y	85.00	100.00	10000.00	100.00	1.18	0.12	1.37	0.16
			A	Per	Y	68.00	85.00	7358.37	85.78	1.07	0.15	1.27	0.19
RC4010		13.02 - 13.17	D	Par	Y	85.00	150.00	22500.00	150.00	0.81	0.04	1.64	0.06
			A	Per	Y	78.00	85.00	8440.48	91.87	0.43	0.05	1.31	0.07
RC4010		17.90 - 18.08	D	Par	Y	85.00	180.00	32400.00	180.00	2.35	0.07	1.78	0.13
			A	Per	Y	70.00	85.00	7574.79	87.03	2.63	0.35	1.28	0.44
RC4010		11.10 - 11.28	D	Par	Y	85.00	180.00	32400.00	180.00	0.48	0.01	1.78	0.03
			A	Per	Y	65.00	85.00	7033.74	83.87	1.32	0.19	1.26	0.24
RC4010		16.76 - 16.80	D	Par	Y	85.00	140.00	19600.00	140.00	9.88	0.50	1.59	0.80
			A	Per	Y	72.00	85.00	7791.22	88.27	1.56	0.20	1.29	0.26
RC4010		21.17 - 21.35	D	Par	Y	85.00	180.00	32400.00	180.00	0.76	0.02	1.78	0.04
			A	Per	Y	75.00	85.00	8115.85	90.09	1.25	0.15	1.30	0.20
RC4010		17.20 - 17.33	D	Par	Y	85.00	110.00	12100.00	110.00	3.21	0.26	1.43	0.38
			A	Per	Y	65.00	85.00	7033.74	83.87	2.56	0.36	1.26	0.46

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Comments:

Client:

Newlands Developments

Project:

Hoyland Common, Barnsley

Project No:

AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	20-21/02/2020
Date Tested	04/03/2020

Tested By	DH
Approved By	SD

[illegible]

Notes:

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2. All samples tested at as-received moisture content unless otherwise stated.
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4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Comments:

Client:	Newlands Developments	
Project:	Hoyland Common, Barnsley	
Project No:	AG3080-19	

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	24/02/2020
Date Tested	06/03/2020

Tested By	DH
Approved By	SD

[illegible]

Notes:

1. Testing undertaken in accordance with ISRM Suggested Methods 1985
2. All samples tested at as-received moisture content unless otherwise stated.
3. A = Axial, D = Diametral, I = Irregular Lump
4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Comments:

Client:	Newlands Developments	
Project:	Hoyland Common, Barnsley	
Project No:	AG3080-19	

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	26/02/2020
Date Tested	05/03/2020

Tested By	TWC
Approved By	SD

BH No.	Sample No.	Depth (m bgl)	Test Type ³	Orientation ⁴	Failure Valid (Y/N)	W (mm)	D (mm)	De ² (mm ²)	De (mm)	P (kN)	Is (MPa)	F	Is(50) (MPa)
RC4013		11.95 - 12.05	D	Paar		85.00	100.00	10000.00	100.00	0.48	0.05	1.37	0.07
			A	Per		60.00	85.00	6492.68	80.58	2.85	0.44	1.24	0.54
RC4013		14.50 - 14.59	D	Par		85.00	90.00	8100.00	90.00	0.23	0.03	1.30	0.04
			A	Per		60.00	85.00	6492.68	80.58	1.93	0.30	1.24	0.37
RC4013		15.35 - 15.45	D	Par		85.00	100.00	10000.00	100.00	0.23	0.02	1.37	0.03
			A	Per		58.00	85.00	6276.26	79.22	1.76	0.28	1.23	0.34
RC4013		12.40 - 12.50	D	Par		85.00	100.00	10000.00	100.00	0.54	0.05	1.37	0.07
			A	Per		87.00	85.00	9414.39	97.03	3.72	0.40	1.35	0.53
RC4013		12.77 - 12.95	D	Par		85.00	220.00	48400.00	220.00	0.22	0.00	1.95	0.01
			A	Per		98.00	85.00	10604.71	102.98	2.76	0.26	1.38	0.36

Notes:

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4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Client:

Newlands Developments

Project:

Hoyland Common, Barnsley

Project No:

AG3080-19

APPLIED GEOLOGY

POINT LOAD INDEX TEST RESULTS

Date Cored/Sampled	06/02/2020
Date Tested	19/02/2020

Tested By	JW
Approved By	SD

[illegible]

Notes:

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4. Par = parallel, Per = perpendicular (to planes of weakness)

Comments:

Comments:

Client:	Newlands Developments	
Project:	Hoyland Common, Barnsley	
Project No:	AG3080-19	



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7 Woodshots Meadow,
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Herts,
WD18 8YS

Analytical Report Number : 20-88994

Project / Site name: Hoyland Common, Barnsley

Samples received on: 21/02/2020

Your job number: AG3080-19

Samples instructed on: 25/02/2020

Your order number: 15459

Analysis completed by: 03/03/2020

Report Issue Number: 1

Report issued on: 03/03/2020

Samples Analysed: 7 soil samples

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-88994

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15459

Lab Sample Number	1453274	1453275	1453276	1453277	1453278
Sample Reference	TP1092	TP1091	TP1084	TP1082	TP1078
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.70-0.70	1.70-1.70	0.70-0.70	0.60-0.60	0.50-0.50
Date Sampled	17/01/2020	21/01/2020	20/01/2020	16/01/1840	04/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	13	15
Total mass of sample received	kg	0.001	NONE	0.70	0.60

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7	7.4	5.4	7.2	7.5
Total Sulphate as SO ₄	%	0.005	MCERTS	0.020	0.027	0.034	0.027	0.035
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	100	66	160	130	170
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.052	0.033	0.082	0.066	0.084
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	52.0	33.2	82.3	66.3	83.7
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	6.9	1.6	6.4	< 0.5	1.9
Total Sulphur	%	0.005	MCERTS	0.014	0.014	0.032	0.018	0.019
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	14	15	2.2	3.2	8.7
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	7.0	7.5	< 5.0	< 5.0	< 5.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	29	13	16	16	34
Magnesium (leachate equivalent)	mg/l	2.5	NONE	14	6.4	8.2	7.9	17

Analytical Report Number: 20-88994

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15459

Lab Sample Number				1453279	1453280			
Sample Reference				TP1069	TP1064			
Sample Number				None Supplied	None Supplied			
Depth (m)				1.50-1.50	1.90-1.90			
Date Sampled				03/02/2020	30/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	6.2	8.7			
Total mass of sample received	kg	0.001	NONE	0.80	0.80			

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	8.1			
Total Sulphate as SO ₄	%	0.005	MCERTS	0.043	0.049			
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	300	320			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.15	0.16			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	150	161			
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2.8	3.0			
Total Sulphur	%	0.005	MCERTS	0.045	0.046			
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	6.1	4.9			
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0			

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	78	70			
Magnesium (leachate equivalent)	mg/l	2.5	NONE	39	35			

Analytical Report Number : 20-88994

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1453274	TP1092	None Supplied	0.70-0.70	Brown clay and loam with gravel and vegetation.
1453275	TP1091	None Supplied	1.70-1.70	Light brown clay and loam with gravel and vegetation.
1453276	TP1084	None Supplied	0.70-0.70	Grey clay and loam with gravel.
1453277	TP1082	None Supplied	0.60-0.60	Light brown clay and loam with gravel.
1453278	TP1078	None Supplied	0.50-0.50	Brown clay and loam with gravel.
1453279	TP1069	None Supplied	1.50-1.50	Light brown loam with gravel.
1453280	TP1064	None Supplied	1.90-1.90	Grey loam with gravel.

Analytical Report Number : 20-88994

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP1082		S	20-88994	1453277	c	Chloride, water soluble, in soil	L082-PL	c
TP1082		S	20-88994	1453277	c	Nitrate, water soluble, in soil	L078-PL	c
TP1082		S	20-88994	1453277	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1082		S	20-88994	1453277	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1082		S	20-88994	1453277	c	pH in soil (automated)	L099-PL	c
TP1084		S	20-88994	1453276	c	Chloride, water soluble, in soil	L082-PL	c
TP1084		S	20-88994	1453276	c	Nitrate, water soluble, in soil	L078-PL	c
TP1084		S	20-88994	1453276	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1084		S	20-88994	1453276	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1084		S	20-88994	1453276	c	pH in soil (automated)	L099-PL	c
TP1091		S	20-88994	1453275	c	Chloride, water soluble, in soil	L082-PL	c
TP1091		S	20-88994	1453275	c	Nitrate, water soluble, in soil	L078-PL	c
TP1091		S	20-88994	1453275	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1091		S	20-88994	1453275	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1091		S	20-88994	1453275	c	pH in soil (automated)	L099-PL	c
TP1092		S	20-88994	1453274	c	Chloride, water soluble, in soil	L082-PL	c
TP1092		S	20-88994	1453274	c	Nitrate, water soluble, in soil	L078-PL	c
TP1092		S	20-88994	1453274	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1092		S	20-88994	1453274	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1092		S	20-88994	1453274	c	pH in soil (automated)	L099-PL	c

**Adam Perks**

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i2 Analytical Ltd.
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WD18 8YS

Analytical Report Number : 20-91250

Project / Site name: Hoyland Common, Barnsley

Samples received on: 06/03/2020

Your job number: AG3080-19

Samples instructed on: 06/03/2020

Your order number: 15490

Analysis completed by: 16/03/2020

Report Issue Number: 1

Report issued on: 16/03/2020

Samples Analysed: 15 soil samples

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

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soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-91250-1 Hoyland Common, Barnsley AG3080-19

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The results included within the report are representative of the samples submitted for analysis.

Page 1 of 8

Analytical Report Number: 20-91250

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15490

Lab Sample Number	1465311	1465312	1465313	1465314	1465315
Sample Reference	RC4001	RS3001	TP1002	TP1005	TP1018
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	3.20-3.20	0.50-0.50	2.00-2.00	0.50-0.50	2.50-2.50
Date Sampled	05/02/2020	18/02/2020	25/02/2020	26/02/2020	05/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	8.0	18
Total mass of sample received	kg	0.001	NONE	0.41	0.45

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2	7.0	6.5	6.9	7.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.020	0.021	0.028	0.018	0.018
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	25	27	71	22	67
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.013	0.013	0.036	0.011	0.033
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	12.7	13.4	35.6	11.1	33.4
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.4	2.1	2.9	3.3	0.7
Total Sulphur	%	0.005	MCERTS	0.006	0.016	0.014	0.011	0.010
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	5.2	14	4.1	15	4.2
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	6.8	< 5.0	7.5	< 5.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	8.6	10	11	9.4	13
Magnesium (leachate equivalent)	mg/l	2.5	NONE	4.3	5.2	5.3	4.7	6.3

Analytical Report Number: 20-91250

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15490

Lab Sample Number				1465316	1465317	1465318	1465319	1465320
Sample Reference				TP1021	TP1022	TP1033	TP1036	TP1045
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.90-3.90	1.60-1.60	2.50-2.50	3.50-3.50	3.50-3.50
Date Sampled				05/02/2020	24/01/2020	31/01/2020	28/01/2020	03/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	3.9	16	17	14	12
Total mass of sample received	kg	0.001	NONE	0.77	0.49	0.61	0.78	0.66

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2	7.4	5.6	8.1	6.6
Total Sulphate as SO ₄	%	0.005	MCERTS	0.020	0.013	0.038	0.022	0.062
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	120	48	170	93	330
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.060	0.024	0.084	0.046	0.16
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	60.2	24.2	84.0	46.3	165
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.9	4.4	2.3	3.0	2.8
Total Sulphur	%	0.005	MCERTS	0.048	0.011	0.027	0.013	0.045
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	4.6	6.5	6.4	14	7.6
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0	< 5.0	7.2	< 5.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	17	13	31	34	41
Magnesium (leachate equivalent)	mg/l	2.5	NONE	8.6	6.2	16	17	20

Analytical Report Number: 20-91250

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15490

Lab Sample Number	1465321	1465322	1465323	1465324	1465325
Sample Reference	TP1048	TP1049	TP1049	TP1055	TP1062
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	4.50-4.50	2.00-2.00	3.50-3.50	2.00-2.00	3.50-3.50
Date Sampled	24/01/2020	29/01/2020	29/01/2020	03/02/2020	04/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	16
Total mass of sample received	kg	0.001	NONE	0.71	0.61

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.2	4.7	5.9	6.8	4.9
Total Sulphate as SO ₄	%	0.005	MCERTS	0.024	0.057	0.024	0.060	0.480
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	48	77	76	330	180
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.024	0.039	0.038	0.17	0.091
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	24.0	38.7	38.2	166	90.6
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2.3	4.5	2.0	2.9	6.8
Total Sulphur	%	0.005	MCERTS	0.013	0.022	0.019	0.050	0.157
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	9.1	20	8.8	5.6	< 2.0
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	10	< 5.0	< 5.0	< 5.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	7.1	8.0	9.3	45	15
Magnesium (leachate equivalent)	mg/l	2.5	NONE	3.6	4.0	4.6	22	7.7

Preliminary Report Number : 20-91250

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1465311	RC4001	None Supplied	3.20-3.20	Brown loam and clay with gravel.
1465312	RS3001	None Supplied	0.50-0.50	Brown loam and clay with gravel and vegetation.
1465313	TP1002	None Supplied	2.00-2.00	Brown loam and clay with gravel.
1465314	TP1005	None Supplied	0.50-0.50	Brown loam and clay with gravel.
1465315	TP1018	None Supplied	2.50-2.50	Brown clay with gravel.
1465316	TP1021	None Supplied	3.90-3.90	Brown loam and clay with gravel.
1465317	TP1022	None Supplied	1.60-1.60	Brown clay with gravel.
1465318	TP1033	None Supplied	2.50-2.50	Brown loam and clay with gravel.
1465319	TP1036	None Supplied	3.50-3.50	Brown loam and clay with gravel.
1465320	TP1045	None Supplied	3.50-3.50	Brown loam and clay with gravel.
1465321	TP1048	None Supplied	4.50-4.50	Brown loam and clay with gravel.
1465322	TP1049	None Supplied	2.00-2.00	Brown loam and clay with gravel.
1465323	TP1049	None Supplied	3.50-3.50	Brown loam and clay with gravel.
1465324	TP1055	None Supplied	2.00-2.00	Brown loam and clay with gravel.
1465325	TP1062	None Supplied	3.50-3.50	Brown clay with gravel.

Preliminary Report Number : 20-91250

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
RC4001		S	20-91250	1465311	c	Chloride, water soluble, in soil	L082-PL	c
RC4001		S	20-91250	1465311	c	Nitrate, water soluble, in soil	L078-PL	c
RC4001		S	20-91250	1465311	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
RC4001		S	20-91250	1465311	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
RC4001		S	20-91250	1465311	c	pH in soil (automated)	L099-PL	c
TP1018		S	20-91250	1465315	c	Chloride, water soluble, in soil	L082-PL	c
TP1018		S	20-91250	1465315	c	Nitrate, water soluble, in soil	L078-PL	c
TP1018		S	20-91250	1465315	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1018		S	20-91250	1465315	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1018		S	20-91250	1465315	c	pH in soil (automated)	L099-PL	c
TP1021		S	20-91250	1465316	c	Chloride, water soluble, in soil	L082-PL	c
TP1021		S	20-91250	1465316	c	Nitrate, water soluble, in soil	L078-PL	c
TP1021		S	20-91250	1465316	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1021		S	20-91250	1465316	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1021		S	20-91250	1465316	c	pH in soil (automated)	L099-PL	c
TP1022		S	20-91250	1465317	c	Chloride, water soluble, in soil	L082-PL	c
TP1022		S	20-91250	1465317	c	Nitrate, water soluble, in soil	L078-PL	c
TP1022		S	20-91250	1465317	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1022		S	20-91250	1465317	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1022		S	20-91250	1465317	c	pH in soil (automated)	L099-PL	c
TP1033		S	20-91250	1465318	c	Chloride, water soluble, in soil	L082-PL	c
TP1033		S	20-91250	1465318	c	Nitrate, water soluble, in soil	L078-PL	c
TP1033		S	20-91250	1465318	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1033		S	20-91250	1465318	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1033		S	20-91250	1465318	c	pH in soil (automated)	L099-PL	c
TP1036		S	20-91250	1465319	c	Chloride, water soluble, in soil	L082-PL	c
TP1036		S	20-91250	1465319	c	Nitrate, water soluble, in soil	L078-PL	c
TP1036		S	20-91250	1465319	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1036		S	20-91250	1465319	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1036		S	20-91250	1465319	c	pH in soil (automated)	L099-PL	c
TP1045		S	20-91250	1465320	c	Chloride, water soluble, in soil	L082-PL	c
TP1045		S	20-91250	1465320	c	Nitrate, water soluble, in soil	L078-PL	c
TP1045		S	20-91250	1465320	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1045		S	20-91250	1465320	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1045		S	20-91250	1465320	c	pH in soil (automated)	L099-PL	c
TP1048		S	20-91250	1465321	c	Chloride, water soluble, in soil	L082-PL	c
TP1048		S	20-91250	1465321	c	Nitrate, water soluble, in soil	L078-PL	c
TP1048		S	20-91250	1465321	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1048		S	20-91250	1465321	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1048		S	20-91250	1465321	c	pH in soil (automated)	L099-PL	c
TP1049		S	20-91250	1465322	c	Chloride, water soluble, in soil	L082-PL	c
TP1049		S	20-91250	1465322	c	Nitrate, water soluble, in soil	L078-PL	c
TP1049		S	20-91250	1465322	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1049		S	20-91250	1465322	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1049		S	20-91250	1465322	c	pH in soil (automated)	L099-PL	c
TP1049		S	20-91250	1465323	c	Chloride, water soluble, in soil	L082-PL	c
TP1049		S	20-91250	1465323	c	Nitrate, water soluble, in soil	L078-PL	c
TP1049		S	20-91250	1465323	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1049		S	20-91250	1465323	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1049		S	20-91250	1465323	c	pH in soil (automated)	L099-PL	c
TP1055		S	20-91250	1465324	c	Chloride, water soluble, in soil	L082-PL	c

TP1055		S	20-91250	1465324	c	Nitrate, water soluble, in soil	L078-PL	c
TP1055		S	20-91250	1465324	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1055		S	20-91250	1465324	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1055		S	20-91250	1465324	c	pH in soil (automated)	L099-PL	c
TP1062		S	20-91250	1465325	c	Chloride, water soluble, in soil	L082-PL	c
TP1062		S	20-91250	1465325	c	Nitrate, water soluble, in soil	L078-PL	c
TP1062		S	20-91250	1465325	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP1062		S	20-91250	1465325	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP1062		S	20-91250	1465325	c	pH in soil (automated)	L099-PL	c

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For the attention of Mr A Perks / Mr S Day

30 April 2020

Report No : GEO/30969/01

Page 1 of 1

Dear Sirs

Our ref **GEO / 30969**

Your Ref **AG3080-19**

Date samples received 17/04/2020

Date written instructions received 17/04/2020

Date testing commenced 18/04/2020

Date of sample disposal 28/05/2020

Project **HOYLAND COMMON, BARNSELY**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Geotechnical Test Summary
~	3	Water Content
2	3	Liquid & Plastic Limits
3	3	Constant Head Permeability in a Triaxial Cell

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of GEOLABS Limited

J A Reynolds
Laboratory Manager



SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC	LL	PL	PI	<425 µm	Bulk	Dry	Condition	Cell Pressure	Deviator Stress	Shear Stress	pH	2:1 W/S SO4	W/S Mg	
					%	%	%	%	%	Mg/m³	Mg/m³		kPa	kPa	kPa		g/L	mg/L	
TP1094	3.00-4.00	OC	B	Brown mottled greyish brown gravelly slightly sandy CLAY. Gravel is fine to medium. Sand is fine.	12.9	43	21	22	89										Constant Head Triaxial Permeability
TP1102	2.00	OC	B	Brown mottled greyish brown and dark brown gravelly CLAY. Gravel is fine to medium.	25.7	45	23	22	82										Constant Head Triaxial Permeability
TP1112	4.00	OC	B	Dark grey mottled brown and greyish brown gravelly slightly sandy CLAY. Gravel is fine to medium. Sand is fine.	10.8	45	21	24	79										Constant Head Triaxial Permeability

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

Project Number:

GEO / 30969

Project Name:

HOYLAND COMMON, BARNSELEY
AG3080-19

30/04/2020



LIQUID AND PLASTIC LIMITS

Location TP1094
 Sample Ref OC
 Depth (m) 3.00
 Sample Type B

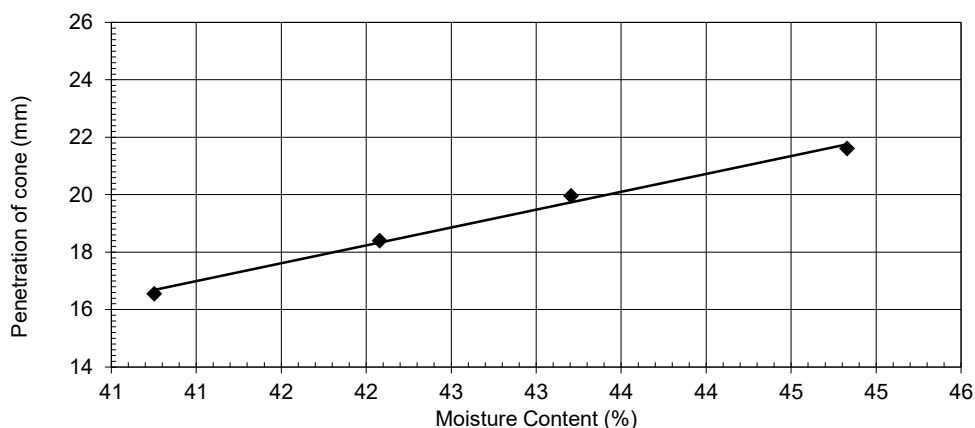
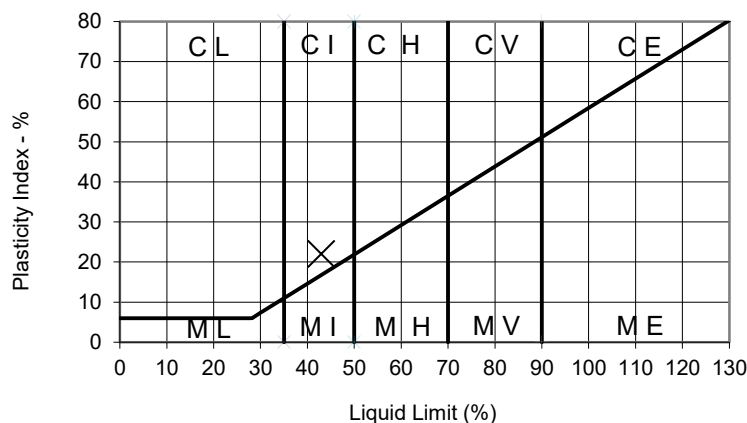
Description:

Brown mottled greyish brown gravelly slightly sandy
 CLAY. Gravel is fine to medium. Sand is fine.

Preparation : Particles >425µm removed by wet sieving and air drying.

Water Content : (BS EN ISO 17892-1:2014) 12.9 %
 Measured percentage passing 425µm sieve : 89 %
 Liquid Limit - Fall Cone 4 point Method (cone angle 30°) with increasing water content : 43 %
 Plastic Limit : 21 %
 Plasticity Index : 22 %

Equivalent Water Content of material passing 425µm sieve : 14.4 %
 Liquidity Index : -0.30



LIQUID AND PLASTIC LIMITS

Location TP1102
 Sample Ref OC
 Depth (m) 2.00
 Sample Type B

Description:

Brown mottled greyish brown and dark brown gravelly CLAY.
 Gravel is fine to medium.

Preparation : Particles >425µm removed by wet sieving and air drying.

Water Content : (BS EN ISO 17892-1:2014) 25.7 %

Measured percentage passing 425µm sieve : 82 %

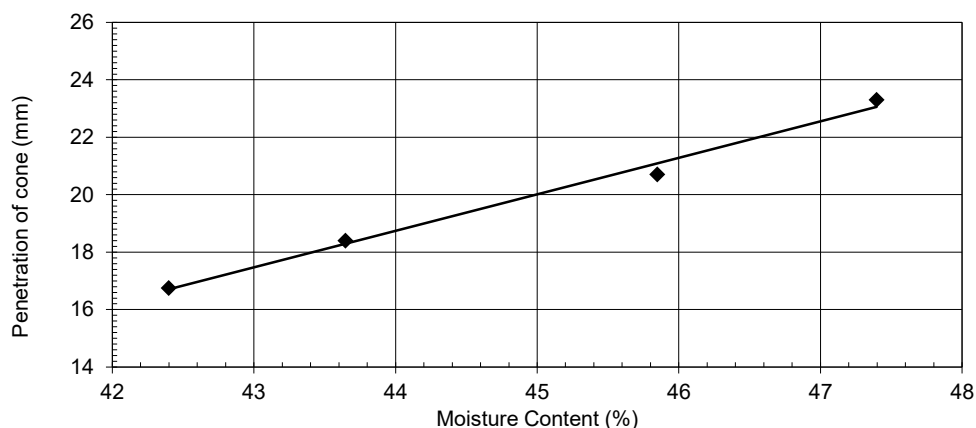
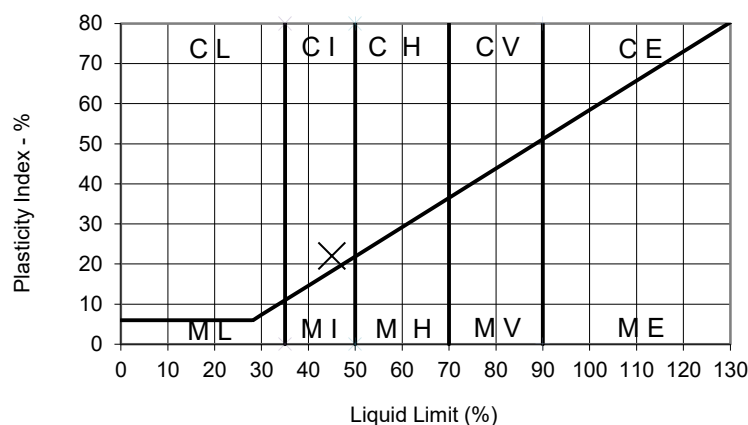
Liquid Limit - Fall Cone 4 point Method (cone angle 30°) with increasing water content : 45 %

Plastic Limit : 23 %

Plasticity Index : 22 %

Equivalent Water Content of material passing 425µm sieve : 31.4 %

Liquidity Index : 0.38



11/2017

Processed by DF
 Checked and Approved by

Project Number:

GEO / 30969

Project Name:

**HOYLAND COMMON, BARNSELY
 AG3080-19**



LIQUID AND PLASTIC LIMITS

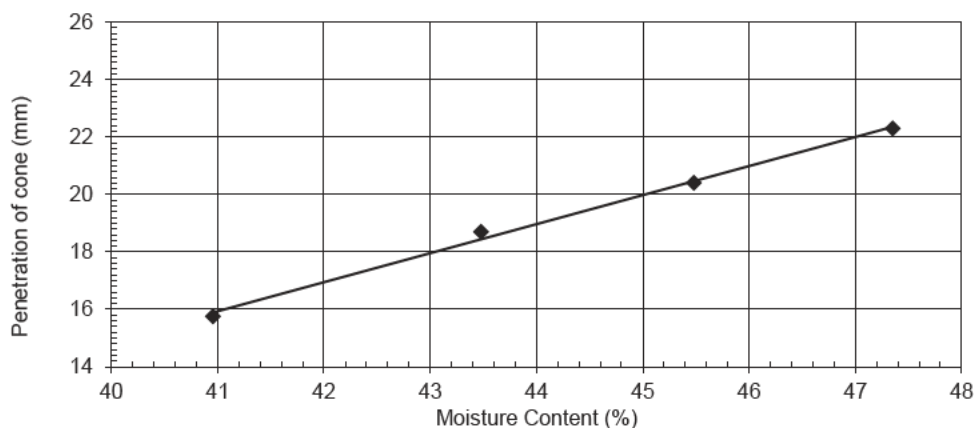
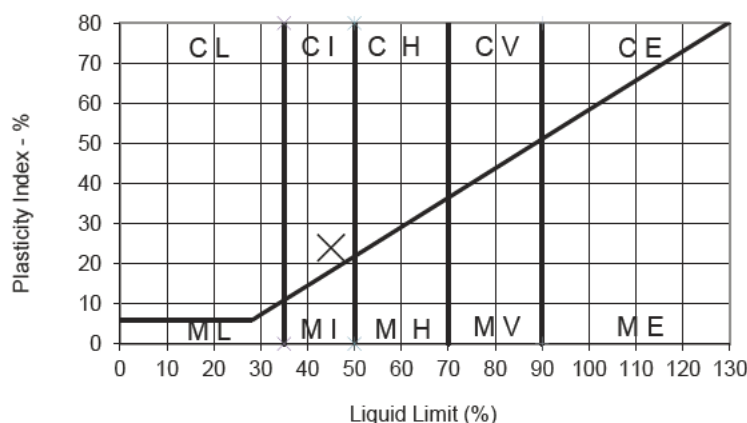
Location TP1112
 Sample Ref OC
 Depth (m) 4.00
 Sample Type B

Description:

Dark grey mottled brown and greyish brown gravelly slightly sandy CLAY. Gravel is fine to medium. Sand is fine.

Preparation : Particles >425µm removed by wet sieving and air drying.

Water Content : (BS EN ISO 17892-1:2014) 10.8 %
 Measured percentage passing 425µm sieve : 79 %
 Liquid Limit - Fall Cone 4 point Method (cone angle 30°) with increasing water content : 45 %
 Plastic Limit : 21 %
 Plasticity Index : 24 %
 Equivalent Water Content of material passing 425µm sieve : 13.7 %
 Liquidity Index : -0.30



Processed by AD
 Checked and Approved by

Project Number:

GEO / 30969

Project Name:

**HOYLAND COMMON, BARNSELY
 AG3080-19**

GEOLABS



Determination of Permeability in a Triaxial Cell

Borehole Ref.: TP1094
 Sample Ref.: OC
 Depth (m): 3.00-4.00
 Sample Type: B

Description:

Brown mottled greyish brown gravelly slightly sandy CLAY. Gravel is fine to medium. Sand is fine.

SPECIMEN DETAILS

Depth within original sample n/a
 Orientation within original n/a
 Specimen preparation Remoulded at the as-received moisture using 2.5 kg compactive effort.

TEST DETAILS

Cell Preparation Performed in accordance with Clause 3.5

		INITIAL	FINAL
Diameter	mm	104.94	104.33
Height	mm	115.98	115.31
Water Content	%	14.6	16.7
Bulk Density	Mg/m ³	2.19	2.27
Dry Density	Mg/m ³	1.91	1.95

SATURATION STAGE

Saturation initially by constant moisture content, followed by back-pressure assistance.

Pore pressure coefficient ('B' value) 0.29 0.97

CONSOLIDATION STAGE

Effective pressure kPa 60
 Volume change mL 17.4

PERMEABILITY STAGE

Measured under constant head conditions in a triaxial cell

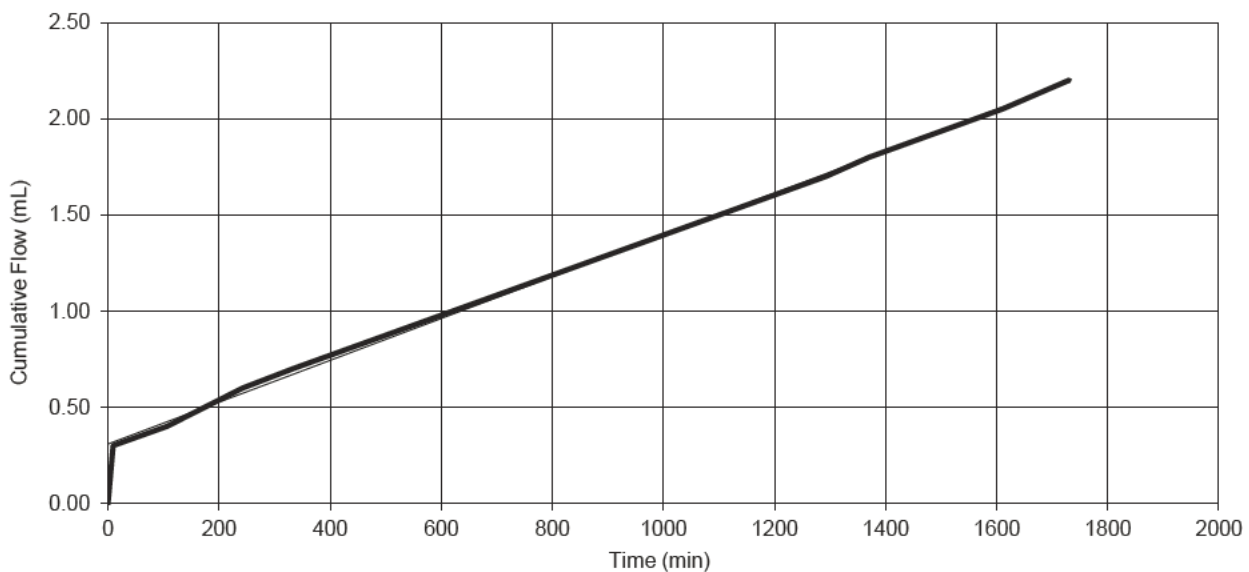
Pressure difference across specimen kPa 6
 Hydraulic gradient 5.0
 Mean effective stress kPa 57.15

TEST DURATIONS

Saturation days 3
 Consolidation days 1
 Flow days 2

Coefficient of Permeability

k_v at 20 °C = 4.2×10^{-10} m/s



Checked and Approved by

Project Number:

GEO / 30969

ect Name:

**HOYLAND COMMON, BARNSELY
 AG3080-19**

J A Reynolds - Laboratory Manager
 30/04/2020

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Determination of Permeability in a Triaxial Cell

Borehole Ref.: TP1102
 Sample Ref.: OC
 Depth (m): 2.00
 Sample Type: B

Description:
 Brown mottled greyish brown and dark brown gravelly CLAY. Gravel is fine to medium.

SPECIMEN DETAILS

Depth within original sample n/a
 Orientation within original n/a
 Specimen preparation Remoulded at the as-received moisture using 2.5 kg compactive effort.

TEST DETAILS

Cell Preparation Performed in accordance with Clause 3.5

		INITIAL	FINAL
Diameter	mm	104.75	104.41
Height	mm	115.73	115.35
Water Content	%	20.0	20.3
Bulk Density	Mg/m ³	2.05	2.08
Dry Density	Mg/m ³	1.71	1.73

SATURATION STAGE

Saturation initially by constant moisture content, followed by back-pressure assistance.

Pore pressure coefficient ('B' value) 0.85 0.98

CONSOLIDATION STAGE

Effective pressure kPa 40
 Volume change mL 9.9

PERMEABILITY STAGE

Measured under constant head conditions in a triaxial cell

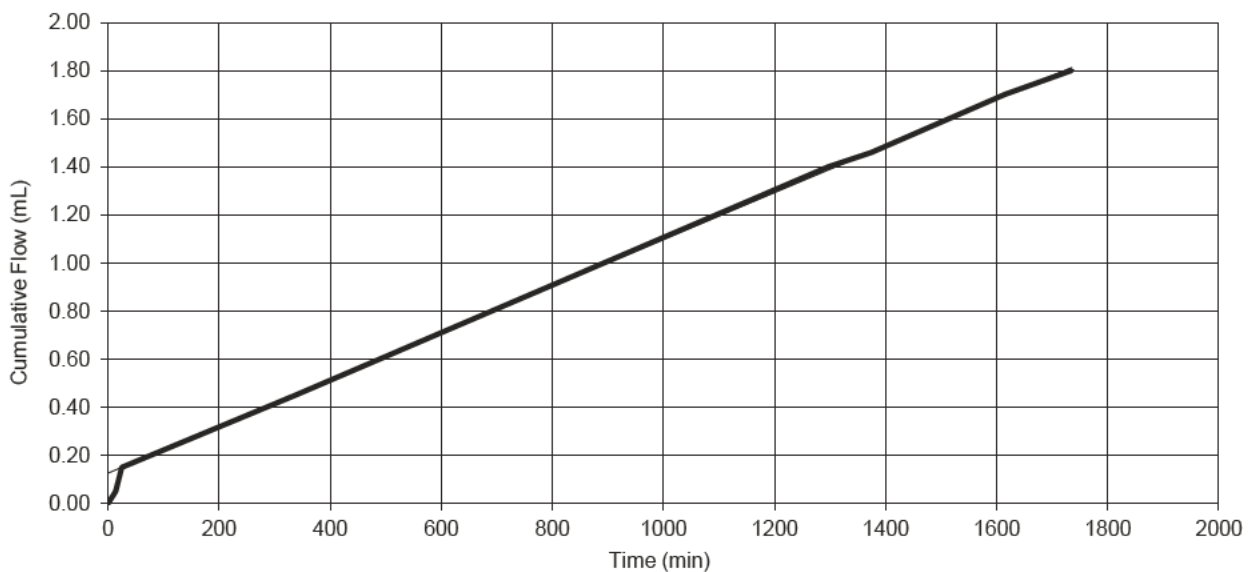
Pressure difference across specimen kPa 6
 Hydraulic gradient 5.0
 Mean effective stress kPa 37.15

TEST DURATIONS

Saturation days 4
 Consolidation days 2
 Flow days 2

Coefficient of Permeability

k_v at 20 °C = 3.8×10^{-10} m/s



Checked and Approved by

Project Number:

GEO / 30969

Project Name:

**HOYLAND COMMON, BARNSELY
 AG3080-19**

30/04/2020

Test Report By: GEOLABS Limited, Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

Client: Applied Geology, Unit 23, Abbey Park, Stareton, Kenilworth, Warwickshire, CV8 2LY

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Determination of Permeability in a Triaxial Cell

Borehole Ref.: TP1112
 Sample Ref.: OC
 Depth (m): 4.00
 Sample Type: B

Description:

Dark grey mottled brown and greyish brown gravelly slightly sandy CLAY. Gravel is fine to medium. Sand is fine.

SPECIMEN DETAILS

Depth within original sample n/a
 Orientation within original n/a
 Specimen preparation Remoulded at the as-received moisture using 2.5 kg compactive effort.

TEST DETAILS

Cell Preparation Performed in accordance with Clause 3.5

		INITIAL	FINAL
Diameter	mm	104.96	104.20
Height	mm	116.00	115.16
Water Content	%	15.4	18.9
Bulk Density	Mg/m ³	2.00	2.11
Dry Density	Mg/m ³	1.74	1.78

SATURATION STAGE

Saturation initially by constant moisture content, followed by back-pressure assistance.

Pore pressure coefficient ('B' value) 0.12 1.00

CONSOLIDATION STAGE

Effective pressure kPa 80
 Volume change mL 21.8

PERMEABILITY STAGE

Measured under constant head conditions in a triaxial cell

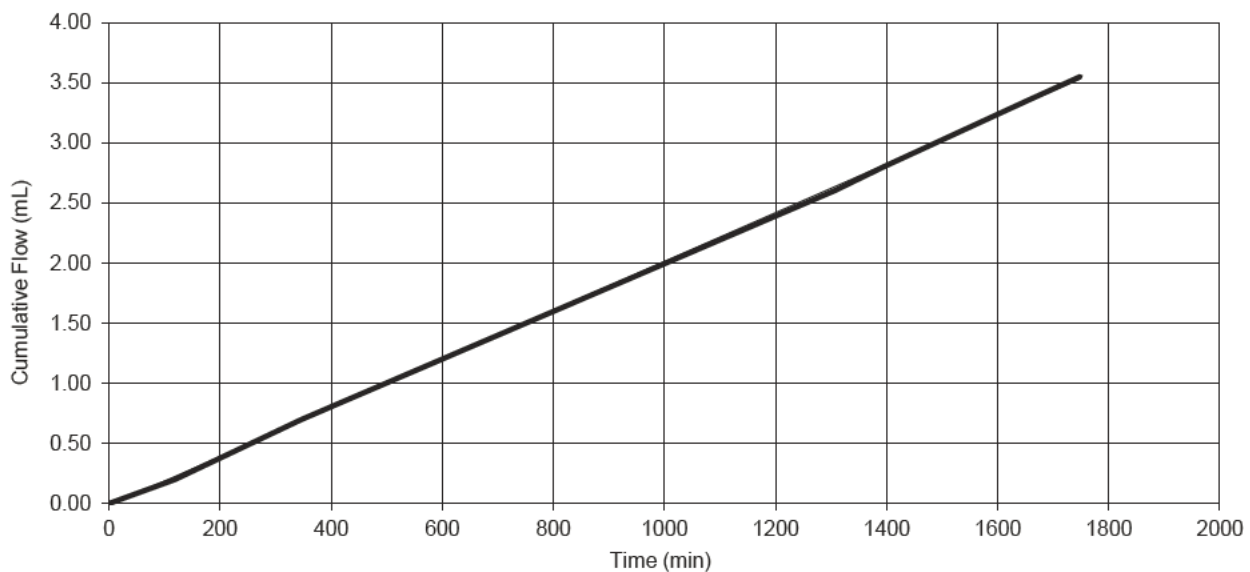
Pressure difference across specimen kPa 6
 Hydraulic gradient 5.0
 Mean effective stress kPa 77.15

TEST DURATIONS

Saturation days 3
 Consolidation days 2
 Flow days 2

Coefficient of Permeability

k_v at 20 °C = 7.9×10^{-10} m/s



Checked and Approved by

Project Number:

GEO / 30969

Project Name:

**HOYLAND COMMON, BARNSELY
 AG3080-19**

J A Reynolds - Laboratory Manager
 30/04/2020

Test Report By GEOLABS Limited Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

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APPENDIX F

CONTAMINATION ASSESSMENT PROCEDURES

Human Health

Applied Geology Limited has followed the guidance given in the CLR 11 publication and other available guidance to assess the contaminant concentrations. Details of the methodology followed are briefly outlined below.

The available chemical data is sorted into appropriate datasets depending on sampling regime and ground conditions. An initial generic quantitative risk assessment is undertaken on this data using statistical tests, where appropriate, and relevant screening values. Risk to human health has been initially assessed by comparing soil results against various published screening criteria. These have been sourced from the following, in order of preference:

- DEFRA. Category 4 Screening Levels (C4SL), March 2014;
- LQM/CIEH S4UL for Human Health Risk Assessment (S4UL), 2015*;
- Environment Agency/DEFRA, Soil Guideline Values (SGV) published in 2009;
- EIC/AGS/CL:AIRE Soil Generic Assessment Criteria (GAC), 2010.

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Except for lead and benzo(a)pyrene, the assessments will be carried out by comparing results against the LQM/CIEH S4UL in the first instance, where these values are exceeded, then reference will be made to the C4SLs where such exist. Lead will only be compared to the C4SL because no S4UL exists for lead. For Benzo(a)pyrene, Applied Geology has chosen to adopt the approach presented by the C4SL committee rather than the approach proposed by LQM/CIEH. Further discussion on this is presented below.

It is our view, and the view of others in the industry, that the C4SL were derived for use in both the Part IIA system and through the planning system, as they allow identification of those sites that fall within Category 4 (not contaminated) and are therefore able to be developed with no further remedial action. The C4SLs are considered to represent a contamination level that is 'low' from a toxicological view point, which we therefore consider to be 'acceptable' under planning.

Historically, the level of contamination has been assessed with reference to SGV values which were derived to represent a 'minimal' level of contamination. The SGVs are still valid and can be used alongside C4SL, however both screening values are only intended to provide guidance as to the level of contamination and, where concentrations fall below these screening values, the site is not contaminated (and is within Category 4). Exceedance of a SGV/S4UL/C4SL does not automatically indicate that an 'unacceptable' risk exists at a site; simply that further consideration of that particular contaminant is required.

At this time, there are two toxicological methodologies that can be used in the derivation of screening criteria for PAHs; Relative Potency Factor (RPFs) or the Surrogate Marker approach. Applied Geology has chosen (based on the latest guidance from the Health Protection Agency (HPA) to use the surrogate marker approach proposed in the C4SL methodology, whereby benzo(a)pyrene can be used as a surrogate marker for all 'genotoxic' (gene damaging) PAHs. The surrogate marker approach estimates the toxicity of a mixture of PAHs in an environmental matrix by using data from toxicity studies in which a PAH mixture of known composition was tested. Exposure to the surrogate marker benzo(a)pyrene is assumed to represent exposure to all the PAHs in the environmental matrix. Thus, the level of toxicity ascribed to the surrogate represents the toxicity of the PAH mixture. This allows an assessment of the combined carcinogenic risk associated with genotoxic PAHs using only benzo(a)pyrene. In order to confirm that the mixture of genotoxic PAH in the soil is similar to the coal tar mixture used in the toxicological study, various PAH ratios are plotted and checked to see that they fall within the limits set in HPA, 2010.

Water Quality

Risks to water quality has been assessed by following the Environment Agency guidance on groundwater protection (previously known as GP3), updated on their website in March 2017, see <https://www.gov.uk/government/policies/water-quality> and 'The Environment Agency's approach to groundwater protection' (March 2017 Version 1.0).

For hazardous substances, which should be prevented from entering groundwater, the screening criteria are initially set as the limit of detection, however, if groundwater has already been impacted, an appropriate environmental standard will then be used. For hazardous substances, background quality may also be taken into account.

For non-hazardous compounds, their release should not result in any pollution or significant risk of pollution in the future, as such comparison with UK DWS or EQS standards will allow determination of whether pollution could occur. Typically screening criteria will be sourced from the following:

- Environmental Standards (ES), which are defined in European legislation such as the Water Framework Directive (WFD) (2000/60/EC) and the Priority Substances Directive (PSD) (2008/105/EC) a daughter directive of the WFD.
- The River Basin Districts Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales) Direction, 2010.
- UK Water Supply (Water Quality) Regulations, 2010.
- UK quality standards for water to be used for direct abstraction to potable supply e.g. Surface Water (Abstraction for Drinking Water) (Classification) Regulations, 1996.
- World Health Organisation (WHO) Guidelines for Drinking Water Quality.

Re-use of Soils and Waste Soil Disposal

It is noted that if any excavated material is to be reused on site, a Waste Management Plan (WMP) and / or a Materials Management Plan (MMP) will probably be required. Any such materials must be suitable for re-use without further treatment, and only the quantity necessary for the specified works should be used. Any materials not within these definitions may need to be considered as waste whereby a Waste Management Licence Exemption may also be required.

A specific categorisation and assessment of potential waste soils arising from the proposed development has not been undertaken as part of the investigation, unless otherwise detailed in the report text. However, generic comments and advice are made below for the reader.

All waste soils should be sorted to prevent mixtures of waste types. Where possible, any waste soil should be recycled and the volume of soil to be disposed of should be minimised. Any excavated soil material and excess spoil disposed of off-site should be treated as Waste and classified as Inert, Non-hazardous or Hazardous, prior to removal from site, as required by the "Duty of Care" (Environmental Protection Act, 1990) legislation together with Annex II of Directive 1999/31/EC ("Landfill Directive"). Initially, Basic Characterisation of the waste is required whereby the material should be described and its source of origin recorded (a site plan, exploratory hole records and the certificates of chemical analysis in this report should be included). This should also include data on its composition and leaching behaviour, its European Waste Catalogue (EWC) code, and where relevant any hazardous properties according to Annex III of Directive 91/689/EEC. This information should be provided to the licensed waste contractor.

Soils excavated on many sites would generally fall under the EWC description "Soil and Stones", EWC code 17 05 04. Waste Acceptance Criteria (WAC) testing is required for many Inert wastes and generally for all Hazardous Waste but not for non-hazardous waste. There are certain restrictions for inert wastes regarding topsoil and peat. Any asbestos must be disposed of by suitably licensed contractors to a suitably licensed facility.



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Analytical Report Number : 20-82777

Project / Site name: Hoyland Common, Barnsley

Samples received on: 23/01/2020

Your job number: AG3080-19

Samples instructed on: 23/01/2020

Your order number: 15343

Analysis completed by: 30/01/2020

Report Issue Number: 1

Report issued on: 30/01/2020

Samples Analysed: 7 soil samples

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-82777

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1420755	1420756	1420757	1420758	1420759
Sample Reference	TP1083	TP1083	TP1098	TP1098	TP1099
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30-0.30	1.00-1.00	0.20-0.20	0.70-0.70	0.20-0.20
Date Sampled	15/01/2020	15/01/2020	15/01/2020	15/01/2020	15/01/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	22	14
Total mass of sample received	kg	0.001	NONE	0.90	0.70

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.0	7.5	7.1	6.5	6.1
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.012	-	0.036	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	35	-	42	-	31
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.017	0.0017	0.021	0.050	0.016
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	17.3	1.7	20.8	50.1	15.6
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	0.7	-	2.1	-
Total Sulphur	%	0.005	MCERTS	-	0.021	-	0.019	-
Ammonium as NH ₄	mg/kg	0.5	MCERTS	-	< 0.5	-	< 0.5	-
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Organic Matter	%	0.1	MCERTS	3.5	-	3.2	-	5.3
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	< 2.0	-	< 2.0	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	0.32
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	0.27
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	-	< 0.80
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Analytical Report Number: 20-82777

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1420755	1420756	1420757	1420758	1420759
Sample Reference				TP1083	TP1083	TP1098	TP1098	TP1099
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30-0.30	1.00-1.00	0.20-0.20	0.70-0.70	0.20-0.20
Date Sampled				15/01/2020	15/01/2020	15/01/2020	15/01/2020	15/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	-	14	-	16
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	-	1.2	-	1.3
Boron (total)	mg/kg	1	MCERTS	4.4	-	4.0	-	4.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	-	< 0.2	-	0.3
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	-	22	-	31
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	-	23	-	35
Lead (aqua regia extractable)	mg/kg	1	MCERTS	44	-	46	-	61
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	-	18	-	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	2.4
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38	-	39	-	42
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	-	78	-	100
Magnesium (water soluble)	mg/kg	5	NONE	12	< 5.0	11	13	15
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	< 2.5	-	6.7	-

Analytical Report Number: 20-82777

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1420760	1420761			
Sample Reference				TP1101	TP1101			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.20-0.20	0.50-0.50			
Date Sampled				15/01/2020	15/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)								
	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	20	10			
Total mass of sample received	kg	0.001	NONE	1.0	0.70			

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.2	7.9			
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.017			
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	29	-			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014	0.021			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	14.3	20.7			
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	5.1			
Total Sulphur	%	0.005	MCERTS	-	0.021			
Ammonium as NH ₄	mg/kg	0.5	MCERTS	-	< 0.5			
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	< 0.05			
Organic Matter	%	0.1	MCERTS	4.5	-			
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	< 2.0			

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-			
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-			
Fluoranthene	mg/kg	0.05	MCERTS	0.34	-			
Pyrene	mg/kg	0.05	MCERTS	0.30	-			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-			

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-			
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Analytical Report Number: 20-82777

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1420760	1420761			
Sample Reference				TP1101	TP1101			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.20-0.20	0.50-0.50			
Date Sampled				15/01/2020	15/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)				mg/kg	1	MCERTS	17	-
Beryllium (aqua regia extractable)				mg/kg	0.06	MCERTS	1.3	-
Boron (total)				mg/kg	1	MCERTS	4.6	-
Cadmium (aqua regia extractable)				mg/kg	0.2	MCERTS	0.4	-
Chromium (aqua regia extractable)				mg/kg	1	MCERTS	34	-
Copper (aqua regia extractable)				mg/kg	1	MCERTS	38	-
Lead (aqua regia extractable)				mg/kg	1	MCERTS	67	-
Mercury (aqua regia extractable)				mg/kg	0.3	MCERTS	< 0.3	-
Nickel (aqua regia extractable)				mg/kg	1	MCERTS	21	-
Selenium (aqua regia extractable)				mg/kg	1	MCERTS	2.3	-
Vanadium (aqua regia extractable)				mg/kg	1	MCERTS	49	-
Zinc (aqua regia extractable)				mg/kg	1	MCERTS	120	-
Magnesium (water soluble)				mg/kg	5	NONE	16	37
Magnesium (leachate equivalent)				mg/l	2.5	NONE	-	18

Analytical Report Number : 20-82777

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1420755	TP1083	None Supplied	0.30-0.30	Brown clay with vegetation.
1420756	TP1083	None Supplied	1.00-1.00	Brown clay and sand.
1420757	TP1098	None Supplied	0.20-0.20	Brown clay with vegetation.
1420758	TP1098	None Supplied	0.70-0.70	Light brown clay.
1420759	TP1099	None Supplied	0.20-0.20	Brown clay with vegetation.
1420760	TP1101	None Supplied	0.20-0.20	Brown clay with vegetation.
1420761	TP1101	None Supplied	0.50-0.50	Brown clay.

Analytical Report Number : 20-82777

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Fiona Connor**

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Analytical Report Number : 20-83801

Project / Site name:	Hoyland Common, Barnsley	Samples received on:	29/01/2020
Your job number:	AG3080-19	Samples instructed on:	29/01/2020
Your order number:	15343	Analysis completed by:	05/02/2020
Report Issue Number:	1	Report issued on:	05/02/2020
Samples Analysed:	8 soil samples		

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-83801-1 Hoyland Common, Barnsley AG3080-19

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The results included within the report are representative of the samples submitted for analysis.

Page 1 of 9



Analytical Report Number: 20-83801

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1426145	1426146	1426147	1426148	1426149
Sample Reference				TP1076	TP1076	TP1091	TP1077	TP1077
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-1.00	0.70-0.70	0.40-0.40	1.00-1.00	2.50-2.50
Date Sampled				21/01/2020	21/01/2020	21/01/2020	20/01/2020	20/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	18	17	12	14
Total mass of sample received	kg	0.001	NONE	1.6	0.66	1.9	0.56	2.0

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	5.5	5.3	7.5	6.3	5.7
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.071	-	0.069	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	110	-	43	-	490
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.053	0.071	0.022	0.24	0.25
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	53.0	71.2	21.5	237	246
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	7.0	-	4.1	-
Total Sulphur	%	0.005	MCERTS	-	0.034	-	0.035	-
Ammonium as NH ₄	mg/kg	0.5	MCERTS	-	< 0.5	-	0.8	-
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	< 0.05	-	0.08	-
Organic Matter	%	0.1	MCERTS	0.3	-	2.9	-	0.6
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	< 2.0	-	< 2.0	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Indeno(1 2 3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Dibenz(a h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	-	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.8	-	12	-	6.2
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.95	-	0.93	-	1.3
Boron (total)	mg/kg	1	MCERTS	2.4	-	3.3	-	3.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	-	23	-	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	-	21	-	31
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	-	37	-	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	39	-	20	-	51
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	1.1	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	26	-	34	-	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	64	-	76	-	98
Magnesium (water soluble)	mg/kg	5	NONE	39	27	31	95	110
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	14	-	48	-

Analytical Report Number: 20-83801

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1426145	1426146	1426147	1426148	1426149
Sample Reference				TP1076	TP1076	TP1091	TP1077	TP1077
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-1.00	0.70-0.70	0.40-0.40	1.00-1.00	2.50-2.50
Date Sampled				21/01/2020	21/01/2020	21/01/2020	20/01/2020	20/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-



Analytical Report Number: 20-83801

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1426145	1426146	1426147	1426148	1426149
Sample Reference				TP1076	TP1076	TP1091	TP1077	TP1077
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-1.00	0.70-0.70	0.40-0.40	1.00-1.00	2.50-2.50
Date Sampled				21/01/2020	21/01/2020	21/01/2020	20/01/2020	20/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-

Analytical Report Number: 20-83801

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1426150	1426151	1426152		
Sample Reference				TP1085	TP1097	TP1104		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.90-0.90	0.30-0.30	0.30-0.30		
Date Sampled				20/01/2020	22/01/2020	22/01/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	15	17	19		
Total mass of sample received	kg	0.001	NONE	1.9	1.8	1.4		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	6.9	6.5		
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	-		
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	91	34	30		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.046	0.017	0.015		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	45.5	17.1	15.0		
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-		
Total Sulphur	%	0.005	MCERTS	-	-	-		
Ammonium as NH ₄	mg/kg	0.5	MCERTS	-	-	-		
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	-	-		
Organic Matter	%	0.1	MCERTS	0.8	2.7	2.9		
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	-		

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Indeno(1 2 3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Dibenz(a h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	12	13		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.97	0.96	1.1		
Boron (total)	mg/kg	1	MCERTS	2.6	2.8	3.7		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	26	35		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	27	27		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	38	44		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	43	20	26		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.1		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22	34	41		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	93	79	100		
Magnesium (water soluble)	mg/kg	5	NONE	59	28	25		
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-		

Analytical Report Number: 20-83801

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1426150	1426151	1426152		
Sample Reference				TP1085	TP1097	TP1104		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.90-0.90	0.30-0.30	0.30-0.30		
Date Sampled				20/01/2020	22/01/2020	22/01/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	< 0.1		
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2		
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1		
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2		
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2		
1 2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1		
1 4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2		
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1		
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3		
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	< 0.05		
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3		
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2		
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2		
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	< 0.3		
2 4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3		
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3		
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3		
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05		
2 4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3		
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1		
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1		
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1		
2 4 6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1		
2 4 5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	< 0.2		
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1		
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1		
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1		
2 6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	< 0.1		
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05		
2 4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	< 0.2		
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	< 0.2		
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	< 0.3		
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2		
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	< 0.2		
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Azobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3		
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2		
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3		
Phenanthrene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3		
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2		
Anthraquinone	mg/kg	0.3	MCERTS	-	-	< 0.3		
Fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	< 0.3		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Indeno(1 2 3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05		



Analytical Report Number: 20-83801

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1426150	1426151	1426152		
Sample Reference				TP1085	TP1097	TP1104		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.90-0.90	0.30-0.30	0.30-0.30		
Date Sampled				20/01/2020	22/01/2020	22/01/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	ND		
SVOC % Match	%	N/A	NONE	-	-	0		



Analytical Report Number : 20-83801

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1426145	TP1076	None Supplied	1 00-1 00	Light brown clay and sand.
1426146	TP1076	None Supplied	0.70-0.70	Light brown clay.
1426147	TP1091	None Supplied	0.40-0.40	Brown loam and clay with vegetation and gravel
1426148	TP1077	None Supplied	1 00-1 00	Brown clay and sand with gravel.
1426149	TP1077	None Supplied	2 50-2 50	Brown clay and sand with gravel.
1426150	TP1085	None Supplied	0.90-0.90	Light brown clay with gravel.
1426151	TP1097	None Supplied	0 30-0 30	Brown clay and sand with vegetation.
1426152	TP1104	None Supplied	0 30-0 30	Brown loam and clay with vegetation and gravel

Analytical Report Number : 20-83801

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Fiona Connor**

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Analytical Report Number : 20-85496

Project / Site name: Hoyland common, Barnsley

Samples received on: 06/02/2020

Your job number: AG3080-19

Samples instructed on: 06/02/2020

Your order number: 15343

Analysis completed by: 13/02/2020

Report Issue Number: 1

Report issued on: 13/02/2020

Samples Analysed: 16 soil samples

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-85496-1 Hoyland common, Barnsley AG3080-19

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435443	1435444	1435445	1435446	1435447
Sample Reference				TP1061	TP1061	TP1078	TP1067	TP1065
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.50	0.10	3.00	1.50
Date Sampled				04/02/2020	04/02/2020	04/02/2020	04/02/2020	04/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	16	16	19	7.3	14
Total mass of sample received	kg	0.001	NONE	1.7	1.7	1.9	2.0	1.8

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.8	6.2	7.0	7.8	6.7
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.021	-	0.096	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	20	64	37	900	230
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.010	0.032	0.018	0.45	0.11
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	10.1	32.2	18.4	452	115
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	4.6	-	1.7	-
Total Sulphur	%	0.005	MCERTS	-	0.010	-	0.064	-
Organic Matter	%	0.1	MCERTS	2.9	1.1	3.1	1.8	1.0
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	14	-	3.3	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	7.0	-	< 5.0	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.20	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.47	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.39	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	1.06	< 0.80	< 0.80
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Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435443	1435444	1435445	1435446	1435447
Sample Reference				TP1061	TP1061	TP1078	TP1067	TP1065
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.50	0.10	3.00	1.50
Date Sampled				04/02/2020	04/02/2020	04/02/2020	04/02/2020	04/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	5.5	14	7.2	6.5
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.1	0.99	1.1	1.1
Boron (total)	mg/kg	1	MCERTS	3.3	2.3	3.4	4.0	3.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	0.3
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	23	25	22	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	20	18	25	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	33	14	48	15	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	33	44	20	44	45
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	2.3	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32	23	39	25	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	82	96	120	82
Magnesium (water soluble)	mg/kg	5	NONE	13	15	9.7	160	34
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	7.4	-	81	-



Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435443	1435444	1435445	1435446	1435447
Sample Reference				TP1061	TP1061	TP1078	TP1067	TP1065
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.50	0.10	3.00	1.50
Date Sampled				04/02/2020	04/02/2020	04/02/2020	04/02/2020	04/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1 2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
1 4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
2 4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
2 4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2 4 6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2 4 5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2 6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
2 4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Indeno(1 2 3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-



Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435443	1435444	1435445	1435446	1435447
Sample Reference				TP1061	TP1061	TP1078	TP1067	TP1065
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.50	0.10	3.00	1.50
Date Sampled				04/02/2020	04/02/2020	04/02/2020	04/02/2020	04/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	ND	-	-	-	-
SVOC % Match	%	N/A	NONE	0	-	-	-	-

Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435448	1435449	1435450	1435451	1435452
Sample Reference				TP1107	TP1047	TP1060	TP1052	TP1069
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	2.50	0.20	2.20	2.00
Date Sampled				04/02/2020	03/02/2020	03/02/2020	03/02/2020	03/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	15	17	7.9	6.7
Total mass of sample received	kg	0.001	NONE	2.0	1.8	2.0	2.0	1.2

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7	5.0	7.4	8.2	7.7
Total Sulphate as SO ₄	%	0.005	MCERTS	0.030	-	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	180	100	31	44	410
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.088	0.051	0.016	0.022	0.20
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	88.4	51.1	15.6	22.2	205
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2.8	-	-	-	-
Total Sulphur	%	0.005	MCERTS	0.036	-	-	-	-
Organic Matter	%	0.1	MCERTS	1.8	1.2	3.5	1.3	2.6
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	3.9	-	-	-	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	-	-	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435448	1435449	1435450	1435451	1435452
Sample Reference				TP1107	TP1047	TP1060	TP1052	TP1069
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	2.50	0.20	2.20	2.00
Date Sampled				04/02/2020	03/02/2020	03/02/2020	03/02/2020	03/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.1	10	14	8.7	9.5
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.0	1.3	1.2	1.1	1.1
Boron (total)	mg/kg	1	MCERTS	3.8	2.4	3.8	3.8	3.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	24	28	23	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	21	21	24	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14	14	37	16	17
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	44	38	28	47	44
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.5	2.3	3.0	2.5	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	27	36	25	24
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	88	85	97	98	96
Magnesium (water soluble)	mg/kg	5	NONE	52	17	24	38	88
Magnesium (leachate equivalent)	mg/l	2.5	NONE	26	-	-	-	-



Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435448	1435449	1435450	1435451	1435452
Sample Reference				TP1107	TP1047	TP1060	TP1052	TP1069
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	2.50	0.20	2.20	2.00
Date Sampled				04/02/2020	03/02/2020	03/02/2020	03/02/2020	03/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
1 2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
1 4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
2 4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
2 4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	-	-
2 4 6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
2 4 5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
2 6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
2 4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	< 0.3	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Indeno(1 2 3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-



Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435448	1435449	1435450	1435451	1435452
Sample Reference				TP1107	TP1047	TP1060	TP1052	TP1069
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	2.50	0.20	2.20	2.00
Date Sampled				04/02/2020	03/02/2020	03/02/2020	03/02/2020	03/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	ND	-	-
SVOC % Match	%	N/A	NONE	-	-	0	-	-

Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435453	1435454	1435455	1435456	1435457
Sample Reference				TT2012	TP1030	TP1057	TP1063	TP1056
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	0.20	3.50	1.50	0.10
Date Sampled				31/01/2020	31/01/2020	29/01/2020	30/01/2020	30/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	15	25	9.2	10	23
Total mass of sample received	kg	0.001	NONE	1.6	1.7	1.2	2.0	2.0

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	4.6	6.3	7.2	7.2	7.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.228	-	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	500	23	45	31	27
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.25	0.011	0.022	0.015	0.014
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	251	11.3	22.4	15.4	13.5
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	6.1	-	-	-	-
Total Sulphur	%	0.005	MCERTS	0.293	-	-	-	-
Organic Matter	%	0.1	MCERTS	5.9	4.4	1.9	1.5	4.6
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	4.8	-	-	-	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	-	-	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.26	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.44	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435453	1435454	1435455	1435456	1435457
Sample Reference				TT2012	TP1030	TP1057	TP1063	TP1056
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	0.20	3.50	1.50	0.10
Date Sampled				31/01/2020	31/01/2020	29/01/2020	30/01/2020	30/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	100	13	7.1	6.8	15
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.63	1.2	1.1	1.2	1.2
Boron (total)	mg/kg	1	MCERTS	4.0	3.8	2.9	3.1	3.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	31	22	25	27
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	21	24	27	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	30	46	16	18	55
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	24	46	50	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	3.4	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22	39	24	27	42
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	30	100	98	100	89
Magnesium (water soluble)	mg/kg	5	NONE	67	31	30	14	15
Magnesium (leachate equivalent)	mg/l	2.5	NONE	34	-	-	-	-



Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435453	1435454	1435455	1435456	1435457
Sample Reference				TT2012	TP1030	TP1057	TP1063	TP1056
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	0.20	3.50	1.50	0.10
Date Sampled				31/01/2020	31/01/2020	29/01/2020	30/01/2020	30/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1 2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
1 4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
2 4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
2 4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2 4 6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2 4 5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2 6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
2 4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Indeno(1 2 3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-



Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435453	1435454	1435455	1435456	1435457
Sample Reference				TT2012	TP1030	TP1057	TP1063	TP1056
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	0.20	3.50	1.50	0.10
Date Sampled				31/01/2020	31/01/2020	29/01/2020	30/01/2020	30/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	ND	-	-	-
SVOC % Match	%	N/A	NONE	-	0	-	-	-

Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435458				
Sample Reference				TP1056				
Sample Number				None Supplied				
Depth (m)				4.00				
Date Sampled				30/01/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	7.9				
Total mass of sample received	kg	0.001	NONE	2.0				

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.3				
Total Sulphate as SO ₄	%	0.005	MCERTS	0.019				
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	46				
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.023				
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	23.1				
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.9				
Total Sulphur	%	0.005	MCERTS	0.021				
Organic Matter	%	0.1	MCERTS	1.9				
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	9.2				
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0				

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80				
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Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435458				
Sample Reference				TP1056				
Sample Number				None Supplied				
Depth (m)				4.00				
Date Sampled				30/01/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.8				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.93				
Boron (total)	mg/kg	1	MCERTS	2.8				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	43				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	83				
Magnesium (water soluble)	mg/kg	5	NONE	40				
Magnesium (leachate equivalent)	mg/l	2.5	NONE	20				



Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435458				
Sample Reference				TP1056				
Sample Number				None Supplied				
Depth (m)				4.00				
Date Sampled				30/01/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-				
Phenol	mg/kg	0.2	ISO 17025	-				
2-Chlorophenol	mg/kg	0.1	MCERTS	-				
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-				
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-				
1 2-Dichlorobenzene	mg/kg	0.1	MCERTS	-				
1 4-Dichlorobenzene	mg/kg	0.2	MCERTS	-				
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-				
2-Methylphenol	mg/kg	0.3	MCERTS	-				
Hexachloroethane	mg/kg	0.05	MCERTS	-				
Nitrobenzene	mg/kg	0.3	MCERTS	-				
4-Methylphenol	mg/kg	0.2	NONE	-				
Isophorone	mg/kg	0.2	MCERTS	-				
2-Nitrophenol	mg/kg	0.3	MCERTS	-				
2 4-Dimethylphenol	mg/kg	0.3	MCERTS	-				
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-				
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-				
Naphthalene	mg/kg	0.05	MCERTS	-				
2 4-Dichlorophenol	mg/kg	0.3	MCERTS	-				
4-Chloroaniline	mg/kg	0.1	NONE	-				
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-				
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-				
2 4 6-Trichlorophenol	mg/kg	0.1	MCERTS	-				
2 4 5-Trichlorophenol	mg/kg	0.2	MCERTS	-				
2-Methylnaphthalene	mg/kg	0.1	NONE	-				
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-				
Dimethylphthalate	mg/kg	0.1	MCERTS	-				
2 6-Dinitrotoluene	mg/kg	0.1	MCERTS	-				
Acenaphthylene	mg/kg	0.05	MCERTS	-				
Acenaphthene	mg/kg	0.05	MCERTS	-				
2 4-Dinitrotoluene	mg/kg	0.2	MCERTS	-				
Dibenzofuran	mg/kg	0.2	MCERTS	-				
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-				
Diethyl phthalate	mg/kg	0.2	MCERTS	-				
4-Nitroaniline	mg/kg	0.2	MCERTS	-				
Fluorene	mg/kg	0.05	MCERTS	-				
Azobenzene	mg/kg	0.3	MCERTS	-				
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-				
Hexachlorobenzene	mg/kg	0.3	MCERTS	-				
Phenanthrene	mg/kg	0.05	MCERTS	-				
Anthracene	mg/kg	0.05	MCERTS	-				
Carbazole	mg/kg	0.3	MCERTS	-				
Dibutyl phthalate	mg/kg	0.2	MCERTS	-				
Anthraquinone	mg/kg	0.3	MCERTS	-				
Fluoranthene	mg/kg	0.05	MCERTS	-				
Pyrene	mg/kg	0.05	MCERTS	-				
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-				
Chrysene	mg/kg	0.05	MCERTS	-				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-				
Indeno(1 2 3-cd)pyrene	mg/kg	0.05	MCERTS	-				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-				



Analytical Report Number: 20-85496

Project / Site name: Hoyland common, Barnsley

Your Order No: 15343

Lab Sample Number				1435458				
Sample Reference				TP1056				
Sample Number				None Supplied				
Depth (m)				4.00				
Date Sampled				30/01/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-				
SVOC % Match	%	N/A	NONE	-				



Analytical Report Number : 20-85496

Project / Site name: Hoyland common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1435443	TP1061	None Supplied	0.20	Brown loam and clay with gravel and vegetation.
1435444	TP1061	None Supplied	1.50	Brown loam and clay with gravel and vegetation.
1435445	TP1078	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
1435446	TP1067	None Supplied	3.00	Brown clay and sand.
1435447	TP1065	None Supplied	1.50	Brown clay and sand.
1435448	TP1107	None Supplied	3.00	Brown clay and sand.
1435449	TP1047	None Supplied	2.50	Brown clay and sand.
1435450	TP1060	None Supplied	0.20	Brown loam and clay with vegetation.
1435451	TP1052	None Supplied	2.20	Brown clay and sand with gravel and vegetation.
1435452	TP1069	None Supplied	2.00	Brown clay and sand with gravel and vegetation.
1435453	TT2012	None Supplied	1.20	Brown clay and sand with gravel.
1435454	TP1030	None Supplied	0.20	Brown loam and clay with gravel and vegetation.
1435455	TP1057	None Supplied	3.50	Brown clay and sand with gravel.
1435456	TP1063	None Supplied	1.50	Brown clay and sand with gravel.
1435457	TP1056	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
1435458	TP1056	None Supplied	4.00	Brown clay and sand with gravel.

Analytical Report Number : 20-85496

Project / Site name: Hoyland common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 20-85498

Project / Site name: Hoyland Common, Barnsley

Samples received on: 06/02/2020

Your job number: AG3080-19

Samples instructed on: 06/02/2020

Your order number: 15343

Analysis completed by: 13/02/2020

Report Issue Number: 1

Report issued on: 13/02/2020

Samples Analysed: 10 soil samples

Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 20-85498

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1435464	1435465	1435466	1435467	1435468
Sample Reference	TP1027	TP1031	TP1036	TP1037	TP1043
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30	1.00	2.00	3.50	0.10
Date Sampled	27/01/2020	27/01/2020	28/01/2020	27/01/2020	28/01/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	22	13
Total mass of sample received	kg	0.001	NONE	1.8	1.9

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.3	7.2	7.9	7.8	7.1
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.018	-	0.017	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	34	33	53	74	40
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.017	0.016	0.027	0.037	0.020
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	17.1	16.3	26.5	36.9	19.9
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	0.8	-	2.4	-
Total Sulphur	%	0.005	MCERTS	-	0.015	-	0.013	-
Organic Matter	%	0.1	MCERTS	4.4	1.8	1.5	-	4.7
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	3.9	-	8.4	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	< 5.0	-	< 5.0	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.26	< 0.05	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.35	< 0.05	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.31	< 0.05	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	0.92	< 0.80	< 0.80	-	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	6.9	6.1	-	14
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.0	1.0	-	1.2
Boron (total)	mg/kg	1	MCERTS	2.7	2.7	2.8	-	3.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	-	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	20	21	-	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	19	22	-	18
Lead (aqua regia extractable)	mg/kg	1	MCERTS	52	15	15	-	54
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	41	48	-	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	3.7	< 1.0	< 1.0	-	2.9
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	36	24	23	-	41
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	92	84	92	-	100

Magnesium (water soluble)	mg/kg	5	NONE	9.8	13	37	32	27
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	6.3	-	16	-

Analytical Report Number: 20-85498

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1435464	1435465	1435466	1435467	1435468
Sample Reference	TP1027	TP1031	TP1036	TP1037	TP1043
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30	1.00	2.00	3.50	0.10
Date Sampled	27/01/2020	27/01/2020	28/01/2020	27/01/2020	28/01/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

Analytical Report Number: 20-85498

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1435464	1435465	1435466	1435467	1435468
Sample Reference				TP1027	TP1031	TP1036	TP1037	TP1043
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	1.00	2.00	3.50	0.10
Date Sampled				27/01/2020	27/01/2020	28/01/2020	27/01/2020	28/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-



Analytical Report Number: 20-85498

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1435469	1435470	1435471	1435472	1435473
Sample Reference	TP1043	TP1049	TP1057	TP1022	TP1026
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	4.70	0.10	3.50	1.40	0.60
Date Sampled	28/01/2020	29/01/2020	29/01/2020	24/01/2020	24/01/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	9.5	19
Total mass of sample received	kg	0.001	NONE	2.0	1.6

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	7.0	8.0	7.3	6.3
Total Sulphate as SO ₄	%	0.005	MCERTS	0.028	-	0.023	0.014	0.048
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	130	52	72	44	180
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.063	0.026	0.036	0.022	0.089
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	62.8	26.0	36.0	21.8	88.5
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	6.3	-	2.4	3.3	3.8
Total Sulphur	%	0.005	MCERTS	0.046	-	0.021	0.006	0.021
Organic Matter	%	0.1	MCERTS	2.0	3.9	-	-	-
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	5.7	-	13	12	6.0
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	-	6.4	5.9	< 5.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	-	-	-
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	15	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.0	1.2	-	-	-
Boron (total)	mg/kg	1	MCERTS	3.3	2.5	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	26	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	17	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	52	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	44	20	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	2.7	3.6	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	25	40	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	92	93	-	-	-

Magnesium (water soluble)	mg/kg	5	NONE	51	22	41	17	29
Magnesium (leachate equivalent)	mg/l	2.5	NONE	25	-	21	8.5	15



Analytical Report Number: 20-85498

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1435469	1435470	1435471	1435472	1435473
Sample Reference				TP1043	TP1049	TP1057	TP1022	TP1026
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.70	0.10	3.50	1.40	0.60
Date Sampled				28/01/2020	29/01/2020	29/01/2020	24/01/2020	24/01/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1 2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
1 4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
2 4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
2 4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-

Analytical Report Number: 20-85498

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1435469	1435470	1435471	1435472	1435473
Sample Reference	TP1043	TP1049	TP1057	TP1022	TP1026
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	4.70	0.10	3.50	1.40	0.60
Date Sampled	28/01/2020	29/01/2020	29/01/2020	24/01/2020	24/01/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	ND	-	-	-
SVOC % Match	%	N/A	NONE	-	0	-	-	-

Analytical Report Number : 20-85498

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1435464	TP1027	None Supplied	0.30	Brown loam and clay with gravel and vegetation.
1435465	TP1031	None Supplied	1.00	Brown loam and clay with gravel and vegetation.
1435466	TP1036	None Supplied	2.00	Brown clay and sand with gravel and vegetation.
1435467	TP1037	None Supplied	3.50	Brown clay and sand with gravel and vegetation.
1435468	TP1043	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
1435469	TP1043	None Supplied	4.70	Brown clay and sand.
1435470	TP1049	None Supplied	0.10	Brown loam and clay with vegetation.
1435471	TP1057	None Supplied	3.50	Brown clay and sand.
1435472	TP1022	None Supplied	1.40	Brown clay and sand.
1435473	TP1026	None Supplied	0.60	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 20-85498

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 °C)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



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Analytical Report Number : 20-86093

Project / Site name:	Hoyland Common, Barnsley	Samples received on:	10/02/2020
Your job number:	AG3080-19	Samples instructed on:	10/02/2020
Your order number:	15343	Analysis completed by:	17/02/2020
Report Issue Number:	1	Report issued on:	17/02/2020
Samples Analysed:	10 soil samples		

Katarzyna Lewicka
Head of Reporting Section

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 20-86093

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1438467	1438468	1438469	1438470	1438471
Sample Reference	RS3015	TP1014	TP1016	TP1106	TT2011
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	4.50	3.00	3.00	0.10	0.60
Date Sampled	31/01/2020	05/02/2020	05/02/2020	05/02/2020	05/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	16
Total mass of sample received	kg	0.001	NONE	0.50	1.9

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.0	7.2	7.0	6.6	6.7
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	0.017	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	850	48	47	26	38
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.43	0.024	0.024	0.013	0.019
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	426	24.0	23.5	12.8	19.2
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	1.5	-	-
Total Sulphur	%	0.005	MCERTS	-	-	0.006	-	-
Organic Matter	%	0.1	MCERTS	1.6	0.8	-	1.8	2.0
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	-	14	-	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	-	7.0	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	-	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.0	2.0	-	10	12
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	0.98	-	1.3	1.7
Boron (total)	mg/kg	1	MCERTS	5.4	2.3	-	3.9	3.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	24	-	30	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33	26	-	31	37
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20	18	-	29	29
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	52	41	-	37	46
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	31	25	-	37	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	98	-	100	120

Magnesium (water soluble)	mg/kg	5	NONE	170	13	7.5	8.4	12
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	3.8	-	-

Analytical Report Number: 20-86093

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1438467	1438468	1438469	1438470	1438471
Sample Reference	RS3015	TP1014	TP1016	TP1106	TT2011
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	4.50	3.00	3.00	0.10	0.60
Date Sampled	31/01/2020	05/02/2020	05/02/2020	05/02/2020	05/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

Analytical Report Number: 20-86093

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1438467	1438468	1438469	1438470	1438471
Sample Reference	RS3015	TP1014	TP1016	TP1106	TT2011
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	4.50	3.00	3.00	0.10	0.60
Date Sampled	31/01/2020	05/02/2020	05/02/2020	05/02/2020	05/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-



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Analytical Report Number: 20-86093

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1438472	1438473	1438474	1438475	1438476
Sample Reference				TP1015	TP1017	TP1024	TP1068	TP1081
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.05	2.50	0.10	0.10	0.20
Date Sampled				06/02/2020	06/02/2020	06/02/2020	06/02/2020	06/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	25	8.8	20	20	24
Total mass of sample received	kg	0.001	NONE	1.6	1.3	1.7	1.8	1.0

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.8	7.2	6.8	6.8	6.8
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	63	45	34	47	140
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.031	0.023	0.017	0.024	0.069
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	31.3	22.6	16.8	23.7	68.6
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-	-	-
Total Sulphur	%	0.005	MCERTS	-	-	-	-	-
Organic Matter	%	0.1	MCERTS	6.4	1.4	5.1	4.2	5.0
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	-	-	-	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	-	-	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.57	< 0.05	0.30	0.31	0.20
Anthracene	mg/kg	0.05	MCERTS	0.13	< 0.05	< 0.05	< 0.05	0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.80	< 0.05	0.37	0.51	0.30
Pyrene	mg/kg	0.05	MCERTS	0.73	< 0.05	0.33	0.46	0.30
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.38	< 0.05	0.23	0.33	0.22
Chrysene	mg/kg	0.05	MCERTS	0.54	< 0.05	0.29	0.41	0.22
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.38	< 0.05	0.19	0.19	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.26	< 0.05	0.07	0.15	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.30	< 0.05	< 0.05	0.22	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	4.09	< 0.80	1.78	2.58	1.29
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	7.3	26	20	17
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	1.5	1.8	1.9	1.5
Boron (total)	mg/kg	1	MCERTS	4.2	4.3	3.9	4.1	4.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	36	29	32	35	34
Copper (aqua regia extractable)	mg/kg	1	MCERTS	45	39	50	38	35
Lead (aqua regia extractable)	mg/kg	1	MCERTS	85	29	100	83	57
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	51	25	33	31
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	3.6	< 1.0	1.6	2.7	1.3
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	48	28	64	59	49
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130	120	130	150	110

Magnesium (water soluble)	mg/kg	5	NONE	16	16	16	17	57
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-	-	-



Analytical Report Number: 20-86093

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1438472	1438473	1438474	1438475	1438476
Sample Reference				TP1015	TP1017	TP1024	TP1068	TP1081
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.05	2.50	0.10	0.10	0.20
Date Sampled				06/02/2020	06/02/2020	06/02/2020	06/02/2020	06/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	0.57	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	0.13	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	0.80	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	0.73	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.38	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	0.54	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.38	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.26	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.30	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-

Analytical Report Number: 20-86093

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1438472	1438473	1438474	1438475	1438476
Sample Reference	TP1015	TP1017	TP1024	TP1068	TP1081
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.05	2.50	0.10	0.10	0.20
Date Sampled	06/02/2020	06/02/2020	06/02/2020	06/02/2020	06/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	ND	-	-	-	-
SVOC % Match	%	N/A	NONE	0	-	-	-	-

Analytical Report Number : 20-86093

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1438467	RS3015	None Supplied	4.50	Light grey clay and sand with gravel.
1438468	TP1014	None Supplied	3.00	Brown clay and sand with gravel.
1438469	TP1016	None Supplied	3.00	Brown clay and sand with gravel.
1438470	TP1106	None Supplied	0.10	Brown clay and sand with gravel.
1438471	TT2011	None Supplied	0.60	Brown clay and sand with gravel.
1438472	TP1015	None Supplied	0.05	Brown clay and loam with vegetation.
1438473	TP1017	None Supplied	2.50	Grey sandy clay with gravel.
1438474	TP1024	None Supplied	0.10	Grey clay and loam with vegetation.
1438475	TP1068	None Supplied	0.10	Brown clay and loam with vegetation.
1438476	TP1081	None Supplied	0.20	Brown clay and loam with vegetation.

Analytical Report Number : 20-86093

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 °C)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



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Analytical Report Number : 20-86287

Project / Site name: Hoyland Common, Barnsley

Samples received on: 10/02/2020

Your job number: AG3080-19

Samples instructed on: 10/02/2020

Your order number: 15343

Analysis completed by: 17/02/2020

Report Issue Number: 1

Report issued on: 17/02/2020

Samples Analysed: 1 soil sample

Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-86287-1 Hoyland Common, Barnsley AG3080-19

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The results included within the report are representative of the samples submitted for analysis.

Page 1 of 4

Analytical Report Number: 20-86287

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1439250				
Sample Reference				RS3010				
Sample Number				None Supplied				
Depth (m)				3.00				
Date Sampled				06/02/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	9.8				
Total mass of sample received	kg	0.001	NONE	1.0				

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3				
Total Sulphate as SO ₄	%	0.005	MCERTS	0.014				
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	49				
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.024				
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	24.4				
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	3.0				
Total Sulphur	%	0.005	MCERTS	0.008				
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	3.0				
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0				

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	39				
Magnesium (leachate equivalent)	mg/l	2.5	NONE	20				



Analytical Report Number : 20-86287

Project / Site name: Hoyland Common, Barnsley

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1439250	RS3010	None Supplied	3.00	Brown clay and sand.

Analytical Report Number : 20-86287

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 20-87639

Project / Site name:	Hoyland Common, Barnsley	Samples received on:	14/02/2020
Your job number:	AG3080-19	Samples instructed on:	19/02/2020
Your order number:	15343	Analysis completed by:	25/02/2020
Report Issue Number:	1	Report issued on:	25/02/2020
Samples Analysed:	6 soil samples		

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 20-87639

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1446275	1446276	1446277	1446278	1446279
Sample Reference	RC4006	TT2024	TP1088	TP1111	TP1073
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	6.50	0.50	0.05	0.05	1.50
Date Sampled	04/02/2020	10/02/2020	11/02/2020	07/02/2020	11/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	10	16
Total mass of sample received	kg	0.001	NONE	1.5	1.8

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.0	7.9	7.0	7.2	7.1
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	-	-	0.030
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	85	110	100	63	180
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.043	0.056	0.051	0.032	0.090
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	42.7	56.4	50.7	31.5	89.5
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-	-	6.9
Total Sulphur	%	0.005	MCERTS	-	-	-	-	0.013
Organic Matter	%	0.1	MCERTS	1.3	1.1	5.0	3.1	0.9
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	-	-	-	5.4
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	-	-	-	< 5.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 20-87639

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1446275	1446276	1446277	1446278	1446279
Sample Reference				RC4006	TT2024	TP1088	TP1111	TP1073
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				6.50	0.50	0.05	0.05	1.50
Date Sampled				04/02/2020	10/02/2020	11/02/2020	07/02/2020	11/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	8.7	14	12	6.2
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	1.5	1.1	1.2	1.2
Boron (total)	mg/kg	1	MCERTS	4.0	4.5	3.9	3.4	2.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	30	28	27	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	27	15	15	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	21	21	42	38	16
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	56	48	20	23	41
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	27	34	34	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	110	84	83	92
Magnesium (water soluble)	mg/kg	5	NONE	23	47	18	19	29
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-	-	15



Analytical Report Number: 20-87639

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1446275	1446276	1446277	1446278	1446279
Sample Reference	RC4006	TT2024	TP1088	TP1111	TP1073
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	6.50	0.50	0.05	0.05	1.50
Date Sampled	04/02/2020	10/02/2020	11/02/2020	07/02/2020	11/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-

Analytical Report Number: 20-87639

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1446275	1446276	1446277	1446278	1446279
Sample Reference	RC4006	TT2024	TP1088	TP1111	TP1073
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	6.50	0.50	0.05	0.05	1.50
Date Sampled	04/02/2020	10/02/2020	11/02/2020	07/02/2020	11/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	ND	-	ND	-
SVOC % Match	%	N/A	NONE	-	0	-	0	-

Analytical Report Number: 20-87639

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1446280				
Sample Reference				RS3014				
Sample Number				None Supplied				
Depth (m)				3.00-5.00				
Date Sampled				07/02/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	20				
Total mass of sample received	kg	0.001	NONE	1.9				

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.6				
Total Sulphate as SO ₄	%	0.005	MCERTS	-				
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	650				
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.33				
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	326				
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-				
Total Sulphur	%	0.005	MCERTS	-				
Organic Matter	%	0.1	MCERTS	2.0				
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-				
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-				

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80				
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Analytical Report Number: 20-87639

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1446280				
Sample Reference				RS3014				
Sample Number				None Supplied				
Depth (m)				3.00-5.00				
Date Sampled				07/02/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1				
Boron (total)	mg/kg	1	MCERTS	3.0				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	34				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	24				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	77				
Magnesium (water soluble)	mg/kg	5	NONE	95				
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-				

Analytical Report Number: 20-87639

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1446280				
Sample Reference				RS3014				
Sample Number				None Supplied				
Depth (m)				3.00-5.00				
Date Sampled				07/02/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-				
Phenol	mg/kg	0.2	ISO 17025	-				
2-Chlorophenol	mg/kg	0.1	MCERTS	-				
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-				
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-				
1 2-Dichlorobenzene	mg/kg	0.1	MCERTS	-				
1 4-Dichlorobenzene	mg/kg	0.2	MCERTS	-				
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-				
2-Methylphenol	mg/kg	0.3	MCERTS	-				
Hexachloroethane	mg/kg	0.05	MCERTS	-				
Nitrobenzene	mg/kg	0.3	MCERTS	-				
4-Methylphenol	mg/kg	0.2	NONE	-				
Isophorone	mg/kg	0.2	MCERTS	-				
2-Nitrophenol	mg/kg	0.3	MCERTS	-				
2 4-Dimethylphenol	mg/kg	0.3	MCERTS	-				
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-				
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-				
Naphthalene	mg/kg	0.05	MCERTS	-				
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-				
4-Chloroaniline	mg/kg	0.1	NONE	-				
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-				
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-				
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-				
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-				
2-Methylnaphthalene	mg/kg	0.1	NONE	-				
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-				
Dimethylphthalate	mg/kg	0.1	MCERTS	-				
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-				
Acenaphthylene	mg/kg	0.05	MCERTS	-				
Acenaphthene	mg/kg	0.05	MCERTS	-				
2 4-Dinitrotoluene	mg/kg	0.2	MCERTS	-				
Dibenzofuran	mg/kg	0.2	MCERTS	-				
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-				
Diethyl phthalate	mg/kg	0.2	MCERTS	-				
4-Nitroaniline	mg/kg	0.2	MCERTS	-				
Fluorene	mg/kg	0.05	MCERTS	-				
Azobenzene	mg/kg	0.3	MCERTS	-				
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-				
Hexachlorobenzene	mg/kg	0.3	MCERTS	-				
Phenanthrene	mg/kg	0.05	MCERTS	-				
Anthracene	mg/kg	0.05	MCERTS	-				
Carbazole	mg/kg	0.3	MCERTS	-				
Dibutyl phthalate	mg/kg	0.2	MCERTS	-				
Anthraquinone	mg/kg	0.3	MCERTS	-				
Fluoranthene	mg/kg	0.05	MCERTS	-				
Pyrene	mg/kg	0.05	MCERTS	-				
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-				
Chrysene	mg/kg	0.05	MCERTS	-				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-				

Analytical Report Number: 20-87639

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1446280				
Sample Reference				RS3014				
Sample Number				None Supplied				
Depth (m)				3.00-5.00				
Date Sampled				07/02/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-				
SVOC % Match	%	N/A	NONE	-				

Preliminary Report Number : 20-87639

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1446275	RC4006	None Supplied	6.50	Brown loam and clay with gravel.
1446276	TT2024	None Supplied	0.50	Grey loam and clay with gravel and brick.
1446277	TP1088	None Supplied	0.05	Grey loam and clay with gravel and vegetation.
1446278	TP1111	None Supplied	0.05	Brown loam and clay with gravel and vegetation.
1446279	TP1073	None Supplied	1.50	Brown loam and clay with gravel.
1446280	RS3014	None Supplied	3.00-5.00	Beige clay with gravel.

Preliminary Report Number : 20-87639

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 °C)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



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Analytical Report Number : 20-89931

Project / Site name:	Hoyland Common, Barnsley	Samples received on:	28/02/2020
Your job number:	AG3080-19	Samples instructed on:	28/02/2020
Your order number:	15343	Analysis completed by:	Not complete
Report Issue Number:	1	Report issued on:	06/03/2020
Samples Analysed:	5 soil samples		

Will Fardon

Technical Reviewer (CS Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-89931

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1458431	1458432	1458433	1458434	1458435
Sample Reference	TP1023	TP1005	TT2004	TT2007	TT2001
Sample Number	None Supplied	None Supplied	(2)	None Supplied	None Supplied
Depth (m)	0.10	0.10	3.00	2.60	1.35
Date Sampled	19/02/2020	26/02/2020	26/02/2020	26/02/2020	24/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	27	26
Total mass of sample received	kg	0.001	NONE	1.6	1.7

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.9	7.1	7.2	7.6	7.6
Total Sulphate as SO ₄	%	0.005	MCERTS	0.233	0.072	-	0.023	0.080
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	360	35	160	120	240
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.18	0.018	0.080	0.062	0.12
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	180	17.6	79.5	62.1	118
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	5.4	2.2	-	0.8	2.6
Total Sulphur	%	0.005	MCERTS	0.089	0.046	-	0.016	0.153
Ammonium as NH ₄	mg/kg	0.5	MCERTS	< 0.5	< 0.5	-	< 0.5	< 0.5
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Organic Matter	%	0.1	MCERTS	2.1	6.4	1.6	1.9	9.1
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	-	< 2.0	< 2.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.23	< 0.05	< 0.05	1.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.18
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.37	< 0.05	< 0.05	2.0
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.32	< 0.05	< 0.05	1.8
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.28	< 0.05	< 0.05	1.4
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.22	< 0.05	< 0.05	1.2
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.3
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.93
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.0
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.53
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.74

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	1.42	< 0.80	< 0.80	12.3
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Analytical Report Number: 20-89931

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1458431	1458432	1458433	1458434	1458435
Sample Reference	TP1023	TP1005	TT2004	TT2007	TT2001
Sample Number	None Supplied	None Supplied	(2)	None Supplied	None Supplied
Depth (m)	0.10	0.10	3.00	2.60	1.35
Date Sampled	19/02/2020	26/02/2020	26/02/2020	26/02/2020	24/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	160	12	9.9	11	16
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	0.98	1.6	1.6	1.6
Boron (total)	mg/kg	1	MCERTS	29	3.6	3.7	3.5	5.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	130	22	23	25	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	510	27	33	34	34
Lead (aqua regia extractable)	mg/kg	1	MCERTS	84	58	20	25	41
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	52	15	42	43	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	32	23	24	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	450	91	120	120	99

Magnesium (water soluble)	mg/kg	5	NONE	8.7	34	30	26	38
Magnesium (leachate equivalent)	mg/l	2.5	NONE	4.3	17	-	13	19

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
o-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	5.7
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	16
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	80
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	16
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	100
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	120

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	17
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	< 8.4
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	23
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	23

TPHCWG - Total C5 - C44 Aliphatic & Aromatic	mg/kg	10	NONE	-	-	-	-	140
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Analytical Report Number : 20-89931

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1458431	TP1023	None Supplied	0.10	Brown loam and clay with gravel.
1458432	TP1005	None Supplied	0.10	Brown clay and loam with gravel.
1458433	TT2004	(2)	3.00	Brown clay and loam with gravel.
1458434	TT2007	None Supplied	2.60	Brown clay and loam with gravel.
1458435	TT2001	None Supplied	1.35	Brown clay and loam with gravel.

Analytical Report Number : 20-89931

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 °C)	In house method.	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/cleanup.	L088/76-PL	W	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



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Analytical Report Number : 20-91273

Project / Site name: Hoyland Common, Barnsley

Samples received on: 06/03/2020

Your job number: AG3080-19

Samples instructed on: 06/03/2020

Your order number: 15343

Analysis completed by: 16/03/2020

Report Issue Number: 1

Report issued on: 16/03/2020

Samples Analysed: 8 soil samples

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-91273-1 Hoyland Common, Barnsley AG3080-19

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The results included within the report are representative of the samples submitted for analysis.

Page 1 of 7

Analytical Report Number: 20-91273

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465441	1465442	1465443	1465444	1465445
Sample Reference				TP1201	TP1202	TP1203	DCS6001	DCS6002
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.10	0.70-0.70	0.50-0.50	0.10-0.10	0.10-0.10
Date Sampled				03/03/2020	03/03/2020	03/03/2020	02/03/2020	02/03/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)		Units	Limit of detection	Accreditation Status				
Stone Content		%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content		%	N/A	NONE	20	19	24	31
Total mass of sample received		kg	0.001	NONE	1.7	1.9	2.0	0.94
Asbestos in Soil		Type	N/A	ISO 17025	-	Not-detected	Not-detected	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	5.5	6.1	5.5	6.2	5.9
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	52	97	49	31	34
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.026	0.049	0.025	0.015	0.017
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	26.2	48.7	24.5	15.3	16.8
Organic Matter	%	0.1	MCERTS	5.2	5.2	5.6	9.3	8.3

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.79	< 0.05	0.39	0.62
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.50	0.66	0.32	0.69	1.5
Pyrene	mg/kg	0.05	MCERTS	0.45	0.58	0.25	0.59	1.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.42	0.29	< 0.05	0.54	0.85
Chrysene	mg/kg	0.05	MCERTS	0.37	0.37	< 0.05	0.38	0.84
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.37	0.27	< 0.05	0.61	1.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.20	0.22	< 0.05	0.23	0.38
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.32	0.24	< 0.05	0.42	0.73
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.36
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.44

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	2.63	3.42	< 0.80	3.85	8.11
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Analytical Report Number: 20-91273

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1465441	1465442	1465443	1465444	1465445
Sample Reference	TP1201	TP1202	TP1203	DCS6001	DCS6002
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.10-0.10	0.70-0.70	0.50-0.50	0.10-0.10	0.10-0.10
Date Sampled	03/03/2020	03/03/2020	03/03/2020	02/03/2020	02/03/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	15	15	19	18
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	1.5	1.5	1.7	1.5
Boron (total)	mg/kg	1	MCERTS	3.8	2.5	3.1	5.5	3.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.5	0.5
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	27	31	26	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	190	43	41	76	50
Lead (aqua regia extractable)	mg/kg	1	MCERTS	88	32	38	140	110
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	40	33	25	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	4.4	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38	27	38	34	42
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	95	99	180	180

Magnesium (water soluble)	mg/kg	5	NONE	11	12	5.6	8.2	7.2
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Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
o-xylene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	-	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	< 8.0	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	< 8.0	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	< 8.4	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	-	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-	< 10	-	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	< 10	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	< 10	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	< 8.4	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	-	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-	< 10	-	-

TPHCWG - Total C5 - C44 Aliphatic & Aromatic	mg/kg	10	NONE	-	-	< 10	-	-
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Analytical Report Number: 20-91273

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1465446	1465447	1465448		
Sample Reference	DCS6003	DCS6004	DCS6005		
Sample Number	None Supplied	None Supplied	None Supplied		
Depth (m)	0.10-0.10	0.25-0.25	0.10-0.10		
Date Sampled	02/03/2020	02/03/2020	02/03/2020		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	38	26
Total mass of sample received	kg	0.001	NONE	0.95	0.42
				0.64	
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	5.8	7.1	6.1		
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	51	140	26		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.026	0.070	0.013		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	25.5	70.0	12.8		
Organic Matter	%	0.1	MCERTS	11	6.5	9.8		

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	0.88	< 0.05	1.1		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	1.4	< 0.05	2.1		
Pyrene	mg/kg	0.05	MCERTS	1.2	< 0.05	1.8		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.77	< 0.05	1.2		
Chrysene	mg/kg	0.05	MCERTS	0.78	< 0.05	1.2		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.87	< 0.05	1.5		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.49	< 0.05	0.65		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.73	< 0.05	1.0		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.36	< 0.05	0.55		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.41	< 0.05	0.64		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	7.87	< 0.80	11.8		
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Analytical Report Number: 20-91273

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465446	1465447	1465448		
Sample Reference				DCS6003	DCS6004	DCS6005		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.10-0.10	0.25-0.25	0.10-0.10		
Date Sampled				02/03/2020	02/03/2020	02/03/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	21	35	20		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.7	2.4	1.4		
Boron (total)	mg/kg	1	MCERTS	3.5	7.3	4.5		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2	0.4		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	28	26		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	93	100	37		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120	39	92		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.8		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	66	20		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	4.0	3.6	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	40	58	41		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160	72	140		
Magnesium (water soluble)	mg/kg	5	NONE	11	16	9.5		

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	< 1.0	-		
Toluene	µg/kg	1	MCERTS	-	< 1.0	-		
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-		
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	-		
o-xylene	µg/kg	1	MCERTS	-	< 1.0	-		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	< 0.001	-		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	-		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	-		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	< 8.0	-		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	< 8.0	-		
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	< 8.4	-		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-		
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	< 10	-		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001	-		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	-		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	-		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	< 10	-		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	< 10	-		
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	< 8.4	-		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-		
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	< 10	-		
TPHCWG - Total C5 - C44 Aliphatic & Aromatic	mg/kg	10	NONE	-	< 10	-		

Analytical Report Number : 20-91273

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1465441	TP1201	None Supplied	0.10-0.10	Brown clay and loam with vegetation and gravel
1465442	TP1202	None Supplied	0.70-0.70	Brown clay and sand with vegetation and gravel
1465443	TP1203	None Supplied	0.50-0.50	Light brown clay and sand with gravel.
1465444	DCS6001	None Supplied	0.10-0.10	Brown loam and clay with vegetation and gravel
1465445	DCS6002	None Supplied	0.10-0.10	Brown loam and clay with vegetation and gravel
1465446	DCS6003	None Supplied	0.10-0.10	Brown loam and clay with vegetation and gravel
1465447	DCS6004	None Supplied	0.25-0.25	Brown gravelly sand with vegetation.
1465448	DCS6005	None Supplied	0.10-0.10	Brown loam and clay with vegetation and gravel

Analytical Report Number : 20-91273

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Fiona Connor**

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Analytical Report Number : 20-91352

Project / Site name:	Hoyland Common, Barnsley	Samples received on:	06/03/2020
Your job number:	AG3080-19	Samples instructed on:	06/03/2020
Your order number:	15343	Analysis completed by:	16/03/2020
Report Issue Number:	1	Report issued on:	16/03/2020
Samples Analysed:	14 soil samples		

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-91352-1 Hoyland Common, Barnsley AG3080-19

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The results included within the report are representative of the samples submitted for analysis.

Page 1 of 13



Analytical Report Number: 20-91352

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465916	1465917	1465918	1465919	1465920
Sample Reference				RS3018	RS3018	TP1006	TP1007	TP1008
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.00-4.00	7.00-7.00	0.60-0.60	1.50-1.50	0.20-0.20
Date Sampled				13/02/2020	13/02/2020	27/02/2020	27/02/2020	28/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	7.2	15	11	13	18
Total mass of sample received	kg	0.001	NONE	1.5	1.9	0.80	1.4	1.3

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.6	8.1	8.0	7.2	7.5
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.043	-	0.013	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	140	400	23	26	25
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.068	0.20	0.011	0.013	0.012
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	68.3	202	11.3	13.1	12.3
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	3.9	-	5.3	-
Total Sulphur	%	0.005	MCERTS	-	0.028	-	0.010	-
Organic Matter	%	0.1	MCERTS	1.2	1.5	1.8	1.3	5.6
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	16	-	7.4	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	7.8	-	< 5.0	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.63
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.13
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.2
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.57
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.55
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.70
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.27
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.51
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.38
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.47

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	6.60
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.7	6.6	12	9.5	26
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	1.1	1.1	1.1	1.6
Boron (total)	mg/kg	1	MCERTS	3.7	3.6	3.2	2.8	4.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	27	22	25	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	34	33	32	35	56
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	18	20	18	81
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	58	52	38	44	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	3.1	4.4	2.8	< 1.0	4.9
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	26	25	22	22	52
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	100	100	110	110
Magnesium (water soluble)	mg/kg	5	NONE	41	78	15	13	26
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	39	-	6.3	-



Analytical Report Number: 20-91352

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number	1465916	1465917	1465918	1465919	1465920
Sample Reference	RS3018	RS3018	TP1006	TP1007	TP1008
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	4.00-4.00	7.00-7.00	0.60-0.60	1.50-1.50	0.20-0.20
Date Sampled	13/02/2020	13/02/2020	27/02/2020	27/02/2020	28/02/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1 2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
1 4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
2 4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
2 4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2 4 6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2 4 5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2 6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
2 4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	0.63
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	0.13
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	1.2
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	1.2
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	0.57
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	0.55
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	0.70
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	0.27
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	0.51
Indeno(1 2 3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	0.38
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	0.47

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	ND
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Analytical Report Number: 20-91352

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465916	1465917	1465918	1465919	1465920
Sample Reference				RS3018	RS3018	TP1006	TP1007	TP1008
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.00-4.00	7.00-7.00	0.60-0.60	1.50-1.50	0.20-0.20
Date Sampled				13/02/2020	13/02/2020	27/02/2020	27/02/2020	28/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
SVOC % Match				%	N/A	NONE	-	0

Analytical Report Number: 20-91352

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465921	1465922	1465923	1465924	1465925
Sample Reference				TP1009	TP1011	TP1012	RS3002	RS3003
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.00-4.00	1.50-1.50	1.00-1.00	4.00-4.00	2.00-2.00
Date Sampled				28/02/2020	28/02/2020	28/02/2020	24/02/2020	25/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	13	14	15	25	16
Total mass of sample received	kg	0.001	NONE	1.6	1.4	1.7	2.0	2.0

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.9	7.0	6.8	7.3	7.2
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	-	0.052	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	36	250	34	470	99
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.12	0.017	0.23	0.049
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	18.0	124	17.2	235	49.3
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-	5.6	-
Total Sulphur	%	0.005	MCERTS	-	-	-	0.287	-
Organic Matter	%	0.1	MCERTS	0.9	2.1	1.0	4.4	1.2
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	-	-	7.1	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	-	-	< 5.0	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.35	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.43	< 0.05	0.79	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.37	< 0.05	0.24	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.52	< 0.05	0.56	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.19	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.20	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.22	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.07	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	2.00	< 0.80	1.94	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.4	9.8	7.5	8.2	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.0	1.2	1.1	1.4	1.0
Boron (total)	mg/kg	1	MCERTS	2.2	2.9	2.2	4.0	2.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	26	25	20	27
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	34	29	40	32
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	27	20	44	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	45	39	35	50	45
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	25	28	25	23	23
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	96	100	84	220	100
Magnesium (water soluble)	mg/kg	5	NONE	18	40	18	76	21
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-	38	-

Analytical Report Number: 20-91352

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465921	1465922	1465923	1465924	1465925
Sample Reference				TP1009	TP1011	TP1012	RS3002	RS3003
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.00-4.00	1.50-1.50	1.00-1.00	4.00-4.00	2.00-2.00
Date Sampled				28/02/2020	28/02/2020	28/02/2020	24/02/2020	25/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
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Analytical Report Number: 20-91352

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465921	1465922	1465923	1465924	1465925
Sample Reference				TP1009	TP1011	TP1012	RS3002	RS3003
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.00-4.00	1.50-1.50	1.00-1.00	4.00-4.00	2.00-2.00
Date Sampled				28/02/2020	28/02/2020	28/02/2020	24/02/2020	25/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
SVOC % Match				%	N/A	NONE	-	-

Analytical Report Number: 20-91352

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465926	1465927	1465928	1465929
Sample Reference				RS3004	RS3017	RS3019	RS3020
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00-2.00	4.50-4.50	3.00-3.00	4.00-4.00
Date Sampled				26/02/2020	19/02/2020	18/02/2020	17/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	15	9.7	14	13
Total mass of sample received	kg	0.001	NONE	1.5	1.6	1.9	1.8

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2	7.8	8.0	7.8
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	0.037	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	35	160	320	350
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.081	0.16	0.17
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	17.5	81.2	158	174
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	2.6	-
Total Sulphur	%	0.005	MCERTS	-	-	0.035	-
Organic Matter	%	0.1	MCERTS	3.7	1.6	1.8	1.8
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	-	8.5	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	-	< 5.0	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.34	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.26	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.7	6.7	6.3	7.2
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.1	0.97	0.90
Boron (total)	mg/kg	1	MCERTS	3.8	2.9	3.1	2.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.4
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	29	22	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	41	33	32	28
Lead (aqua regia extractable)	mg/kg	1	MCERTS	38	17	15	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	34	50	47	42
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	31	25	21	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	100	98	81
Magnesium (water soluble)	mg/kg	5	NONE	19	33	61	68
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	31	-

Analytical Report Number: 20-91352

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465926	1465927	1465928	1465929
Sample Reference				RS3004	RS3017	RS3019	RS3020
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00-2.00	4.50-4.50	3.00-3.00	4.00-4.00
Date Sampled				26/02/2020	19/02/2020	18/02/2020	17/02/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-
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Analytical Report Number: 20-91352

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1465926	1465927	1465928	1465929	
Sample Reference				RS3004	RS3017	RS3019	RS3020	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				2.00-2.00	4.50-4.50	3.00-3.00	4.00-4.00	
Date Sampled				26/02/2020	19/02/2020	18/02/2020	17/02/2020	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
SVOC % Match				%	N/A	NONE	-	-



Preliminary Report Number : 20-91352

Project / Site name: Hoyland Common, Barnsley

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1465916	RS3018	None Supplied	4 00-4 00	Brown sandy clay.
1465917	RS3018	None Supplied	7 00-7 00	Brown clay with gravel.
1465918	TP1006	None Supplied	0 60-0 60	Brown clay and sand with vegetation.
1465919	TP1007	None Supplied	1 50-1 50	Brown clay and sand with vegetation.
1465920	TP1008	None Supplied	0 20-0 20	Brown clay and sand with gravel.
1465921	TP1009	None Supplied	4 00-4 00	Brown clay with gravel.
1465922	TP1011	None Supplied	1 50-1 50	Grey clay and sand with gravel.
1465923	TP1012	None Supplied	1 00-1 00	Light brown clay and sand with gravel.
1465924	RS3002	None Supplied	4 00-4 00	Grey clay and sand with gravel.
1465925	RS3003	None Supplied	2 00-2 00	Brown clay with gravel.
1465926	RS3004	None Supplied	2 00-2 00	Brown clay and sand with gravel.
1465927	RS3017	None Supplied	4 50-4 50	Light grey clay and sand.
1465928	RS3019	None Supplied	3 00-3 00	Brown loam and clay with gravel.
1465929	RS3020	None Supplied	4 00-4 00	Brown loam and clay with gravel.

Preliminary Report Number : 20-91352

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample Deviation Report



Sample D	Other ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
RS3018		S	20-91352	1465916	c	Speciated EPA-16 PAHs in soil	L064-PL	c
RS3018		S	20-91352	1465917	c	Speciated EPA-16 PAHs in soil	L064-PL	c

SOIL CHEMICAL RESULTS COMPARED AGAINST SCREENING VALUES FOR HUMAN HEALTH

Site:
Job No:

Hoyland Common
AG3080 19

Land Use Dataset

Commercial / Industrial
All results except Topsoil & Topsoil/ Made Ground
25

[illegible]

Key

MG OB Made Ground Opencast Backfill

LQM/CIH S4UL Reference No. S4UL3159 (2015)
Values in **bold** are reported at the laboratory limit of detection.

Site: Hoyland Common
Job No: AG3080-19
Land Use: Residential with Plant Uptake & Commercial/ Industrial
Dataset: Topsoil
Soil Organic Matter (%): 6.0

Exploratory Hole Reference		TP1005	TP1008	TP1015	TP1023	TP1024	TP1027	TP1030	TP1043	TP1049	TP1056	TP1060	TP1061	TP1068	TP1078	TP1081	TP1083	TP1088	TP1091	TP1097	TP1098	TP1099	TP1101	TP1104	TP1106	TP1111	TP1201	DCS6001	DCS6002	DCS6003	DCS6005	No. of samples (n)	Residential with Plant Uptake	Commercial / Industrial	Source/Justification
Depth (m)	Units	0.10 TS/MG	0.20 TS	0.05 TS	0.10 TS/MG	0.10 TS	0.30 TS/MG	0.20 TS/MG	0.10 TS/MG	0.10 TS	0.10 TS/MG	0.20 TS/MG	0.20 TS/ MG	0.10 TS/MG	0.10 TS/ MG	0.20 TS/MG	0.10 TS	0.05 TS	0.40 TS/MG	0.30 TS	0.20 TS	0.20 TS	0.20 TS	0.30 TS/ MG	0.10 TS	0.05 TS	0.10 TS/MG	0.10 TS/MG	0.10 TS	0.10 TS	0.10 TS/MG				
Organic Matter (%)	%	6.4	5.6	6.4	2.1	5.1	4.4	4.4	4.7	3.9	4.6	3.5	2.9	4.2	3.1	5	3.5	5	2.9	2.7	3.2	5.3	4.5	2.9	1.8	3.1	5.2	9.3	8.3	11	9.8	30			
pH	pH Un ts	7.1	7.5	6.8	10.9	6.8	7.3	6.3	7.1	7	7	7.4	6.8	6.8	7	6.8	7	7	7.5	6.9	7.1	6.1	6.2	6.5	6.6	7.2	5.5	6.2	5.9	5.8	6.1	30			
Pes icide Screen			No Pesticides Detected	No Pest cides Detected				No Pest cides Detected		No Pest cides Detected			No Pesticides Detected											No Pesticides Detected		No Pesticides Detected						7			
Arsen c	mg/kg	12	26	19	169	26	13	13	14	15	15	14	11	20	14	17	14	14	12	12	14	16	17	13	10	12	18	19	18	21	20	30	37	640	LOM/ClEH S4UL (2015)
Beryllium	mg/kg	0.98	1.6	1.5	1.1	1.8	1.1	1.2	1.2	1.2	1.2	1.2	1.1	1.9	0.99	1.5	1.1	1.1	0.93	0.96	1.2	1.3	1.3	1.1	1.3	1.2	1.2	1.7	1.5	1.7	1.4	30	1.7	12	LOM/ClEH S4UL (2015)
Boron Total	mg/kg	3.6	4.6	4.2	29	3.9	2.7	3.8	3.3	2.5	3	3.8	3.3	4.1	3.4	4.3	4.4	3.9	3.3	2.8	4	4.4	4.6	3.7	3.9	3.4	3.8	5.5	3.5	3.5	4.5	30	290	240000	LOM/ClEH S4UL (2015)
Cadm ium	mg/kg	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.5	0.5	0.6	0.4	30	11	190	LOM/ClEH S4UL (2015)
Chromium (total)	mg/kg	22	29	36	130	32	25	31	28	26	27	28	26	35	25	34	28	23	26	22	31	34	35	30	27	27	26	29	28	26	30	910	6600	LOM/ClEH S4UL (2015)	
Copper	mg/kg	27	56	45	510	50	20	21	18	17	23	21	20	38	18	35	27	15	21	27	23	35	38	27	31	15	190	76	50	93	37	30	2400	68000	LOM/ClEH S4UL (2015)
Lead	mg/kg	58	81	85	84	100	52	46	54	52	55	37	33	83	48	57	44	42	37	38	46	61	67	44	29	38	88	140	110	120	92	30	200	2330	CASL (2014)
Mercury (Total)	mg/kg	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.8	30	40	1100	LOM/ClEH S4UL (2015)
Nickel	mg/kg	15	25	21	52	25	23	24	21	20	20	28	33	33	20	31	24	20	20	19	20	21	26	37	23	16	25	22	21	20	30	130	980	LOM/ClEH S4UL (2015)	
Selenium	mg/kg	1	4.9	3.6	1	1.6	3.7	3.4	2.9	3.6	1	3	1	2.7	2.3	1.3	1	1	1.1	1	1	2.4	2.3	1.1	1	1	1	4.4	1	4	1	30	250	12000	LOM/ClEH S4UL (2015)
Vanadium	mg/kg	32	52	48	39	64	36	39	41	40	42	36	32	59	39	49	38	34	34	34	39	42	49	41	37	34	38	34	42	40	41	30	410	9000	LOM/ClEH S4UL (2015)
Zinc	mg/kg	91	110	130	450	130	92	100	100	93	89	97	110	150	96	110	100	84	76	79	78	100	120	100	100	83	100	180	180	160	140	30	3700	730000	LOM/ClEH S4UL (2015)
Naphthalene	mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	30	13	1100	LOM/ClEH S4UL (2015)
Acenaphthylene	mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	30	1100	100000	LOM/ClEH S4UL (2015)
Acenaphthene	mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	30	920	100000	LOM/ClEH S4UL (2015)
Fluorene	mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	30	860	71000	LOM/ClEH S4UL (2015)
Phenanthrene	mg/kg	0.23	0.63	0.57	0.05	0.3	0.26	0.05	0.05	0.05	0.05	0.05	0.05	0.31	0.20	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.39	0.62	0.88	1.1	30	440	23000	LOM/ClEH S4UL (2015)	
Anthracene	mg/kg	0.05	0.13	0.13	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	30	11000	540000	LOM/ClEH S4UL (2015)
Fluoranthene	mg/kg	0.37	1.2	0.8	0.05	0.37	0.35	0.05	0.05	0.05	0.05	0.05	0.05	0.51	0.47	0.3	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5	0.69	1.5	1.4	2.1	30	890	23000	LOM/ClEH S4UL (2015)
Pyrene	mg/kg	0.32	1.2	0.73	0.05	0.33	0.31	0.05	0.05	0.05	0.05	0.05	0.05	0.46	0.39	0.3	0.05	0.05	0.05	0.05	0.05	0.05	0.32	0.34	0.05	0.05	0.45	0.59	1.3	1.2	1.8	30	2000	54000	LOM/ClEH S4UL (2015)
Benzo(a)anthracene	mg/kg	0.28	0.57	0.38	0.05	0.23	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.33	0.05	0.22	0.05	0.05	0.05	0.05	0.05	0.05	0.27	0.30	0.05	0.05	0.42	0.54	0.85	0.77	1.2	30	*	Genotoxic PAH see Benzo(a)pyrene	
Chrysene	mg/kg	0.22	0.55	0.54	0.05	0.29	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.41	0.05	0.22	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.37	0.38	0.84	0.78	1.2	30	*	Genotoxic PAH see Benzo(a)pyrene		
Benzo(b)fluoranthene	mg/kg	0.05	0.7	0.38	0.05	0.19	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.19	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.37	0.61	1.1	0.87	1.5	30	*	Genotoxic PAH see Benzo(a)pyrene		
Benzo(k)fluoranthene	mg/kg	0.05	0.27	0.26	0.05	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.15	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.23	0.38	0.49	0.65	30	*	Genotoxic PAH see Benzo(a)pyrene		
Benzo(a)pyrene	mg/kg	0.05	0.51	0.3	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.32	0.42	0.73	0.73	1	30	5	76	CASL (2014)	
Dibenz(a,h)anthracene	mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	30	*	Genotoxic PAH see Benzo(a)pyrene	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	0.38	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.36	0.36	0.55	30	*	Genotoxic PAH see Benzo(a)pyrene		
Benzo(g,h,i)perylene	mg/kg	0.05	0.47	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.44	0.41	0.64	30	*	Genotoxic PAH see Benzo(a)pyrene		
Total of 16 PAHs	mg/kg	1.42	6.6	4.09	0.8	1.78	0.92	0.8	0.8	0.8	0.8	0.8	0.8	2.58	1.06	1.29	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	2.63	3.85	8.11	7.87	11.8	30			

Key
Values within sample set exceeds screening value for Residential with Plant Uptake and use
Values within sample set exceeds screening value for Commercial/ Industrial end use
TS: Topsoil
TS/ MG: Topsoil/ Made Ground

LOM/ClEH S4UL Reference No: S4UL3159 (2015)
Values in bold are reported at the laboratory limit of detection
Benzo(a)pyrene has been used as a surrogate marker for genotoxic PAH as discussed in Appendix E of CLAIRE SP1010 Development of C4SL for Assessment of Land Affected by Contamination December 2013
This is a low assessment of the combined carcinogenic risk associated with genotoxic PAH using only b(a)p. Genotoxic PAHs include Benzo(a)pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene and have been marked with a * on the table

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Analytical Report Number : 20-93424

Replaces Analytical Report Number : 20-93424, issue no. 1

Additional analysis undertaken.

Project / Site name:	Hoyland Common, Barnsley	Samples received on:	18/03/2020
Your job number:	AG3080-19	Samples instructed on:	18/03/2020
Your order number:	15343	Analysis completed by:	26/03/2020
Report Issue Number:	2	Report issued on:	26/03/2020
Samples Analysed:	10 water samples		

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-93424-2 Hoyland Common, Barnsley AG3080-19

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 20-93424

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1476608	1476609	1476610	1476611	1476612
Sample Reference				DCS6004	RC4001	RS3002	RS3003	RS3004
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.03	5.97	3.85	4.21	3.49
Date Sampled				17/03/2020	17/03/2020	17/03/2020	17/03/2020	17/03/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	6.0	6.7	6.4	7.0	6.7
Sulphate as SO ₄	µg/l	45	ISO 17025	48400	51600	718000	182000	936000
Sulphate as SO ₄	mg/l	0.045	ISO 17025	48.4	51.6	718	182	936
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloride	mg/l	0.15	ISO 17025	5.6	15	23	24	29
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	10.8	10.2	4.50	4.96	6.02
Nitrate as N	mg/l	0.01	ISO 17025	1.13	1.83	0.77	2.17	1.29
Nitrate as NO ₃	mg/l	0.05	ISO 17025	5.01	8.12	3.40	9.62	5.73
Nitrite as N	µg/l	1	ISO 17025	27	61	110	530	100
Nitrite as NO ₂	µg/l	5	ISO 17025	89	200	380	1700	340
Alkalinity	mgCaCO ₃ /l	3	ISO 17025	< 3	140	280	400	420
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	51.8	183	894	538	1040

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1 2 3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Heavy Metals / Metalloids

Chromium (total)	µg/l	0.2	ISO 17025	6.3	7.1	5.1	10.3	3.8
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.85	0.65	0.16	0.83	0.52
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	34	40	22	100	76
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.08	0.10	0.11	0.23
Calcium (dissolved)	mg/l	0.012	ISO 17025	11	44	130	130	230
Chromium (dissolved)	µg/l	0.2	ISO 17025	2.5	4.4	< 0.2	4.7	0.3
Copper (dissolved)	µg/l	0.5	ISO 17025	2.5	5.2	0.5	1.7	1.9
Iron (dissolved)	mg/l	0.004	ISO 17025	0.089	0.20	0.79	< 0.004	0.079
Lead (dissolved)	µg/l	0.2	ISO 17025	0.2	0.3	< 0.2	< 0.2	< 0.2
Magnesium (dissolved)	mg/l	0.005	ISO 17025	5.9	17	140	51	110
Manganese (dissolved)	µg/l	0.05	ISO 17025	560	860	9100	2700	9800
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	5.3	7.8	73	16	23
Potassium (dissolved)	mg/l	0.025	ISO 17025	0.97	1.7	8.2	5.2	7.9
Selenium (dissolved)	µg/l	0.6	ISO 17025	6.0	1.9	1.2	5.4	7.2
Sodium (dissolved)	mg/l	0.01	ISO 17025	17	13	23	47	87
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.4	0.5	< 0.2	0.2	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	45	40	75	20	8.1

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 20-93424-2 Hoyland Common, Barnsley AG3080-19

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 20-93424

Project / Site name: Hoyland Common, Barnsley

Your Order No: 15343

Lab Sample Number				1476613	1476614	1476615	1476616	1476617
Sample Reference				RS3008	RS3010	RS3013	RS3022	RS3025
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.85	1.97	3.39	4.66	2.28
Date Sampled				17/03/2020	17/03/2020	17/03/2020	17/03/2020	17/03/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.3	6.8	6.2	6.8	6.8
Sulphate as SO ₄	µg/l	45	ISO 17025	170000	264000	37000	124000	105000
Sulphate as SO ₄	mg/l	0.045	ISO 17025	170	264	37.0	124	105
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloride	mg/l	0.15	ISO 17025	17	49	15	42	8.5
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	28.8	4.94	4.40	4.35	23.0
Nitrate as N	mg/l	0.01	ISO 17025	0.66	4.09	7.57	17.9	0.69
Nitrate as NO ₃	mg/l	0.05	ISO 17025	2.92	18.1	33.5	79.4	3.06
Nitrite as N	µg/l	1	ISO 17025	34	200	35	100	33
Nitrite as NO ₂	µg/l	5	ISO 17025	110	650	120	330	110
Alkalinity	mgCaCO ₃ /l	3	ISO 17025	340	56	15	150	180
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	224	313	105	308	204

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1 2 3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Heavy Metals / Metalloids

Chromium (total)	µg/l	0.2	ISO 17025	5.5	6.2	7.9	6.3	7.2
Arsenic (dissolved)	µg/l	0.15	ISO 17025	3.23	0.21	0.18	1.16	8.59
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	36	48	29	55	32
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.04	0.13	0.07	0.30	0.09
Calcium (dissolved)	mg/l	0.012	ISO 17025	48	60	13	59	41
Chromium (dissolved)	µg/l	0.2	ISO 17025	2.9	5.7	4.7	0.6	7.0
Copper (dissolved)	µg/l	0.5	ISO 17025	6.9	1.4	0.8	2.7	14
Iron (dissolved)	mg/l	0.004	ISO 17025	0.76	0.015	0.004	0.007	0.85
Lead (dissolved)	µg/l	0.2	ISO 17025	0.9	< 0.2	< 0.2	< 0.2	0.9
Magnesium (dissolved)	mg/l	0.005	ISO 17025	26	40	17	39	25
Manganese (dissolved)	µg/l	0.05	ISO 17025	780	790	180	2800	490
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	61	22	20	25	21
Potassium (dissolved)	mg/l	0.025	ISO 17025	8.9	1.3	0.96	7.2	2.5
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.4	1.5	0.8	1.9	1.3
Sodium (dissolved)	mg/l	0.01	ISO 17025	120	52	8.7	52	55
Vanadium (dissolved)	µg/l	0.2	ISO 17025	1.2	< 0.2	< 0.2	< 0.2	1.4
Zinc (dissolved)	µg/l	0.5	ISO 17025	12	26	6.6	11	21

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 20-93424-2 Hoyland Common, Barnsley AG3080-19

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 20-93424

Project / Site name: Hoyland Common, Barnsley

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Alkalinity in Water (by discrete analyser)	Determination of Alkalinity by discrete analyser (colorimetry). Accredited matrices: SW, PW, GW.	In house method based on MEWAM & USEPA Method 310.2.	L082-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrite as N in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L029-PL	W	NONE
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Total organic carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR analyser. Accredited matrices: SW PW GW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

SUMMARY OF GROUNDWATER TEST RESULTS

Site Hoyland Common, Barnsley
Job Number AG3080-19
Type of Water Groundwater

Determinand	Limit of Detection	Hazardous or Non-Hazardous^	Sample Identity Depth (m bgl) Sampled Date Stratum	DCS6004 2.03 17/03/2020 PMCMF	RC4001 5 97 17/03/2020 PMCMF	RS3002 3.85 17/03/2020 MG OB	RS3003 4.21 17/03/2020 MG OB	RS3004 3.49 17/03/2020 MG OB	RS3008 1.85 17/03/2020 Weathered PMCMF	RS3010 1 97 17/03/2020 PMCMF	RS3013 3.39 17/03/2020 MG OB	RS3022 4 66 17/03/2020 MG OB & PMCMF	RS3025 2.28 17/03/2020 PMCMF	No. of samples (n)	Waters Screening Value	Source & Justification
Hardness		-	mg l ⁻¹	51 8	183	894	538	1040	224	313	105	308	204	10	-	-
pH		-	-	6	6.7	6.4	7	6.7	7.3	6.8	6.2	6.8	6.8	10	-	-
TOC		-	mg l ⁻¹	10 8	10.2	4 5	4.96	6.02	28 8	4 94	4.4	4 35	23	10	-	-
Arsenic		Haz	µg l ⁻¹	0.85	0 65	0.16	0.83	0.52	3.23	0 21	0.18	1.16	8.59	10	50	WFD Environmental Standard, 2010
Cadmium		Non Haz	µg l ⁻¹	0.02	0 08	0.1	0.11	0.23	0.04	0.13	0.07	0.3	0.09	10	1.5	WFD Environmental Standard, 2010
Chromium (Total)		Non Haz	µg l ⁻¹	6.3	7.1	5.1	10.3	3 8	5.5	6.2	7.9	6.3	7.2	10	50	UK Drinking Water Standards (2010)
Chromium (III)		Non Haz	µg l ⁻¹	2.5	4.4	0.2	4.7	0 3	2.9	5.7	4.7	0.6	7.00	10	32	WFD Environmental Standard, 2010
Copper		Non Haz	µg l ⁻¹	2.5	5.2	0 5	1.7	1 9	6.9	1.4	0.8	2.7	14	10	28	WFD Environmental Standard, 2010
Lead		Haz	µg l ⁻¹	0.2	0.3	0.2	0.2	0.2	0.9	0.2	0.2	0.2	0.9	10	7.2	WFD Environmental Standard, 2010
Nickel		Non Haz	µg l ⁻¹	5.3	7.8	73	16	23	61	22	20	25	21	10	20	WFD Environmental Standard, 2010
Selenium		Non Haz	µg l ⁻¹	6	1.9	1 2	5.4	7 2	1.4	1.5	0.8	1.9	1.3	10	10	UK Drinking Water Standards (2010)
Zinc		Non Haz	µg l ⁻¹	45	40	75	20	8.1	12	26	6.6	11	21	10	125	WFD Environmental Standard, 2010
Boron		Non Haz	µg l ⁻¹	34	40	22	100	76	36	48	29	55	32	10	1000	UK Drinking Water Standards (2010)
Beryllium		Non Haz	µg l ⁻¹	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10	12	UK Drinking Water Standards (2010)
Vanadium		Non Haz	µg l ⁻¹	0.4	0.5	0.2	0.2	0.2	1.2	0.2	0.2	0.2	1.4	10	60	EQS
Sodium		Non Haz	mg l ⁻¹	17	13	23	47	87	120	52	8.7	52	55	10		
Calcium		Non Haz	mg l ⁻¹	11	44	130	130	230	48	60	13	59	41	10		
Iron		Non Haz	mg l ⁻¹	0.089	0.2	0.79	0.004	0.079	0.76	0.015	0 004	0.007	0.85	10		
Manganese		Non Haz	µg l ⁻¹	560	860	9100	2700	9800	780	790	180	2800	490	10		
Potassium		Non Haz	mg l ⁻¹	0.97	1.7	8 2	5.2	7 9	8.9	1.3	0.96	7.2	2.5	10		
Magnesium		Non Haz	mg l ⁻¹	5.9	17	140	51	110	26	40	17	39	25	10		
Sulphate		Non Haz	mg l ⁻¹	48.4	51.6	718	182	936	170	264	37	124	105	10	250	UK Drinking Water Standards (2010)
Sulphide		Non Haz	mg l ⁻¹	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	10	0.25	UK Drinking Water Standards (2010)
Naphthalene		Non Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	2.4	WFD Environmental Standard, 2010
Acenaphthene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection limit
Fluorene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection limit
Phenanthrene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection limit
Anthracene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.4	WFD Environmental Standard, 2010
Fluoranthene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	1.0	WFD Environmental Standard, 2010
Pyrene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection limit
Benzo[a]anthracene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection limit
Chrysene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection limit
Benzo[b]fluoranthene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.03	WFD Environmental Standard, 2010
Benzo[k]fluoranthene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection limit
Benzo[a]pyrene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.1	WFD Environmental Standard, 2010
Dibenz(a,h)Anthracene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection limit
Indeno(1,2,3-c,d)Pyrene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection Limit
Benzo[g,h,i]perylene		Haz	µg l ⁻¹	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	10	0.01	Detection Limit

Key-
Result exceeds test Detection Limit (for Haz determinands)
Result exceeds Screening Value (for Non Haz determinands)
Values in bold at the limit of detection

^ Note: Hazardous and non-hazardous substances determined by JAGDAG (Jan 2017) and published at <http://www.wfduk.org/sites/default/files/Media/170116%20Substance%20Determinationsfinal.pdf>. These are marked in bold.
For substances not assessed by JAGDAG, Applied Geology has assumed a determination based on our understanding of the behaviour of the chemical. These determinations are highlighted in yellow.

APPENDIX G



TIM O'HARE ASSOCIATES

SOIL & LANDSCAPE CONSULTANCY

Mr Stuart Day
Applied Geology Limited
Unit 23 Abbey Park
Stareton
Kenilworth
Warwickshire CV8 2LY

16th March 2020
Our Ref: TOHA/20/9429/SS/Rev.1
Your Ref: PO 15338

Dear Sirs

Topsoil Analysis Report: Hoyland Common

We have completed the analysis of the soil samples recently submitted, referenced *Location 1* to *Location 12*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the samples for general landscape purposes (trees, shrubs, amenity grass). In addition, these samples have been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

It is understood that the samples were taken in early March 2020 after several months of significantly heavy rainfall. With reference to email correspondence received on 13/03/2020, the samples are associated with the following location references.

Sample Ref	Sample Location
Location 1	TP1106
Location 2	TP1109
Location 3	TT2029
Location 4	TP1077
Location 5	TP1074
Location 6	TP1035
Location 7	TP1041
Location 8	TP1027
Location 9	TP1020
Location 10	TP1017
Location 11	TP1011
Location 12	TP1004

This report presents the results of analysis for the samples submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification testing, validation testing or waste designation purposes.

Tim O'Hare Associates LLP
Howbery Park Wallingford Oxfordshire OX10 8BA
T:01491 822653 E:info@toha.co.uk
www.toha.co.uk

SAMPLE EXAMINATION

The samples were described as ranging from dark yellowish brown (Munsell colour 10YR 4/4) to very dark greyish brown (Munsell colour 10YR 3/2), moist to wet, slightly plastic to plastic, slightly calcareous HEAVY CLAY LOAMS, SILTY CLAYS and CLAYS. The samples ref. *Locations 1, 4, 5, 6, 11 and 12* displayed structural degradation, with little or no defined soil structure. Samples ref. *Locations 2, 3, 7, 9 and 10* displayed moderately to well-developed, fine to medium granular to sub-angular blocky structures*. The samples were virtually stone free to slightly stony and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

*This appraisal of soil structure was made from examination of a disturbed sample(s). Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

ANALYTICAL SCHEDULE

The samples were submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- particle size analysis (sand, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX).

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis

The samples fell into the *heavy clay loam, clay and silty clay* texture class and the soil would be described as very heavy in texture. Such soils have physical limitations for use in general landscaping. The high clay and silt content of these soils is likely to make them, at best, only very slowly permeable. The soils would also be prone to structural degradation and compaction during handling, and especially when plastic in consistency. Any damage to the structural condition of these soils is likely to further reduce their drainage and aeration properties.

These texture classes may be considered suitable for only the most robust landscape applications, including hardy bareroot stock and amenity grass (low foot traffic only). This is provided the physical condition of the soil is satisfactory and provided species tolerant of moisture retentive, heavy soil are selected. The soil would not be suited to more demanding planting environments or plant species that require or prefer light or free-draining soil.

In addition, smaller plant stock, such as whips and transplants, would be more suited than containerised or rootballed stock, as they tend to be more tolerant of adverse soil conditions. The soil would not be suitable for use as a backfill material for tree pits.

The particle size distribution of the samples fell outside of the textural range specified in the BS3882:2015 – Figure 1 on account of the high clay content.

Stone Content

The stone contents of the samples were low and, as such, stones should not restrict the use of the soil for general landscape purposes.

Samples ref. *Locations 1, 3, 4, 5, 7 and 11* contained occasional stones greater than 20mm in size. This exceeds the maximum recommended stone size for *informal and formal recreation* end uses given in Annex A.4 (Stones) of the British Standard for Topsoil (*BS3882:2015*). It may be prudent to remove any larger stones, for example, by raking, picking or burying, should the soil be used for these purposes.

pH and Electrical Conductivity Values

The samples were slightly acid to slightly alkaline in reaction (pH 6.5-7.3), with a pH range that would be considered ideal for general landscape purposes.

The electrical conductivity (salinity) values (water extract) were low to very low. The very low salinity itself would not present any growth restrictions on plants; however, the low levels of salts in solution may suggest possible deficiencies in available plant nutrients (as demonstrated within the nutrient analysis discussed below).

The electrical conductivity values by CaSO₄ extract (*BS3882* requirement) fell below the maximum specified value (3300 µS/cm) given in *BS3882:2015 – Table 1*.

Organic Matter and Fertility Status

The samples were adequately supplied with organic matter, total nitrogen and extractable magnesium, with significant deficiencies in extractable phosphorus and extractable potassium. These deficiencies can usually be remedied by routine fertiliser application.

The C:N ratio of the samples were acceptable for general landscape purposes.

Potential Contaminants

With reference to *BS3882:2015 – Table 1: Notes 3 and 4*, there is a requirement to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the samples for general landscape purposes (trees, shrubs, amenity grass). In addition, these samples have been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

Summary of Findings

From the soil examination and subsequent laboratory analysis, the samples were described as slightly acid to slightly alkaline, non-saline heavy clay loam, silty clay or clay, with low stone content. The samples contained sufficient reserves of organic matter, total nitrogen and extractable magnesium but were deficient in extractable phosphorus and extractable potassium. Of the potential contaminants determined, none exceeded their respective guideline values.

Samples ref. *Locations 1, 4, 5, 6, 11 and 12* displayed significant structural degradation. This may, in part, be due to damage caused during sampling (material was wet at time of sampling) and/or whilst in transit. However, if these samples are representative of site conditions, the soils are likely to suffer from a lack of drainage and insufficient aeration, particularly in a wet and plastic state. Such conditions are typically inhospitable to plants if they are not rectified. Therefore, it will be important to ensure that the physical condition of the soil is improved to allow adequate drainage. This is particularly important for heavy textured soils that are reliant on soil structure for aeration and drainage. It may be prudent to commission an in-situ assessment of the physical condition of the soil.

Suitability for Re-Use

To conclude, based on our findings, the topsoil represented by these samples would only be considered suitable for use in the most *robust* landscape applications (e.g. hardy bareroot stock and amenity grass – low footfall areas). This is provided the following conditions are met:

- the physical condition of the soil is at its optimum;
- species tolerant of heavy, moisture retentive soils are selected;
- the nutrient deficiencies are addressed with a suitable fertiliser application.

Bareroot or smaller containerised stock would be more appropriate for these soils, rather than rootballed and large containerised specimens. Species that require light or free-draining soils would not be suited to these soils.

In order to improve the physical condition of the soils, they will need to be dried out sufficiently and cultivated to improve soil structure and encourage aeration prior to planting works.

If this topsoil is to be stripped and then respread on site, to minimise the risk of self-compaction and anaerobism, we recommend that the topsoil is not replaced thicker than a maximum depth of **300mm**.

Compliance with BS3882:2015 Multipurpose Topsoil

The samples were not compliant with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*) due to the following parameters:

- particle size distribution (high clay content);
- extractable phosphorus;
- extractable potassium.

The significance of the non-compliant particle size distribution of the soils will be dependent on the requirements of the proposed landscape scheme, soil management operations and programme of works. The heavy texture of the soil will *not* be appropriate for planting applications such as tree pits or ornamental planting (rootballed or containerised stock), amenity grass in high footfall areas, nor for plant species that require or prefer light to medium textured, well drained soils. The comments made above under '*Suitability for Re-Use*' and '*Soil Handling Recommendations*' below should be adhered to.

The nutrient deficiencies can usually be remedied by routine fertiliser application.

RECOMMENDATIONS

Fertiliser for Planting

To address the nutrient deficiencies and to help promote effective plant establishment, we recommend applying and incorporating the compound, slow release fertiliser *ICL Enmag CRF* (11%N:21%P₂O₅:9%K₂O:6%MgO) at a rate of 100 g/m² and to a depth of 200mm.

Fertiliser for Amenity Grass Establishment

To address the nutrient deficiencies and to help promote effective grass establishment, we recommend applying and incorporating the pre-seeding grass fertiliser *ICL Sportsmaster Pre-seeder* (8%N:12%P₂O₅:8%K₂O+3%MgO) prior to seeding or turfing at a rate of 50 g/m² and to a depth of 100mm.

Stone Removal

To reduce the stone content for *informal* and *formal recreation* end uses (Annex A.4 of BS3882:2015), it may be prudent to remove a portion of the larger stones (>20mm) by intensive picking, raking, or burying prior to seeding or turfing.

Soil Handling Recommendations

The heavy texture of this soil will make it particularly vulnerable to physical degradation (compaction) during all phases of soiling and landscape works. It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking, and soil handling should be stopped during and after heavy rainfall, and not continued until the soil has returned to a friable state. If this soil is damaged its potential for re-use will be limited. Therefore, to maintain the physical condition of the soil and avoid structural damage, all phases of soil handling operations (e.g. stockpiling, resspreading, cultivating, and planting, seeding or turfing) should only be carried out when the soil is reasonably dry and non-plastic (friable) in consistency.

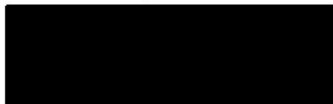
If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of BS3882:2015.

Further guidance on the management, preparation and handling of soils is provided in the DEFRA publication *Construction code of practice for the sustainable use of soils on construction sites*, 2009

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Ceri Spears
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Senior Associate

For & on behalf of Tim O'Hare Associates LLP