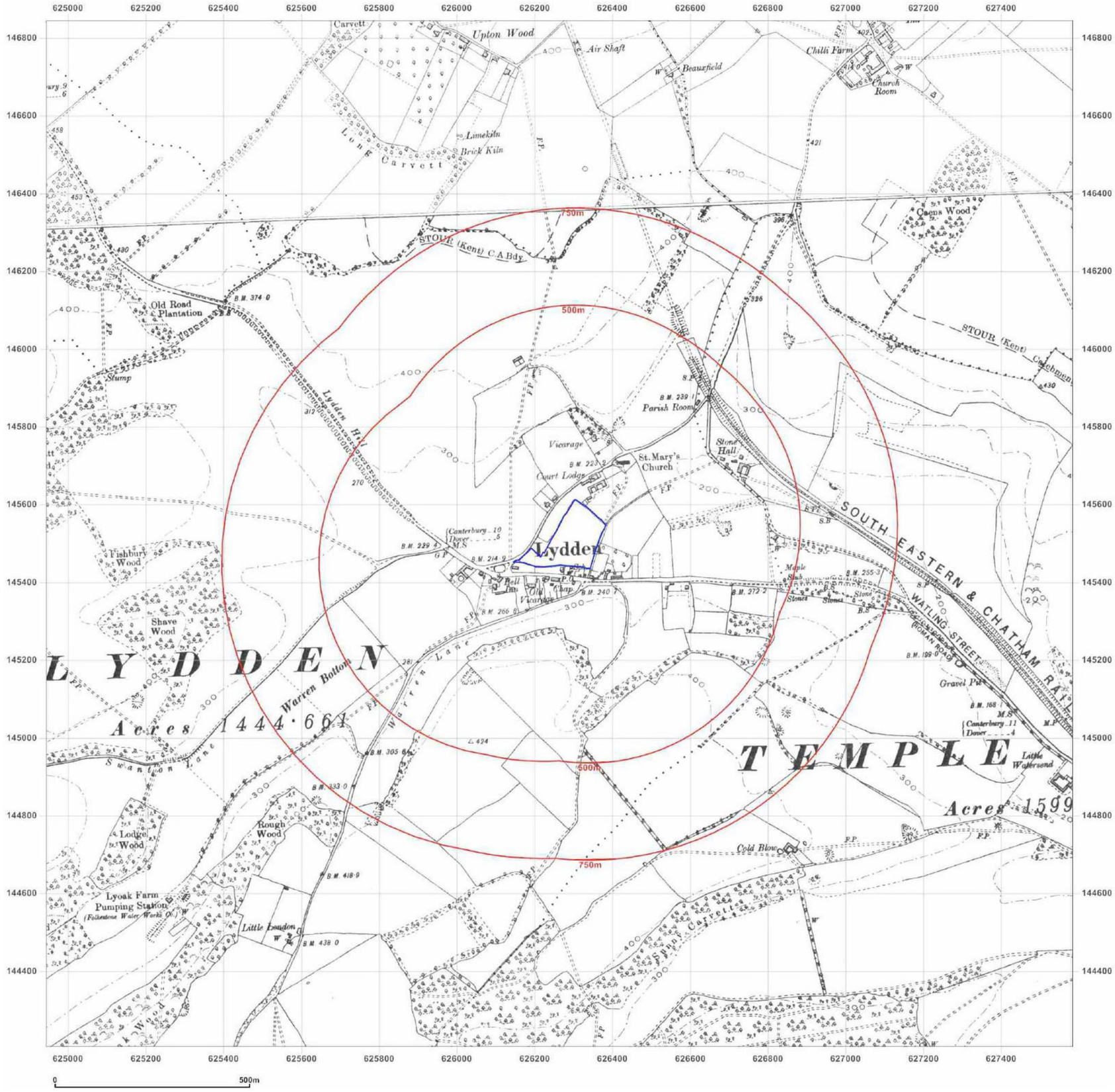

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: County Series

Map date: **1906**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1872
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1871
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 27 March 2019

Map legend available at:
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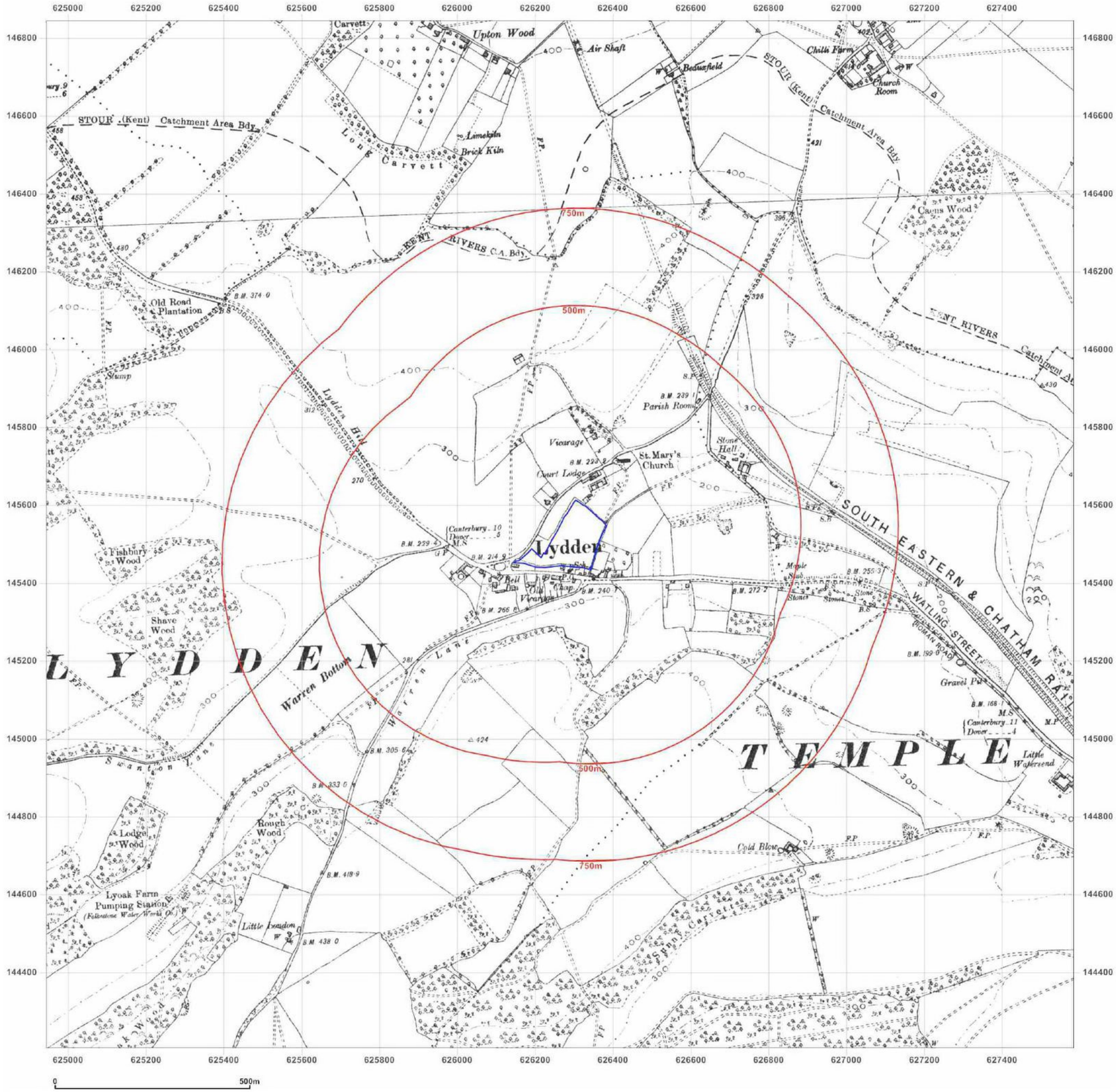

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: County Series

Map date: **1906**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1872
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1871
Revised 1906
Edition N/A
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Map legend available at:
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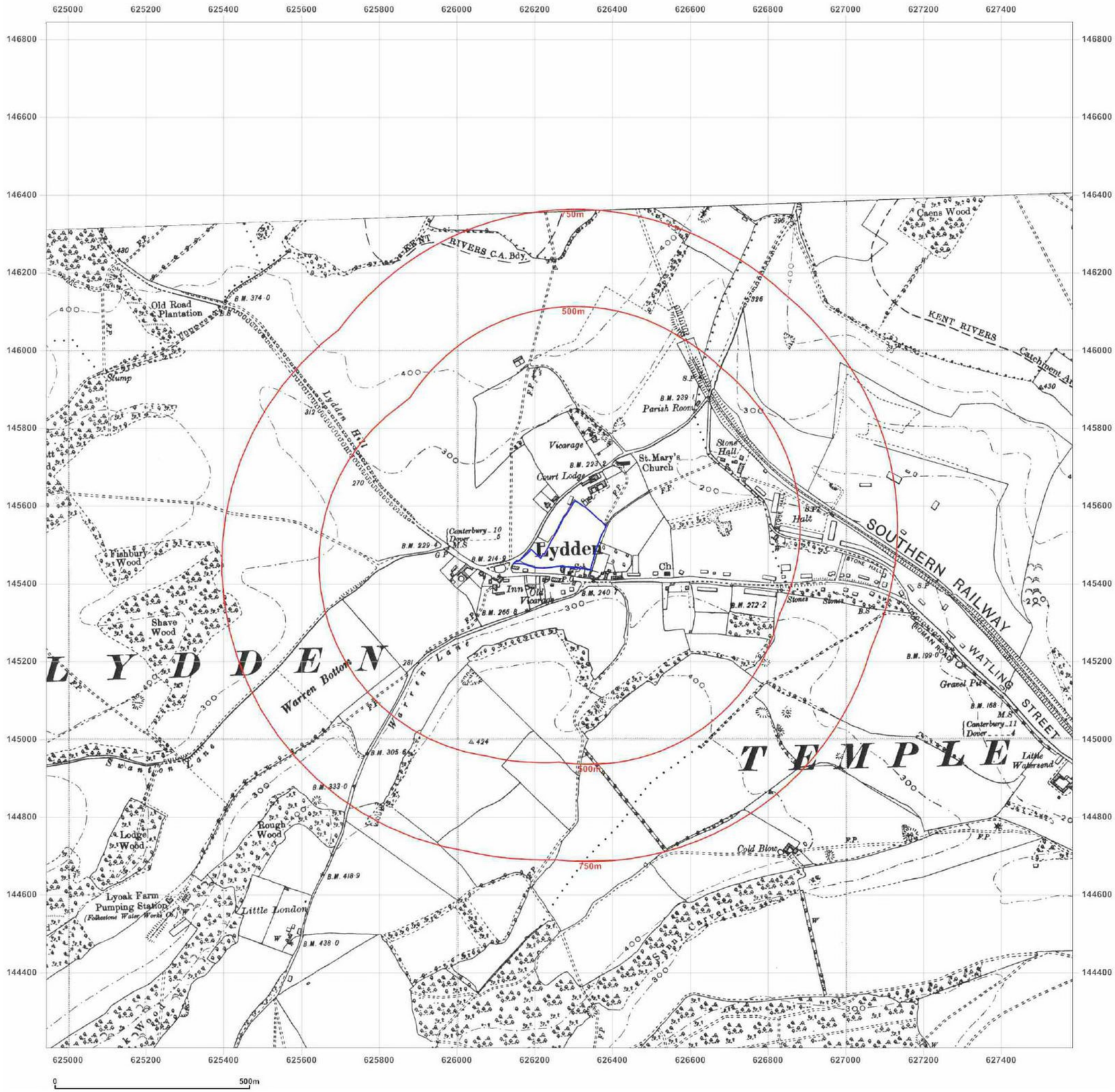

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: County Series

Map date: **1906**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1871
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

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Map legend available at:
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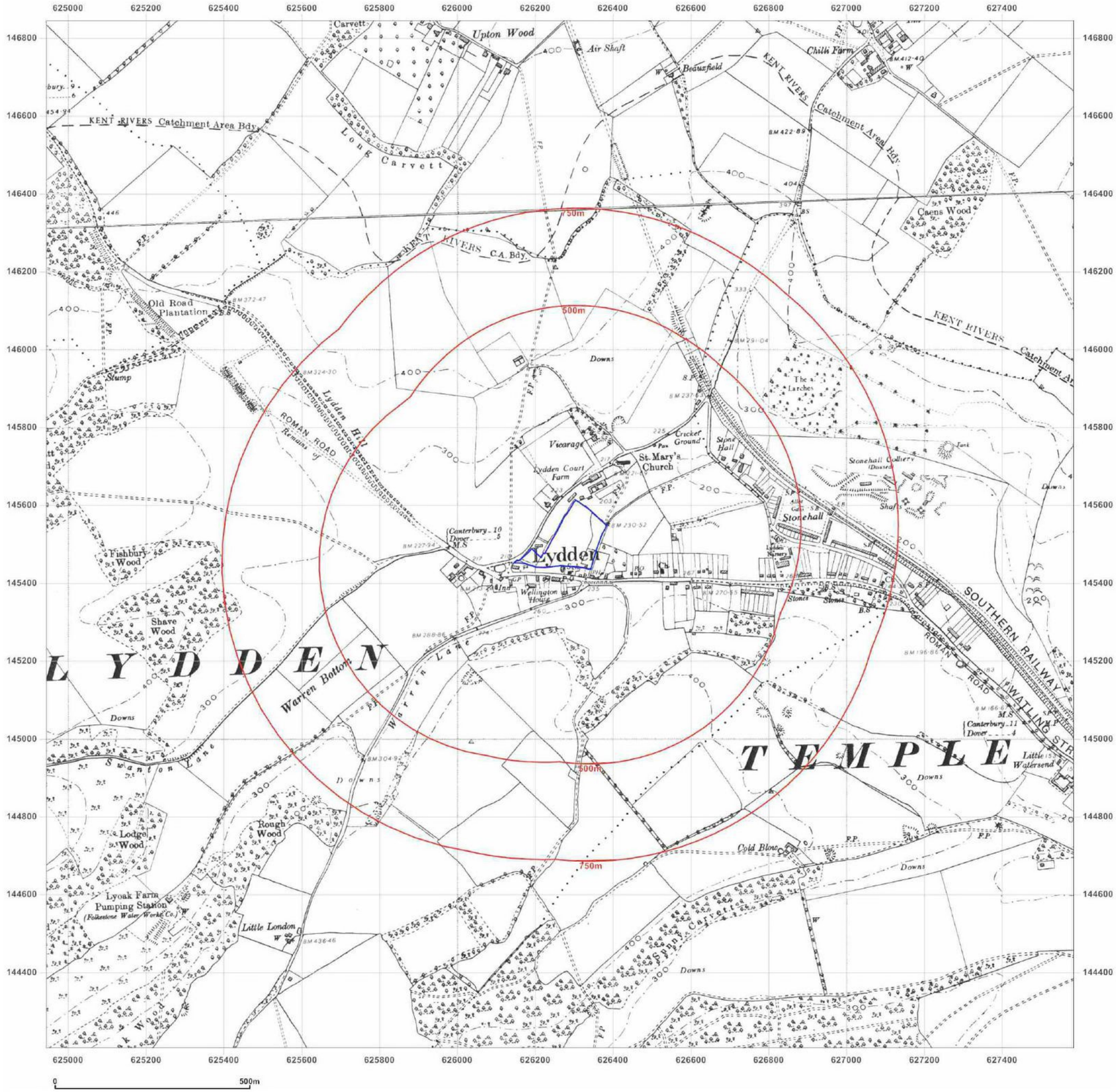

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: County Series

Map date: **1938-1939**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1872
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1871
Revised 1939
Edition N/A
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Production date: 27 March 2019

Map legend available at:
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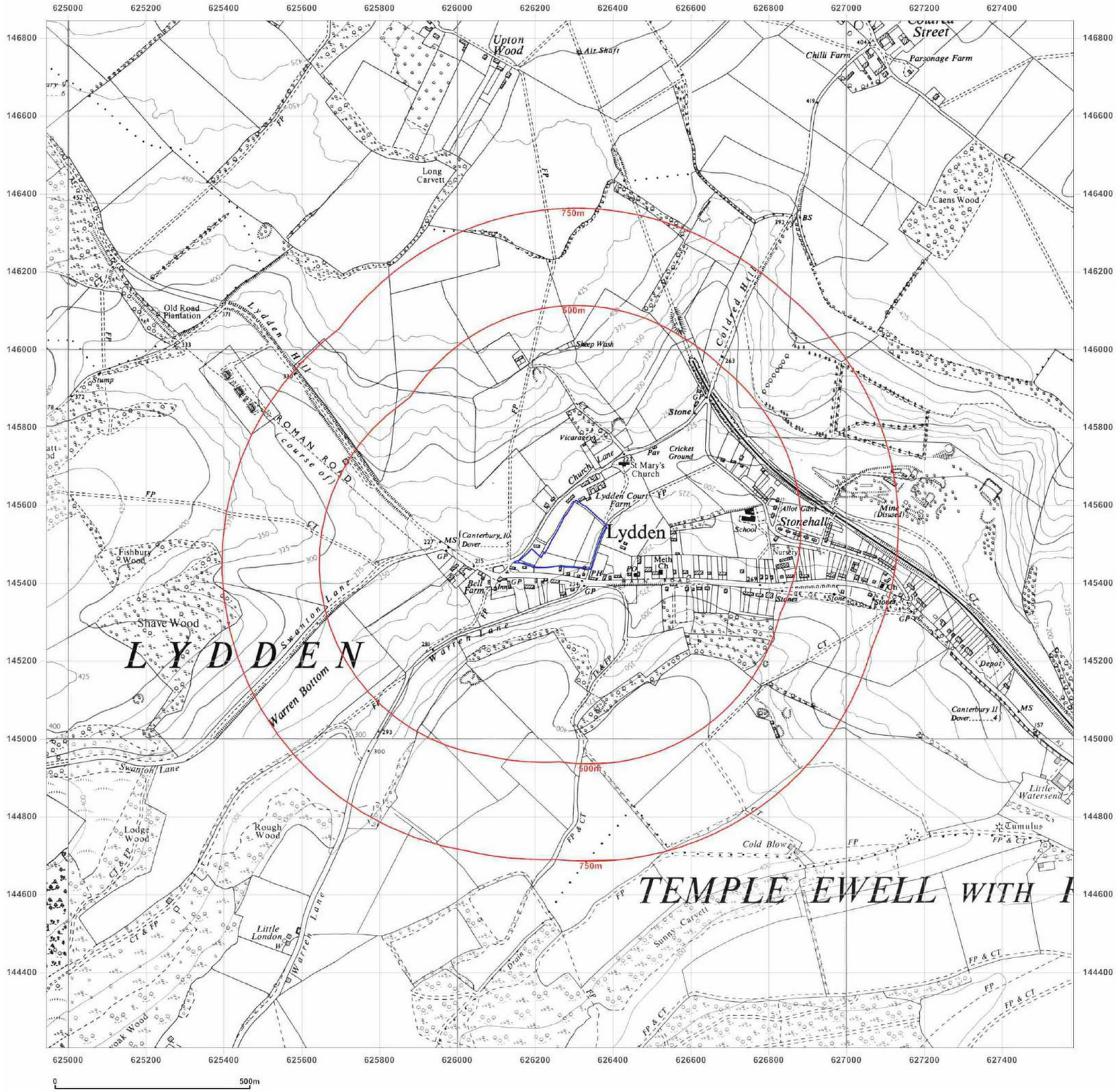

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: Provisional

Map date: **1957-1961**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1961
Revised 1961
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1871
Revised 1957
Edition N/A
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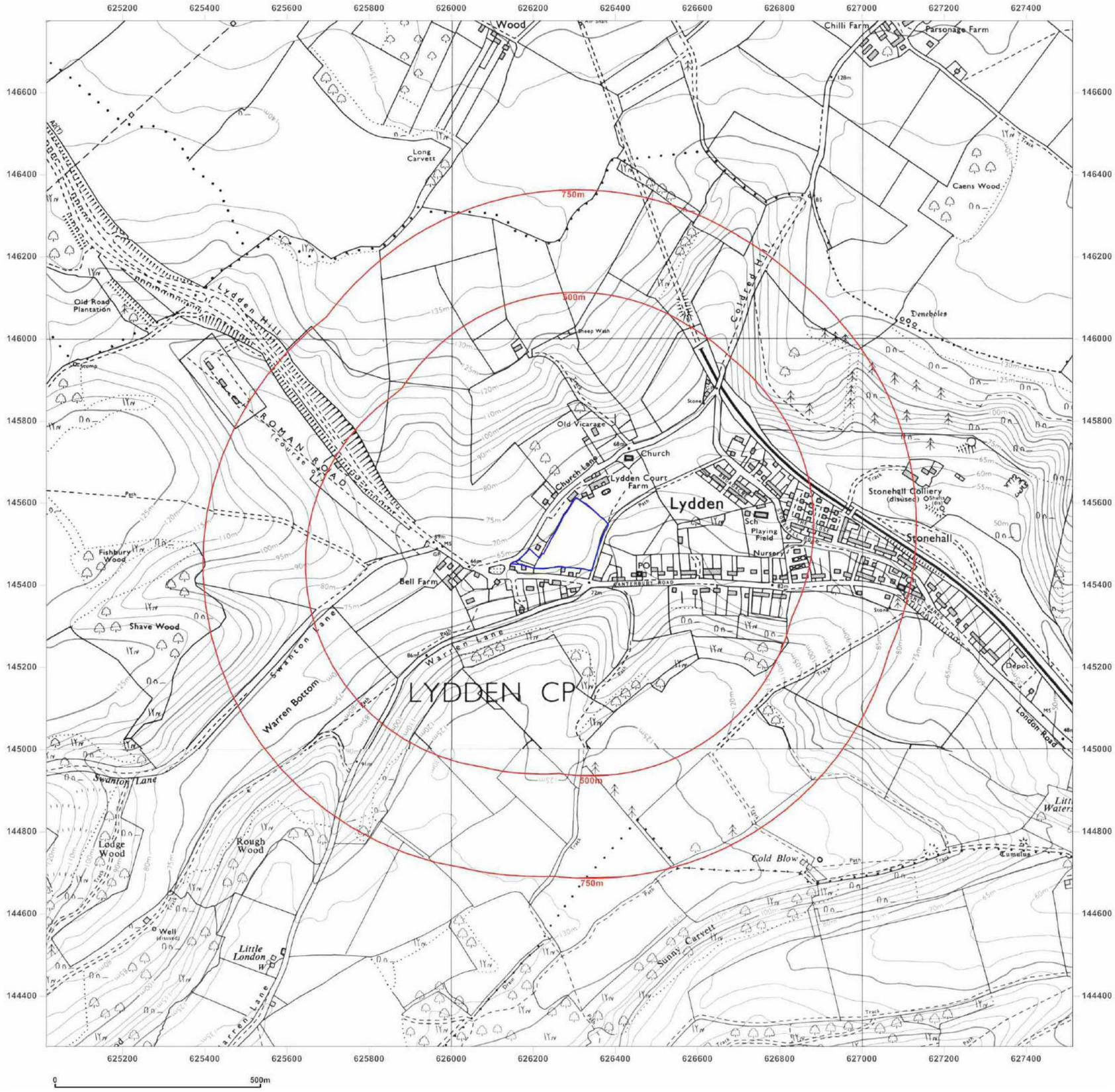

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: National Grid

Map date: **1976**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1974
Revised 1976
Edition N/A
Copyright 1976
Levelled N/A

Surveyed 1972
Revised 1975
Edition N/A
Copyright 1976
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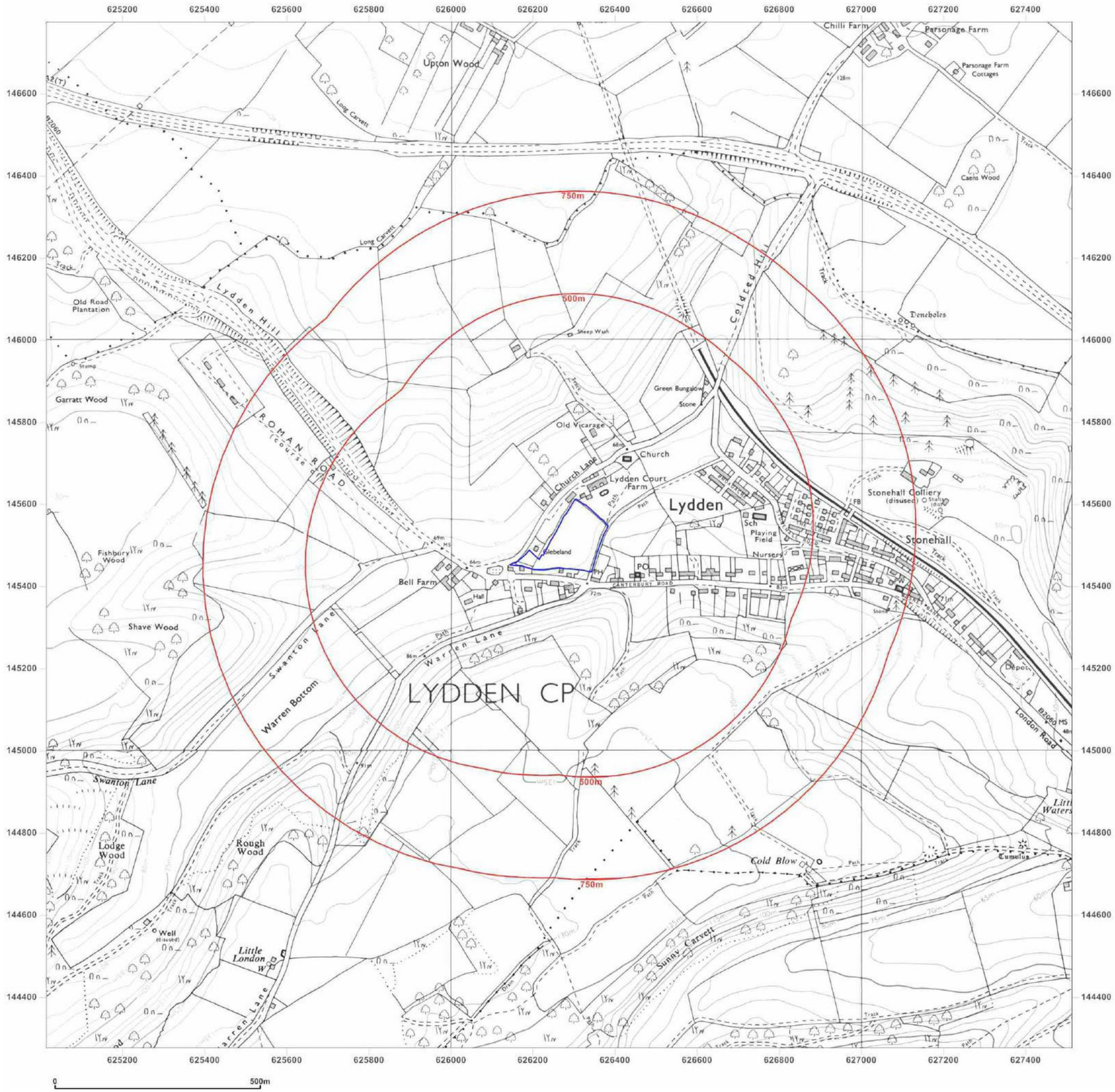

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: National Grid

Map date: **1987-1989**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1985
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1972
Revised 1986
Edition N/A
Copyright 1987
Levelled N/A

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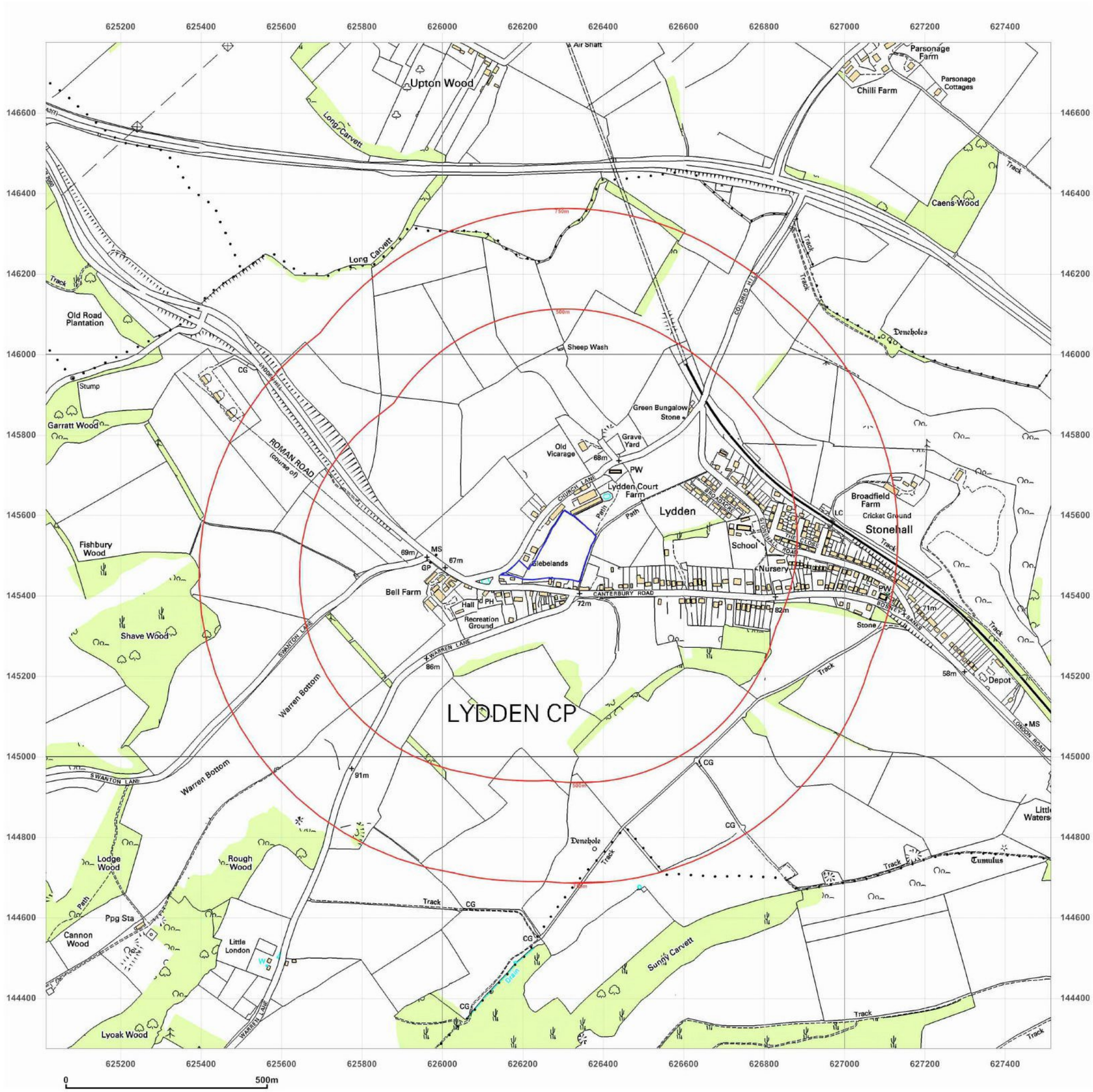

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: 1:10,000 Raster

Map date: **2002**

Scale: 1:10,000

Printed at: 1:10,000

N W E S

2002

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Production date: 27 March 2019

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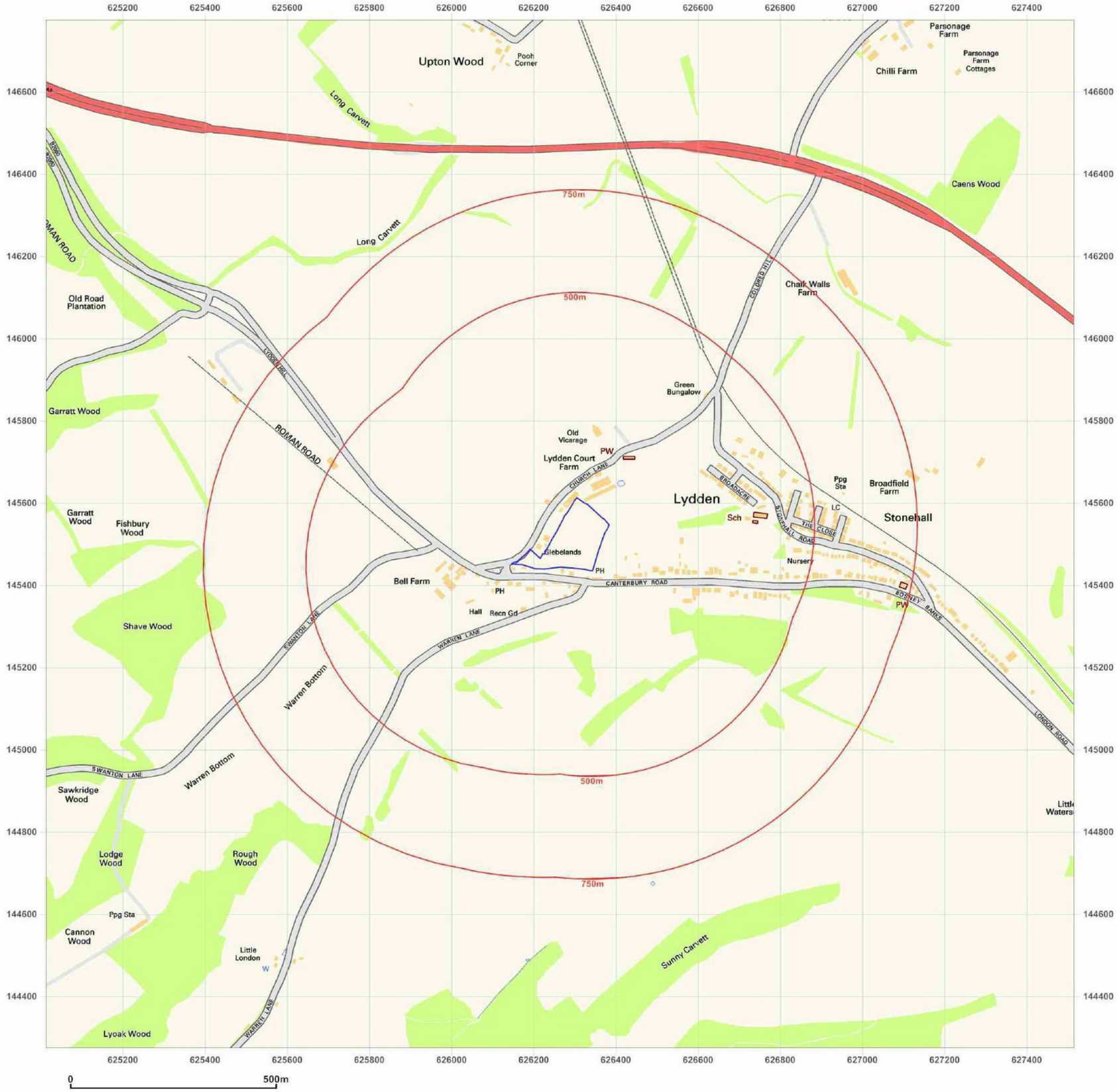

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

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2010

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Production date: 27 March 2019

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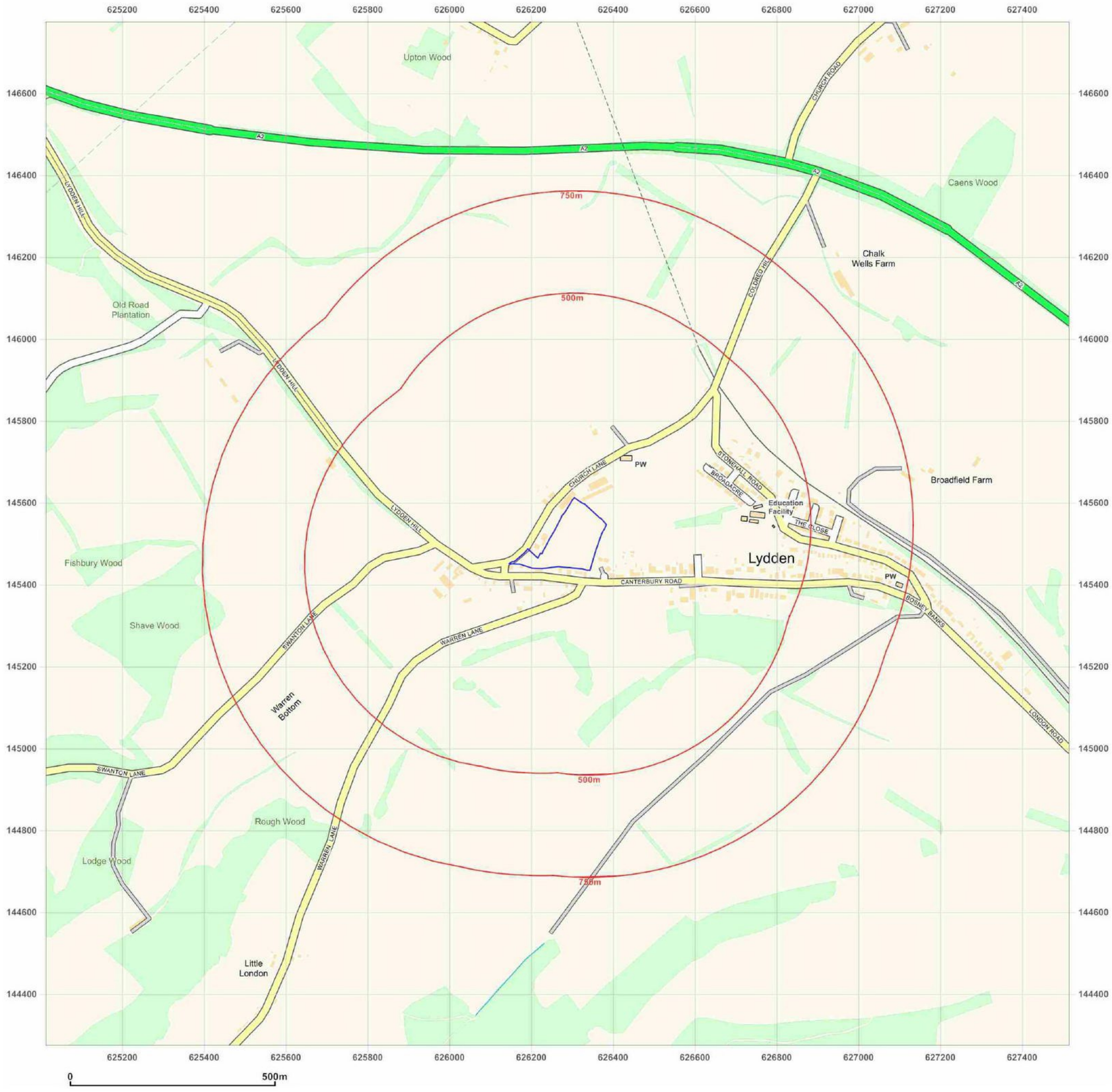

Groundsure INSIGHTS

Site Details:

CHURCH LANE, LYDDEN

Client Ref: 19-S364-FDO-Lydden
Report Ref: HMD-154-5905365
Grid Ref: 626263, 145525

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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2014

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Production date: 27 March 2019

Map legend available at:
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APPENDIX 3

- Exploratory Hole Logs
- BGS Borehole Logs

IDOM

Borehole Log

Borehole No.	MBH02
Sheet 1 of 2	
Project Name: Lydden	Project No. 21929a
Co-ords: 26244E - 45461N	Hole Type CP
Location: Dover	Level (m):
Scale 1:50	
Equipment:	Dates: 24/09/2019
Logged By CAH	

Well	Wtr Strk	Sample and In Situ Testing: Depth (m)	Type	Results	Coring: FI	TCR	SCR	RQD	Depth (m)	Level (m)	Legend	Stratum Description	
		0.50	D						0.50			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.	
		1.00	D									Greyish brown slightly clayey gravelly SAND. Gravels are fine to medium subangular chalk and flint. (Head Deposits).	1
		1.20	D										
		1.20 - 1.65	D										
		1.20	SPT(S)	N=15 (1,3/3,4,3,5)									
		2.00	D										2
		2.20 - 2.65	D										
		2.20	SPT(S)	N=19 (2,2/4,3,5,7)									
									2.80			Moderate strength creamy white fine grained gravelly CHALK. Gravels are fine to medium angular to subangular flints. (Lewes Nodular Chalk Formation).	
		3.00	D										3
		3.20 - 3.65	D										
		3.20	SPT(S)	N=30 (6,5/6,7,8,9)									
		4.00	D										4
		4.20 - 4.65	D										
		4.20	SPT(S)	N=25 (8,7/6,6,7,6)									
		5.00	D						5.00			Moderate strength creamy white fine grained gravelly CHALK. Gravels are fine to medium subangular to subrounded flints. (Lewes Nodular Chalk Formation).	5
		5.20	SPT(S)	N=21 (4,5/6,5,5,5)									
		5.50 - 5.95	D										
		6.00	D										6
		6.50 - 6.95	D										
		6.50	SPT(S)	N=21 (3,5/5,6,5,5)									
		7.00	D						7.00			Moderate strength creamy white fine grained gravelly CHALK. Gravels are fine to medium angular to subangular flints. (Lewes Nodular Chalk Formation).	7
		8.00 - 8.45	D										8
		8.00	SPT(S)	N=16 (3,3/4,3,4,5)									
		9.00	D										9
		9.50 - 9.95	D										
		9.50	SPT(S)	N=15 (2,3/3,3,4,5)									
		10.00	D									Continued on Next Sheet	10

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
SPT(C) = Standard Penetration Test (Cone)
SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)
FI = fracture index
TCR = total core recovery
SCR = solid core recovery
RQD = rock quality designation

Remarks

IDOM

Borehole Log

Borehole No.	MBH02
Sheet 2 of 2	
Project Name: Lydden	Project No. 21929a
Co-ords: 26244E - 45461N	Hole Type CP
Location: Dover	Level (m):
Scale 1:50	
Equipment:	Dates: 24/09/2019
Logged By CAH	

Well	Wtr Strk	Sample and In Situ Testing: Depth (m)	Type	Results	Coring: FI	TCR	SCR	RQD	Depth (m)	Level (m)	Legend	Stratum Description	
												Moderate strength creamy white fine grained gravelly CHALK. Gravels are fine to medium angular to subangular flints. (Lewes Nodular Chalk Formation).	
		11.00	D										11
		11.00	SPT(S)	N=21 (3,3/4,5,6,6)									
		12.00	D										12
		12.50 - 12.95	D										
		12.50	SPT(S)	N=20 (1,2/4,3,5,8)									13
		13.50	D										
		14.00	D										14
		14.00	SPT(S)	N=17 (5,4/3,4,4,6)									
		14.50	D										
		15.00 - 15.45	D						15.00			End of Borehole at 15.00m	15
		15.00	SPT(S)	N=50 (9,6/50 for 290mm)									
													16
													17
													18
													19
													20

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
SPT(C) = Standard Penetration Test (Cone)
SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)
FI = fracture index
TCR = total core recovery
SCR = solid core recovery
RQD = rock quality designation

Remarks

IDOM

Borehole Log

Borehole No.
MBH01
Sheet 1 of 2

Project Name: Lydden	Project No. 21929a	Co-ords: 26319E - 45558N	Hole Type CP
Location: Dover		Level (m):	Scale 1:50
Equipment: CP Rig		Dates: 23/09/2019	Logged By CAH

Well	Wtr Strk	Sample and In Situ Testing: Depth (m)	Type	Results	Coring: FI	TCR	SCR	RQD	Depth (m)	Level (m)	Legend	Stratum Description
									0.20			TOPSOIL. Pale brown slightly clayey gravelly fine to medium SAND. Gravels are fine to medium subangular to subrounded flint. Abundant organic material.
		0.50	D									Very soft dark brown slightly gravelly CLAY. Gravels are fine to medium subangular to subrounded flint and fine to medium subangular chalk. (Head Deposits).
		1.00	B									
		1.20	D									
		1.20	SPT(C)	N=5 (1,1/1,1,1,2)								
		2.20	D									
		2.20	SPT(C)	N=6 (1,1/1,1,2,2)								
		2.50	D						2.40			Pale greyish brown slightly clayey gravelly SAND. Gravels are fine to medium subangular to subrounded flint and fine to medium subangular chalk. (Head Deposits).
		3.20	D									
		3.20	SPT(C)	N=50 (3,7/50 for 248mm)								
									3.80			Moderate strength creamy white fine grained gravelly CHALK. Gravels are fine to medium subangular to subrounded flints. (Lewes Nodular Chalk Formation).
		4.00	D									
		4.20 - 4.65	D									
		4.20	SPT(S)	N=7 (2,1/2,2,1,2)								
		4.50	D									
		5.20 - 5.65	D									
		5.20	SPT(S)	N=8 (2,1/2,2,2,2)								
		6.00	D									
		6.50	D									
		6.50	SPT(S)	N=17 (1,3/4,4,3,6)								
		7.50	D									
		8.00 - 8.45	D									
		8.00	SPT(S)	N=14 (2,2/2,3,3,6)								
		9.00	D									
		9.50 - 9.95	D									
		9.50	SPT(S)	N=23 (5,6/7,5,5,6)								

Continued on Next Sheet

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
SPT(C) = Standard Penetration Test (Cone)
SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)
FI = fracture index
TCR = total core recovery
SCR = solid core recovery
RQD = rock quality designation

Remarks

Services cleared and C.A.T. checked.

IDOM

Borehole Log

Borehole No.
MBH01
Sheet 2 of 2

Project Name: Lydden	Project No. 21929a	Co-ords: 26319E - 45558N	Hole Type CP
Location: Dover		Level (m):	Scale 1:50
Equipment: CP Rig		Dates: 23/09/2019	Logged By CAH

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results	FI	TCR	SCR	RQD					
		10.50	D									Moderate strength creamy white fine grained gravelly CHALK. Gravels are fine to medium subangular to subrounded flints. (Lewes Nodular Chalk Formation).	
		11.00 - 11.45 11.00	D SPT(S)	N=15 (3,4/3,2,3,7)									11
		12.00	D										12
		12.50 - 12.95 12.50	D SPT(S)	N=30 (7,6/7,8,8,7)									13
		13.50	D										
		14.00 - 14.45 14.00	D SPT(S)	N=34 (6,4/7,8,11,8)									14
		14.50 - 114.50	D										
		15.00 - 15.45 15.00	D SPT(S)	N=31 (3,6/6,3,10,12)					15.00			End of Borehole at 15.00m	15
													16
													17
													18
													19
													20

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
SPT(C) = Standard Penetration Test (Cone)
SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)
FI = fracture index
TCR = total core recovery
SCR = solid core recovery
RQD = rock quality designation

Remarks

Services cleared and C.A.T. checked.

IDOM

TRIAL PIT LOG

TrialPit No
MSP01
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26350.00 - 45521.00 Level:	Date 26/09/2019
Location: Dover		Dimensions (m): 2.60 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 2.10	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
				0.40			Pale grey slightly clayey gravelly fine to coarse SAND. Gravels are fine to medium subangular chalk. Occasional fine angular to subrounded flint.
				2.10			Moderate strength cream white fine grained gravelly CHALK. Gravels are fine to cobble subangular to subrounded flints. (Lewes Nodular Chalk Formation).
							End of Pit at 2.100m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MSP02
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26302.00 - 45519.00 Level:	Date 26/09/2019
Location: Dover		Dimensions (m): 2.70 × 0.70 Depth 3.00	Scale 1:25
Equipment: JCB 180			Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
				2.00			Soft greyish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flints. (Head Deposits).
				3.00			Soft dark brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flints. (Head Deposits).
							End of Pit at 3.000m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MSP03
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26302.00 - 45567.00 Level:	Date 26/09/2019
Location: Dover		Dimensions (m): 2.70 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 3.30	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
				1.50			Pale orangish brown slightly sandy gravelly CLAY. Sand is fine to medium Gravels are fine to coarse subangular to subrounded flint. (Head Deposits).
				2.50			Dark brown slightly sandy clayey GRAVEL. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flint with common flint cobbles. (Head Deposits).
				3.30			Moderate strength cream white fine grained gravelly CHALK. Gravels are fine to cobble subangular to subrounded flints. (Lewes Nodular Chalk Formation).
							End of Pit at 3.300m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MSP04
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: - Level:	Date 26/09/2019
Location: Dover		Dimensions (m): 2.60 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 2.20	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
				2.20			Soft pale grey gravelly CLAY. Gravels are fine to coarse subangular to subrounded flint and fine to medium subangular chalk. (Head Deposits).
							End of Pit at 2.200m

1
2
3
4
5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP01
Sheet 1 of 1

Project Name:	Lydden	Project No. 21929a	Co-ords: 26319.00 - 45571.00 Level:
Date	25/09/2019		
Location:	Dover	Dimensions (m): 2.60 × 0.70	Scale 1:25
Equipment:	JCB 180	Depth 3.00	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20 - 0.20	D,J		0.30			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
	1.30 - 1.30	D,J		1.30			Soft pale orangish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flint. (Head Deposits).
				2.20			Soft cream white gravelly CLAY. Fravels are fine to medium subangular to subrounded flint and chalk. (Head Deposits).
	3.00 - 3.00	D,J		3.00			Soft pale creamish slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravels are fine to cobbles subangular to subrounded flints and fine to medium subangular chalks. (Head Deposits). *Subrounded flint cobbles.*
							End of Pit at 3.000m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP02
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26291.00 - 45548.00 Level:	Date 25/09/2019
Location: Dover		Dimensions (m): 2.80 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 3.20	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10 - 0.10	D,J		0.20			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
	0.90 - 0.90	D,J		1.90			Soft pale orangish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flint. (Head Deposits).
	2.20 - 2.20	D,J		2.40			Dark brown slightly clayey gravelly fine to coarse SAND. Gravels are fine to cobble subangular to subrounded flint. (Head Deposits).
				3.20			Moderate strength cream white fine grained gravelly CHALK. Gravels are fine to cobble subangular to subrounded flints. (Lewes Nodular Chalk Formation). *Bivalve imprint.*
							End of Pit at 3.200m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP03
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26276.00 - 45540.00 Level:	Date 25/09/2019
Location: Dover		Dimensions (m): 2.80 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 2.90	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10 - 0.10	D,J		0.10			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
	0.60 - 0.60	D,J					Soft pale orangish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flint. (Head Deposits).
	1.70 - 1.70	D,J		1.00			Pale cream grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravels are fine to cobble subangular to subrounded flint and fine to medium subangular chalk. (Head Deposits).
				1.90			Pale creamish white gravelly fine to coarse SAND. Gravels are fine to cobble subangular to subrounded flint and chalk. Chalk is cream white, moderate strength very fine grained. (Head Deposits).
				2.30			Moderate strength cream white fine grained gravelly CHALK. Gravels are fine to cobble subangular to subrounded flints. (Lewes Nodular Chalk Formation).
				2.90			End of Pit at 2.900m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP04
Sheet 1 of 1

Project Name:	Lydden	Project No. 21929a	Co-ords: 26274.00 - 45494.00 Level:
Date	25/09/2019		
Location:	Dover	Dimensions (m): 2.60 × 0.70	Scale 1:25
Equipment:	JCB 180	Depth 3.10	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20 - 0.20	D,J		0.30			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
				1.40			Soft orangish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravels are fine to coarse subangular to subrounded flint. (Head Deposits).
	1.60 - 1.60	D,J					Very soft dark brown gravelly CLAY. Gravels are fine to coarse subangular to subrounded flint. (Head Deposits).
	2.50 - 2.50	D,J					
				3.10			End of Pit at 3.100m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP05
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26250.00 - 45463.00 Level:	Date 25/09/2019
Location: Dover		Dimensions (m): 2.80 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 2.80	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20 - 0.20	D,J		0.20			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
	0.80 - 0.80	D,J		0.80			Soft pale orangish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flint. (Head Deposits).
	1.60 - 1.60	D,J		1.80			Very soft dark brown gravelly CLAY. Gravels are fine to coarse subangular to subrounded flint. (Head Deposits).
				2.60			Pale creamish white slightly clayey gravelly fine to coarse SAND. Gravels are fine to cobble subangular to subrounded flint and fine to medium subangular chalk. (Head Deposits).
				2.80			Moderate strength cream white fine grained gravelly CHALK. Gravels are fine to cobble subangular to subrounded flints. (Lewes Nodular Chalk Formation).
							End of Pit at 2.800m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP06
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26296.00 - 45492.00 Level:	Date 25/09/2019
Location: Dover		Dimensions (m): 2.60 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 3.20	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.05 - 0.06	D,J		0.15			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
	0.20 - 0.20	D,J					Soft pale orangish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flint. (Head Deposits).
				1.60			Very soft dark brown gravelly CLAY. Gravels are fine to cobble subangular to subrounded flint and fine to medium subangular chalk. (Head Deposits).
	2.30 - 2.31	D,J					
				3.20			End of Pit at 3.200m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP07
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26325.00 - 45466.00 Level:	Date 25/09/2019
Location: Dover		Dimensions (m): 2.50 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 2.50	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.30 - 0.30	D,J		0.40			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
	1.20 - 1.20	D,J		2.00			Pale creamish white sandy GRAVEL. Sand is fine to medium. Gravels are fine to boulder subangular to subrounded flints and fine to medium subangular chalk. (Head Deposits).
	2.20 - 2.20	D,J		2.50			Moderate strength cream white fine grained gravelly CHALK. Gravels are fine to cobble subangular to subrounded flints. (Lewes Nodular Chalk Formation).
							End of Pit at 2.500m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP08
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26328.00 - 45506.00 Level:	Date 25/09/2019
Location: Dover		Dimensions (m): 2.60 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 2.80	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20 - 0.20	D,J		0.20			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
	0.70 - 0.70	D,J		1.20			Brownish grey slightly gravelly clayey fine to coarse SAND. Gravels are fine to coarse subangular to subrounded flint and fine subangluar chalk. (Head Deposits).
	1.60 - 1.60	D,J		2.10			Dark brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravels are fine to cobble subangular to subrounded flint and fine to medium subangular chalk. (Head Deposits).
				2.60			Pale cream white slightly clayey gravelly fine to medium SAND. Gravels are fine to cobble subangular to subrounded flint and fine to coarse subangular chalk. Occasional flint boulders. (Head Deposits).
				2.80			Moderate strength cream white fine grained gravelly CHALK. Gravels are fine to cobble subangular to subrounded flints. (Lewes Nodular Chalk Formation).
							End of Pit at 2.800m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP09
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26350.00 - 45518.00 Level:	Date 25/09/2019
Location: Dover		Dimensions (m): 2.80 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 2.90	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.05 - 0.06	D,J					TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
	0.20 - 0.20	D,J		0.20			Pale greyish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flints. (Head Deposits).
	0.50 - 0.50	D,J		0.50			Moderate strength cream white fine grained gravelly CHALK. Gravels are fine to cobble subangular to subrounded flints. (Lewes Nodular Chalk Formation).
				2.90			End of Pit at 2.900m

1
2
3
4
5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

IDOM

TRIAL PIT LOG

TrialPit No
MTP10
Sheet 1 of 1

Project Name: Lydden	Project No. 21929a	Co-ords: 26347.00 - 45557.00 Level:	Date 25/09/2019
Location: Dover		Dimensions (m): 2.70 × 0.70	Scale 1:25
Equipment: JCB 180		Depth 2.90	Logged CAH

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10 - 0.10	D,J		0.30			TOPSOIL. Soft greyish brown clayey fine SAND. Abundant organic material.
	0.50 - 0.50	D,J					Pale greyish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravels are fine to coarse subangular to subrounded flints. (Head Deposits).
	2.60 - 2.60	D,J		2.50			Moderate strength cream white fine grained gravelly CHALK. Gravels are fine to cobble subangular to subrounded flints. (Lewes Nodular Chalk Formation).
				2.90			End of Pit at 2.900m

1 2 3 4 5

D = small disturbed sample (tub)
J = organic sample (amber glass jar)
V = volatile sample (amber glass vial)
B = bulk bag sample
HSV = hand shear vane (kPa)
PP = pocket penetrometer (kg.cm2)
PID = photoionisation detector (ppm)

Stability
Sides stable.

Remarks
Services checked and C.A.T. cleared.

KEY

● Disturbed Sample

▮ 38 mm Undisturbed Sample

Δ Water Sample

KENT COUNTY COUNCIL
HIGHWAYS LABORATORY

Form No. 495

HAND BOREHOLE LOG

TR24 NE 10

Date started 28.7.70 Date completed 28.7.70

Scheme A2 Lydden and Temple Ewell By-Pass

Location Bell Farm Lydden.

Borehole No. L 18 Ground Level 65.29 m

Sample No.	Type	Depth m.	Section	Depth about O.D. or below Ground Level	Thickness of Stratum m.	Description of Soil
					0.50	Fragments of weak CHALK and loose brown SILT. (MADE GROUND)
1	●	0.40				
2	●	0.50		0.50		
3	●	0.70			0.50 penetrated	Angular gravel size flint fragments and some chalk in a matrix of loose and medium dense light brown SILT. (HEAD)
				1.00		
		End of borehole				

Borehole remained dry during boring

KEY

- ● Disturbed Sample
- ▮ 38 mm Undisturbed Sample
- △ Water Sample

KENT COUNTY COUNCIL
HIGHWAYS LABORATORY

Form No. 495

HAND BOREHOLE LOG TR 24 NE 11

Date started 28.7.70 Date completed 28.7.70

Scheme A2 Lydden and Temple Ewell By-Pass.

Location Bell Farm Lydden

Borehole No. L18A Ground Level 63.49 m.

Sample No.	Type	Depth m.	Section	Depth about O.D. or below Ground Level	Thickness of Stratum m.	Description of Soil
1	●	0.40				Soft and firm slightly clayey SILT, brown, becoming red brown with depth.
2	●	0.50			1.00	Flint chips at bottom.
3	●	0.80				(HEAD BRICKEARTH)
4	●	1.00		1.00		
5	●	1.05				Medium strong slightly weathered yellow white CHALK.
6	●	1.30				Fragments up to 50mm.
7	●	1.60				Some flints.
8	●	1.90			2.00 penetrated	
9	●	2.20				
10	●	2.50				
11	●	2.80				(Cryoturbated CHALK)
		End of borehole		3.00		

Borehole remained dry during boring

Note
The borehole was made at the side of a pit 1.50m. below surrounding ground level.

K.C.C. Highways Laboratory, Eastwell, Aylesford, Kent.

Scale 1:20

NGRC
BOREHOLE RECORDS
ADJUSTMENT FORM

QUARTER SHEET TR 24 NE

BH REGISTRATION NUMBER 13 - 38

RECORDS ENTERED AND HELD BY WALLINGFORD

BH REGISTRATION NUMBER(S)

N. N.

GEORGE STOW CO. LTD.

TR 24/84A

Waterworks Engineers

290/303 A

READING ROAD – HENLEY-on-THAMES. OXON.

RECORD OF WELL (SHAFT OR BOREHOLE)

DATE COMPLETED 4.1.74

TR2650 4568

TR 24 NE

All depths to be measured below Ground Level

Work carried out for Folkestone & District Water Co. No. 1. Observation Bore

Locality (Exact Site) Lydden Grid Ref. TR ~~264 456~~ County Kent 67 NE/E

Level of Ground Surface above Sea Level (O.D.) +c 220 (from map) (25 (from map)) ft.

Depth of Shaft ..... ft. ..... ins. Diameter ..... ft. ..... ins. (152·4 mm)

Depth of Bore 350 ft. 106·68 m ~~ins.~~ Diameter: At Top 6 ins. At Bottom 6 ins.

Details of Permanent Lining Tubes

Diameter	Length Inserted			
(203·2 mm) 8 ins.	(14·93 m) 49 ft.	Plain - ft.	Slotted.	Top At 1 ft. - ins. above below Ground Level (0·30 m)
(152·4 mm) 6 "	(25·29 m) 83 "	" -	"	" - " - "
"	"	"	"	" " "
"	"	"	"	" " "
"	"	"	"	" " "
"	"	"	"	" " "

Water Struck at depth of (in ft.) 120' (36·57 m)

Rest Level of Water below above Ground Level 96 ft. 3 ins. (29·33 m)

Yield on ..... Hours Days test. Pumping ..... Gallons per ..... Date .....

Pump Water level ..... ft. ..... ins. below Ground Level.

Time of Recovery .....

Headings: Depth below Ground Level .....

Directions and Lengths .....

Remarks No test

Views and gamma-ray logged 16m 6-5-74 O.D. +c 205ft.

NB T.D only 24.2m below cog top 16m

filed by O on 6" map - Kent 67 NE/E

See back for Strata Record.

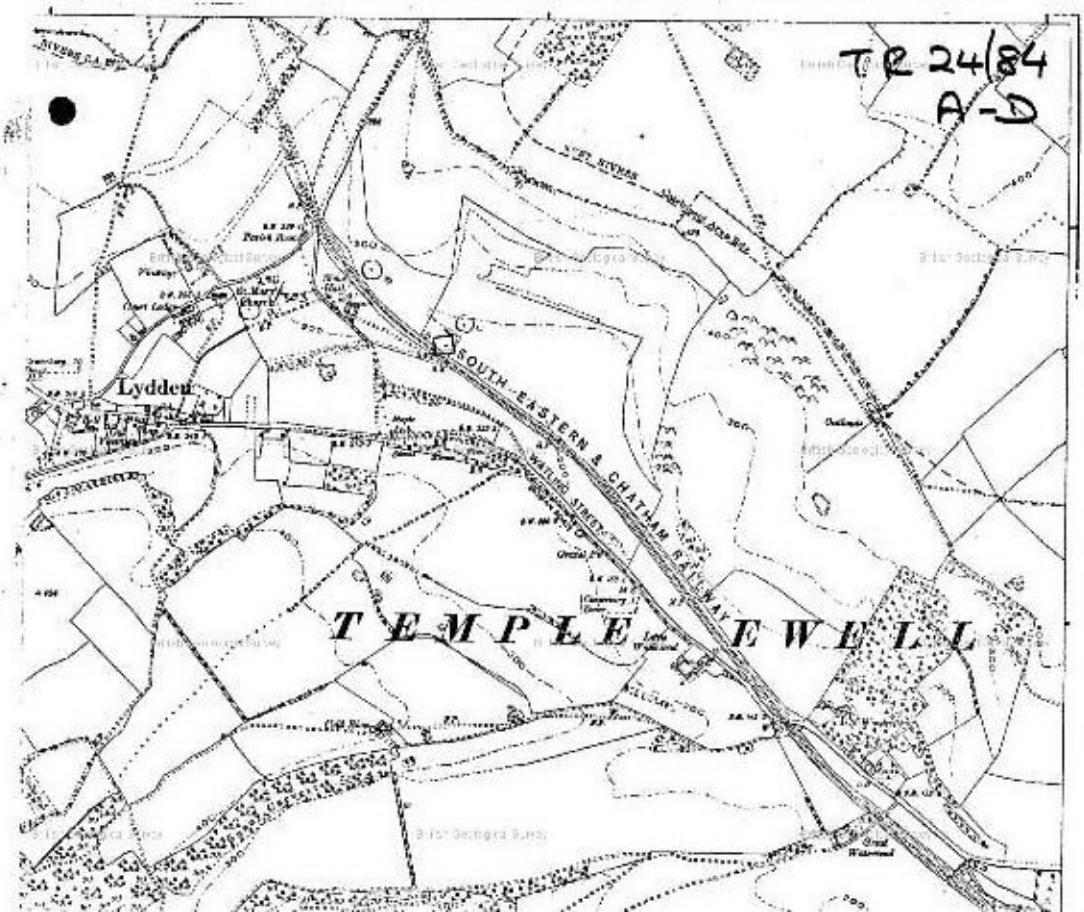
DETAILS OF STRATA

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA (and any additional remarks)	THICKNESS FEET	THICKNESS INCHES	DEPTH FEET	DEPTH INCHES
	TOP SOIL	4	1.21	4	1.21
Drift	SOFT CLAY & FLINTS	4	1.21	8	2.43
	BROWN SOFT CLAY	3	0.91	11	3.35
Upper Chalk	CHALK WITH A FEW FLINTS	49	14.93	60	18.28
	RUBBLE CHALK	8	2.43	68	20.72
	FIRM CHALK	7	2.13	75	22.86
Middle Chalk	FIRM CHALK WITH FLINTS LAYERS 3" THICK	50	15.24	125	38.10
	FIRM CHALK	82	24.99	207	63.09
? Melbourn Rock	HARD CHALK ROCK	67	20.42	274	83.51
Lower Chalk.	CHALK MARL (BLUE)	76	23.16	350	106.68

2 d poor log.

P.P. C.R.S.T.

Data Bank


TR 24/84
A-D
Lydden
SOUTH-EASTERN & CHATHAM RAILWAY
WALTER STREET
TEMPLE EWELL

APPENDIX 4

- Soil Chemistry
- Summary Spreadsheet
- Laboratory Analysis Certificates

Callum Harris
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Analytical Report Number : 19-63187

Project / Site name:	Lydden	**Samples received on:**	26/09/2019
Your job number:	21929a	**Samples instructed on:**	30/09/2019
Your order number:	19-S2-FDO-LABS	**Analysis completed by:**	08/10/2019
Report Issue Number:	1	**Report issued on:**	10/10/2019
Samples Analysed:	16 soil samples		

Signed: [redacted]

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

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.

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17447	17448	17449	17450	17451
Sample Reference				MTP01	MTP02	MTP02	MTP03	MTP03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.90	0.10	1.70
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SOILS								
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	9.4	13	11	13	9.3
Total mass of sample received	kg	0.001	NONE	1.1	1.0	1.2	1.1	1.3
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	-	8.1	-	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	-	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0080	-	0.0050	-	0.0045
Sulphide	mg/kg	1	MCERTS	2.5	-	2.5	-	2.5
Organic Matter	%	0.1	MCERTS	4.1	-	1.1	-	0.5
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
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	0.25	-	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.25	-	< 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
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.9	-	< 1.0	-	13
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	-	0.3	-	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	-	31	-	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	-	9.7	-	9.8
Lead (aqua regia extractable)	mg/kg	1	MCERTS	61	-	15	-	8.0
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	-	21	-	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.4	-	< 1.0	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	67	-	51	-	32

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17447	17448	17449	17450	17451
Sample Reference				MTP01	MTP02	MTP02	MTP03	MTP03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.90	0.10	1.70
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17447	17448	17449	17450	17451
Sample Reference				MTP01	MTP02	MTP02	MTP03	MTP03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.90	0.10	1.70
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Organochlorine Pesticides (OCP)								
Aldrin	µg/kg	10	NONE	-	< 10	-	< 10	-
BHC-alpha (benzene hexachloride)	µg/kg	10	NONE	-	< 10	-	< 10	-
BHC-beta	µg/kg	10	NONE	-	< 10	-	< 10	-
BHC-delta	µg/kg	10	NONE	-	< 10	-	< 10	-
BHC-gamma (Lindane, gamma HCH)	µg/kg	10	NONE	-	< 10	-	< 10	-
Chlordane-cis	µg/kg	10	NONE	-	< 10	-	< 10	-
Chlordane-trans	µg/kg	10	NONE	-	< 10	-	< 10	-
Chlorothalonil	µg/kg	10	NONE	-	< 10	-	< 10	-
DDD-o,p'	µg/kg	1	NONE	-	< 1.0	-	< 1.0	-
DDD-p,p'	µg/kg	1	NONE	-	< 1.0	-	< 1.0	-
DDE-o, p'	µg/kg	1	NONE	-	< 1.0	-	< 1.0	-
DDE-p,p'	µg/kg	1	NONE	-	< 1.0	-	< 1.0	-
DDT-o,p'	µg/kg	1	NONE	-	< 1.0	-	< 1.0	-
DDT-p,p'	µg/kg	1	NONE	-	< 1.0	-	< 1.0	-
Dichlorobenzonitrile, 2,6-	µg/kg	10	NONE	-	< 10	-	< 10	-
Dieldrin	µg/kg	10	NONE	-	< 10	-	< 10	-
Endosulfan I (alpha isomer)	µg/kg	10	NONE	-	< 10	-	< 10	-
Endosulfan II (beta isomer)	µg/kg	10	NONE	-	< 10	-	< 10	-
Endosulfan sulfate	µg/kg	10	NONE	-	< 10	-	< 10	-
Endrin	µg/kg	10	NONE	-	< 10	-	< 10	-
Endrin aldehyde	µg/kg	10	NONE	-	< 10	-	< 10	-
Endrin ketone	µg/kg	10	NONE	-	< 10	-	< 10	-
Heptachlor	µg/kg	10	NONE	-	< 10	-	< 10	-
Heptachlor exo-epoxide	µg/kg	10	NONE	-	< 10	-	< 10	-
Hexachlorobenzene	µg/kg	10	NONE	-	< 10	-	< 10	-
Hexachlorobutadiene	µg/kg	10	NONE	-	< 10	-	< 10	-
Isodrin	µg/kg	10	NONE	-	< 10	-	< 10	-
Methoxychlor, p,p'-	µg/kg	10	NONE	-	< 10	-	< 10	-
Pentachlorobenzene	µg/kg	10	NONE	-	< 10	-	< 10	-
Tecnazene	µg/kg	10	NONE	-	< 10	-	< 10	-
Tetrachlorobenzene, 1,2,4,5-	µg/kg	10	NONE	-	< 10	-	< 10	-
Trichlorobenzene, 1,2,3-	µg/kg	10	NONE	-	< 10	-	< 10	-
Trichlorobenzene, 1,3,5-	µg/kg	10	NONE	-	< 10	-	< 10	-
Trifluralin	µg/kg	10	NONE	-	< 10	-	< 10	-

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Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17447	17448	17449	17450	17451
Sample Reference				MTP01	MTP02	MTP02	MTP03	MTP03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.90	0.10	1.70
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Organophosphorus Pesticides (OPP)								
Azinphos-ethyl	µg/kg	10	NONE	-	< 10	-	< 10	-
Azinphos-methyl	µg/kg	10	NONE	-	< 10	-	< 10	-
Carbophenothion	µg/kg	10	NONE	-	< 10	-	< 10	-
Chlorfenvinphos (mixture of z and e isomers)	µg/kg	10	NONE	-	< 10	-	< 10	-
Chlorpyrifos	µg/kg	10	NONE	-	< 10	-	< 10	-
Demeton-O	µg/kg	10	NONE	-	< 10	-	< 10	-
Demeton-S	µg/kg	10	NONE	-	< 10	-	< 10	-
Diazinon	µg/kg	10	NONE	-	< 10	-	< 10	-
Dichlorvos	µg/kg	10	NONE	-	< 10	-	< 10	-
Dimethoate	µg/kg	10	NONE	-	< 10	-	< 10	-
Dimethylvinphos	µg/kg	10	NONE	-	< 10	-	< 10	-
Ethion	µg/kg	10	NONE	-	< 10	-	< 10	-
Etrimfos	µg/kg	10	NONE	-	< 10	-	< 10	-
Fenitrothion	µg/kg	10	NONE	-	< 10	-	< 10	-
Fenthion	µg/kg	10	NONE	-	< 10	-	< 10	-
Malathion	µg/kg	10	NONE	-	< 10	-	< 10	-
Methacrifos	µg/kg	10	NONE	-	< 10	-	< 10	-
Mevinphos , E-	µg/kg	10	NONE	-	< 10	-	< 10	-
Mevinphos, Z-	µg/kg	10	NONE	-	< 10	-	< 10	-
Parathion	µg/kg	10	NONE	-	< 10	-	< 10	-
Parathion-methyl	µg/kg	10	NONE	-	< 10	-	< 10	-
Phorate	µg/kg	10	NONE	-	< 10	-	< 10	-
Phosalone	µg/kg	10	NONE	-	< 10	-	< 10	-
Phosphamidon I	µg/kg	10	NONE	-	< 10	-	< 10	-
Pirimiphos-ethyl	µg/kg	10	NONE	-	< 10	-	< 10	-
Pirimiphos-methyl	µg/kg	10	NONE	-	< 10	-	< 10	-
Propetamphos	µg/kg	10	NONE	-	< 10	-	< 10	-
Triazophos	µg/kg	10	NONE	-	< 10	-	< 10	-

Environmental Forensics

Triazine Herbicides								
Atrazine	mg/kg	0.1	NONE	-	< 0.10	-	< 0.10	-
Simazine	mg/kg	0.1	NONE	-	< 0.10	-	< 0.10	-
Prometryn	mg/kg	0.1	NONE	-	< 0.10	-	< 0.10	-
Propazine	mg/kg	0.1	NONE	-	< 0.10	-	< 0.10	-
Terbuthylazine	mg/kg	0.1	NONE	-	< 0.10	-	< 0.10	-
Terbutryn	mg/kg	0.1	NONE	-	< 0.10	-	< 0.10	-
Trietazine	mg/kg	0.1	NONE	-	< 0.10	-	< 0.10	-
Cyanazine	mg/kg	0.1	NONE	-	< 0.10	-	< 0.10	-

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

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Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17452	17453	17454	17455	17456
Sample Reference				MTP04	MTP05	MTP05	MTP06	MTP06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.20	0.80	0.05	2.30
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SOILS								
Stone Content	%	0.1	NONE	< 0.1	-	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	8.2	-	11	19	18
Total mass of sample received	kg	0.001	NONE	1.2	-	1.2	1.0	1.3
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	-	8.1	-	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	-	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0076	-	0.0061	-	0.0060
Sulphide	mg/kg	1	MCERTS	2.5	-	2.5	-	2.4
Organic Matter	%	0.1	MCERTS	3.2	-	2.1	-	2.2
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
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
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	-	7.7	-	5.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	-	0.5	-	0.7
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	-	18	-	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	-	13	-	8.4
Lead (aqua regia extractable)	mg/kg	1	MCERTS	44	-	25	-	11
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	-	16	-	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	58	-	54	-	60

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Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17452	17453	17454	17455	17456
Sample Reference				MTP04	MTP05	MTP05	MTP06	MTP06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.20	0.80	0.05	2.30
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17452	17453	17454	17455	17456
Sample Reference				MTP04	MTP05	MTP05	MTP06	MTP06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.20	0.80	0.05	2.30
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Organochlorine Pesticides (OCP)								
Aldrin	µg/kg	10	NONE	-	-	-	< 10	-
BHC-alpha (benzene hexachloride)	µg/kg	10	NONE	-	-	-	< 10	-
BHC-beta	µg/kg	10	NONE	-	-	-	< 10	-
BHC-delta	µg/kg	10	NONE	-	-	-	< 10	-
BHC-gamma (Lindane, gamma HCH)	µg/kg	10	NONE	-	-	-	< 10	-
Chlordane-cis	µg/kg	10	NONE	-	-	-	< 10	-
Chlordane-trans	µg/kg	10	NONE	-	-	-	< 10	-
Chlorothalonil	µg/kg	10	NONE	-	-	-	< 10	-
DDD-o,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDD-p,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDE-o, p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDE-p,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDT-o,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDT-p,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
Dichlorobenzonitrile, 2,6-	µg/kg	10	NONE	-	-	-	< 10	-
Dieldrin	µg/kg	10	NONE	-	-	-	< 10	-
Endosulfan I (alpha isomer)	µg/kg	10	NONE	-	-	-	< 10	-
Endosulfan II (beta isomer)	µg/kg	10	NONE	-	-	-	< 10	-
Endosulfan sulfate	µg/kg	10	NONE	-	-	-	< 10	-
Endrin	µg/kg	10	NONE	-	-	-	< 10	-
Endrin aldehyde	µg/kg	10	NONE	-	-	-	< 10	-
Endrin ketone	µg/kg	10	NONE	-	-	-	< 10	-
Heptachlor	µg/kg	10	NONE	-	-	-	< 10	-
Heptachlor exo-epoxide	µg/kg	10	NONE	-	-	-	< 10	-
Hexachlorobenzene	µg/kg	10	NONE	-	-	-	< 10	-
Hexachlorobutadiene	µg/kg	10	NONE	-	-	-	< 10	-
Isodrin	µg/kg	10	NONE	-	-	-	< 10	-
Methoxychlor, p,p'-	µg/kg	10	NONE	-	-	-	< 10	-
Pentachlorobenzene	µg/kg	10	NONE	-	-	-	< 10	-
Tecnazene	µg/kg	10	NONE	-	-	-	< 10	-
Tetrachlorobenzene, 1,2,4,5-	µg/kg	10	NONE	-	-	-	< 10	-
Trichlorobenzene, 1,2,3-	µg/kg	10	NONE	-	-	-	< 10	-
Trichlorobenzene, 1,3,5-	µg/kg	10	NONE	-	-	-	< 10	-
Trifluralin	µg/kg	10	NONE	-	-	-	< 10	-

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17452	17453	17454	17455	17456
Sample Reference				MTP04	MTP05	MTP05	MTP06	MTP06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.20	0.80	0.05	2.30
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Organophosphorus Pesticides (OPP)								
Azinphos-ethyl	µg/kg	10	NONE	-	-	-	< 10	-
Azinphos-methyl	µg/kg	10	NONE	-	-	-	< 10	-
Carbophenothion	µg/kg	10	NONE	-	-	-	< 10	-
Chlorfenvinphos (mixture of z and e isomers)	µg/kg	10	NONE	-	-	-	< 10	-
Chlorpyrifos	µg/kg	10	NONE	-	-	-	< 10	-
Demeton-O	µg/kg	10	NONE	-	-	-	< 10	-
Demeton-S	µg/kg	10	NONE	-	-	-	< 10	-
Diazinon	µg/kg	10	NONE	-	-	-	< 10	-
Dichlorvos	µg/kg	10	NONE	-	-	-	< 10	-
Dimethoate	µg/kg	10	NONE	-	-	-	< 10	-
Dimethylvinphos	µg/kg	10	NONE	-	-	-	< 10	-
Ethion	µg/kg	10	NONE	-	-	-	< 10	-
Etrimfos	µg/kg	10	NONE	-	-	-	< 10	-
Fenitrothion	µg/kg	10	NONE	-	-	-	< 10	-
Fenthion	µg/kg	10	NONE	-	-	-	< 10	-
Malathion	µg/kg	10	NONE	-	-	-	< 10	-
Methacrifos	µg/kg	10	NONE	-	-	-	< 10	-
Mevinphos , E-	µg/kg	10	NONE	-	-	-	< 10	-
Mevinphos, Z-	µg/kg	10	NONE	-	-	-	< 10	-
Parathion	µg/kg	10	NONE	-	-	-	< 10	-
Parathion-methyl	µg/kg	10	NONE	-	-	-	< 10	-
Phorate	µg/kg	10	NONE	-	-	-	< 10	-
Phosalone	µg/kg	10	NONE	-	-	-	< 10	-
Phosphamidon I	µg/kg	10	NONE	-	-	-	< 10	-
Pirimiphos-ethyl	µg/kg	10	NONE	-	-	-	< 10	-
Pirimiphos-methyl	µg/kg	10	NONE	-	-	-	< 10	-
Propetamphos	µg/kg	10	NONE	-	-	-	< 10	-
Triazophos	µg/kg	10	NONE	-	-	-	< 10	-

Environmental Forensics

Triazine Herbicides

Atrazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Simazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Prometryn	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Propazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Terbuthylazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Terbutryn	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Trietazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Cyanazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-

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

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17457	17458	17459	17460	17461
Sample Reference				MTP07	MTP08	MTP08	MTP09	MTP09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.70	0.05	0.50
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SOILS								
Stone Content	%	0.1	NONE	< 0.1	-	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	8.5	-	9.4	13	12
Total mass of sample received	kg	0.001	NONE	1.1	-	1.2	0.79	1.1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.0	-	8.2	-	8.0
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	-	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0071	-	0.0066	-	0.0089
Sulphide	mg/kg	1	MCERTS	2.4	-	2.4	-	2.4
Organic Matter	%	0.1	MCERTS	4.1	-	2.1	-	2.2
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
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	0.56	-	< 0.05	-	0.24
Pyrene	mg/kg	0.05	MCERTS	0.50	-	< 0.05	-	0.18
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.25	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.33	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.34	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.16	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.24	-	< 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	2.38	-	< 0.80	-	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	-	5.2	-	5.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	-	0.5	-	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	-	16	-	6.2
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	-	12	-	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	40	-	15	-	26
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.3	-	13	-	9.0
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	43	-	40	-	35

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17457	17458	17459	17460	17461
Sample Reference				MTP07	MTP08	MTP08	MTP09	MTP09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.70	0.05	0.50
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17457	17458	17459	17460	17461
Sample Reference				MTP07	MTP08	MTP08	MTP09	MTP09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.70	0.05	0.50
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Organochlorine Pesticides (OCP)								
Aldrin	µg/kg	10	NONE	-	-	-	< 10	-
BHC-alpha (benzene hexachloride)	µg/kg	10	NONE	-	-	-	< 10	-
BHC-beta	µg/kg	10	NONE	-	-	-	< 10	-
BHC-delta	µg/kg	10	NONE	-	-	-	< 10	-
BHC-gamma (Lindane, gamma HCH)	µg/kg	10	NONE	-	-	-	< 10	-
Chlordane-cis	µg/kg	10	NONE	-	-	-	< 10	-
Chlordane-trans	µg/kg	10	NONE	-	-	-	< 10	-
Chlorothalonil	µg/kg	10	NONE	-	-	-	< 10	-
DDD-o,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDD-p,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDE-o, p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDE-p,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDT-o,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
DDT-p,p'	µg/kg	1	NONE	-	-	-	< 1.0	-
Dichlorobenzonitrile, 2,6-	µg/kg	10	NONE	-	-	-	< 10	-
Dieldrin	µg/kg	10	NONE	-	-	-	< 10	-
Endosulfan I (alpha isomer)	µg/kg	10	NONE	-	-	-	< 10	-
Endosulfan II (beta isomer)	µg/kg	10	NONE	-	-	-	< 10	-
Endosulfan sulfate	µg/kg	10	NONE	-	-	-	< 10	-
Endrin	µg/kg	10	NONE	-	-	-	< 10	-
Endrin aldehyde	µg/kg	10	NONE	-	-	-	< 10	-
Endrin ketone	µg/kg	10	NONE	-	-	-	< 10	-
Heptachlor	µg/kg	10	NONE	-	-	-	< 10	-
Heptachlor exo-epoxide	µg/kg	10	NONE	-	-	-	< 10	-
Hexachlorobenzene	µg/kg	10	NONE	-	-	-	< 10	-
Hexachlorobutadiene	µg/kg	10	NONE	-	-	-	< 10	-
Isodrin	µg/kg	10	NONE	-	-	-	< 10	-
Methoxychlor, p,p'-	µg/kg	10	NONE	-	-	-	< 10	-
Pentachlorobenzene	µg/kg	10	NONE	-	-	-	< 10	-
Tecnazene	µg/kg	10	NONE	-	-	-	< 10	-
Tetrachlorobenzene, 1,2,4,5-	µg/kg	10	NONE	-	-	-	< 10	-
Trichlorobenzene, 1,2,3-	µg/kg	10	NONE	-	-	-	< 10	-
Trichlorobenzene, 1,3,5-	µg/kg	10	NONE	-	-	-	< 10	-
Trifluralin	µg/kg	10	NONE	-	-	-	< 10	-

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17457	17458	17459	17460	17461
Sample Reference				MTP07	MTP08	MTP08	MTP09	MTP09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.20	0.70	0.05	0.50
Date Sampled				24/09/2019	24/09/2019	24/09/2019	24/09/2019	24/09/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Organophosphorus Pesticides (OPP)								
Azinphos-ethyl	µg/kg	10	NONE	-	-	-	< 10	-
Azinphos-methyl	µg/kg	10	NONE	-	-	-	< 10	-
Carbophenothion	µg/kg	10	NONE	-	-	-	< 10	-
Chlorfenvinphos (mixture of z and e isomers)	µg/kg	10	NONE	-	-	-	< 10	-
Chlorpyrifos	µg/kg	10	NONE	-	-	-	< 10	-
Demeton-O	µg/kg	10	NONE	-	-	-	< 10	-
Demeton-S	µg/kg	10	NONE	-	-	-	< 10	-
Diazinon	µg/kg	10	NONE	-	-	-	< 10	-
Dichlorvos	µg/kg	10	NONE	-	-	-	< 10	-
Dimethoate	µg/kg	10	NONE	-	-	-	< 10	-
Dimethylvinphos	µg/kg	10	NONE	-	-	-	< 10	-
Ethion	µg/kg	10	NONE	-	-	-	< 10	-
Etrimfos	µg/kg	10	NONE	-	-	-	< 10	-
Fenitrothion	µg/kg	10	NONE	-	-	-	< 10	-
Fenthion	µg/kg	10	NONE	-	-	-	< 10	-
Malathion	µg/kg	10	NONE	-	-	-	< 10	-
Methacrifos	µg/kg	10	NONE	-	-	-	< 10	-
Mevinphos , E-	µg/kg	10	NONE	-	-	-	< 10	-
Mevinphos, Z-	µg/kg	10	NONE	-	-	-	< 10	-
Parathion	µg/kg	10	NONE	-	-	-	< 10	-
Parathion-methyl	µg/kg	10	NONE	-	-	-	< 10	-
Phorate	µg/kg	10	NONE	-	-	-	< 10	-
Phosalone	µg/kg	10	NONE	-	-	-	< 10	-
Phosphamidon I	µg/kg	10	NONE	-	-	-	< 10	-
Pirimiphos-ethyl	µg/kg	10	NONE	-	-	-	< 10	-
Pirimiphos-methyl	µg/kg	10	NONE	-	-	-	< 10	-
Propetamphos	µg/kg	10	NONE	-	-	-	< 10	-
Triazophos	µg/kg	10	NONE	-	-	-	< 10	-

Environmental Forensics

Triazine Herbicides

Atrazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Simazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Prometryn	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Propazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Terbuthylazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Terbutryn	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Trietazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-
Cyanazine	mg/kg	0.1	NONE	-	-	-	< 0.10	-

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

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17462				
Sample Reference				MTP10				
Sample Number				None Supplied				
Depth (m)				0.10				
Date Sampled				24/09/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SOILS								
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	12				
Total mass of sample received	kg	0.001	NONE	1.0				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.9				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012				
Sulphide	mg/kg	1	MCERTS	2.5				
Organic Matter	%	0.1	MCERTS	5.1				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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	0.20				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	0.42				
Pyrene	mg/kg	0.05	MCERTS	0.35				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.21				
Chrysene	mg/kg	0.05	MCERTS	0.20				
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	1.38				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.7				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	9.7				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	98				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	47				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.0				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	86				

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17462				
Sample Reference				MTP10				
Sample Number				None Supplied				
Depth (m)				0.10				
Date Sampled				24/09/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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 (EC5 - EC35)	mg/kg	10	MCERTS	< 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 (EC5 - EC35)	mg/kg	10	MCERTS	< 10				

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17462				
Sample Reference				MTP10				
Sample Number				None Supplied				
Depth (m)				0.10				
Date Sampled				24/09/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Organochlorine Pesticides (OCP)								
Aldrin	µg/kg	10	NONE	-				
BHC-alpha (benzene hexachloride)	µg/kg	10	NONE	-				
BHC-beta	µg/kg	10	NONE	-				
BHC-delta	µg/kg	10	NONE	-				
BHC-gamma (Lindane, gamma HCH)	µg/kg	10	NONE	-				
Chlordane-cis	µg/kg	10	NONE	-				
Chlordane-trans	µg/kg	10	NONE	-				
Chlorothalonil	µg/kg	10	NONE	-				
DDD-o,p'	µg/kg	1	NONE	-				
DDD-p,p'	µg/kg	1	NONE	-				
DDE-o, p'	µg/kg	1	NONE	-				
DDE-p,p'	µg/kg	1	NONE	-				
DDT-o,p'	µg/kg	1	NONE	-				
DDT-p,p'	µg/kg	1	NONE	-				
Dichlorobenzonitrile, 2,6-	µg/kg	10	NONE	-				
Dieldrin	µg/kg	10	NONE	-				
Endosulfan I (alpha isomer)	µg/kg	10	NONE	-				
Endosulfan II (beta isomer)	µg/kg	10	NONE	-				
Endosulfan sulfate	µg/kg	10	NONE	-				
Endrin	µg/kg	10	NONE	-				
Endrin aldehyde	µg/kg	10	NONE	-				
Endrin ketone	µg/kg	10	NONE	-				
Heptachlor	µg/kg	10	NONE	-				
Heptachlor exo-epoxide	µg/kg	10	NONE	-				
Hexachlorobenzene	µg/kg	10	NONE	-				
Hexachlorobutadiene	µg/kg	10	NONE	-				
Isodrin	µg/kg	10	NONE	-				
Methoxychlor, p,p'-	µg/kg	10	NONE	-				
Pentachlorobenzene	µg/kg	10	NONE	-				
Tecnazene	µg/kg	10	NONE	-				
Tetrachlorobenzene, 1,2,4,5-	µg/kg	10	NONE	-				
Trichlorobenzene, 1,2,3-	µg/kg	10	NONE	-				
Trichlorobenzene, 1,3,5-	µg/kg	10	NONE	-				
Trifluralin	µg/kg	10	NONE	-				

Analytical Report Number: 19-63187

Project / Site name: Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				17462				
Sample Reference				MTP10				
Sample Number				None Supplied				
Depth (m)				0.10				
Date Sampled				24/09/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Organophosphorus Pesticides (OPP)								
Azinphos-ethyl	µg/kg	10	NONE	-				
Azinphos-methyl	µg/kg	10	NONE	-				
Carbophenothion	µg/kg	10	NONE	-				
Chlorfenvinphos (mixture of z and e isomers)	µg/kg	10	NONE	-				
Chlorpyrifos	µg/kg	10	NONE	-				
Demeton-O	µg/kg	10	NONE	-				
Demeton-S	µg/kg	10	NONE	-				
Diazinon	µg/kg	10	NONE	-				
Dichlorvos	µg/kg	10	NONE	-				
Dimethoate	µg/kg	10	NONE	-				
Dimethylvinphos	µg/kg	10	NONE	-				
Ethion	µg/kg	10	NONE	-				
Etrimfos	µg/kg	10	NONE	-				
Fenitrothion	µg/kg	10	NONE	-				
Fenthion	µg/kg	10	NONE	-				
Malathion	µg/kg	10	NONE	-				
Methacrifos	µg/kg	10	NONE	-				
Mevinphos , E-	µg/kg	10	NONE	-				
Mevinphos, Z-	µg/kg	10	NONE	-				
Parathion	µg/kg	10	NONE	-				
Parathion-methyl	µg/kg	10	NONE	-				
Phorate	µg/kg	10	NONE	-				
Phosalone	µg/kg	10	NONE	-				
Phosphamidon I	µg/kg	10	NONE	-				
Pirimiphos-ethyl	µg/kg	10	NONE	-				
Pirimiphos-methyl	µg/kg	10	NONE	-				
Propetamphos	µg/kg	10	NONE	-				
Triazophos	µg/kg	10	NONE	-				

Environmental Forensics

Triazine Herbicides

Atrazine	mg/kg	0.1	NONE	-				
Simazine	mg/kg	0.1	NONE	-				
Prometryn	mg/kg	0.1	NONE	-				
Propazine	mg/kg	0.1	NONE	-				
Terbuthylazine	mg/kg	0.1	NONE	-				
Terbutryn	mg/kg	0.1	NONE	-				
Trietazine	mg/kg	0.1	NONE	-				
Cyanazine	mg/kg	0.1	NONE	-				

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

Analytical Report Number : 19-63187

Project / Site name: Lydden

* 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 *
17447	MTP01	None Supplied	0.20	Brown loam and clay with vegetation.
17448	MTP02	None Supplied	0.10	Brown loam and clay with vegetation.
17449	MTP02	None Supplied	0.90	Brown clay.
17450	MTP03	None Supplied	0.10	Brown loam and clay with vegetation.
17451	MTP03	None Supplied	1.70	Light Brown clay and sand with chalk and gravel.
17452	MTP04	None Supplied	0.20	Brown loam and clay.
17453	MTP05	None Supplied	0.20	-
17454	MTP05	None Supplied	0.80	Brown loam and clay with vegetation and gravel.
17455	MTP06	None Supplied	0.05	Brown loam and clay with vegetation.
17456	MTP06	None Supplied	2.30	Brown clay.
17457	MTP07	None Supplied	0.30	Brown loam and clay with vegetation.
17458	MTP08	None Supplied	0.20	-
17459	MTP08	None Supplied	0.70	Brown clay and sand with gravel.
17460	MTP09	None Supplied	0.05	Brown loam and clay with vegetation and gravel.
17461	MTP09	None Supplied	0.50	Brown clay and sand with chalk and gravel.
17462	MTP10	None Supplied	0.10	Brown loam and clay with vegetation.

Analytical Report Number : 19-63187

Project / Site name: Lydden

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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
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.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
Organochlorine Pesticides in soil by GC MS/MS	Detemination of Pesticides in soil by GC MS/MS	Organochlorine Pesticides in soil by GC MS/MS	L055B-PL	D	NONE
Organophosphorus Pesticides in soil by GC MS/MS	Detemination of Pesticides in soil by GC MS/MS	Organophosphorus Pesticides in soil by GC MS/MS	L055B-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
TO - Triazine pesticides in soil	Determination of Triazines by LC-MS(/MS).	In-house method based on USEPA method 615.		W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

Analytical Report Number : 19-63187

Project / Site name: Lydden

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

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.

BASIC STATISTICAL RESULTS SUMMARY

choose screening level from dropdown ->	Residential with homegrown produce

Site Name: Lydden, Dover
Project Number: 21929a

Determinand	MTP01	MTP02	MTP02	MTP03	MTP03	MTP04	MTP05	MTP05	MTP06	MTP06	MTP07	MTP08	MTP08	MTP09	MTP09	MTP10	Number of Tests	Maximum (mg.kg^{-1})	Mean (mg.kg^{-1})	Screening Level (mg.kg^{-1})	No. > SL
Depth	0.20	0.10	0.90	0.10	1.70	0.20	0.20	0.80	0.05	2.30	0.30	0.20	0.70	0.05	0.50	0.10					
Arsenic	9.9		1		13	12		7.7		5.9	16		5.2		5.2	7.7	10	16	8.36	37	0
Cadmium	0.6		0.3		0.3	0.7		0.5		0.7	0.6		0.5		0.4	0.5	10	0.7	0.51	11	0
Hexavalent Chromium	4		4		4	4		4		4	4		4		4	4	10	4	4.00	6	0
Chromium	24		31		21	22		18		20	11		16		6.2	9.7	10	31	17.89	910	0
Copper	18		9.7		9.8	19		13		8.4	15		12		14	98	10	98	21.69	2400	0
Lead	61		15		8	44		25		11	40		15		26	47	10	61	29.20	200	0
Mercury	0.3		0.3		0.3	0.3		0.3		0.3	0.3		0.3		0.3	0.3	10	0.3	0.30	40	0
Nickel	21		21		16	17		16		17	9.3		13		9	9	10	21	14.83	130	0
Selenium	1.4		1		1	1		1		1	1		1		1	1	10	1.4	1.04	250	0
Zinc	67		51		32	58		54		60	43		40		35	86	10	86	52.60	3700	0
pH	8.1		8.1		8.3	8.1		8.1		8.1	8		8.2		8	7.9	10	8.3	8.09	10	0
Cyanide total	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.	10	1	1.00	-	-
Water Soluble Sulphate (Soil Equivalent)																	0	0	-	-	-
Water Soluble Sulphate as SO4 (2:1)																	0	0	-	-	-
Water Soluble SO4 (BRE SD 2:1 Leach Equivalent)	0.008		0.005		0.0045	0.0076		0.0061		0.006	0.0071		0.0066		0.0089	0.012	10	0.012	0.01	-	-
Sulphide	2.5		2.5		2.5	2.5		2.5		2.4	2.4		2.4		2.4	2.5	10	2.5	2.46	-	-
Organic matter	4.1		1.1		0.5	3.2		2.1		2.2	4.1		2.1		2.2	5.1	10	5.1	2.67	-	-
Aliphatic C5-C6	0.001		0.001		0.001	0.001		0.001		0.001	0.001		0.001		0.001	0.001	10	0.001	0.00	78	0
Aliphatic C6-C8	0.001		0.001		0.001	0.001		0.001		0.001	0.001		0.001		0.001	0.001	10	0.001	0.00	230	0
Aliphatic C8-C10	0.001		0.001		0.001	0.001		0.001		0.001	0.001		0.001		0.001	0.001	10	0.001	0.00	65	0
Aliphatic C10-C12	1		1		1	1		1		1	1		1		1	1	10	1	1.00	330	0
Aliphatic C12-C16	2		2		2	2		2		2	2		2		2	2	10	2	2.00	2400	0
Aliphatic C16-C21	8		8		8	8		8		8	8		8		8	8	10	8	8.00	92000	0
Aliphatic C21-C35	8		8		8	8		8		8	8		8		8	8	10	8	8.00	92000	0
Aliphatic C5-C35	< 10.		< 10.		< 10.	< 10.		< 10.		< 10.	< 10.		< 10.		< 10.	< 10.	10	10	10.00	-	-
Aromatic C5-C7	0.001		0.001		0.001	0.001		0.001		0.001	0.001		0.001		0.001	0.001	10	0.001	0.00	140	0
Aromatic C7-C8	0.001		0.001		0.001	0.001		0.001		0.001	0.001		0.001		0.001	0.001	10	0.001	0.00	290	0
Aromatic C8-C10	0.001		0.001		0.001	0.001		0.001		0.001	0.001		0.001		0.001	0.001	10	0.001	0.00	83	0
Aromatic C10-C12	1		1		1	1		1		1	1		1		1	1	10	1	1.00	180	0
Aromatic C12-C16	2		2		2	2		2		2	2		2		2	2	10	2	2.00	330	0
Aromatic C16-C21	10		10		10	10		10		10	10		10		10	10	10	10	10.00	540	0
Aromatic C21-C35	10		10		10	10		10		10	10		10		10	10	10	10	10.00	1500	0
Aromatic C5-C35	< 10.		< 10.		< 10.	< 10.		< 10.		< 10.	< 10.		< 10.		< 10.	< 10.	10	10	10.00	-	-
Benzene	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.	-	-	-	-	-
Ethylbenzene	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.	-	-	-	-	-
Toluene	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.	-	-	-	-	-
p & m-xylene	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.	-	-	-	-	-
o-xylene	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.	-	-	-	-	-
MTBE	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.		< 1.		< 1.	< 1.	-	-	-	-	-
Benzene	0.001		0.001		0.001	0.001		0.001		0.001	0.001		0.001		0.001	0.001	10	0.001	0.00	0.17	0
Ethylbenzene	0.001		0.001		0.001	0.001		0.001		0.001	0.001		0.001		0.001	0.001	10	0.001	0.00	290	0
Toluene	0.001		0.001		0.001	0.001		0.001		0.001	0.001		0.001		0.001	0.001	10	0.001	0.00	110	0
total xylene	0.002		0.002		0.002	0.002		0.002		0.002	0.002		0.002		0.002	0.002	10	0.002	0.00	130	0
MTBE	< .001		< .001		< .001	< .001		< .001		< .001	< .001		< .001		< .001	< .001	10	0.001	0.00	-	-
Naphthalene	0.05		0.05		0.05	0.05		0.05		0.05	0.05		0.05		0.05	0.05	10	0.05	0.05	5.6	0
Acenaphthylene	0.05		0.05		0.05	0.05		0.05		0.05	0.05		0.05		0.05	0.05	10	0.05	0.05	420	0
Acenaphthene	0.05		0.05		0.05	0.05		0.05		0.05	0.05		0.05		0.05	0.05	10	0.05	0.05	510	0
Fluorene	0.05		0.05		0.05	0.05		0.05		0.05	0.05		0.05		0.05	0.05	10	0.05	0.05	400	0
Phenanthrene	0.05		0.05		0.05	0.05		0.05		0.05	0.05		0.05		0.05	0.2	10	0.2	0.07	220	0
Anthracene	0.05		0.05		0.05	0.05		0.05		0.05	0.05		0.05		0.05	0.05	10	0.05	0.05	5400	0
Fluoranthene	0.25		0.05		0.05	0.05		0.05		0.05	0.56		0.05		0.24	0.42	10	0.56	0.18	560	0
Pyrene	0.25		0.05		0.05	0.05		0.05		0.05	0.5		0.05		0.18	0.35	10	0.5	0.16	1200	0
Benzo(a)anthracene	0.05		0.05		0.05	0.05		0.05		0.05	0.25		0.05		0.05	0.21	10	0.25	0.09	11	0
Chrysene	0.05		0.05		0.05	0.05		0.05		0.05	0.33		0.05		0.05	0.2	10	0.33	0.09	22	0
Benzo(b)fluoranthene	0.05		0.05		0.05	0.05		0.05		0.05	0.34		0.05		0.05	0.05	10	0.34	0.08	3.3	0
Benzo(k)fluoranthene	0.05		0.05		0.05	0.05		0.05		0.05	0.16		0.05		0.05	0.05	10	0.16	0.06	93	0
Benzo(a)pyrene	0.05		0.05		0.05	0.05		0.05		0.05	0.24		0.05		0.05	0.05	10	0.24	0.07	2.7	0
Indeno(1,2,3-c,d)pyrene	0.05		0.05		0.05	0.05		0.05		0.05	0.05		0.05		0.05	0.05	10	0.05	0.05	36	0
Dibenzo(a,h)anthracene	0.05		0.05		0.05	0.05		0.05		0.05	0.05		0.05		0.05	0.05	10	0.05	0.05	0.28	0
Benzo(g,h,i)perylene	0.05	-	0.05	-	0.05	0.05	-	0.05	-	0.05	0.05	-	0.05	-	0.05	0.05	16	0.05	0.05	340	0
Total PAH - USEPA 16	< .8	-	< .8	-	< .8	< .8	-	< .8	-	< .8	2.38	-	< .8	-	< .8	1.38	16	2.38	1.02	-	-
Phenol - Monohydric	1	-	1	-	1	1	-	1	-	1	1	-	1	-	1	1	16	1	1.00	200	0

APPENDIX 5 ▪ Geotechnical Laboratory Certificates

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

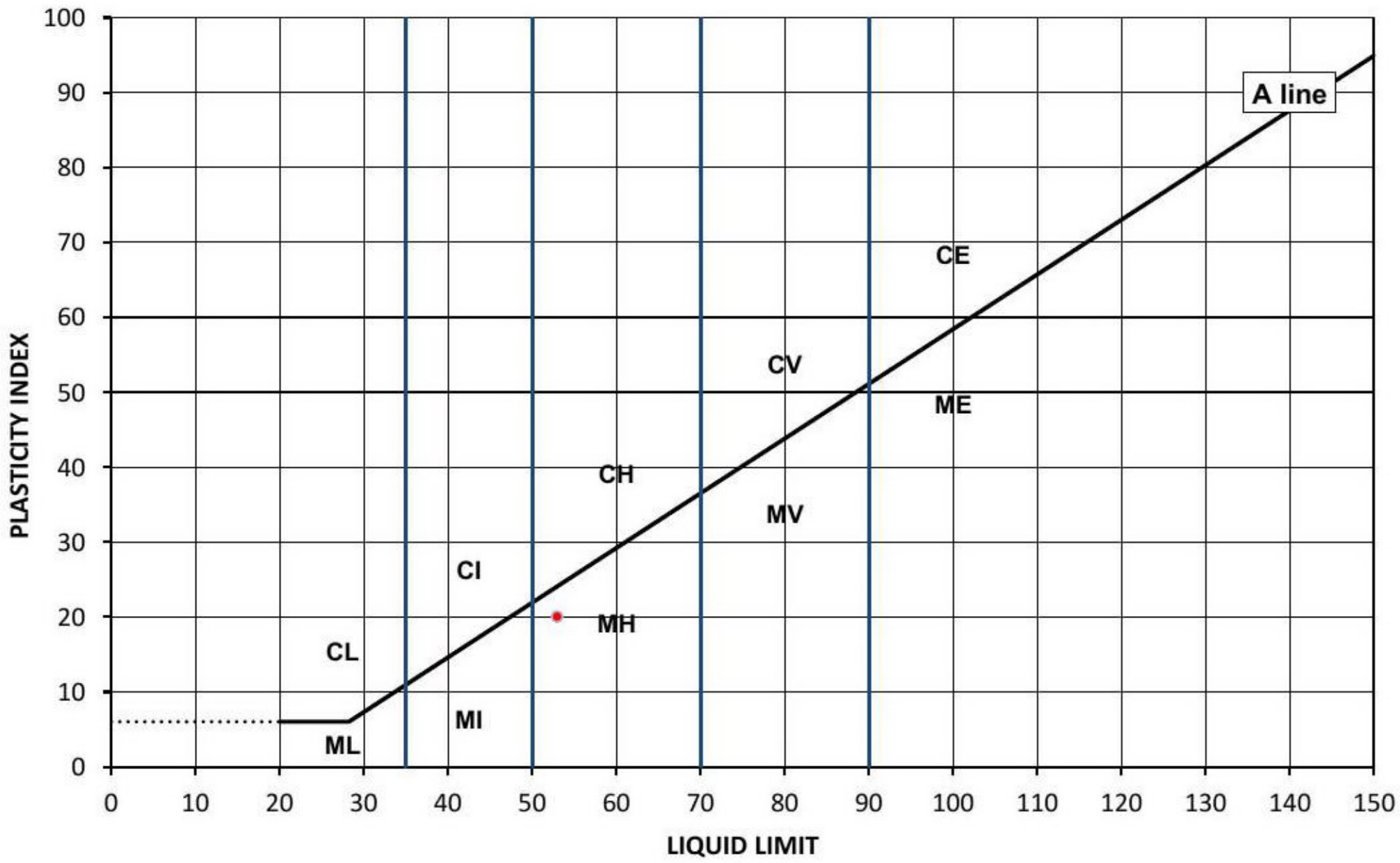
Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Merebrook	Client Reference:	21929A
Client Address:	Cromford Mills, Mill Lane, Cromford, Derbyshire, DE4 3RQ	Job Number:	19-65866
		Date Sampled:	23/09/2019
		Date Received:	26/09/2019
Contact:	Darren Ettritch	Date Tested:	21/10/2019
Site Name:	Church Lane, Lydden	Sampled By:	CAH
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1330723	Depth Top [m]:	0.50
Hole No.:	MBH01	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly gravelly slightly sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	53	33	20	69



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 28/10/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

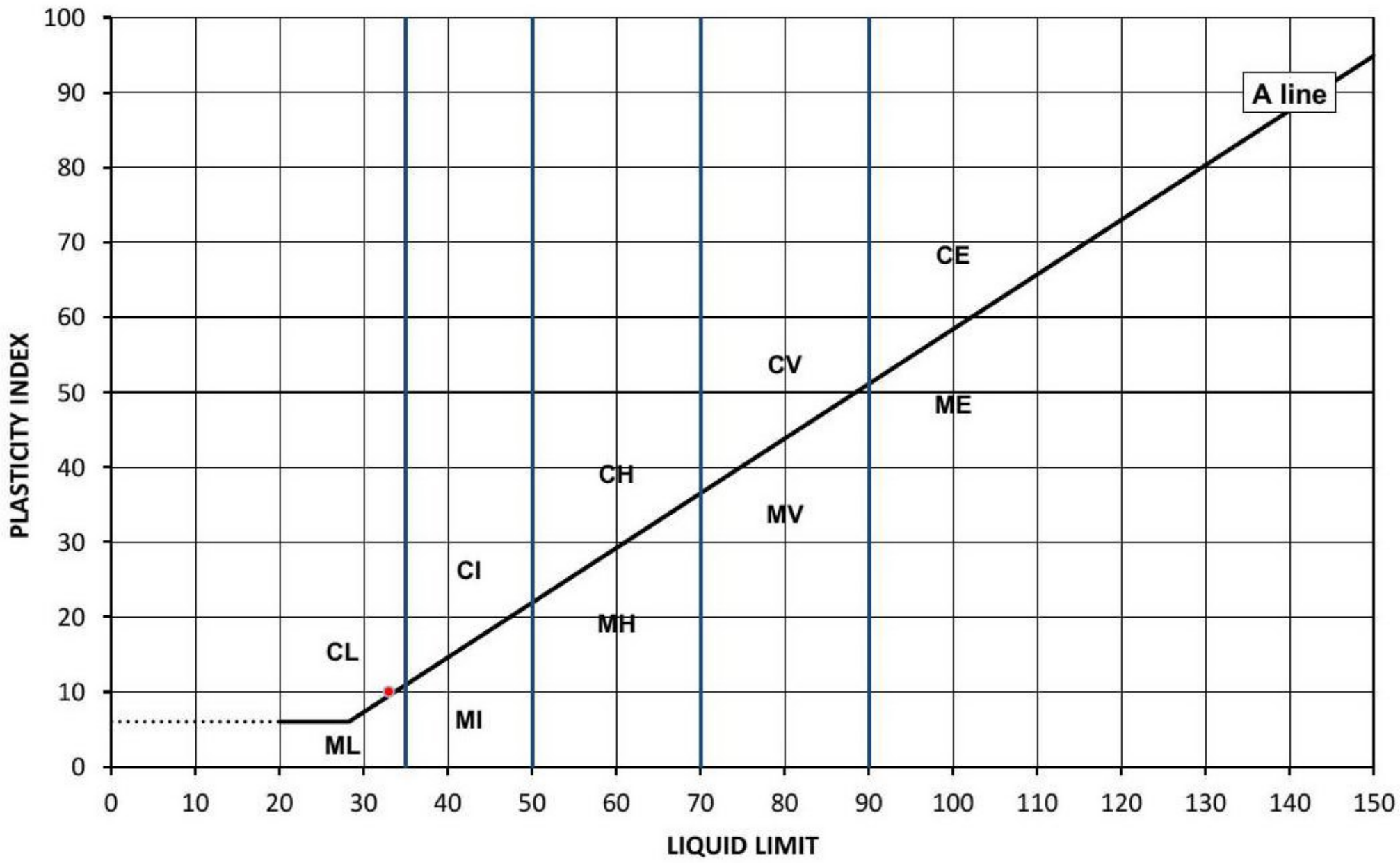
Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Merebrook	Client Reference:	21929A
Client Address:	Cromford Mills, Mill Lane, Cromford, Derbyshire, DE4 3RQ	Job Number:	19-65866
		Date Sampled:	23/09/2019
		Date Received:	26/09/2019
Contact:	Darren Ettritch	Date Tested:	21/10/2019
Site Name:	Church Lane, Lydden	Sampled By:	CAH
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1330724	Depth Top [m]:	1.20
Hole No.:	MBH01	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Cream colour slightly gravelly very sandy CLAY with fragments of chalk		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	33	23	10	92



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
[redacted]
PL Geotechnical Laboratory Manager
Date Reported: 28/10/2019

Signed: Darren Berrill
[redacted]
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd **GF 232.5**

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

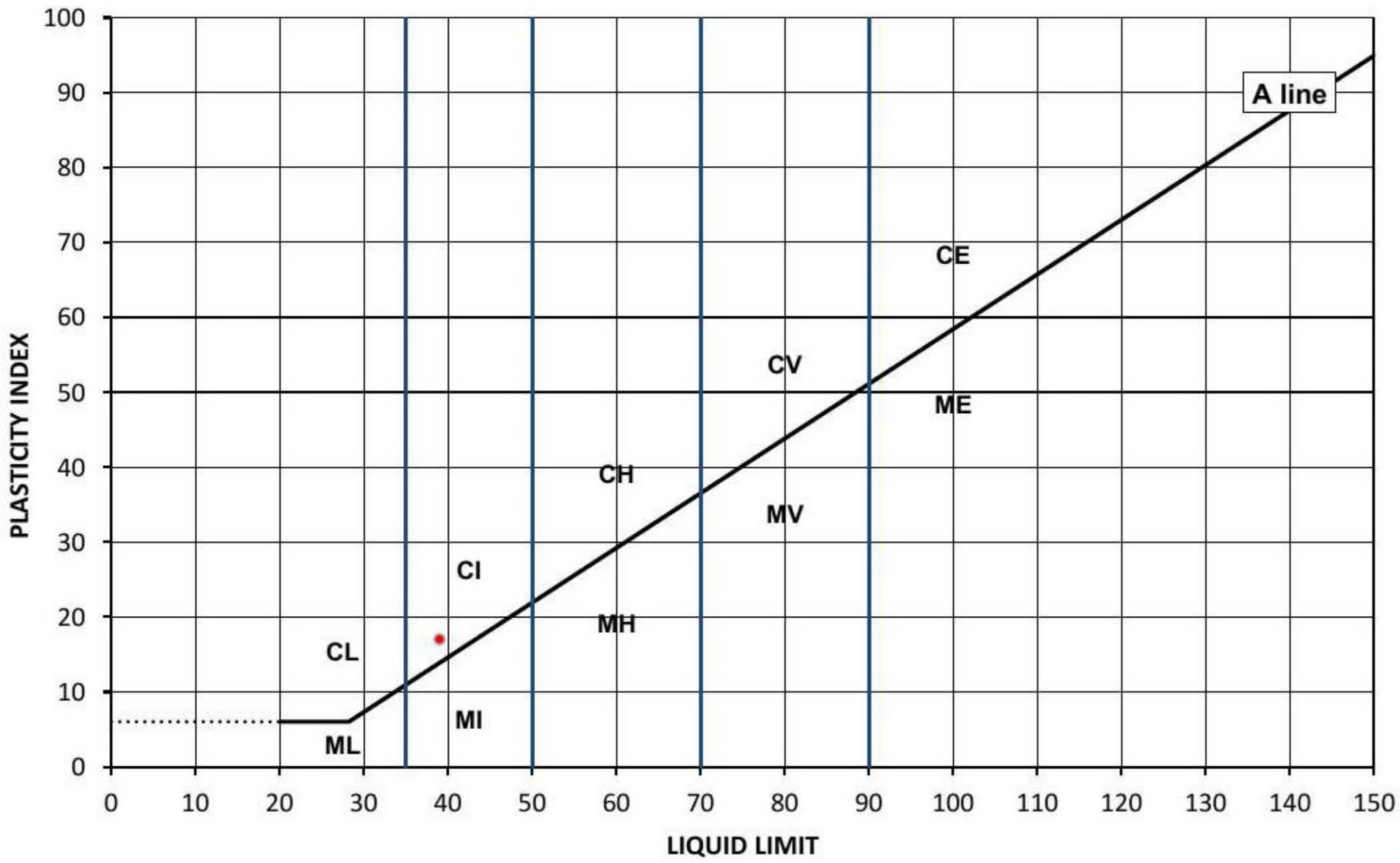
Client:	Merebrook	Client Reference:	21929A
Client Address:	Cromford Mills, Mill Lane, Cromford, Derbyshire, DE4 3RQ	Job Number:	19-65866
		Date Sampled:	23/09/2019
		Date Received:	26/09/2019
Contact:	Darren Ettritch	Date Tested:	21/10/2019
Site Name:	Church Lane, Lydden	Sampled By:	CAH
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1330725	Depth Top [m]:	2.20
Hole No.:	MBH01	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly gravelly sandy CLAY		

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	39	22	17	75



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 28/10/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

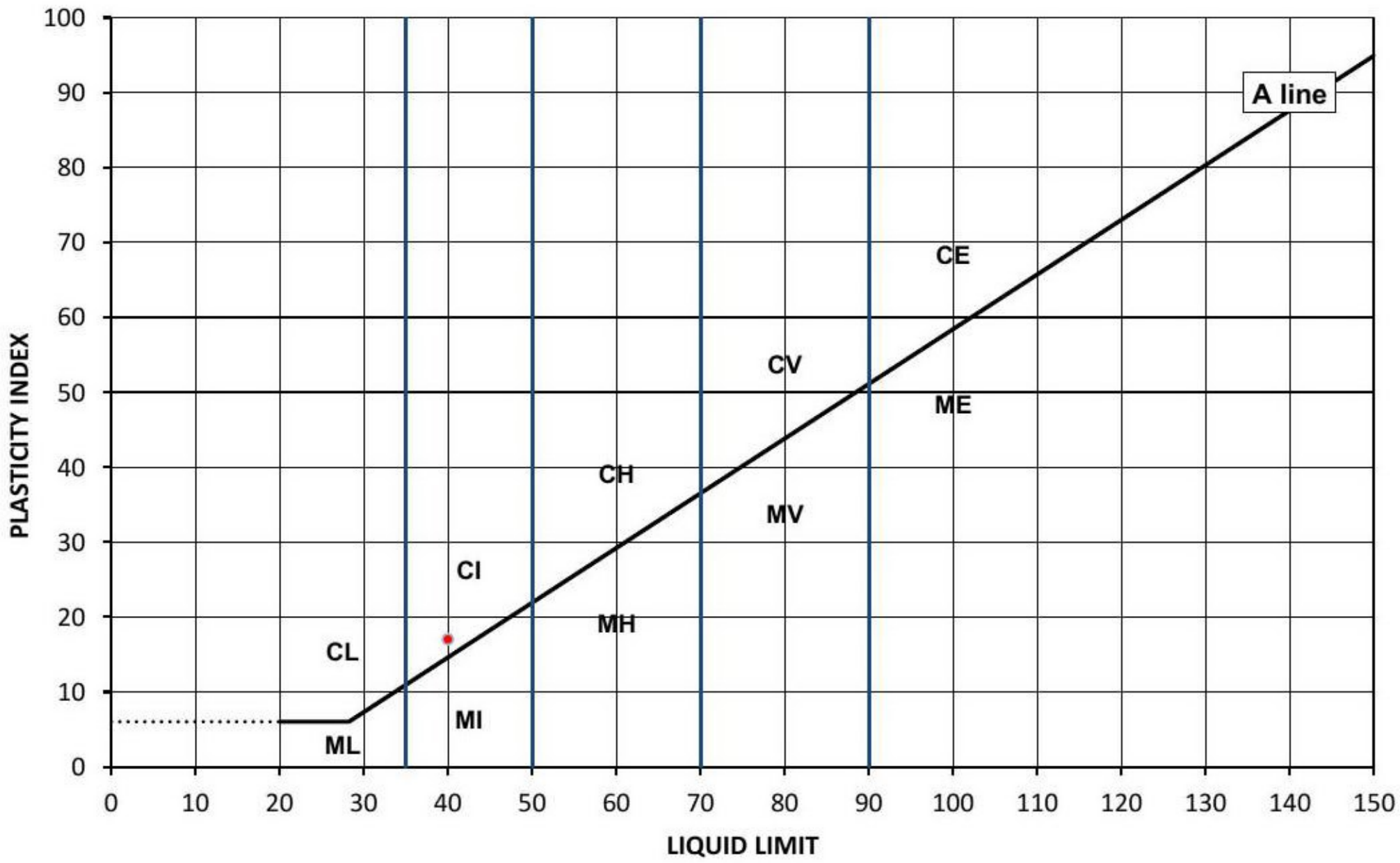
Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Merebrook	Client Reference:	21929A
Client Address:	Cromford Mills, Mill Lane, Cromford, Derbyshire, DE4 3RQ	Job Number:	19-65866
		Date Sampled:	24/09/2019
		Date Received:	26/09/2019
Contact:	Darren Ettritch	Date Tested:	21/10/2019
Site Name:	Church Lane, Lydden	Sampled By:	CAH
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1330726	Depth Top [m]:	1.00
Hole No.:	MBH02	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Light brown slightly gravelly sandy CLAY with flintstones		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
19	40	23	17	87



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 28/10/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]
for and on behalf of i2 Analytical Ltd **GF 232.5**

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Environmental Science

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Merebrook
Client Address: Cromford Mills, Mill Lane, Cromford, Derbyshire, DE4 3RQ
Contact: Darren Ettritch
Site Name: Church Lane, Lydden
Site Address: Not Given

Client Reference: 21929A
Job Number: 19-65866
Date Sampled: 23/09 - 24/09/2019
Date Received: 26/09/2019
Date Tested: 21/10/2019
Sampled By: CAH

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	LL	PL	PI	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1330723	MBH01	Not Given	0.50	Not Given	D	Brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	16		69	53	33	20						
1330724	MBH01	Not Given	1.20	Not Given	D	Cream colour slightly gravelly very sandy CLAY with fragments of chalk	Atterberg 1 Point	18		92	33	23	10						
1330725	MBH01	Not Given	2.20	Not Given	D	Brown slightly gravelly sandy CLAY	Atterberg 1 Point	21		75	39	22	17						
1330726	MBH02	Not Given	1.00	Not Given	D	Light brown slightly gravelly sandy CLAY with flintstones	Atterberg 1 Point	19		87	40	23	17						

Note: # Non accredited; NP - Non plastic

Comments:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 28/10/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd **GF 234.7**

Darren Ettritch
Merebrook
Cromford Mills
Mill Lane
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Derbyshire
DE4 3RQ

e: dettritch@idom.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 19-65872

Project / Site name:	Church Lane, Lydden	**Samples received on:**	26/09/2019
Your job number:	21929A	**Samples instructed on:**	14/10/2019
Your order number:	19-S2-FDO-LABS	**Analysis completed by:**	28/10/2019
Report Issue Number:	1	**Report issued on:**	28/10/2019
Samples Analysed:	6 soil samples		

Signed [redacted]

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: 19-65872

Project / Site name: Church Lane, Lydden
Your Order No: 19-S2-FDO-LABS

Lab Sample Number				1330740	1330741	1330742	1330743	1330744
Sample Reference				MBH01	MBH01	MBH01	MBH02	MBH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.50	6.00	10.50	1.20	5.00
Date Sampled				23/09/2019	23/09/2019	23/09/2019	24/09/2019	24/09/2019
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	24	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	22	21	20	20
Total mass of sample received	kg	0.001	NONE	2.0	1.7	1.5	2.0	1.2
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.2	8.4	8.5	8.0	8.4
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.028	0.0063	0.0072	0.019	0.0056

Analytical Report Number: 19-65872

Project / Site name: Church Lane, Lydden

Your Order No: 19-S2-FDO-LABS

Lab Sample Number				1330745				
Sample Reference				MBH02				
Sample Number				None Supplied				
Depth (m)				9.50				
Date Sampled				24/09/2019				
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	22				
Total mass of sample received	kg	0.001	NONE	1.0				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.8				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0067				

Analytical Report Number : 19-65872

Project / Site name: Church Lane, Lydden

* 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 *
1330740	MBH01	None Supplied	2.50	Light brown clay and sand with stones and gravel.
1330741	MBH01	None Supplied	6.00	Beige clay with chalk and gravel.
1330742	MBH01	None Supplied	10.50	Beige clay with chalk and gravel.
1330743	MBH02	None Supplied	1.20	Brown clay with gravel.
1330744	MBH02	None Supplied	5.00	Beige clay with chalk.
1330745	MBH02	None Supplied	9.50	Beige clay and sand with chalk and garvel.

Analytical Report Number : 19-65872

Project / Site name: Church Lane, Lydden

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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	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.

APPENDIX 6

- Soakage data

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION

Site Name:	*Lydden*			Job No:	*21929a*
Engineer:	*Callum Harris*	Date:	*26/09/2019*	Weather:	*Overcast, rain*

TEST PIT DETAILS

Trial Pit Number:	*MSP01*		Test *2* of *3*			
Length (m):	*0.7*	Width (m):	*2.6*		Depth (m):	*2.1*
Depth to Groundwater (m):	*N/A*					
Time Filling Commenced:	*09:56*		Time Filling Completed:		*09:57*	
Depth to Water at Start of Test:		*1.3*				
Effective Depths:		75%:	*1.50*	50%:	*1.70*	25%: *1.90*

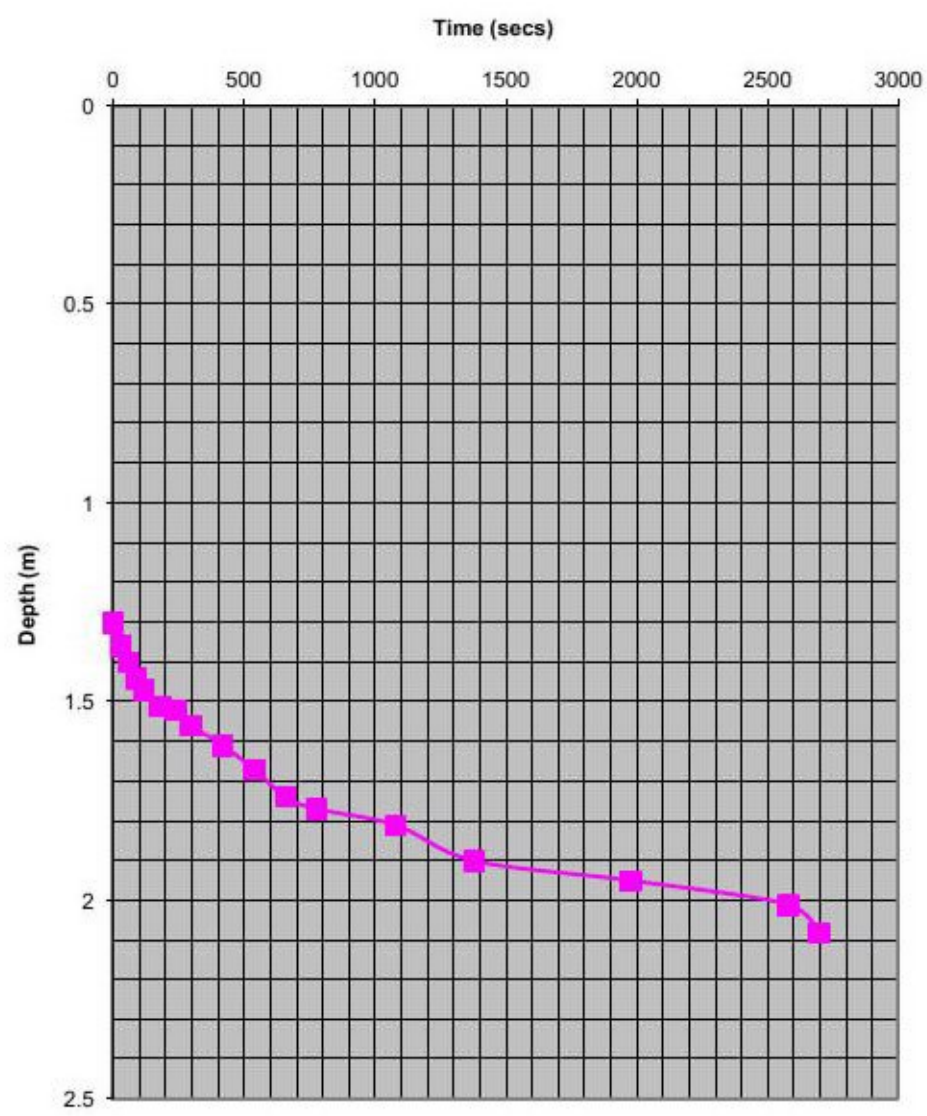
NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

TEST PIT RESULTS

TEST DATA

Time	t (mins)	t (secs)	Depth to Water (m)
09:57	0	0	1.300
09:57:30	0.5	30	1.360
09:58	1	60	1.400
09:58:30	1.5	90	1.440
09:59	2	120	1.470
10:00	3	180	1.510
10:01	4	240	1.520
10:02	5	300	1.560
10:04	7	420	1.610
10:06	9	540	1.670
10:08	11	660	1.740
10:10	13	780	1.770
10:15	18	1080	1.810
10:20	23	1380	1.900
10:30	33	1980	1.950
10:40	43	2580	2.010
10:42	45	2700	2.080
			2.100

MSP01



t at 75% Effective Depth: ***165*** secs
t at 25% Effective Depth: ***1380*** secs

Infiltration Rate f = Vp75-25 / ap50 x tp75-25

Vp75-25:	***0.73***	m3
ap50:	***4.46***	m2
tp75-25	***1215***	secs

f = *0.000134* m/s

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION

Site Name:	*Lydden*			Job No:	*21929a*
Engineer:	*Callum Harris*	Date:	*26/09/2019*	Weather:	*Overcast, rain*

TEST PIT DETAILS

Trial Pit Number:	*MSP01*		Test *3* of *3*			
Length (m):	*0.7*	Width (m):	*2.6*		Depth (m):	*2.1*
Depth to Groundwater (m):	*N/A*					
Time Filling Commenced:	*10:03*		Time Filling Completed:		*10:04*	
Depth to Water at Start of Test:		*1.36*				
Effective Depths:		75%:	*1.55*	50%:	*1.73*	25%: *1.92*

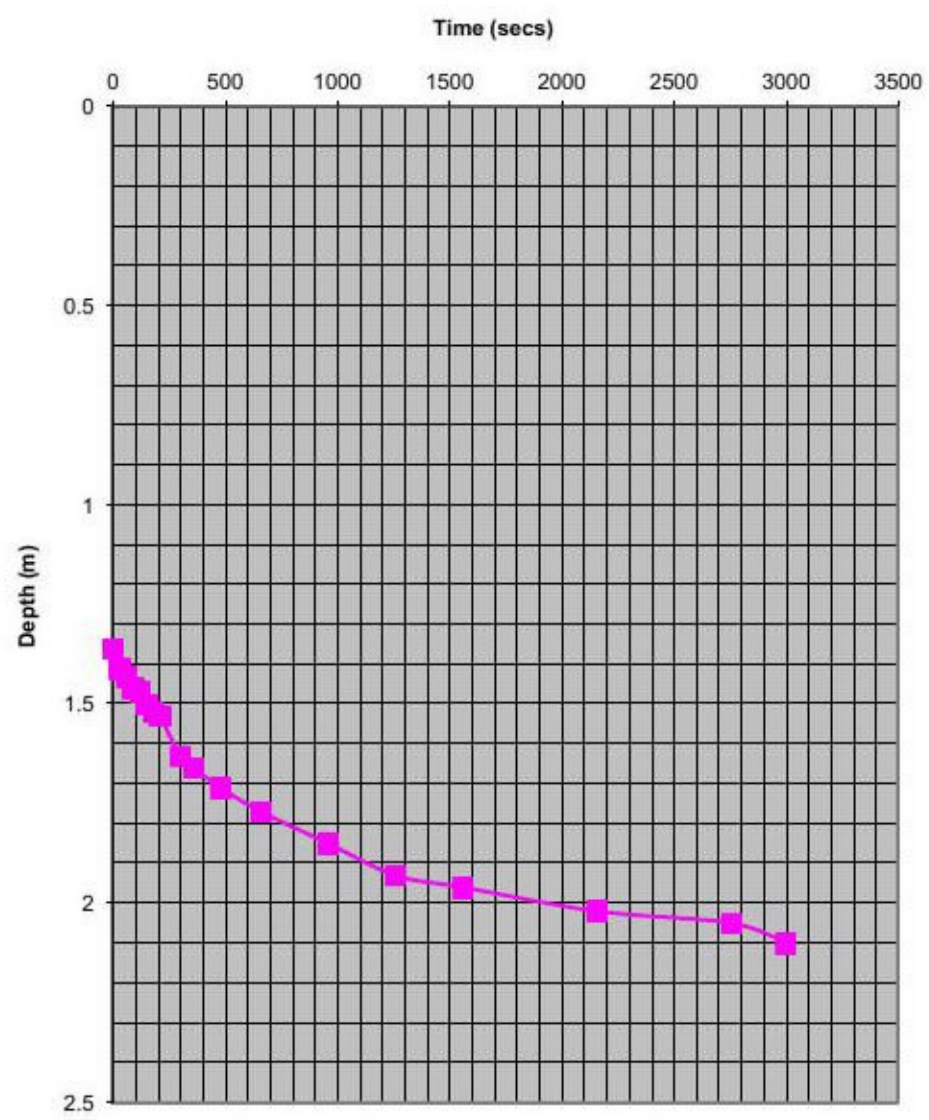
NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

TEST PIT RESULTS

TEST DATA

Time	t (mins)	t (secs)	Depth to Water (m)
11:04	0	0	1.360
11:04:30	0.5	30	1.410
11:05	1	60	1.430
11:05:30	1.5	90	1.460
11:06	2	120	1.470
11:06	2.5	150	1.500
11:07	3	180	1.520
11:07	3.5	210	1.530
11:09	5	300	1.630
11:10	6	360	1.660
11:12	8	480	1.710
11:15	11	660	1.770
11:20	16	960	1.850
11:25	21	1260	1.930
11:30	26	1560	1.960
11:40	36	2160	2.020
11:50	46	2760	2.050
11:54	50	3000	2.100

MSP01



t at 75% Effective Depth: ***228*** secs
t at 25% Effective Depth: ***1223*** secs

Infiltration Rate f = Vp75-25 / ap50 x tp75-25

Vp75-25:	***0.67***	m3
ap50:	***4.262***	m2
tp75-25	***995***	secs

f = *0.000159* m/s

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION

Site Name:	*Lydden*			Job No:	*21929a*
Engineer:	*Callum Harris*	Date:	*26/09/2019*	Weather:	*Overcast, rain*

TEST PIT DETAILS

Trial Pit Number:	*MSP02*		Test *1* of *1*			
Length (m):	*2.7*	Width (m):	*0.7*		Depth (m):	*3.0*
Depth to Groundwater (m):	*N/A*					
Time Filling Commenced:	*10:11*		Time Filling Completed:		*10:12*	
Depth to Water at Start of Test:		*2.32*				
Effective Depths:		75%:	*2.49*	50%:	*2.66*	25%: *2.83*

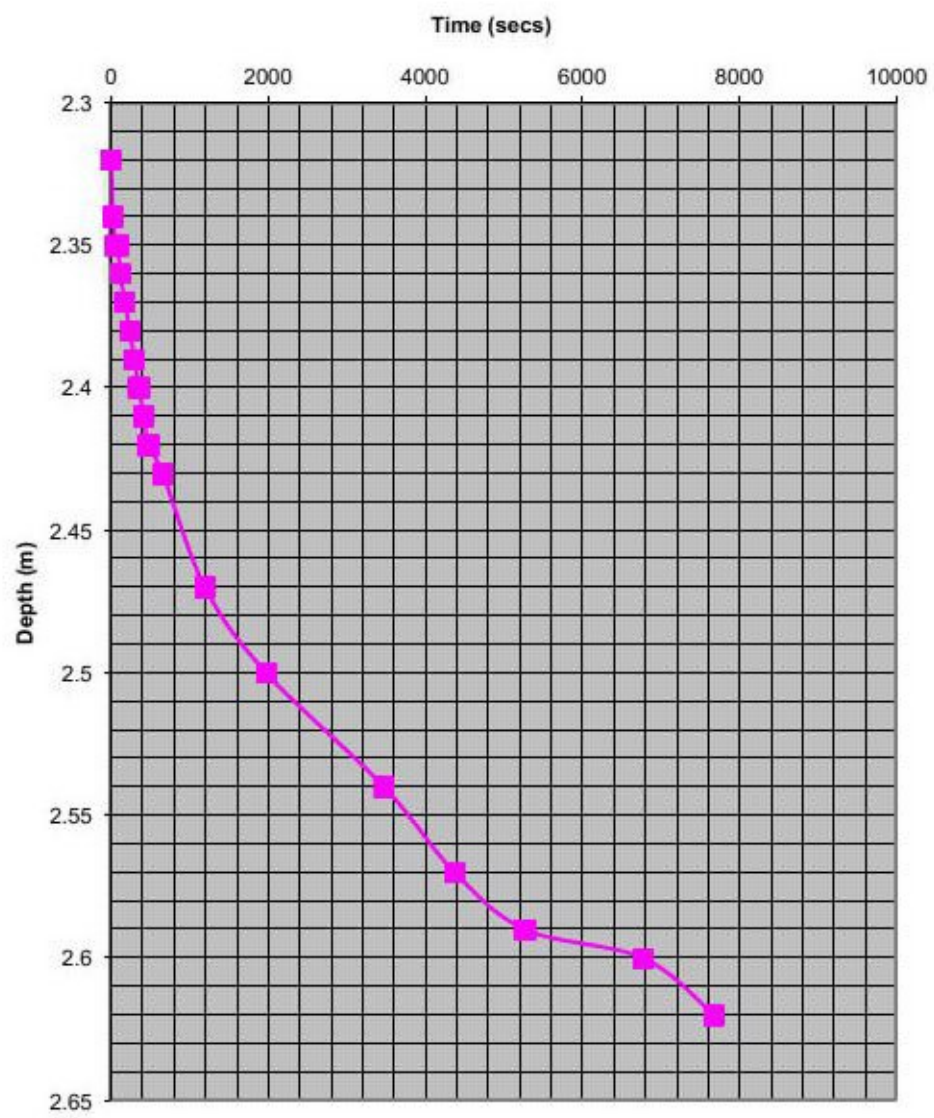
NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

TEST PIT RESULTS

TEST DATA

Time	t (mins)	t (secs)	Depth to Water (m)
10:12	0	0	2.320
10:12:30	0.5	30	2.340
10:13	1	60	2.350
10:13:30	1.5	90	2.350
10:14	2	120	2.360
10:15	3	180	2.370
10:16	4	240	2.380
10:17	5	300	2.390
10:18	6	360	2.400
10:19	7	420	2.410
10:20	8	480	2.420
10:23	11	660	2.430
10:32	20	1200	2.470
10:45	33	1980	2.500
11:10	58	3480	2.540
11:25	73	4380	2.570
11:40	88	5280	2.590
12:05	113	6780	2.600
12:20	128	7680	2.620

MSP02



t at 75% Effective Depth: ***1720*** secs
t at 25% Effective Depth: ..... secs

Infiltration Rate f = Vp75-25 / ap50 x tp75-25

Vp75-25:	***0.64***	m3
ap50:	***4.202***	m2
tp75-25	***-1720***	secs

f = *-8.89E-05* m/s

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION

Site Name:	*Lydden*			Job No:	*21929a*
Engineer:	*Callum Harris*	Date:	*26/09/2019*	Weather:	*Overcast, rain*

TEST PIT DETAILS

Trial Pit Number:	*MSP03*		Test *1* of *1*			
Length (m):	*2.7*	Width (m):	*0.7*		Depth (m):	*3.5*
Depth to Groundwater (m):	*N/A*					
Time Filling Commenced:	*11:17*		Time Filling Completed:		*11:18*	
Depth to Water at Start of Test:	*2.79*					
Effective Depths:	75%:	*2.97*	50%:	*3.15*	25%:	*3.32*

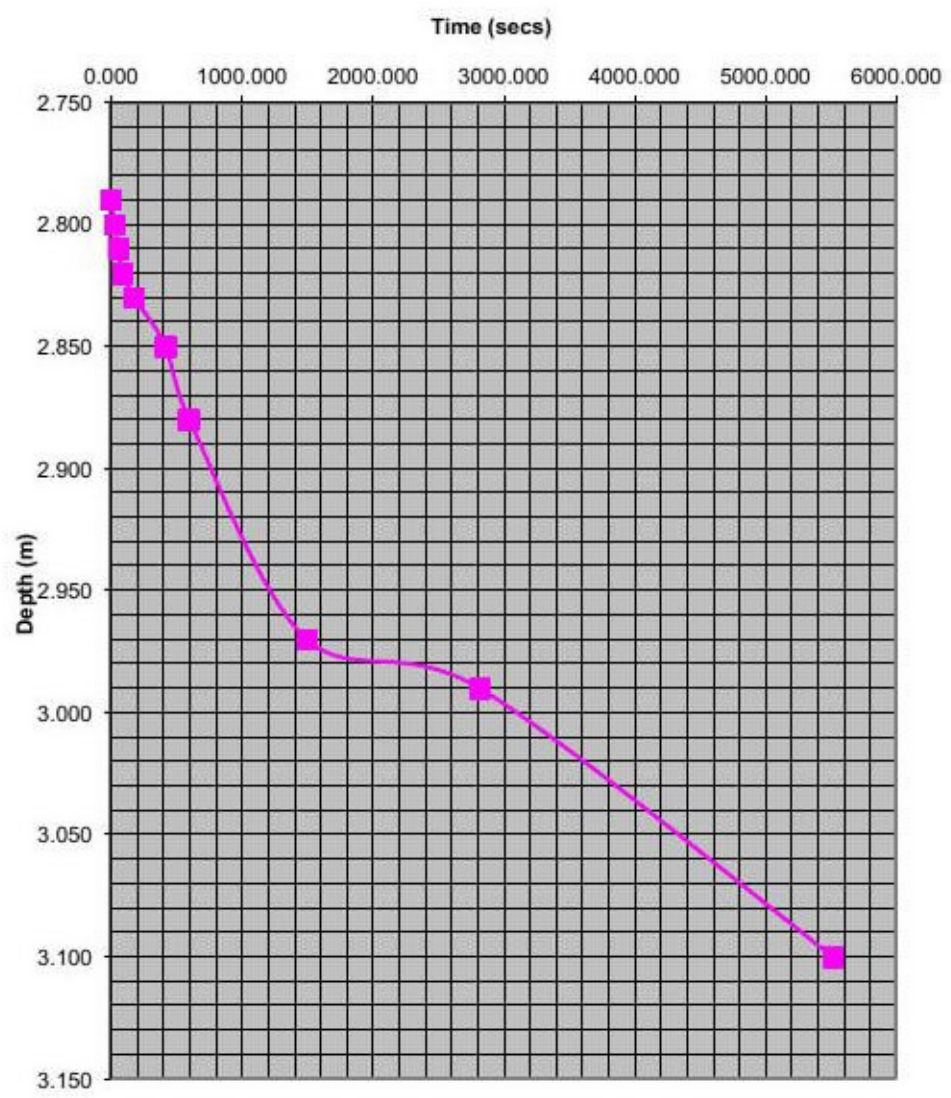
NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

TEST PIT RESULTS

TEST DATA

Time	t (mins)	t (secs)	Depth to Water (m)
11:18	0.000	0.000	2.790
11:18:30	0.500	30.000	2.800
11:19	1.000	60.000	2.810
11:19:30	1.500	90.000	2.820
11:21	3.000	180.000	2.830
11:25	7.000	420.000	2.850
11:28	10.000	600.000	2.880
11:43	25.000	1500.000	2.970
12:05	47.000	2820.000	2.990
12:50	92.000	5520.000	3.100

MSP03



t at 75% Effective Depth: ***1500*** secs
t at 25% Effective Depth: ..... secs

Infiltration Rate f = Vp75-25 / ap50 x tp75-25

Vp75-25:	***0.67***	m3
ap50:	***4.304***	m2
tp75-25	***-1500***	secs

f = *-0.000104* m/s

DETERMINATION OF SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365

GENERAL INFORMATION

Site Name:	*Lydden*			Job No:	*21929a*
Engineer:	*Callum Harris*	Date:	*26/09/2019*	Weather:	*Overcast, rain*

TEST PIT DETAILS

Trial Pit Number:	*MSP04*		Test *1* of *1*			
Length (m):	*2.6*	Width (m):	*0.7*		Depth (m):	*2.2*
Depth to Groundwater (m):	*N/A*					
Time Filling Commenced:	*12:27*		Time Filling Completed:		*12:29*	
Depth to Water at Start of Test:		*1.33*				
Effective Depths:		75%:	*1.55*	50%:	*1.77*	25%: *1.98*

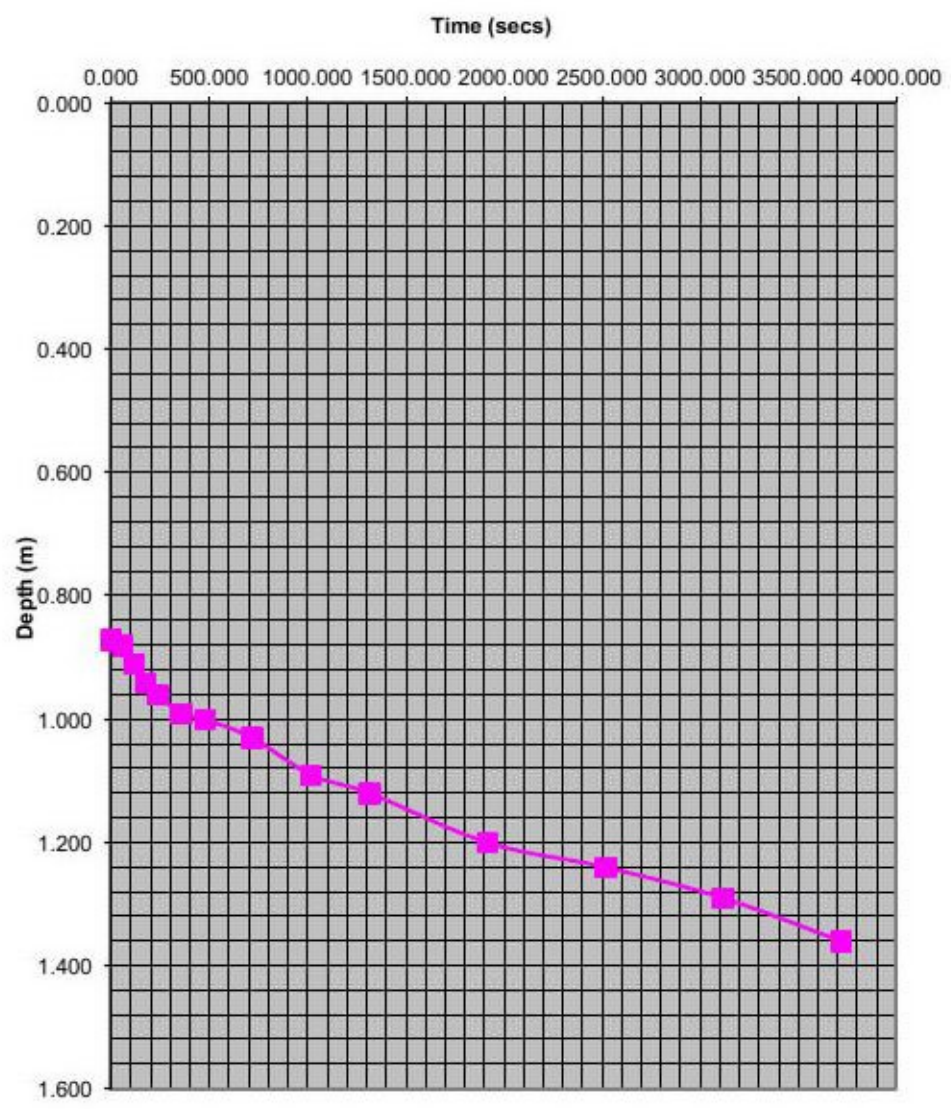
NOTE: Soakage to at least 25% effective depth is required in order to calculate infiltration rate. If infiltration rates are slow extrapolation maybe required to determine time at which 25% effective depth would be achieved.

TEST PIT RESULTS

TEST DATA

Time	t (mins)	t (secs)	Depth to Water (m)
12:28	0.000	0.000	0.870
12:29:00	1.000	60.000	0.880
12:30	2.000	120.000	0.910
12:31:00	3.000	180.000	0.940
12:32	4.000	240.000	0.960
12:34	6.000	360.000	0.990
12:36	8.000	480.000	1.000
12:40	12.000	720.000	1.030
12:45	17.000	1020.000	1.090
12:50	22.000	1320.000	1.120
13:00	32.000	1920.000	1.200
13:10	42.000	2520.000	1.240
13:20	52.000	3120.000	1.290
13:30	62.000	3720.000	1.360

MSP04



t at 75% Effective Depth: ..... secs
t at 25% Effective Depth: ..... secs

Infiltration Rate f = Vp75-25 / ap50 x tp75-25

Vp75-25:	*0.79*	m3
ap50:	*4.691*	m2
tp75-25	*0*	secs

f = *#DIV/0!* m/s

APPENDIX 7

- Field Monitoring Records
- Hazardous Soil Gas Data

GAS MONITORING RECORD ROUND 1

Location Reference	**Time**	**Flow and Pressure Measurements**				**Gas Measurements**						**VOC Measurements**		**Dip Measurements**		**Comments**
		Flow		**Atmospheric Pressure**	**Differential Pressure**	**Methane**	**Methane LEL**	**Carbon Dioxide**	**Oxygen**	**Carbon Monoxide**	**Hydrogen Sulphide**	**Hexane**	**PID**	**Depth to Water**	**Depth to Base**	
		max	**steady**													
		l hr^{-1}		mb	Pa	%	%	%	%	ppm	ppm	%	ppm	m	m	
MBH1	11:35	0	0	1013	0	0	0	0.4	20.1	0	0	0.000	0	DRY	4.85	-
MBH2	11:45	0	0	1013	0	0	0	0.7	19.9	0	0	0.000	0	DRY	14.30	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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Weather:	Sunny, Still, 12C	nr = not recorded	**Gas Analyser**	**PID**	**Site:**	Lydden, Dover
		Model:	GFM 436	Mini RAE 3000	**Project Number:**	21929a
		Serial Number:	12228	-	**Monitored By:**	Callum Harris
		Date of Last Calibration:	20/05/2019	-	**Date:**	03/10/2019

GAS MONITORING RECORD ROUND 2

idom merebrook

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements						VOC Measurements		Dip Measurements		Comments
		Flow		Atmospheric Pressure	Differential Pressure	Methane	Methane LEL	Carbon Dioxide	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Hexane	PID	Depth to Water	Depth to Base	
		max	steady													
		l hr^{-1}		mb	Pa	%	%	%	%	ppm	ppm	%	ppm	m	m	
MBH1	10:26	0.2	0.2	1008	0	0	0	0.2	20.4	0	0	0.000	0	DRY	14.40	-
MBH2	10:37	0.7	0.2	1009	0	0	0	0.1	20.3	0	0	0.000	0	DRY	4.83	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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Weather:	Sunny, Windy, 18C	nr = not recorded	**Gas Analyser**	**PID**	**Site:**	Lydden, Dover
		Model:	GFM 436	Mini RAE 3000	**Project Number:**	21929a
		Serial Number:	12228	-	**Monitored By:**	Simon Murphy
		Date of Last Calibration:	20/05/2019	-	**Date:**	10/10/2019

GAS MONITORING RECORD ROUND 3

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements						VOC Measurements		Dip Measurements		Comments
		Flow		Atmospheric Pressure	Differential Pressure	Methane	Methane LEL	Carbon Dioxide	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Hexane	PID	Depth to Water	Depth to Base	
		max	steady													
		$l\ hr^{-1}$		mb	Pa	%	%	%	%	ppm	ppm	%	ppm	m	m	
MBH1	11:25	0	0	1002	0	0	0	1.5	18.4	0	0	0.000	0	DRY	4.85	-
MBH2	11:40	0.1	0.1	1002	0	0	0	1.6	18.9	0	0	0.000	0	DRY	14.25	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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Weather:	Overcast, Still, 15C	nr = not recorded	**Gas Analyser**	**PID**	**Site:**	Lydden, Dover
		Model:	GFM 436	Mini RAE 3000	**Project Number:**	21929a
		Serial Number:	12228	-	**Monitored By:**	Callum Harris
		Date of Last Calibration:	20/05/2019	-	**Date:**	14/10/2019

APPENDIX 8 ▪ Gas Risk Assessment

MODIFIED WILSON AND CARD GAS CHARACTERISTIC SITUATION

SITE: Lydden, Dover JOB NUMBER: 21929a 18/10/2019

Carbon Dioxide			Methane		
Maximum Gas Concentration	1.60	%	Maximum Gas Concentration	0.10	%
Maximum Measured Steady Flow	0.20	L hr^{-1}	Maximum Measured Peak Flow	0.70	L hr^{-1}
Gas Screening Value	0.00	L hr^{-1}	Gas Screening Value	0.00	L hr^{-1}
Characteristic Situation	1		Characteristic Situation	1	

if measured values are zero then resolution limit of instrument is used for calculation of GSV
worst case carbon dioxide or methane characteristic situation value defines overall characterstic situation for the site

Modified Wilson and Card Classification

					BS 8485:2015 Gas Protection Scores - refer to standard for full guidance			
					Minimum Gas Protection Score Required			
Characteristic Situation	Risk Classification	Gas Screening Value Threshold (L hr^{-1})	Additional Factors	Typical Source of Generation	Type A Building	Type B Building	Type C Building	Type D Building
1	very low risk	<0.07	typically methane not to exceed 1% and/or carbon dioxide 5% otherwise consider increase to situation 2	natural soils with low organic content; 'typical' made ground	0	0	0	0
2	low risk	0.07 to <0.7	borehole air flow rate not to exceed 70 L hr^{-1} otherwise consider increase to situation 3	natural soils with high peat/organic content; 'typical' made ground	3.5	3.5	2.5	1.5
3	moderate risk	0.7 to <3.5		old landfill, inert waste, mineworking flooded	4.5	4	3	2.5
4	moderate to high risk	3.5 to <15	quantitative risk assessment required to evaluate scope of protective measures	mineworking susceptible to flooding, completed landfill	6.5 A)	5.5 A)	4.5	3.5
5	high risk	15 to <70		mineworking unflooded inactive with shallow workings near surface	hazard too high for this method to define protection measures	6.5 A)	5.5	4.5
6	very high risk	>70		recent landfill site	hazard too high for this method to define protection measures	hazard too high for this method to define protection measures	7.5	6.5

BS 8485:2015 Gas Protection Measures - refer to standard for full guidance

Select two or more elements from the following three types of protection to achieve score (only one element per type permitted)

Structural Barrier	Score B)	Ventilation Measures		Score	Gas Resistant Membrane	Score
Precast suspended segmental subfloor (i.e. beam and block)	0	Pressure relief pathway (usually formed of low fines gravel or with a thin geocomposite blanket or strips terminating in a gravel trench external to the building)		0.5	Gas resistant membrane meeting all of the following criteria: 1. sufficiently impervious to the gases with a methane gas transmission rate <40.0 ml/day/m2/atm (average) for sheet and joints (tested in accordance with BS ISO 15105-1 manometric method) 2. sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions 3. sufficiently strong to withstand in-service stresses (e.g. settlement if placed below a floor slab) 4. sufficiently strong to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools, etc) 5. capable, after installation, of providing a complete barrier to the entry of the relevant gas 6. verified in accordance with CIRIA C735	2
Cast in situ ground-bearing floor slab (with only nominal mesh reinforcement)	0.5	Passive sub floor dispersal layer	Very good performance E)	2.5		
			Good performance E)	1.5		
Cast in situ monolithic reinforced ground bearing raft or reinforced cast in situ suspended floor slab with minimal penetrations	1 or 1.5 C)	Active dispersal layer, usually comprising fans with active abstraction (suction) from a subfloor dilution layer, with roof level vents. The dilution layer may comprise a clear void or be formed of geocomposite or polystyrene void formers E)		1.5 to 2.5		
Basement floor and walls conforming to BS 8102:2009, Grade 2 waterproofing D)	2	Active positive pressurization by the creation of a blanket of external fresh air beneath the building floor slab by pumps supplying air to points across the central footprint of the building into a permeable layer, usually formed of a thin geocomposite blanket E)		1.5 to 2.5		
Basement floor and walls conforming to BS 8102:2009, Grade 3 waterproofing D)	2.5	Ventilated car park (floor slab of occupied part of the building under consideration is underlain by a basement or undercroft car park) F)		4		

Notes

A) Residential buildings should not be built on CS4 or higher sites unless the type of construction or site circumstances allow additional levels of protection to be incorporated, e.g. high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations

B) The scores are conditional on breaches of floor slabs, etc., being effectively sealed

C) To achieve a score of 1.5 the raft or suspended slab should be well reinforced to control cracking and have minimal penetrations cast in

D) The score is conditional on the waterproofing not being based on the use of a geosynthetic clay liner waterproofing product

E) Refer to BS 8485:2015 Annex B to determine performance and assign score

F) Assumes that the car park is vented to deal with car exhaust fumes, designed to Buildings Regulations 2000, Approved Document F

Building Types

Type A
Private ownership with no building management controls on alterations to the internal structure, the use of rooms, the ventilation of rooms or the structural fabric of the building. Some small rooms present. Probably conventional building construction (rather than civil engineering). Examples include private housing and some retail premises.

FOR TYPE A BUILDINGS ACTIVE VENTILATION MEASURES ARE INAPPROPRIATE

Type B
Private or commercial property with central building management control of any alterations to the building or its uses but limited or no central building management control of the maintenance of the building, including the gas protection measures. Multiple occupancy. Small to medium size rooms with passive ventilation of rooms and other internal spaces throughout ground floor and basement areas. May be conventional building or civil engineering construction. Examples include managed apartments, multiple occupancy offices, some retail premises and parts of some public buildings (such as schools, hospitals, leisure centres) and parts of hotels.

Type C
Commercial building with central building management control of any alterations to the building or its uses and central building management control of the maintenance of the building, including the gas protection measures. Single occupancy of ground floor and basement areas. Small to large size rooms with active ventilation or good passive ventilation of all rooms and other internal spaces throughout ground floor and basement areas. Probably civil engineering construction. Examples include offices, some retail premises, and parts of some public buildings (such as schools, hospitals, leisure centres and parts of hotels).

Type D
Industrial style building having large volume internal space(s) that are well ventilated. Corporate ownership with building management controls on alterations to the ground floor and basement areas of the building and on maintenance of ground gas protective measures. Probably civil engineering construction. Examples are retail park sales buildings, factory shop floor areas, warehouses. (Small rooms within these style buildings should be separately categorized as Type B or Type C).

NHBC TRAFFIC LIGHT GAS CHARACTERISTIC SITUATION

SITE: Lydden, Dover JOB NUMBER: 21929a 16/10/2019

Carbon Dioxide			Methane		
Maximum Gas Concentration	1.60	%	Maximum Gas Concentration	0.10	%
Maximum Measured Steady Flow	0.20	L hr^{-1}	Maximum Measured Peak Flow	0.70	L hr^{-1}
Gas Screening Value	0.00	L hr^{-1}	Gas Screening Value	0.00	L hr^{-1}
Characteristic Situation	Green		Characteristic Situation	Green	

if measured values are zero then resolution limit of instrument is used for calculation of GSV
worst case carbon dioxide or methane characteristic situation value defines overall characterstic situation for the site

NHBC Classification **Protection Measures**

Characteristic Situation	Carbon Dioxide: Typical Maximum Concentration (%v/v)	Carbon Dioxide: Gas Screening Value (L hr^{-1})	Methane: Typical Maximum Concentration (%v/v)	Methane: Gas Screening Value (L hr^{-1})	Identified Gas Regime	Protection Measures Required
Green					negligible	Ground gas protection measures are not required
	5	0.78	1	0.16		
Amber 1					low to intermediate	Low-level ground gas protection measures are required, using a membrane and ventilated sub-floor void that creates a permeability contrast to limit the ingress of gas into buildings. Gas protection measures are to be installed as prescribed in BRE 414. Ventilation of the sub-floor void should be designed to provide a minimum of one complete volume change per 24 hours
	10	1.56	5	0.63		
Amber 2					intermediate to high	High-level ground gas protection measures are required, creating a permeability contrast to prevent ingress of gas into buildings. Gas protection measures are to be installed as prescribed in BRE 414. Membranes used should always be fitted by a specialist contractor and should be fully certified (see Appendix E). As with Amber 1, ventilation of the sub-floor void should be designed to provide a minimum of one complete volume change per 24 hours.
	30	3.10	20	1.56		
Red					high	Standard residential housing is not normally acceptable without further Ground Gas Risk Assessment and/or possible remedial mitigation measures to reduce/remove the source of the ground gases. In certain circumstances, active protection methods could be applied, but only when there is a legal agreement assuring the management and maintenance of the system for the life of the property.

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