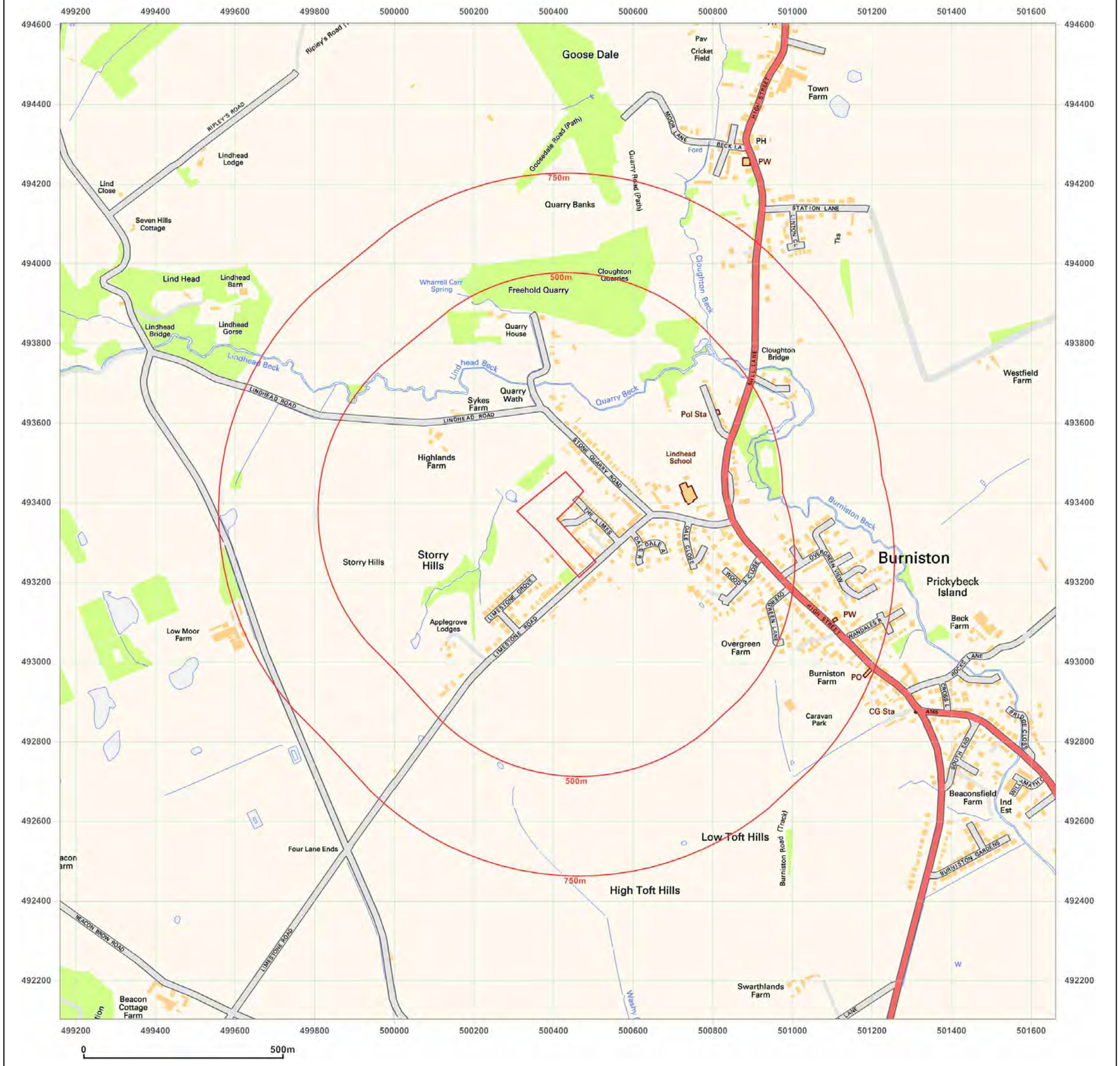

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Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: National Grid

Map date: **2012**

Scale: 1:10,000

Printed at: 1:10,000

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Production date: 03 March 2014

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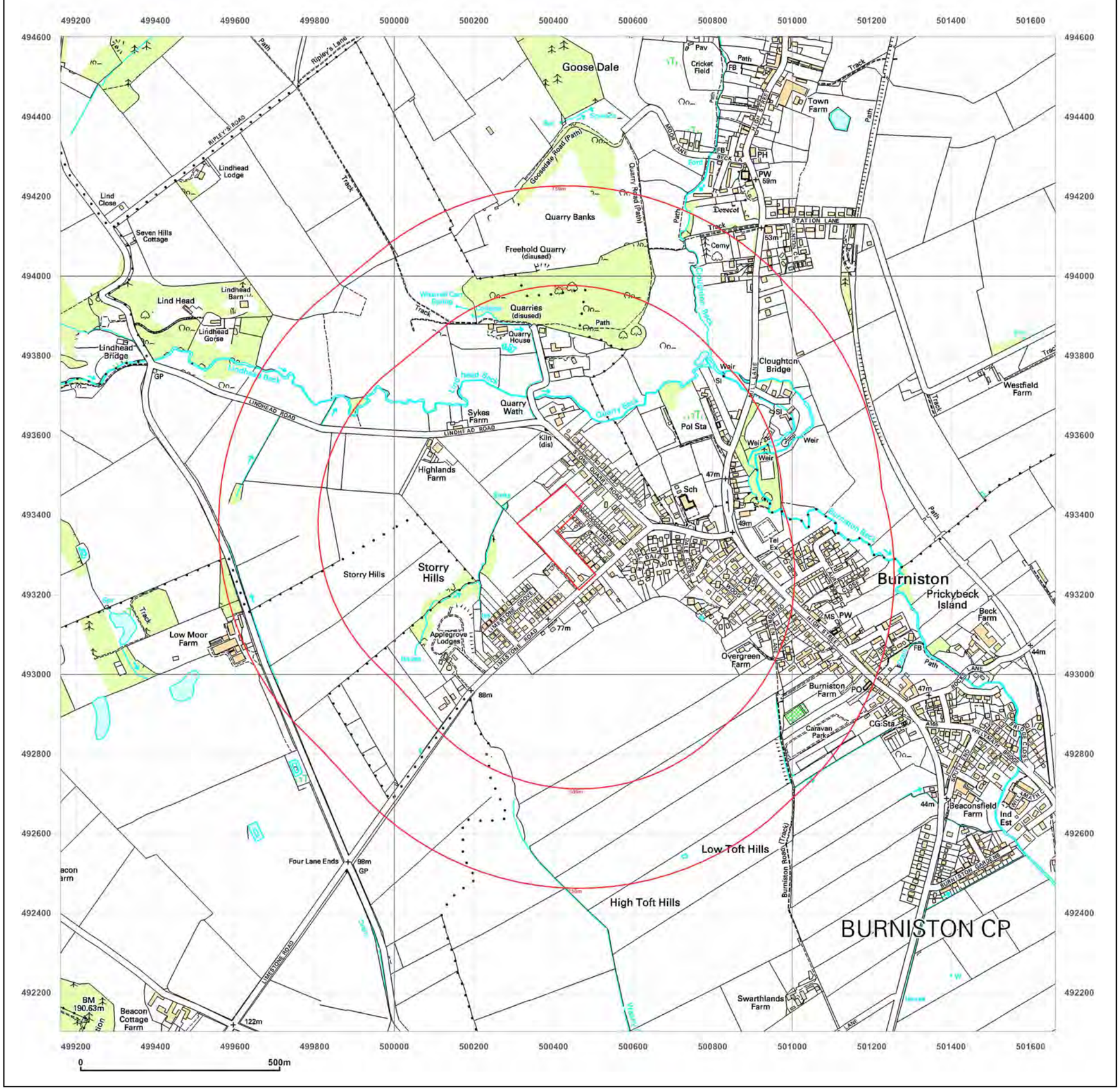

emapsite™

Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: 1:10,000 Raster

Map date: **2002**

Scale: 1:10,000

Printed at: 1:10,000

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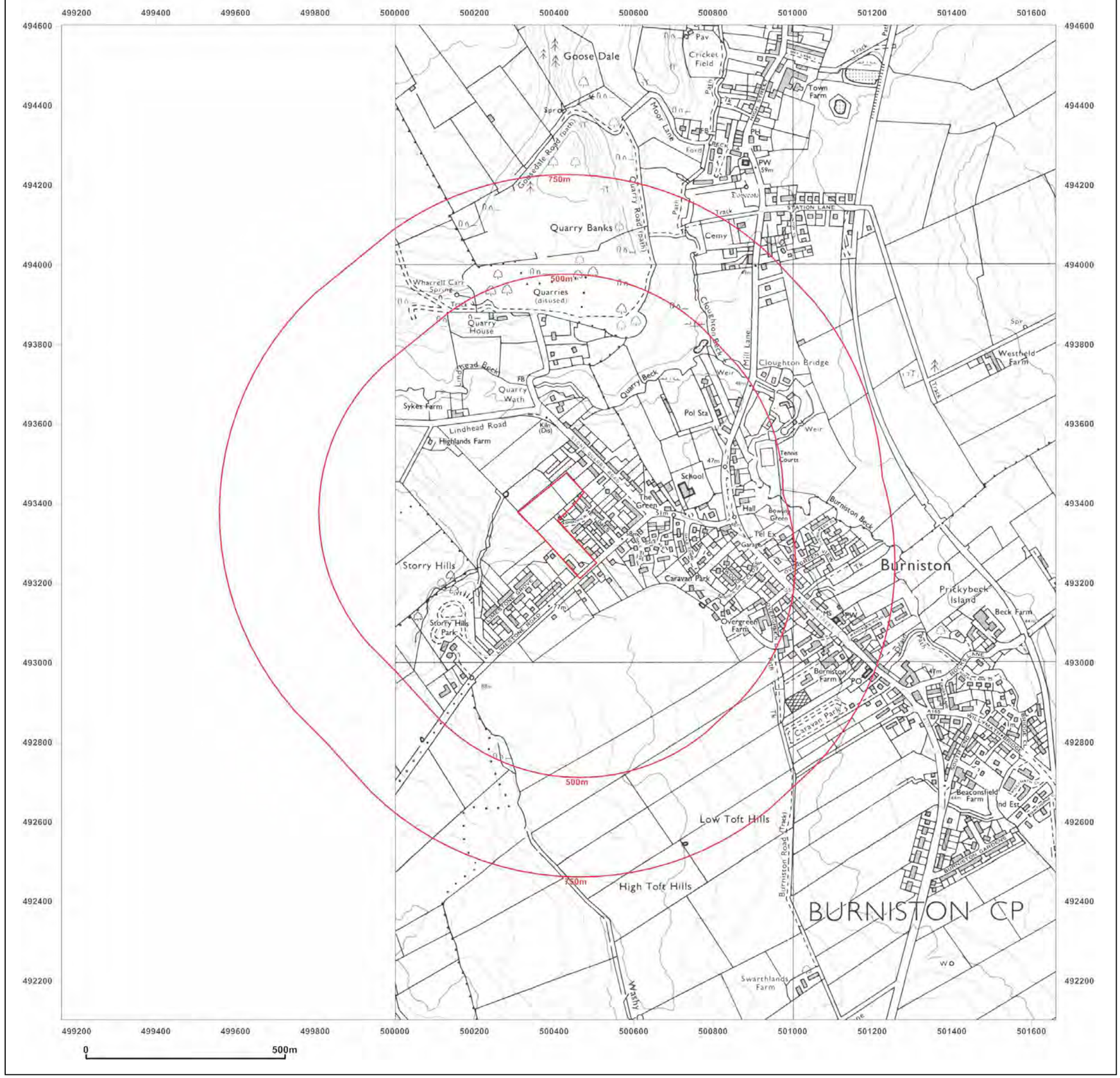

emapsite™

Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: National Grid

Map date: **1992**

Scale: 1:10,000

Printed at: 1:10,000

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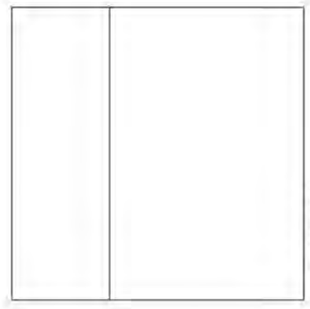

Surveyed 1990
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

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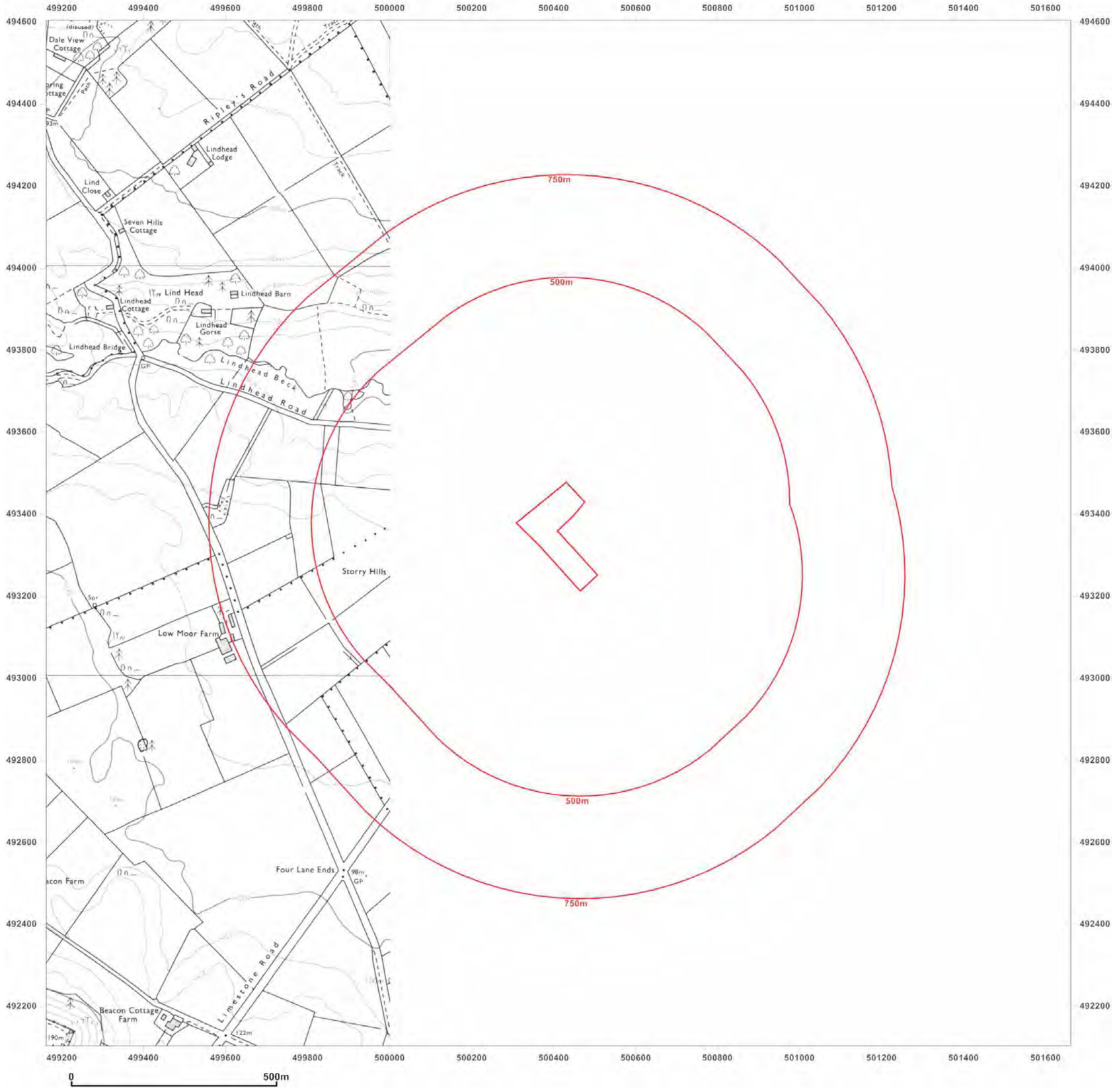
Production date: 03 March 2014

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: National Grid

Map date: **1978**

Scale: 1:10,000

Printed at: 1:10,000

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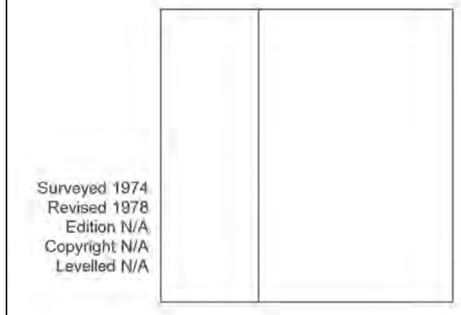

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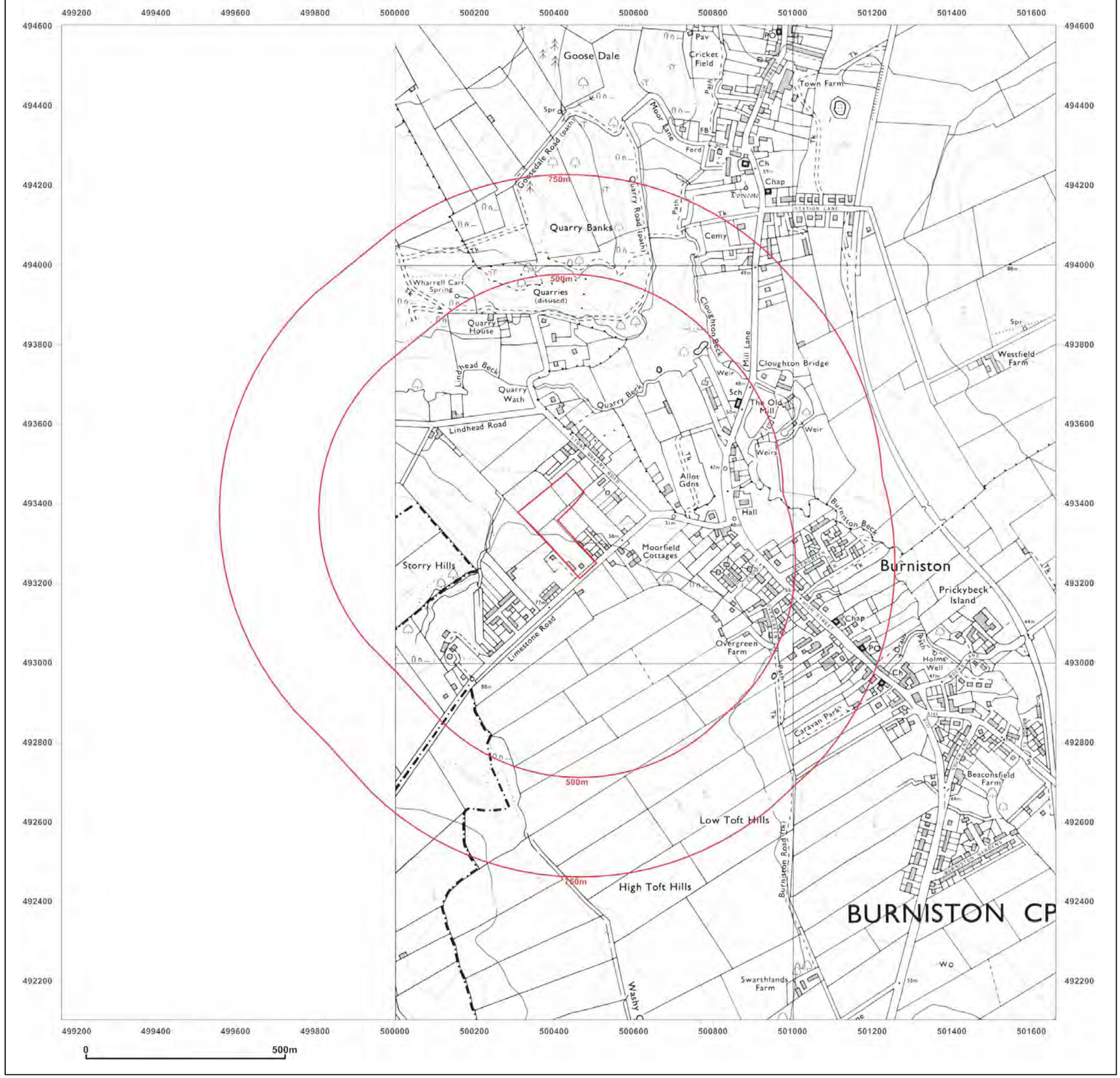
Production date: 03 March 2014

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: National Grid

Map date: **1971**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1971
Revised 1971
Edition N/A
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Production date: 03 March 2014

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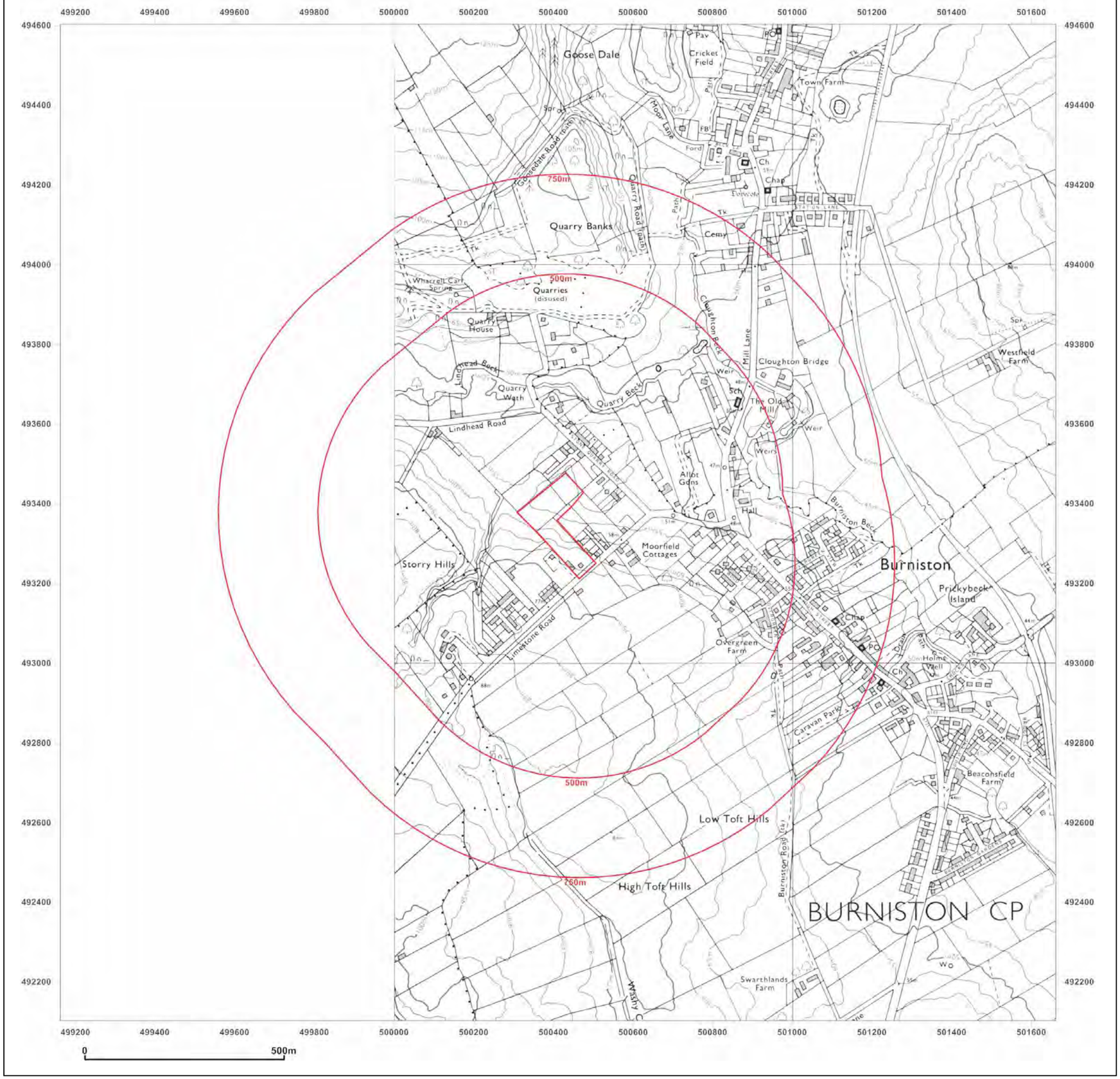

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Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: National Grid

Map date: **1971**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1971
Revised 1971
Edition N/A
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Production date: 03 March 2014

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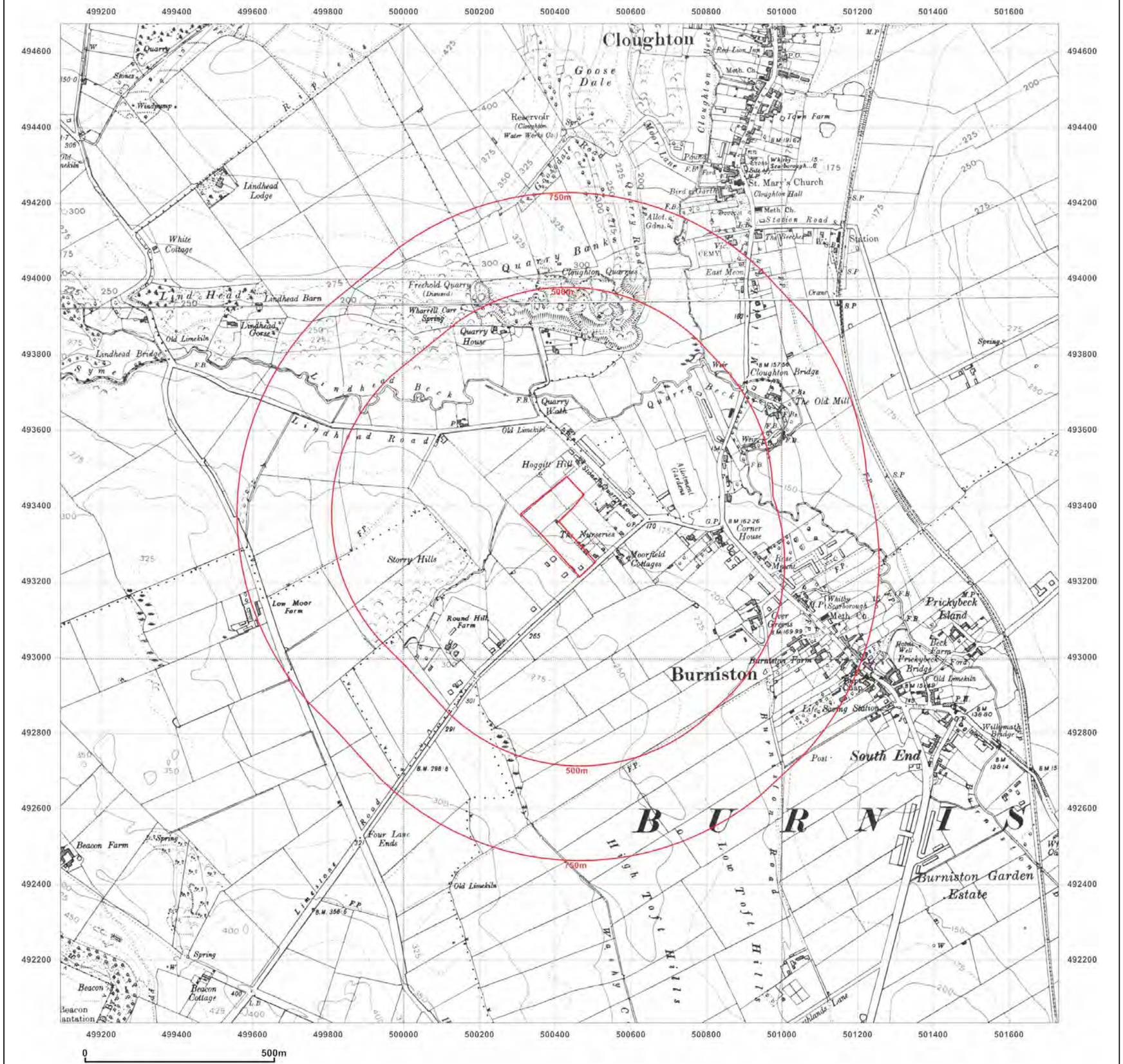

emapsite™

Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: County Series

Map date: **1950**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1849
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1849
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

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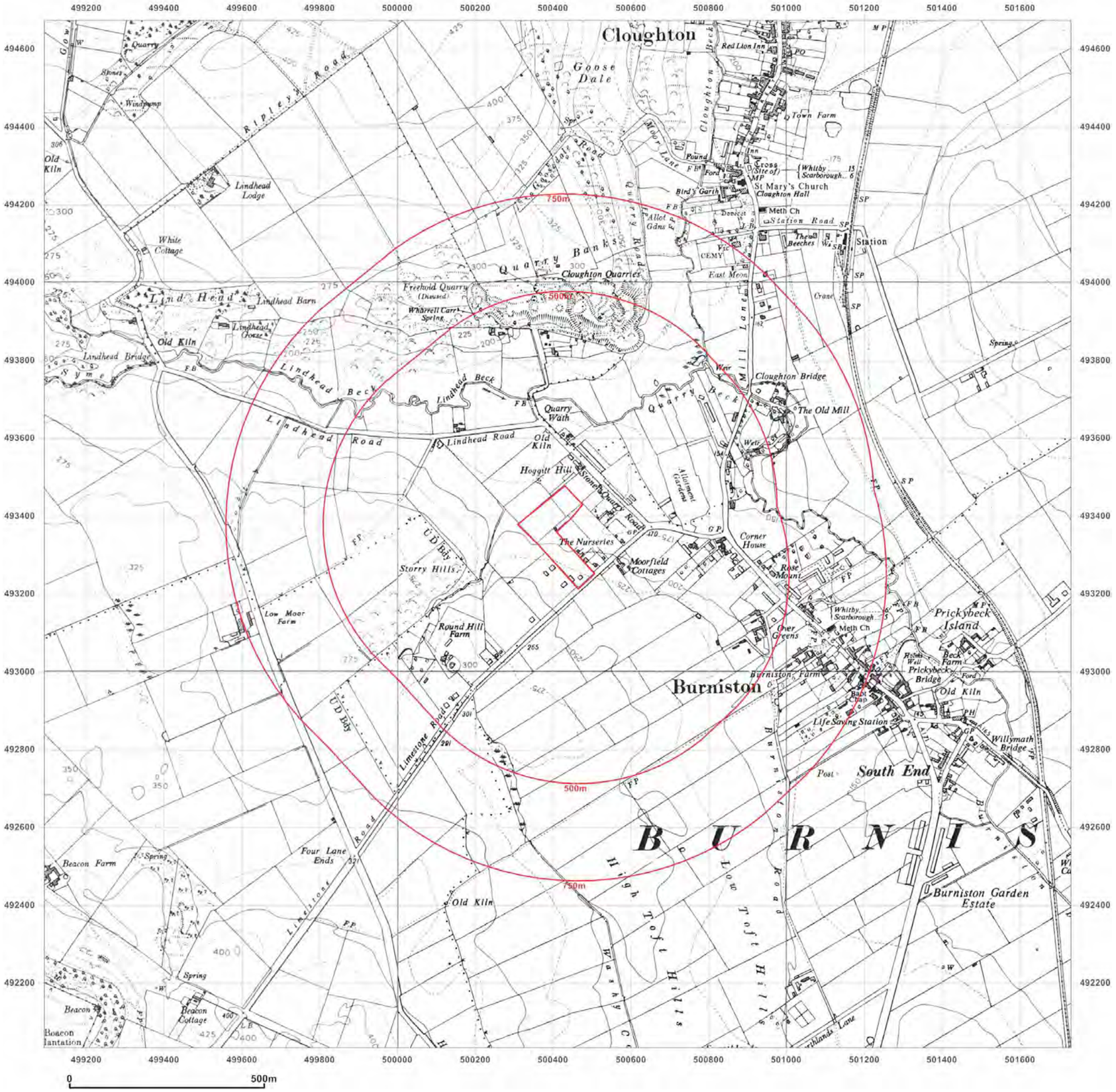
Production date: 03 March 2014

To view map legend click here *Legend*



Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: Provisional

Map date: **1950**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
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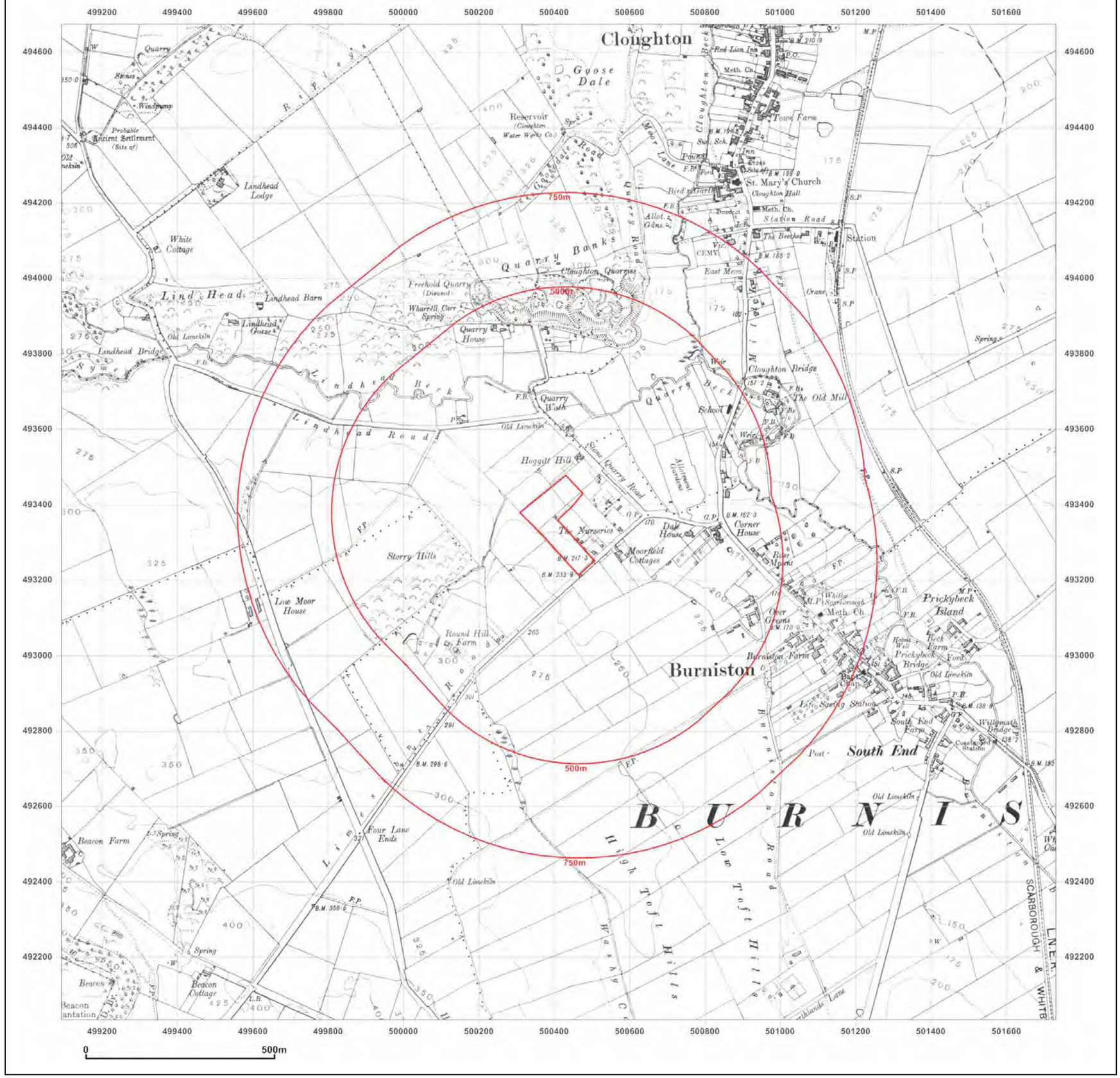
Production date: 03 March 2014

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: County Series

Map date: **1926-1930**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1849
Revised 1930
Edition 1930
Copyright N/A
Levelled N/A

Surveyed 1849
Revised 1926
Edition N/A
Copyright N/A
Levelled N/A

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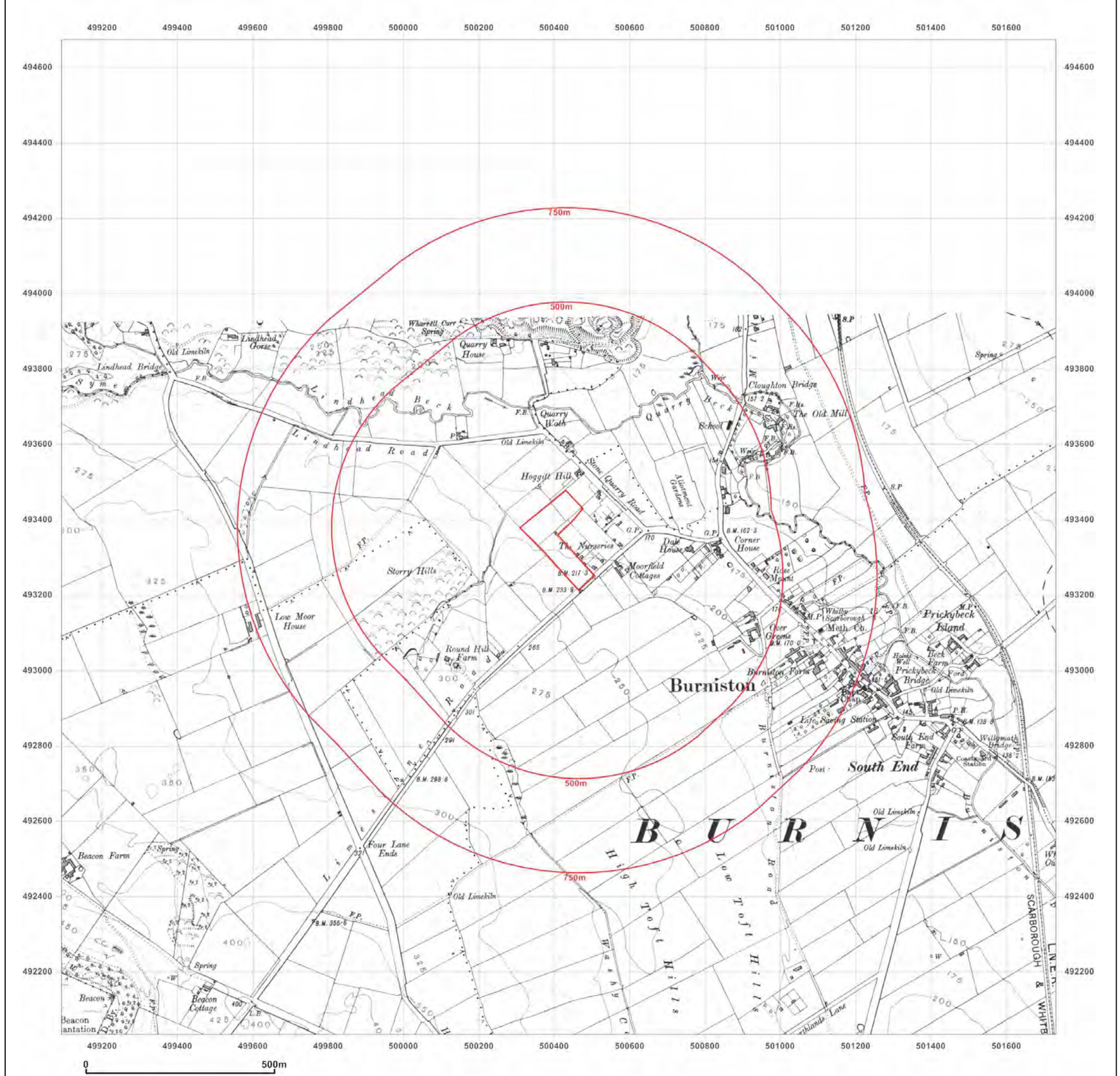
Production date: 03 March 2014

To view map legend click here *Legend*



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Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: County Series

Map date: **1930**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1849
Revised 1930
Edition 1930
Copyright N/A
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Production date: 03 March 2014

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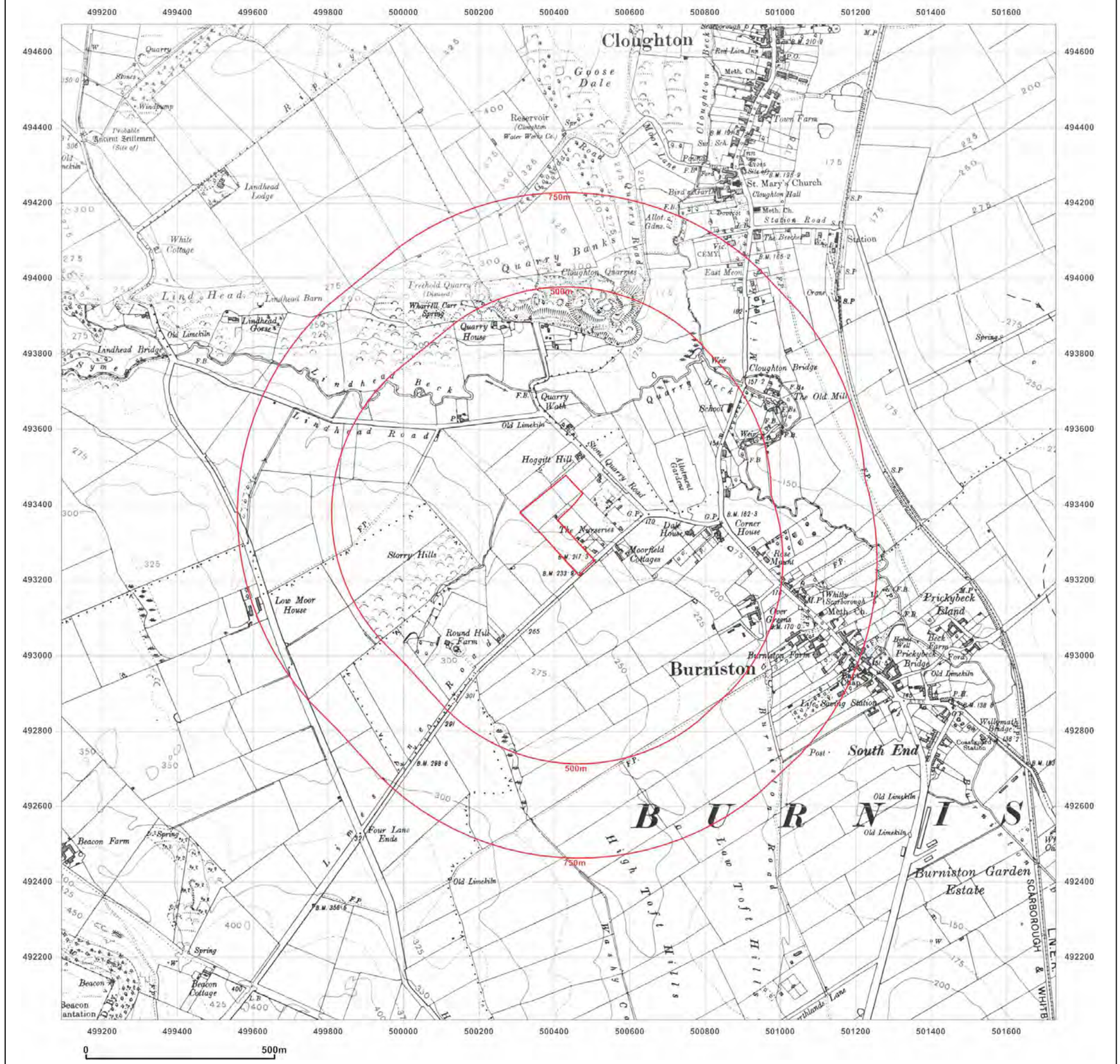

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Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: County Series

Map date: **1926**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1849
Revised 1926
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1849
Revised 1926
Edition N/A
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Production date: 03 March 2014

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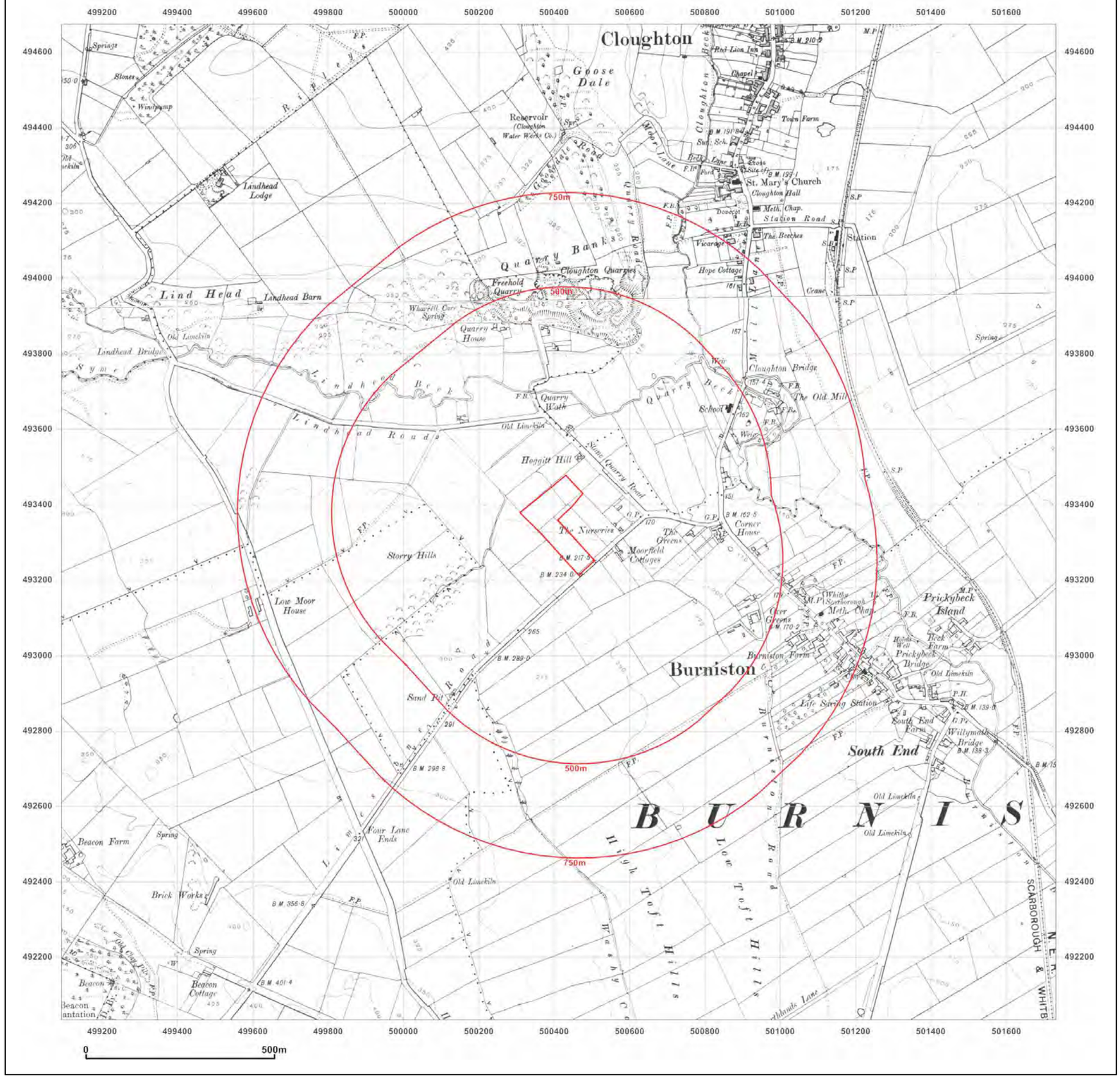

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Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: County Series

Map date: **1910**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1849
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1849
Revised 1910
Edition N/A
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Production date: 03 March 2014

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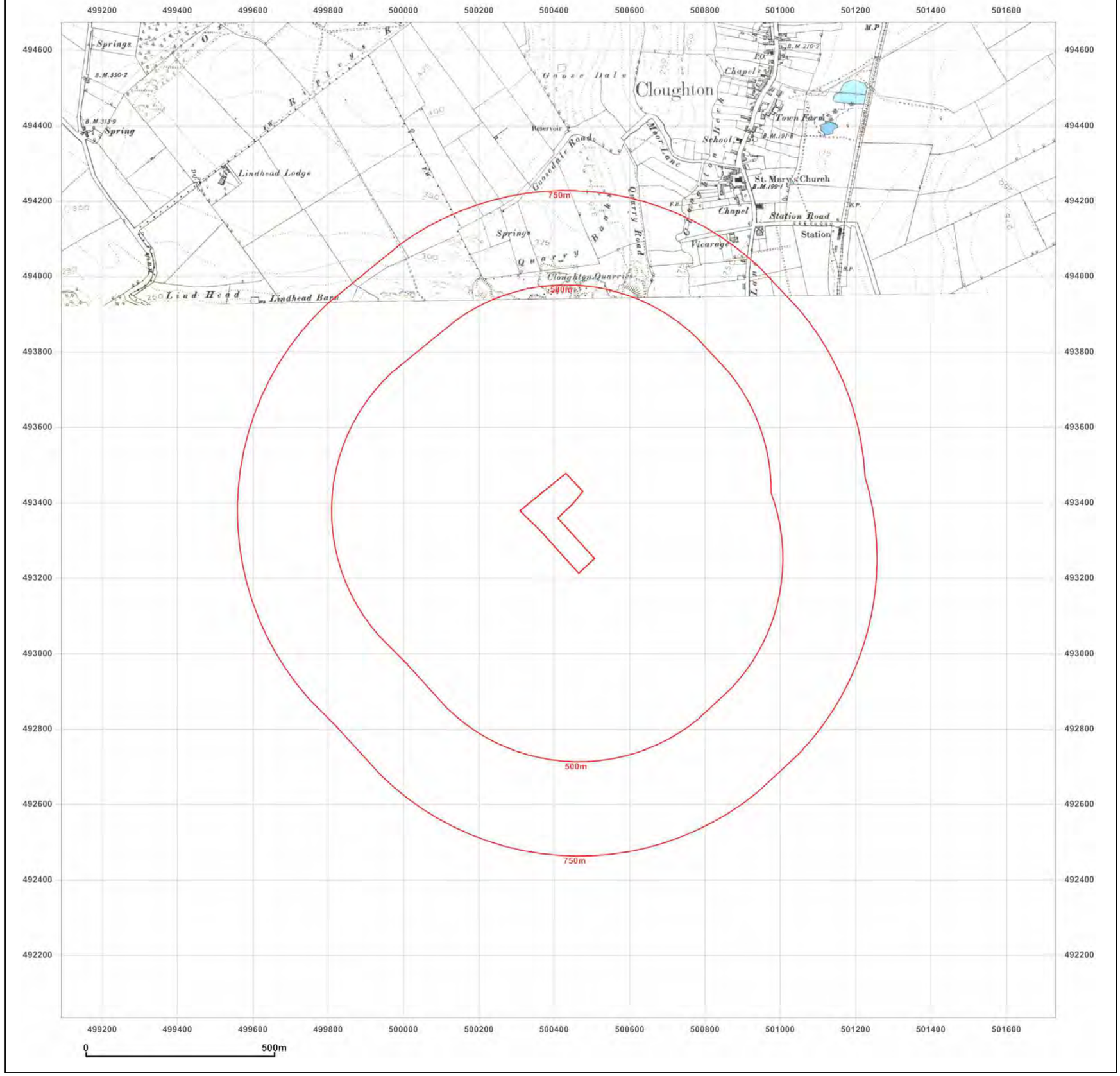

emapsite™

Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: County Series

Map date: **1891**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 03 March 2014

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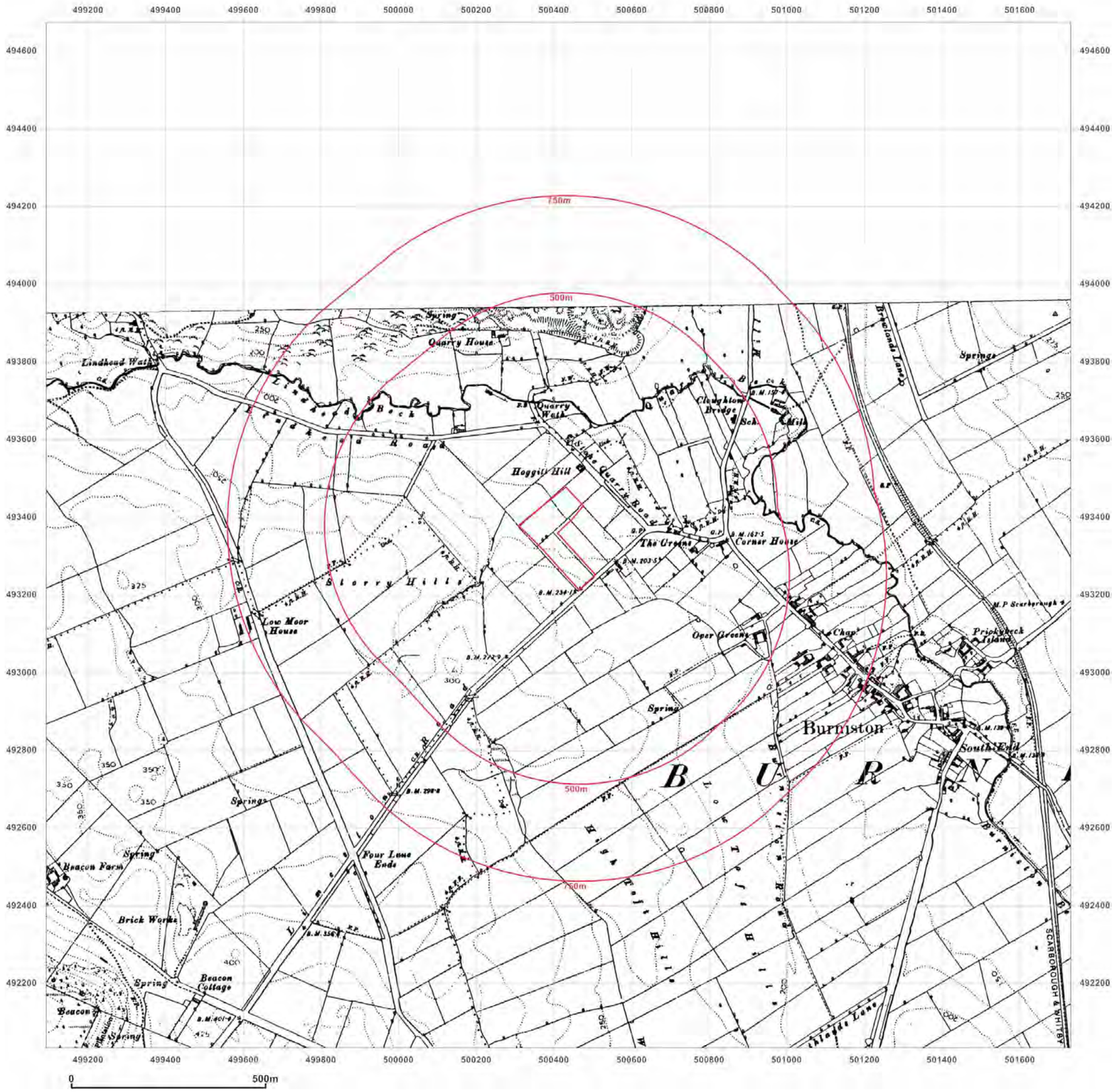

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Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: County Series

Map date: **1890**

Scale: 1:10,560

Printed at: 1:10,560

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

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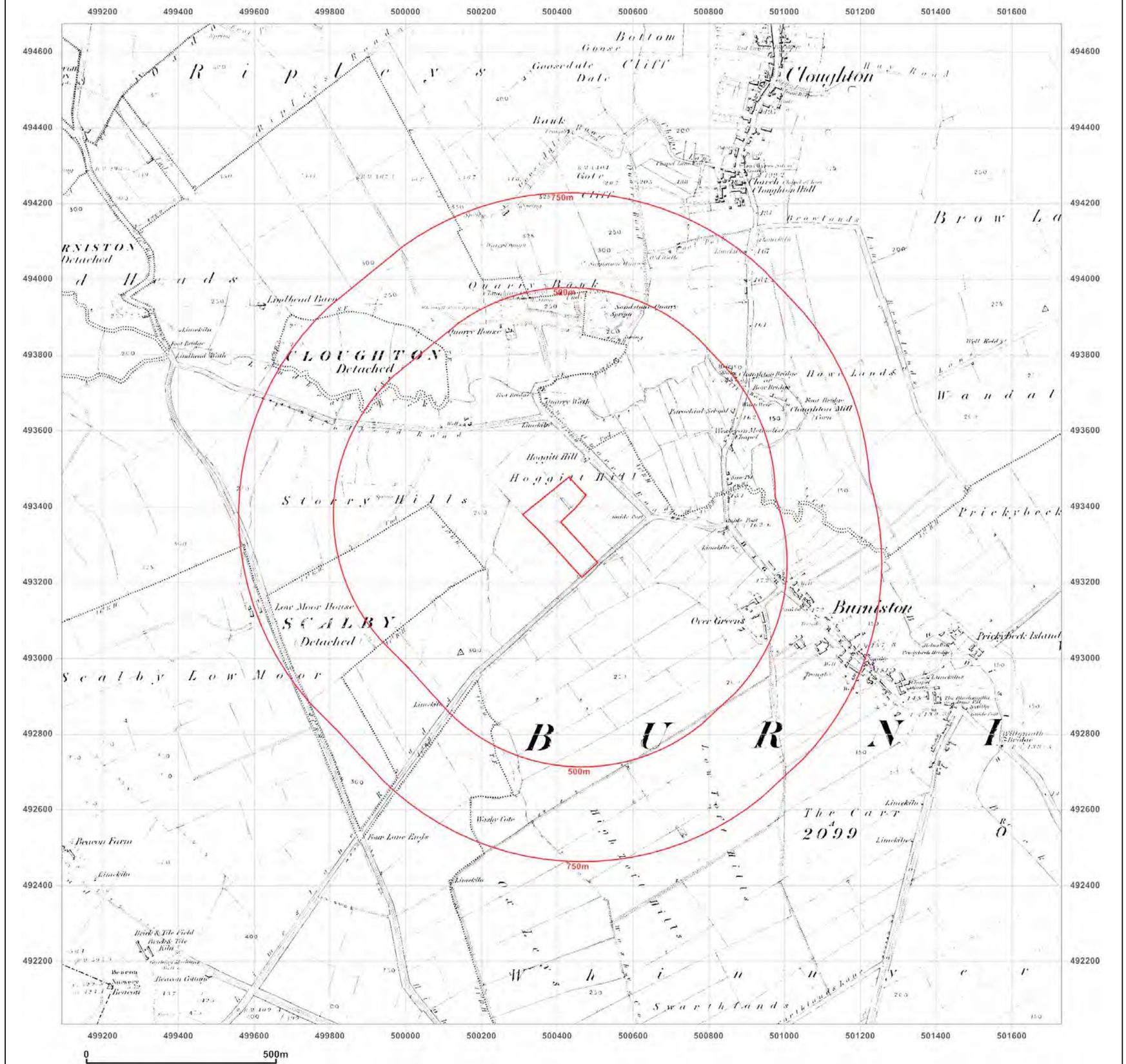
Production date: 03 March 2014

To view map legend click here *Legend*



Site Details:

Client Ref: EMS_239929_320557
Report Ref: EMS-239929_320557
Grid Ref: 500411, 493353

Map Name: County Series

Map date: **1854**

Scale: 1:10,560

Printed at: 1:10,560

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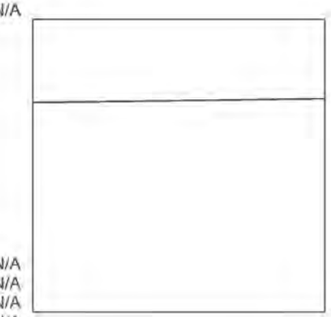
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed N/A
Revised N/A
Edition N/A
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Levelled N/A

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Production date: 03 March 2014

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APPENDIX D

GROUND INVESTIGATION LOGS

Alan Wood and Partners
AMP Technology Park, Brunel Way
Sheffield, South Yorkshire
S60 5WG
Tel: 0114 254 1307

Trialpit No
1
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Limestone Road	35267	Level: 67.34 m AOD	14/03/2014
Location: Burniston		Dimensions: 3.00m Depth 1.70m 0.60m	Scale 1:25
Client: Gascoine Group Limited			Logged By AHB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.20	67.14		TOPSOIL: Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium sandstone.
0.20	D					
						Firm brown-orange sandy slightly gravelly CLAY. Gravel is fine to coarse angular to rounded sandstone, siltone and coal. (GLACIAL TILL)
0.50	IVN 1	90				
0.50	D					
1.00	IVN 2	100				
			1.70	65.64		Trialpit Complete at 1.70 m

Remarks: Percolation test.

Groundwater: None Encountered

Alan Wood and Partners
AMP Technology Park, Brunel Way
Sheffield, South Yorkshire
S60 5WG
Tel: 0114 254 1307

Trialpit No **2**
Sheet 1 of 1

Project Name: Limestone Road	Project No.: 35267	Co-ords: - Level: 64.58 m AOD	Date: 14/03/2014
Location: Burniston		Dimensions: 3.00m Depth 3.50m 0.60m	Scale: 1:25
Client: Gascoine Group Limited			Logged By: AHB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					TOPSOIL: Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular sandstone.
			0.40	64.18		
0.50	D					Firm becoming stiff brown-orange sandy gravelly bouldery CLAY. Gravel is fine to coarse angular to rounded sandstone, siltstone and coal. Boulders are subrounded sandstone. (GLACIAL TILL)
0.60	IVN 1	70				
			3.50	61.08		Trialpit Complete at 3.50 m

Remarks:

Groundwater: None Encountered

Alan Wood and Partners
AMP Technology Park, Brunel Way
Sheffield, South Yorkshire
S60 5WG
Tel: 0114 254 1307

Trialpit No
3
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Limestone Road	35267	Level: 59.68 m AOD	14/03/2014

Location: Burniston

Dimensions: 3.00m
Depth 3.50m
0.60m

Scale 1:25

Client: Gascoine Group Limited

Logged By AHB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.20	D		0.20	59.48		TOPSOIL: Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular sandstone.
0.60	D					Firm becoming stiff red/brown mottled grey sandy gravelly cobbly CLAY. Gravel is fine to coarse angular to rounded sandstone, siltstone and coal. Cobbles are rounded sandstone. (GLACIAL TILL)
1.00	IVN 1	92				
			3.50	56.18		Trialpit Complete at 3.50 m

Remarks:

Groundwater: None Encountered

Alan Wood and Partners
AMP Technology Park, Brunel Way
Sheffield, South Yorkshire
S60 5WG
Tel: 0114 254 1307

Trialpit No **4**
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Limestone Road	35267	Level: 68.70 m AOD	14/03/2014

Location: Burniston	Dimensions: 3.00m Depth 3.80m 0.60m	Scale 1:25
Client: Gascoine Group Limited		Logged By AHB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.20	68.50		TOPSOIL: Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular sandstone.
0.30	D					Stiff brown/red mottled grey sandy gravelly cobbly CLAY. Gravel is angular to rounded sandstone, siltstone, quartzite and coal. Cobbles are rounded sandstone. (GLACIAL TILL)
0.80	IVN 1	120				
0.80	D					
			3.80	64.90		Trialpit Complete at 3.80 m

1
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4

Remarks: Percolation test.

Groundwater: None Encountered

Alan Wood and Partners
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Sheffield, South Yorkshire
S60 5WG
Tel: 0114 254 1307

Trialpit No **5**
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Limestone Road	35267	Level: 62.35 m AOD	14/03/2014

Location: Burniston

Dimensions: 3.00m
Depth 3.50m
0.60m

Scale 1:25

Client: Gascoine Group Limited

Logged By AHB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.20	D		0.30	62.05		TOPSOIL: Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular sandstone.
0.80	IVN 1	60				Firm becoming stiff sandy gravelly cobbly CLAY. Gravel is fine to coarse angular to rounded sandstone, siltstone and coal. Cobbles are angular to rounded sandstone and siltstone. (GLACIAL TILL)
1.00	D					Less gravelly.
			3.50	58.85		Trialpit Complete at 3.50 m

Remarks:

Groundwater: None Encountered

Alan Wood and Partners
AMP Technology Park, Brunel Way
Sheffield, South Yorkshire
S60 5WG
Tel: 0114 254 1307

Trialpit No **6**
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Limestone Road	35267	Level: 58.50 m AOD	14/03/2014
Location: Burniston		Dimensions: 3.00m Depth 4.00m 0.60m	Scale 1:25
Client: Gascoine Group Limited			Logged By AHB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.00	58.50		TOPSOIL: Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular sandstone.
0.30	D		0.30	58.20		Firm becoming stiff brown/red mottled grey sandy gravelly cobbly bouldery CLAY. Gravel is fine to coarse angular to rounded sandstone, siltstone, coal and quartzite. Cobbles and boulders are rounded and subrounded sandstone. (GLACIAL TILL)
0.90	IVN 1	64				
0.90	D					
			4.00	54.50		Trialpit Complete at 4.00 m

Remarks:

Groundwater: None Encountered

Alan Wood and Partners
AMP Technology Park, Brunel Way
Sheffield, South Yorkshire
S60 5WG
Tel: 0114 254 1307

Trialpit No **7**
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Limestone Road	35267	Level: 59.03 m AOD	14/03/2014
Location: Burniston		Dimensions: 3.00m, Depth 3.50m, 0.60m	Scale 1:25
Client: Gascoine Group Limited			Logged By AHB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.00	59.03		TOPSOIL: Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular sandstone.
0.40	D		0.40	58.63		Firm becoming stiff brown/red mottled grey sandy gravelly cobbly bouldery CLAY. Gravel is fine to coarse angular to rounded sandstone, siltstone, coal and quartzite. Cobbles and boulders are subrounded and rounded sandstone. (GLACIAL TILL)
0.70	D					
1.00	IVN 1	28				
			3.50	55.53		Trialpit Complete at 3.50 m

Remarks:

Groundwater: None Encountered

Alan Wood and Partners
AMP Technology Park, Brunel Way
Sheffield, South Yorkshire
S60 5WG
Tel: 0114 254 1307

Trialpit No **8**
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Limestone Road	35267	Level: 54.56 m AOD	14/03/2014

Location: Burniston	Dimensions: 3.00m Depth 3.80m 0.60m	Scale 1:25
Client: Gascoine Group Limited		Logged By AHB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						TOPSOIL: Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular sandstone.
0.30	D		0.30	54.26		
						Firm brown/red mottled grey sandy gravelly cobbly CLAY. Gravel is fine to coarse angular to rounded sandstone, siltstone and coal. Cobbles are rounded sandstone. (GLACIAL TILL)
0.80	IVN 1	80				
0.90	D					
1.20	IVN 2	68				
			3.80	50.76		Trialpit Complete at 3.80 m

Remarks:

Groundwater: None Encountered

Alan Wood and Partners
AMP Technology Park, Brunel Way
Sheffield, South Yorkshire
S60 5WG
Tel: 0114 254 1307

Trialpit No
9
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Limestone Road	35267	Level: 54.80 m AOD	14/03/2014

Location: Burniston

Dimensions: 3.00m
Depth 4.00m
0.60m

Scale 1:25

Client: Gascoine Group Limited

Logged By AHB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						TOPSOIL: Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular sandstone.
0.20	D		0.20	54.60		
						Firm brown/red mottled grey sandy gravelly cobbly CLAY. Gravel is fine to coarse angular to rounded sandstone, siltstone and coal. Cobbles are rounded sandstone. (GLACIAL TILL)
0.50	IVN 1	84				
1.00	IVN 2	70				
1.00	D					
			4.00	50.80		Trialpit Complete at 4.00 m

1
2
3
4

Remarks:

Groundwater: None Encountered

AGS

APPENDIX E

PERCOLATION TEST RESULTS

ROGERS GEOTECHNICAL SERVICES LTD

The Ground Investigation Specialists

OFFICES 1&2 BARNCLIFFE BUSINESS PARK
NEAR BANK
SHELLEY
HUDDERSFIELD
HD8 8LU

Tel 0843 50 666 87 Fax 0843 51 599 30

ISO 9001 REGISTERED FIRM

Constructionline
A UK GOVERNMENT CERTIFICATION SERVICE

REGISTERED MEMBER
www.citation.co.uk

Our Ref J2702/14/E
19th March 2014

Alan Wood and Partners,
AMP Technology Centre,
Advanced Manufacturing Park,
Brunel Way,
Sheffield,
S60 5WG.

For the attention of Mr Andy Borthwick,

Dear Sir,

Ref: Limestone Road, Burniston, Scarborough, YO13 0DG.

We thank you for your request to undertake soakaway testing at the above mentioned site and take pleasure in enclosing the results of this work. The investigation was undertaken on the 14th March 2014 in accordance with your instruction to proceed and under your site supervision. This letter describes the work undertaken, presents the data obtained and discusses the results of the tests.

Fieldworks

A total of two trialpits were excavated using a JCB 3CX excavator in order to undertake soakaway testing at positions specified and recorded by yourselves. The soakage tests where undertaken at the base of the pits at depths agreed on site and the results are attached to this letter.

Soakaway Tests

On reaching the elected soakaway test depth, the trial pits were squared and cleaned of debris using careful operation of the excavator bucket, and a soakaway test was undertaken in the base of each trial pit. The results obtained from the soakaway tests are appended to this letter and are summarised below:

Table 1: *Soakaway Test Results*

Location	Soakage Area Dimensions (average) (m)	Test Depth (m)	Infiltration Rate (m/sec)	Drainage Characteristics
TP1	2.2 x 0.60	1.70	-	Practically Impermeable
TP2	2.2 x 0.60	1.95	-	Practically Impermeable

It should be appreciated that the test did not achieve a fall from 75% to 25% effective depth of water during the test Therefore the soakage stratum in this instance should be considered practically impermeable. Moreover it cannot be recommended that soakaways be constructed within the area tested.

References

- Building Research Establishment (BRE) Digest 365, *Soakaway Design*, September 1991.

We trust that this information is of interest and should you have any other requirements do not hesitate to contact us.

For and on behalf of
Rogers Geotechnical Services Ltd,

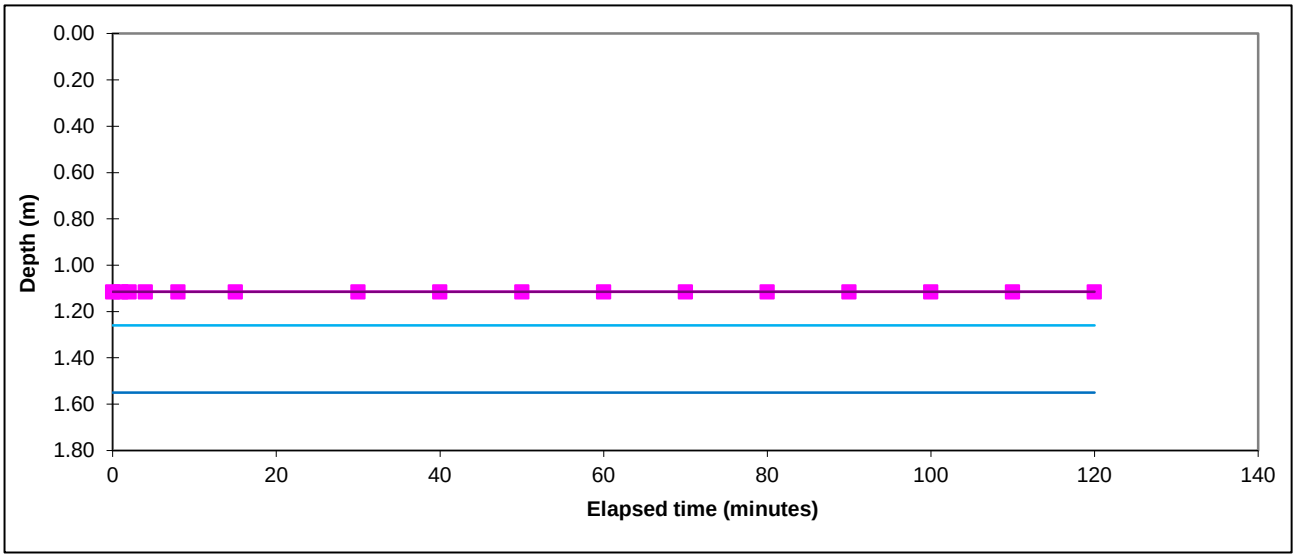
Emma Rogers LLB
Managing Director

Rogers Geotechnical Services Ltd

Soakaway Test

Trial Pit No:	TP1	Test No:	1	Date:	14/03/2014
Length (m):	2.200	Datum Height:		0.00	m agl
Width (m):	0.60	Granular infill:		None	
Depth (m):	1.70	Porosity of infill:		1	(assumed)

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	1.115	110	1.115
1	1.115	120	1.115
2	1.115		
4	1.115		
8	1.115		
15	1.115		
30	1.115		
40	1.115		
50	1.115		
60	1.115		
70	1.115		
80	1.115		
90	1.115		
100	1.115		



Start water depth for analysis (mbgl):	1.12		
75% effective depth (mbgl):	1.26	Elapsed time (mins):	#N/A
50% effective depth (mbgl):	1.41		
25% effective depth (mbgl):	1.55	Elapsed time (mins):	#N/A
Base of soakage zone (mbgl):	1.70		
Volume outflow between 75% and 25% effective depth (m^3):			
Mean surface area of outflow (m^2):			2.94
(side area at 50% effective depth + base area)			
Time for outflow between 75% and 25% effective depth (mins):			

Soil infiltration rate (m/s):	**Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate.**

Remarks	Results processed following BRE 365 (2007).
	No change in water level observed, therefore soil considered to be impermeable.

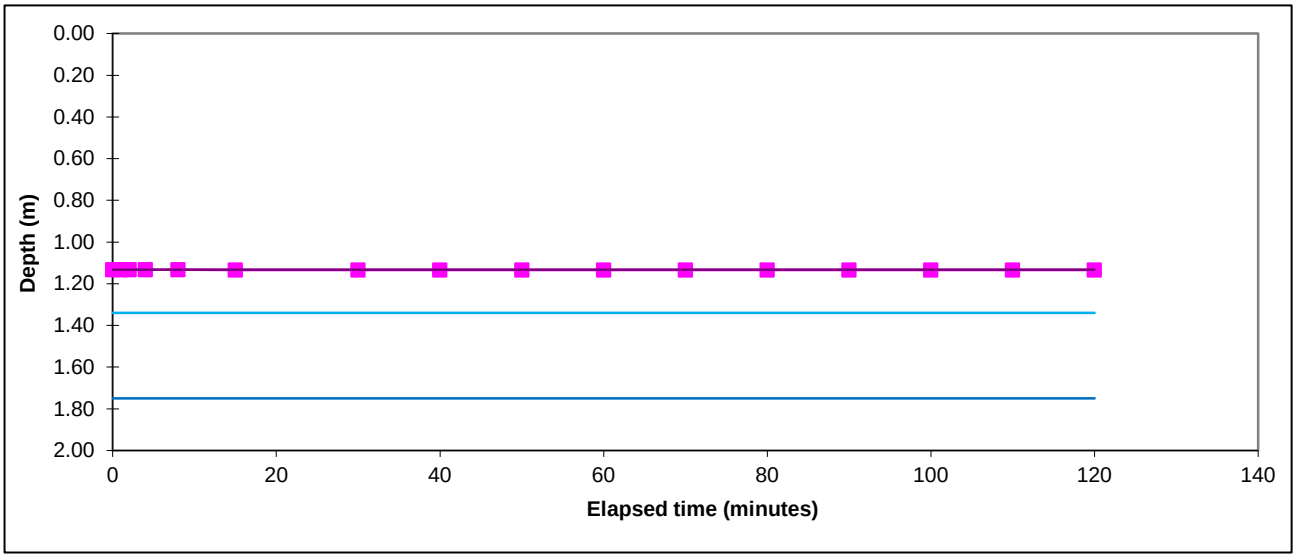
Client:	Alan Wood and Partners	**TP1**
Site:	J2702/14/E Limestone Road, Scarborough, YO13 0DG	

Rogers Geotechnical Services Ltd

Soakaway Test

Trial Pit No:	TP1	Test No:	1	Date:	14/03/2014
Length (m):	2.200	Datum Height:	0.00	m agl	
Width (m):	0.60	Granular infill:	None		
Depth (m):	1.95	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	1.132	110	1.134
1	1.132	120	1.134
2	1.132		
4	1.132		
8	1.132		
15	1.134		
30	1.134		
40	1.134		
50	1.134		
60	1.134		
70	1.134		
80	1.134		
90	1.134		
100	1.134		



Start water depth for analysis (mbgl):	1.13		
75% effective depth (mbgl):	1.34	Elapsed time (mins):	#N/A
50% effective depth (mbgl):	1.54		
25% effective depth (mbgl):	1.75	Elapsed time (mins):	#N/A
Base of soakage zone (mbgl):	1.95		
Volume outflow between 75% and 25% effective depth (m^3):			
Mean surface area of outflow (m^2):			3.62
(side area at 50% effective depth + base area)			
Time for outflow between 75% and 25% effective depth (mins):			

Soil infiltration rate (m/s):	**Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate.**

Remarks	Results processed following BRE 365 (2007).
	No change in water level observed, therefore soil considered to be impermeable.

Client:	Alan Wood and Partners	**TP2**
Site:	J2702/14/E Limestone Road, Scarborough, YO13 0DG	

APPENDIX F

LABORATORY TEST RESULTS - CHEMICAL

Chemtest
The right chemistry to deliver results

Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070

Alan Wood & Partners
AMP Technology Centre
Advanced Manufacturing Park
Brunel Way, Sheffield
S60 5WG

FAO Andy Borthwick
28 March 2014

Dear Andy Borthwick

Test Report Number **253765**
Your Project Reference **35267 - Limestone Road**

Please find enclosed the results of analysis for the samples received 18 March 2014.

All soil samples will be retained for a period of one month and all water samples will be retained for 7 days following the date of the test report. Should you require an extended retention period then please detail your requirements in an email to customerservices@chemtest.co.uk. Please be aware that charges may be applicable for extended sample storage.

If you require any further assistance, please do not hesitate to contact the Customer Services team.

Yours sincerely

Keith Jones, Technical Manager

UKAS TESTING
2183

MCERTS

Notes to accompany report:

- *The sign < means 'less than'*
- *Tests marked 'U' hold UKAS accreditation*
- *Tests marked 'M' hold MCertS (and UKAS) accreditation*
- *Tests marked 'N' do not currently hold UKAS accreditation*
- *Tests marked 'S' were subcontracted to an approved laboratory*
- *n/e means 'not evaluated'*
- *i/s means 'insufficient sample'*
- *u/s means 'unsuitable sample'*
- *Comments or interpretations are outside of the scope of UKAS accreditation*
- *The results relate only to the items tested*
- *Stones represent the quantity of material removed prior to analysis*
- *All results are expressed on a dry weight basis*
- *The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, phenols*
- *For all other tests the samples were dried at < 37°C prior to analysis*
- *Uncertainties of measurement for the determinands tested are available upon request*
- *Soil descriptions, including colour and texture, are beyond the scope of MCertS accreditation*
- *None of the test results included in this report have been recovery corrected*

Alan Wood & Partners
AMP Technology Centre
Advanced Manufacturing Park
Brunel Way, Sheffield
S60 5WG

FAO Andy Borthwick

LABORATORY TEST REPORT

Results of analysis of 8 samples
received 18 March 2014

35267 - Limestone Road

Chemtest
The right chemistry to deliver results

Report Date
28 March 2014

Login Batch No						**253765**					
Chemtest LIMS ID						AJ96968	AJ96969	AJ96970	AJ96971	AJ96972	AJ96973
Sample ID						TP1	TP4	TP5	TP7	TP8	TP9
Sample No						D1	D1	D1	D1	D2	D1
Sampling Date						14/3/2014	14/3/2014	14/3/2014	14/3/2014	14/3/2014	14/3/2014
Depth						0.20m	0.30m	0.20m	0.40m	0.90m	0.20m
Matrix						*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*							
2030	Moisture		%	M		14.7	10.2	23.4	17.4	15.5	26.7
	Stones content (>50mm)		%	M		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2040	Soil colour			M		brown	brown	brown	brown	brown	brown
	Soil texture			M		clay	sand	sand	clay	clay	clay
	Other material			M		stones	stones	stones/roots	stones/roots	stones	roots
2010	pH			M		7.7	7.3	5.5	6.9	6.9	5.6
2300	Cyanide (free)	57125	mg kg-¹	M		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Cyanide (total)	57125	mg kg-¹	M		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Thiocyanate	302045	mg kg-¹	M		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2325	Sulfide (Easily Liberatable)	18496258	mg kg-¹	M		1.5	1.7	4.0	1.7	1.8	1.5
2625	Organic matter		%	M		0.88	1.1	2.4	1.5	0.98	5.5
2120	Boron (hot water soluble)	7440428	mg kg-¹	M		<0.4	<0.4	0.6	<0.4	7.5	1.0
	Sulfate (2:1 water soluble) as SO4	14808798	g l-¹	M		<0.01	<0.01	<0.01	<0.01	<0.01	0.03
2490	Chromium (hexavalent)	18540299	mg kg-¹	N		<0.5	<0.5	<0.5	<0.5	3.2	<0.5
2430	Sulfate (total) as SO4	14808798	%	M		<0.01	0.02	0.05	0.03	<0.01	0.07
2450	Arsenic	7440382	mg kg-¹	M		9.7	10	8.8	11	9.9	53
	Cadmium	7440439	mg kg-¹	M		0.11	0.11	0.12	0.16	0.11	0.24
	Chromium	7440473	mg kg-¹	M		19	17	15	18	18	19
	Copper	7440508	mg kg-¹	M		16	14	7.9	13	17	9.7
	Mercury	7439976	mg kg-¹	M		<0.10	<0.10	<0.10	<0.10	<0.10	0.32
	Nickel	7440020	mg kg-¹	M		29	24	9.6	25	26	12
	Lead	7439921	mg kg-¹	M		22	25	41	35	24	76
	Selenium	7782492	mg kg-¹	M		<0.20	<0.20	0.45	<0.20	<0.20	0.40
	Zinc	7440666	mg kg-¹	M		52	60	56	51	60	55

All tests undertaken between 18/03/2014 and 27/03/2014

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page.

Alan Wood & Partners
AMP Technology Centre
Advanced Manufacturing Park
Brunel Way, Sheffield
S60 5WG

FAO Andy Borthwick

LABORATORY TEST REPORT

Results of analysis of 8 samples
received 18 March 2014

35267 - Limestone Road

Chemtest
The right chemistry to deliver results

Report Date
28 March 2014

Login Batch No						**253765**	
Chemtest LIMS ID						AJ96974	AJ96975
Sample ID						TP6	TP2
Sample No						D1	D1
Sampling Date						14/3/2014	14/3/2014
Depth						0.30m	0.10m
Matrix						*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*			
2030	Moisture		%	M		15.4	26.8
	Stones content (>50mm)		%	M		<0.02	<0.02
2040	Soil colour			M		brown	brown
	Soil texture			M		clay	clay
	Other material			M		stones	roots
2010	pH			M		6.4	5.5
2300	Cyanide (free)	57125	mg kg-1	M		<0.50	<0.50
	Cyanide (total)	57125	mg kg-1	M		<0.50	<0.50
	Thiocyanate	302045	mg kg-1	M		<5.0	<5.0
2325	Sulfide (Easily Liberatable)	18496258	mg kg-1	M		2.2	1.7
2625	Organic matter		%	M		0.83	4.8
2120	Boron (hot water soluble)	7440428	mg kg-1	M		<0.4	0.8
	Sulfate (2:1 water soluble) as SO4	14808798	g l-1	M		<0.01	0.02
2490	Chromium (hexavalent)	18540299	mg kg-1	N		<0.5	<0.5
2430	Sulfate (total) as SO4	14808798	%	M		0.01	0.09
2450	Arsenic	7440382	mg kg-1	M		8.5	8.9
	Cadmium	7440439	mg kg-1	M		<0.10	0.20
	Chromium	7440473	mg kg-1	M		22	19
	Copper	7440508	mg kg-1	M		9.8	11
	Mercury	7439976	mg kg-1	M		<0.10	0.15
	Nickel	7440020	mg kg-1	M		22	12
	Lead	7439921	mg kg-1	M		25	80
	Selenium	7782492	mg kg-1	M		<0.20	0.36
	Zinc	7440666	mg kg-1	M		42	81

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page.

Alan Wood & Partners
AMP Technology Centre
Advanced Manufacturing Park
Brunel Way, Sheffield
S60 5WG

FAO Andy Borthwick

LABORATORY TEST REPORT

Results of analysis of 8 samples received 18 March 2014

35267 - Limestone Road

Report Date 28 March 2014

					253765					
					AJ96968	AJ96969	AJ96970	AJ96971	AJ96972	AJ96973
					TP1	TP4	TP5	TP7	TP8	TP9
					D1	D1	D1	D1	D2	D1
					14/3/2014	14/3/2014	14/3/2014	14/3/2014	14/3/2014	14/3/2014
					0.20m	0.30m	0.20m	0.40m	0.90m	0.20m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2700	Naphthalene	91203	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Acenaphthylene	208968	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Acenaphthene	83329	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Fluorene	86737	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.17
	Phenanthrene	85018	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.15
	Anthracene	120127	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Fluoranthene	206440	mg kg-1	M	0.54	0.48	< 0.1	< 0.1	< 0.1	0.45
	Pyrene	129000	mg kg-1	M	0.37	0.41	< 0.1	< 0.1	< 0.1	0.26
	Benzo[a]anthracene	56553	mg kg-1	M	0.39	0.35	< 0.1	< 0.1	< 0.1	0.28
	Chrysene	218019	mg kg-1	M	0.39	0.4	< 0.1	< 0.1	< 0.1	0.25
	Benzo[b]fluoranthene	205992	mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.37
	Benzo[k]fluoranthene	207089	mg kg-1	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.15
	Benzo[a]pyrene	50328	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Dibenzo[a,h]anthracene	53703	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Benzo[g,h,i]perylene	191242	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Total (of 16) PAHs		mg kg-1	M	< 2	< 2	< 2	< 2	< 2	2.3
2920	Phenols (total)		mg kg-1	M	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3

All tests undertaken between 18/03/2014 and 27/03/2014

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page.

Alan Wood & Partners
AMP Technology Centre
Advanced Manufacturing Park
Brunel Way, Sheffield
S60 5WG

FAO Andy Borthwick

LABORATORY TEST REPORT

Results of analysis of 8 samples received 18 March 2014

35267 - Limestone Road

Chemtest
The right chemistry to deliver results

Report Date
28 March 2014

					253765	
					AJ96974	AJ96975
					TP6	TP2
					D1	D1
					14/3/2014	14/3/2014
					0.30m	0.10m
					SOIL	*SOIL*
2700	Naphthalene	91203	mg kg-¹	M	< 0.1	< 0.1
	Acenaphthylene	208968	mg kg-¹	M	< 0.1	< 0.1
	Acenaphthene	83329	mg kg-¹	M	< 0.1	< 0.1
	Fluorene	86737	mg kg-¹	M	< 0.1	< 0.1
	Phenanthrene	85018	mg kg-¹	M	< 0.1	0.12
	Anthracene	120127	mg kg-¹	M	< 0.1	< 0.1
	Fluoranthene	206440	mg kg-¹	M	< 0.1	0.19
	Pyrene	129000	mg kg-¹	M	< 0.1	0.25
	Benzo[a]anthracene	56553	mg kg-¹	M	< 0.1	< 0.1
	Chrysene	218019	mg kg-¹	M	< 0.1	< 0.1
	Benzo[b]fluoranthene	205992	mg kg-¹	N	< 0.1	< 0.1
	Benzo[k]fluoranthene	207089	mg kg-¹	N	< 0.1	< 0.1
	Benzo[a]pyrene	50328	mg kg-¹	M	< 0.1	< 0.1
	Dibenzo[a,h]anthracene	53703	mg kg-¹	M	< 0.1	< 0.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg-¹	M	< 0.1	< 0.1
	Benzo[g,h,i]perylene	191242	mg kg-¹	M	< 0.1	< 0.1
	Total (of 16) PAHs		mg kg-¹	M	< 2	< 2
2920	Phenols (total)		mg kg-¹	M	<0.3	<0.3

APPENDIX G

LABORATORY TEST RESULTS - GEOTECHNICAL

PSL
Professional Soils Laboratory

LABORATORY REPORT

UKAS TESTING
4043

Contract Number: PSL14/1358

Client's Reference: Report Date: 24 March 2014

Client Name: AlanWood & Partners
AMP Technology Centre
Advance Manufacturing Park
Brunel Way
Sheffield
S60 5WG

For the attention of: Andy Borthwick

Contract Title: Limestone Road

Date Received: 18/03/2014
Date Commenced: 18/03/2014
Date Completed: 24/03/2014

Notes: Observations and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

R Gunson (Director)
A Watkins (Director)
M Beastall (Laboratory Manager)

D Lambe (Senior Technician)
S Royle (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
TP1	2	D	0.80	Brown mottled grey slightly gravelly very sandy CLAY.
TP5	2	D	1.00	Brown slightly gravelly very sandy CLAY.
TP8	1	D	0.40	Brown very gravelly very sandy CLAY.

PSL
Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	21/03/14		24/03/14		24/03/14

LIMESTONE ROAD

Contract No: PSL14/1358

Client Ref: 35267

SUMMARY OF SOIL CLASSIFICATION TESTS

(B.S. 1377 : PART 2 : 1990)

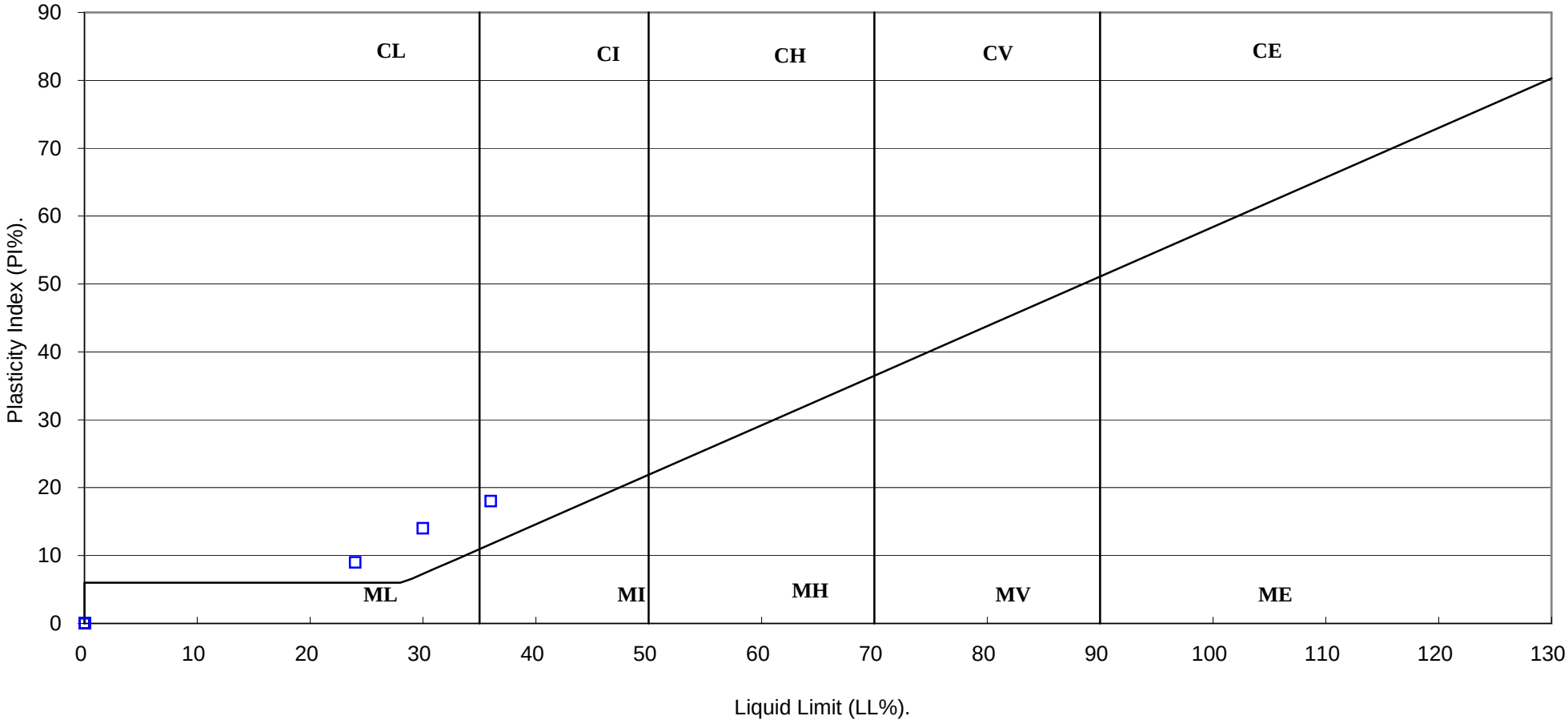
Hole Number	Sample Number	Sample Type	Depth (m)	Moisture Content % Clause 3.2	Bulk Density Mg/m^3 Clause 7.2	Dry Density Mg/m^3 Clause 7.2	Particle Density Mg/m^3 Clause 8.	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.	Plasticity Index % Clause 5.4	% Passing .425mm	Remarks
TP1	2	D	0.80	23				36	18	18	94	Intermediate plasticity CI.
TP5	2	D	1.00	20				24	15	9	95	Low plasticity CL.
TP8	1	D	0.40	16				30	16	14	65	Low plasticity CL.

PSL
Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	21/03/14		24/03/14		24/03/14
LIMESTONE ROAD				Contract No:	PSL14/1358
				Client Ref:	35267

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



PSL Professional Soils Laboratory	**Compiled by**	**Date**	**Checked by**	**Date**	**Approved by**	**Date**
		21/03/14		24/03/14		24/03/14
	LIMESTONE ROAD				**Contract No:**	**PSL14/1358**
					Client Ref:	**35267**

Alan Wood & Partners

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341 Beverley Road
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Our Services

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