

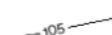
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Map ID

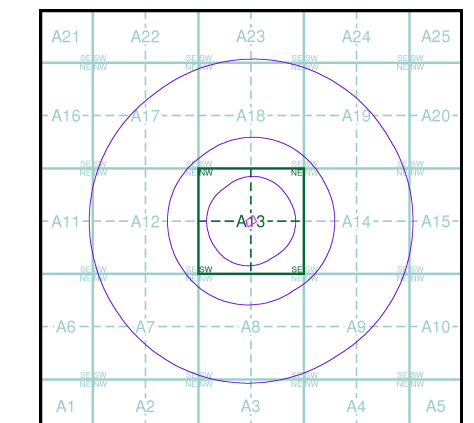
Detailed River Network Data

- | | |
|--|---|
|  Primary River |  Extended Culvert (greater than 50m) |
|  Secondary River |  Underground River (inferred) |
|  Tertiary River |  Underground River (local knowledge) |
|  Canal |  Downstream of High Water Mark |
|  Canal Tunnel |  Downstream of Seaward Extension |
|  Undefined River |  Not assigned River feature |
|  Lake/Reservoir | |
|  Offline Drainage Feature | |

Contours (height in metres)

- Standard Contour  105
- Master Contour  100
- Spot Height  167.3
-  MLW Mean Low Water
-  MHW Mean High Water

EAN/RW Detailed River Network Map - Slice A

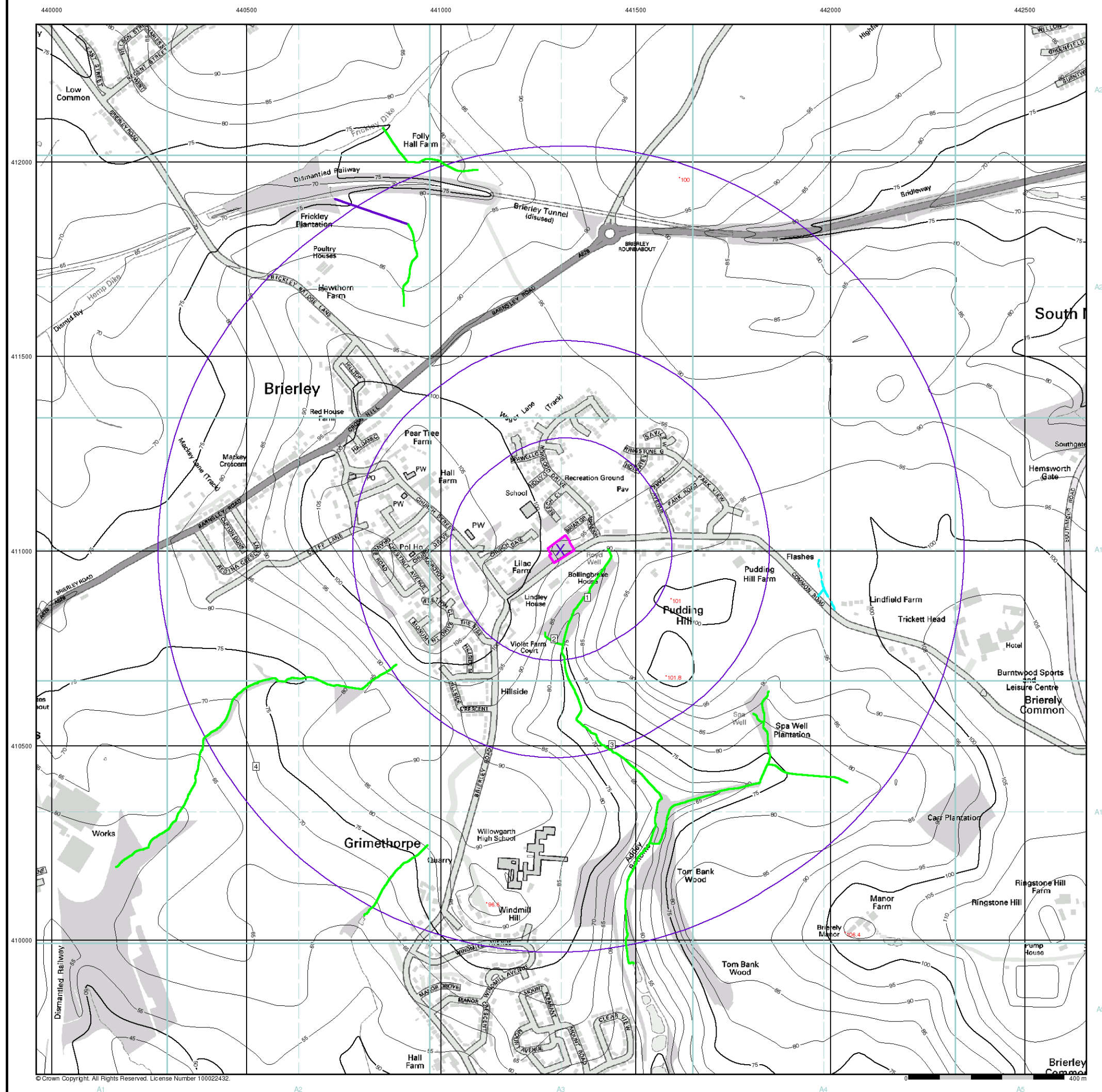


Order Details

Order Number: 79446720_1_1
 Customer Ref: 39496/KRP
 National Grid Reference: 441310, 411000
 Slice: A
 Site Area (Ha): 0.26
 Search Buffer (m): 1000

Site Details

The Old Quarry, Common Road, Brierley, BARNSELY, South Yorkshire, S72 9EB



General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point

Risk of Flooding from Surface Water

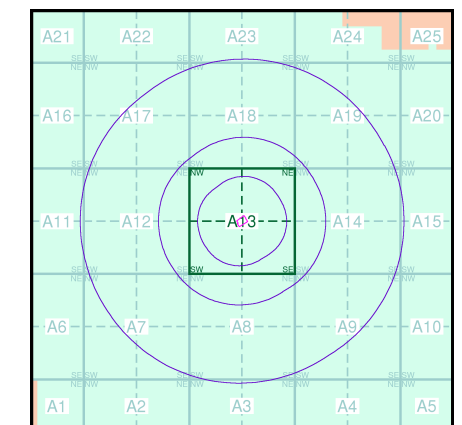
-  High - 30 Year Return
-  Medium - 100 Year Return
-  Low - 1000 Year Return

Suitability

See the suitability map below

-  National to county
-  County to town
-  Town to street
-  Street to parcels of land
-  Property

EA/NRW Suitability Map - Slice A

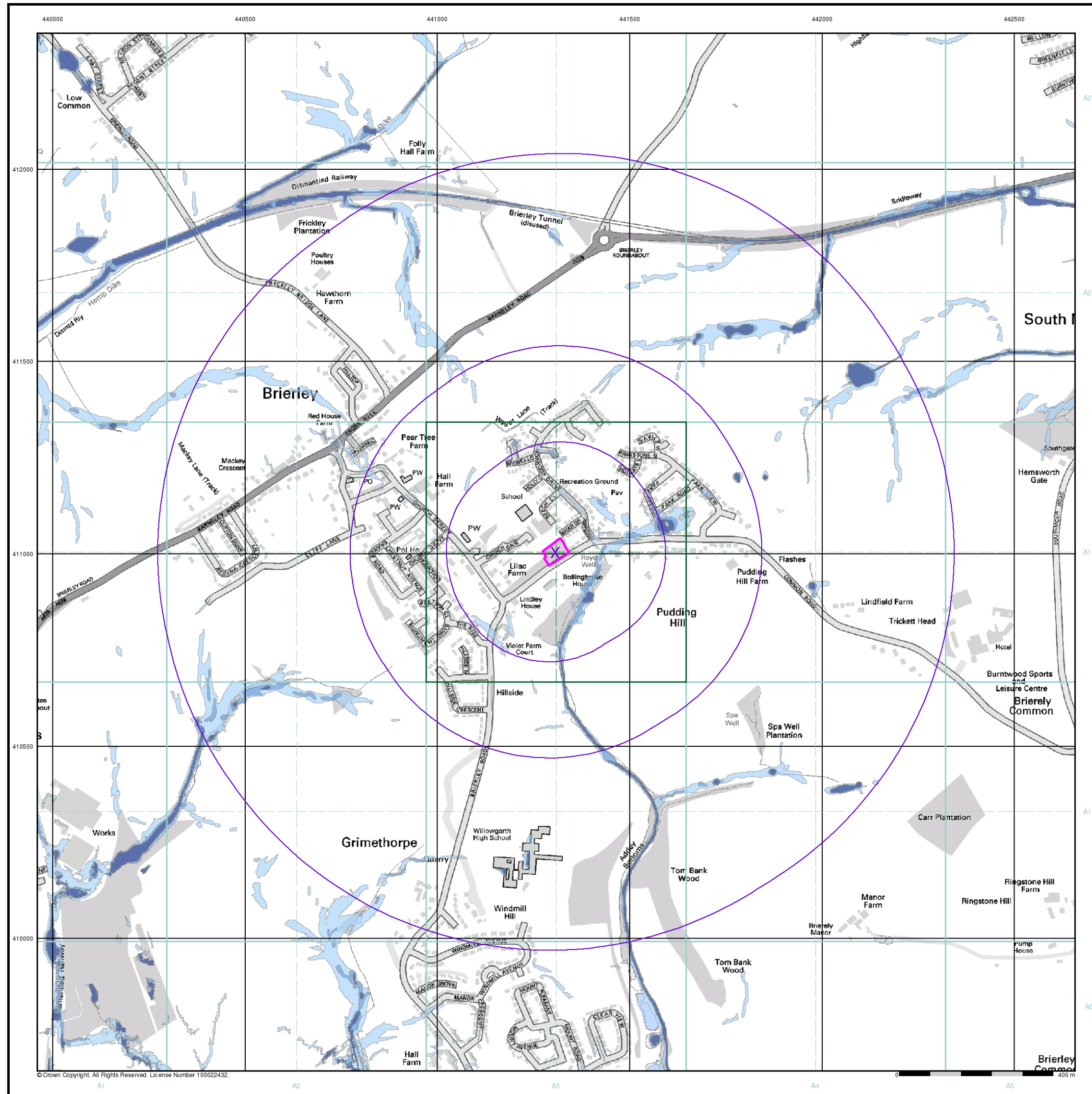


Order Details

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Site Details

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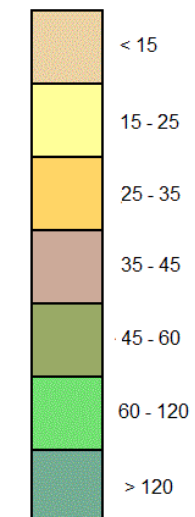


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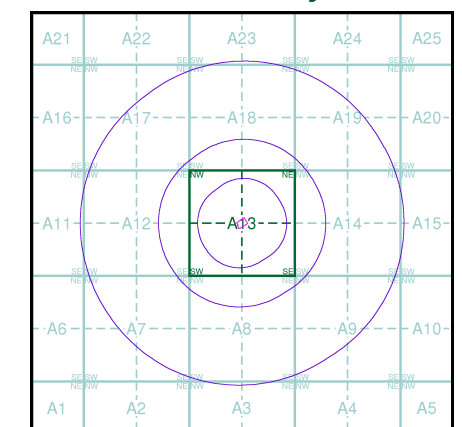
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg



Estimated Soil Chemistry Arsenic - Slice A

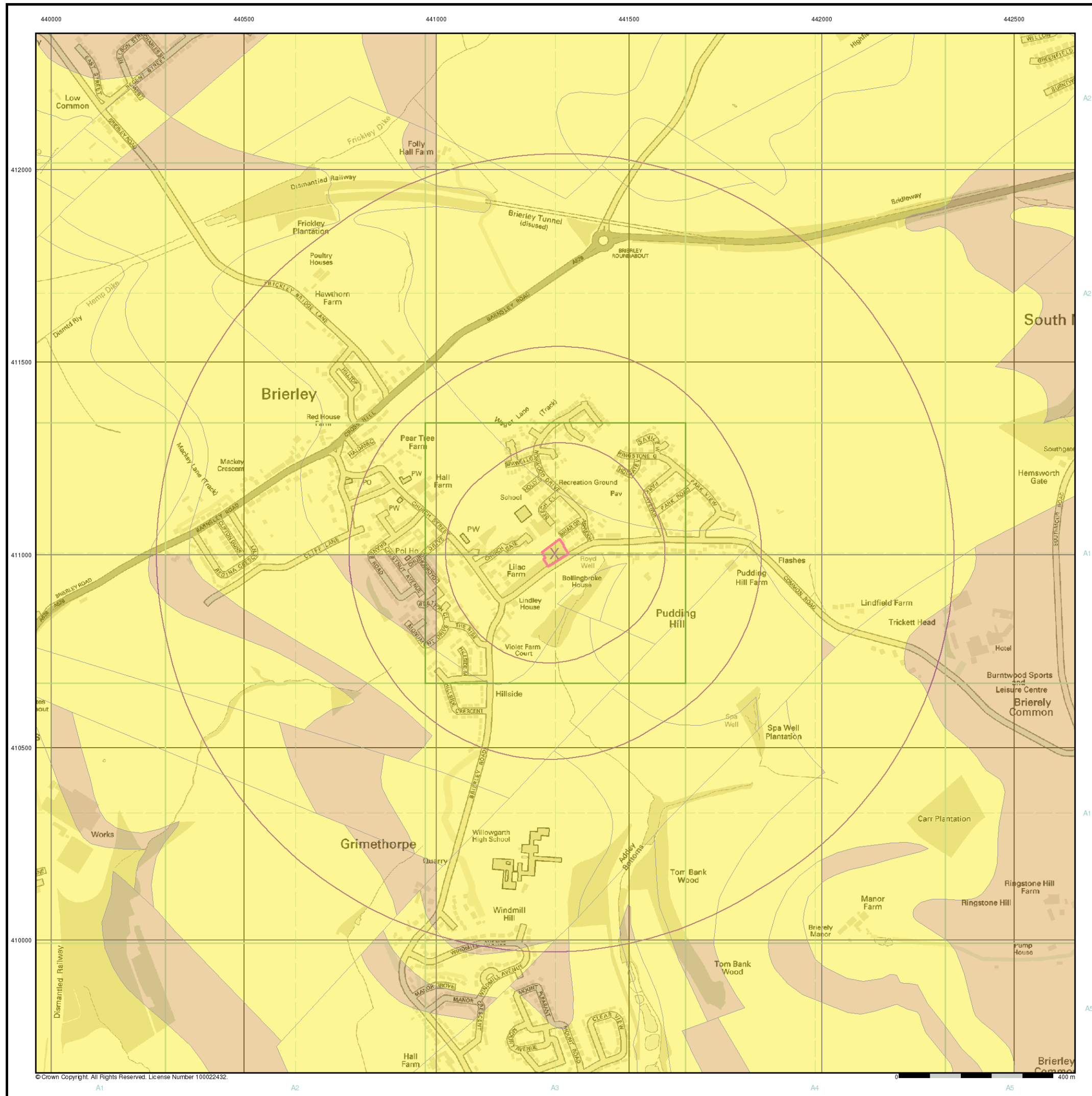


Order Details

Order Details: 79446720_1_1
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Site Details

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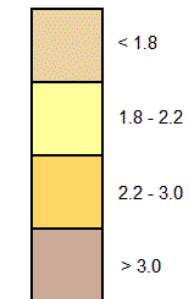


General

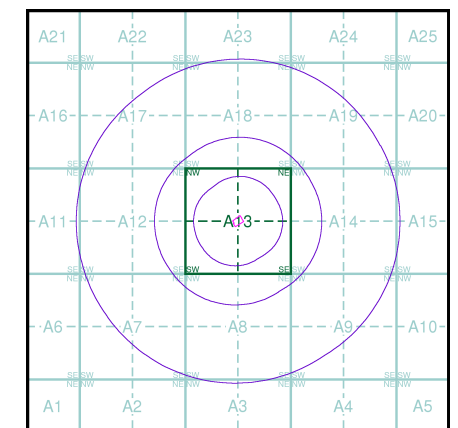
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



Estimated Soil Chemistry Cadmium - Slice A



Order Details

Order Details: 79446720_1_1
 Customer Ref: 39496/KRP
 National Grid Reference: 441310, 411000
 Slice: A
 Site Area (Ha): 0.26
 Search Buffer (m): 1000

Site Details

The Old Quarry, Common Road, Brierley, BARNSELY, South Yorkshire, S72 9EB

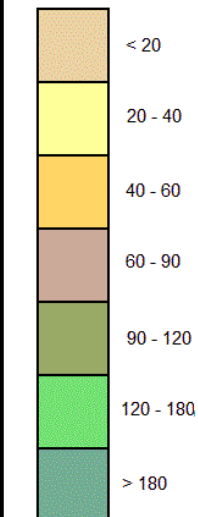


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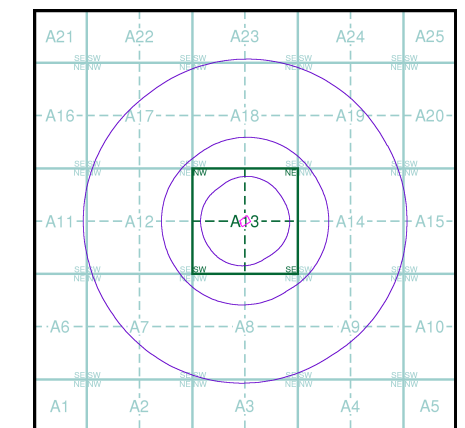
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg



Estimated Soil Chemistry Chromium - Slice A

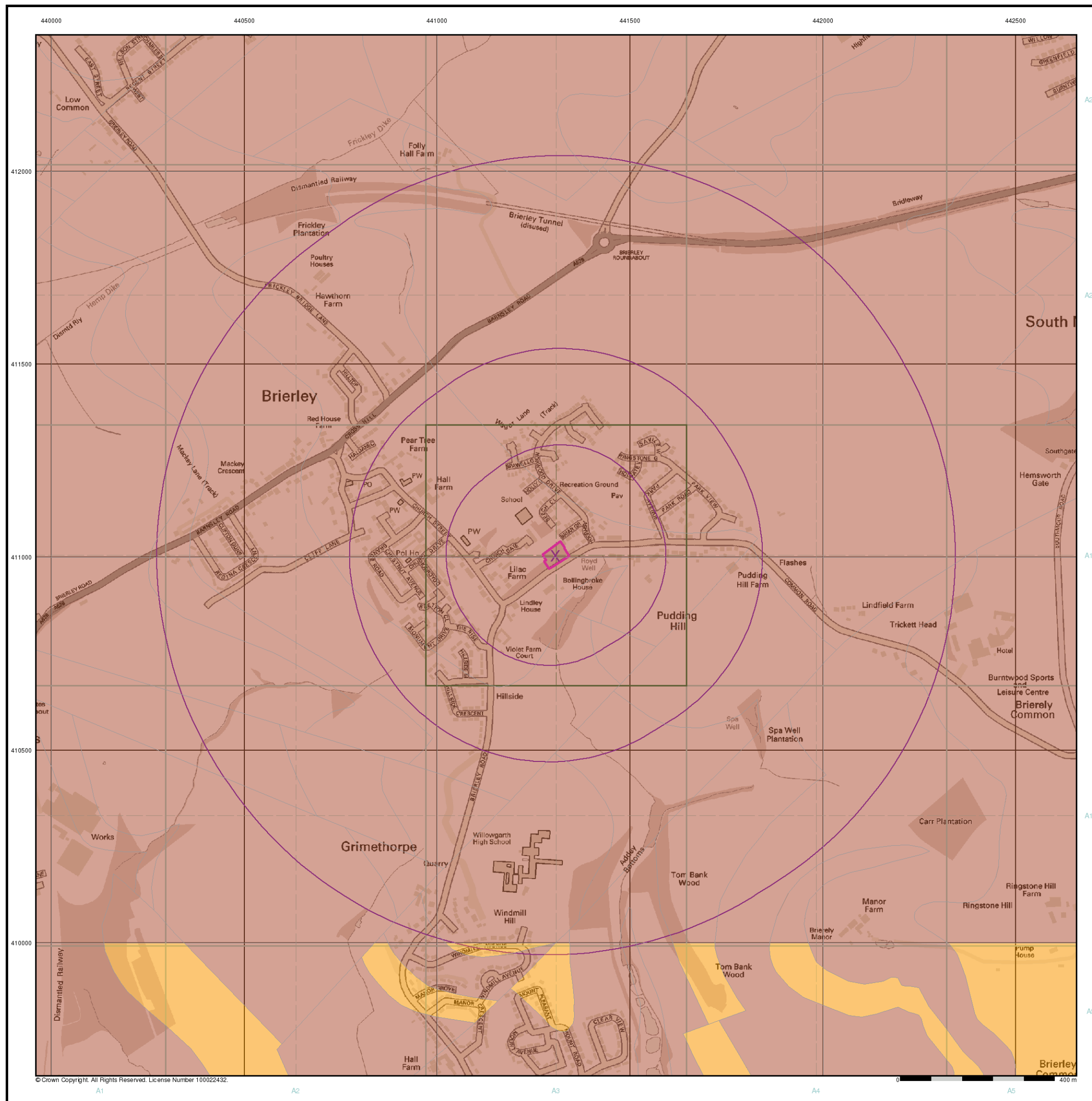


Order Details

Order Details: 79446720_1_1
 Customer Ref: 39496/KRP
 National Grid Reference: 441310, 411000
 Slice: A
 Site Area (Ha): 0.26
 Search Buffer (m): 1000

Site Details

The Old Quarry, Common Road, Brierley, BARNSELY, South Yorkshire, S72 9EB

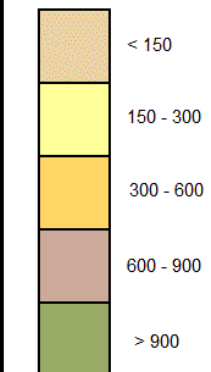


General

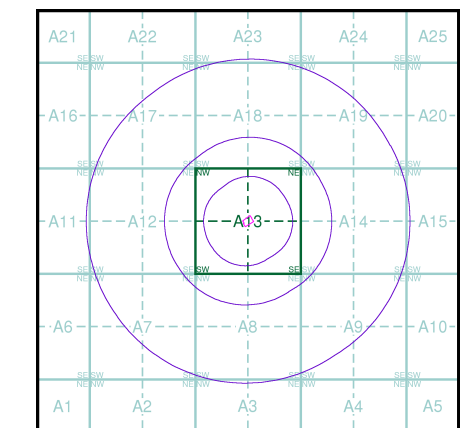
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A



Order Details

Order Details: 79446720_1_1
 Customer Ref: 39496/KRP
 National Grid Reference: 441310, 411000
 Slice: A
 Site Area (Ha): 0.26
 Search Buffer (m): 1000

Site Details

The Old Quarry, Common Road, Brierley, BARNSELY, South Yorkshire, S72 9EB

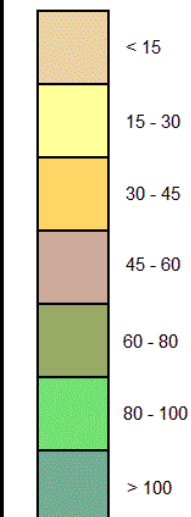


General

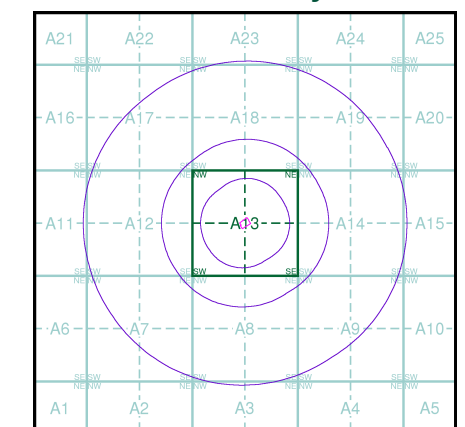
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A

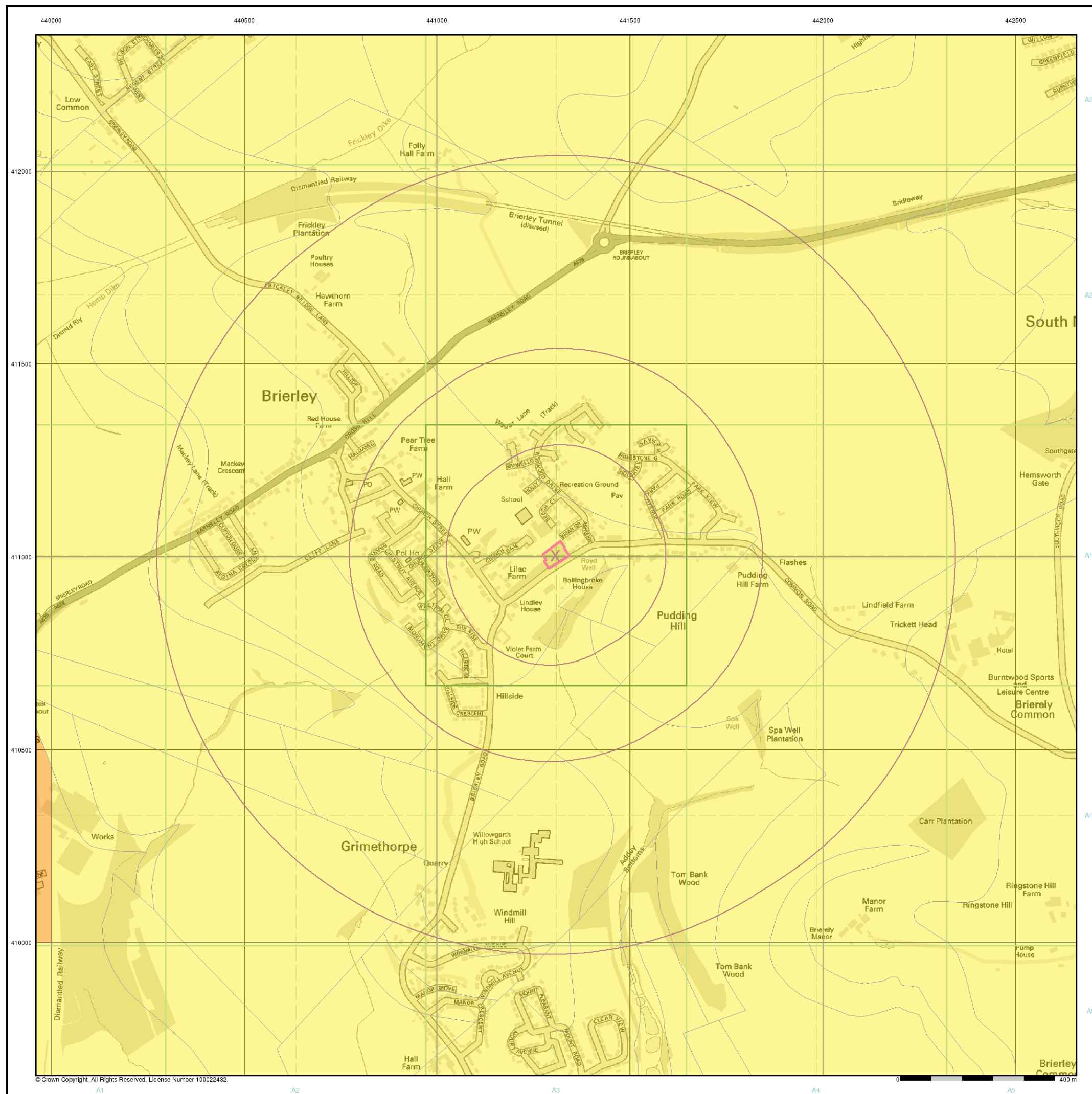


Order Details

Order Details: 79446720_1_1
 Customer Ref: 39496/KRP
 National Grid Reference: 441310, 411000
 Slice: A
 Site Area (Ha): 0.26
 Search Buffer (m): 1000

Site Details

The Old Quarry, Common Road, Brierley, BARNSELY, South Yorkshire, S72 9EB



Envirocheck[®] Report:

BGS Boreholes Datasheet

Order Details:

Order Number:

79446720_1_1

Customer Reference:

39496/KRP

National Grid Reference:

441310, 411000

Slice:

A

Site Area (Ha):

0.26

Borehole Search Buffer (m):

1000

Site Details:

The Old Quarry
Common Road, Brierley
BARNSELY
South Yorkshire
S72 9EB

Client Details:

Miss K Daddo-Langlois
Eastwood & Partners Ltd
St Andrews House
23 Kingfield Road
Sheffield
S11 9AS

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
BGS Boreholes	pg 1	None	10	2	4

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.

For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Report Version v50.0

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	BGS Boreholes BGS Reference: Se41sw93 Drilled Length (m): 3 Borehole Name: Brierley C Of E School 6 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107496/	A13NW (NW)	87	3	441227 411079
20	BGS Boreholes BGS Reference: Se41sw92 Drilled Length (m): 3 Borehole Name: Brierley C Of E School 5 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107495/	A13NW (NW)	109	3	441240 411117
21	BGS Boreholes BGS Reference: Se41sw91 Drilled Length (m): 3 Borehole Name: Brierley C Of E School 4 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107494/	A13NW (NW)	120	3	441176 411076
22	BGS Boreholes BGS Reference: Se41sw24 Drilled Length (m): 78 Borehole Name: Grimethorpe Colliery 2 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107426/	A13SE (E)	130	3	441470 410980
23	BGS Boreholes BGS Reference: Se41sw90 Drilled Length (m): 3 Borehole Name: Brierley C Of E School 3 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107493/	A13NW (NW)	143	3	441191 411122
23	BGS Boreholes BGS Reference: Se41sw88 Drilled Length (m): 3 Borehole Name: Brierley C Of E Sch 1 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107491/	A13NW (NW)	177	3	441142 411124
24	BGS Boreholes BGS Reference: Se41sw89 Drilled Length (m): 3 Borehole Name: Brierley C Of E Sch 2 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107492/	A13NW (NW)	166	3	441201 411159
25	BGS Boreholes BGS Reference: Se41sw143 Drilled Length (m): 205.59 Borehole Name: Hodroyd Colliery Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107546/	A13SW (SW)	219	3	441100 410860
26	BGS Boreholes BGS Reference: Se41sw26 Drilled Length (m): 83.21 Borehole Name: Grimethorpe Colliery 4 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107428/	A13SE (SE)	235	3	441430 410780
27	BGS Boreholes BGS Reference: Se41sw94 Drilled Length (m): 3 Borehole Name: Brierley C Of E School 7 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107497/	A13NW (N)	237	3	441273 411273
28	BGS Boreholes BGS Reference: Se41sw12 Drilled Length (m): 205.44 Borehole Name: Hodroyd. Colly. Link to Borehole Scan: Not Available	A13SW (SW)	325	3	441000 410820
29	BGS Boreholes BGS Reference: Se41sw67 Drilled Length (m): Not Supplied Borehole Name: Pillar Section Newhill Seam Ment C50'S Develop Link to Borehole Scan: Not Available	A14NW (E)	468	3	441807 411060

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	BGS Boreholes BGS Reference: Se41sw53 Drilled Length (m): Not Supplied Borehole Name: Grimethorpe Colliery Two Gate Surface Bh Link to Borehole Scan: Not Available	A8NE (S)	528	3	441380 410450
31	BGS Boreholes BGS Reference: Se41sw25 Drilled Length (m): 74.98 Borehole Name: Grimethorpe Colliery 3 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107427/	A19NW (NE)	892	3	441670 411860
32	BGS Boreholes BGS Reference: Se41sw61 Drilled Length (m): Not Supplied Borehole Name: Grimethorpe Colly. Cliff Lane Surface Bh Link to Borehole Scan: Not Available	A12SW (W)	925	3	440370 410810
33	BGS Boreholes BGS Reference: Se41sw23 Drilled Length (m): 79.71 Borehole Name: Grimethorpe Colliery 1 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/107425/	A8SW (S)	934	3	441249 410037

BGS Boreholes	Version	Update Cycle
BGS Boreholes British Geological Survey - National Geoscience Information Service	January 2016	Quarterly

Contact Details	Contact Logo
3 British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
- Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk	 LANDMARK[®] Information Group



Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848

**LANDMARK INFORMATION GROUP
LIMITED
SOWTON INDUSTRIAL ESTATE
ABBAY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY**

Our reference: **51001079781001**
Your reference: **79446720_2|**
Date of your enquiry: **05 February 2016**
Date we received your enquiry: **05 February 2016**
Date of issue: **05 February 2016**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

THE OLD QUARRY, COMMON ROAD, BRIERLEY, BARNSELY, SOUTH YORKSHIRE

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 4 seams of coal at 190m to 660m depth, and last worked in 1986.

Any ground movement from these coal workings should have stopped by now.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is in an area for which a notice of entitlement to withdraw support was published in 1983.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

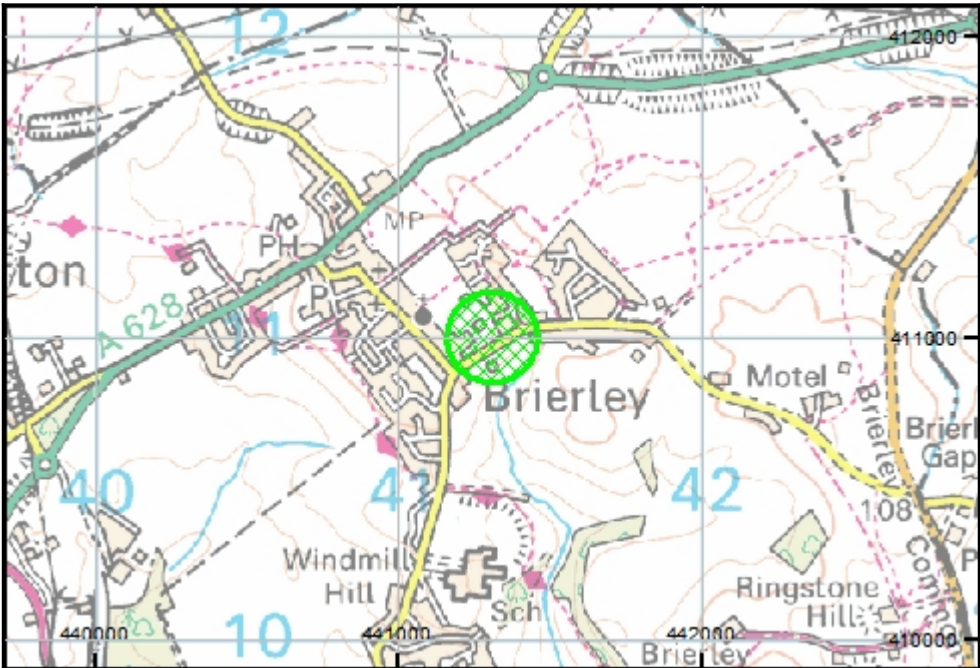
Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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Location map



Approximate position
of property

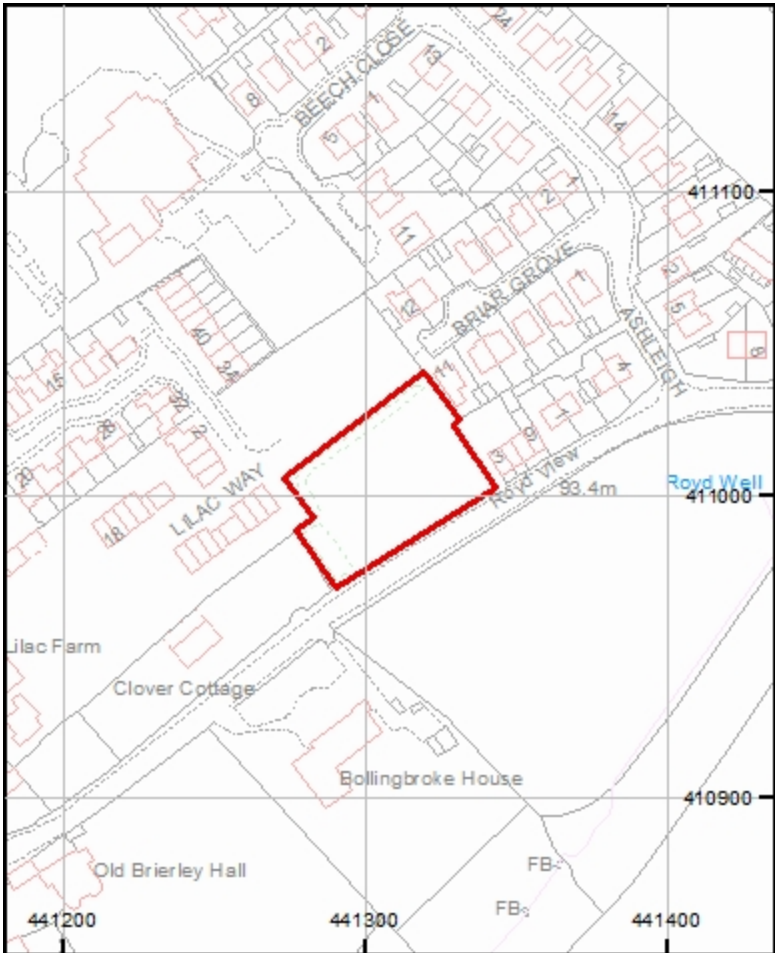


Enquiry boundary

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Key

Approximate position of enquiry
boundary shown



Appendix 3

Trial Pit Logs, TP1 to TP5

Project Name
 The Old Quarry

Project No.
 39496

Co-ords: -
 Level: 92.75 m AOD

Date
 18/02/2016

Location: Common Road, Brierley

Dimensions: 2.50m

Depth
 2.30m

0.60m

Scale
 1:25

Client: Mr C. Groom

Logged By
 SRI

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.10	D		0.30	92.45		TOPSOIL/MADE GROUND: Dark brown slightly gravelly slightly sandy CLAY with rootlets. Gravel is fine to coarse, angular to sub-angular of mixed lithologies including sandstone, whole and partial bricks, occasional glass and rare ceramics, rubber and plastic.	
0.70	D		1.10	91.65		MADE GROUND : Loose/friable yellow/brown gravelly slightly sandy CLAY with medium cobble content. Gravel and cobbles are angular of sandstone.	1
1.20	D		1.50	91.25		POSSIBLE MADE GROUND: Orange/brown clayey gravelly SAND. Gravel is fine to coarse, angular of sandstone.	
			2.30	90.45		POSSIBLE MADE GROUND: Yellow/brown slightly clayey sandy gravel and cobbles. Gravel and cobbles are angular of sandstone. At 1.5 m: Becomes gravelly with medium cobble content.	2
Trialpit Complete at 2.30 m							3
							4

Remarks: Very loose material. Easy to dig through.

Groundwater: None encountered



Project Name
 The Old Quarry

Project No.
 39496

Co-ords: -
 Level: 90.25 m AOD

Date
 18/02/2016

Location: Common Road, Brierley

Dimensions: 2.50m

Depth
 0.60m

0.60m

Scale
 1:25

Client: Mr C. Groom

Logged By
 SRI

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.10	D					TOPSOIL: Dark brown slightly sandy slightly gravelly CLAY with rootlets. Gravel is fine to coarse, angular to sub-rounded of sandstone and mudstone	
0.40	D		0.30	89.95		POSSIBLE MADE GROUND: Orange/red/brown sandy slightly gravelly CLAY. Gravel is fine to coarse, angular of sandstone.	
			0.60	89.65			
Trialpit Complete at 0.60 m							
							1
							2
							3
							4

Remarks: Pit abandoned.

Groundwater: Fast ingress of water at 0.6 m, rising to 0.4 m after 10 minutes.



Project Name
 The Old Quarry

Project No.
 39496

Co-ords: -
 Level: 94.50 m AOD

Date
 18/02/2016

Location: Common Road, Brierley

Dimensions: 2.50m

Depth
 4.20m

0.60m

Scale
 1:25

Client: Mr C. Groom

Logged By
 SRI

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.10	D					TOPSOIL/MADE GROUND: Dark brown slightly gravelly slightly sandy CLAY with rootlets. Gravel is fine to coarse, angular to sub angular of sandstone, rare metal, wood and occasional glass.	
			0.40	94.10			
0.60	D		0.65	93.85		PROBABLE MADE GROUND: Loose orange/brown gravelly sandy CLAY with medium cobble content. Gravel and cobbles are angular of sandstone	
						POSSIBLE MADE GROUND: Loose yellow/brown slightly clayey sandy gravel and cobbles. Gravel and cobbles are angular to sub-angular of sandstone.	
							1
							2
							3
							4
			4.20	90.30		Trialpit Complete at 4.20 m	

Remarks: Limit of machine reached

Groundwater: None encountered



Project Name
 The Old Quarry

Project No.
 39496

Co-ords: -
 Level: 92.25 m AOD

Date
 18/02/2016

Location: Common Road, Brierley

Dimensions: 2.50m

Depth
 3.30m

0.60m

Scale
 1:25

Client: Mr C. Groom

Logged By
 SRI

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.20	D					TOPSOIL/MADE GROUND : Dark brown slightly gravelly slightly sandy CLAY with rootlets. Gravel is fine to coarse, angular of sandstone and occasional bricks.	
			0.40	91.85		MADE GROUND : Loose yellow/brown gravelly sandy CLAY. Gravel is fine to coarse, angular of sandstone.	
			0.60	91.65		POSSIBLE MADE GROUND: Loose yellow/brown slightly clayey sandy GRAVEL and COBBLES. Gravel and cobbles are angular to sub-angular of sandstone.	
1.00	D						1
							2
							3
			3.30	88.95		Trialpit Complete at 3.30 m	4

Remarks: Hard at base, could not progress

Groundwater: None encountered



Project Name
 The Old Quarry

Project No.
 39496

Co-ords: -
 Level: 91.75 m AOD

Date
 18/02/2016

Location: Common Road, Brierley

Dimensions: 2.50m

Depth
 3.10m

0.60m

Scale
 1:25

Client: Mr C. Groom

Logged By
 SRI

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D					TOPSOIL/MADE GROUND: Dark brown slightly sandy gravelly CLAY with rootlets. Gravel is fine to coarse, angular to sub-rounded of whole and partial bricks, plastic, wood, rare metal, glass and material.	1
2.20	D		2.00	89.75		POSSIBLE MADE GROUND: Orange/grey/brown gravelly slightly sandy CLAY with medium cobble content. Gravel and cobbles are angular to sub-angular of sandstone.	2
			3.10	88.65		At 3.0 m: Grey gravelly sand pocket Trialpit Complete at 3.10 m	3
							4

Remarks: Hard at base, could not progress further.

Groundwater: Slight ingress of water at base



Appendix 4

Infiltration Test Results and Calculations

PROJECT:	The Old Quarry, Common Road, Brierley	Job No. 39496	Date 08.02.16
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared SRI	Checked AJK

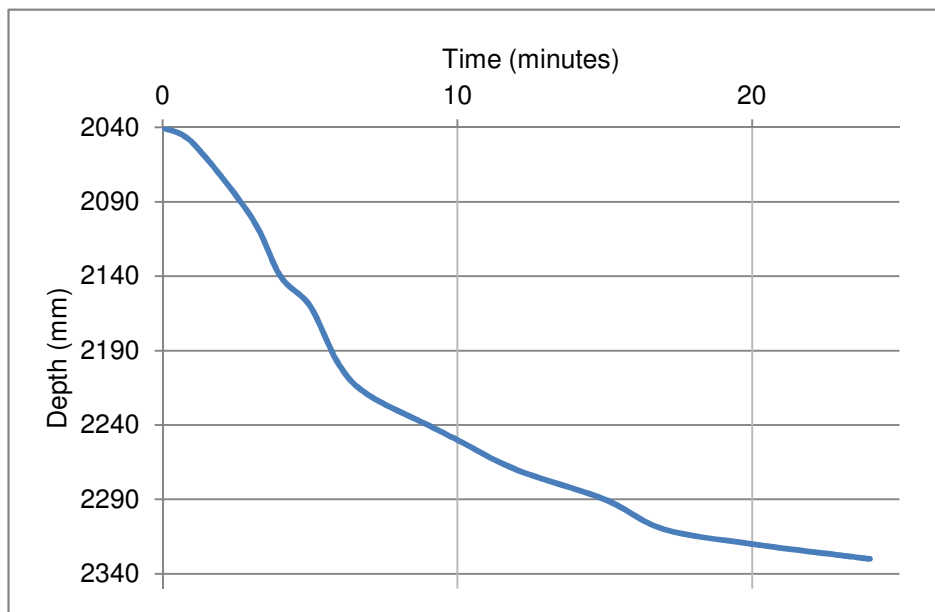
Test No. SA1 test 1

Test Pit Dimensions

Length = **2600** mm Plan area = **1.56** m²
Width = **600** mm
Depth = **2330** mm (Total depth)

Approximate time to discharge water into the hole: **150** Seconds
Depth to water after completion of pumping: **2040** mm

Time (min)	Depth (mm)
0	2040
1	2050
3	2100
4	2140
5	2160
6	2200
7	2220
9	2240
10	2250
12	2270
15	2290
17	2310
20	2320
24	2330



Test Pit Log

Depth (m)	Description
0.0-0.3	TOPSOIL: Slightly gravelly, slightly sandy CLAY
0.3-1.1	MADE GROUND: Loose gravelly slightly sandy CLAY
1.1-2.3	POSSIBLE MADE GROUND: Clayey gravelly SAND
1.5-2.3	POSSIBLE MADE GROUND: Loose slightly clayey sandy gravel and cobbles.

PROJECT:	The Old Quarry, Common Road, Brierley	Job No. 39496	Date 08.02.16
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared SRI	Checked AJK

Test No. SA1 test 1

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **2040** mm Average water depth: **145** mm

Start time = **0** min

Change in water depth: **290** mm

Final parameters

Depth to water = **2330** mm

Time interval: **24** min

End time = **24** min

Effective Storage Volume of Water in the Trial Pit = **0.4524** m³
 75% Effective Depth = **2113** mm from ground level
 25% Effective Depth = **2258** mm from ground level
 Time at 75% Effective Depth = **3** minutes
 Time at 25% Effective Depth = **11** minutes

V_{p75-25} = **0.23** m³

a_{p50} = **2.49** m²

t_{p75-25} = **480** sec

f = **1.9E-04** m/sec

Average Soakaway Rate = **3.1E-04** m³/sec

Average soakaway area = **2.49** m² (sides + base)

BR365 Soil Infiltration Rate = 1.9E-04 m/sec

Average Infiltration Rate = 1.3E-04 m/sec

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PROJECT:	The Old Quarry, Common Road, Brierley	Job No. 39496	Date 08.02.16
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared SRI	Checked AJK

Test No. SA1 test 2**Test Pit Dimensions**Length = **2600 mm**Plan area = **1.56 m²**Width = **600 mm**Depth = **2330 mm (Total depth)**

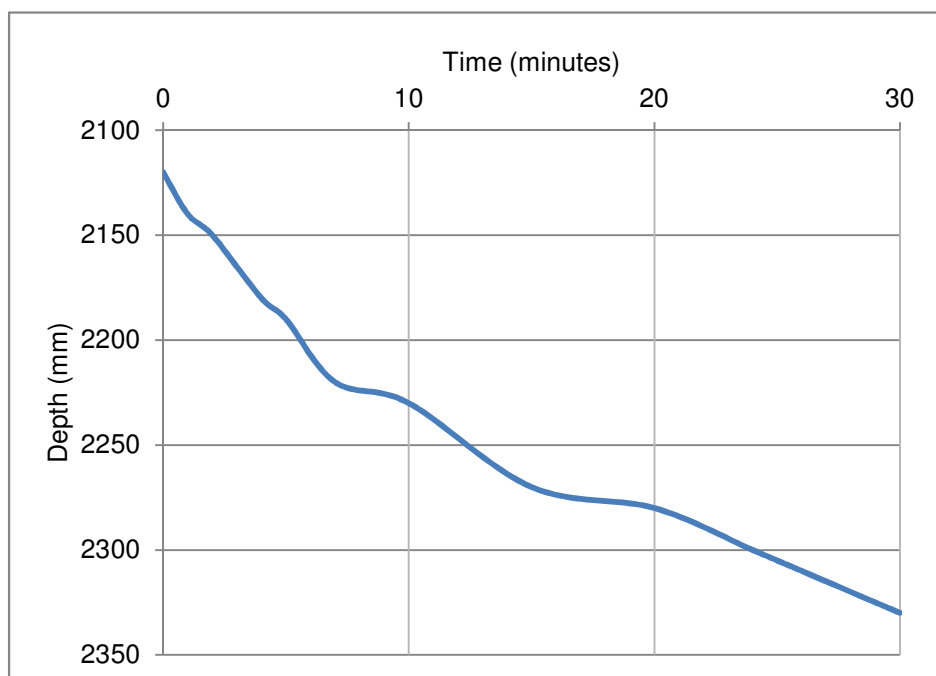
Approximate time to discharge water into the hole:

60 Seconds

Depth to water after completion of pumping:

2120 mm**Time (min) Depth (mm)**

0	2120
1	2140
2	2150
4	2180
5	2190
7	2220
10	2230
15	2270
20	2280
24	2300
26	2310
30	2330

**Test Pit Log****Depth (m)****Description**

0.0-0.3	TOPSOIL: Slightly gravelly, slightly sandy CLAY
0.3-1.1	MADE GROUND: Loose gravelly slightly sandy CLAY
1.1-2.3	POSSIBLE MADE GROUND: Clayey gravelly SAND
1.5-2.3	POSSIBLE MADE GROUND: Loose slightly clayey sandy gravel and cobbles

(Consulting Engineers) Ltd

PROJECT:	The Old Quarry, Common Road, Brierley	Job No. 39496	Date 08.02.16
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared SRI	Checked AJK

Test No. SA1 test 2

Soil Infiltration Rate in Accordance with BR365

Where:

is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

is the internal surface area of the trial pit up to 50% effective depth and including the base area

is the time for the water level to fall from 75% to 25% effective depth

 V_{p75-25} Initial parameters

Depth to water = 2120 mm

Average water depth: 105 mm

Start time = a_{p50} 0 min

Change in water depth: 210 mm

Final parametersDepth to water = t_{p75-25} 330 mm

Time interval: 30 min

End time = 30 min

Effective Storage Volume of Water in the Trial Pit = 0.3276 m³
 75% Effective Depth = 2173 mm from ground level
 25% Effective Depth = 2278 mm from ground level
 Time at 75% Effective Depth = 3 minutes
 Time at 25% Effective Depth = 18 minutes

= 0.16 m³= 2.23 m²

= 900 sec

= 8.2E-05 m/sec

Average Soakaway Rate = 1.8E-04 m³/secAverage soakaway area = 2.23 m² (sides + base)

$\frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$ Soil Infiltration Rate = 8.2E-05 m/sec
 Average Infiltration Rate = 8.2E-05 m/sec

 t_{p75-25}

Appendix 5

Chemical Test Results Chemtest Report 16-03094

Table of Assessment Values



Final Report

Report No.:	16-03094-1		
Initial Date of Issue:	16-Feb-2016		
Client	Eastwood & Partners		
Client Address:	St. Andrews House 23 Kingfield Road Sheffield South Yorkshire S11 9AS		
Contact(s):	Alex Clarke		
Project	39496 - The Old Quarry, Brierley		
Quotation No.:		Date Received:	10-Feb-2016
Order No.:		Date Instructed:	10-Feb-2016
No. of Samples:	9	Target Date:	16-Feb-2016
Turnaround (Wkdays):	5	Results Due:	16-Feb-2016
Date Approved:	16-Feb-2016		
Approved By:			
Details:	Keith Jones, Technical Manager		

Results - Soil

Client: Eastwood & Partners	Chemtest Job No.:				16-03094	16-03094	16-03094	16-03094	16-03094	16-03094	16-03094	16-03094
Quotation No.:	Chemtest Sample ID.:				252616	252617	252618	252619	252620	252621	252622	252623
	Client Sample ID.:				TP1	TP2	TP3	TP4	TP5	TP1	TP2	TP3
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.1	0.1	0.1	0.1	0.3	0.7	0.4	0.6
	Date Sampled:				08-Feb-2016	08-Feb-2016	08-Feb-2016	08-Feb-2016	08-Feb-2016	08-Feb-2016	08-Feb-2016	08-Feb-2016
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	32	32	21	18	18	14	22	13
Soil Colour	N	2040		N/A	Black	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones, Roots	Stones, Roots	Stones, Roots	Stones, Roots	Stones, Roots	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Clay	Clay	Loam	Loam	Loam	Clay	Clay	Loam
pH	M	2010		N/A	7.4	5.7	5.6	6.5	8.2	6.6	5.8	4.8
Sulphate (2:1 Water Soluble) as SO ₄	M	2120	g/l	0.010	0.030	0.040	0.023	0.019	0.025	0.020	0.014	0.022
Total Sulphur	M	2175	%	0.010	0.13	0.070	0.040	0.040	0.090	0.010	0.030	0.020
Sulphate (Acid Soluble)	M	2430	%	0.010	0.070	0.045	0.044	0.025	0.093	< 0.010	0.019	< 0.010
Arsenic	M	2450	mg/kg	1.0	22	21	15	15	24	9.1	12	7.6
Cadmium	M	2450	mg/kg	0.10	0.46	0.20	0.23	0.15	0.69	0.10	0.13	< 0.10
Chromium	M	2450	mg/kg	1.0	52	15	12	12	22	15	11	9.0
Copper	M	2450	mg/kg	0.50	44	49	21	24	52	21	21	10
Mercury	M	2450	mg/kg	0.10	0.22	0.12	< 0.10	0.11	0.23	< 0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	22	23	17	18	26	20	18	14
Lead	M	2450	mg/kg	0.50	130	85	45	60	160	34	27	16
Selenium	M	2450	mg/kg	0.20	0.93	0.71	0.57	0.57	0.69	0.37	0.31	0.23
Zinc	M	2450	mg/kg	0.50	180	75	77	67	270	59	34	34
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Naphthalene	M	2800	mg/kg	0.10	0.42	< 0.10	0.22	0.10	0.47	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	0.20	< 0.10	0.11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.15	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	1.9	0.14	1.4	2.0	3.5	0.21	< 0.10	< 0.10
Anthracene	M	2800	mg/kg	0.10	0.55	< 0.10	0.35	0.26	1.1	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	4.8	0.38	2.8	2.7	13	0.41	< 0.10	< 0.10
Pyrene	M	2800	mg/kg	0.10	4.1	0.29	2.0	1.9	11	0.30	< 0.10	< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10	2.5	0.10	1.2	0.92	7.5	0.11	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	2.1	< 0.10	1.1	0.70	6.3	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	3.2	< 0.10	1.4	0.91	9.1	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	1.0	< 0.10	0.38	0.23	3.5	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	2.8	< 0.10	1.1	0.82	8.7	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	2.0	< 0.10	0.75	0.43	5.1	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.19	< 0.10	< 0.10	< 0.10	0.76	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	1.4	< 0.10	0.57	0.34	3.8	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	27	< 2.0	13	11	74	< 2.0	< 2.0	< 2.0

Results - Soil

Client: Eastwood & Partners	Chemtest Job No.:				16-03094
Quotation No.:	Chemtest Sample ID.:				252624
	Client Sample ID.:				TP5
	Sample Type:				SOIL
	Top Depth (m):				2.2
	Date Sampled:				08-Feb-2016
Determinand	Accred.	SOP	Units	LOD	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected
Moisture	N	2030	%	0.020	13
Soil Colour	N	2040		N/A	Brown
Other Material	N	2040		N/A	Stones
Soil Texture	N	2040		N/A	Clay
pH	M	2010		N/A	6.3
Sulphate (2:1 Water Soluble) as SO ₄	M	2120	g/l	0.010	0.053
Total Sulphur	M	2175	%	0.010	< 0.010
Sulphate (Acid Soluble)	M	2430	%	0.010	0.012
Arsenic	M	2450	mg/kg	1.0	4.4
Cadmium	M	2450	mg/kg	0.10	< 0.10
Chromium	M	2450	mg/kg	1.0	15
Copper	M	2450	mg/kg	0.50	14
Mercury	M	2450	mg/kg	0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	23
Lead	M	2450	mg/kg	0.50	18
Selenium	M	2450	mg/kg	0.20	0.24
Zinc	M	2450	mg/kg	0.50	46
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Naphthalene	M	2800	mg/kg	0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	< 0.10
Anthracene	M	2800	mg/kg	0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	0.13
Pyrene	M	2800	mg/kg	0.10	< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

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

All Asbestos testing is performed at our Coventry laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 60 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.co.uk

PROJECT: Common Road, Brierley	Job No. 39496	Date 09.03.16
SUBJECT: Mean and Maximum Value test for Benzo(a)anthracene in Topsoil/Made Ground	Prepared SRI	Checked AJK

Sample results

2.50
0.10
1.20
0.92
7.50

Log x = y

0.398
-1.000
0.079
-0.036
0.875

Number of results : n = 5
Mean : X = 2.44
Standard deviation : s = 2.96
T value : t = 2.132

Corrected mean (95% confidence)

= $X + t * s / n^{0.5}$ = 5.26

Max value = 7.50

log xm = ym = 0.875

Number of results : N = 5
Mean y = 0.063

Standard deviation of y : 0.691

T = (ym-ya) / S = 1.174

Tcrit (fom table A1.3) = 1.6

Result probably not an outlier

end

PROJECT: Common Road, Brierley	Job No. 39496	Date 09.03.16
SUBJECT: Mean and Maximum Value test for Benzo(b)fluoranthene in Topsoil/Made Ground	Prepared SRI	Checked AJK

Sample results

3.20
0.10
1.40
0.91
9.10

Log x = y

0.505
-1.000
0.146
-0.041
0.959

Number of results : n = 5
Mean : X = 2.94
Standard deviation : s = 3.63
T value : t = 2.132

Corrected mean (95% confidence)

= X + t * s / n^{0.5} = 6.40

Max value = 9.10

log xm = ym = 0.959

Number of results : N = 5
Mean y = 0.114

Standard deviation of y : 0.730

T = (ym-ya) / S = 1.157

Tcrit (fom table A1.3) = 1.6

Result probably not an outlier

end

PROJECT: Common Road, Brierley	Job No. 39496	Date 09.03.16
SUBJECT: Mean and Maximum Value test for Benzo(a)pyrene in Topsoil/Made Ground	Prepared SRI	Checked AJK

Sample results

2.80
0.10
1.10
0.82
8.70

Log x = y

0.447
-1.000
0.041
-0.086
0.940

Number of results : n = 5
Mean : X = 2.70
Standard deviation : s = 3.50
T value : t = 2.132

Corrected mean (95% confidence)

= X + t * s / n^0.5 = 6.04

Max value = 8.70

log xm = ym = 0.940

Number of results : N = 5
Mean y = 0.068

Standard deviation of y : 0.719

T = (ym-ya) / S = 1.211

Tcrit (fom table A1.3) = 1.6

Result probably not an outlier

end